

**Report of the  
Comptroller and Auditor General  
of India**

**for the year ended March 2000**

**Union Government  
(Scientific Departments)  
No. 5 of 2001**



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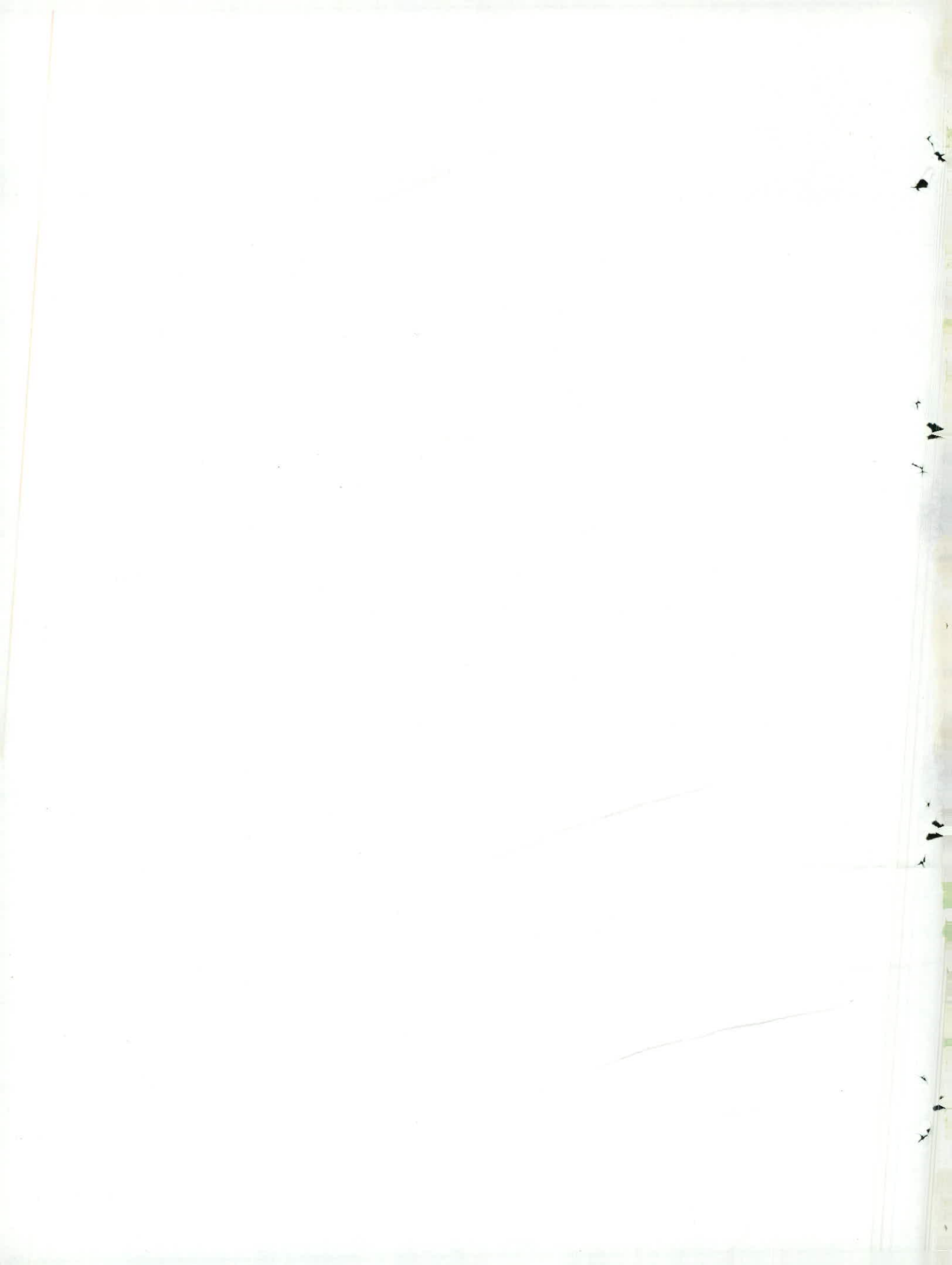
## **PREFACE**

The Report for the year ended 31 March 2000 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 15 paragraphs. The topics of review are :

- (i) Central Institute of Fisheries Education
- (ii) Indian Veterinary Research Institute
- (iii) Indian Institute of Petroleum
- (iv) National Institute of Oceanography

The cases mentioned in this Report are among those, which came to notice in the course of audit during 1999-2000. 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 2000 in few cases have also been mentioned, wherever, relevant.



## OVERVIEW

The expenditure on Scientific Departments during 1999-2000 was Rs 10771 crore. This represented an increase of 45 *per cent* over the last two years. Of the total expenditure on Scientific Departments, a major part of Rs 4356 crore related to Department of Atomic Energy followed by Department of Space, which accounted for an expenditure of Rs 1677 crore. With reference to the budget allotment, the Scientific Departments ended up with an overall unspent balance of Rs 673.87 crore. The Departments of Atomic Energy, Space and Environment and Forests spent Rs 213.98 crore, Rs 168.81 crore and Rs 149.82 crore less than the allocation respectively.

This report contains four performance reviews and 15 paragraphs. An overview of audit findings contained in the report is given below:

## REVIEWS

### Indian Council of Agricultural Research

### Central Institute of Fisheries Education, Mumbai

Central Institute of Fisheries Education (CIFE) was established in the year 1961 with the main aim of raising qualified and well-trained manpower for meeting the rapidly expanding fisheries developmental activities in the country. CIFE was plagued with shortage of scientific manpower, funds crunch and infrastructure facilities. CIFE functioned in an ad-hoc manner with the various management board/councils vested with the onus of evolving policies, management, overseeing the functioning, etc. virtually remaining non-functional. The ICAR turned a blind eye to the major weakness in the working of the Institute, like absence of data for realistic assessment of manpower for fisheries sector, weak faculty strength, etc. identified in 1997 itself and which were to be addressed on top priority, to chalk out a proper road map to reach its goal or justify the purpose of its establishment. Important recommendations of Quinquennial Review Team made way back in 1993, to make the Institute a centre of excellence in all aspects of fisheries science and to attain international competence, were not acted upon by the ICAR. The establishment of infrastructure facility for the deemed university was badly handled flouting financial rules and discipline and though contemplated in VIII plan had not got off yet while the cost, even before commencement of major works, had escalated

from Rs 6.67 crore to Rs 95 crore. In-house research projects trailed behind the schedules. A clear picture of the end results of a prawn culture project in saline land in various States, unfit for agriculture, with potential for revenue of Rs 540000 crore had not emerged, though the project was treated as completed. These weakness, drawbacks and deficiencies prevailing in CIFE reflect virtual neglect on the part of the ICAR in the proper supervision, management, monitoring and proper review of the activities of the Institute.

### **Indian Veterinary Research Institute, Izatnagar**

Indian Veterinary Research Institute (IVRI), established in December 1889, was brought under the control of Indian Council of Agricultural Research (ICAR) in April 1966 and was granted the status of Deemed University in November 1983. The objectives of the IVRI to conduct research, post graduate education and transfer of technology in the areas of animal health and production to improve socio-economic conditions of rural population were not achieved fully. 96 in-house projects were declared closed without attaining their ultimate objectives while 10 projects were dropped/kept-in-abeyance during 1999-2000. The IVRI ignored the recommendations of Quinquennial Review Team (QRT) and directives of the ICAR to close the projects on "Improvement of goat for pashmina production" and "Improvement of buffalo herd" which rendered the expenditure of Rs 136.83 lakh wasteful. The injudicious sanction of a sponsored project, the objectives of which were not in conformity with the institute's mandate, resulted in its foreclosure in the midway after incurring an expenditure of Rs 17.29 lakh. It developed five technologies during 1995-2000 of which only one had been transferred while no patent had been granted. The response of students admitted in different disciplines was very poor as compared to number of seats available. The IVRI continued to follow master degree programmes despite recommendations of the QRT to discontinue it. The mechanism for monitoring and evaluation of research results in the IVRI was not adequate. Staff Research Council and Research Advisory Committee required to formulate research programmes, conduct periodic review and assess progress of research activities did not meet regularly. A High Security Animal Disease laboratory could not be equipped with necessary infrastructural facilities even after completion of the construction work in March 1998 at a cost of Rs 21.38 crore.

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

#### **Indian Institute of Petroleum, Dehradun**

Indian Institute of Petroleum (IIP) did not have proper budgetary system in place. The projections of business plan, both physical and financial, remained paper projections during its implementation over 1997-2000. IIP failed to generate resources/surplus as



projected in the business plan, which put strain on the IIP for repayment of loan. The IIP laid greater stress on sponsored projects as compared to in-house projects. Against the total of 305 sponsored projects completed during 1994-2000, only 45 in-house projects were completed. Project Monitoring and Evaluation (PME) Cell at the IIP did not carry out even the basic exercise of having any control/knowledge of R&D activities which resulted in delayed completion and foreclosure besides unfruitful expenditure. Out of 45 technologies expected to be developed during 1994-2000, it could develop only 28 technologies of which only nine could be transferred to industry. The IIP could not recover royalty/license fee due to its failure to include penalty clauses in the technology transfer agreements. Besides, irregularities in engagement of contract workers were also noticed.

### **National Institute of Oceanography, Goa**

National Institute of Oceanography (NIO), Goa was established in January 1966 to carry out research in different aspects of coastal and open ocean environments. It could not achieve the objective of an in-house project to set up 100 hectares plot for demonstration of mangrove afforestation. The NIO had to incur extra expenditure of Rs 71.95 lakh in nine sponsored projects due to incorrect application of manpower rates and delay in completion. Contrary to the directives of the CSIR, budgeting and costing of in-house projects was not done. Though, it developed 34 technologies during 1996-2000 and filed 39 patents, neither any technology was commercialised nor any patent was sealed. Despite loss of a research vessel in a fire accident in 1994, no headway was made in acquisition of a substitute vessel with the result that eight crucial areas of work were adversely affected. The NIO had to spend Rs 2.20 crore in hiring private boats due to procurement of an old vessel at a cost of Rs 70 lakh.

## **TRANSACTION AUDIT FINDINGS**

### **Indian Council of Agricultural Research**

#### **Unfruitful expenditure due to project failures and non-commercialisation of technologies**

The mandate of the Indian Lac Research Institute (ILRI) is to develop lac culture technologies, lac processing techniques developed and to transfer the technologies/techniques developed to farmers and entrepreneurs. During 1993-2000, it took up 19 in-house projects apart from 26 projects carried over from 1992-93 and completed 17 projects while one project was dropped. It was observed that five out of 12 projects test checked in audit, involving an estimated cost of Rs 43.36 lakh failed due to lack of infrastructural facilities, improper manpower planning and mismanagement of projects. In four projects, involving Rs 65.27 lakh, technologies developed could not be commercialised due to reasons like taking up the projects without market survey and demand of the product, lack of efforts to transfer the technologies etc.

#### **Poor project management**

Indian Council of Agricultural Research sanctioned Rs 17.70 lakh in June 1992 to National Research Centre for Groundnut for augmentation of irrigation facilities. The facility had not become operational till date as the pumps installed by Central Public Works Department were of low power capacity and not suitable for irrigation system.

### **Department of Atomic Energy**

#### **Avoidable budgetary support to Nuclear Power Corporation of India Limited**

Department of Atomic Energy (DAE) obtained approval of Cabinet Committee on Economic Affairs for budgetary support of Rs 117.52 crore to Nuclear Power Corporation of India Limited (NPCIL) for renovation and modernisation of Madras Atomic Power Station without taking into account that the NPCIL had a Renovation and Modernisation (R&M) Reserve fed by a R&M levy, of Rs 125.52 crore. This resulted in undue benefit to NPCIL.

### **Loss of revenue due to delay in price revision**

There was a loss of Rs 50.16 crore due to delay in communicating to Nuclear Power Corporation of India Limited by Department of Atomic Energy of the revised rates of nuclear fuel beyond the due date of 1 April during the years 1997-99.

### **Department of Science and Technology**

#### **Idle expenditure on Automatic Visual Range Accessors**

Indian Meteorological Department (IMD) is responsible for providing the meteorological support to aviation at international/national airports. The IMD could not make operational the Automatic Visual Range Accessors even after incurring an expenditure of Rs 1.66 crore leading to compromise with operational efficiency and safety of the passengers at the National airports.

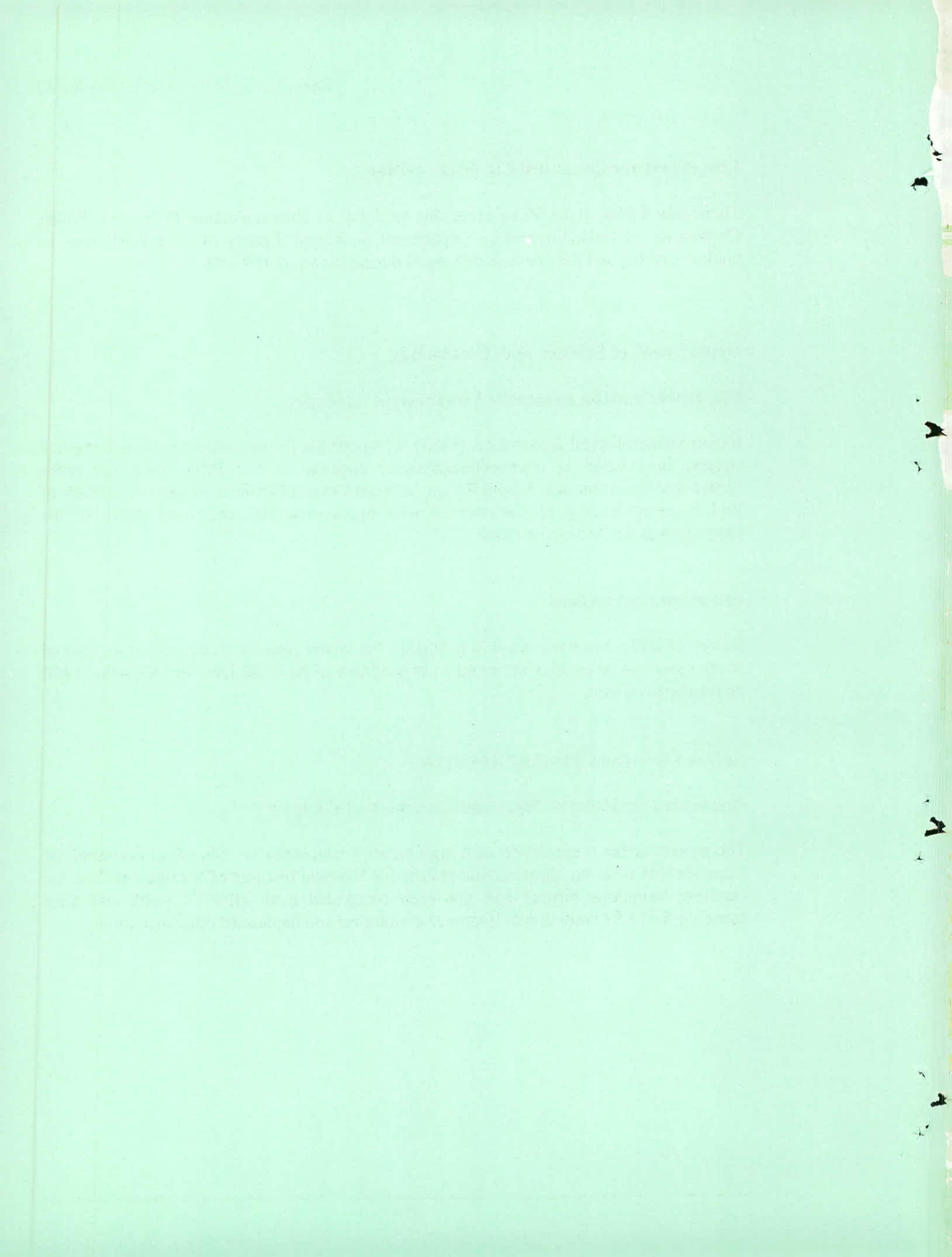
#### **Idle investment on land**

Survey of India had not been able to finalise the layout plan for its office and residential accommodation even after incurring an expenditure of Rs 83.86 lakh on acquisition and maintenance of land.

### **Indian Council of Medical Research**

#### **Haphazard execution of Microbial Containment Complex**

The project of the construction of a high security laboratory i.e. Microbial Containment Complex (MCC) as an infrastructure facility for National Institute of Virology at Pune for handling hazardous viruses had not been completed even after 23 years and after spending Rs 12.87 crore due to improper monitoring and haphazard implementation.



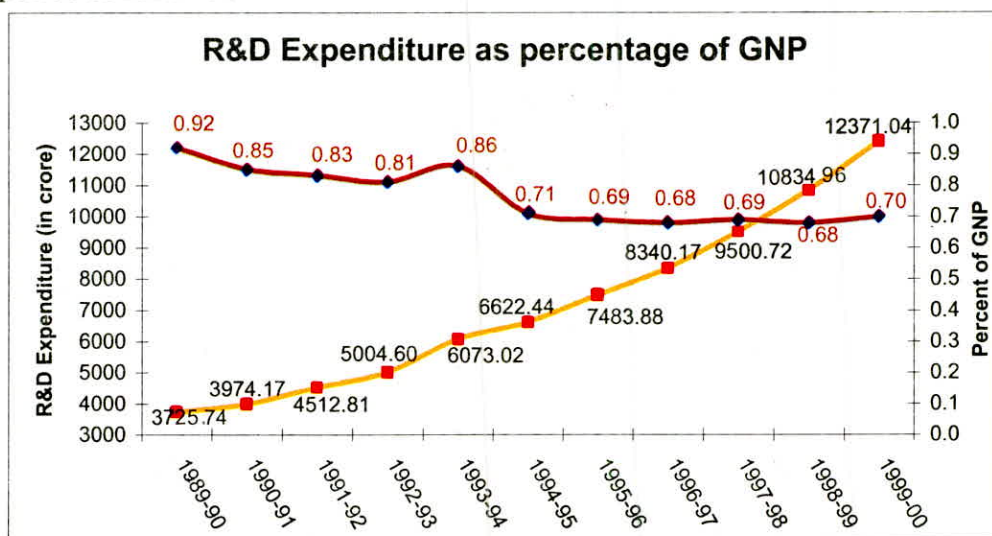
## CHAPTER 1 : FINANCIAL MANAGEMENT

### Introduction

**1.1** The importance of developing science and technology in a major way has found expression way back in India's Scientific Policy Resolution, March 1958. It set forth briefly but clearly the relationship of science to national goals and its commitment to scientific approach and methods and also to secure for the people of the country all the benefits that can accrue from the acquisition and application of scientific knowledge.

**1.2** Today, the scientific and the technological base of the country consists of a wide spectrum of infrastructure in terms of Laboratories and Research and Development (R&D) institutes, in-house R&D establishment etc. covering several disciplines and high technology areas namely nuclear, space sciences etc.

**1.3** Expenditure on R&D increased 232 per cent between 1989-90 to 1999-2000, while, as a percentage of GNP it declined by 22 basis points during this period as follows :



**1.4** Global comparison of R&D efforts shows that most of the Developed countries spend over two *per cent* of their GNP on the R&D but Developing countries spend around 0.5 *per cent* except few countries. Though the R&D spending was 0.7 *per cent* of the GNP in India the country still needs to enhance its R&D expenditure to reach a level comparable to Developed countries.

## Growth of in-house R&D units

1.5 Growth of the R&D units in the public and private sectors during the Plan Periods was as under :

Periods	Number of units
First Five Year Plan ( 1951-56)	13
Second Five Year Plan (1956-61)	27
Third Five Year Plan ( 1961-66)	48
Fourth Five Year Plan ( 1969-74)	154
Fifth Five Year Plan (1974-79)	196
Sixth Five Year Plan (1980-85)	278
Seventh Five Year Plan (1985-90)	243
Eighth Five Year Plan (1992-97)	95
Ninth Five Year Plan	Not available

Source : Statistics provided by Department of Science and Technology

1.6 The funding of Science and Technology programmes is mainly through the budgetary support by the scientific departments/ agencies of the Central Government. The financial contribution of the industrial sector in the R&D is about 28 *per cent* of the total expenditure. Of the total R&D expenditure (1999-2000) the share of Central Government including the Public Sector remained 66.51 *per cent*, whereas the share of the Private Sector was 25.78 *per cent* and the State Government's share was 7.71 *per cent* only.

1.7 As on 1 April 1996, 335072 personnel were employed in the R&D sector. Of these, 127226 personnel were employed directly on the R&D work, of these there were 11078 females which comprised only 8.7 *per cent* of the total R&D personnel employed in the R&D work. An analysis of this data revealed that natural sciences shared 29.4 *per cent*, engineering/ technology 29.1 *per cent*, agriculture sciences 26.8 *per cent*, medical sciences 10.6 *per cent* and social sciences 4.1 *per cent*.

1.8 For every 1000 R&D employees in industrial sector 80 were females and in public sector 70 were females R&D employees.

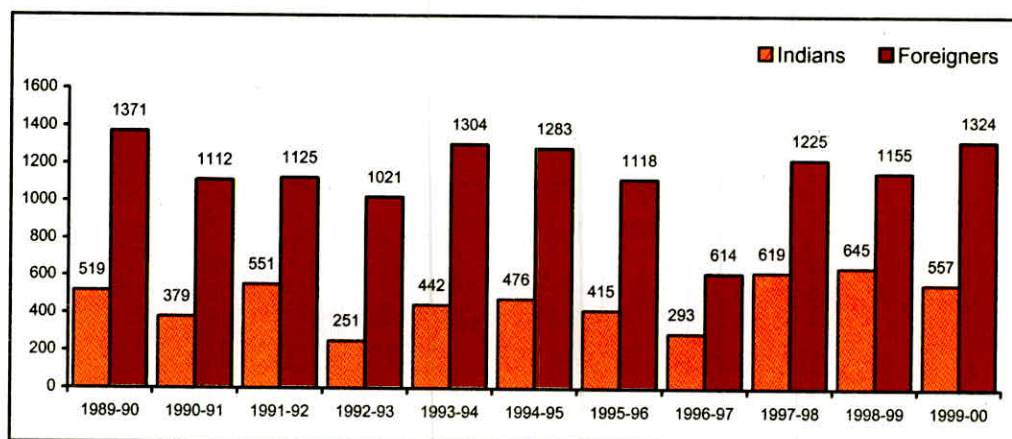
## Output indicators

1.9 There are two key indicators of output of the R&D efforts viz. the number of patents sealed and research papers published in a country. Patents sealed and research papers published in a particular year in the areas of science and technology and their comparison with data of the previous years

indicate the direction in which the research efforts of the country are progressing.

## Patents

**1.10** The number of patents sealed in India declined marginally from 1890 in 1989-90 to 1881 in 1999-2000 though the expenditure on the R&D had



Source : Statistics provided by Department of Science and Technology and Patent Office

been increasing every year. The number of patents sealed in the name of foreign nationals in India continued to be much higher than those sealed by Indians during 1989-2000.

## Research papers

**1.11** 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 had declined from 50592 papers in 1994 to 42263 papers in 1998, the decline being particularly sharp during 1998.

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

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>

Source : Statistics provided by Department of Science and Technology

1.13 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.

### Coverage under the Report

1.14 Expenditure of major scientific departments/organisations, covered in this Report, during the year 1999-2000 in comparison to preceding two years was as under :

(Rs in crore)

Sl. No.	Ministry/Department/Organisation	1997-98	1998-99	1999-2000
1.	Atomic Energy	2908.80	3793.57	4356.00
2.	Space	1050.50	1401.70	1677.39
3.	Indian Council of Agricultural Research	681.03	972.48	1275.86
4.	Environment and Forests including Zoological Survey of India and Botanical Survey of India	497.83	606.18	663.03
5.	Science and Technology including Survey of India and India Meteorological Department	592.12	545.43	621.83
6.	Department of Scientific and Industrial Research (including grants given to Council of Scientific and Industrial Research)	602.85	735.38	816.45
7.	Non-Conventional Energy Sources	228.68	298.57	316.12
8.	Geological Survey of India (Ministry of Mines)	211.47	386.14	235.84
9.	Information Technology	164.99	146.79	195.06
10.	National Informatics Centre (Planning Commission)	126.89	141.75	135.83
11.	Biotechnology	95.50	114.18	127.77
12.	Indian Council of Medical Research	70.49	106.67	128.53
13.	Ocean Development	100.66	105.15	105.49
14.	Centre for Development of Telematics (Department of Telecommunications)	84.99	96.72	116.12
<b>Total</b>		<b>7416.80</b>	<b>9450.71</b>	<b>10771.32</b>

1.15 It has been noticed that Department of Atomic Energy and Department of Space have been the major scientific agencies contributing to the R&D expenditure of Central Government. The combined expenditure of these



departments was 53.38 per cent, 54.97 per cent and 56.01 per cent of total expenditure during 1997-98, 1998-99 and 1999-2000 respectively.

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

1.16 A summary of Appropriation Accounts of 1999-2000 in respect of the scientific departments/major scientific organisations, mentioned in paragraph 1.14 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	4569.98	4356.00	(-) 213.98	(-) 4.68
2.	Space	1846.20	1677.39	(-) 168.81	(-) 9.14
3.	Indian Council of Agricultural Research	1297.88	1275.86	(-) 20.02	(-) 1.70
4.	Environment and Forests, including Zoological Survey of India and Botanical Survey of India	812.85	663.03	(-) 149.82	(-) 18.43
5.	Science and Technology including Survey of India and India Meteorological Department	657.39	621.83	(-) 35.56	(-) 5.41
6.	Scientific and Industrial Research (including grants given to Council of Scientific and Industrial Research)	823.71	816.45	(-) 7.26	(-) 0.88
7.	Non-Conventional Energy Sources	358.33	316.12	(-) 42.21	(-) 11.78
8.	Geological Survey of India (Ministry of Mines)	236.89	235.84	(-) 1.05	(-) 0.44
9.	Information Technology	210.52	195.06	(-) 15.46	(-) 7.34
10.	National Informatics Centre (Planning Commission)	185	135.83	(-) 49.17	(-) 26.57
11.	Biotechnology	128.05	127.77	(-) 0.28	(-) 0.22
12.	Indian Council of Medical Research	128.53	128.53	-	-
13.	Ocean Development	110.89	105.49	(-) 5.40	(-) 4.87
14.	Centre for Development of Telematics (Department of Telecommunications)	80.97	116.12	(+) 35.15	(+) 43.41
<b>Total</b>		<b>11447.19</b>	<b>10771.32</b>	<b>(-) 673.87</b>	<b>(-) 5.86</b>

1.17 From the above table it is seen that total unspent provision was Rs 673.87 crore, representing 5.86 per cent of total provision of funds. Detailed examination of Appropriation Accounts of Department of Atomic

Energy, Ministry of Environment & Forests and Department of Space, which accounted for 79.04 per cent of overall unspent provision, revealed as under :

Grant No.89 – Atomic Energy (Department of Atomic Energy)			Schemes/Projects/Activity accounting for large unspent provision
Previous Years	Amount of unspent provision (Rs in crore)	Percentage of unspent provision	
1997-98	90.57	5.71	<ul style="list-style-type: none"> <li>&gt; Fuel reprocessing of Fast Breeder Test Reactor (FBTR)</li> <li>&gt; Reactor Engineering</li> <li>&gt; Trombay Township Project</li> <li>&gt; Variable Energy Cyclotron Centre</li> </ul>
1998-99	58.11	3.12	
1999-00	145.99	6.68	

**1.18** In four schemes executed under grant No.89 viz. Fuel reprocessing for FBTR, Reactor Engineering, Trombay Township Project and Variable Energy Cyclotron Centre the unspent provisions ranged between 10 per cent to 44 per cent of the total provision during the years 1997-98, 1998-99 and 1999-2000.

Grant No.90 - Nuclear Power Schemes (Department of Atomic Energy)			Schemes/Projects/Activity accounting for large unspent provision
Previous Years	Amount of unspent provision (Rs in crore)	Percentage of unspent provision	
1997-98	68.84	4.64	<ul style="list-style-type: none"> <li>&gt; Operation Expenses of Waste Management facilities at Kalpakkam</li> <li>&gt; Operation Expenses of Waste Management facilities at Tarapur</li> <li>&gt; Loan to Nuclear Power Corporation of India Limited</li> </ul>
1998-99	156.41	7.28	
1999-00	67.99	2.84	

**1.19** In three schemes executed under grant No.90 viz. Operation Expenses of Waste Management facilities at Kalpakkam, Operation Expenses of Waste Management facilities at Tarapur and Loan to Nuclear Power Corporation of India Limited the unspent provisions ranged between 26 per cent to 100 per cent of the total provision during the years 1997-98, 1998-99 and 1999-2000.

Grant No.23 – Ministry of Environment & Forests			Schemes/Projects/Activity accounting for large unspent provision
Previous Years	Amount of unspent provision (Rs in crore)	Percentage of unspent provision	
1997-98	140.76	22.04	<ul style="list-style-type: none"> <li>&gt; Taj Protection Mission</li> <li>&gt; Prevention of Pollution of National River                             <ul style="list-style-type: none"> <li>– Ganga Action Plan (Phase I)</li> <li>– Ganga Action Plan (Phase II)</li> </ul> </li> <li>&gt; National Afforestation &amp; Eco-Development Board/Programme</li> <li>&gt; Environmental Commission &amp; Tribunal</li> <li>&gt; Eco-development around Important Protected Areas (IPAs)</li> </ul>
1998-99	213.43	26.04	
1999-00	149.82	18.00	

**1.20** In five schemes executed under grant No.23 viz. Taj Protection Mission, Prevention of Pollution of National River – Ganga Action Plan (Phase I) and Ganga Action Plan (Phase II), National Afforestation & Eco-Development Board/ Programme, Environmental Commission & Tribunal and Eco-development around Important Protected Areas (IPAs) the unspent provisions ranged between 4.30 *per cent* to 100 *per cent* of the total provision during 1997-98, 1998-99 and 1999-2000.

Grant No.93 – Department of Space			Schemes/Projects/Activity accounting for large unspent provision
Previous Years	Amount of unspent provision (Rs in crore)	Percentage of unspent provision	
1998-99	206.63	12.82	> Cryo Stage Development > G. SAT – 2&3 > IRS II Satellites
1999-00	168.81	9.14	

**1.21** There were 100 *per cent* unspent provision under three schemes executed under Grant No.93 viz. Cryo Stage Development, G. SAT – 2&3 and IRS II Satellites during 1999-2000.

#### Adverse balances appearing in the Finance Accounts

**1.22** 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 1999-2000 revealed the following cases of adverse balances relating to Scientific Departments:

(Rs in thousand)

1.	<b>DEPARTMENT OF SPACE</b>	
	<b>MH 8443 – Civil Deposits</b>	
	106 – Personal Deposits	362 (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.)
	<b>MH 8005 – State Provident Fund</b>	
	102 – Contributory Provident Fund	13 (Cr.)
	<b>MH 8674 – Security Deposit made by Government</b>	
	101 – Security Deposit made by Government	58 (Dr.)
3.	<b>MINISTRY OF INFORMATION TECHNOLOGY</b>	
	<b>MH 8670 – Cheques &amp; Bills</b>	
	102 - PAO cheques	534616 (Cr.)
	103 – Department cheques	79791 (Cr.)

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4.	<b>MINISTRY OF ENVIRONMENT AND FORESTS</b>	
	<b>MH 8443 – Civil Deposits</b>	
	109- Forest Deposits	4897 (Dr.)
	<b>MH 8550 – Civil Advances</b>	
	101 – Forest Advances	3200 (Dr.)
	102 – Revenue Advances	6 (Dr.)
	103 – Other Departmental Advances	569 (Cr.)
	104 – Other Advances	690 (Dr.)

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

**1.23** In respect of Department of Space, adverse balances 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 much 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, 1998 and 1999. In respect 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.

**1.24** All these adverse balances require investigation and rectification urgently.

#### **Audit of accounts of autonomous bodies**

**1.25** 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*.

**1.26** In addition, the Comptroller and Auditor General of India may conduct supplementary/super-imposed audit of any of 55 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*.

**1.27** 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.

### Outstanding utilisation certificates

**1.28** 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. 6467 utilisation certificates for grants aggregating Rs 790.07 crore were outstanding as given in *Appendix-III*. Utilisation certificates in 3252 cases aggregating Rs 254.31 crore were outstanding for more than three years. These included 1413 cases aggregating Rs 133.32 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 61.72 per cent of these. Other main defaulting Ministries/Departments were – (i) Department of Ocean Development (Rs 84.20 crore), (ii) Ministry of Information Technology (Rs 181.48 crore), (iii) Ministry of Non-Conventional Energy Sources (Rs 16.13 crore).

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

### Follow up on Audit Reports

**1.30** 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. A review of the position regarding receipt of ATNs on paragraphs included in various Audit Reports upto the period ended 31 March 1999 revealed that as of March 2001, the following Ministries/Departments (the details thereof are in *Appendix IV*) had not submitted the remedial/corrective ATNs on the following paragraphs :

Ministry/Department/Council	Number of Paragraphs for which ATNs are awaited	Audit Report to which Paragraph indicated in Col.2 pertains
Ministry of Mines (Geological Survey of India)	1	1997-98
	1	1998-99
Indian Council of Medical Research	1	1998-99
Council of Scientific and Industrial Research	1	1998-99
Ministry of Non-Conventional Energy Sources	1	1998-99
Indian Council of Agricultural Research	2	1998-99

## CHAPTER 2 : INDIAN COUNCIL OF AGRICULTURAL RESEARCH

### Central Institute of Fisheries Education, Mumbai

*The Central Institute of Fisheries Education, entrusted with the task of raising qualified and well trained manpower and to conduct research in fisheries discipline to meet the national goal for increasing fish production and foreign exchange, was plagued with shortage of scientific manpower, funds crunch and infrastructure facilities. The Institute functioned in an ad-hoc manner with the various management board/councils vested with the responsibility of evolving policies, management, overseeing the functioning, etc. virtually remaining non-functional. The ICAR turned a blind eye to the major weakness in the working of the Institute, like absence of data for realistic assessment of manpower for fisheries sector, weak faculty strength, etc. identified in 1997 itself and which were to be addressed on top priority, to chalk out a proper road map to reach its goal or justify the purpose of its establishment. Important recommendations of Quinquennial Review Team made way back in 1993, to make the Institute a centre of excellence in all aspects of fisheries science and to attain international competence, were not acted upon by the ICAR. The establishment of infrastructure facility for the deemed university was poorly handled flouting financial rules and discipline and though contemplated in VIII plan had not got off yet while the cost, even before commencement of major works, had escalated from Rs 6.67 crore to Rs 95 crore. In-house research projects trailed behind the schedules. A clear picture of the end results of a prawn culture project in saline land in various States, unfit for agriculture, with potential for revenue of Rs 540000 crore had not emerged, though the project was treated as completed.*

*These weaknesses, drawbacks and deficiencies prevailing in the Institute also point out to virtual neglect on the part of the ICAR in the proper supervision, management, monitoring and proper review of the activities of the Institute.*

#### Highlights

◆ Against the annual demand of 200 pisciculture scientists in the country, the average turn out from this Institute was only 44. It did not introduce separate essential courses in fish pathology, fish genetics and nutrition. Even though the weakness in the working of the Institute such

as, lack of proper data base for making a realistic assessment of manpower requirement for fisheries sector, generalistic approach and absence of specialisation in academic programmes, weak faculty strength due to acute shortage of scientists, etc. were identified in 1997, nothing worthwhile had been done to remedy the situation.

◆ The activities of the Institute were hampered due to acute shortage of scientists, with 41 *per cent* of posts in this cadre remaining vacant.

◆ Even though fisheries sector contributed Rs 22223 crore towards Gross Domestic Product during 1998-99, the amount allocated to CIFE for fisheries research was Rs 12.13 crore only.

◆ The building work of the deemed university estimated to cost Rs 6.67 crore, planned in 1986, was yet to commence. Meanwhile, the estimated cost had escalated to Rs 95 crore. Even though this plan scheme was yet to be cleared by Ministry of Finance, the ICAR flouting all financial propriety/restrictions awarded a contract for Rs 41 crore in March 1995 for the building which however remained morbid for want of funds.

◆ The two main research vessels were hardly available for use, one being not seaworthy from 1994 awaiting final decision about its scrapping while the other idling from 1998 onwards awaiting decision on major repairs. The Institute incurred infructuous expenditure of Rs 63.17 lakh on idle manpower of these vessels.

◆ Against 44 in house research projects to be completed between 1995 and 2000, only 12 had been completed.

◆ A project on the socio-legal issues of fisheries development in the country with an intention to provide base to benefit 50 million fishermen in India living below the poverty line, conceived in 1989 had not been completed and was left mid-way as the principal investigator retired and the current status was not known.

◆ The number of participants in the training programmes dwindled as it was not able to attract more participants. The Institute had not assessed the impact of its training programmes, as a system of feed back was absent.

◆ A system of proper and effective monitoring by the various management councils to oversee the functioning of this Institute was virtually lacking, as these committees in many cases had not even met once in a year.

## Introduction

**2.1** Central Institute of Fisheries Education (CIFE), Mumbai under Indian Council of Agricultural Research (ICAR) was established in the year 1961 with the main aim of raising qualified and well-trained manpower for meeting the rapidly expanding fisheries developmental activities in the Country. The University Grants Commission accorded the status of 'Deemed University' to the CIFE in March 1989.

**2.2** The main objectives of the CIFE broadly are :

- (a) to conduct post graduate and doctoral degree programmes and certificate courses in different subjects relevant to fisheries science,
- (b) to conduct research in disciplines relevant to fisheries science and
- (c) to conduct short term and long term training courses for human resource development in various fishery technologies as an extension activity.

**2.3** Presently, the Institute runs five Post Graduate programmes besides three Ph.D. fellowships.

## Organisational set up

**2.4** The CIFE is headed by a Director, who is assisted by a Joint Director. The Director functions on the advice of the Board of Management, the highest policy making body and other advisory bodies such as the Executive Council for implementing administrative matters, the Academic Council responsible for all matters relating to education and training and the Research Advisory Committee (RAC) for approval and monitoring of research projects and its application and Extension Council for extension programme of the CIFE.

**2.5** The CIFE has five centres located at Kolkata (West Bengal), Kakinada (Andhra Pradesh), Chinhat (Lucknow - Uttar Pradesh), Powarkheda (Madhya Pradesh) and Rohtak (Haryana). These centres cater to the local needs of training of entrepreneurs and farmers, technology demonstration of respective region, institutional research programmes, etc.



## Scope of Audit

2.6 The audit of the CIFE is conducted under section 20(1) of the Comptroller and Auditor General's (Duties, Power and Conditions of services) Act, 1971. The records maintained by the CIFE at Mumbai for the period 1995-2000 were test checked with a view to ascertain the extent to which the CIFE had achieved its objectives. Related records for the period prior to 1995-96 were also test checked wherever necessary to get a comprehensive picture.

## Financial Management

2.7 The activities of the CIFE are mainly funded by the allocations made by the ICAR out of the grant-in-aid received from the Government of India. This is supplemented by the receipts from contract projects which include grant-in-aid and consultancy projects. The year-wise position of source and application of funds was as under :

*(Rs in lakh)*

Year	SOURCES					APPLICATION				
	ICAR			Misc.	Total	ICAR			Misc.	Total
	Revenue	Capital	For specific purpose	Contract projects <sup>#</sup>		Revenue	Capital	For specific purpose	Contract projects <sup>#</sup>	
1995-96	300.20	147.00	52.50	60.19	559.89	299.17	138.92	44.09	45.76	527.94
1996-97	302.00	250.00	46.33	28.68	627.01	282.99	249.90	42.06	36.89	611.84
1997-98	394.74	269.00	59.04	64.04	786.82	387.66	268.03	63.24	48.62	767.55
1998-99	609.00	415.00	85.33	103.79	1213.12	574.95	413.61	79.53	58.58	1126.67
1999-2000	722.00	370.00	57.09	8.60	1157.69	606.63	369.99	57.88	48.13	1082.63

<sup>#</sup> includes grant-in-aid, consultancy projects and externally aided projects.

2.8 The analysis of the allocation made as mentioned in the above table bring out the following facts :

- (a) It is obvious that outlays are too small to make any impact.
- (b) Even as the amounts allocated for research projects were very meagre, major portion of the same were spent on salaries and allowances.
- (c) Even though fisheries sector contributed Rs 22223 crore during 1998-99 only Rs 12.13 crore were allocated to CIFE for fisheries research which is very insignificant. This thin spreading of resources

was one of the major causes of absence of any worthwhile research on fisheries even though the scope for fisheries research is vast.

(d) During 1995-2000 CIFE could complete only 12 in-house projects out of 44 projects scheduled to be completed during 1995-2000.

**2.9** The overall impression that comes out from the foregoing is that neither ICAR nor CIFE are taking serious note of the deficiencies in their research activities on fisheries.

**2.10** The ICAR Audit Manual provides *inter-alia* that accounts of contingent advances should be submitted within 15 days from the date of obtaining the advance. In case of failure, it was to be recovered with penal interest from the salary of the concerned officer. Similarly, Travelling Allowance (TA) and Leave Travel Concession (LTC) rules also provide prompt adjustment of advances and to recover the advances in cases of failure to render the adjustment bill promptly.

**2.11** However, 21 cases of the TA advance involving Rs 2.14 lakh relating to the period 1989-2000, 17 cases of the LTC advances amounting to Rs 1.29 lakh relating to the period 1996-2000 and 83 cases of contingent advances of Rs 55.46 lakh relating to the period 1993-2000 were outstanding at the end of March 2000. Even as of December 2000 these advances were not fully settled inasmuch as 40 cases of contingent advances of Rs 10.87 lakh and five cases each of the TA (Rs 0.16 lakh) and the LTC (Rs 0.44 lakh) aggregating Rs 0.60 lakh were outstanding settlement.

**2.12** The above instances indicate that Institute had a very weak finance and accounts wing with no proper system of internal control.

Advances aggregating Rs 58.89 lakh given for the TA, LTC, contingency etc. to be adjusted within 15 days were not adjusted promptly

## Achievement of objectives

**2.13** The objectives of the CIFE broadly fall under academic activities, research activities and extension activities to popularise need based fisheries technologies.

## Academic activities

*During 1995-2000, only 210 postgraduates and 11 Ph.D. holders passed out from the courses conducted by the CIFE against its own projection in 1997 of annual demand for 200 fisheries scientists in the country. It had not identified scientists needing exposure to modern methodologies of research and training. Even though the weakness in the working of Institute such as lack of proper database, absence of specialisation in academic programmes,*

**weak faculty strength etc. were identified in 1997, nothing worthwhile had been done to overcome these deficiencies.**

**As against annual demand of 200 fisheries scientists, only 221 passed out from the Institute in the past five years**

**2.14** According to the CIFE, the existing fisheries colleges in the country were largely producing graduates in fisheries. Hence, the onus of postgraduate fisheries education was mainly on the CIFE. As per a projection made by the CIFE in 1997, there would be an annual demand for 200 fisheries scientists (Post Graduates and Ph.D.s) in the country. Against this, during the five years period of 1995-2000, only 210 post graduates (average 42 per year) and 11 Ph.D. holders (average 2 per year) passed out from the courses conducted by the CIFE. However, the credibility of the assessment made by the Institute should be measured in the light of remark contained in item 1 of the table in paragraph 2.21 regarding lack of proper database.

**2.15** It was also observed that 13 to 67 per cent of the available seats in Ph.D. programme conducted by the CIFE remained vacant during 1992-2000 as indicated below:

Year	Number of		Percentage of seats remained vacant
	seats available	students admitted	
1992-95	5	2	60
1993-96	15	5	67
1994-97	15	9	40
1995-98	15	9	40
1996-99	15	13	13
1997-2000	30	24	20

**13 to 67 per cent seats for Ph.D. remained vacant though there was tremendous potential in fisheries sector**

**2.16** Low turnover of postgraduates and Ph.D. students and the magnitude of seats remaining vacant for Ph.D. from 1992-95 to 1995-98 indicated that the CIFE was way behind in achieving projected requirement of fisheries scientists. There was tremendous potential in the fisheries sector, especially because this sector had recorded big increase in production (from 3.84 million tonnes in 1990-91 to 5.26 million tonnes in 1998-99) and exports (from Rs 893.37 crore in 1990-91 to Rs 4,626.87 crore in 1998-99). It was claimed that the trained and qualified manpower created would provide the nucleus staff to fisheries developmental agencies and fishing industry to fulfil the national targets of raising fish production and in increasing foreign exchange earnings. In view of these factors it is surprising that there are large vacancies in the seats for Ph.D. in the Institute. The ICAR and the Institute need to carry out at detailed review for such status to remedy the situation.

**Separate courses in fish pathology, fish genetic and fish nutrition needed to tackle fish and shrimp diseases were not introduced**

**Important recommendations of the QRT to attain international competency had not been implemented**

**2.17** The Institute was of the view that the need of the hour is to develop qualified manpower to tackle problem of fish and shrimp diseases and well planned breeding programmes to increase production and appropriate fish feed for fish and shrimp. For this purpose Postgraduate/Ph.D courses in Fish Pathology, Fish Genetics and Nutrition were to be commenced without further delay. However, these courses had not been introduced so far. Accepting the facts the CIFE attributed (June 2000) the delay in commencement of these courses due to the shortage of scientists and non-availability of some parts of the proposed university campus.

**2.18** A Quinquennial Review Team (QRT) appointed by the ICAR in July 1993 to review the working of the CIFE for the period from 1983-1992 in its report (August 1994) held that the major thrust of the CIFE in the near future should be to become a Centre of Excellence in all aspects of fisheries science and to attain international competence. The following important recommendations of the QRT to improve the academic performance of the CIFE, though accepted by the ICAR, were not implemented as of July 2000 even after six years.

- (a) In view of the deemed University status conferred on the CIFE, Academic Council should be chaired by distinguished fisheries scientists from outside the ICAR/ State Agricultural University (SAU) system and have an equal number of external and internal experts.
- (b) Creation of few special chairs to attract eminent scientists for 2-3 years for improving the quality of teaching and research.
- (c) Splitting up of Diploma in Fisheries Science Programme into two: one for marine and other for inland with course duration of one year as against two years, supplemented with three months capsule programme and revision of syllabus.
- (d) Establishment of 12 departments with diamond shaped academic staff heading each Department by Professor.

**2.19** Accepting the facts the CIFE attributed (July 2000) the absence of initiative/instructions of the ICAR in the case of items (a) and (c), lack of funds in respect of item (b) and substantial vacancy of 38 in Scientific Cadre for item (d) as reasons for the non-implementation of these recommendations. The ICAR stated in March 2001 that existing rules stipulate that the Directors for the Deemed University would be the Chairman of Academic Council and there would be four external experts. It was also stated that diploma in Marine Fisheries would be commenced in next academic year and efforts were being made to create proposed 12 divisions in future by filling up the vacancies. The reply of the ICAR depicts lack of priority given by it in human resource

development essential for fulfilling its mandate for development of fisheries sector despite its enormous potential.

**CIFE had not identified scientists needing exposure to modern methodologies of research and training**

**2.20** The RAC observed in June 1995 that most of the scientists of the Institute had no exposure to modern methodologies of research and suggested that training both in India and abroad should be considered as an important component of Human Resource Development (HRD) to improve the standard and to have better quality of research in future. The ICAR stated in March 2001 that out of 50 scientists, 40 scientists had been trained in India/abroad in the year 2000. However, audit is not aware of the impact of this training on the quality and output of these trained personnel. The Institute should assess this impact and then formulate further training programme for others accordingly.

**2.21** Even though the CIFE had identified the following as its main weaknesses in the academic front way back in 1997, remedial measures to remove the weakness were yet to crystallise.

Sl. No.	Area of weaknesses	Impact/need to remove the weaknesses	Remarks of the CIFE/ICAR
1.	Lack of proper database for making a realistic assessment of manpower requirement for fisheries sector.	Unless this basic requirement is completed, it would just not make sense to consider any long term plans of fisheries education and training programmes in the Country. This is because, the number of persons to be educated or trained has to strike a balance between real time need and to avoid undue frustration of unemployment if it is more.	In July 2000 the CIFE stated that State Government, Industries, the SAUs, Research Institutes and Government of India were being contacted to get manpower and future requirement of fisheries sector.
2.	Generalistic approach and absence of specialisation in academic programmes.	Courses offered by the CIFE at Post Graduate level were of general nature. A clear-cut specialisation was conspicuously missing to meet the challenges of future. Hence, there is need to develop subject matter specialists and experts, as generalists are misfit to the present day need.	In March 2001, the ICAR stated that the CIFE conducted Brain Storming Session during December 2000 with Deans of Fisheries Colleges, Entrepreneurs, representatives of industry, etc. to assess manpower requirement and to identify specialisations needed at the PG level which had identified emerging areas and new courses.
3.	Weak faculty strength due to acute shortage of scientists	Due to acute shortage and non-availability of faculty members in specialised frontier areas of fisheries such as bio-technology, genetic engineering, molecular biology, fish nutrition, fish pathology, fish physiology and fish endocrinology* these courses were not covered in the academic programmes and no time bound strategy was devised for solution.	In March 2001, the ICAR stated that scientist with specialisation in the emerging areas such as bio technology, pathology and bio chemistry had recently joined in the Institute and efforts were being made to fill up the remaining vacancies.

\* Study of the structure physiology of endocrine glands

**2.22** Reply of the ICAR/CIFE depicts its passive attitude in view of the fact that some corrective measures were underway only after a lapse of nearly four years of identification of weakness. In some areas nothing worthwhile had been done so far to remedy the situation based on a time bound programme. Unless these weaknesses are removed, the CIFE cannot chalk out a road map to reach its goal or justify the purpose of its establishment.

## Research activities

**2.23** One of the objectives of the CIFE was to conduct basic research in frontier areas of fisheries science. Apart from academic student research programmes (Ph.D. programmes and dissertation work), the research activities of the Institute were carried out under in-house research projects and grant-in-aid/consultancy projects. Discussed below is the general status of the research activities along with a few important individual projects.

### In-house research projects

*Out of 44 in-house projects to be completed during 1995-2000, the CIFE could complete only 12 projects. 14 projects were either terminated, abandoned or kept-in-abeyance due to shortage of manpower, shifting of Centres, lack of infrastructure etc. A project on the socio-legal issues of fisheries development in the country conceived in 1989 was left midway due to the retirement of Principal Investigator. Another in-house project for preparation of fish powder had not taken off as the scientist proceeded on study leave.*

**2.24** The RAC approved 45 in-house research projects during 1995-2000. Considering the 19 projects spilled over to 1995-96 there were in all 64 research projects for execution during 1995-2000. Out of this, 14 projects were either terminated, abandoned or kept in abeyance during 1995-2000 for the reasons such as non communication of final decision regarding the approval of the project, shortage of manpower, shifting of Centres and lack of infrastructure, etc.

**2.25** Of the remaining 50, CIFE managed to complete only 12 projects till March 2000 vis-à-vis 44 projects targetted for completion :

Against 44 in-house research projects to be completed during 1995-2000, only 12 were completed

Year	1995-96	1996-97	1997-98	1998-99	1999-2000
Number of projects to be completed	10	13	10	4	7
Actually completed	1	4	6	1	0
Percentage of completion	10	31	60	25	0

**2.26** The CIFE attributed in March 2001 lack of scientific manpower and infrastructural facilities as the main reason for the non completion of identified projects in 1995-2000.

**2.27** The key issue in the implementation of projects concerns achieving the end objective since project delays lead to corresponding delay in the delivery of goods and services to the people. In the IX Plan document, the CIFE claimed that during the plan period, its top priority would be of both basic and applied nature in frontier and thrust area. Even though, the CIFE indicated in the IX Plan document that there were 15 major research achievements at its credit in June 2000, it admitted that except three, other projects were not taken up as in-house projects and these were yet to be refined and field tested. Thus, the results of research which had been claimed as major achievement had not reached a stage of culmination and specific problem solving. These facts and the low percentage of completion of the project given above is indicative of absence of concurrent review/monitoring of various in-house research projects. The ICAR stated in March 2001 that the projects had been reformulated from 2000-2001 and at present the implementation of the projects is oriented towards achieving the end objective and proper review and monitoring of the projects is being ensured. It was also stated that many of the major achievements are results of student's research. The reply is indicative of the fact that proper monitoring at ICAR level was not done so far.

**Project on "Socio-legal issues of Fisheries Development and Management in India"**

**2.28** Since 95 *per cent* of about 50 million fishermen in India are living below the poverty line, the CIFE conceived a project titled 'Socio-legal issues of Fisheries Development and Management in India' in 1989 with probable date of completion by May 1994 with an estimated cost of Rupees four lakh for the purpose of collecting information obtained from all the regions of India as would be useful and helpful to the State Governments and the country as a whole in the following ways:

- (i) For making management decision pertaining to fisheries on economic and social grounds;
- (ii) In planning the National Fisheries Development Schemes and Programmes on sound footings; and
- (iii) For introducing new progressive legislative measures keeping in view the aspirations and expectations of fishing community.

**A project for providing base data for upliftment of fishermen had not been pursued even after 10 years of its commencement**

2.29 Even after seven years of its completion date, the project could bring out only an interim report of February 1993. Accepting the facts the CIFE stated in July 2000 that the Principal Investigator of the project had since retired and the current status of the project was under investigation/verification. The ICAR stated in March 2001 that since the coverage was very vast, scientist concerned could not complete the work. It also stated several socio economic issues of fisheries development and management had been addressed in several parts of the country through student's dissertations and gathered enormous data which still need to be analysed. The reply reflects that the CIFE has no system in place to actively monitor the project and ensure its timely completion.

### **Preparation of fish powder**

**An in-house project for applied research for fish powder and its shelf life assessment had not taken off**

2.30 Per capita consumption of fish and its products were comparatively low in India due to low fish production. In this background, the CIFE in March 1997 conceived an applied research project on "Preparation of fish powder and its shelf life assessment". The objective of the project was to develop a new product as fish powder from under utilised or commercially available fish and assessing its shelf life. The project report also claimed that nutritional adequacy could also be fortified wherever necessary. It also claimed that fish powder would create market trade because of its high protein and would be served as adjunct for bread, biscuit, *chappathi*, etc. The project was to be completed in one year. However, even before the project leader could commence work on this project, he proceeded on study leave in 1998 to pursue his Ph.D. work, which was sanctioned for three years. Consequently, this project has not taken off. The ICAR stated in March 2001 that preparation of fish powder was one of the component of processing and value addition, which were being taken care of through research projects undertaken at Processing Division of the Institute. However, the reply was silent about the end results and current status of this applied project and depicts the ad-hoc and haphazard manner in which the projects are handled by the CIFE.

### **Grant-in-aid/Consultancy Projects**

*The CIFE completed four grants-in-aid projects and three consultancy projects during 1995-2000. A technology on immunodiagnostic kits for bacterial diseases of fish developed from a grant-in-aid project had not been transferred due to delay in preparation of the completion report of the project.*

2.31 During 1995-2000, eight grant-in-aid and four consultancy projects were taken up. Of these four grant-in-aid projects and three consultancy projects were completed as of March 2000.



### Development of immunodiagnostic kits for bacterial diseases of fish

Due to delay in completion of a project and presentation of findings, commercialisation and technology transfer of immunodiagnostic kits for bacterial diseases of fish was delayed

2.32 Diseases affecting fish require rapid, specific and sensitive diagnostic techniques for the early diagnosis of the disease and to carry out appropriate control measures. Diseases caused by *Pseudomonas*, *Aeromonas*, *Vibriosis* and *Edwardseilla* are some of the important bacterial infections which needs early diagnosis for effective control of the disease. The CIFE's project proposal for the development of immunodiagnostic kits for these bacterial diseases for quick, sensitive and specific test that did not require sophisticated laboratory facilities and could be performed by the side of the pond was accepted by the DBT in March 1996. Even though the project was to be completed within two years duration, it was extended till March 1999. For this project, the DBT released Rs 16.58 lakh between 1996-99. The CIFE stated in March 2001 that the closure report was under preparation and the commercialisation of the technology would be done by the DBT. The ICAR stated in March 2001 that the technology was being transferred through specific training programme. Thus, due to the delay in completion of the project and presentation of the findings at the DBT task force by the CIFE, the commercialisation and technology transfer of the immunodiagnostic kits for bacterial diseases of fish had been delayed.

### Extension activities

*The training programmes of the Institute were not popular as the number of participants dwindled. The CIFE had not evaluated the impact of its extension activities.*

2.33 Besides its academic and research activities, the CIFE undertakes various extension/activities in an effort to popularise need based fishery technologies. The extension activities of the Institute include organising short term and long term training programmes, rendering technical guidance through its Fishery Advisory Service, publication of information extension folders and handouts, organising exhibitions, etc.

The CIFE had no feedback about the training programme it had imparted on fisheries technologies

2.34 In the IX Plan, the main thrust of the CIFE was the extension activities for refinement of fisheries technology to suit specific local needs of users through own farm trials and demonstration along with continuation of short term training programme on various fisheries technologies tailored according to the needs of clientele. Even though through various programmes, the CIFE had trained large number of candidates in fisheries sector, it did not monitor and evaluate the impact of its extension activities. Accepting the facts the ICAR attributed non-evaluation of impact of its training programme to constant change and the shortage of technical and scientific manpower. Evidently, achievement of its own objective was not assessed by the CIFE so far.

**2.35** As against training of an average 174 persons per year belonging to different sectors during the three years 1992-95, the CIFE provided training annually to 163 persons during the five year period 1995-2000. The CIFE attributed shortfall to less enthusiasm among the participants due to the introduction of the fee of Rs 1000 per week from April 1996 and stated that efforts would be made to reduce the fee.

Extension activities of the CIFE were not popular and effective

**2.36** Similarly, the number of participants who got benefited under the Fisheries Advisory Services and Visit Co-ordination Programmes under the extension programmes registered a declining trend during 1995-2000 inasmuch as against the average of 1765 participants per year under these programmes during 1992-95 only 999 participants attended this programme in a year during 1995-2000. This indicates that the extension activities were not attractive.

### Manpower Planning

*41 to 51 per cent posts of scientific cadre are lying vacant with the result that separate academic programmes in emerging areas such as fish genetics and bio-technology, fish pathology, fish nutrition, fish bio-chemistry etc. could not be taken up by the CIFE.*

**2.37** 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 March									
	1996		1997		1998		1999		2000	
	SS	WS	SS	WS	SS	WS	SS	WS	SS	WS
Scientific	92	45	92	50	92	50	92	54	92	54
Technical	110	101	141	127	141	123	141	124	141	123
Administrative	81	71	73	67	73	65	73	70	72	67
Auxiliary	30	28	2	2	2	2	2	2	2	2
Supporting	121	113	116	113	116	114	116	114	116	107
<b>Total</b>	<b>434</b>	<b>358</b>	<b>424</b>	<b>359</b>	<b>424</b>	<b>354</b>	<b>424</b>	<b>364</b>	<b>423</b>	<b>353</b>

SS - Sanctioned Strength

WS - Working strength

41 to 51 per cent posts of scientific cadre were lying vacant, many separate academic programmes were not taken up

**2.38** Scientific personnel are primarily engaged in teaching, research and application oriented studies. Even though the macro objective of the CIFE to conduct education and research programme leading to post graduate and doctoral degree in specialised disciplines of fisheries science and technology nearly 41 to 51 per cent posts in the scientific cadre were vacant during 1996-2000. The CIFE stated in June 2000 that despite repeated requests, filling up

of vacant posts were delayed by the ICAR/Agricultural Scientist Recruitment Board. Considering that in a period of five years ending March 2000, only nine posts had been filled in, the so called 'delay' amounts to practically non filling of large number of vacant posts. The reply also suggests the weakness in the present system of recruitment. The impact of these vacancies was enormous since separate academic programmes in emerging areas such as fish genetics and bio-technology, fish pathology, fish nutrition, fish bio-chemistry, etc., had not been taken up by the CIFE. The ICAR stated in March 2001 that efforts were being made to recruit the Scientist in the required discipline to start these areas separately.

### **Infrastructural facilities**

*Development of an infrastructure for the Deemed University was delayed due to non-observance of financial procedure for getting the project approved and consequential non-provision of funds.*

**2.39** The VIII Five Year Plan profile of the CIFE, approved by the ICAR, indicated the principle thrust on the development of an infrastructure for the Deemed University in the land acquired in 1986 in the vicinity of the existing campus at Versova, Mumbai at a cost of Rs 6.67 crore including land cost of Rs 0.50 crore. Infrastructure included bulk services development and RCC piling (mechanised) main University building, teaching block and library, residential quarters, auditorium and community hall, processing laboratories, aquarium and museum, hostel, etc. In March 1995, the ICAR awarded the contract for the construction of the above infrastructure to Indian Railway Construction Limited (IRCON) on turnkey basis at a cost of Rs 41 crore. An amount of Rs 2.22 crore was released to the IRCON during 1995-99 for earth filling, construction of boundary wall, development of road, etc. However, construction of major work had not been commenced as of March 2001. Thus, the creation of the infrastructural facilities for the Deemed University envisaged in the VIII Plan remained dormant. This was mainly sequential to non-availability of requisite fund from the Government inasmuch as the ICAR before awarding the contract to the IRCON failed to adhere to specific rules and procedures for approval of plan scheme for different scale of expenditure, award of contract and incurring expenditure out of funds for plan scheme as indicated below :

**Financial Rules and procedures were flouted in award of contract to the IRCON**

Rule/Authority	Provision	Irregularity noticed in audit
Delegation of financial powers	According to the prevailing rules in 1995, approval of Expenditure Finance Committee (EFC) chaired by Secretary of Administrative Ministry was required for plan scheme of Rupees five crore and beyond but less than Rs 20 crore. For Plan schemes of Rs 20 crore and beyond but less than Rs 50 crore approval of the EFC was to be chaired by Secretary (Expenditure) was necessary. In addition concurrence of Finance Minister (FM) was also required.	No such clearance of the EFC/ FM was obtained though the project cost was Rs. 41 crore as per contract awarded to the IRCON in March 1995.
General Financial Rules	(i) No authority shall incur expenditure or make Government liable for expenditure or transfer money from Government unless sanctioned by general or special order by competent authority.  (ii) No contract shall be made by subordinate authority unless directed or authorised under orders of the President under Article 299(1) of the Constitution of India	The contract was awarded to the IRCON entailing liability of Rs 41 crore and expenditure of Rs 2.22 crore were incurred thereon without the approval of competent Authority. Instead the approval of Director General of the ICAR, was taken who was not the competent authority.
Delegation of Financial powers	Financial powers shall be exercised where necessary funds are available in the Annual Plan/Five Year Plan outlay as per phasing of the Project/scheme.	The contract amounting to Rs 41 crore was awarded and construction activity undertaken even though under VIII Plan document of the Project only Rs 6.67 crore were allocated under head "works"

**Fixing responsibility for violations of financial rules was suggested**

**2.40** In the EFC meeting held in November 1999, the ICAR made a proposal for an initial investment of Rs 15.80 crore during the IX Plan period for the above work. However, the Advisor, Planning Commission observed that such a building could not be taken up for construction within an outlay of Rs 15.80 crore unless detailed justification for the whole project was furnished and its time phasing for the implementation decided. It was also decided that the ICAR should prepare the project report and get commitment from Planning commission for the construction of the new University building. In the above meeting, the Advisor, Planning Commission as well as Director, Department of Expenditure expressed displeasure on the non-observance of the above mentioned rules and procedures and suggested fixing, responsibility for the financial violations in the award of the contract. Subject to this, the EFC concurred for an initial investment of Rs 15.5 crore during IX plan for the building. However, when the proposal was sent to the Department of Expenditure, Plan Finance Division for obtaining the clearance of Ministry of Finance, the Finance Minister withheld the approval in May 2000 for civil work mainly on the ground that the EFC memo did not furnish the details which would relate the size of construction to the peak load of students and trainees in a year and there were established norms in this regard to be followed. In the meantime the estimated cost of the subject infrastructure had

escalated from Rs 41 crore in 1995 to Rs 95 crore in May 2000. The ICAR stated in March 2001 that the construction of the University building will be initiated only after due clearance from the concerned department/Ministries. As such the project is not implemented even today.

**2.41** Even in the award of the work, the ICAR instead of inviting open tenders, as contemplated in General Financial Rules contacted only three Public Sector Undertakings in February 1995. The contract was not awarded to the lowest tenderer viz. the Construction and Design Services (CDS) of the Uttar Pradesh Jal Nigam Limited on the plea that it was only a state level undertaking executing irrigation and drainage works in the State and that, in the absence of proper infrastructure it could delay the work in Mumbai. However, it was observed in audit that the lowest tenderer had all the equipment, infrastructure and trained/experienced manpower and offered lower centage charges compared to the IRCON. In fact, the IRCON, to whom the contract was given had to sub-contract the work as it was not equipped to handle the work independently. However, the ICAR maintained in March 2001 that the IRCON had extensive exposure in execution of large size projects and was a Government of India undertaking. The fact remains that the offer of the IRCON was not advantageous and the extra expenditure in the award of contract was not disputed.

**2.42** Thus, rejection of advantageous offer of the CDS resulted in extra expenditure of Rs 61.5 lakh on differential centage charges.

**2.43** The contract was awarded to the IRCON without obtaining the necessary environment clearance as the area fell under Coastal Regulation Zone II. According to the memorandum of understanding between the CIFE and the IRCON signed in June 1995, the work was to be completed in 36 months and a mobilisation advance of Rs 41 lakh was released in 1995-96. Due to delay in finalisation of Coastal Zone Master Plan, the contract period was extended in March 1999 up to June 2001. The renewal of the contract with the IRCON in March 1999 was also irregular as it was done without the approval of the Ministry of Finance.

**2.44** Due to time overrun, the cost of the project escalated to Rs 95 crore as per latest estimate of May 2000. The main reason for the delay was due to the failure of the ICAR to non-observance of financial procedures for getting the project approved and consequential non-provision of funds.

**Delays resulted in cost escalation from Rs 6.67 crore to Rs 95 crore even before commencement of major works**

**A firm commitment of funds from Government for the project had not been crystallised**

**2.45** The proposal for the IX Plan in respect of the CIFE was for Rs 29.25 crore including Rs 15.80 crore in respect of above work. Though this was considered by the EFC in November 1999, the Ministry of Finance rejected the proposal of Rs 15.80 crore proposed for the work. Thus, a firm commitment of the funds from Government for this project was not yet crystallised even as of March 2001.

### Deficient Monitoring System

*A system of proper and effective monitoring by the various management councils was lacking.*

**The various management councils were not effectively functioning and do not meet regularly**

**2.46** The Board of Management and various Councils were constituted to monitor the activities of the CIFE. However, these bodies were not functioning effectively inasmuch as, they had not met regularly and not even once a year in many cases as indicated below:

Name of the body	Function of body in brief	Minimum number of meetings required to be held in a year	Number of meeting actually held				
			1995-96	1996-97	1997-98	1998-99	1999-2000
Board of Management (BOM)	Highest policy making body.	4	4	1	2	Nil	Nil
Executive Council	Implementation of the BOM decisions and internal management of the CIFE.	4	Nil	Nil	Nil	Nil	Nil
Academic Council	Academic programmes approval and monitoring of progress	4	3	2	2	1	1
Research Advisory Council (RAC)	Research Projects - approval and monitoring.	1	1	1	Nil	Nil	1
Staff Research Council (SRC)	Consideration and evaluation of research projects and its monitoring.	2	2	1	Nil	2	1
Extension Council	Approval and progress monitoring of extension programmes.	4	2	1	Nil	Nil	Nil

**A scientific audit to bring up higher accountability of scientists and faculties was lacking**

**2.47** In 1997, the CIFE suggested that the existing RAC and SRC should review the research progress and evaluate the performance critically. Similar role was to be played by the Academic Council and Extension Council respectively for the academic and extension programmes. In addition the CIFE also felt the need for a five yearly review of all the activities of the

Institute by a Committee of experts, including internal ones, having a scope broader than that of the present the QRT of the Institute. The need for the introduction of a more rigid system of scientific audit in order to build up a much higher accountability on the part of scientists/faculty members than what was prevailing in the Institute was also contemplated. However, the ICAR was yet to take a decision and draft implementation strategy on these suggestions.

**2.48** The ICAR conducted the QRT review of the CIFE on the achievement of objective/ performance covering the period 1983-92 in 1994. Thereafter, the ICAR constituted the QRT in January 2001 to review the activity of the Institute for the period 1993-98 only on being pointed by the Audit.

An effective monitoring system to oversee the functioning of the institute was also lacking

**2.49** In summary, an effective monitoring system to oversee the working and performance of the CIFE was absent. There is, therefore, an imminent need for strengthening the monitoring system prevailing in the CIFE/ICAR to ensure that the CIFE achieves the objectives as per mandate and improves its efficiency. The ICAR in March 2001 attributed the absence of regular meetings of the various Councils to absence of nominations to vacant positions, non-existence of pressing matters other than routine ones and clarified that steps were being taken to constitute extension councils, etc. The ICAR added that the QRT has been constituted in January 2001 for review of the CIFE for the period 1993-98. The reply dilutes the need for these important management committees and the seriousness they deserve. The reply also confirms ad-hoc functioning of the CIFE without proper monitoring by apex bodies. It also raises serious questions regarding the effectiveness of the existing linkage of CIFE with ICAR.

#### **Unfruitful expenditure**

*The two main research vessels were hardly available for use. The CIFE incurred infructuous expenditure of Rs 63.17 lakh on idle manpower of these vessels.*

**2.50** For its research, training and consultancy purpose the CIFE had three vessels. The *MFV Saraswathi* being the main research vessel was berthed at Mumbai. The *MFV Narmada* was a support vessel used for transportation to and fro of men and material from shore to the *MFV Saraswathi*. Research vessel *MFV Sunderban* was deployed in Hoogly River at Kolkata.

A research vessel *MFV Saraswathi* was lying idle since 1997-98 with attendant expenditure of Rs 43.60 lakh

**2.51** The CIFE utilised *MFV Saraswathi* for 10 training cruises in 1995-96 and for 5 training cruises in 1996-97. It was utilised only for one training cruise in 1997-98. Thereafter the vessel was lying idle for want of major repairs estimated to cost Rs 2.93 crore. The ICAR did not take a final decision on this case nor has it provided funds for repairs. The CIFE incurred infructuous expenditure of Rs 43.60 lakh on salary and allowances of staff of the *MFV Saraswathi* and *MFV Narmada* during 1998-2000.

**Another un-serviceable research vessel was pending disposal from 1994 and on that Rs 19.57 lakh was incurred**

**2.52** The *MFV Sunderban* was not used for any intended purpose during the entire period of 1995-2000. The CIFE stated in July 2000 that the decommissioning procedure was on to scrap this vessel. Since this vessel became unserviceable in 1994, the delay over six years in its disposal was not justified. The CIFE incurred infructuous expenditure of Rs 19.57 lakh during 1995-2000 on salary and allowances of the staff deployed on this idle vessel.

**2.53** Thus, the expenditure of Rs 63.17 lakh incurred on salary and allowances on the three vessels maintained by the CIFE during 1995-2000 was unfruitful.

**2.54** The ICAR stated in March 2001 that the *MFV Sunderban* would be auctioned shortly. The *MFV Narmada* had since been repaired and the *MFV Saraswathi* would be sent to Mazagaon Dock Limited for repairs. It also stated that the staff being regular employees, their services were required for watch and ward, maintenance, etc. and as such the expenditure could not be avoided. The reply is not tenable because of the delays in taking proper action in timely repair or disposal of these vessel and the unfruitful expenditure was a consequence.



### **Indian Veterinary Research Institute, Izatnagar**

*The objective of Indian Veterinary Research Institute (IVRI) was to conduct research, postgraduate education and transfer of technology in the areas of animal health and production to improve socio-economic conditions of the rural population. However, the critical assessment of its scientific activities during the period of review revealed that even after incurring expenditure of Rs 18508.72 lakh during 1995-2000 the activities towards excellence relating to basic and applied research on aspects of animal health and also development of technological know-how to produce quality veterinary biological and to improve socio-economic conditions of rural population had not been intensified. Performance of the IVRI was required to be reviewed by Quinquennial Review Team (QRT) once in every five years. Last such review was conducted in 1987. Moreover, monitoring system to evaluate the progress of research was deficient and inadequate.*

*It is recommended that the IVRI should give more importance to applied research to establish themselves as a potential technology supplier to improve the socio-economic conditions of the rural population as well as get the performance of the institute evaluated by the QRT periodically.*

#### **Highlights**

- ◆ Out of 120 in-house research projects completed during the years 1995-2000, 96 projects were declared closed by the Director in 1996-97, on the plea of these having outlived their utility, without the approval and evaluation of Staff Research Council on their closure. Final reports of 32 projects were not submitted though completed four years back. Failure to achieve the objectives and non-scaling up of research findings in these research projects resulted in non-realisation of benefits from these projects.
- ◆ Continuance of two projects, ignoring QRT's recommendations and directives of the ICAR, resulted in unfruitful expenditure of Rs 136.83 lakh.
- ◆ Maintenance of Pashmina goats for preserving germplasm even after closure of the project in 1997, resulted in avoidable expenditure of Rs 21.60 lakh.
- ◆ Injudicious approval of a sponsored project, objectives of which were not in conformity with that of the institute's mandate resulted in infructuous expenditure of Rs 17.29 lakh.

◆ Against completion of 133 projects during 1995-2000, five technologies were developed and one technology was transferred for commercialisation and one provisional patent was filed in favour of the IVRI.

◆ Mechanism for monitoring and evaluation of research results in the IVRI was poor. Staff Research Council, Research Advisory Committee and Board of Management did not meet regularly. 92 in-house projects completed during 1996-97 and 1998-99 had not been evaluated, contrary to the ICAR's instructions. The QRTs were not regularly constituted and even if constituted, recommendations of such teams had not been implemented.

◆ National Research Centre on Meat approved in November 1986 is still to be established.

◆ High Security Animal Disease laboratory could not be equipped with necessary infrastructural facilities even after completion of the construction work in March 1998 at a cost of Rs 21.38 crore.

◆ The IVRI engaged supporting staff and the ministerial staff much in excess of the norms prescribed by the ICAR in relation to scientific staff. It incurred expenditure of Rs 6.56 lakh during 1995-2000 towards service contract of casual labours engaged to perform routine nature of work in two divisions of the institute, for which adequate number of people were in position in the supporting staff cadre.

## Introduction

2.55 Indian Veterinary Research Institute (IVRI), Izatnagar was established in December 1889 as Imperial Bacteriological laboratory at Pune to undertake research for protection of livestock from dreaded diseases. The Institute was brought under the control of Indian Council of Agricultural Research (ICAR) in April 1966 and was granted the status of Deemed University by Government of India in November 1983.

2.56 The objectives of the Institute are to :

- (a) conduct basic and applied research on all aspects of livestock health, production and livestock products technology.
- (b) impart post-graduate education including extension education.
- (c) develop technological know-how and produce quality veterinary biologicals.

- (d) provide expert advice in veterinary and animal husbandry matters.
- (e) provide diagnostic services at farmer's door.
- (f) improve socio-economic conditions of the rural population through aforesaid objectives.

### Organisational set up

**2.57** The IVRI is headed by a Director and has four campuses at Izatnagar (Uttar Pradesh), Mukteswar (Uttaranchal), Bangalore (Karnataka) and Bhopal (Madhya Pradesh) and three regional stations at Calcutta (West Bengal), Srinagar (Jammu and Kashmir) and Palampur (Himachal Pradesh). The detailed organisational chart of the IVRI is at *Annex-I*. The Board of Management (BOM) of the IVRI is the highest policy making body with 17 members drawn from the ICAR including external experts and Director as ex-officio chairman. The Executive Council, Academic Council, the SRC, RAC, Extension Council and the QRT assist the BOM. The powers and functions of these bodies are contained in *Annex-II*.

### Scope of Audit

**2.58** Audit of the IVRI is conducted under section 20(1) of the Comptroller and Auditor General's (Duties, Powers and Conditions of Service) Act. 1971. An Audit Review on the working of the IVRI was earlier conducted for the years 1986-91 and was incorporated in the report of the Comptroller and Auditor General of India (Scientific Departments) for the year ended 31 March 1991. The ICAR submitted the ATN on the Review in October 1994. The present review covering the period from 1995-2000 intends to focus on management of research and development projects, transfer/commercialisation of technologies and other activities of the institute. Further progress made on the observations of Audit made in the earlier Report has also been examined and commented upon wherever considered necessary.

### Manpower

*The institute has an excess of administrative and supporting manpower as per the norms fixed by the ICAR. The institute engaged contract workers for regular nature of work against which adequate staff existed.*

**2.59** The position of sanctioned strength and men-in-position under different categories for the period 1995-96 to 1999-2000 was as under:

Category	1995-96			1996-97			1997-98			1998-99			1999-2000		
	SS	MP	VP	SS	MP	VP	SS	MP	VP	SS	MP	VP	SS	MP	VP
Scientific	386	345	41	386	342	44	386	329	57	386	314	72	385	310	75
Technical	608	419	189	589	456	133	672	534	138	693	535	158	672	530	142
Administrative	525	428	97	528	449	79	529	443	86	509	439	70	516	441	75
Supporting	1864	1814	50	1864	1763	101	1864	1727	54	1864	1666	198	1864	1634	230
	<i>SS-Sanctioned Strength</i>					<i>MP-Men-in-position</i>					<i>VP- Vacant position</i>				

**Administrative and supporting staff was in excess of prescribed norms**

**2.60** The ratio of sanctioned strength of Technical, Administration and supporting staff with that of scientific staff ranged between 1.53 to 1.80, 1.32 to 1.37 and 4.83 respectively as against ratio of 1:1.5 (Technical), 1:0.5 (Administration) and 1:2 (Supporting) fixed by the ICAR. The IVRI's engagement of supporting staff and the ministerial staff was especially much in excess of the norms prescribed by the ICAR in relation to scientific staff. Apparently, while sanctioning additional posts in these categories, the norms were ignored. The immediate action on the part of the IVRI/ICAR should be to abolish all the vacant posts in these two categories and thereafter reduce the manpower by not filling the subsequent vacancies till correct ratio is reached.

**2.61** In the context of over staffing of Technical staff, the ICAR in its ATN against paragraph 12.1.1 of Comptroller and Auditor General of India's Report (Scientific Departments) for the period ended 31 March 1991 stated that the increase was due to non-filling up of scientific posts. The shortfall in filling up scientific posts continued and has worsened from 41 vacancies in 1995-96 75 vacancies in 1999-2000. The IVRI stated in July 2000 that the requisitions for vacant posts of scientists were being sent shortly. Just as the excess manpower in administrative and supporting staff is a major cause of worry, the huge shortages in the critical cadre of scientists is weakening the Institute. This issue needs to be discussed at length by the IVRI as also the ICAR who should take all steps to make the offers attractive.

**Institute engaged contract workers though adequate staff exists**

**2.62** During 1995-2000 though supporting man-power was more than double the prescribed norms, the IVRI incurred expenditure of Rs 6.56 lakh towards service contract of casual labours engaged to perform routine nature of work in two divisions of the institute e.g. sanitation and cleaning of hostel/other building, for which adequate number of people were in position in the supporting staff cadre.

## Financial Outlays

**2.63** The Institute is mainly financed through grants released by the Department of Agricultural Research and Education to the ICAR. Funds are also provided from Agricultural Produce Cess Fund (AP Cess Fund) and by

other agencies and departments for specific schemes. The expenditure incurred by the Institute during the years 1995-2000 was as under :

(Rs in lakh)

Head	1995-96		1996-97		1997-98		1998-99		1999-2000	
	RE	Exp.	RE	Exp	RE	Exp	RE	Exp	RE	Exp
Non-Plan	2165.50	2164.90	2340.00	2315.63	2861.00	2816.74	3778.50	3776.92	3781.00	3770.56
Plan	600.00	599.64	440.00	438.25	378.20	385.61	500.00	499.39	727.49	725.03
AP Cess Fund	54.45	36.12	35.55	12.56	27.94	12.73	63.11	39.31	54.94	34.96
Krishi Vigyan Kendra	14.95	24.57	15.20	15.43	18.35	20.13	36.60	40.46	23.70	24.61
Deposits	128.28	59.99	350.47	286.08	264.86	134.65	290.13	158.48	335.96	115.97
<b>Total</b>		<b>2885.22</b>		<b>3067.95</b>		<b>3369.86</b>		<b>4514.56</b>		<b>4671.13</b>

RE – Revised Estimates

Exp - Expenditure

## Research Activities

**2.64** The IVRI's Research and Development activities stem out of its in house/institutional projects/service projects, sponsored projects and foreign collaborative research projects.

## In-house Research Projects

*The IVRI undertook 232 in-house projects during 1995-2000, including 108 projects carried over from previous years, of which 120 projects were completed. Of 120 projects completed, 96 projects were declared closed without attaining their objectives. 10 projects were dropped/kept-in-abeyance.*

**2.65** The position of in-house projects of the IVRI for the period from 1995-2000 is detailed below:

(Number of Projects)

Year	Opening balance	Taken up	Completed	Dropped	Kept-in-abeyance	Ongoing
1995-96	108	14	12	5	-	105
1996-97	105	-	96*	-	-	9
1997-98	9	95	-	-	-	104
1998-99	104	15	12	3	2	102
1999-2000	102	-	-	-	-	102

\* Declared closed without completion

**96 in-house projects were declared completed without attaining their ultimate objectives**

**2.66** Of 120 projects completed during 1995-2000, 96 projects were closed in 1996-97 at the instance of the RAC as the same had outlived their utility. Test check of 80 project files out of the 96 projects declared closed during 1996-97 revealed that the objectives were stated to be achieved in 16 projects as per the final Project Report submitted by the concerned Project Investigator. However, neither these final reports were evaluated by the SRC nor there was any indication in the project files about any further action taken on the stated achievement in these projects. Thus, the research results of these 16 projects completed at an estimated cost of Rs 107.80 lakh were confined to the laboratory itself and did not yield any benefit to the society.

**Of 29 projects where objectives were partially achieved, further studies were taken up in respect of seven projects only**

**2.67** In 29 projects completed at a cost of Rs 132.55 lakh objectives were partially achieved and further studies were required to reach the stage of technology development. However, there was nothing on record to show the status of the further scale up studies undertaken to achieve the ultimate objectives of these projects. On enquiring about the further studies taken up, the IVRI stated in March 2001 that it has taken up new in-house projects to achieve the left out objectives of the seven closed projects; it has not taken up any further studies in eight projects due to the reasons like non-availability of the required infrastructure, retirement of scientists etc. The IVRI did not intimate about the further studies taken up in respect of the remaining 14 closed projects.

**Final reports of 32 projects completed four years back had not been submitted**

**2.68** In three projects involving estimated cost of Rs 18.89 lakh research results were not obtained and final project reports of 32 projects completed at an estimated cost of Rs 261.04 lakh were not submitted as of March, 2001 though completed four years back. Thus, the estimated expenditure of Rs 520.28 lakh incurred on these 80 projects remained largely unfruitful. The actual expenditure incurred on the projects could not be ascertained in audit since the IVRI did not prepare project accounts.

**2.69** Regarding closure of 96 projects, the IVRI stated in July 2000 that the decision was taken by the then Director in exercise of his administrative power and reasons for this decision were best known to him. the IVRI further stated that due to frequent change of Director and heavy load of office work the final reports of the projects could not be evaluated. Regarding non-submission of final reports it stated in March 2001 that reminders to project investigator had already been issued.

**2.70** However audit carried out the detailed examination of some in house projects; the results thereof are given in following paragraphs.

## Wasteful expenditure

### Improvement of goat for Pashmina production

The QRT recommended in March 1990 to close the project and pass on the germ plasm elsewhere

2.71 The IVRI Mukteswar Campus undertook one service project titled "Improvement of goat for Pashmina production" in April 1986. The objectives of the project were to develop a new breed with production potential of 200g Pashmina with an average fibre diameter of 14 micron and to study the adaptability of half breed Pashmina type goats under rural management conditions and to assess the possibility of utilizing this livestock for betterment of weaker section of community. The QRT while reviewing the progress of research activities for the period 1982-87 specifically pointed out in March 1990 that the area selected for the project was not the conventional abode for Pashmina goat both in terms of altitude and rainfall as due to heavy rainfall and mountainous terrain there was no goat population around Mukteswar for extension of any technology generated. The QRT also commented in its report that the project was not well conceived and had achieved no results of practical/economic utility and recommended to pass on the valuable germplasm to the Govt. of Jammu & Kashmir or Himachal Pradesh. The recommendations of the QRT were approved by the Governing Body of the ICAR and the ICAR directed the Director, IVRI in July 1990 to implement the recommendations contained in the QRT's report. However, the IVRI did not follow the QRT's recommendations and continued the project up to March, 1997 incurring an expenditure of Rs 120.94 lakh since inception. It also did not pass on the livestock which were acquired under the project as per recommendation of the QRT and spent an amount of Rs 21.60 lakh from April 1997 to June 2000 on upkeep of the same. Though asked for in June 2000, the IVRI did not clarify the reason as to why it continued the project despite the QRT's recommendation.

Non-closure of project resulted in expenditure of Rs 76.96 lakh wasteful

2.72 The IVRI, thus, incurred a wasteful expenditure of over Rs 76.96 lakh between June 1990 to March 1997 even after its controlling body viz. ICAR advised closure of the project and relocation of its resources on the basis of findings of the QRT, way back in 1990. It continues to spend on upkeep of goats etc. even after the closure of the project. More importantly, this case shows the lack of control and failure of review mechanism at the IVRI and the ICAR.

### Improvement of buffalo herd

2.73 A service project titled "Improvement of buffalo herd" was in progress since 1970 to establish an elite herd of 100 female Murrah buffaloes and study their growth, reproductive and productive performance under the local farm conditions. The ultimate aim was to achieve average yield of 2000 kg. of milk in one lactation season (300 days). While reviewing the progress of the project

for the period 1982-87, the QRT did not find justification for continuing this project since its objective was not covered under the mandate of the institute and in view of establishment of Central Institute for Research on Buffaloes (CIRB) in 1985 at Hissar for undertaking research on buffalo and recommended to transfer this buffalo herd to the CIRB. The QRT's recommendations, though were accepted by the ICAR and it had directed the Director, IVRI in July 1990 to implement the recommendations of the QRT. The IVRI did not transfer the buffalo herd and continued the project up to March 1997 ignoring directives of the ICAR. The final report on the project was also not submitted as of March 2001. Though asked for the IVRI did not intimate the reasons for non-submission of final report.

**2.74** Thus, for non-implementation of the QRT's recommendation and directives of the ICAR the project which was to be closed in July 1990 continued upto March 1997 rendering the estimated expenditure of Rs 59.87 lakh incurred on the project wasteful. This shows failure of administrative control of the ICAR over the IVRI.

#### **Assay of swine-fever vaccine using rabbit and cell culture**

**2.75** A project on "Assay of swine-fever vaccine using rabbit and cell culture" was taken up in April 1997 at an estimated cost of Rs 5.75 lakh. The objective of the project was to develop an alternative method of using rabbit and cell culture for quality control of swine fever vaccine with aim to replace the use of pigs and virulent virus. The project was scheduled to be completed by March 2000. The SRC observed in April 1998 that the cell culture strains of swine fever virus were already available for vaccine production in Russia and China and opined that the institute should not waste time and energy by doing work on this line. But the IVRI continued the project upto March 1999 and closed before attainment of the objectives. Thus, injudicious selection of subject of the research resulted in incurring an estimated expenditure of Rs 4 lakh wasteful.

### **Non achievement of objectives**

#### **Studies in cattle production under temperate climatic conditions of Mukteswar**

**2.76** Mukteswar Campus of the IVRI undertook a service project entitled "Studies in cattle production under temperate climatic conditions of Mukteswar" in April 1982. The objectives of the project were to generate basic data/scientific information about production, reproduction, health and management of exotic and crossbred cattle under temperate conditions and development of hill suited cattle breed for temperate, hilly region which could perform well under scarce fodder availability and vagaries of climatic

**Objectives of project costing Rs 160.00 lakh remained unachieved, even after 15 years of persuasion, for want of infrastructure**



conditions. The practical utility of undertaking the project was to aid the local people in augmenting their income generation through improved cattle farming practices including breed selection and the publication of research result to help researchers, policy makers, planners in formulating future research strategies. As the project had outlived its utility, the RAC in April 1996 recommended closure of the project. The IVRI closed the project only in March, 1997 after incurring an expenditure estimated to Rs 160.00 lakh. The final report submitted in September 1997 disclosed that there was an urgent need for characterization evaluation and genetic improvement of the local cattle so as to evolve a most economic and adaptive animal which could perform well under the existing agro-climatic conditions. But no further work was undertaken as per the need felt in the final report due to non-availability of required man power comprising of scientific, technical and supporting. Accepting the above facts the IVRI stated in June 2000 that it could not do so for want of a full fledged Extension Section.

### **Studies on repeat breeding cattle and buffaloes to restore fertility**

**Foreclosure of a project costing Rs 9.28 lakh resulted in the objectives of a project remaining unachieved even after execution for more than 16 months**

**2.77** The IVRI undertook a project on "Studies on repeat breeding cattle and buffaloes with particular reference to certain therapeutic measures to restore fertility under rural and farm conditions" in April 1997 at an estimated cost of Rs 9.28 lakh. The objectives of the project were to generate basic information on causative factors, diagnosis, therapeutic and management practices and evolve economically feasible and easily available therapeutic agents besides developing immuno-therapeutic measure to treat drug resistance cases. The duration of the project was two years with sanctioned manpower of one Project Investigator, and one Associate. Only some preliminary work of selecting 23 Holstein friesian crossbred cows was carried out and the Director decided to close the project since the Project Investigator did not take the responsibility to complete the work. The project was, thus, foreclosed in August 1998.

**2.78** Thus, as a result of foreclosure of the project, the objective to evolve a economically viable and easily available therapeutic agents for the benefits of livestock owners remained unachieved rendering the expenditure of this project wasteful.

### **Development of reagent for Immunodiagnosics and antigen and its application in FMD epidemiology**

**Despite time overrun of a project costing Rs 10.00 lakh the objectives remained unachieved**

**2.79** The IVRI undertook a project on "Role of non-structural proteins of Foot and Mouth Disease (FMD) virus on development of reagent for Immunodiagnosics and antigen and its application in FMD epidemiology" at an estimated cost of Rs 10 lakh in June 1992. The duration of the project was three years and it was scheduled to be completed by June 1995. The objectives

of the project were to prepare CDNA and amplify in E. coli using suitable plasmid vector and to subclone in suitable expression vector system and to purify the expressed proteins as precise reagents in application of improved immunodiagnostic tests. The project was not completed in time and continued beyond its scheduled period without the approval of competent authority. The project was, however, completed in March, 1996 after incurring an expenditure of Rs 7.31 lakh and the final project report was submitted in April 1997 i.e. after one year from the date of its completion. The reasons for delay in completion of the project was not on record. While evaluating the research results of the project, Joint Director, IVRI observed in April 1997 that there was no mention in the final report about the production of standard via antigen and antisera which was the main aspect of the work.

**2.80** Thus, the desired objectives of the project remained unachieved even after incurring an expenditure of Rs 7.31 lakh.

#### **Development of diagnostic techniques for differentiation of species of origin of meat and blood**

**2.81** A project on "Development of diagnostic techniques for differentiation of species of origin of meat and blood and identification of toxicants of Veterinary Forensic Importance" was undertaken in April 1997 for a period of three years at an estimated cost of Rs 9.09 lakh. The objective of the project was to establish facilities for identification of meat and blood stains of different animal species and to develop a fully equipped forensic laboratory. In May 1999, after 25 months the project investigator approached the IVRI for its discontinuation, as he was grossly involved in other projects, clinics, teaching and had no time for significant contribution in the project. Keeping this in view the SRC in its meeting held in May 1999 decided to keep the project-in-abeyance till more hands join the division. But even after lapse of more than one year Institute did not revive the project upto June 2000. On being asked regarding the reasons for not reviving the project by the associates attached with the project the IVRI stated in June 2000 that one associate was under transfer and another had no time to continue the project.

**2.82** Thus, for non-revival of the project, the objective remained unachieved even after continuation of the project more than two years.

#### **Newer diagnostic approaches for goat pox**

**2.83** Mukteswar Campus of the IVRI undertook in April 1997 a project on "Newer diagnostic approaches for goat pox" at an estimated cost of Rs 25 lakh for a period of two years. The objective of the project was to produce better diagnostic reagents/tests/kits than the currently available viz. Immunocapture Elisa, Avidin Triotin Elisa etc. and to evaluate the live attenuated vaccine for goat pox. Though the project was shown completed in March 1999 after

**Non-revival of project resulted in the objectives remaining unachieved even after continuation for two years**

**Project was shown as completed without attaining the ultimate objectives**

incurring an estimated expenditure of Rs 7.26 lakh, the diagnostic kits were not developed. The IVRI stated in June 2000 that the main objective of the project was to produce better diagnostic tests (both conventional and biotechnological) for immediate benefit in the fields of research and farming community. The reply is not tenable as the objectives set out for the project were to produce better diagnostic reagents/tests/kits.

**2.84** Thus the project was shown completed pending development of the desired diagnostic kits resulting in the objectives remaining partially achieved.

### Wrong Selection of Project

**2.85** The IVRI undertook a project on "Evaluation, characterization and upgradation of indigenous cattle of Kumaon hill" in April 1997 at an estimated cost of Rs 19.92 lakh with the objective to evolve a most economic and adaptive cattle which can resist under the existing agro-climatic conditions, limited feed and fodder resources. The duration of the project was four years. Scrutiny revealed that though contribution of Geneticist Scientists was most important for execution of such nature of work, but in April 1998 the only geneticist scientist associated with the work was transferred from the project without any substitute. The RAC observed in January 1998 that there was nothing new in the project. The IVRI dropped the project in October 1998 after an expenditure of Rs 6 lakh had been incurred.

**2.86** Thus, selection of wrong subject of research resulted pre-closure of the project besides incurring the wasteful expenditure on the project.

### Sponsored Projects

*Out of 18 Sponsored Projects, nine projects were completed during 1995-2000. The injudicious sanction of a project, the objectives of which were not in conformity with the institute's mandate, resulted in its foreclosure in the midway after incurring an expenditure of Rs 17.29 lakh. The technology developed from another sponsored project could not be commercialised even after five years of its completion.*

**2.87** The position of sponsored projects of the IVRI for the period from 1995-2000 is detailed below :

Year	(Number of Projects)				
	Opening balance	Taken up	Completed	Dropped	Ongoing
1995-96	4	4	2	Nil	6
1996-97	6	1	2	Nil	5
1997-98	5	3	-	Nil	8
1998-99	8	4	3	Nil	9
1999-2000	9	2	2	Nil	9

**2.88** Test check of two completed sponsored projects selected at random revealed as under:

**Infructuous expenditure**

**2.89** The IVRI undertook a research project entitled "An action research project on Integrated Livestock Technology and Extension (ILTE) for rural development", Kurar complex, in April 1992 at a cost of Rs 37.50 lakh out of the fund provided by the ICAR from A.P. Cess fund for a period of five years. The objectives of the project were to test the efficacy and suitability of the ILTE system as a model strategy under problem soil conditions and to assess the impact of livestock based rural development.

**2.90** In June 1994 an internal committee comprising of six scientists of different divisions of the institute was constituted by the IVRI to review the achievements vis-à-vis expenditure of the project. The committee after considering the basic facts on the implementation of the project opined in their report that as the project was neither approved as an institute project nor it was in the format of Cess Fund project it remained unmonitored by either of the in-built system. The committee further pointed out that neither considerable progress was made even after completion of two years nor project programme suited the requirement of the farmers of the area. While accepting the report of the review committee the IVRI decided in January 1995 to revise the project by giving more emphasis on extension programme rather than establishing it as an income generating unit.

**2.91** The project was again reviewed by another committee in March 1996 and it was observed that the objectives of the project were not in conformity with the mandate of the IVRI and no considerable progress had been made as envisaged in the project programme. On the basis of the observations made by the committee the ICAR approved the IVRI's proposal for termination of the project in March 1996. By that time the institute had incurred expenditure of Rs 17.29 lakh on the project. It could not be ascertained in audit as to how the ICAR approved the project to be funded out of A.P. Cess Fund when the objectives were not in conformity with the IVRI's mandate because related records were not produced to audit though called for.

**2.92** Thus, the injudicious sanction of a project, the objectives of which were not in conformity with the institute's mandate, resulted in the foreclosure of the same in the midway rendering the expenditure of Rs 17.29 lakh incurred on the project infructuous. The IVRI did not confirm the facts and figures of the audit findings on the ground that the concerned files of the project were with vigilance section.

**The IVRI under took a project which was not in conformity with its mandate**

**Injudicious sanction of project resulted in infructuous expenditure of Rs 17.29 lakh**

### Delay in commercialisation of technology

A technology developed at a cost of Rs 33.58 lakh remained uncommercialised even after five years

2.93 The IVRI undertook a project titled "Development of prototype immunodiagnostic kits to animal and poultry diseases" funded by Department of Biotechnology in March 1992 in collaboration with Department of Microbiology College of Veterinary Science, Andhra Pradesh Agriculture University, Tirupati at a cost of Rs 33.58 lakh. The duration of the project was three years. The objectives of the project were to produce prototype immunodiagnostic kits like ELISA and on site field kits like dot-ELISA. The long-term objective was to explore the possibility of commercialisation with the support of DBT and industry. The project was completed in March 1995 and final report was submitted in August 1998 i.e. after three years from the date of completion of the project. While concluding the results it was suggested in the final report that steps should be taken to commercialise kits meant for poultry industry. But the technology was not commercialised either by the IVRI or by sponsoring agency as of June 2000. Thus, the technology developed in March 1995 remained uncommercialised even after lapse of more than five years.

### Publication of research results

2.94 Publication of papers in top referred journals is one of the indicators identified by IVRI/ICAR to evaluate the performance of the institute. Position of total papers published in Indian and Foreign Journals during 1995-2000 by the institute was as under:

Particulars	1995-96	1996-97	1997-98	1998-99	1999-2000	
Scientific manpower	345	342	329	314	310	
Total papers published	313	330	242	361	N.A.	
Papers published in	Foreign journal	8	13	5	14	N.A.
	Indian journal	305	317	237	347	N.A.
Papers presented in seminar and symposia	359	415	176	174	N.A.	

There was lack of participation of scientists in publication of papers in foreign journals

2.95 It would be evident from the above table that during last four years i.e. 1995-99 the average ratio of scientific publications per scientist per annum ranged from 0.74 to 0.96 except for the year 1998-99 when it raised to 1.15 which indicates lack of participation of the scientists in publication of papers in scientific journal. The position of publication for the year 1999-2000 was not made known to Audit.

## Patent and transfer of technology

*The IVRI has developed five technologies during 1995-2000 out of which only one has been transferred. No patent has been granted to the IVRI during 1995-2000.*

**2.96** Research and Development work resulting in development of a process for the production of new compounds, compositions, development of new machines leads to generation of intellectual property.

**2.97** Out of 133 projects completed during 1995-2000, though the IVRI developed five technologies, it had only filed one provisional patent in 1996-97. No patent was, however, granted/sealed in favour of the IVRI. Out of five technologies developed the IVRI had transferred only one technology. On being asked regarding the reasons for not filing sufficient patents one of the Divisional Heads stated in June 2000 that no facilities/opportunities to develop technologies for commercialisation or for obtaining patents were provided to them.

**2.98** Thus, it indicated that the institute had not emphasized upon filing of patents as well as transfer of technology.

Of five technologies developed, four were not transferred/commercialised and no patent was sealed/granted

## Educational activities

*During 1995-2000, there was very poor response of students admitted in different disciplines as compared to number of seats available.*

**2.99** The Institute was conferred the status of "Deemed University" in November 1983. The Institute awards post graduate degree in 22 disciplines and Ph.D degree in 21 disciplines. Besides, National Diploma courses are also conducted in six to nine disciplines. The number of seats available and the number of students admitted in different courses during the last five years 1995-2000 was as under :

Year	Number of students admitted			
	M.V.Sc		Ph.D	
	No. of seats available	No. of students admitted	No. of seats available	No. of students admitted
1995-96	140	107	95	32
1996-97	80	51	91	41
1997-98	80	65	75	45
1998-99	80	76	85	38
1999-2000	80	76	75	55

**There was poor response of students against available seats in different courses**

**The IVRI continued to follow master degree programmes despite recommendations of the QRT to discontinue it**

**2.100** The number of students varied from 51 to 107 for M.V.Sc. and from 32 to 55 for Ph.D. During 1995-2000 there was very poor response of students admitted in different disciplines as compared to number of seats available.

**2.101** The QRT observed in 1987 that academic programmes leading to Master Degree which were available in the State Agricultural Universities (SAUs) were being imparted by the IVRI. It recommended that the IVRI should concentrate on Doctoral and Post-doctoral programmes only to attract best talent in the country and Master Degree be awarded in certain specialized areas which were not available in the SAUs. However, despite the QRT's recommendations approval by the ICAR (March 1997), Master Degree programmes, which were also available in the SAU's were still being followed during 1995-2000. The IVRI stated in June 2000 that in the interest of profession it was decided to continue the Masters programme in all the disciplines, which were available in the SAUs.

**2.102** Further, the QRT desired that the IVRI should discontinue National Diploma Courses in time bound manner as the said courses were available in the SAUs. The ICAR in March 1997 had also asked the Institute to discontinue these courses except course on National Diploma in Equine, Husbandry, Medicine and Surgery. But the IVRI ignoring those instructions continued National Diploma Courses in different disciplines during 1991-2000.

## **Monitoring and evaluation**

*The RAC and the SRC required to formulate research programmes, conduct periodical review and assess progress of research activities did not meet regularly. Audit observed that over the entire period of review 92 projects were closed without the critical appraisal by the RAC/SRC. Performance was also to be evaluated by the QRT set up by the ICAR once in every five years. No QRT was constituted since 1987. All this clearly shows non-existence of effective monitoring and evaluation system in the institute.*

**The RAC and the SRC required to monitor research activities did not meet regularly**

**2.103** The research activities of the IVRI are monitored by the QRT, RAC and SRC. While the QRT is constituted every five years, the RAC and the SRC were to meet once and twice in a calendar year respectively. Though in July 1994, the ICAR instructed all the institutes under its control to constitute the RAC and the SRC, but the RAC of the IVRI though constituted in July 1995 met first time in April 1996 i.e. after a lapse of one year. As against one meeting in a calendar year, it did not meet in 1997 and no meeting for the calendar year 2000 was held up to March 2001. As against two meetings in a year, the SRC met only once every year between 1995 to 2000. In 2001 no SRC meeting was held up to March 2001. As a result, concerned project

**92 projects were closed without the critical review of the RAC/SRC contrary to the ICAR instructions**

leaders and scientists were deprived of suggestions and recommendations of the RAC and the SRC and the projects continued without any appraisal of their progress during that period. Final Reports of 92 in-house research projects, out of 120 completed were examined in audit and it was observed that projects were closed without the critical appraisal by the RAC/SRC/Director contrary to the ICAR's instruction. On being pointed out the Institute stated in July 2000 that meetings could not be held due to frequent changes of the Director. The BOM was expected to hold meetings once every quarter to review performance of developmental schemes of the institute but it did not meet quarterly and held only eight meetings as against 20 meetings during 1995-2000.

**2.104** The BOM discontinued in July 1991 the system of sending the final reports of completed in-house projects to the referees for their evaluation and comments, instead as per new system the final report was accepted and approved by the SRC and countersigned by the Director. Scrutiny, however, revealed that final project reports in respect of 80 projects out of 96 completed during 1996-97 and 12 projects pertaining to 1998-99 were neither put-up to the SRC for evaluation nor signed by Research Co-ordination and Monitoring Cell and countersigned by the Director. Instead, a rubber seal of Director as a token of evaluation was affixed. The IVRI stated in July 2000 that due to heavy load of office work the final project reports could not be evaluated and rubber seal was applied. The Institute, however, assured proper evaluation in future.

**2.105** Clearly the system of evaluation of research projects is non-existent and needs urgent attention of the Government because absence of an adequate and effective evaluation system is a pointer to definite deterioration of the academic excellence of the Institute as also absence of any worthwhile assurance that funds for the project were gainfully used. This dismal picture is complete when one reckons the high failure rate of these research projects vide comments in Paras 2.65 to 2.92 of this report.

**The QRT was not constituted by the ICAR after 1987 for reviewing the performance of the IVRI**

**2.106** Besides the RAC and the SRC, performance of the IVRI was to be reviewed by the QRT set-up by the ICAR once in every five years. No QRT had been formed since 1987. The IVRI stated in July 2000 that formation of the QRT is under active consideration.

**2.107** The QRT emphasized in 1987 that Animal Health being the mandate of the IVRI, activities of the Institute should be restricted to Animal Health. While accepting the QRT Report. Governing Body of the ICAR strongly instructed the IVRI to implement recommendation contained in the Report. But test check of records for the period 1997-2000 revealed that the IVRI continued undertaking projects on animal production in addition to projects on



animal health ignoring the recommendations of the QRT and directives of the ICAR as detailed below :

Year	Projects undertaken	
	Animal Health	Animal Production
1997-98	51	36
1998-99	10	6

**2.108** In summary, as revealed from the foregoing, monitoring and evaluation arrangements in the IVRI were very poor and ineffective.

### **National Research Centre on Meat**

**The NRC on meat approved in 1986 remained non-functional despite pointing out in previous Report**

**2.109** Mention was made in paragraph 12.1.7 of the Report of the Comptroller and Auditor General of India (Scientific Departments) for the year ended 31 March 1991 regarding non-functioning of the NRC on Meat despite expenditure of Rs 11.81 lakh upto June 1991 on salaries of non-scientific staff. In the ATN submitted by the ICAR in October 1994, it is stated that the NRC (Meat) could not come into being during VII Plan period due to non-finalization of the modalities regarding the conversion of Livestock Product Technology Division of the Institute into the NRC (Meat). It was also stated that the Committee constituted to review the achievements, mandate, constraints of the IVRI, to whom the issue *inter-alia* regarding independent status of the NRC was referred, recommended in November 1992 to continue the activity of the NRC (Meat) as part of the IVRI for the present and advised to merge the staff created for the activity during VII Plan with the division of Livestock Product Technology Division till sufficient funds to the tune of Rs 10 crore were available for creating the NRC (Meat) as a separate Institute at a proper location in the Country.

**2.110** Scrutiny revealed that as of December 2000, except for the posting of one Principal Scientist at Hyderabad as officer on special duty in September 1999 no progress has been made in the matter of establishing the NRC on meat, which was approved in 1986 as separate Institute.

### **Non-operation of a laboratory**

**2.111** A mention was made in paragraph 12.1.9 (ii) of the Audit Report of the Comptroller and Auditor General of India (Scientific Departments) for the year ended 31 March 1991 regarding delay in construction of High Security Animal Disease Laboratory (HSADL) at Bhopal as well as installation/commission of the equipment procured for the same. The ICAR stated in its ATN of October 1994 that about two more years would be required for completion of work.

**The construction work of the HSADL started in May 1991 to be completed in 1993 was completed in March 1998**

**2.112** Though construction work of the HSADL started in May 1991 and planned to be completed by middle of 1993, it was actually completed in March 1998 at a total cost of Rs 21.38 crore as against estimated cost of Rs 17 crore due to measures like litigation, court cases, heavy rains, delay in procuring equipment and additions in the middle of the construction work. Of 16 equipment valuing Rs 1.58 crore approved under VII plan period, only nine equipment costing Rs 48.64 lakh were procured. Remaining equipment were not procured due to paucity of funds. Against sanctioned strength of 15 scientists, 38 technical and 43 administrative and supporting staff, only 12 scientists, 15 technical and 26 administrative and supporting were recruited by the IVRI. The vacant posts could not be filled up due to ban on recruitment.

**2.113** On being asked regarding the slow progress of the establishment of the laboratory the IVRI stated in June 2000 that the progress of the work was hampered due to non-recruitment of technical and supporting staff. It is also stated that large number of machineries viz. effluent treatment plant, rendering plant, air handling system, boilers, generators, autoclaves etc. which were required to run in shift system also remained in-operative due to non availability of technical staff.

**2.114** Thus, the failure to equip with necessary infrastructural facilities, resulted in non-operation of the laboratory even after nine years of commencement of the work.

#### **Delay in commissioning of a cold storage plant**

**2.115** Administrative approval and expenditure sanction of the ICAR for providing and installing cold storage equipment in new building for the Division of Livestock Products Technology at the IVRI, Izatnagar at a cost of Rs 10.83 lakh was received by the IVRI in August 1981. Funds amounting to Rs 10.83 lakh were released to the CPWD in November 1981. In August 1985, the institute instructed the CPWD to provide overhead rail system in cold storage and slaughterhouse, but site for installation of cold storage plant was not handed over to them. The reasons for delay were, however, not on record. In March 1993, the CPWD gave a revised estimate for Rs 27.35 lakh and demanded the balance amount of Rs 16.52 lakh attributing the escalation for increase of cost, labour and material. The ICAR accorded the revised sanction for Rs 27.35 lakh in March 1995. The CPWD reminded the IVRI in February 1996 to deposit the additional funds of Rs 16.52 lakh but till June 2000, the balance amount was not paid to the CPWD on the ground that the plant was not handed over to them. It was, however, seen that the CPWD had requested the IVRI to take over the plant by February 1999 but the IVRI had not taken any action in this regard.

**Non-release of sanctioned amount resulted in blocking of Rs 10.83 lakh for more than 19 years**

**2.116** Thus, non-release of sanctioned money of Rs 16.52 lakh to the CPWD resulted in delay in commissioning the cold storage plant, blocking up of Rs 10.83 lakh for over 19 years besides defeating the purpose for which the cold storage plant was procured for so many years.

### Outstanding advance

Accumulated  
outstanding advance  
amounting to  
Rs 1013.61 lakh as of  
March 2000

**2.117** A mention was made in Para 12.1.14 of the Audit Report of the Comptroller and Auditor General of India (Scientific Departments) for the year ended 31 March 1991 regarding outstanding advances of Rs 102.06 lakh. In the ATN, the ICAR stated in October 1994 that action, to clear outstanding amount, was being pursued vigorously. Scrutiny of records revealed that it failed to check payment of advances and outstanding advance accumulated to Rs 1013.61 lakh as on 31 March 2000 against officials, private parties and Government organisations as indicated below :

*(Rs in lakh)*

Year	Govt. Deptts. (CPWD/DGS&D and others)	Private parties	Departmental Official	T.A	LTC	Total outstanding as on 31.3.2000
1995-96	237.38	1.00	0.63	23.98	-	262.99
1996-97	173.06	-	0.15	-	-	173.21
1997-98	38.44	6.89	0.03	-	-	45.36
1998-99	122.39	1.63	-	-	0.79	124.81
1999-2000	377.76	17.51	9.84	0.91	1.22	407.24
<b>Total</b>	<b>949.03</b>	<b>27.03</b>	<b>10.65</b>	<b>24.89</b>	<b>2.01</b>	<b>1013.61</b>

**2.118** The accumulation of outstanding advances amounting to Rs 1013.61 lakh as on 31 March 2000 was contrary to the assurance made by the ICAR in the ATN of October 1994.

### Asset Register

**2.119** A mention was made in the paragraph 12.1.13 of the Comptroller and Auditor General of India's Report for the year ended 31 March 1991 regarding non-maintenance of Asset Register. The ICAR in its ATN stated that the work could not be completed due to superannuation of the concerned officer but assured to update the Asset Register. However, no Asset Register was maintained by the IVRI. Thus for non-maintenance of asset register, assets valuing Rs 52.21 crore acquired by the IVRI upto March 2000 could not be vouchsafed in Audit.

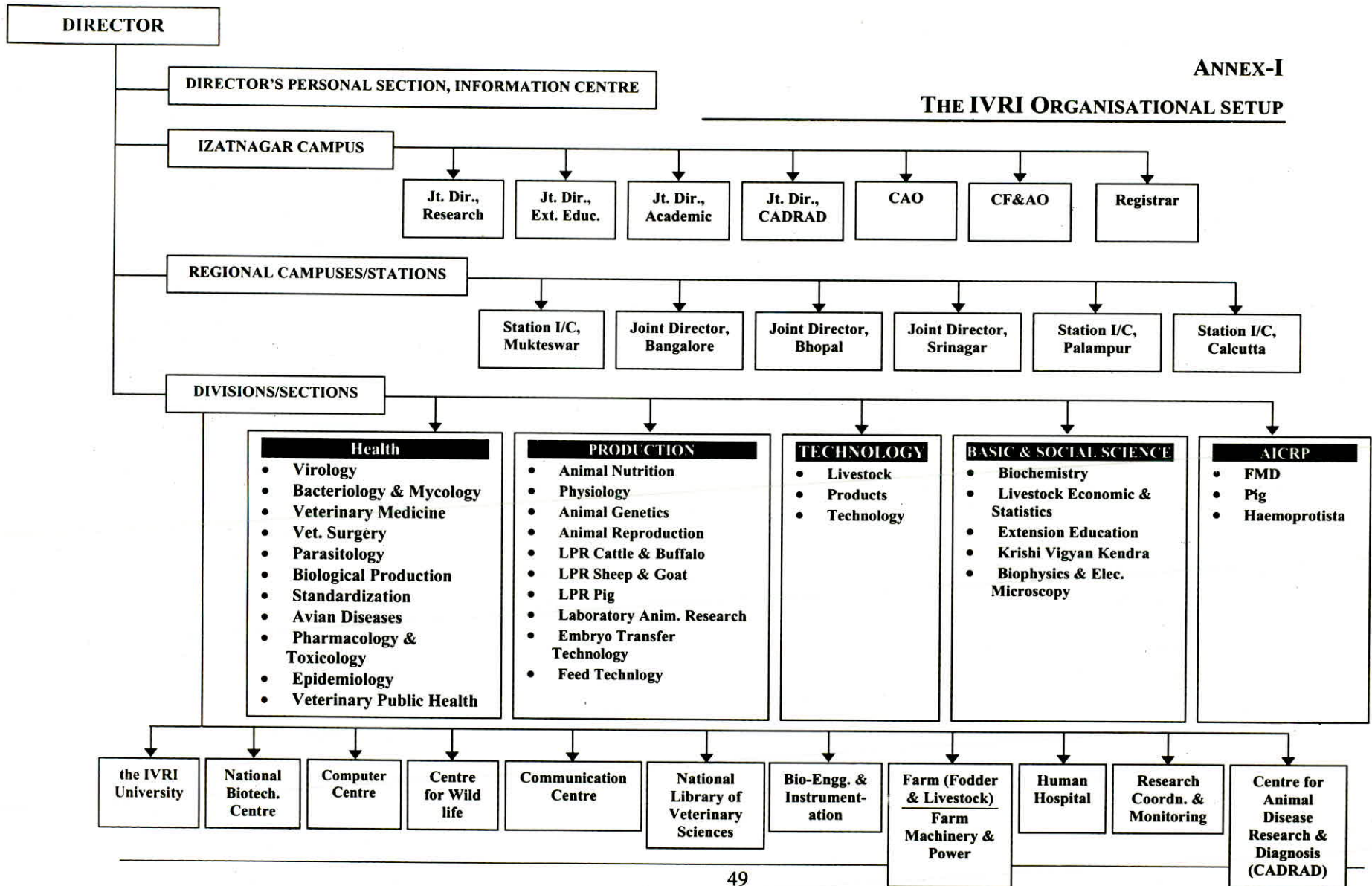
## Internal audit

**2.120** The ICAR has an internal inspection unit for conducting inspection of its institutes but the internal inspection of the Institute had not been conducted by the ICAR since its taking over by the ICAR in the year 1966.

**2.121** Audit reported the matter to the ICAR in November 2000, who has not replied (April 2001).

ANNEX-I

THE IVRI ORGANISATIONAL SETUP



## **ANNEX – II**

### **Powers and Functions of different bodies**

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#### **EXECUTIVE COUNCIL**

Executive Council deals with the administrative matters of the Institute.

#### **ACADEMIC COUNCIL**

Academic Council deals with matters relating to education and training.

#### **RESEARCH ADVISORY COMMITTEE**

An external expert heads the RAC, which has also some more external experts as members. It is responsible for suggesting research programmes and reviewing research achievements.

#### **STAFF RESEARCH COUNCIL**

The SRC headed by Director and consisting of 41 officers is responsible for consideration of research proposals, review of annual progress of ongoing research project and for monitoring the action taken by the Institute on the recommendations of the QRT.

#### **EXTENSION COUNCIL**

The Extension Council is responsible for extension programmes of the Institute.

## CHAPTER 3 : COUNCIL OF SCIENTIFIC AND INDUSTRIAL RESEARCH

### Indian Institute of Petroleum, Dehradun

*Over a period 1994-2000, Indian Institute of Petroleum (IIP) could develop only 28 technologies against an expected number of 45. Of these only 9 could be transferred to the industry. Serious irregularities were noticed in the technology transfer process. In one case the proposed selling cost of intellectual property rights was lowered down from Rs 6.50 crore to Rs 5.00 crore in a day. Out of the expected Rs 5.00 crore, the IIP has received only Rs 1.50 crore till date. In 16 cases, the IIP could not recover royalty/license fee amounting to Rs 2.94 crore due to its failure to include penalty clauses in the technology transfer agreements. Against the total of 305 sponsored projects completed during 1994-2000, only 45 in-house projects were completed. Poor monitoring of Research and Development (R&D) projects by Project Monitoring and Evaluation (PME) Cell was noticed which resulted in delayed completion and foreclosure besides unfruitful expenditure. The projection of business plan, both physical and financial, remained paper projections during its implementation over 1997-2000. The IIP failed to generate resources/ surplus as projected in the business plan, which put strain on the IIP for repayment of loan.*

*It is recommended that the PME Cell be strengthened and the IIP should keep itself aware of the changing industrial scenario in petroleum industry so as to develop sustainable technologies for the development of the industry.*

#### Highlights

◆ The IIP undertook a total of 90 in-house projects during 1994-2000 of which it could complete only 45 projects. It undertook 391 sponsored projects of which it completed 305 over the same period. Seven in-house and five sponsored projects were kept in abeyance during the period 1994-2000 rendering the expenditure of Rs 90.79 lakh on these projects unfruitful.

◆ Out of 45 technologies expected to be developed during 1994-2000, the IIP could develop 28 technologies. In this period the IIP transferred only 23 technologies including 14 developed prior to April 1994. In 23 technologies transferred, the IIP failed to recover royalty/ licence fee in 16

**cases worth Rs 2.94 crore due to non-inclusion of penalty clauses in the agreements.**

◆ **Poor monitoring of projects in the IIP was seen. The PME cell which was required to function as the backbone of the R&D activity was not constituted till 1995. In the period under review, it was seen that the PME cell did not monitor/control the R&D activities as per its mandate. Complete project folders were not maintained by the cell for a single project resulting in difficulty in scrutiny of project progress in audit.**

◆ **The external cash flow of the IIP decreased by 44.27 per cent over the period 1996-2000.**

◆ **The IIP failed to generate resources/ surplus as projected in the business plan, thereby putting a strain on the institute for repayment of loans.**

◆ **Transfer of analytical charges to a fictitious project violated the CSIR instructions.**

◆ **Advances of Rs 10.92 crore including Rs 10.62 crore from private parties were outstanding since 1983-84.**

◆ **The institute continued to engage contract workers in violation of the CSIR directives, despite being regularly pointed out in audit reports. These workers were employed continuously from 1997 in violation of Government of India directives resulting in a liability on the IIP for their absorption.**

◆ **Five equipments procured by the IIP could not be utilised due to delay in procurement, non-installation/commissioning, non-repair of damaged equipment resulting in unfruitful expenditure of Rs 4.35 crore.**

## **Introduction**

**3.1** Indian Institute of Petroleum (IIP) Dehradun is a national institute under Council of Scientific and Industrial Research (CSIR) which was established in September 1960 to provide technical and scientific support to the entry of Public Sector in the field of Hydrocarbons. The objectives of the Institute are to:

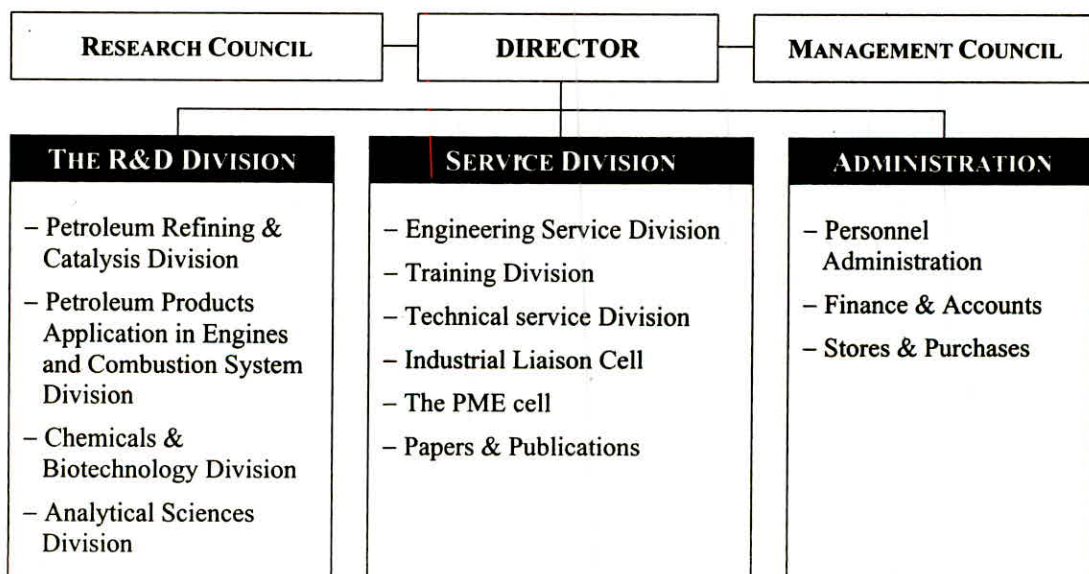
- (a) develop processes for petroleum refining industry



- (b) assist refineries in absorption, adoption and selection of technology and optimization of unit operation to evaluate products for market development
- (c) provide technical services, including crude evaluation to the petroleum industries
- (d) carry out the R&D work on utilization of crude, its products, natural gas and petrochemicals
- (e) train personnel working in oil and petrochemical industries
- (f) assist Bureau of Indian Standards in formulation of standards for petroleum products
- (g) conduct feasibility studies and market demand survey for petroleum products.

### Organisational set up

3.2 The IIP is headed by a Director who is assisted by Research Council (RC), and a Management Council (MC). The Research Council, headed by an external expert, is to advise and recommend the formulation of research programmes, conduct periodic review of research activities, assess progress of projects and advise on fostering linkages between the IIP and other research organizations, industry and potential clients. Management Council headed by Director is responsible for managing day-to-day affairs of the IIP. Since January 1999, MC has also been entrusted with review of the R&D activities of the IIP. The organizational chart of the institute is given below:



## Scope of Audit

3.3 The audit of the IIP is conducted under section 20(1) of the Comptroller and Auditor General's (Duties, Powers and conditions of services) Act, 1971. The present review covers the performance of the IIP highlighting project management, transfer of technology, financial and manpower management and business plan etc. during the period 1994- 2000.

## Project management

*Of the 492 projects undertaken by the IIP, the completion rate was higher in sponsored projects compared to in-house projects. The IIP did not work out the achievement and future possibilities of 12 projects kept-in-abeyance. The obvious conclusion is that IIP works better in sponsored projects.*

3.4 The research activities of the IIP are broadly categorized as (i) in-house, (ii) sponsored/collaborative, (iii) grants-in-aid, and, (iv) consultancy projects. The position of projects completed, carried over, kept-in-abeyance and ongoing during the period 1994-2000 is depicted below:

Year	PROJECTS																							
	In-house						Sponsored/ collaborative						Grants-in-aid						Consultancy					
	OB	A	T	C	K	CB	OB	A	T	C	K	CB	OB	A	T	C	K	CB	OB	A	T	C	K	CB
1994-95	NA	NA	NA	NA	2	-	50	57	107	57	-	50	6	2	8	3	-	5	-	-	-	-	-	-
1995-96	48	9	57	10	3	44	50	56	106	46	-	60	5	3	8	2	-	6	-	1	1	-	-	1
1996-97	44	10	54	7	-	47	60	54	114	56	-	58	6	1	7	-	-	7	1	1	2	1	-	1
1997-98	47	5	52	7	-	45	58	47	105	47	1	57	7	1	8	1	-	7	1	4	5	1	-	4
1998-99	45	16	61	17	1	43	57	54	111	47	-	64	7	-	7	2	-	5	4	4	8	2	-	6
1999-2000	43	2	45	4	1	40	64	58	122	43	4	75	5	2	7	1	-	6	6	1	7	2	-	5

OB - Opening balance      A - Addition      T - Total      C - Completed      K - Kept in abeyance      CB - Closing balance

**Completion rate high in sponsored project when compared with in-house project**

3.5 During 1994-2000, the IIP had undertaken a total of 492 projects costing Rs 46.66 crore. Of these, only 18 per cent were in-house, while 77 per cent were sponsored/collaborative projects. 50 per cent of the in-house projects could be completed as against 79 per cent completion rate of sponsored projects. This indicated that despite nearly full complement of staff, the IIP was slipping badly on time frame for completion of projects both in-house and sponsored with the position worse in case of former. There may be a case for shift to sponsored projects which should be closely monitored. With regard to in-house projects very strict accountability norms need to be prescribed and fully enforced.

3.6 Very low number (only 2 per cent of the total projects) of consultancy projects had been undertaken by the IIP during 1994-2000, indicating low interaction with the industry.

**3.7** Audit noticed that 12 projects were kept in abeyance by the IIP between 1994-2000. The achievements of these projects and their future possibilities were not worked out by the institute. Seven of these were in-house projects costing Rs 70.54 lakh and five were sponsored projects costing Rs 20.25 lakh. The details of these projects are given in *Annex-I*. Reasons cited for this were mainly shortage of manpower. This was not acceptable in audit as the shortage was insignificant as compared to sanctioned manpower.

**3.8** From test check and information received, it was observed that there were delays ranging between one year to more than four years in implementation of 62 in-house projects and 62 sponsored projects respectively as indicated below:

Delay ranging between	Number of projects			
	Completed		On-going	
	In-house	Sponsored	In-house	Sponsored
Up to one year	12	44	13	1
One to two years	10	4	3	2
Two to three years	8	4	4	2
Three to four years	3	4	2	1
More than four years	4	-	3	-
<b>Total</b>	<b>37</b>	<b>56</b>	<b>25</b>	<b>6</b>

**Failure of the IIP to maintain project folders lead to non-working out of cost over run of in-house projects**

**3.9** The cost over-run in respect of in-house projects were not available. The PME cell of the IIP was entrusted with the function of maintaining project folders/files in respect of all in-house and contract the R&D projects. However, the project folders maintained by the PME cell in the IIP did not contain the project proposals, recommendations of Review Committee, details of expenditure, extensions, correspondence with sponsors, completion reports etc. While no such systematic maintenance was there, from the information collected from their scattered documents and papers (database) audit scrutiny was carried out and the results are discussed in paragraphs below:

#### **In-house projects**

*The IIP undertook a total of 90 in-house projects during 1994-2000, of which 48 had been carried over from previous years and 42 were added in this period. Of these 90 projects, the IIP could complete 45 projects. Seven were kept in abeyance.*

**3.10** A study of sector-wise and objective-wise in-house projects undertaken by the IIP during the period 1995-2000 revealed that the performance of the IIP in the modeling and simulation sector was not encouraging compared to its performance in other sectors as discussed below :

Sl. No.	Sector	Objective	OB	1995-96		1996-97		1997-98		1998-99		1999-2000		K	CB
				A	C	A	C	A	C	A	C	A	C		
1.	Petroleum sector	Processes and products for petroleum refining and petrochemical industries	27	4	6	6	3	2	5	10	12	-	2	-	21
2.	Refining technology	Assistance to refineries in absorption, adoption of technologies and optimisation of unit operations	15	4	2	2	3	3	2	4	4	2	2	3	14
3.	Modeling and Simulation	Work on utilization of crude its products, natural gas and petrochemicals; and feasibility studies, market demand surveys of petroleum and related products	6	1	2	2	1	-	-	2	1	-	-	2	5
<b>Total</b>			<b>48</b>	<b>9</b>	<b>10</b>	<b>10</b>	<b>7</b>	<b>5</b>	<b>7</b>	<b>16</b>	<b>17</b>	<b>2</b>	<b>4</b>	<b>5</b>	<b>40</b>
			<i>A - Addition</i>		<i>OB - Opening Balance</i>		<i>K - Kept-in-abeyance</i>		<i>CB - Closing Balance</i>		<i>C - Completed</i>				

**Outcome of project inconsequential as it did not lead to development of CCR catalyst and process**

**3.11** In the petroleum sector, the IIP worked on 49 projects including 22 new projects. Of these, the IIP could complete 28 projects. Similarly, in the other sector of refining technology, the IIP worked on 30 projects including 15 new projects. Of these, the IIP could complete only 13 projects. All 45 completed projects were checked in audit. Some observations noticed are as follows :

### Unfruitful expenditure

#### Development of CCR Catalyst and Process

**3.12** With a view to develop continuous catalytic regenerative (CCR) catalyst and process, using commercial and laboratory developed support, the IIP undertook a project "Development of CCR Catalyst and Process" in August 1987 with planned date of completion in March 1996 at a committed expenditure of Rs 1.90 crore, including Rs 1.36 crore towards cost of equipment required under the project. Manpower of 33 personnel including technical staff were deployed under the project.

**3.13** Scrutiny revealed that the project file was not properly maintained. The database kept in the project file shows that work was done at a low pace till August 1994 due to high priorities on sponsored projects for Bongaigaon Refineries & Petrochemicals Limited, Indian Oil Corporation and Cochin Refineries Limited. The project was finally closed in March 1997, a year after its scheduled date of completion without achieving its objectives resulting in unfruitful expenditure of Rs 1.90 crore.

Absence of monitoring and lack of co-ordination noticed

**3.14** During the period of operation of the project till 1994-95, six technical reports were prepared on pilot plant evaluation of different catalysts. This was inconsequential, as it did not lead to development of FCC Catalyst. From the records furnished to audit, it was observed that virtually, no monitoring of the project was done by the RC. Besides, lack of co-ordination between the PME cell and the concerned scientist was also noticed.

#### **Upgradation of low octane feed stocks in presence of modified zeolite**

**3.15** This project costing Rs 86.90 lakh for completion between 1995 and 1997 aimed to develop catalyst and process for the conversion of commercially less viable feed stocks into LPG and high octane gasoline/BTX.

Tangible outcome not ascertained in the absence of progress reports

**3.16** The file maintained by the PME cell does not contain any papers relating to the project progress reports, etc. except a data base which was initially approved by the Director in July 1995 i.e. after the start of project. The project was completed in March 1997. No tangible outcome of the project could be ascertained. The entire expenditure of Rs 86.90 lakh incurred on the deployment of manpower, procurement of equipment, etc. was unfruitful.

#### **Foreclosure of a project – Development of hydro cracking technology**

**3.17** The IIP undertook an in-house project of continuous nature titled "Development of hydro cracking technology" in March 1986 with committed expenditure of Rs 4.55 crore with the objective to develop catalyst and technology for hydro cracking of VGO in order to obtain maximum middle distillates (80 *per cent*). The catalyst and technology of the process, which was available only with few multinational companies, was to be developed indigenously for its application in future refineries and replacement of the catalyst in operating refineries when required.

Work not done on project during three years leading to foreclosure of project without achieving objectives

**3.18** 23 scientific and technical personnel were engaged on the project and some work was done during 1990-94, as was noticed from unsigned database. In April 1998, the Project Leader stated that the work on the project for the last three years was not done. Moreover, the RC did not monitor the project. The project was closed in May 1998 without achieving anything in particular and the expenditure of Rs 4.55 crore was infructuous. This was yet another instance of the negligent manner in which in-house projects were run, managed and monitored.

## **Delay in completion of in-house project**

### **Isomerization of light naphtha**

**3.19** The IIP undertook an in-house project "Isomerization of light naphtha" in May 1995 to be completed by April 1997 at an estimated cost of Rs 88.80 lakh. Objectives of project were to develop catalyst/catalysts to increase octane of light naphtha and to develop a process thereby, based on Indian feed stocks for isomerization. Bottlenecks, milestones, expected outputs, impact of the project on market, potential for import substitutions etc. were, not quantified before undertaking the project. Till March 1998, neither project report was submitted by the concerned Project Leader nor it was called for by the PME. In April 1998, the PME called for the status of the project as its scheduled period was already over in April 1997. In response, PL intimated (May 1998) that the project was withheld due to involvement of its manpower in other in-house project and subsequently in a sponsored project (NTGG Process). PL subsequently submitted an undated project status report with a proposal for extension of project up to December 1999 with future plan of work but its approval as well as subsequent development of the project, if any, was not available in the records produced (August 2000) to audit.

**3.20** Thus, the project with a committed expenditure of Rs 88.80 lakh failed to achieve its objective even after time over run for more than three years due to inadequate monitoring/deployment of manpower etc. and also due to low priority accorded to in-house projects.

### **Studies for development of adsorptive separation technology for gas separation**

**3.21** An in-house project on "Studies for development of adsorptive separation technology for gas separation" estimated to cost Rs 37.78 lakh was undertaken by the IIP in March 1997 for completion in two and half years i.e. by September 1999. The project aimed at developing indigenous know-how for design and development of pressure swing adoption (PSA) for commercially important gas separation. Ten scientific and technical personnel were engaged on the project work.

**3.22** Neither Project Leader submitted the progress reports/details of work nor the PME Cell asked the Project Leader for the same. The Project Leader clarified in May 2000 that much work on the project was not done except for setting up and commissioning of the PSA unit, experimental studies and simulation model development due to pre-occupation of team members with sponsored project from August 1997 to October 1999. The basic objective of the project was yet to be achieved due to non-monitoring of project and also diversion of manpower towards sponsored projects. In addition, the IIP violated the instructions issued by the CSIR in July 1992, according to which a

**Inadequate monitoring and deployment of manpower on other projects resulted in time over run of three years**

**Inadequate monitoring and diversion of manpower was responsible for delay in completion of the project**

proper balance between manpower and other resources to be deployed on the R&D activities, consultancy and technical services was to be decided by the RC and not by the IIP.

### **Sponsored/collaborative projects**

*Out of a total of 391 projects, 305 were completed during the period 1994-2000. Five projects were kept in abeyance. In 31 completed sponsored projects, the IIP failed to recoup funds amounting to Rs 70.93 lakh from the sponsors, thus incurring this expense out of its own laboratory funds. Sponsored projects files revealed the creation of fictitious project disregarding the CSIR's instruction, and unfruitful expenditure due to non-achievement of objectives.*

### **Diversion/utilisation of laboratory funds towards sponsored projects**

**Rs 70.93 lakh not recovered from sponsors**

**3.23** Out of 296 sponsored projects completed during the period 1994-2000, completion reports in respect of 31 projects involving total outlay of Rs 304.89 lakh were submitted to the concerned sponsors. The IIP did not recover the full committed amount of Rs 70.93 lakh, which were to be realized as of August 2000. The amount was recoverable from private/public undertakings in respect of the projects completed during 1994-95 onwards. The submission of project's completion reports to sponsors before the realization of full amount was in contravention to the CSIR guidelines. Thus, by not obtaining the full amount before submission of project results/reports, the IIP had to divert and utilise its laboratory funds for the concerned sponsored projects. Some individual cases are discussed below:

### **Creation of fictitious project**

**Director created a fictitious project**

**3.24** The IIP had been rendering analytical services to outside agencies against payments and the charges received there from were to form part of the LRF. The Area Leader of Analysis Sciences Division (ASD) requested Director IIP in April 1999 to evolve a system for transfer of money generated by analysis of outside samples and the analysis done for sponsored projects to a common pool for the ASD. A committee constituted for this purpose expressed, in July 1999, its reservation that since transfer of analysis charges to LRF is done as per prescribed norms, shifting from norms to transfer such charges to individual heads could be very dangerous and should be avoided. However, after discussion with Director IIP, the committee recommended in August 1999 that after completion of analytical work, 20 per cent of analysis cost may be transferred to the ASD. Accordingly, the IIP created a fictitious project No. SSP-5301 in November 1999 and decided that 20 per cent of the total analysis charges (including manpower cost, depreciation of equipment/instrument, spares and chemicals), would be transferred to this project to be used for purchase of chemicals and spares only by the ASD and

remaining 80 *per cent* was to be transferred to LRF. The creation of fictitious project and diversion of analytical charges were not covered under definition of sponsored project. During 1999-2001, Rs 3.95 lakh were transferred to the project and out of which, Rs 2.85 lakh were lying as unspent balances as of July 2000. Thus, the creation of SSP-5301 and transfer of analytical charges to this project was incorrect.

**3.25** The IIP stated in August 2000 that this was purely an internal matter/arrangement made to run the ASD smoothly. The reply of the IIP is indicative of its disregard of CSIR's instructions.

### **Non achievement of objectives due to delay in completion**

#### **Development of technologies for manufacture of long chain multifunctional additives for fuel oils and diesel fuels**

**3.26** Two agreements among the IIP, Tamil Nadu Petrochemicals Limited (TPL), Department of Scientific and Industrial Research (DSIR) and National Research Development Corporation (NRDC) were signed in March 1995 for execution of two projects namely "Development of technology for manufacture of long chain multifunctional additives for fuel oils and diesel fuels" and "Development of technology for manufacture of long chain C<sub>10</sub>-C<sub>14</sub> secondary alcohols by oxidation of C<sub>10</sub>-C<sub>14</sub> N-paraffins" under "Programmes Aimed at Technological self Reliance (PATSER)" scheme of DSIR.

**3.27** As per agreement, both the projects aimed at development of technologies for setting up of pilot plant and scale up of technology for commercial manufacture of products of specifications. While in one case, TPL withdrew from the project for the fear of technology obsolescence, in other case the IIP could not carry out work as per schedule due to non deployment of man power on the projects as brought out below:

**3.28** The project on 'Development of technology for manufacture of long chain multifunctional additives for fuel oils and diesel fuels' was scheduled to be completed in three phases in a duration of 36 months at a total cost Rs 89.00 lakh (DSIR - Rs 34 lakh, TPL-Rs 49 lakh and the IIP Rs 6 lakh) of which the IIP was to receive Rs 28.00 lakh from TPL and Rs 20.00 lakh from DSIR. Phase-I of the project, schedule to be completed in 14 months i.e. by May 1996, actually completed in September 1996. While the projects files of ILS and the PME Section did not contain any minutes of Project Review Committee, in an internal review meeting of April 1997, TPL expressed its reservations on continuance of the projects due to fear of technical obsolescence, and prospect of low market demand. It was decided to put the project funds in freeze till further action. TPL confirmed (April 1997) the above fears and also stated that there were deviations from the objectives of

**Besides slow progress, the IIP deviated from objectives. TPL forced to withdraw from the project due to fear of technology obsolescence**



the project besides slow progress on project at the IIP which may take another three years for them to put up a commercial facility. Though the IIP is national R&D institution in the field of petroleum yet it was not aware of current market scenario of the technology being developed under the project. Also, the IIP on their part never made any efforts to instil confidence in the joint partner and also never clarified the charges of deviation in objectives and slow progress of the project with the result that TPL withdrew from the project and the project was left/stranded midway. The IIP stated in August 2000 that Advisor in DSIR had telephonically informed to continue with the work till further notice. As per revised schedule, phase II was to be completed by March 1998 but it was still incomplete as of August 2000. Thus, the objectives of the project remained unachieved even after time over run and incurring expenditure of Rs 28.88 lakh.

**Required manpower  
not deployed**

**No work taken up  
and project got  
delayed as no work  
taken up**

**3.29** The other project on 'Development of technology for manufacture of long chain C<sub>10</sub> – C<sub>14</sub> secondary alcohols by oxidation of C<sub>10</sub> – C<sub>14</sub> N-paraffins' was also scheduled to be completed in two phases in 36 months for a total cost of Rs 1.34 crore (DSIR-Rs 55 lakh, TPL-Rs 75 lakh, the IIP-Rs 4 lakh) of which the IIP was to get Rs 10.00 lakh from DSIR and Rs 15.00 lakh from TPL. The required manpower was not deployed under the project as planned in the database in spite of repeated requests/complaints of the Project Leader. Though entire project was scheduled to be completed in March 1998, yet Phase-I comprising completion of lab studies and submission of report of Phase-I could be completed in May 1999. In the last meeting of the RC held in July 1999, it was felt that the IIP should take immediate step to undertake further investigation, analytical work and characterisation at the IIP within one month and only then a decision could be taken up regarding finalisation of design package and up scaling to a pilot plant level. The Project Leader stated in the meeting of April 2000 that due to non-deployment of required manpower it was not possible to do any fruitful work on the project as minimum four persons were required to do an experiment and as such no work as suggested by DSIR could be taken up. The Project Leader stated in August 2000 that work could be completed in 3-4 months, provided adequate manpower were deployed on the project.

**3.30** It is pertinent to mention that while withdrawing from the project on multi fuel additives on oil and diesel, TPL indicated its willingness to continue with this project. The project, though, technically continued without any extension from DSIR/TPL, actual activities on the same were in a freeze due to non-deployment of manpower. An expenditure of Rs 17.68 lakh has been incurred on the project till August 2000.

**3.31** Thus, failure of the IIP in building confidence in Joint partner, keeping itself aware of technology development in the field of oil industry and non-deployment of adequate manpower in these projects resulted in non-

achievement of objectives even after incurring an expenditure of Rs 46.56 lakh as none of the projects was any where near completion in spite of time over run for more than two years.

### **Development of Low metal/skewed Pt-Re Semi-Regenerative Reforming Catalyst**

**Project delayed  
due to problems  
in equipment and  
local disturbances**

**3.32** A Memorandum of Understanding (MOU) between the IIP and Centre for High Technology (CHT) was signed in August 1993 to undertake a project by the IIP titled "Development of Low metal/skewed Pt-Re Semi-Regenerative Reforming Catalyst" at a cost of Rs 78.00 lakh for a duration of 24 months. The date of start of project was to be taken into account after the procurement/installation of the 'Micro Reactor Unit' at the IIP and its scope of work included the development of skewed Pt-Re reformer catalyst having high (0.3 wt *per cent*) recontent with low and normal (0.3wt *per cent*) platinum content. The IIP finalized the procurement of equipment in January 1994 which was received and installed/commissioned only in April 1995 due to certain damages etc. As against the budgetary provision of Rs 60.50 lakh for equipment, consumables, etc. by CHT, Rs 70.53 lakh were incurred for its procurement. On the request of CHT, in October 1994, project was divided activity-wise and its quarterly progress reports sent to the sponsor. Project was delayed due to problems in equipment and local disturbance etc. The MOU, signed in August 1993, was amended in April 1997 and the stipulated date of completion of project was extended to March 1998 along with minor change in the scope of activities. Though, the IIP sent final completion report on the project to the sponsor in March 1998 after incurring an expenditure of Rs 88.59 lakh, it was observed that no technology as envisaged was developed under the project. The extra expenditure of Rs 10.00 lakh was met out of LRF, which was irregular. Thus, non-development of technology as envisaged under the project, rendered the expenditure of Rs 88.59 lakh unfruitful.

**3.33** The results of test check of sponsored/collaborative projects indicated that the control of the CSIR was ineffective and there was lack of control of the CSIR even though the RC of the IIP was nominated by the DG, CSIR and the DG or his representative was a permanent invitee in the meeting of the RC. There was no system of the RC operational in the IIP looking into monitoring of the individual projects and status thereof. The representative of the CSIR in the RC also failed in this regard.

### **Project Monitoring and Evaluation**

*The PME cell was required to function as backbone of the R&D activities. The PME cell at the IIP did not carry out even the basic exercise of having any control/ knowledge of the R&D activities. Thus, the PME Cell failed miserably in its objectives. The RC, required to monitor research activity did*

*not meet regularly. Audit observed that over the entire period of review, the RC did not assess the progress of research activities. The MC also failed to meet regularly. All this points out to a highly unsatisfactory monitoring regime which was one of the most important reasons for the other ailments discussed above.*

### **Functioning of the PME Cell**

**The PME Cell functions as backbone of the R&D activities**

**3.34** As per the CSIR guidelines issued in 1984, the IIP was required to constitute a PME Cell for planning process, resources allocation, monitoring and evaluation of its projects. The PME Cell was also responsible for project budgeting and cost accounting, maintenance of project folders containing the details right from project proposal to completion reports of the projects. It is also required to prepare monthly summary reports of cost data of all projects and its reconciliation with the expenditure shown in conventional accounts and furnishes it to the concerned authorities. Further, in June 1994, the CSIR issued a "Report of the group on computer based Project Management Information System for the R&D planning", according to which each laboratory/institute of the CSIR was required to prepare a data base for in-house, sponsored, consultancy and collaborative projects in operation containing the information related to priority, justification, amount spent, expected outputs, impact, probable users, socio-economic aim etc.

**The PME became functional only from 1995 instead of 1984**

**3.35** Even though the PME cell ought to have been functional from 1984 onwards, the PME cell was not constituted in the IIP till 1995. For the period 1994-2000, completed project folders for in-house, sponsored, consultancy projects were not available. In the absence of such basic records, project priority, the R&D impact, linkage with industrial units, socio economic aim, outcome of projects undertaken by the IIP could not be ascertained.

**No Internal Committee constituted.**

**The PME not aware of status of projects**

**3.36** Each laboratory of the CSIR was also required to constitute a high level standing Internal Committee to assist the Director for allocation of resources to different projects and for periodical monitoring/evaluation of the progress of projects. However, no Internal Committee was constituted in the IIP since 1984 resulting in non-monitoring/evaluation of projects. The PME was not aware of the status of the projects being implemented by the IIP as was seen from project records.

### **Functioning of Research Council**

**3.37** The RC was required to formulate research programmes, conduct periodical review and assess progress of research activities. The RC was required to meet not less than two times a year. The scrutiny of minutes of all seven the RC meetings over the period 1994-1999 revealed that mostly no periodical review of ongoing/completed projects was conducted by the RC. Audit revealed that no meeting of the RC had taken place during 1999-2000.

Member from industry never attended the RC meetings

Only one meeting each had taken place in the years 1996-99. Of the seven meetings of the RC held during 1994-2000, one member representing industry never attended any of the RC meetings. Two other members did not attend four out of seven meetings held over the period 1994-2000.

### Functioning of Management Council

No meeting of MC held during 1994-95 and 1996-97

3.38 Bye laws of the CSIR provide for constitution of a management council (MC) in every laboratory of the CSIR to administer and manage the affairs and environs of the lab, so as to support research plan of lab as approved by the RC. As per revised function from January 1999 onwards, MC was required to review and monitor the research projects of the institute. No meeting of MC of the IIP took place during years 1994-95 and 1996-97. MC met once in October 1999 after revision of its functioning. MC did not review/monitor the projects as envisaged in this meeting.

### Outcome of Research

3.39 The outcome of research activities of an institute is measured through the performance indicators measuring technology developed, transferred, patent filed/sealed and research papers published. The performance of the IIP in this respect over the period 1994-2000 is given below:

Year	No. of projects where technologies				Technologies transferred	Patents filed in		Patents sealed in		No. of Research Papers Published in Journals		
	expected to be developed		Actually developed			India	Foreign	India	Foreign	In National Journal	In Inter national Journal	Having no Impact factor
	In-house	Sponsored	In-house	Sponsored								
1994-95	NA	15	-	2	5	24	6	-	-	13	30	14
1995-96	3	7	2	1	6	6	1	1	-	4	16	7
1996-97	3	4	2	4	4	3	2	1	1	7	34	11
1997-98	2	3	2	3	4	4	-	4	1	7	19	7
1998-99	3	4	1	8	3	12	-	5	-	4	26	6
1999-2000	1	-	1	2	1	7	-	2	3	4	11	3
<b>Total</b>	<b>12</b>	<b>33</b>	<b>8</b>	<b>20</b>	<b>23*</b>	<b>56</b>	<b>9</b>	<b>13</b>	<b>5</b>	<b>39</b>	<b>136</b>	<b>48</b>

\* including 14 technologies developed prior to April 1994

Two technologies developed out of in-house projects and seven out of sponsored projects transferred to industry during 1994-2000

**3.40** Of 45 completed in-house projects, technologies were expected to be developed in 12 cases, (i.e. in 27 *per cent*). The IIP could actually generate technologies in only 8 cases of which only 2 could be transferred during 1994-2000. Of 305 completed sponsored projects, 33 were expected to generate technologies (i.e. 11 *per cent*). The IIP could generate technologies only in 20 cases during 1994-2000 of which seven were transferred.

**3.41** It is thus seen that the IIP laid less stress on projects having a potential for technology development. The process for transfer of technology was also tardy.

**3.42** The IIP filed 65 patents including nine patents in foreign countries during 1994-2000. Of these, only 28 *per cent* could be sealed (13 patents sealed in India and five patents sealed in foreign countries).

**3.43** The publication of research papers in scientific national and international journals declined from 43 in 1994-95 to 15 in 1999-2000. Further, 48 research papers were published in journals having no impact factor.

### Management of Transfer of technology

*Of 23 technologies transferred during the period 1994-2000, the IIP failed to recover royalty/ licence fee worth Rs 2.94 crore in 16 cases. In one case, the IIP sold the intellectual property rights (IPR) of four technologies (developed prior to April 1994) in an irregular manner. The cost of the IPRs was brought down from Rs 6.50 crore to Rs 5.00 crore in a day whereas it received only Rs 1.50 crore. The IIP failed to include the required penalty clauses in agreements for transfer of the technologies to industries etc.*

#### Non-realisation of royalty/ license fee

**3.44** The IIP failed to realize Rs 2.94 crore as of March 2000 on account of royalty/ license fee due from public sector as well as private industrial units against transfer of 16 technologies over the period 1994-2000.

**3.45** Perusal of agreements entered into by the IIP with various public sector and private industrial units for the transfer of technology/ know how and payment of royalty/ licensee fee revealed that in many cases the provision of penalty clause had not been included. The terms and conditions attached with "Model Agreement" prescribed by the CSIR provided for payment of interest @ 18 *per cent* P.A. in the event of default in payment of royalty. This clause was also not included by the IIP in any of its agreements to ensure timely payment of royalty.

The IIP failed to recover Rs 293.97 lakh on account of royalty/license fee

**3.46** The IIP stated in August 2000 that due to stiff global competition in technology marketing, the terms were practically dictated by the clients and not by technology suppliers. The IIP further stated that in most of the cases it had coerced the clients to accept their technology. Since these were commercially non-proven lab scale technologies it had to offer them concession due to risks involved. The reply of the IIP is indicative of the low confidence level on its own research output.

**Non-inclusion of penalty clause resulted in non-recovery of Rs 63.67 lakh from Cadila**

**3.47** The IIP and Cadila Laboratories Limited signed an agreement in November 1991 for the development of process to produce Tetra-Methylene Sulpholane (TMS). As per terms and conditions of the agreement, Cadila was to pay royalty at the rate of 5 *per cent* on total audited sale of product for seven years after the date of start of commercial production. In case, the party fails to produce the product up to minimum capacity of the plant, Cadila would pay the royalty of minimum capacity. The IIP worked out the royalty payable during 1996-98 as amounting to Rs 33.80 lakh. After a long persuasion with Cadila, the IIP received only Rs 19.50 lakh till May 2000. Cadila attributed the non-payment of royalty to its financial position. The overall royalty payable by Cadila to the IIP was worked out to Rs 83.17 lakh as of March 2000. Thus, the amount of Rs 63.67 lakh due on account of royalty from Cadila was not realised by the IIP due to non-inclusion of penalty clause of charging interest/penal interest to safe guard the government money in the event of failure of Cadila to furnish the sale/production account and payable royalty at the year end of each year. The IIP stated in July 2000 that if it had put restrictions like penalty clause, the technology, in all likelihood would have remained in shelf. The reply is not tenable as its reluctance to enforce any clause to safeguard the institute's interest indicated the lack of confidence of the IIP about its technology acceptance by the industries.

**The IIP entered into irregular equity participation**

**3.48** The IIP entered into three agreements in June 1997 with M/s Naveen Additives (P) Limited for transfer of three technologies/process developed by the IIP. Against transfer of these technologies, license fee of Rs 21.50 lakh was due to the IIP. Against this, an amount of Rs 9.35 lakh was received by it. On the request of the firm, initially the IIP agreed in March 1999 for participation in the equity of the firm to the extent of 5 *per cent* of equity of Rs 2.70 crore i.e. Rs 13.50 lakh. Later, the IIP agreed in March 1999 for equity participation of Rs 21.50 lakh. The participation in equity without any approval was misuse of autonomy given to the IIP and was, thus, highly irregular. The case needs thorough investigation by government to fix responsibility. In this case, the company was not even listed.

### **Irregular Sale of Intellectual Property Rights**

**3.49** The IIP developed a technology 'adipic acid by one step oxidation of cyclohexane on laboratory/bench scale' under a sponsored project funded by

Adarsh Chemicals and Fertilizers Ltd. (ACF), Gujarat and as per the project agreement (January 1993) the right of technology was to be shared equally between the IIP and sponsor. Besides, the IIP also developed three other technologies/processes viz., Isophthalic Acid from m-xylene, Dehydrogenation of n-butane/isobutane to butylene and to manufacture N-methyl pyrrolidone (NMP) from Gamma Butyrolactone from the other projects involving Rs 65.00 lakh sponsored by ACF. The IIP and ACF jointly owned the rights of these developed technologies.

**The IIP sold the IPRs of four technologies at Rs 5.00 crore after lowering it from Rs 6.50 crore**

**3.50** The IIP proposed (30 March 1999) to sell its intellectual property rights of these four technologies/processes to M/s ACF at a lump sum cost of Rs 6.50 crore. The criteria/modalities of fixation of Rs 6.50 crore for selling the IPRs of these processes/technologies were based on the estimated license fee receivable from these three technologies. However, the Director General, Financial Adviser, Head Research Planning and Business Development Division and Legal Adviser from the CSIR unanimously agreed to bring down the sale price of the IPRs to Rs 5.00 crore on the very next day i.e. 31 March 1999. Alongside the amount was to be paid in lump sum by the buyer as against previously agreed installment payment. The reason for the decrease in sale price was stated to be reduced risk of default on payment as well as consideration of discounted cash flow.

**The IIP dispatched all documents but Rs 3.50 crore still to be realised**

**3.51** The IIP received a cheque of Rs 1.50 crore on 31 March 1999 i.e., on the date of final sale deal. The IIP had dispatched all the documents by November 1999. However, the IIP has failed to realize the balance amount of Rs 3.50 crore till date, even after a period of 16 months of finalisation of sale deed by the CSIR.

**3.52** Thus, due to lowering down the proposed selling cost of IPR from Rs 6.50 crore to Rs 5.00 crore and non-obtaining required bond/bank guarantee for the balance amount of Rs 3.50 crore, the IIP suffered an avoidable loss of Rs 1.50 crore and was yet to realize Rs 3.50 crore from M/s ACF. Accepting the facts the IIP stated in August 2000 that it had been pursuing the matter with M/s ACF.

## **Financial management and control**

*The IIP did not have a proper budgetary system in place. The external receipts of the institute shows a sharp declining trend. Lack of proper accounting system in the institute was also noticed.*

**3.53** The IIP is financed mainly through grants-in-aid received from the CSIR. The IIP also generates funds referred to as external cash flow (ECF) from sponsors and collaborators by taking up projects through consultancy and

technical services. The receipts and expenditure of the IIP during 1994-2000 were as under:

(Rs in lakh)

Year	Funds from				Total receipts	Expenditure				Total expenditure
	CSIR	Misc. receipts	ECF (less LRF)	LRF		Revenue	Capital	ECF (less LRF)	LRF	
1994-95	906.00	18.19	322.22	127.24	1373.65	624.06	110.22	191.28	102.51	1028.07
1995-96	942.00	16.76	523.99	161.79	1644.54	710.84	232.79	445.16	80.52	1469.31
1996-97	937.00	19.94	667.10	119.61	1743.65	785.90	209.21	413.64	147.52	1556.27
1997-98	1447.00	25.13	612.17	261.32	2345.62	970.57	281.28	497.12	217.64	1966.61
1998-99	1545.00	21.18	241.05	565.88	2373.11	1174.98	192.95	510.95	319.44	2198.32
1999-2000	1697.00	25.95	371.73	213.03	2307.71	1184.98	225.91	178.09	82.02	1671.00

**3.54** The external cash flow of the institute shows a declining trend over the period 1998-2000. The ECF declined by 44.27 per cent over the period 1996-97 to 1999-2000.

#### Lack of proper budgetary exercise

**The IIP's projection, allocation and actual expenditure bore no correlation. Budgetary drill proved a futile exercise**

**3.55** Assessment of funds in the budget was either missing or woefully faulty in the IIP. A study of the budget files for the years 1997-2000 revealed that the IIP had no proper system to project its budget requirements under various heads. In fact, budgetary assumption/ projection were done, through under different heads of accounts but not on any scientific basis and were generally worked out or shown on the basis of expenditure of last financial year.

**3.56** A study of the projected, allocated and actual expenditure over the period 1997-2000 revealed that there was no correlation among them as detailed in *Annex-II*. For example, in the year 1999-2000, the IIP projected the expenditure on chemicals and consumables as Rs 1.50 crore against which the CSIR allocated Rs 60 lakh, whereas the actual expenditure was only Rs 0.39 lakh. Similarly, under the head 'other research expenditure' the IIP projected an expenditure of Rs 57.70 lakh for 1998-99. The CSIR did not allocate any funds under this head and there was no expenditure by the IIP on this head. The next year, 1999-2000, the IIP did not project any expenditure under the same head and the CSIR did not allocate any funds to it. The IIP, however incurred an expenditure of Rs 19.61 lakh under this head.



**3.57** Further, at the end of the financial year, the CSIR treated the actual expenditure of the IIP as their final allocation. As projection, allocation and actual expenditure bore no correlation, the calling for budget requirement from the IIP and then allocation of funds by the CSIR proved the entire budgetary drill a futile exercise.

### Decline in generation of external cash flow

**3.58** External cash flow (ECF) generated by the IIP over the period 1994-2000 is shown below:

*(Rs in lakh)*

Year	Total R&D expenditure	External Cash Flow			
		Private parties	Government Departments	Total (3+4)	Percentage of ECF of total R&D expenditure
1.	2.	3.	4.	5.	6.
1994-95	838.01	71.47	250.75	322.22	38.45
1995-96	944.68	87.66	436.33	523.99	55.47
1996-97	992.58	426.18	240.92	667.10	67.21
1997-98	1252.89	150.03	462.14	612.17	48.86
1998-99	1369.83	49.72	191.33	241.05	17.60
1999-2000	1413.70	121.55	250.18	371.73	26.29

ECF declined from 67.21 per cent in 1996-97 to 17.60 per cent in 1998-1999

**3.59** There was a consistent declining trend of ECF generation over the period 1997-2000. During 1998-99 and 1999-2000, the performance became particularly poor with the IIP generating an ECF of 17.60 and 26.29 per cent of the R&D expenditure respectively, which was much below the CSIR target of 33.3 per cent. In real terms the ECF declined from Rs 6.67 crore in 1996-97 to Rs 3.72 crore in 1999-2000, a decrease of 44.27 per cent. The decline indicated that either the Institute kept the generation of ECF under low priority and did not initiate remedial action or else it had run out of favour in the eyes of the sponsors reflecting on the quality of the IIP's research credibility. The CSIR needs to hard review to assess the reasons to put things back to normal.

### Non-recoupment of funds to the LRF

**3.60** The IIP had diverted Rs 5.50 lakh from the LRF by transfer entries during the period June 1998 to September 1999 as loans to four sponsored projects. The IIP did not recoup these funds from the sponsors.

### Bank reconciliation

**3.61** Bank reconciliation of the IIP was in arrears since April 1999. Details of un-reconciled items as on 31 March 1999 were as under:

**Credit of Rs 24.92 lakh for items being more than one year old not afforded by bank**

(i) Credits for 90 cheques amounting to Rs 2.53 crore deposited in the bank since 1994-95 onwards were not afforded by the bank. Of these, 37 items valuing Rs 24.92 lakh pertained for more than one year.

(ii) Excess debits amounting to Rs 5.07 crore in 530 cases had been raised by the bank since 1971-72 onwards, of which, 419 items valuing Rs 3.02 crore were more than one year old. Excess debits of Rs 1.33 lakh pertaining the period 1971-85 were lying un-reconciled as on 31 March 1992. However, audit noticed that the position in respect of these un-reconciled items was same as on 31 March 2000. It indicated that the IIP did not initiate action for the clearance of such old items so far.

**The IIP did not make reverse entries for time barred cheques worth Rs 1.36 crore**

(iii) 49 cheques from July 1996 onwards amounting to Rs 1.36 crore issued by the IIP had become time barred due to non-encashment during their currency and requisite action for making reverse entries in the cash book after verification/confirmation from the bank, were not initiated by the IIP.

(iv) The IIP had opened a separate bank account in May 1997 for transactions out of loan received from World Bank. Though there were large number of transactions under the account, the reconciliation of this account with the bank was not done by the IIP.

### Outstanding advances

**3.62** The IIP was making advance payments to its staff, private parties and Government organisations on account of travelling allowance (TA), leave travel concession (LTC), contingent cash purchases and supply of materials/equipment etc. An amount of Rs 10.92 crore advanced up to 31 March 2000 was pending for adjustment as of May 2000. The year wise details of the outstanding advances were as under :

(Rs in lakh)

Year	Government Department	Private parties	Against staff for		Total
			TA/LTC	Cash purchases	
1983-92	-	12.65	-	0.03	12.68
1992-93	0.10	5.36	-	-	5.46
1993-94	0.03	23.76	0.70	0.28	24.77
1994-95	0.06	52.19	0.14	0.03	52.42
1995-96	-	65.53	-	2.43	67.96
1996-97	0.09	90.38	2.22	5.05	97.74
1997-98	-	247.21	-	5.14	252.35
1998-99	-	344.33	3.65	-	347.98
1999-2000	-	218.24	3.45	9.02	230.71
<b>Total</b>	<b>0.28</b>	<b>1059.65</b>	<b>10.16</b>	<b>21.98</b>	<b>1092.07</b>

The IIP's failure to take effective action resulted in non-adjustment of outstanding advances of Rs 10.92 crore

3.63 Out of total outstanding advances of Rs 10.92 crore, Rs 10.60 crore (representing 97.07 per cent) were outstanding with private parties since 1983-84 onwards. The IIP did not take any effective action for recovery/ adjustment of the outstanding advances from private parties. Significantly, the IIP also failed to comply with the instructions contained in rule 178 of General Financial Rules (GFRs) in respect of advances granted to its staff for the TA/LTC and cash purchases, etc., as advances amounting to Rs 19.67 lakh were outstanding for over one year. This needs thorough review by the CSIR.

#### Irregular drawal of cheques in advance

The IIP drew Rs 48.75 lakh only to avoid lapse of funds

3.64 It was observed in audit that in three cases, though the cheques worth Rs 48.75 lakh drawn in March 2000, the letters of credit had not been opened as of September 2000. As the financial year 1999-2000 ended on 31 March 2000, the drawal of cheque in advance to avoid lapse of funds was irregular.

### Business Plan of the institute

*The projections of the business plan, both physical and financial, remained paper projections as borne out by its implementation over 1997-2000. The institute did not have any contingency plan to deal with the reduced financial outlay. Irregularities were noticed in utilisation of the available funds. Utilisation of the assets was poor. The projected excess resource generation did not materialize, thus putting a strain on the institute for repayment of loans.*

The IIP prepared a Business Plan for 1997-2004

3.65 With a view to become industry oriented and internationally recognized research and technology organization for playing a pivotal role in the growth of hydrocarbon and related industry in India, the IIP had prepared a Business Plan (BP) in July 1996 in consultation with the CSIR and World Bank experts. Business Plan for 1997-2004 was approved for implementation by Governing Body of the CSIR in October 1996. The main objectives of the business plan were :

- (a) to develop at least 1-2 internationally competitive technologies;
- (b) to generate around \$ 2 million from overseas R&D contracts and services;
- (c) to generate extra-budgetary resources (EBR) of over Rs 30 crore per annum by 2002 consisting of 60:40 ratio from industry and Government, including 20 per cent of the EBR generated through intellectual property rights (IPR); and
- (d) to develop international linkages for global marketing of technologies, services and contract research.

## Strategy and execution of business plan

### Financial Plan

**3.66** The plan provided for an outlay of Rs 72.75 crore of which Rs 39.82 crore, Rs 26.30 crore and Rs 6.63 crore were to be met out of Oil Industrial Development Board (OIDB) grants, World Bank loan and its EBR respectively.

**3.67** The IIP projected an expected grant of Rs 39.82 crore from the OIDB in the Business Plan. The IIP had not obtained any prior commitment from the OIDB for getting grants as projected. Finally the institute did not receive any grant from the OIDB. Only an amount of Rs 1.95 crore was received from the OIDB over the period 1997-2000 under an earlier agreement (prior to 1997). Against the projected Rs 26.30 crore from World Bank, the IIP actually received Rs 16.00 crore. No provision was made by the IIP from its own EBR as per business plan commitment. Thus against a planned outlay of Rs 72.75 crore, the IIP could obtain only an amount of Rs 17.95 crore by March 2000, i.e. 25 per cent of the targeted amount. Though aware of the reduction in outlay in 1997 itself, the IIP did not prepare any contingent plan in the intervening three-years period (1997-2000) to reformulate the strategy in order to deal with the decreased outlay. Accepting the facts the IIP stated in July 2000, that the revision of Business Plan was still in progress.

**3.68** The business plan stipulated that the IIP would generate extra surpluses/resources (EBR) through the usage of facilities created/equipment purchased.

**3.69** The estimates for resource-generation were unrealistic as borne out by the actual achievement over the period 1997-2000 as shown below :

*(Rs in lakh)*

Year	Targeted EBR		Average	Total EBR generated	Percentage Shortfall
	Lower	Higher			
1997-98	1530.00	1907.00	1718.50	747.18	56.52
1998-99	1948.00	2404.00	2176.00	558.76	74.32
1999-2000	2495.00	3009.00	2752.00	457.32	83.38

**3.70** It was seen that the achievement of the EBR generation over the period 1997-2000 could not even reach the lower target of the EBR. Particular poor performance was noticed in the Petroleum Refining Technology (PRT) and Chemical/ Petrochemical Intermediate (CPI) sectors where actual generation varied between 4.74 and 36.18 per cent of the lower target during 1997-2000. The IIP attributed the reasons for low generation of funds to non-receipt of

Estimates for resource generation were unrealistic

cost of regular manpower, non-materialization of envisaged technology transfers and delay in completion of projects aimed at technology generation.

3.71 The IIP had set a goal of generating around 20 lakh US \$ from overseas R&D contracts and services by the end of fifth year of business plan. While the IIP did not fix any year wise targets to be achieved from R&D contracts and services, it could generate only US \$ 1.29 lakh at the end of third year of business plan.

**The IIP did not maintain any records for income generated out of equipment usage**

3.72 As per business plan, the IIP had proposed to generate surpluses out of equipment purchased through the World Bank loan. These surpluses would then be utilised for the repayment of World Bank loans. No records regarding resource generated through equipment usage was made available to audit. In the absence of such records, the IIP would not be able to ensure its business plan commitment for repayment of loan. This clearly shows a management failure on the part of the IIP.

**The IIP failed to repay two consecutive installments of loan**

3.73 The first and second installments for repayment to World Bank of Rs 75 lakh and Rs 80 lakh, plus service charges was due on 1 April 2000 and 1 October 2000, respectively. This had not been paid as of October 2000. This would attract penalty clauses of the agreement.

**The IIP spent unauthorisedly on carriage, insurance, freight, contingencies etc. besides, having unspent balances from World Bank loan**

3.74 As per agreements signed by the IIP with World Bank in April 1997, the IIP was to pay all applicable taxes, duties, costs, charges and expenses in, with or relating to the loan transaction. Only 100 per cent ex-factory cost of the equipment were admissible to be spent out of World Bank loan. It was, however, observed in audit that the IIP spent Rs 53.66 lakh on account of carriage, insurance, freight, local taxes and sales taxes etc. on procurement of 18 equipment, which was unauthorised. Similarly, out of the loan from World Bank, Rs 9.80 lakh were incurred on contingencies whereas the World Bank loan was provided to the IIP to restructure and reorient its facilities and as such the expenditure on contingencies was also unauthorised. Further, the World Bank account for the year ending March 2000 showed that there was an unspent closing balance of Rs 45.35 lakh. In addition, the World Bank account showed an accrued interest of Rs 37.50 lakh, which remained to be utilised.

3.75 Due to mis-management of World Bank loans, the IIP had to procure three equipment costing Rs 1.31 crore from the CSIR modernization grant though these were proposed/processed to be procured from World Bank loan. Further, as the IIP proposed to pay back World Bank loan from equipment usage procured from World Bank loan, diversion of equipment to modernization plan reduced the possible quantum of earnings to that extent.

3.76 As per EFC memo, the facilities created out of World Bank loan aimed to generate resources and surpluses for repayment of the loan. 18 equipment costing Rs 14.50 crore were purchased out of World Bank loan. However, it

was observed that ten equipment costing Rs 5.22 crore procured out of world bank loan remained underutilised, the utilisation percentage being 0.14 to 14.83 as detailed in *Annex-III*.

**The IIP did not introduce any cost accounting system as per agreement**

**3.77** As per agreement with World Bank, the IIP was to introduce cost accounting system to the satisfaction of World Bank by 31 December 1997. However, the IIP did not introduce any such accounting system as of August 2000.

### **Human Resource Development Plan**

**3.78** Human Resource Development (HRD) Plan of the Business Plan envisaged re-designation of cadres, redefining of functional powers, bringing salary structure and benefits at par with those prevailing in oil industry, devising of performance appraisal proforma, training/reorientation and recruitment for 153 additional S&T posts.

**No action for implementing HRD plan was taken by the IIP**

**3.79** The IIP failed to take action on these issues as brought out under HRD Plan, which according to Action Plan should have been completed within a period ranging from six months to one year. Only in April 2000, i.e. after a lapse of three years, the RC of the IIP approved the plan to recruit 37 scientists.

### **Marketing Plan**

**3.80** In order to enhance the customer base, the IIP proposed appropriate level contracts with private organizations like Reliance Petroleum Ltd., Essar Oil, Hindujas, and PSUs like Bharat Oman Petroleum Ltd., Hindustan Oman Petroleum Ltd. and automotive sector giants like DCM-Daewoo, General Motors, Ford, etc. for identifying future business opportunities. It was noticed that after implementation of business plan for three years, the IIP was able to interact with Reliance Petroleum only.

**Marketing Plan failed to take off**

**3.81** The IIP proposed to set up service centre at Mumbai to become more accessible to clients and to reduce the time lag in providing services to customers. The service centre at Mumbai was still at construction stage. The IIP had planned to complete its establishment in two years, i.e., by 1998-99.

**3.82** The IIP had also proposed to organise industry meets to create awareness about the IIP to enhance its business base. The IIP did not organise industry meet during the period 1997-2000.

### **Monitoring and implementation of Business Plan**

**3.83** The IIP constituted eight task forces in April 1997 for monitoring and implementation of business plan. Only three Task forces met for monitoring

and implementation of BP during the entire period and that too for a maximum of three times during 1997-2000 indicating thereby the low priority given to the implementation of the plan for which the IIP took loans from World Bank.

## Manpower management

*The institute had an excess non-scientific, non-technical manpower against the norms of the CSIR. Even the deployment of the lean scientific manpower had been skewed. In violation of the CSIR directives, and despite being regularly pointed out in earlier Audit Reports, the institute had employed contract workers for regular nature of work against which full complement of staff existed. These workers were employed continuously from 1997 onwards in violation of GOI directives, which had now created a liability on the IIP for their absorption in the institute.*

### Excess non-scientific manpower

3.84 The position of staff at the IIP under scientific, technical and administrative cadre during 1994-2000 was as under :

The ratio of scientific to non-scientific staff was higher than the ratio recommended by Committee appointed by CSIR

As on	Scientific		Technical		Administrative		Ratio of Scientific and Non-scientific staff	
	SS	MIP	SS	MIP	SS	MIP	SS	MIP
1 April 1994	190	175	417	350	210	158	1:3.30	1:2.90
1 April 1995	190	169	417	340	210	153	1:3.30	1:2.92
1 April 1996	172	170	350	331	209	150	1:3.25	1:2.83
1 April 1997	172	164	350	326	212	147	1:3.27	1:2.88
1 April 1998	172	160	350	317	212	145	1:3.27	1:2.89
1 April 1999	172	161	350	304	212	147	1:3.27	1:2.80

SS - Sanctioned strength

MIP - Men-in-position

3.85 Over the period 1994-2000, the ratio of sanctioned strength of scientific to non-scientific staff ranged between 1:3.3 to 1:3.25, while the actual men-in-position was in the ratio 1:2.80 to 1:2.92.

3.86 A committee appointed by President of the CSIR, recommended, in December 1986, that the ratio between scientific and non-scientific manpower should be brought down to 1:1.5. However, the CSIR itself had fixed sanctioned strength in excess of its recommended ratio in the IIP. Thus the IIP had excess non-scientific manpower.

### **Engagement of manpower on contract**

**The IIP engaged 116 contract workers in violation of ban imposed by the CSIR**

**3.87** Irregular deployment of contract workers in defiance of CSIR and GOI instructions was pointed out in the Comptroller and Auditor General of India's Audit Reports for the year ended March 1997 and March 1999. It was reported vide Para 2.1 of Report of the Controller and Auditor General of India, Union Govt., Scientific Department for the year ended 31 March 1997, that the IIP was engaging manpower through contractor for regular nature of work in defiance of instructions of Government of India and the CSIR. Subsequently, it was also reported vide Para 3.7 of the Report of the Comptroller and Auditor General of India for the year ended 31 March 1999, that the IIP had engaged 116 contract workers during October 1997 to March 1999 in violation of ban imposed by the CSIR on engaging contract workers.

**3.88** During the course of the present review, it was noticed that the IIP continued to engage 74 to 105 contract workers during 1999-2000. In addition, it was observed that the IIP started paying salaries of these contract workers from its own regular budget/ LRF during 1999-2000. The amount disbursed in 1999-2000 was Rs 19.22 lakh.

**3.89** Audit studied the deployment of the contract workers employed. It was seen that they were broadly engaged on normal regular activity even though there was almost full complement of staff under these categories. It was seen that during 1995-2000 upto 34 contract workers were engaged as Lower Divisional Clerks (LDCs), upto 46 as helpers and upto seven as drivers by the IIP. Scrutiny of records revealed that there was sufficient regular staff under these categories as per the sanctioned strength and the vacancy under these categories was insignificant.

**In spite of having full complement of staff, the IIP engaged contract worker as the LDCs, helpers and drivers**

**3.90** As per instructions issued by the government in June 1988, employment of the same casual worker beyond 200 days in a year is not permitted. In defiance of these instructions, the IIP continued to engage 116 to 74 workers on contract basis over the period October 1997 till date. Of these 68 workers had approached Central Administrative Tribunal (CAT) for their regularisation. The CAT, vide its judgement of January 2000 had directed the CSIR/IIP to evolve a scheme for their regularisation. Thus, the lapse on part of the IIP had resulted in permanent liability for the CSIR/IIP, and as a repercussion thereof, there would be avoidable increase in the wage bill of Govt. of India/the CSIR.



### Security of the IIP given on contract

The IIP misused its regular security personnel by allowing them to work as peons/helpers

3.91 The CSIR had issued instructions to all its laboratories in December 1998 following the 'Manpower Audit of the CSIR' directing that contract for security was to be given only to meet the shortfall in number of persons on regular rolls. However, the IIP misused its regular security personnel by diverting them to other assignments. The IIP had 25 posts of Jr. Security Guards. Against this, during the period 1994-2000, there were 15 to 27 persons on regular rolls some of whom were employed as peons/ helpers in various sections. The entire security arrangement of the institute was contracted out to private contractors. The IIP paid an amount of Rs 60.49 lakh to the contractor during 1997-2000 for 36 to 65 security persons. Thus, against 25 posts of Junior Security Guards, IIP had maximum vacancies of 10 during 1994-2000, whereas it engaged 36 to 65 security persons leading to double payment on deployment of up to 55 persons through contractor.

### Unauthorised deployment/ payment to contract workers

Two contract workers deployed under the project after its completion

3.92 A project titled "Evaluation of fuel economy additives/ devices as per Petroleum Conservation Research Association (PCRA) test procedure" sponsored by PCRA at a total cost of Rs 9.78 lakh was undertaken by the IIP in September 1996 for a duration of nine months. The project was completed before March 1997. However, one to two contract workers were shown as deployed under the project and paid wages/ salaries to the extent of Rs 0.69 lakh from the project account after completion of project during 1997-98 which was irregular.

## Purchases

*Test check of purchase cases revealed that five equipment procured by the IIP could not be utilised due to delay in procurement, non-installation/ commissioning, non-repair of damaged equipment resulting in unfruitful expenditure of Rs 4.36 crore.*

### Unfruitful expenditure

#### Procurement of Hydro treating unit

The IIP placed order for supply of high pressure hydro treating unit for a sponsored project to be completed in January 2000

3.93 In August 1997, the IIP processed the procurement of Hydro treating unit under CHT funded project "Catalyst & Technology Development for hydro sulphurisation of gas oil" costing Rs 1.82 crore with revised duration of 46 months i.e. from April 1996 to January 2000. The IIP entered into an agreement with M/s Imtech systems B V Business unit, Netherlands through local agent M/s Sigma Instrument Pvt. Ltd., Vadodara (March 1998) for supply of high pressure hydro treating unit at a negotiated price of NLG 568118.00 including three *per cent* agency commission. As per agreement the

delivery period of equipment was 28 weeks from the date of opening of irrevocable letter of credit i.e. July 1998.

**The equipment commissioned in March 2000 was lying defective since June 2000 whereas the project was completed in January 2000**

**3.94** The factory acceptance test could not be done due to some problem in completion of work, as was reported by two scientists who were deputed for training abroad in June 1999. The IIP informed (September 1999) about the delay in shipment of the equipment to foreign supplier and also intimated that the project would be completed by December 1999. The equipment was received and installed in November 1999 and commissioned only in March 2000 due to non-availability of the infrastructure facilities. In June 2000, the IIP approached the foreign supplier to rectify the problems but Indian agent could not solve the problems during his visit to the IIP in August 2000. An amount of Rs 1.18 crore was incurred by the IIP towards the procurement of high-pressure hydro treating unit excluding agency commission.

**3.95** The equipment, which was procured under the sponsored project with duration up to January 2000, could not be utilised even for a day on that project as it was commissioned in March 2000. Moreover, due to inherent problems in the equipment, it was lying in-operational as of September 2000.

**3.96** Thus, the basic purpose of procurement of the equipment costing Rs 1.18 crore was defeated rendering the expenditure unfruitful due to delay in placing the purchase order, non-enforcing the clause of agreement on supplier to adhere to the scheduled delivery period and to set right the equipment for operation.

#### **Pilot Plant system with fixed catalyst bed**

**3.97** The IIP invited bids for supply, installation and commissioning of a Pilot Plant system with fixed catalyst bed to carry out reaction studies for gas liquid hydrocarbons at pilot plant scale in April 1997. Though the IIP expected six responses from the suppliers, it received only two offers. While technically evaluating the bids, it was observed that bid of M/s Xytel India did not follow International/European standard as per requirement of bidding document but followed their own standards. Despite this, the IIP accepted the bid and the order was finalized in favour of M/s Xytel India Ltd. for Rs 1.09 crore in August 1997 (later enhanced to Rs 1.13 crore). The consignment was received in the IIP in January 1998.

**Pilot plant costing Rs 1.13 crore utilised only for two days since September 1998**

**3.98** During installation runs, there was an accidental damage and some parts were taken by firm for repair. The firm demanded Rs 3.65 lakh from the IIP for repair. The system was commissioned in September 1998 and the equipment was operated only for one project during October-December 1998. The plant was damaged in a fire accident in July 1999, for investigation of accident the IIP constituted a committee. The preliminary report sought extension for one more week to investigate the reasons for fire but the final

report was never submitted by the committee. The vendor submitted a proposal for Rs 10.65 lakh for revamping of the system and final action in this regard was yet to be taken by the IIP. Review of log book of equipment revealed that it was not operated at all after December 1998 except for two days in May 1999 that too, only for test runs. Entire payment of Rs 1.13 crore was released to the firm by April 1999.

**3.99** Thus, the expenditure of Rs 1.13 crore proved unfruitful due to failure on the part of the IIP for not taking the fire-risk precautions, non-repairing of the damaged equipment and low utilisation of equipment during its working period.

### **Micro Reactor System with fixed catalyst bed**

**3.100** For supply, installation and commissioning of a Micro Reactor System with fixed catalyst bed to carry out reaction studies for gas liquid hydrocarbons, the IIP placed an order on M/s Xytel India (P) Ltd. in September 1997 at a cost of Rs 91.59 lakh. The IIP was to procure the system from World Bank Loan. Before dispatch of system, the IIP was to give the dispatch clearance. The record minutes of meeting held in December 1997 revealed that the test runs could not be carried out due to non-availability of complete system and the software could not be studied thoroughly being incomplete.

**3.101** The equipment received in January/February 1998 was installed/commissioned in April 1998. The equipment was operated for only two days during April-December 1998 when a software problem occurred and unit could not be operated. Unit when operated in May 1999, failed for various tests. Ever since commissioning of the equipment, there were recurring problems with the equipment like fluctuation in temperature indicated on PC, non-control of temperature, erratic heating control etc. The engineer of the firm visited the IIP in July 1999, also confirmed the problems and failed to rectify the faults and took some parts for repair, which were received back only in May 2000. Meanwhile, in July 1999, the equipment got damaged in a possible short circuit. The IIP constituted a committee to look into reasons for fire, which never submitted the final report. The firm submitted a revamping proposal in April 2000 for a total cost of 2.50 lakh on which final decision had not yet been taken by the IIP.

**3.102** Thus, the IIP purchased a defective equipment with untested software which gave continuous trouble since installation itself and the equipment could not be utilised on the project work. The IIP failed to make the instrument operational even during the warranty period rendering Rs 95.20 lakh unfruitful.

**The IIP failed to make the instrument operational even during warranty period rendered Rs 95.20 lakh unfruitful**

### **Automatic Sequential X-ray Spectrometer Systems RIX-3000**

**3.103** Based on indent of Catalyst Division in August 1993 for the procurement of an equipment under the OADB grants, the IIP entered into an agreement in January 1997 with M/s IR Technology Services Pvt. Ltd., New Delhi, an Indian agent of two foreign firms, for the supply of "Automatic Sequential X-ray Spectrometer Systems RIX-3000". As per contract agreement, main unit of the equipment 'Rigaku/Automatic Sequential X-ray Spectrometer System RIX-3000' and 'Microprocessor Controlled Induction Furnace' were to be supplied by M/s Rigaku International, Corporation, Japan and M/s Linn Hightherm GmbH, Germany, while indigenous items were to be arranged by Indian agent for Yen 26549680, DM 44000 and Rs 4.10 lakh respectively. The package included two weeks free of cost training to be given to three scientists at Japan.

**3.104** The IIP opened Letter of Credits (LCs) for Yen 25885980 and DM 42900 in March 1997. Equipment Microprocessor Controlled Induction Furnace' from Germany was received in July 1997 while main equipment 'Automatic Sequential X-ray Spectrometer System RIX-3000' from Japan and indigenous items from Indian agent were received in August 1998 and February 1999 respectively. The equipment could not be installed and commissioned upto January 2000 due to non-availability of special type of stabilizer etc. by the IIP and thereafter due to problems in loading of the software by suppliers. 20 per cent balance payment of the foreign firms and 10 per cent payment of Indian agent including agency commission were yet to be released by the IIP as of August 2000.

**3.105** Thus, the procurement of equipment initiated in August 1993 and actually received in July 1997-February 1999, was still lying unutilized due to lapses on the part of the IIP rendering entire expenditure of Rs 84.68 lakh unfruitful.

### **Asphalt Rheometer**

**3.106** The IIP procured Asphalt Rheometer from M/s Spectronic Instruments Pvt. Ltd., Mumbai (Indian Agent of M/s TA Instruments England) from the World Bank loan. The equipment was procured through window shopping from the above firm despite rejecting it on the ground of currency (UK£). It was stated to be of utmost importance for studying the rheology of bitumens and construed the integral part with two other equipment being purchased from the World Bank loan. The equipment was received in March 1998 and its certificate for installation/commission was given in June 1998. The total expenditure incurred on the procurement of equipment was Rs 24.38 lakh. However from the logbook maintained by the concerned division, it was noticed that the entries were made from 21 October 1997 whereas the

**Equipment costing Rs 84.68 lakh could not be installed and commissioned due to non-availability of stabilizer upto January 2000 and still lying unutilised**

**Asphalt Rheometer costing Rs 24.38 lakh installed in June 1998 utilised only for 13 days**

equipment was received in March 1998. Evidently these entries were fictitious. During the period June 1998 to March 2000 the equipment could be utilised only for 13 days.

**3.107** Thus, the equipment costing Rs 24.38 lakh was lying unutilised since June 1998 (except 13 days) which was indicative of the fact that either the equipment was not required or it was purchased to utilise the World Bank loan only.

### **Irregular procurement**

**3.108** On the basis of single quotation received in response to press tender, the IIP placed order on M/s SAJ Test Plant Pvt. Ltd. Pune in August 1997 for supply of an Engine Parametric Control System at a cost of Rs 30.50 lakh. The offer of the firm was accepted in spite of deviation in technical specifications. Out of nine specifications, only two were matching and on the remaining specifications, the supplier's bid was silent. The equipment was received in February 1998. During inspection of equipment, some parts were found missing. Even then its installation was undertaken and during installation, ACT sensor was found missing and MAP sensor was found defective. Besides these, the IIP did not arrange 12V power supply for timely installation of system. The equipment was installed in February 1999 but it went out of order in May 1999, i.e. within warranty period. The equipment could not be rectified as of September 2000. It was further noticed that the IIP paid Rs 8.00 lakh on training at (i) Cosworth Engg USA (Rs. 5.00 lakh on to and fro fare from Dehradun to USA) (ii) Commissioning Charges at the IIP (Rs 3.00 lakh on test/demonstration run and training for installation, operation and maintenance) as per quotation.

**Equipment, in spite of deviation in specifications, procured on single quotation lying in defective condition**

**3.109** Thus, it would be seen that the IIP placed order for procuring equipment on single tender basis in spite of deviations in desired specifications, which could not be installed for a year due to non-arrangement of 12 V power supply and was lying un-rectified since May 1999 (within warranty period) resulting in unfruitful expenditure of Rs 30.55 lakh.

### **Avoidable loss**

#### **Equipment for evaluation of high performance multi grade bitumens**

**3.110** For supply, installation and commissioning of equipment for evaluation of high performance multi grade bitumens (MATA/NAT type test), the IIP decided in June 1997 to award contract in favour of M/s Cooper Research Technology Ltd. UK at CIF cost of £ 109499. The formal agreement with the firm was entered into only in November 1997 and LC for £ 107349 (Rs 6569940/-) was opened in December 1997. As per agreement, the supplies were to be completed by 25 December 1997. The equipment was

**Due to delay in supply and non-levy of liquidated damages, the IIP paid Rs 11.95 lakh extra on procurement of equipment**

received in April 1998 and commissioned in August 1998. Due to non-adhering to delivery period and delay in supply of the equipment by the foreign firm, the IIP had to make extra payment of Rs 5.41 lakh on account of increase in exchange rate. Further, it did not levy liquidated damages in terms of clause of contract resulting in an over payment of Rs 6.54 lakh to supplier (calculated @ 0.5 per cent of Rs 73.82 lakh for 14 weeks). The log book of the equipment showed that the equipment was utilised for only 22 days during April 1998 to March 1999, interestingly 7 days were prior to commissioning of the equipment indicating thereby that the entries in the log book were fictitious. The equipment was lying in-operational since September 1999 due to problems in software.

**3.111** Thus, the IIP suffered an avoidable loss of Rs 11.95 lakh and the equipment purchased at a cost of Rs 73.82 lakh remained underutilised besides remaining in-operational since September 1999.

### **Centralised UPS system along with networking**

**3.112** The IIP entered into an agreement with M/s PCI Limited, agent of M/s Piller GmbH, Germany in January 1997 for supply of a centralised UPS system along with networking at a total cost Rs 29.96 lakh (DM 87178 equivalent to Rs 18.46 lakh for price of UPS and Rs 11.50 lakh for networking, subject to actual). The UPS system was installed in August 1997. The IIP released Rs 18.46 lakh for UPS in May 1997, Rs 10.35 lakh in March 1997 for networking and Rs 2.34 lakh in May 1997 towards air freight. Based on the certificate of work done given by the IIP, the firm claimed an additional amount of Rs 5.30 lakh. No approval for additional work done by the firm was taken either by firm or the concerned engineer. On being pointed out in audit, the IIP constituted a committee to look into additional claims of the firm, which submitted a report in July 1999. The committee in conclusion arrived at excess payment of Rs 1.86 lakh. The IIP requested the firm in November and December 1999 to refund of excess payment but the firm never responded.

**3.113** Thus, the IIP not only made excess payment of Rs 1.86 lakh to the firm but the payment remained un-recovered as of September 2000 and no action to fix the responsibility of the officers/officials at fault was taken by the IIP.

### **Heavy emergent purchases**

**3.114** As per Para 3.1.1 of Rationalised Purchase Procedure (RPP) issued by the CSIR in 1988, for procurement of items which were needed frequently, regularly and repetitively (viz. General chemicals, solvents glass wares, sanitary stores, hardware items, paints, oils, lubricants, photographic material, drawing materials, stationary items, soaps, detergents, etc.) minimum and maximum level were required to be maintained by all the CSIR's laboratories

**Excess payment of Rs 1.86 lakh remained un-recovered from supplier**

**The IIP resorted to emergent cash purchases by not adhering to norms of minimum and maximum level of stores**

in their stores. However, the IIP did not maintain minimum and maximum level of stores. As a sequel, the IIP resorted to heavy emergent cash purchases and during 1994-2000, the IIP spent Rs 18.70 lakh on cash purchases from its regular budget and LRF.

**3.115** The IIP stated in July 2000 that due to frequent transfer of predecessors in stores and allocation of insufficient funds for procurement of such items, this job could not be completed in the past. The reply lacked conviction as the Rationalized Purchase Procedure was issued by the CSIR way back in 1988.

## **Store accounting**

### **Non-Conduction of physical verification**

**Physical verification reports for 1995 and 1998-99 not furnished**

**3.116** As per provisions of general financial rules, physical verification of stores (consumables as well as dead stock) is required to be conducted every year. Last physical verification of stores was conducted during 1992-93. Physical verification of stores in the IIP was stated to be conducted during 1995 and 1998-99 but their reports were not furnished to audit. The CSIR Headquarters conducted only a test physical verification of stores of the IIP in July 1999. The physical verification of stores items for 1999-2000 was still to be conducted.

### **Unserviceable stores**

**Stores lying unused for long periods**

**3.117** 397 items of unserviceable/obsolete items having book value Rs 16.58 lakh were lying in the stores. Further, 66 items were lying for more than three years and 46 items were lying unused since their procurement.

**3.118** Thirteen noble items were lying in stores for periods ranging from five to 35 years. Book value of these items was not made available.

### **Non-maintenance of separate Assets Register for equipment procured out of projects**

**Separate registers for equipment procured under projects not maintained**

**3.119** The IIP was taking up various R&D projects as sponsored, grants-in-aid collaborative projects etc. for which it was procuring equipment from the projects funds. As per rules, unless the equipment are specifically transferred to the institute, these equipment cannot be treated a property of the institute. For this, a separate Assets Register was required to be maintained. However, the IIP was maintaining only one stock ledger for all the equipment. In reply, it was stated by the IIP in September 2000 that it was very difficult to find out which equipment were purchased under which project. Further, as the IIP was taking these assets into their own account the figures shown under 'equipment head' of balance sheet were incorrect to that extent.

**3.120** Audit reported the matter to the CSIR in November 2000, who has not replied (April 2001).



## ANNEX – I

## Projects kept-in-abeyance

(Rs in lakhs)

Sl. No.	Project Code	Project title (Name of sponsor)	Value	Date of start	Date of com./ kept in- abeyance	Reasons
<b>IN-HOUSE PROJECTS</b>						
1.	OLP-131819	Commercialisation of reformer optimisation package in collaboration with EII.	2.79	4/95	3/99	Non-receipt of job under the project
2.	OLP-310119	Process development of octylated diphenyl amines	15.00	10/87	3/95	Shortage of manpower and funds
3.	OLP-310219	Process development for NN-DI-ISO PROPYL-P-PHENYLENE DIAMINE	15.05	-DO-	12/95	
4.	OLP-310619	Process development of 2,6 diterty butyl phenol	4.94	6/93	12/95	
5.	OLP-330719	Modelling and simulation of multiphase reactors activity	17.69	10/87	NA	Diversion of manpower to other projects
6.	OLP-340819	Catalytic Hydrogenolysis of non edible vegetable oils to long chain fatty alcohols	10.80	4/92	3/95	Pre-occupation of staff on other projects
7.	OLP-340919	Industrial oxidation of vegetable oils to short chain mono and diacabo-oxylic acids	4.27	-do-	3/96	
<b>Total</b>			<b>70.54</b>			
<b>SPONSORED PROJECTS</b>						
8	SSP-4407	Operation of buses using dual fuel (KADAMBA)	4.60	1/97	11/99	Matter was under correspondence with the sponsor
9	SSP-4408	Operation of buses using dual fuel (KSRTC)	4.80	1/97	11/99	
10	SSP-4409	Operation of buses using dual fuel (PTC)	4.80	1/97	11/99	
11	SSP-4410	Operation of buses using dual fuel (DTC)	4.05	1/97	11/99	
12	SSP-7111	Development of an efficient petroleum – air – gas burner (SAFE GLASS)	2.00	1/97	12/97	Non-availability of manpower
<b>Total</b>			<b>20.25</b>			

## ANNEX – II

### Projected, allocated and actual expenditure of the IIP during 1997-2000

(Rs in lakh)

Heads	1997-98			1998-99			1999-2000		
	P	A	AI	P	A	AI	P	A	AI
Pay & Allowances (P-1-3)	734.63	663.27	797.35	1083.83	875.17	981.57	1177.33	1033.76	958.96
Contingency	163.62	77.00	77.07	197.22	91.00	95.41	240.77	95.00	145.00
Maintenance	58.00	30.00	30.00	60.00	30.00	30.00	76.50	30.00	45.00
Chemicals & Consumables	111.50	37.50	37.50	76.45	58.00 <sup>†</sup>	58.00	150.00 <sup>#</sup>	60.00	0.39
Other Research Expenditure	69.25	18.00	18.00	57.70	-	-	-	6.02 <sup>Ω</sup>	6.02 <sup>Ω</sup>
<b>Total</b>	<b>1137.00</b>	<b>825.77</b>	<b>959.92</b>	<b>1475.20</b>	<b>1054.17</b>	<b>1164.98</b>	<b>1644.60</b>	<b>1224.78</b>	<b>1174.98</b>
Capital									
Works and Services	106.29	5.29	5.29	145.00	-	0.82	52.44	-	-
Equipment and Apparatus	215.30	190.00*	196.39	548.05	-	134.00	335.64 <sup>λ</sup>	100.00 <sup>λ</sup>	177.25
Others (Computer, workshop machinery, office equipment, furniture etc.)	153.95	58.00	71.61	155.61	48.00	47.50	127.40	44.00	43.47
<b>Total</b>	<b>475.54</b>	<b>253.29</b>	<b>273.29</b>	<b>848.66</b>	<b>48.00</b>	<b>182.32</b>	<b>515.48</b>	<b>144.00</b>	<b>220.72</b>
Staff Quarters									
Revenue	23.00	10.00	10.65	19.00	10.00	10.00	15.00	10.00	10.00
Capital	69.85	21.85	7.99	80.50	2.00	10.63	32.98	10.97	5.19
<b>Grand Total</b>	<b>1705.39</b>	<b>1110.91</b>	<b>1251.85</b>	<b>2423.36</b>	<b>1114.17</b>	<b>1367.93</b>	<b>2208.06</b>	<b>1389.75</b>	<b>1410.89</b>

P – Projection by the IIP

A – Allocation by the CSIR

AI – Actual

<sup>†</sup> Includes Other Research Expenditure

<sup>Ω</sup> Human Resources Development

<sup>λ</sup> Includes Rs 110 lakh and Rs 100 lakh for modernisation

## ANNEX – III

## Statement showing under utilisation of equipment procured from World Bank loan

*(Rs in lakh)*

Sl. No.	Name of equipment	Cost	Date of installation	No. of days equipment operated till March 2000	Percentage utilisation
1.	Spray Dryer Unit-II	27.57	October 1998	28	7.07
2.	Elemental Analyser	20.09	March 1998	25	4.54
3.	Oxidation Stability Benches	57.11	February 1998	67	11.71
4.	Engine Parametric Control System	30.50	February 1999	22	0.14
5.	Engine Data Acquisition and Indicating System	10.74	March 1998	35	6.56
6.	AVL Dynamometer	75.43	March 1998	22	4.00
7.	Engine Dynamometer	69.21	March 1998	57	10.36
8.	High Temperature Simulated Distillation Unit	22.37	June 1998	21	4.34
9.	Pilot Plant System	113.40	September 1998	62	14.83
10.	Micro Reactor System	95.09	April 1998	70	12.73
<b>Total</b>		<b>521.51</b>			

*Note : Percentage utilisation adopted by taking one month equivalent to 22 days*

## **National Institute of Oceanography, Goa**

*National Institute of Oceanography (NIO), Goa, a constituent unit of the CSIR established in 1966 to carry out research in different aspects of coastal and open ocean environments, diluted the thrust on basic research due to undertaking more sponsored projects and deployment of scientists for infrastructural activities rather than research. 48 to 58 per cent of the scientists were not involved in publishing any research papers. Of the 39 patents filed, neither any patent was granted in the name of the Institute nor any technology was commercialised. Despite 21 years of research, the institute had not developed any drugs from marine resources. The institute had not made much headway to cover the objective of evolving predictive models that form the basis of a strategy for judicious and sustainable use of sea. Even though 51 months lapsed since the loss of a research vessel, its replacement still remained a distant dream with no positive steps taken in this regard though the vacuum created by the loss of the vessel had resulted in loss of sponsored projects worth Rs 62 crore. Moreover, an old instrumental craft purchased in September 1999 for coastal zone activities, without following established procedure, had not been commissioned resulting in draining of Rs 2.20 crore on hiring of private coastal boats unsuitable for the job. The NIO though concerned with the ocean research, was without its own research vessel and instrumental craft for deep sea and coastal research activities. Inventory management of NIO leaves much to be desired. Due to non adherence of the recommendation of a committee to scale down the non-scientific manpower there was extra staff cost of Rs 4.25 crore.*

*Considering the above weakness and deficiencies of the Institute, there is imminent need for the CSIR to have a serious re-look on a rejuvenation plan of this institute to equip it with capability to face the needs and challenges in the oceanographic research and to translate the research results into fruitful utilisation.*

### **Highlights**

◆ Despite its existence for over 21 years and after undertaking three projects, the NIO had not made any dent in developing drugs from marine resources or getting a patent sealed.

◆ An important project concerning global warming was bogged down in delays and slipped the time schedule of July 1998 and the final report was yet to be prepared.

◆ Failure to complete the sponsored projects within the time schedule resulted in extra cost of Rs 63.38 lakh. The system of closing the project account immediately on completion of project did not exist resulting in non-closure and non-transfer of balance of Rs 10.33 crore of 207 sponsored/consultancy projects to Laboratory Reserve Fund.

◆ In spite of the directives of the CSIR, budgeting and costing of in-house projects was not done in the NIO. As a result, there was no tracking of estimated cost *vis-à-vis* actual expenditure incurred in each in-house project.

◆ During the period 1996-2000, the NIO developed 34 technologies, filed 39 patents, none of the patents had been sealed so far. Of 34 technologies developed none had been commercialised.

◆ A technology for indigenous manufacture of *lysate*, for preparation of reagent in the detection of bacteria having scope to save foreign exchange, developed by the NIO was not exploited commercially.

◆ A project for degrading crude oil with the help of natural flora, developed in March 1996, remained dormant for four years, despite its major impact on environment/marine life by effectively dealing with oil spill pollution.

◆ Even though 51 months had lapsed since the total constructive loss of research vessel due to fire, which adversely affected substantial portion of research activities, the process of acquiring a substitute vessel had not made any headway. Vacuum created by non-availability of a substitute vessel affected sea based research activity and resultant loss of sponsored projects worth Rs 62 crore.

◆ To serve the urgent need of coastal zone research activities, an old non-sea worthy vessel lying with a sick Government Company from 1990 onwards was procured in September 1999 without following the established purchase procedure and assessing its viability and economics at a price of Rs 70 lakh. Injudicious purchase and non provision in the contract for the recovery of liquidated damages for delayed delivery of the vessel resulted in draining of Rs 2.20 crore in hiring unsuitable private boats.

◆ Inventory management was unsatisfactory and no system of physical verification of inventory worth Rs 35.95 crore was existing. Equipment worth Rs 3.40 crore were sparingly used, unserviceable/obsolete/ surplus stores worth Rs 1.14 crore plus US \$ 1308002 under a DOD sponsored programme and retrieved after decommissioning of research vessel had not been disposed of. Moreover, there was no monitoring of insurance claims of Rs 37.90 lakh.

◆ There was excessive manpower cost of Rs 4.25 crore due to non-implementation of the recommendations of a committee to scale down the ratio of non-scientific manpower.

## Introduction

3.121 National Institute of Oceanography (NIO), Goa, a constituent unit of Council of Scientific and Industrial Research (CSIR) was established in January 1966 to carry out research in different aspects of coastal and open ocean environments. It has three regional centres at Mumbai, Kochi and Visakhapatnam. The objectives of the NIO include :

- (i) to strive for excellence in marine sciences, research and utilise the expertise and competence for the growth of the Nation,
- (ii) to evolve predictive models that form the basis of a strategy for judicious and sustainable use of sea,
- (iii) to file patents for technologies which have wealth generating potential,
- (iv) to support preservation of marine bio-diversity and sensitive ecosystems by creating adequate scientific data base and
- (v) to foster marine science by sharing knowledge and equipment with academic institutions.

## Organisational set up

3.122 The NIO is headed by a Director, who is assisted by a Management Council for administering and managing its affairs and a Research Council (RC) consisting of external experts on ocean related research under the chairmanship of the Secretary, Department of Ocean Development (DOD). RC is entrusted with the task of advising and recommending the formulation of research programmes, conducting periodical review of the research activities etc.

## Scope of Audit

**3.123** The present review covers the performance of the NIO with reference to the project management, transfer of technology, financial and manpower management etc. during the period 1995-2000. The observations as a result of test check of records of the NIO in audit are given in the succeeding paragraphs.

## Financial Management

*Due to lack of transfer of technology, the generation of revenue from royalty was negligible with the result that the NIO leans heavily on grants from Government. Advances amounting to Rs 16.68 crore were outstanding of which advances amounting to Rs 3.62 crore were more than five years old.*

**3.124** The activities of the NIO are mainly funded by the allocations made by the CSIR out of the grants-in-aid received by it from the Government of India. This is supplemented by the receipts from other Government Departments and the sponsored/consultancy projects and other miscellaneous receipts. The year-wise position of receipts and expenditure of the NIO during the period 1995-2000 was as under :

(Rs in lakh)

Year	Sources						Application					
	CSIR Grant	Grants-in-aid from Govt. Departments	Sponsors	Royalty	Others	Total	Ongoing Activities	In-house Projects	Grants-in-aid Projects	Sponsored projects	Others	Total
1995-96	921.00	446.96	376.89	-	430.85	2175.70	287.39	673.88	405.16	275.61	252.35	1894.39
1996-97	1446.00	516.33	517.36	0.18	408.35	2888.22	658.22	680.68	425.08	364.52	191.71	2320.21
1997-98	1692.00	582.40	690.06	0.16	484.52	3449.14	1021.60	563.71	619.30	267.98	362.27	2834.86
1998-99	1602.27	308.67	568.37	0.12	717.80	3197.23	806.40	749.48	413.65	286.44	84.31	2340.28
1999-2000	1789.20	369.65	524.27	0.14	618.94	3302.20	1418.85	797.04	650.26	389.96	147.74	3403.85
<b>Total</b>		<b>2224.01</b>							<b>2513.45</b>			

**The Institute leans heavily on grants from Government for its activities**

**3.125** It is observed that the Institute leans heavily on grants from Government for its activities and generation of revenue from royalty has been negligible due to woeful lack of transfer of technology. Moreover, the flow of funds from sponsored projects was on the decline since 1997-98. The CSIR stated in February 2001 that after evaluating the performance of technologies, steps were being taken to transfer them to National Research Development Corporation Limited or outside entrepreneurs directly. The declining trend in funds flow from sponsored projects were attributed to all round industrial slump.

### Non recovery/adjustment of outstanding advances

Advances of Rs 16.68 crore were outstanding for adjustment/ recovery from 1976-77 onwards

3.126 An amount of Rs 16.68 crore was outstanding as of 31 March 2000 against officials on account of Traveling Allowance (TA), Leave Travelling Concession (LTC) and cash advances to staff for purchases as well as advances for purchase and supply of materials/equipment to private parties. Some of these pertain to periods as early as 1976-77. Of these advances of Rs 3.62 crore were more than five years old and included Rs 2.27 crore made to private parties as indicated below :

<i>(Rs in lakh)</i>					
Year	Government Departments	Private parties	TA/LTC advances to staff	Cash advances to staff for purchase	Total unadjusted advances
1976-77 to 1994-95	83.94	227.23	11.21	39.24	361.62
1995-96	2.24	60.60	7.99	21.01	91.84
1996-97	1.26	201.09	2.86	22.74	227.95
1997-98	30.35	54.42	3.85	8.95	97.57
1998-99	2.03	137.88	0.82	27.13	167.86
1999-2000	3.74	603.20	18.43	95.39	720.76
<b>Total</b>	<b>123.56</b>	<b>1284.42</b>	<b>45.16</b>	<b>214.46</b>	<b>1667.60</b>

3.127 The CSIR stated in February 2001 that the NIO being a field oriented laboratory, the number of advances on a given date would be very high due to scientific cruises/field tours, etc. While the underlining principle enunciated in the reply is appreciated, the CSIR missed out the vital question that all kinds of advances remained outstanding from as early as 1976-77. There was no justification for such old cases.

### Management of projects/R&D activities

3.128 In order to achieve its objectives, the NIO categorised Research & Development (R&D) programmes as per the VIII plan in four areas viz. (i) Industry and economy oriented programmes, (ii) Societal programmes, (iii) Basic Research programmes and (iv) Research support activities. In the IX plan, the activities were grouped in four areas viz. Coastal Processes, Engineering & Technology, Ocean Processes and Offshore Resources. These programmes/areas were implemented through different kinds of projects viz. in-house projects, grants-in-aid projects, sponsored projects, collaborative projects and consultancy projects.



### In-house projects

*The NIO could complete 25 in-house projects only out of 55 taken up during 1995-2000 (including 25 projects carried over from 1994-95). Project-wise financial monitoring of in-house projects was not done by the NIO.*

**3.129** The position of in-house projects undertaken by the NIO during the period 1995-2000 was as under :

Year	Opening balance	Projects		Closing balance
		Taken up	Completed	
1995-96	25	-	-	25
1996-97	25	-	25	-
1997-98	-	27	-	27
1998-99	27	-	-	27
1999-2000	27	3	-	30

**3.130** The CSIR approved 13 R&D programmes to be implemented in the VIII Plan at a total budget outlay of Rs 76.39 crore, of which Rs 20.15 crore was expected to be funded by other Government Departments like the DOD, Department of Science and Technology (DST), Department of Bio-technology (DBT), etc as Grants-in-aid projects. The NIO received Rs 73.58 crore from the CSIR (Rs 52.55 crore) and other Government Departments (Rs 21.03 crore) during the VIII Plan and spent Rs 68.49 crore. For the IX plan the requirement was projected at Rs 154.45 crore and during the first three years of the IX plan the outlay was Rs 63.44 crore.

**3.131** Audit review of selected in-house projects undertaken revealed that the project-wise financial monitoring was absent due to which inputs of the R&D projects against the budget approved were not ascertained. Although the CSIR stated (February 2001) that from 1 April 1999 financial monitoring of in-house project was done, the in-house project-wise expenditure was not available with the NIO.

**3.132** Individual points noticed on review of in-house projects are dealt with in succeeding paragraph.

### Discontinuance of in-house project

**3.133** To develop technical know-how for mangrove afforestation in the VIII plan, the CSIR estimated Rs 44 lakh out of which Rs 23 lakh was to be provided by the CSIR and Rs 21 lakh expected from other Government agencies.

Project-wise financial monitoring of in-house R&D projects was not done

**The objective of setting up of 100 hectares plot for demonstration of mangrove was not achieved due to faulty planning**

**3.134** The Project commenced in 1992 and for which Rs 18.30 lakh was provided during 1992-94, was discontinued by the NIO in 1994 on the advice of RC. Although, the NIO had achieved the objective of nursery techniques for mangrove species and published a paper in 1994, the main objective of the project viz. to set up 100 hectares plot for demonstration of mangrove afforestation was not achieved as the land required for the project was not made available by Government of Goa. The NIO, though clarified in April 2001 that mangroves were growing satisfactorily, it admitted that the mangroves had not blossomed as it takes few years and it had no details about the nurseries and plantations made by Forest Departments of Goa and Maharashtra Government. Thus, embarking on the project without ensuring the availability of land resulted in non-achievement of major objective of setting up demonstration of mangroves afforestation in 100 hectares

### **Grants-in-aid projects**

*Of 83 grants-in-aid projects taken up by the NIO during 1995-2000 (including 26 projects carried over from 1994-95), only 34 projects were completed. The NIO had not succeeded in developing drugs from marine even after 22 years of its existence. The NIO had also not prepared the final report on the project on "Bio-chemical Cycling and Sea-to-air fluxes of Dimethyle Sulphide in the northern Indian ocean" sponsored by Department of Ocean Development.*

**3.135** The position of grants-in-aid projects undertaken by the NIO during the period 1995-2000 was as under :

Year	Opening balance	Projects		Closing balance
		Taken up	Completed	
1995-96	26	10	6	30
1996-97	30	8	1	37
1997-98	37	13	14	36
1998-99	36	16	5	47
1999-2000	47	10	8	49

**Rs 140.47 lakh of unspent grant in 51 projects was not refunded to Government and Rs 86.71 lakh was spent in excess of grant in 32 projects**

**3.136** It was observed in audit that unspent balance of Rs 140.47 lakh in respect of 51 grants-in-aid projects completed up to 31 March 2000 was not refunded to the respective Ministry/Department. Rs 86.71 lakh excess spent on 32 grants-in-aid projects was not got reimbursed or regularised. Accepting the facts, the CSIR stated (February 2001) that the transactions were in the process of review.

**3.137** Points noticed on review of grants-in-aid projects undertaken are dealt with in succeeding paragraphs.

### **Development of potential drugs from ocean**

**3.138** In the field of identification of marine organisms for development of drugs from ocean, which falls under one of the R&D programmes, the NIO took up one institutional project (1978-83) and another international programme (1983-90).

**3.139** Another multi institutional project on development of potential drugs from the ocean, funded by DOD was undertaken by the NIO in three phases. The first two phases were taken up during 1990-1996. The phase-III of the project was sanctioned in November 1996 at a cost of Rs 8.01 crore for a period of three years from April 1996 to May 1999. The NIO received Rs 1.35 crore during 1990-2000 and spent Rs 1.32 crore on three phases of the project during the period. At the end of phase III commercial production of herbal drug(s) was to be initiated. The major output of the project viz. (i) Development of 1-2 herbal drugs (ii) filing of 1-2 international patents and (iii) initiation of phase-I clinical trials were not achieved.

Even after 22 years the Institute had not succeeded in developing drugs from marine resources or in getting a patent sealed

**3.140** Though the NIO had been in the field for over period of 22 years since 1978, its activities had not culminated in developing any drug from marine resources or getting a patent sealed even after spending Rs 2.20 crore on two projects during 1983-2000.

**3.141** The CSIR contended (February 2001) that the NIO identified around 20 compounds from a single source, on which further work required large quantity of compounds, which the NIO could not collect. The reason given for this was rather strange viz. "the starting plant material needed for the purpose was not available at the usual site of collection during the year". It is difficult to comprehend that year after year the plant was not available. New sites were therefore, located by them and it was claimed that purified compounds were being prepared to be sent to Central Drug Research Institute (CDRI). Patents of four products were found to be promising, but two of them were not patentable as these did not possess patent value. It was also clarified that follow up action to file a patent was to be taken by CDRI. Though, the NIO had contributed 75 publications out of this programme, the fact remained that the ultimate objective of the project had not been achieved so far.

### **Delay in achieving objectives of the project having global impact**

**3.142** The DOD sanctioned a project in July 1995 on "Bio-Chemical Cycling and sea-to-air fluxes of Di-methyl Sulphide (DMS) in the northern Indian Ocean" at a total cost of Rs 25.62 lakh for a period of three years. The DOD extended (December 1999) the project up to March 2000 without additional cost and released Rs 21.50 lakh in July 1995. However, the NIO spent Rs 3.41 lakh in excess on the project up to March 2000.

A project on global warming slipped its schedule of July 1998 and final report on the project had not been prepared

**3.143** The project aimed at understanding the cycling of the DMS in the Northern Indian Ocean with its possible effect on climate. As the climate is changing fast, with rising global atmospheric temperature, it was necessary to understand the dynamics of the DMS in the ocean. The DMS has negative effect on global warming since it cools the atmosphere. Emission of this gas from the Indian seas not only have regional, but also global impact.

**3.144** In the execution of the project, the NIO lost two years in procuring major equipment viz. Gas Chromatograph costing Rs 11.20 lakh due to in-house delays in finalisation of purchase due to non availability of configuration, delay in purchase, etc. The equipment, which was essential for data collection, was received in September 1997 and became operational in October 1997 on *Ocean Research Vessel (ORV) Sagar Kanya*. The project slipped its schedule of July 1998. The final report of the project had not been prepared so far (February 2001).

**3.145** The CSIR stated (February 2001) that the delay in procuring the major equipment was inevitable as it was of a special type and that the objectives of the project were achieved and project report would be submitted by April 2001. The fact remained that there were inordinate avoidable delays and even the final project report was still to be prepared. The reply is not tenable inasmuch as, the specification should have been finalised immediately after receipt of the sanction of the project and the period of two years for procurement was not justified.

#### **Non-achievement of target of National Programme on Polymetallic Nodules**

**3.146** Polymetallic Nodules (PMN) lying on the ocean floor at depths of 3500 to 6000 metres contain up to 30 metals including nickel, copper, cobalt, manganese, molybdenum, vanadium and titanium. The nodules available on the ocean bed are estimated at several trillion tonnes.

**3.147** In para 10.2 of the Report of the Comptroller & Auditor General of India, Union Government (Scientific Departments) for the year ended 31 March 1991 (No.2 of 1992) it was mentioned that little headway was made in developing a sea bed mining system and that under UN Conference on Law of the sea, 50 per cent area had to be relinquished by 1998 and 20 per cent of it by 1990.

**3.148** The DOD had released Rs 34.42 crore to the NIO during 1982-94 for survey and exploration programme. In the VIII plan, the DOD approved budget of Rs 13.33 crore for 1994-97.

**3.149** Based on the recommendations of the Parliamentary Standing Committee, an Expert Committee was constituted which recommended in

September 1997 funds of Rs 123 crore for the PMN Programme. This included Rs 20.50 crore for survey and exploration and Rs 10 crore for Environmental Impact Assessment (EIA) studies for the NIO during the period 1997-2002. Against this, an amount of Rs 19.25 lakh and Rs 110.03 lakh were provided by the DOD for survey and exploration and the EIA studies respectively during 1997-2000 and the NIO spent Rs 109.16 lakh during 1997-2000 on these projects.

**3.150** Analysis of the activity profile of the PMN for survey and exploration by Audit revealed that during the years 1994 to 1997 there was shortfall in collection of nodules, close grid sampling (less than five kms) of pioneer area in 40 selected blocks, etc. Out of 50 *per cent* area of 150000 sq.km. to be relinquished, only 30 *per cent* area was relinquished by 1996-97 (20 *per cent* by 1993-94 and 10 *per cent* by 1996-97) leaving a balance of 20 *per cent* yet to be relinquished (February 2001) against the target date of 1998.

**Due to non-provision of research vessel and lack of funds from DOD nothing worthwhile was done on a project even though the period was half way through**

**3.151** Though an Expert Committee recommended in September 1997, undertaking of some task of survey and exploration during the period 1997-2002, nothing worthwhile was done. The Institute attributed it to non-availability of vessel to be provided by the DOD and lack of funds from the DOD despite the fact that the project period was almost half way through.

#### **Sponsored/Consultancy projects**

*The NIO completed 24 sponsored and 53 consultancy projects during 1995-2000. In six sponsored projects, cost was under pegged by Rs 8.57 lakh due to incorrect application of manpower rates. As a result of utilising extra mandays in three sponsored projects, the NIO coughed up extra cost of Rs 63.38 lakh.*

**3.152** The sponsored/consultancy projects undertaken by the NIO pertain to the EIA studies, coastal dynamics studies, impact predictions of disposal of effluents and marine pollution of Public Sector Undertakings like Indian Petro Chemicals Limited, Oil and Natural Gas Corporation Limited, Gas Authority of India Limited and State Governments and Private Industry. The projects undertaken are mainly categorised under Ocean Engineering, Marine Pollution and Coastal Zone Management.

**3.153** The year-wise break-up of sponsored/consultancy projects during 1995-2000 was as under :

Year	Opening balance		Projects				Closing balance	
			Taken up		Completed			
	S	C	S	C	S	C	S	C
1995-96	3	4	46	11	21	7	28	8
1996-97	28	8	56	15	43	17	41	6
1997-98	41	6	45	5	39	9	47	2
1998-99	47	2	49	21	28	7	68	16
1999-2000	68	16	60	3	73	13	55	6

S – Sponsored

C – Consultancy

**3.154** Audit review of these projects revealed that -

(i) The date/month of completion of sponsored/consultancy projects were not available.

(ii) Project cost estimates prepared by the NIO were so grossly flawed in some cases, as explained below that the CSIR/ NIO had to suffer considerable losses.

**Due to incorrect application of manpower rates costing was underpegged by Rs 8.57 lakh in six sponsored projects**

(a) Due to incorrect application of manpower rates of scientific and technical staff in six sponsored projects, the project cost was under pegged by Rs 8.57 lakh.

**As a result of utilising extra mandays in three sponsored project the CSIR/the NIO coughed up extra cost of Rs 63.38 lakh**

(b) The time frame estimated in case of three sponsored projects, was wide off the mark since against 494 mandays provided in the estimates, actually 4102 mandays were utilised. As a result extra cost of Rs 63.38 lakh was coughed up by the CSIR/NIO.

(iii) Financial performance monitoring of sponsored and consultancy projects were lacking as head-wise appropriation of the receipts and expenditure had not been monitored resulting in excess expenditure of Rs 16.35 lakh under the TA/DA (17 cases), Rs 11.11 lakh over the sanction under equipment (10 cases) and Rs 90.20 lakh under contingency (40 cases).

**Absence of system of closing project account immediately on completion resulted in failure to transfer Rs 10.33 crore in 207 projects to laboratory Reserve Fund**

(iv) A system of closing the project account immediately on completion of project did not exist. Analysis of balances of the projects as at 31 March 2000 revealed that the unspent balance of 207 completed, sponsored and consultancy projects aggregating Rs 10.33 crore had not been transferred to Laboratory Reserve Fund and was still (February 2001) lying in the project accounts. The CSIR stated (February 2001) that all the adjustment would be carried out in the next financial year. This reflects absence of control and monitoring of completed projects.

3.155 The CSIR further stated (February 2001) that the position in respect of item number (ii) & (iii) would be looked into. Final outcome was awaited.

### Monitoring and Evaluation

*Contrary to the directives of the CSIR, budgeting and costing of in-house projects is absent in the NIO. As a result the estimated cost vis-à-vis actual expenditure incurred in each in-house project, periodical tracking of the progress etc. were non-existent.*

3.156 In terms of directives of the CSIR, a Project Monitoring and Evaluation 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. The cell was also required to submit a statement of progressive expenditure incurred on each in-house project along with its physical progress to the internal committee for review. Contrary to these directives, budgeting and costing of in-house projects is absent in the NIO. As a result, the estimated cost vis-à-vis actual expenditure incurred in each in-house project, periodical tracking of the progress, etc, were non-existent.

Budgeting and costing of in-house projects was not done

3.157 - Though, the CSIR stated (February 2001) that Project Monitoring and Evaluation cell of the NIO started maintaining project files containing relevant information including budgeting and costing of projects as per the CSIR directives from 1 April 1999, no information regarding costing, budgeting and expenditure incurred on in-house projects was made available to audit.

### Research results and its utilisation

*Against 34 technologies developed, the NIO had filed 39 patents, of which no patent had been sealed. Two technologies viz. preparation of a diagnostic reagent and removal of tar ball pollutant and crude oil pollutant, had not been transferred for commercial exploitation.*

#### Patents

3.158 The 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. The patent was required to be filed for protecting intellectual property right. The NIO has a system of filing patents through the CSIR.

3.159 The details of technologies developed and patent filed during 1995-2000 are given below :

Year	Patents out of institutional projects			Patents out of Grants-in-aid projects			Total number of patents filed
	Number of		Year of filing	Number of		Year of filing	
	Technologies developed	Patents filed		Technologies developed	Patents filed		
1995-96	-	-	-	-	-	-	-
1996-97	2	2	1996	3	3	1996(2) 1997(1)	5
1997-98	-	-	-	1	-	-	-
1998-99	14	11	1999	2	1	1999(1)	12
1999-2000	9	16	2000	3	6	2000(6)	22
<b>Total</b>	<b>25</b>	<b>29</b>		<b>9</b>	<b>10</b>		<b>39</b>

**Out of 39 patents filed, none of them have been sealed for transfer of technology and commercialisation**

**3.160** Against 34 technologies developed (25 from Institutional Projects and nine from grants-in-aid projects) during 1996-2000, 39 patents had been filed but none of the patents had been sealed i.e. not finally accepted as patent by patent office for transfer of technology and commercialisation so far (June 2000). The NIO stated (June 1999) that the patent office take five to six years in the process of sealing the patents. Moreover, the technologies developed had not been transferred for commercial production so far (June 2000).

**3.161** The CSIR stated (February 2001) that in the global scenario only 2-3 per cent of patents were commercialised and efforts were being made to transfer more technologies. However, the fact remained that not a single technology had been sealed and commercialised.

### Commercialisation of technologies

#### Development of appropriate technology and larval rearing of the India horseshoe crab along the coast of Orissa

**3.162** The pharmaceutical industries utilise *lysate*, an enzyme obtained from the blood of the horseshoe crab for preparation of diagnostic reagent in the detection of bacteria. With the objective of increasing population of horseshoe crab for indigenous manufacture of *lysate* thereby saving foreign exchange on this imported item, DBT approved a project on "Development of appropriate technology and larval rearing of the India horseshoe crab along the coast of Orissa" in March 1995 at a total cost of Rs 23.65 lakh for a period of three years. The NIO received Rs 23.18 lakh and spent Rs 22.73 lakh during 1995-2000.

**3.163** Though the NIO succeeded in larval rearing of horseshoe crab and also completed (September 1998) the development of the technique of non-destructive removal of blood cells from the horseshoe crab and filed a patent in August 1997, commercial production of *lysate* was not taken up as the



natural source of supply was limited to Orissa coast which was not dependable and sustainable.

**An indigenous technology for preparation of a diagnostic reagent, though developed, had not been commercially exploited**

**3.164** Thus, an indigenous technology developed which has potential to save foreign exchange stands at cross roads without immediate possibility for commercial exploitation in the absence of proper guidelines for exploitation. The CSIR stated (February 2001) that the technology had not been transferred as appropriate decision before transferring it to pharmaceutical industry was to be taken in the wake of the experience of Japan, where indiscriminate killing of horse-shoe crab by businessmen occurred whereby the horse-shoe crab population vanished completely. Moreover, formalities required by Drug Controller of India were to be complied with before transferring the technology to Pharmaceutical Company. However, the fact remained that the lysate technology developed had not been commercialised so far.

#### **Application and recombinant micro-organisms to biosurfactant production oil spill degradation and pollution control**

**3.165** With the objective of developing microbial methods of oil spill degradation and pollution control, DBT sanctioned a multi-institutional project on "Application and recombinant micro-organisms to biosurfactant-production oil spill degradation and pollution control" in March 1992 at a total cost of Rs 22.24 lakh for a period of three years up to March 1995 and released Rs 16.78 lakh during March 1992 to January 1994. The task of the NIO was to develop a microbial consortia (a combination or mixture of micro organism) to degrade the crude oil with the help of natural flora. The action plan for utilisation of research outcome included (i) oil spill degradation in collaboration with Oil and Natural Gas Corporation Limited and (ii) oil pollution control at refineries in collaboration with Indian Oil Corporation Limited.

**A technology for removal of tar ball pollutant and crude oil pollutant having major impact on environment/marine life though developed remained unused for four years**

**3.166** The project was extended by DBT up to March 1996. Based on the project, the NIO filed two patents in July 1997 viz. (i) a process for removal of tar ball pollutants using thraustochytrid fungi and (ii) a process for removal of crude oil pollutants using cyanobacteria. These had not been sealed as of February 2001. The CSIR attributed the delay (February 2001) in sealing of patents to "long drawn process in patent office" and that the technology could be used as and when requirement arises. The NIO was looking for potential users for transfer of technology.

**3.167** The fact remained that the two processes developed had not been transferred either by the NIO or by the DBT whereby this important technology developed, which had major impact on environment/marine life, was lying dormant for over four years.

## Research publication

**3.168** Publication of papers in top referred journals is one of the indicators identified by the CSIR to evaluate the performance of the Research Institute. Taking into account number of readers referring to the journal in their paper during last two years, the impact factor of a journal is decided. Impact factor of journals where the NIO published their papers was ranging between 0.010 to 28.417.

**3.169** The year-wise position of research papers published by the NIO scientists in referred journals and non referred Journals during 1995-2000 was as under :

Year	Number of papers published in referred journals	Impact factor of papers in referred journals	Number of papers published in non referred journals	Impact factor of non referred journals	Total number of papers published	Total impact factor	Average impact factor
1995-96	83	56.693	15	0.160	98	56.853	0.580
1996-97	64	68.708	6	0.070	70	68.778	0.983
1997-98	67	63.878	19	0.260	86	64.138	0.746
1998-99	77	80.649	22	0.290	99	80.939	0.818
1999-2000	90	78.182	12	0.120	102	78.302	0.768

**More emphasis is needed for publishing papers in Scientific Journals relating to oceanography**

**3.170** The impact factor of research papers contributed by the NIO scientists registered a decline from 80.94 in 1998-99 to 78.30 in 1999-2000. The average impact factor during 1995-2000 was ranging from 0.58 to 0.98 i.e. less than one despite the fact that impact factor of 28.417 each was gained for one paper each published in "Nature" during 1996-97 and 1998-99. Therefore, more emphasis is needed for publishing papers in Scientific Journals relating to oceanography. Moreover, 48 to 58 *per cent* of the Scientists were not involved in publishing papers whereby there was a marked shift in the emphasis from basic research to sponsored projects.

**3.171** While the NIO accepted (May 1999) the need for publication of the NIO papers in prestigious journal devoted to oceanography, the CSIR stated (February 2001) that a number of scientists were deployed in infrastructural activities essentially required to carry out R&D work and such activities did not lead to generation of research papers. The fact remained that the thrust on basic research was getting reduced, while the in-house projects remained almost static at 27, the sponsored projects registered increase from 46 in 1995-96 to 60 in 1999-2000.

## Management of purchase

*Despite loss of a research vessel, "Gaveshani" in fire accident in 1994, no headway was made in acquisition of a substitute vessel with the result that eight crucial areas of work/studies/activities were adversely affected. To serve the urgent need of coastal zone research activities, the NIO procured in September 1999 an old non-seaworthy vessel lying with a sick Government company from 1990 onwards at a cost of Rs 70 lakh without following the established purchase procedures and assessing its viability and economics. The vessel had not been commissioned with the result the NIO had to spend Rs 2.20 crore in hiring private boats.*

3.172 The annual purchase budget of the NIO was in the range of Rs 2.00 crore to Rs 4.40 crore during 1995-2000. The usual procedure applicable to the purchase viz. invitation of tenders, opening of bids, evaluation and scrutiny by the purchase committee, its decision, placement of orders etc., are followed by the NIO also. In the case of purchase of research vessels global tenders are invited.

### Delay in acquiring research vessel

3.173 *Research Vessel (RV) "Gaveshani", owned by the NIO was destroyed in a fire accident in August 1994. Due to non-availability of the research vessel eight crucial areas of work/studies/activities were adversely affected. There was, therefore, a need to acquire a substitute vessel.*

3.174 Though the replacement of the new vessel was estimated at Rs 20.00 crore in the IX plan, the CSIR allotted only Rs two crore in March 1998 for this purpose, while no provision was made in the subsequent years' budget.

3.175 The NIO on 26 March 1998, entered into a Memorandum of Understanding with National Ship Design and Research Centre (NSDRC), Vishakapatnam for technical assistance for acquiring a suitable vessel and agreed to release Rs two crore as advance. The amount was drawn by cheque on the last day of the year on 31 March 1998. The cheque was not encashed by NSDRC. The NIO retained Rs two crore for a year and later refunded it to the CSIR in March 1999 after the irregularity was pointed in audit.

3.176 This resulted in loss of interest of Rs 28 lakh at 14 *per cent* for one year to Government as Government borrows funds from market and the amount of Rs two crore was kept by the NIO in current account.

3.177 Though, the NIO had projected in June 1998 in the document for Expenditure Finance Committee that selection of the ship would be made in 1998-99, the acquisition would be completed in January 1999, the oceanographic cruises would commence in 1999-2000 and the benefits would

Premature drawal of Rs two crore in March 1998 was refunded to the CSIR after a year when its propriety was questioned in audit

accrue from April 1999 onwards, none of these anticipated schedules had been translated into action even after lapse of 51 months (as of March 2000) of the loss of RV 'Gaveshani' in December 1995 as no headway was made so far.

**3.178** Incidentally expenditure of Rs 4.28 lakh on foreign tour to Netherlands and Germany by a Scientist of the NIO and a Director of the NSDRC, Vishakapatnam in July 1998 to assess viability of purchase of ocean going vessel also did not derive any benefit so far (June 2000).

**3.179** The NIO assessed the loss of four sponsored/consultancy project worth Rs 62 crore during 1997-99 due to absence of the research vessel.

**Retaining Rs 2 crore in current account resulted in loss of interest of Rs 28 lakh**

**3.180** The inordinate delay of five years in acquiring a substitute vessel, provision of paltry amount of Rs two crore in one year by the CSIR against the projection of Rs 20.00 crore, passive manner in which the whole affair was dealt with by the NIO/ CSIR depicts lack of pragmatic approach to this important infrastructure facility which is a base requirement of oceanographic research and reflects haphazard and wayward action by the NIO/CSIR.

**3.181** The CSIR did not make any comments on the issue in its reply of February 2001.

#### **Injudicious decision in acquisition of an old instrumental craft**

**3.182** As the research work of the NIO was in coastal zone and most of the sponsored projects generating revenue contemplated studies in coastal area, the NIO decided to acquire an instrumental craft<sup>▼</sup> at a cost of Rs 300 lakh.

**Old fishing trawler constructed in 1990 was purchased by deviating the purchase procedure**

**3.183** The NIO deviated from the established procedure of inviting tenders and technical/financial evaluation of offers and hurriedly finalised the deal based on an informal offer of 18 March 1998 for Rs 70 lakh received from Hoogly Dock and Port Engineers Limited (HDPEL), Calcutta (a Government of India Sick Undertaking) on 31 March 1998 without entering into any contract on *ad-hoc* basis for procurement of old deep sea fishing trawler constructed in 1990 on "as is where is basis". In this haste, the economics of acquiring a new vessel and making it operational by fitting necessary equipment was not examined.

**The NIO did not examine the economics of acquiring a fresh vessel *vis-à-vis* the old non-seaworthy vessel and time and money necessary to put it into operation**

**3.184** The CSIR contented (February 2001) that the global tenders were invited and estimated cost was around Rs eight to Rs 10 crore with a delivery period upto 18 to 24 months and the NIO had followed the prescribed procedure. This argument is not acceptable because the deal with HDPEL was

<sup>▼</sup> A smaller craft of about 30 metre in length with endurance of 10-12 days fitted with all basic instruments for ocean parameter measurement and safety gears for operating in coastal region for scientific investigation and contract projects.

clinched within two weeks even without waiting for response to global tenders and Rs 52.50 lakh released on 31 March 1998.

**Commissioning of the vessel was badly delayed**

**3.185** The work on this vessel badly slipped the schedule of July 1998 and had not been commissioned as of February 2001 even after its receipt in September 1999. The contract for acquisition was defective due to non-provision of penalty for delayed delivery, which deprived the NIO of Rs seven lakh towards liquidated damages. The contention of the CSIR (February 2001) that penalty clause was not incorporated as HDPEL was a Government of India concern is not acceptable as the delay had affected the research work and revenue of the NIO. Moreover, seven equipment worth Rs 1.64 crore procured between March and October 1999 for fitting in this craft were also lying idle. Sequential to the delay, private boats which were unsuitable due to lack of proper power and air conditioned environment essential for such gadgets were hired by spending Rs 2.20 crore. This had hampered research work.

**No penalty clause was included in the contract for delayed supply**

**3.186** Equipments valued at Rs 7.50 lakh and not required by the NIO retrieved from this old vessel of 1990 had not been disposed of so far.

**Delay in commissioning entailed additional expenditure of Rs 2.99 lakh towards lay off charges**

**3.187** Failure of the contractor Dempo Ship Building and Engineering Limited, Panjim, to complete the work of modification of the vessel by February 2000 had affected research work and also entailed lay off charges of Rs 2.99 lakh on two officials of Tradex India, another contractor engaged for the operation and maintenance beyond the scheduled delivery by March 2000.

**3.188** Thus, the decision to go for a vessel, which was not sea worthy and had never been afloat for over ten years, without expert analysis about the economics as to cost and time factor to make it operational, idling of costly equipment, etc. reflects injudicious decision in acquisition of an instrumental craft which adversely affected the activities of the NIO.

### **Management/accounting of stores**

*System of physical verification of inventory was absent in the NIO. Equipment worth Rs 3.40 crore had been sparingly used or not utilised at all for many years. A centralised system for effective pursuance and settlement of insurance claim is absent in the NIO. Five cases involving claims of Rs 37.90 lakh were not properly pursued and settled. Non-consumable items worth Rs 1.14 crore and US \$ 1308002 were pending disposal since 1995.*

### **Absence of physical verification of inventory**

**Absence of physical verification of inventory persists even after commitment to rectify it**

**3.189** Mention was made in para 14.4.10 of the Report of the Comptroller and Auditor General of India for the year ended March 1991 (Scientific Departments) that a system of physical verification of inventory was absent in the NIO. Despite lapse of nine years and commitment given in action taken notes that remedial action was taken and constitution of a committee for this purpose, no corrective measures were taken even though the value of inventory at the close of March 2000 was Rs 35.95 crore. The persistence of this serious irregularity needs investigation and fixing the responsibility.

**3.190** The CSIR stated (February 2001) that the physical verification of assets had been taken up and expected to be completed by June 2001.

### **Under utilisation/idling of costly equipment**

**Equipment worth Rs 3.40 crore were sparingly used**

**3.191** Ten equipment valued Rs 3.40 crore (ranging from Rs 3.55 lakh to Rs 67 lakh each) have been sparingly utilised or not utilised at all for many years. No log book in respect of many equipment was maintained to ensure that the equipment were utilised to optimum.

**3.192** According to the CSIR (February 2001) some of the equipment were sophisticated and were to be used sparingly, certain others had become obsolete or damaged and some others transferred to other institutions. The fact remained that there was need for proper review for the unused machinery.

### **Non-pursuance of insurance claim**

**Insurance claims of Rs 37.90 lakh were not properly pursued and settled**

**3.193** In view of the inherent risk in conducting the marine based research and the loss of equipment during operation in the sea, the Institute has been taking insurance covers. A centralised system for effective pursuance and settlement of insurance claims was absent in the NIO. In five cases involving claims of Rs 37.90 lakh, test checked in audit, these were not properly pursued and settled. The NIO stated (April/June 2000) that three claims of Rs 10.91 lakh prior to 1990 lodged were yet to be realised.

**3.194** The CSIR stated (February 2001) that the matter was being looked into.

### **Non-disposal of unserviceable items**

**Non consumable items worth Rs 1.14 crore and US \$ 3,08,002 were pending disposal since 1995**

**3.195** According to instructions contained in General Financial Rules, obsolete, surplus, unserviceable stores, to fetch good returns, should be properly protected till their removal by the purchaser and the time lag between the declaration as obsolete and actual disposal of stores should be minimised. Non consumable items procured by the NIO worth Rs 1.14 crore (approx.)

plus US \$ 13,08,002 under Polymetallic Nodules Programme sponsored by the DOD and equipment from RV "Gaveshani", which was out of commission were pending disposal though they were declared unserviceable in December 1995.

**3.196** The CSIR stated (February 2001) that the DOD in August 2000 had accorded approval for disposal of 137 items and constituted a Committee for remaining items and that the items would be included in the next lot for disposal scheduled in March 2001.

## Manpower Management

*There was excessive non-scientific staff due to non-implementation of the recommendation of a committee to scale down the ratio of non-scientific manpower. Contrary to the CSIR directives, the NIO engaged excess security personnel beyond sanctioned strength*

### Excessive man-power in non-scientific cadre

**There was excessive manpower cost of Rs 4.25 crore due to non-implementation of recommendations to scale down the ratio of non-scientific personnel**

**3.197** A Committee, appointed by the CSIR to review its functions and structure, recommended in December 1986 to scale down the ratio between scientific and non scientific personnel from the existing 1:3 to 1:1.5. The Scientific Advisory Council to the Prime Minister also accepted the recommendation. The CSIR did not act on this and issued orders in the matter and thereby evaded its implementation. As a result, there was excessive manpower in non-scientific category ranging between 95 and 107 during the period 1995-2000. The cost of retaining this manpower was Rs 4.25 crore (approx.) during 1995-2000 as shown below :

*(Rs in lakh)*

Year	Scientific staff		Non-scientific staff		As per the ratio 1:1.5 required non-scientific staff		Excessive non-scientific staff as compared to the ratio of 1:1.5		Expenditure incurred on pay and allowances of excessive non-scientific staff deployed
	S	F	S	F	S	F	S	F	
1995-96	232	220	456	434	348	330	108	104	60.41
1996-97	213	217	426	421	320	326	106	95	60.69
1997-98	212	208	425	412	318	312	107	100	88.73
1998-99	212	202	425	406	318	303	107	103	101.72
1999-2000	211	195	425	400	317	293	108	107	113.00
<b>Total</b>									<b>424.55</b>

S – Sanctioned

F – Filled

**3.198** The NIO confirmed (April 2000) the present ratio of scientific staff : non scientific staff as 1:2 against the recommended ratio of 1:1.5 but did

not spell out why the directives in this regard were not adhered to or remedial steps taken.

**3.199** The CSIR stated (February 2001) that this aspect was being looked into for all the Laboratories by a Committee appointed for the purpose. The reply is not tenable because it evades the question as to why the recommendations of the committee made way back in December 1986 was not implemented even after 14 years.

### **Engagement of excess security personnel**

**3.200** The CSIR had specified in July 1987/April 1993 that private security agencies could be engaged to the extent of the shortages between the sanctioned strength and the men-in-position. However, in each year, the men-in-position exceeded the sanctioned strength of 16 by 23 to 29 security personnel during the period 1995-2000. Further, due to improper monitoring about the term of continued employment of casual labourers, five casual labourers had to be absorbed in the regular pay roll of the organisation.

**3.201** Even though there existed excess security staff, over and above, private security personnel ranging between 18 to 24 were also engaged on contract bases during 1995-2000. This resulted in unauthorised expenditure of Rs 29.84 lakh (approximately) in contravention of the instructions of the CSIR of July 1987/April 1993. It was also observed that the same security organisation was allowed to continue year after year from 1992 to 1999 with extensions without invitation of tenders.

**3.202** The CSIR stated (February 2001) that deployment of additional contract security personnel was felt necessary as the Institute's assets had grown considerably, while the watchmen were deployed to look after internal sensitive posts, additional security personnel were engaged for external posts. This argument is not tenable as the area of coverage had not increased and the engagement of private agencies has contravened the CSIR guidelines.

### **Non-abolition of vacant posts**

**3.203** Ministry of Finance had issued instructions in May 1993 for abolition of posts kept in abeyance or lying vacant for more than one year, and to issue abolition orders within a month thereafter and the procedure to be followed for creation of new posts in case the abolished post was to be revived subsequently. These instructions were also not complied by the NIO and such vacancies ranged between 28 to 39 during 1995-2000.

**Contrary to the CSIR directives, excess security personnel were engaged beyond sanctioned strength**

**Engagement of private security personnel resulted in unauthorised expenditure of Rs 29.84 lakh**



## CHAPTER 4 : INDIAN COUNCIL OF AGRICULTURAL RESEARCH

### Indian Lac Research Institute

#### Unfruitful expenditure due to project failures and non-commercialisation of technologies

**Indian Lac Research Institute undertakes in-house projects to develop lac culture technologies and to transfer the technologies to farmers and entrepreneurs. During 1993-94 to 1999-2000 it completed 17 in-house projects and dropped one. Audit examined 12 in-house projects and observed that five projects involving an estimated cost of Rs 43.36 lakh failed due to lack of infrastructural facilities, improper manpower planning and mismanagement of project. In four projects, involving an estimated cost of Rs 65.27 lakh, technologies developed could not be commercialised due to various reasons like taking up the project without market survey, lack of adequate efforts to transfer the technologies etc.**

**4.1** The mandate of the Indian Lac Research Institute (ILRI), Namkum, Ranchi a unit of the Indian Council of Agricultural Research (ICAR) includes development of lac culture technologies, lac processing techniques and to transfer the technologies/techniques to farmers and entrepreneurs.

**4.2** The ILRI is headed by a Director who is assisted by the Research Advisory Committee (RAC) and the Staff Research Council (SRC). While the RAC is responsible for suggesting research programmes and reviewing research achievements as well as any other function assigned by the ICAR, the SRC is responsible for consideration of research proposals, review of annual progress of ongoing research projects.

**4.3** The institute conducts 80 *per cent* in-house projects on application-oriented problems and rest 20 *per cent* on basic issues. Before initiating a project, the scientist as per verbal inquiries from farmers and related persons of lac trade submits project proposal in a prescribed proforma through the Director, to the SRC for its recommendation. After its recommendation, the RAC approves the research project proposals.

**4.4** The ILRI undertakes in-house projects out of the fund provided by the ICAR. As of April 1993, the ILRI had 26 in-house projects and during 1993-94 to 1999-2000 it took up 19 projects, completed 17 projects and dropped one

project leaving a balance of 14 projects at the close of March 2000. Audit, on the basis of random selection, has examined 12 projects (11 completed and the one dropped project) involving estimated cost of Rs 130.57 lakh and found that five projects failed to give the desired results and in case of four projects though the technologies were developed they could not be disseminated for the benefits of the society.

#### **Project failed due to improper management**

**4.5** Five out of 12 projects scrutinised in audit, involving an estimated cost of Rs 43.36 lakh failed due to lack of infrastructural facilities, improper manpower planning and mismanagement of project as discussed below:

#### **Preparation of lac dye and aleuritic acid**

**4.6** The ILRI initiated a project on "Improvement in the method of preparation of lac dye and aleuritic acid" at a cost of Rs 11.42 lakh in April 1994 scheduled for completion by March 1997. The objective of the project was to improve upon the existing method of preparation of lac dye, which was reportedly cumbersome and time consuming. Within three months after taking up this project, the ILRI undertook another project in June 1994 namely "Pilot plant studies on manufacture of lac dye and aleuritic acid" at a cost of Rs 21.83 lakh with the objective of setting up of a pilot plant for manufacture of lac dye and aleuritic acid scheduled for completion by 1996-97. The pilot plant studies were taken up for up-scaling the lac dye and aleuritic acid on the basis of already existing methods of preparation of lac dye and aleuritic acid. the SRC suspended this project in June 1995 combining it with the project undertaken in April 1994 since waste water, which was essential for recovery of lac dye was not sufficiently available at Institute premises. The project sanctioned in June 1994 was suspended in June 1995 without fabrication of the pilot plant.

**4.7** The ICAR stated in December 2000 that the projects were taken up in anticipation of appointment of one Chemical Engineer for setting up of pilot plant and since the said post could not be filled up, the SRC decided to drop the project. It further stated that the work would be pursued after obtaining the food safety clearance.

**4.8** The fact however, remains that the project was taken up without availability of staff to execute the project and had to be dropped mid-way without yielding any result. The Institute has also not been able to obtain the food safety clearance even after more than six years after taking up the project.

### **Synthesis of substituted coumarin derivatives**

**4.9** The ILRI undertook a project titled "Synthesis of Substituted Coumarin Derivatives from Jalaric Acid" in January 1988 at an estimated cost of Rs 3.51 lakh with scheduled date of completion in December 1992. The objectives of the project were to synthesise substituted coumarin derivatives using jalaric acid from Shellac as the starting compound and also to characterise and evaluate the synthesised product to find out its utilisation in the fields of perfumes and medicines. It was also expected that the results might open a new field for consumption of lac. Though synthesis and characterisation of the final product were completed and the project was declared completed in March 1994, it had not been evaluated as of December 2000 for its utilisation by the end users.

**4.10** The ICAR stated in December 2000 that it tried to evaluate the products at other Institutes but facilities were not available with them and active partner was being explored to take the technology to its logical conclusion. The reply of the ICAR had to be viewed in light of the fact that the ILRI had failed to evaluate the product even after more than six years of the completion of the project. Thus, the product developed after incurring an expenditure estimated to Rs 3.51 lakh could not be utilised in the fields of perfumes and medicines.

### **Modification of by-product of aleuritic acid**

**4.11** A project titled "Modification of the by-product obtained during the preparation of aleuritic acid and its use in surface coating" was taken up by a scientist of the ILRI in 1987 at an estimated cost of Rs 10.69 lakh with scheduled date of completion in December 1990. The objective of the project was to modify the by-product obtained during the preparation of aleuritic acid with synthetic resins to develop the product, which might find use in surface coating. The project schedule was revised on three occasions and finally in 1994-95 the project completion was put at March 1997. Despite the SRC's assessment in May 1992 that the project being quite important needed association of some more scientists, no other scientist was associated with the project. After the retirement of the project leader in June 1994 another scientist was associated with the project only in 1996-97 and the project was declared complete in March 1997. But final report on the project had not been prepared as of August 2000.

**4.12** The ICAR stated that the Division had limited manpower in position due to large number of vacancies and the Head of the concerned Division was being asked to analyse and document the data. Thus, due to improper manpower planning, the final outcome of the project was not known even after

three years of its completion and incurring expenditure estimated to Rs 10.69 lakh.

#### **Improvement of Bhalia, Moghania, Macrophylla and Galwang**

**4.13** To improve the production of Lac in host plant, the ILRI undertook a project titled "Organogenesis and improvement of Bhalia, Moghania, Macrophylla and Galwang" in May 1994 at an estimated cost of Rs 8.11 lakh scheduled to be completed in 1999-2000. The SRC advised in June 1995 to include another host, preferably Kusum in addition to Galwang and Bhalia and it was also of the opinion that there was no use in continuing the project unless some centre of excellence were collaborated. The scientists working on the project contacted experts at Banaras Hindu University, Varanasi in September 1995 for their association for co-ordination as centre of excellence. However, they declined to accept the project on the ground that it was of little importance to them. The ILRI continued the work on the project. The RAC decided in February 1997 to drop the project on the ground that there was lack of trained manpower and required infrastructure.

**4.14** The ICAR stated in December 2000 that host plant improvement through tissue culture was an attempt to improve the lac production but due to limited manpower and inadequate laboratory, it could not materialise.

**4.15** Thus, taking up the project without creating the necessary infrastructure resulted in the closure of the project mid-way after incurring an expenditure estimated Rs 4.06 lakh as proportionate estimated cost of the project for three years.

#### **Non-commercialisation of technology**

**4.16** In four out of 12 projects, involving an estimated cost of Rs 65.27 lakh, technologies developed could not be commercialised due to various reasons like taking up the projects without market survey and demand of the product, lack of adequate efforts to transfer the technologies etc. as discussed below:

#### **Synthesis of isoambrettolide/exaltone and Plant Growth Regulators**

**4.17** A project titled "Synthesis of isoambrettolide/exaltone and Plant Growth Regulators (PGR) from Aleuritic Acid" was taken up in 1991 at a cost of Rs 36.26 lakh. The objectives of the project were to diversify and increase the market potential of aleuritic acid by scaling up and standardising the synthesis of perfumery compounds like isoambrettolide and exaltone up to bench scale and to prepare the PGR on bench scale using aleuritic acid as starting material. It was also expected that while exaltone and isoambrettolide would find application in perfumery industry for having a great demand, the PGRs being stimulants and retardants would be utilised in agriculture, tissue

culture and in biotechnology. The project was completed in March 1997. Though the technology for synthesis of isoambrettolide was transferred, the processes of synthesis of exaltone and plant growth regulator were not transferred to any entrepreneur for commercial production. The ICAR stated in December 2000 that both exaltone and the PGR are high valued products from the lac would require lot of efforts to transfer these know-how to domestic industry and it was premature to say that it had not been commercialised. The reply of the ICAR had to be viewed in light of the fact that it had not been able to commercialise the technology even after a lapse of more than three years of the completion of the project.

**4.18** Thus, the project completed at a cost of Rs 36.26 lakh yielded limited benefit to the society as two out of three technologies were yet to be commercialised.

#### **Development of lac based insulating materials/varnishes**

**4.19** A project titled "Development of lac based insulating materials/varnishes having improved electrical properties" was taken up in April 1990 at a cost of Rs 14.03 lakh to develop a suitable shellac based insulating material for promoting utilisation of shellac in the electrical industry. Though the project was shown as completed in March 1997, the technology had not been commercialised till May 2000.

**4.20** The ICAR stated in December 2000 that introduction into the market was tough as the manufacturers of the insulating varnishes based on synthetic resin in the country are well established organisations and some time would be required to convince the consumers for promotion of natural resin shellac based composition by winning over market psychology. The reply of the ICAR was not tenable as these aspects should have been foreseen while initiating the project and it had not been able to commercialise the technology even after three and a half years of its development.

**4.21** Thus, the technology developed after incurring an expenditure estimated to Rs 14.03 lakh could not reach the demand and was confined to laboratory only.

#### **Lac based system for cockroach and mosquito control**

**4.22** Between April 1990 and March 1997, two sub-projects titled (i) "Slow release lac based multilayered/monolithic system for cockroach control" and (ii) "Slow released lac based mosquito larvicide formulation" were completed at an estimated cost of Rs 9.86 lakh. Though a provisional patent on system for cockroach control was filed in October 1996, the complete application of the system could not be filed within the prescribed period of 15 months, which expired in March 1997. No patent application on mosquito larvicide was,

however, later applied. The ICAR stated in December 2000 that the present situation was due to untimely demise of Project Leader and added that suitable scientific manpower would be deployed in future to take up the unfinished job on recruitment.

**4.23** Thus, the products developed after incurring an expenditure estimated to Rs 9.86 lakh did not yield any benefit to the society and in the prevailing situation fruitful completion of remaining task could not be foreseen in the near future.

#### **Lac based hot melt adhesive**

**4.24** A project titled "Preparation of lac based hot melt adhesives" was taken up in 1990-91 at an estimated cost of Rs 5.12 lakh with scheduled date of completion in 1994-95. As the hot melt adhesive was gaining much popularity in jointing carton, book binding, sealing of food materials in aluminium foil due to quick reliable binding quality, it was thought that a new field could be opened up for the use of lac by taking up above project. The project was declared completed in 1993-94. But no evaluation of the product developed was made by the ILRI because of its not having any facility for testing of tensile bond strength of the adhesive developed. The ILRI sent the product to Indian Institute of Chemical Technology, Hyderabad for evaluation only in March 1999, which certified the product in May 1999. Even after that, the product had not been commercialised. The ICAR stated in December 2000 that the product had immense future for utilisation of lac as it was a new field and was silent about the delay of five years in getting the products certified. The reply of the ICAR had to be viewed in the light of the fact that it had not been able to commercialise the technology even after six and a half years of its development.

**4.25** It is evident from above that the institute had no specific mechanism for proper planning before initiating a project and its management. There was no system of market surveys to ascertain the demand of the products to be developed for in-house projects. Moreover, it also did not maintain separate accounts in respect of each project.

### **Blockage of fund**

**The ICAR accorded premature administrative approval and expenditure sanction to a proposal of building construction from one of its units in Calcutta. The construction work has not started for want of clearance by municipal authorities. A sum of Rs 94.25 lakh, in advance payment to CPWD, remains blocked since last five years.**

**4.26** The Indian Council of Agricultural Research (ICAR) accorded administrative approval and expenditure sanction in March 1995 for Rs 743.87 lakh to a proposal from one of its units, viz. National Institute of Jute and Allied Fibres Technology<sup>n</sup> (NIRJAFT) for construction of a multi-storeyed laboratory building and auditorium. Construction of that type of building required approval of drawing and design by Calcutta Municipal Corporation (CMC) as also from the Directorate of Fire Service, Government of West Bengal, and Deputy Commissioner (Traffic) Calcutta Police. The architects chartered by the NIRJAFT had cautioned them in January 1995 itself about those requirements; and, had advised that they should seek further approvals only after getting necessary external clearance beforehand. The NIRJAFT did not do so, and deposited Rs 94.25 lakh to Central Public Works Department (CPWD) on 23 March 1995.

**4.27** As expected in the circumstances, the CPWD had not been able to start the construction till date, for want of the CMC's approval of the building. Audit enquiry revealed that the likelihood of the CMC approving the plan was remote.

**4.28** The ICAR stated in March 2001 that the amount of Rs 94.25 lakh lying with the CPWD would be utilised for construction of staff quarters, the estimates for which were under the process of finalisation. However, the reply was silent about the reasons as to why it had not obtained necessary external clearances before hand.

**4.29** Thus, advance payment of a large sum of Rs 94.25 lakh to the CPWD without adequate spadework resulted in blockage of resources of the ICAR.

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<sup>n</sup> Formerly Jute Technological Research Laboratories

## Poor project management

**National Research Centre for Groundnut has not been able to secure an irrigation facility for which it had paid Rs 23.51 lakh to the Central Public Works Department over six years ago.**

**4.30** The Indian Council of Agricultural Research (ICAR) sanctioned Rs 17.70 lakh to the National Research Centre for Groundnut (NRCG), in June 1992 for augmentation of irrigation facilities for enhancement of breeder seed production of improved varieties of groundnut under "Oil Seeds Production Programme 1992-93". The project envisaged that facilities such as bore wells, irrigation pipeline, electric motor, sprinkler system, drainage channel, etc. would be set up, to ensure irrigation water to rabi/summer crop during 1992-93.

**4.31** The NRCG conducted ground water survey in December 1992, and requested Central Public Works Department (CPWD) to prepare the preliminary estimate for the work in March 1993. The NRCG envisaged separate irrigation grid for two parts of the farm, viz. Part A involving about 65 hectares in an elevated portion and part B involving 25 hectares in a low-lying area. The construction of irrigation system based on drawings prepared by the CPWD included *inter-alia* erection of water tanks at seven wells (two new wells and five existing wells) and interconnection of those wells with the RCC pipe. The NRCG deposited Rs 23.51 lakh between March 1993 and October 1994 with the CPWD, Rs 4.72 lakh for two tube wells and Rs 18.79 lakh for irrigation facilities.

**4.32** The CPWD intimated the NRCG in May 1995 that it had completed the irrigation system of part B for 25 acres in low-lying area; the NRCG did not take over on the plea that there were major defects. It was after one year, in May 1996, that Director, NRCG, appointed a committee to investigate and report about the satisfactory working of the system before it could be taken over. The committee reported in August 1996 that water from well No.1 did not flow to well No.2 and vice versa through interconnected underground pipeline, there was also leakage between houges, and there was no outflow of water in some of the houges. The committee could not check well No.3 as the pumps installed did not give sufficient output for the irrigation system. The Committee opined that before taking over, the system had to be repaired.

**4.33** When the NRCG requested the CPWD to carry out the rectification work in September 1996 and November 1997 the CPWD intimated in February 1998 that it would send the estimate for this work. The NRCG did not accept this but requested the CPWD to carry out the rectification work at their cost in March 1998. Though the CPWD completed the construction of two tube wells with pump room in May 1995 and the irrigation facility in



January 1999, The NRCG had not taken over the facility so far on the ground that the pumps installed were of low power capacity and were not suitable for irrigation system.

**4.34** The Director, NRCG told audit in August 1999 that seed production programme had not been affected due to non-functioning of the irrigation system, as there was ban on seed production programme from the ICAR. The ICAR further stated in January 2001 that all efforts were being made to get the facility operational at the earliest. This reply is a poor response to the audit observation that facilities envisaged in June 1992 and paid for between March 1993 and October 1994 had not become operational till date. Apart from idle investment of dear financial resources, this also must have had deleterious impact over the research studies which the ICAR/NRCG had targeted through the proposed works. The ICAR/NRCG had not evaluated adverse implication of delay in completion of works and related project.

## CHAPTER 5 : DEPARTMENT OF ATOMIC ENERGY

### Avoidable budgetary support to Nuclear Power Corporation of India Limited

**Department of Atomic Energy obtained approval of Cabinet Committee of Economic Affairs, for budgetary support of Rs 117.52 crore to Nuclear Power Corporation of India Limited, for renovation and modernisation of Madras Atomic Power Station, even though the Corporation had Renovation & Modernisation Reserve in which funds had accumulated over the years. Department did so without disclosing the fact of the existence of the reserve with the Corporation, to CCEA.**

**5.1** Nuclear Power Corporation of India Limited (NPCIL) secured approval of Cabinet Committee on Economic Affairs (CCEA) in January 1999 for Modernisation and life enhancement of Madras Atomic Power Station at an estimated cost of Rs 325.55 crore. CCEA approved an equity investment of Rs 117.52 crore without being informed that the Renovation and Modernisation fund of NPCIL had a balance of Rs 125.52 crore. The approved estimated cost of this renovation and modernisation was Rs 352.55 crore, in debt equity ratio of 2:1, out of which the equity support of Rs 117.52 crore was to come as budgetary support from the Government. The DAE proposal seeking the CCEA approval did not mention the fact that the NPCIL had a Renovation and Modernisation (R&M) Reserve fed by a R&M levy of 5 paise/kwh, included in the NPCIL tariff for sale of electricity. There was a corpus of Rs 125.52 crore in the R&M reserve as of 31 March 1999.

**5.2** Pursuant to the CCEA's approval, the DAE sanctioned in February 1999 aforesaid renovation and modernisation, and released Rs 13 crore in March 2000 and further Rs 10 crore in October 2000. The DAE's action to get the CCEA's approval to make capital investment in the NPCIL, involving government budgetary support without disclosing the material fact of existence of the R&M reserve with the NPCIL, was flawed.

**5.3** The DAE stated in February 2001 that the Department's intention was to treat the expenditure as a capital nature and not a maintenance expenditure and added that in view of this it was not considered necessary to state about the R&M fund in the Cabinet note. The DAE further stated that the funds available at that stage were not commensurate with the requirement of funds for implementation of the MAPS I coolant channel replacement project and it was not prudent to use all the R&M reserve and exhaust the same for one project. The DAE reply is not tenable as the R&M fund was created exclusively to cover the equity portion of the expenditure on renovation and

modernisation activities, which included coolant channel replacement work. It does not explain the failure of the department to make explicit disclosure of the existence of the R&M fund while obtaining the approval of the CCEA.

### **Loss of revenue due to delay in price revision**

**The DAE delayed communication of the revised rates of nuclear fuel supplied by the NFC to the NPCIL beyond the due date of 1 April during the years 1997-98 and 1998-99, which led to revenue loss of Rs 50.16 crore.**

**5.4** Nuclear Fuel Complex (NFC) produces and supplies nuclear fuel bundles on lease basis to the nuclear power plants of Nuclear Power Corporation of India Limited (NPCIL). As per procedure prescribed, the NFC works out the prices of its products on the basis of the recommendation of Fuel Pricing Committee. Department of Atomic Energy (DAE) fixes prices of the NFC products upon the proposal of the NFC and notifies them every year in April. The NFC sent a proposal to the DAE in January 1997 for revision of prices of its products and its subsequent notification with effect from due date, i.e., 1 April 1997. The DAE issued the necessary notification after one month, in May 1997.

**5.5** The NPCIL contested (September 1997) the NFC's billing them retrospectively from April 1997, on the plea that they received the DAE's notification of price revision only in September 1997. The NPCIL said that they had billed their clients, the State Electricity Boards, at pre-revised rates and that it would not be possible to recover dues from them on account of the revised tariffs retrospectively. The NPCIL requested (September 1997) the DAE to make the price revision effective prospectively, i.e. from 1 October 1997. The DAE agreed to the request and made the price revision effective from 1 October 1997. The decision to give effect the price revision from 1 October 1997 resulted in loss of revenue of Rs 41.69 crore to the NFC on fuel bundles supplied between April and September 1997. Further, the DAE again delayed decision on the NFC's pricing proposal for 1998-99 sent to the DAE in April 1998 for notification of revised prices effective from 1 April 1998. It issued the necessary notification after six months, in October 1998, resulting in further loss of revenue of Rs 8.47 crore.

**5.6** The DAE stated in January 2001 that the delay in notifying the revision of price for 1998-99 was due to detailed examination of the proposal and the NFC's pricing proposal for 1998-99 had taken into account the deficit revenue realisation of the previous year. The DAE further stated that it had wiped off

all the shortfall in revenue of previous year and made a cumulative profit of Rs 149 crore (provisional) for the year 1999-2000.

**5.7** The contention of the DAE for delay in notifying the price revision was not acceptable because the Secretary, DAE approved the revised rates effective from 1 April 1997 in May 1997. The reply also does not explain why the DAE repeated the omission of delaying the price notification beyond due date even in the following year i.e. 1998-99. As regards the overall revenue realisation by the NFC, it was altogether a different matter and not germane to the point made by Audit. The DAE's assertion that the NFC had considered the shortfall in revenue realisation in the previous year in the pricing proposal for 1998-99 was also not borne out from the facts on record.

**5.8** Thus, the loss of revenue of Rs 50.16 crore was sequential to procedural delays and lapses in the DAE and call for fixing of responsibility.

### **Avoidable expenditure on energy charges**

**Failure of two units of the DAE to reduce maximum contract demand for power consumption resulted in avoidable payment of Rs 34.53 lakh.**

**5.9** Wrong assessment of power requirement or failure to establish intended facilities at two units of Department of Atomic Energy (DAE), and taking timely action to reduce the demand to realistic extent resulted in avoidable expenditure of Rs 34.53 lakh as discussed below :

#### **Centre for Advance Technology**

**5.10** Centre for Advance Technology (CAT), Indore executed an agreement in February 1994 with Madhya Pradesh Electricity Board (MPEB) for the supply of power. The agreement contemplated *inter alia* enhancement of the contracted maximum demand to 3000 KVA from June 1995 and to 5000 KVA effective from June 1997. The MPEB, however, postponed the enhancement to 5000 KVA to June 1998 on the request of the CAT.

**5.11** In February 1998 the CAT requested the MPEB to allow it to surrender the remaining 2000 KVA with an option to increase it when required. The MPEB conceded the request of the CAT in May 1998 for the continuance of 3000 KVA beyond June 1998 with a stipulation that it would have to pay supply-affording charges at the rate of Rs 550 per KVA. The CAT did not agree with the stipulation made by the MPEB and requested the MPEB in June 1998 to postpone enhancing the contracted maximum demand to 5000 KVA till May 1999. The MPEB did not do that.

**5.12** The MPEB however, due to break down of sub-station at the CAT, exempted it from the payment of maximum demand charges of 5000 KVA from 18 June 1998 to 15 January 1999. The MPEB billed demand charges for 3750 KVA i.e. 75 *per cent* of contract demand of 5000 KVA from January 1999 onwards. The recorded maximum demand, however, did not exceed 3000 KVA (except in three months from April to June 2000 when it was 3160 KVA, 3120 KVA and 3080 KVA) during the period January 1999 to August 2000. The DAE stated (January 2001) that the CAT had taken a conscious decision to retain the final phase of contract demand of 5000 KVA as it would be requiring power in the range of 3500-4000 KVA. The reply has to be viewed with reference to the recorded maximum demand during the above period.

**5.13** Thus, non-acceptance of the MPEB proposal to surrender the final phase of contract resulted in avoidable expenditure of Rs 26.90 lakh during January 1999 to August 2000. This is indicative of the fact that either the CAT has over-estimated the requirement of power or it failed to establish certain intended facilities in time.

#### **Atomic Minerals Directorate for Exploration and Research**

**5.14** Atomic Minerals Directorate for Exploration and Research (AMDER) Hyderabad, entered into an agreement with Andhra Pradesh State Electricity Board (APSEB) for supply of electrical energy in September 1980. The agreement envisaged supply of electrical energy with a contract demand up to a maximum of 750 KVA. The terms and conditions of power supply by the APSEB stipulated that charges were payable to the APSEB at the rates prescribed from time to time on the maximum demand established during the month or 80 *per cent* of the contract demand whichever was higher.

**5.15** However, during the period September 1993 to March 2000 the maximum monthly demand was far below the contract demand of 750 KVA and varied between 256 KVA and 590 KVA and the AMDER was paying demand charges on 600 KVA being 80 *per cent* of the contract demand except during the period February 1994 to July 1994, March 1995 to September 1996 and February 1997 to May 1997 when the APSEB billed on actual consumption. This resulted in avoidable payment of Rs 12.48 lakh representing demand charges on the power not actually consumed during the above period.

**5.16** On being pointed out by Audit in February 2000, the AMDER recognised the need for downward revision of contract demand to 600 KVA in view of the trend of past consumption; and, requested Transmission Corporation of Andhra Pradesh Limited (TCAPL), the erstwhile APSEB to reduce the contract demand from 750 KVA to 600 KVA with effect from

September 2000. The TCAPL accepted the request of the AMDER in June 2000.

**5.17** The DAE stated in January 2001 that due to restrictions imposed by the APSEB by fixing a maximum demand up to 1997, the AMDER could not consume its entire energy required during that period and during 1997, 1998 and 1999 there were frequent power interruptions/break down and very low voltage resulting in non-consumption of the maximum demand of 600 KVA. The reply is not acceptable because the AMDER paid the energy charges on 600 KVA and not on the quota fixed or on actual whichever was higher.

**5.18** Thus, failure of the AMDER to take timely action to review and reduce the demand for power to 600 KVA resulted in avoidable expenditure of Rs 7.63 lakh during 1993-2000.

### **Wasteful expenditure**

**Atomic Mineral Division, Eastern Region, Jamshedpur incurred wasteful expenditure of Rs 25.76 lakh in the purchase and installation of a power transformer (Rs 15.13 lakh), and in excess security deposit (Rs 10.63 lakh) for installing a 33 KV line to Bihar State Electricity Board for its office-cum-residence complex. The 33 KV power transformer is lying idle and the Electricity Board have not refunded excess deposit till date.**

**5.19** Atomic Mineral Division, Eastern Region, Jamshedpur, a constituent unit of Department of Atomic Energy obtained sanction from Bihar State Electricity Board for a load of 1500 KVA, through a 33 KV line for supply of electricity to its office-cum-residence complex in October 1992. It made a security deposit of Rs 13.17 lakh with the BSEB in January 1994 required for this load. It also procured one 33 KV power transformer and single panel switchboard spares at a cost of Rs 14.91 lakh in December 1993. The AMD-ER found, however, that its actual requirement was only 200 KVA initially, which might go up to 500 KVA with completion and addition of buildings. It requested the BSEB in October 1994 for downscaling their requirement from 33 KV line to 11 KV line, with initial load of 200 KVA going up to 500 KVA at a later date. The AMD-ER had meanwhile already installed 33 KV power transformers in March 1993 after incurring additional expenditure of Rs 0.22 lakh. Agreeing to the request of the AMD-ER, the BSEB sanctioned the load of 200 KVA on 11 KV power line in August 1995, against the security deposit requirement of Rs 2.54 lakh. The AMD-ER installed another 11 KV transformer and the BSEB gave electric connection in March 1996.

**5.20** The DAE formally requested the Bihar Government only in July 1999 for refund of the excess deposit of Rs 10.63 lakh for higher KV line, after adjusting the amount of Rs 2.54 lakh required by the BSEB for lower KV line. They have had no success so far. 33 KV transformer procured by the AMD-ER in December 1993 was also lying idle with little prospects of any future use.

**5.21** Accepting the facts, the DAE stated in January 2001 that the basic idea of going for 1500 KVA through a 33 KV line was to have stable and uninterrupted power supply and the requirement was downscaled to 11 KV only to avoid payment of huge energy bills for unutilised power. It further stated that the AMD was constrained to take at least 200 KVA to 500 KVA through the 11 KV line, already available just outside the complex, as the BSEB had made no progress in laying 33 KV line.

**5.22** The reply of the DAE had to be viewed in light of the fact that the AMD did not require the load of 1500 KVA through 33 KV line and 11 KV line was sufficient to their requirement, which indicated clear lapse on the part of the AMD in planning its requirement, which eventually caused extra expenditure.

#### **Recovery at the instance of audit**

**Government dues of Rs 13.55 lakh for compensation of land handed over to the BMC. The DAE was adjusted along with interest of Rs 15.11 lakh against the property tax payable to the BMC after 23 years only on being pointed by Audit in January 1999.**

**5.23** The Directorate of Construction, Service and Estate Management (DCSEM) of the Department of Atomic Energy (DAE) transferred, 20,690.87 sq. metres of land to Brihan Mumbai Municipal Corporation (BMC) between 1962 and 1977 at various places for improving and widening of roads. The BMC agreed in March 1977 to pay Rs 14.24 lakh as compensation to the DAE towards the cost of set back land together with interest at four per cent per annum on the amount of compensation payable from the date of taking over the possession of the set back land.

**5.24** The BMC paid Rs 0.68 lakh as compensation for 265.90 sq. metres of land transferred in 1962, in October 1987. Thereafter, the DCSEM issued reminders only in March and August 1991 and January 1993. In June 1995, the DCSEM raised a demand of Rs 23.09 lakh on the BMC for payment of compensation (Rs 13.55 lakh) and interest (Rs 9.54 lakh) followed by two reminders in September 1995 and January 1997. Apparently, the DCSEM did

not pursue the matter of recovery of its dues diligently and with regular persistence.

**5.25** Only on being pointed out by Audit in January 1999, the DCSEM referred the matter to the DAE in July 1999 to take it up with the Municipal Authorities for settling the outstanding dues. The DAE recovered the outstanding dues of Rs 13.55 lakh along with interest of Rs 15.11 lakh in December 2000 by adjustment against the property tax of Rs 55.63 lakh payable to the BMC.



## CHAPTER 6 : DEPARTMENT OF SCIENCE AND TECHNOLOGY

### India Meteorological Department

#### Idle expenditure on Automatic Visual Range Accessors

**India Meteorological Department incurred idle expenditure of Rs 1.66 crore by not installing or not operating Automatic Visual Range Accessors required, for continuous measurement of vital meteorological parameters at National airports, leading to compromise with operational efficiency and safety of the passengers at the National airports.**

6.1 India Meteorological Department (IMD) is responsible for providing the meteorological support to aviation at international/national airports in the country. Phenomenal increase in the air traffic and induction of larger and faster modern aircraft necessitated providing of the matching meteorological equipment at major national airports. National Airport Authority (NAA) requested the IMD in February 1990 to provide instrumental runway visual range facility at 16 national airports by installation of Automatic Visual Range Accessors (AVRA). This facility provides continuous measurement of meteorological data on visibility/runway visual range, wind speed/direction, air temperature etc. In July 1990, Council of Meteorological and Atmospheric Sciences (CMAS) approved installation of the AVRAs at 12 national airports during eighth plan period in a phased manner.

6.2 Accordingly, the IMD placed an order in February 1991 on M/s Bharat Electronics Limited through Directorate General of Supplies and Disposals for supply of 12 sets of the AVRAs along with spares at a total cost of Rs 2.27 crore. The firm was to supply the items in a phased manner between December 1991 and December 1994. The firm supplied seven sets of the AVRAs in May 1993. As the supporting infrastructure for their installation was not ready, the IMD requested the firm to delay the supply of remaining five sets. The firm supplied remaining five sets in February 1996.

6.3 The IMD did not do adequate spadework because of which it could install only eight the AVRAs till October 2000, of which two were installed in parallel with the existing system. The table below would show details of avoidable delays.

Station	Date of Supply	Site selection		Site preparation			Date of		Reasons for delay in installation/commissioning	
		Applied to Airport Authority	Sanctioned	Started	Completed	Cost (Rs in lakh)	Installation	Commissioning		
Imphal	February 1996	September 1993	November 1993	November 1993	Not completed	24.43	Not installed	Not commissioned	Delayed receipt of no objection certificate Delay in execution of civil and electrical works	
Agartala	February 1996	August 1994	January 1995	February 1995		19.49				
Patna	February 1996	November 1995	February 1996	July 1996		13.53				
Mohanbari	February 1996	February 1995	February 1996	December 1997		14.28				
Mumbai (RWY 09)	May 1993	Parallel installation					October 1996			Some important parts were found defective/
Hyderabad	February 1996	July 1990	February 1992	July 1993	March 1997	4.94	May 1997			Non-availability of operational vehicle.
Guwahati	May 1993	September 1991	June 1992	May 1990	October 1994	11.14	January 1995	February 1999		Non-availability of operational staff and vehicle.
Ahmedabad	May 1993	June 1991	June 1993	August 1991	March 1995	9.77	April 1995	April 1995		
Bangalore	May 1993	November 1987	-	December 1987	August 1995	14.19	September 1995	September 1995		Civil and electrical work was delayed by CPWD.
Kolkata	May 1993	Parallel installation					July 1995	July 1995		-
Mumbai (RWY 14)	May 1993	April 1995	July 1995	NA	October 1996	4.55	October 1996	October 1996		-
Chennai	May 1993	NA	NA	NA	NA	1.91	September 1994	September 1994		-

**6.4** The IMD incurred Rs 3.45 crore on procurement of the AVRAs and for preparation of their installation sites. Out of those, four have remained uninstalled till October 2000. The IMD attributed the delays in installation to delayed receipt of the No Objection Certificate (NOC) for installation and delay in execution of civil and electrical works. One system installed at Hyderabad in May 1997 could not be commissioned as of October 2000 due to non-availability of operational vehicle for routine servicing of instrument at field site. Of the remaining seven, the IMD installed two in parallel with the existing system, of which one could not be commissioned as of October 2000 as some important parts of the system were found defective and their replacement were not available. The IMD incurred a total idle expenditure of Rs 1.66 crore on procurement (Rs 89.77 lakh) and site preparation (Rs 76.67 lakh) of uninstalled and non-operational the AVRAs, and the cost of this idle capital would amount to Rs 59.55 lakh. Besides, non-operation of the AVRAs compromised the operational efficiency of the airports and safety of the passengers.

**6.5** Audit reported the matter to the Ministry on July 2000, who has not replied (February 2001).

### **Idle investment on land**

**Survey of India spent Rs 72 lakh on acquisition of land for office and residential purposes in 1988 and spent Rs 11.86 lakh for its upkeep from November 1990 to September 1998 without proper assessment of demand. Resultantly, no construction has taken place.**

**6.6** Paragraph No.12 of Report of Comptroller and Auditor General of India, Union Government (Scientific Departments) for the year ended 31 March 1989 (No. 2 of 1990) highlighted avoidable payment of interest charges of Rs 11.41 lakh due to delay in making payment to Government of Gujarat for two pieces of land measuring 10,000 Sq. meter (Rs 4.75 lakh) and 10,500 Sq. meter (Rs 6.66 lakh) allotted to the Survey of India (SOI), Western Circle at a total cost of Rs 72 lakh for office and residential accommodation respectively. The SOI, Ahmedabad took possession of the land for residential and office accommodation in April 1988 and October 1988 respectively.

**6.7** The SOI, Ahmedabad requested the Central Public Works Department (CPWD) in October 1988 to prepare estimates and layout plan for construction of office accommodation for two field parties and residential accommodation for 172 employees based on sanctioned strength.

**6.8** The CPWD prepared a layout plan for residential accommodation in April 1989 providing only 74 quarters on the plea that it would be difficult to provide 172 quarters on the available land and requested the SOI, Ahmedabad to reassess its requirement. During the period between February 1990 and September 1993, based on the projections of the SOI Ahmedabad, the CPWD prepared the layout plans four times providing 111 to 123 quarters. However, the SOI, Ahmedabad did not approve any of those plans as those plan did not reportedly provide adequate numbers of Type II, Type III and Type V quarters.

**6.9** Audit found that demand for residential accommodation amongst employees was not high; in response to a circular issued in May 1995, only 16 employees of one field party had shown their willingness to occupy the proposed residential accommodation. Notwithstanding that the SOI, Ahmedabad, in April 1999 approached the CPWD with a revised requirement of 118 residential quarters which was again revised to 100 in May 1999. It again revised in February 2000, the layout plan prepared by the CPWD in December 1999 by realigning Type I and Type II quarters. Any decision to construct the proposed residential accommodation would be ill-conceived in view of the fact that only 16 employees were willing to occupy the quarters.

**6.10** The SOI, Ahmedabad has also not finalised the layout plans of office accommodation as of November 2000 despite clear instruction of the Surveyor

General in July 1993, to give preference to construction of office accommodation. As a result, the layout plan for office and residential accommodation had not been finalised and administrative approval and expenditure sanction could not be obtained from the Ministry as of November 2000. Meanwhile, the SOI, Ahmedabad incurred Rs 5.87 lakh on construction of compound wall, barbed wire fencing and earth filling besides, Rs 5.99 lakh on wages of two guards appointed for watch and ward duty from November 1990 to September 1998. It has since discontinued guards, laying the property open for possible encroachment. This apart, a hired accommodation incurring an expenditure of Rs 2.96 lakh per annum on rent.

**6.11** Despite the observation made in an earlier report of the Comptroller and Auditor General of India of causing pecuniary loss on account of avoidable delay in making payment for the property, the SOI, Ahmedabad continued to show negligence in handling investment on the said property. Its prolonged spat with the CPWD over the projected requirement and manifestly limited demand for staff quarters from employees themselves clearly shows that the SOI is holding on to an idle investment on property without use. Department of Science and Technology/SOI should quickly re-evaluate its requirement of property and take appropriate steps for vacating the cited idle investment on property by its appropriate use or disposal, before it (the property) is impaired by encroachment, etc.

**6.12** Audit reported the matter to the Department in August 2000, who have not replied as of March 2001.

#### **Wasteful expenditure in production of a film**

**The NCSTC entered in to agreement with M/s Nandan Kudhhyadi Productions for producing a film on Paleobotany with a focus on the life and work of Prof. Birbal Sahni to be released on Doordarshan in November 1991 to commemorate his birth centenary. The film has not been completed as of May 2000 rendering the entire expenditure of Rs 14.49 lakh released so far a waste.**

**6.13** The National Council for Science and Technology Communication (NCSTC), a body under the Department of Science and Technology (DST) in July 1990, decided to produce a set of films on Paleobotany with a focus on the life and work of Prof. Birbal Sahni with the intention to release the films on Doordarshan commemorating his birth centenary falling in November 1991.

**6.14** On request from the NCSTC, Nandan Kudhyadi Productions submitted a proposal for a 5-part serial on Dr Birbal Sahni. After evaluation of the project proposal by an expert committee the work was awarded to Nandan Kudhyadi Productions in February 1991. An agreement was signed between Nandan Kudhyadi Productions and the NCSTC laying down the terms of work during the same month. The total cost of the project was Rs 15.69 lakh to be released in 5 installments at various specified stages of completion. The film was to be completed and delivered by 1200 hrs on March 12, 1992. The agreement emphasized, "the said time is the essence of the contract". Failure of the producers to complete and deliver the films within the specified period would render them liable to make good all losses or damages which may be suffered by the NCSTC together with a sum of Rs 50,000 as special damage.

**6.15** The project was formally approved in March 1991 and the first instalment of Rs 1.57 lakh was released simultaneously. The completion of the project was first re-scheduled to June 1993 and then again to January – February 1995. Meantime, Rs 12.11 lakh was released by the NCSTC towards the project in 2, 3 and 4 installments in September 1991, November 1992, and March 1995. An amount of Rs 0.45 lakh as balance of fourth instalment was also released in May 1995. Besides, Birbal Sahni Institute for Paleobotany (BSIP) has paid Rs 0.36 lakh to the film maker during 1990 for collection of material and working out project proposal. However, the film was not completed and in April 1996, the film maker communicated that the final deadline for the project was August 1996, which was also not adhered to.

**6.16** When the delay was pointed out in Audit in April 1998, the NCSTC informed that the serial had been completely shot and the completed serial would be delivered before end of August 1998. However, the film was not delivered to the NCSTC as of May 2000. The NCSTC in May 2000, intimated that a final reminder has been sent to the producer.

**6.17** The failure of the NCSTC to ensure timely completion of the project defeated the purpose of telecasting the serial during the birth centenary year of Prof. Birbal Sahni, rendering the expenditure of Rs 14.49 lakh unfruitful. Even after a lapse of eight years from the scheduled date of completion of the project, no action has been initiated to recover the loss sustained along with special damages as envisaged in the agreement.

**6.18** The DST replied in September 2000 that they had released the funds only after assessing the performance and monitoring the actual progress of the work as per the agreement. It stated that the film shooting was already over and only editing part was left and was in progress. The reply is not tenable because five years have elapsed and editing which commenced in May 1995 remains incomplete till September 2000. A simple project scheduled for completion in March 1992 has been delayed by more than 8½ years.

## CHAPTER 7 : INDIAN COUNCIL OF MEDICAL RESEARCH

### Haphazard execution of Microbial Containment Complex

**A project conceived in June 1977 for handling hazardous viruses and protecting the workers from laboratory infections and to serve as a strong deterrent against biological warfare, was not completed even after 23 years and after spending Rs 12.87 crore due to lack of conviction, unplanned execution, improper monitoring system and haphazard implementation.**

7.1 In order to protect the workers against infection from various viruses handled in the laboratories and also to prevent escape of these hazardous infectious/contagious viruses into the environment and subsequent infection to susceptible population, Indian Council of Medical Research (ICMR) approved in June 1977 the construction of a high security laboratory i.e. Microbial Containment Complex (MCC) as an infrastructure facility for National Institute of Virology (NIV), a constituent unit of the ICMR at Pune for handling hazardous viruses of P-3 and P-4 category. In normal circumstances, the less hazardous viruses belonging to P-1 and P-2 category were supposed to be handled with the existing facilities available at the NIV. The establishment of separate the MCC with higher biosafety standards for handling and research on highly pathogenic agents of P-3 and P-4 category of viruses was considered necessary because of occurrence of 99 cases of laboratory infections during the course of research activities between 1957 to 1976 due to lack of adequate containment facility at the NIV. This project, apart from enabling the country to diagnose a possible attack through an introduced pathogen, was also expected to serve as a strong deterrent against biological warfare. The Government of Maharashtra allotted a piece of land for this purpose in 1982 measuring 108302 Sq.mt.

7.2 The project was to be executed in two phases. Phase-I was to be completed by March 1985, while Phase-II was to be completed by March 1990 at an estimated cost of Rs 11.67 crore. The construction work was entrusted to the Central Public Works Department (CPWD) the NIV deposited Rs 10 crore between 1982-83 to 1996-97 with the CPWD.

7.3 The competence of the CPWD to construct this highly sophisticated laboratory was not examined before entrusting the work. A committee set up by the ICMR in June 1998 to examine the utility of the building for the MCC recommended that the complex should be contracted on turn key basis after global tender to an agency with proven track record in construction.

**7.4** The possession of the structures like basic laboratory, hostel-cum-guest house and boiler-cum-incinerator completed between August 1995 and June 1996 at a cost of Rs 6.95 crore, Rs 65.71 lakh and Rs 11.01 lakh respectively was taken over by the NIV only in June 2000 as several important items contemplated in the estimates of the CPWD were not provided or there were many defects.

**7.5** The ICMR contended in December 2000 that the construction of structures like maintenance block, stores and administrative building, basic laboratory building, staff quarters, etc. did not involve any sophistication and it was only in latter half of 1990, a high containment laboratory was set up in the country first by National Dairy Development Board in Bhopal. However, the fact remains that there were inordinate delays in completion of even basic structures and, if another institution could set up a unit in second half of 1990, the ICMR should have equally geared up to follow suit. The ICMR also stated that it was not possible to enter into litigation with the CPWD.

**7.6** A monitoring system for this project was either inadequate or improper. An expert group set up by the ICMR as advisory committee in 1978 met only thrice in 18 years between March 1978 and September 1996 and never thereafter. Though the project report contemplated appointing a Project Officer to monitor the execution, this post remained vacant till September 1998. A Deputy Director of the NIV was appointed in October 1998 to act as an Officer-in-charge/Project Officer.

**7.7** The ICMR stated in December 2000 that its Headquarters did not have wherewithal to monitor construction activities; that the expert group which was an advisory committee was not expected to monitor the progress; and that the project was monitored by Director of the NIV. The reply underscores lack of responsibility of the expert committee and the ICMR, for the delay of 23 years in executing the project.

**7.8** Though the project was to be completed in two phases, phase I by March 1985 and phase II by March 1990, the CPWD took its own time due to modifications in design, revision of electrical requirements and inclusion of additional items where by the work was badly delayed. The NIV was also unable to finalise the design of the complex till May 1990. This as well as the delays by the CPWD resulted in escalation of cost of basic laboratory from Rs 3.90 crore in March 1988 to Rs 4.33 crore in January 1989 and to Rs 6.98 crore in May 1990. While the construction of the compound wall taken up in 1982-83, it was completed only in June 1987. The development work taken up in 1982-83 was still not completed as of March 2000.

**7.9** The Officer-in-charge of the MCC clarified in December 1998 that the time schedule for completing the project was not decided, as completing the remaining items of work would involve foreign consultancy, global tendering,

etc., and these formalities could be initiated only after allotment of required funds by the ICMR.

**7.10** The ICMR attributed the delay to meagre budget provisions, expertise not being available in India, constant change in technology as it was being set up first time in the country, etc. It further stated that in recent two years the project has been geared up, final plan drawn up and a new time frame would be set. The reply is to be viewed in the background of another agency already setting up a unit in latter half of 1990 in Bhopal. Thus, even after 23 years of approval by the ICMR the execution of this project was still in a nebulous situation and any workable blue print was yet to emerge.

**7.11** The project report was deficient, as it did not contain certain essential structures, which were added based on subsequent identification of needs. Thus, the Effluent Treatment Plant (ETP) (Rs 49.90 lakh), hostel-cum-guest house (Rs 50.60 lakh) and boiler and incinerator (Rs 7.90 lakh) taken up were not contemplated in the project report of 1983.

**7.12** Prioritisation in the work was not defined and action plan pre-set. As a result, the ETP, which was needed only in the second phase for treating the more hazardous category of viruses from Maximum Containment Laboratory, was taken up first for treating less exotic viruses from animal holding area of the basic laboratory under Phase-I.

**7.13** The ICMR stated in December 2000 that earlier it was considered necessary to have an ETP for the high containment facility, but later it was decided to restrict the level of containment facility and not to install the machinery and equipment related to the ETP which would have required additional Rs 1 crore. It further stated that a tank constructed (Rs 49.90 lakh) for the ETP would be used for other purposes. Thus, the expenditure of Rs 49.90 lakh incurred on the ETP has become infructuous and did not meet the intended purposes.

**7.14** Even the structures taken over were not used for the purpose for which they were intended. Sixteen staff quarters and a type-V quarter for the Director/MCC were constructed at a cost of Rs 35.15 lakh. While the former was allotted to the staff of the NIV, the latter was used as part of entomology division and as a museum as the ICMR failed to appoint the Director or a senior level officer till September 1998. Stores, administration and maintenance block constructed at a cost of Rs 37.69 lakh and taken over in July 1992 were converted to laboratories for the NIV after spending additionally Rs 7.55 lakh. Similarly, against the requirement of equipment costing Rs 2.83 crore for the MCC, as of March 2000 various equipment, furniture, fixtures, library books etc. were procured at a cost of Rs 95.59 lakh. Of these, materials worth Rs 68.85 lakh were put into use in the NIV.



**7.15** The ICMR stated in December 2000 that the MCC was an integral part and an extension of the currently available facilities of the NIV, hence all the facilities created at the MCC are also for use by the NIV. It further stated that the NIV expanded its activities and the present location of the NIV did not permit such expansion necessitating usage of certain area in the MCC for the NIV's functions. The reply was not tenable, as the ICMR had released grant under a separate budget provision with the specific objective of construction of the MCC. Hence, diversion of facilities created for the MCC for other purposes was against the principle of financial propriety.

**7.16** The committee set up in June 1998 to examine the utility of the building constructed for the MCC opined *inter alia* that the MCC constructed by the NIV was not fit for a P3 or P4 operation and the expense involved in the extensive modification would, probably, be very close to the cost that would be involved in constructing a fresh stand-alone facility. It further recommended using the building for the P2 activity of the Institute for which some modifications were required. The ICMR stated in December 2000 that it had proposed to convert the rear portion of the basic laboratory as high containment laboratory to reduce the cost and maximum containment laboratory would have a separate stand alone building. Thus, the project could not serve the intended purpose of handling hazardous viruses of P-3 and P-4 category even after 23 years and spending Rs 12.87 crore.

**7.17** The institute spent Rs 1.74 crore on pay and allowances, the TA and other charges on 15 employees including six watchmen during 1990-2000 on this project which was yet to become operational. The ICMR stated in December 2000 that watch and ward becomes essential for safety of building and other paraphernalia and to prevent encroachment in the plot. However, the fact remains that the expenditure became a burden without productive utilisation of the structures for intended purposes due to various delays.

**7.18** Thus, entrusting the work to the CPWD without ensuring their capability to construct this complex, the inordinate delay in finalising design, improper estimation of scope of work, omission to include important items in the original Project Report, utilisation of facilities for purposes other than those contemplated in the Project Report, etc. indicated unplanned execution, improper monitoring and haphazard establishment of facilities. As a result, the projected noble cause of the project conceived in June 1977 to protect the workers from laboratory infections and to protect the environment from highly exotic viruses handled in laboratories and also to handle the attack from manipulative introduction of exotic disease producing viruses/agents either by natural or through biological warfare, had not become a reality despite the expenditure of Rs 12.87 crore even after 23 years.

### **Injudicious procurement of Glaucoma Valves**

**Of the 1000 American Glaucoma Valves imported at a cost of Rs 70 lakh by the ICMR, it could utilise only 248 for study on effectiveness of Glaucoma valves under National Programme for Control and Prevention of Blindness, resulting in avoidable loss of Rs 52.64 lakh.**

7.19 The Indian Council of Medical Research (ICMR) undertook a research project 'Management of Glaucoma Valves under Indian conditions' for three years starting from August 1995. The main aim of the project was to study and obtain information on implantation of American Glaucoma Valves (AGVs) and to record management procedures adopted at different centres, hospitals and institutions for the management of glaucoma and to study the short term and long term effects of the different therapeutic modalities in various regions of the country. The results of the study were to be finally used in the National Blindness Control Programme. The budget approved for the project was Rs 58.31 lakh involving eleven participating centres.

7.20 Though the ICMR, imported 1000 numbers of the AGVs, costing Rs 70 lakh in January 1994 from a US based firm, it finalised the participating centres in June and initiated the project only in August 1995, i.e. 20 months after import of the valves. Bulk purchase of the AGVs was made despite the fact that these valves had an expiry date of 2 November 1998.

7.21 The ICMR distributed only 435 out of 1000 valves to eleven participating centres during November 1995 to May 1998 for conducting studies/trials and 65 costing Rs 4.55 lakh remained in its stock as of November 2000.

7.22 Meanwhile, the Directorate General of Health Services directed the ICMR in May 1997 to hand over the remaining 500 valves to Guru Nanak Eye Centre (GNEC) for free distribution to various hospitals/surgeons. The ICMR handed over 500 valves to the GNEC in the same month. The utilisation report of these valves was awaited as of November 2000. Of the 500 valves distributed by the GNEC, 206 valves, costing Rs 14.42 lakh, were distributed only on 22.10.98 and chances of their utilisation before the expiry date are remote. Regarding the 435 valves distributed by the ICMR to its participating centres, only 248 could be utilised and 187 valves costing Rs 13.09 lakh remained with the centres.

7.23 Thus the ICMR injudiciously procured 1000 valves before initiating the project, of which it could utilise only 248 valves and 252 valves remained unutilised with the centres/ICMR as of November 2000. No records are available regarding utilisation of 500 valves distributed free among various hospitals/surgeons as directed by Director General of Health Services.

Resultantly, the objective of the project of obtaining information on American Glaucoma Valves (by implanting 1000 valves) for use in National Blindness Control Programme could not be achieved, besides an avoidable loss of Rs 52.64 lakh in procurement of the valves.

**7.24** The ICMR stated in November 2000 that considering the vast areas of the country, it was desired to test these valves with as many ophthalmologists in different regions of the country and it was expected that 1000 valves would be utilised under the study. It further stated that valves were not purchased in advance as in November 1993 itself Ministry had decided to take up a research project on the valves under the ICMR. The contention of the ICMR is not correct as it had procured the 1000 valves only on basis of on an estimate. Moreover, even though the decision about taking up a project had been taken in 1993, the fact remains that even before finalising the Principal Investigator the ICMR procured the valves in January 1994. The project could start only in August 1995 i.e. 20 months after the import. Thus, due to inept handling of the project the expected benefit could not accrue to the society.

## CHAPTER 8 : MINISTRY OF NON-CONVENTIONAL ENERGY SOURCES

### Infructuous expenditure on repair of battery buses

**Ministry of Non-conventional Energy Sources (MNES) released Rs 85 lakh to Delhi Energy Development Agency (DEDA) for repair of 40 non-operational battery buses without assessing their actual physical condition. The DEDA repaired only 18 out of 40 buses and that too were plied only for the period upto 14 months only resulting in infructuous expenditure of Rs 59.01 lakh on their repairs.**

**8.1** The Ministry of Non-conventional Energy Sources (MNES) has been promoting the Battery Operated Vehicles (BOVs) demonstration programme through various state nodal agencies for which it provides subsidy to government and semi-government organisations including the Delhi Energy Development Agency (DEDA), a Government of Delhi enterprises. The MNES sanctioned on 27 March 1996, a one time grant of Rs 88.80 lakh in favour of the DEDA and released Rs 50 lakh and Rs 35 lakh respectively on 27 March 1996 and 27 March 1997 for repair of its 40 non-operational buses to make them operational.

**8.2** A team of the MNES carried out an inspection for the assessment of the repair work done by the DEDA only in August 1997 i.e. after a lapse of one year and four months from the date of the approval of the project and found that some of the buses were too old and their condition was not satisfactory for operation. The MNES closed the project in September 1997. The DEDA repaired and put on road only 18 buses of which three buses were plied for 12 to 14 months; 11 buses plied for 6 to 12 months and 4 buses plied for less than six months. These buses were withdrawn from May 1998 in view of the decision of the Government of Delhi to scrap the battery bus scheme due to non-stabilisation of technology and non-viability of the operation of these buses. The DEDA incurred an expenditure of Rs 59.01 lakh on repair of the buses, out of which a considerable amount was spent on buses which were not made operational and put to road even once. It was further observed that the DEDA spent Rs 5.61 lakh in 1999-2000 after scrapping of battery bus scheme in May 1998. Out of the unspent balance of Rs 25.99 lakh, the MNES obtained the refund of Rs 23.72 lakh from the DEDA on 29 November 2000 after it was pointed out by Audit on 9 November 2000. The balance amount of Rs 2.27 lakh was still lying with the DEDA for final settlement of accounts.

**8.3** Thus, the MNES sanctioned the project without ascertaining the physical condition and viability of the operation of the buses. This resulted in wasteful expenditure of Rs 59.01 lakh. Besides the aim of providing pollution free transport for general public remained unachieved.

**8.4** The MNES remained silent on this issue in its reply of December 2000.

## CHAPTER 9 : MINISTRY OF INFORMATION TECHNOLOGY

### Delay in commercialisation of a system

**A technology on Microprocessor based Autoleveller system developed by the ER&DCI, Calcutta at an expenditure of Rs 46.70 lakh in March 1997 has remained uncommercialised despite potential customers for adopting the technology developed.**

9.1 Electronic Research and Development Centre of India<sup>†</sup> (ER&DCI), Calcutta developed a "Microprocessor based Autoleveller system" (herein after "the system") in March 1997 at an expenditure of Rs 46.70 lakh aimed to improvement of quality and productivity of jute fibre. The system was developed under "Jute instrumentation projects using electronic controls and instrumentation (Phase-I)" funded by the Government of India and United Nation's Development Programme. The ER&DCI took initiative to transfer the technology for commercial production by placing an advertisement in a newspaper only in October 1998 after 18 months on being pointed out by Audit. M/s Vollkraft Engineers & Consultant Private Limited showed interest for commercialising the technology and the ER&DCI executed a Memorandum of Understanding (MOU) with the firm in May 1999. The MOU envisaged payment of premium of Rs 0.40 lakh within 10 days of the signing of the MOU and royalty @ 5 per cent on the sale value of per unit of the system. However, till August 2000, the ER&DCI had not handed over the circuit details of the system to the firm as it had not paid the licence fee for transfer of the technology.

9.2 Ministry of Information Technology stated in August 2000 that it had initiated many promotional activities towards commercialisation of the technology immediately after the development was completed. It further stated that transfer of technology of indigenously developed systems/products was very complex and time consuming considering the financial health and general conservative approach of the user industry and it was exploring all the possibilities to transfer it to industries other than M/s Vollkraft Engineers & Consultant Private Limited. The reply of the Ministry is to be viewed in light

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<sup>†</sup> A scientific society of the Government of India jointly sponsored by the Ministry of Information Technology, erstwhile Department of Electronics and the West Bengal Electronics Industry Development Corporation Limited.

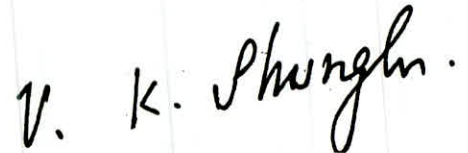
of the fact that it had not been able to commercialise the technology even after three and a half years of its development which indicated that the project to develop the technology was undertaken without adequate market survey.



(P.N. MURTY)  
Principal Director of Audit,  
Scientific Departments

New Delhi  
Dated : 2 JUL 2001

Countersigned



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

New Delhi  
Dated : 2 JUL 2001

## 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

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(Rs in crore)

Sl. No.	Name of the Autonomous Body	Amount of grants released in 1999-2000
1.	Wild Life Institute of India, Dehradun	5.70
2.	Central Zoo Authority of India, New Delhi	12.10
3.	Sree Chitra Tirunal Institute of Medical Sciences and Technology, Thiruvananthapuram	21.00
4.	Technology Development Board, New Delhi	50.00
5.	Indian Council of Agricultural Research, New Delhi	1297.88
6.	Indian Council of Medical Research, New Delhi	128.53
7.	Council for Scientific and Industrial Research, New Delhi	792.97
<b>Total</b>		<b>2308.18</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**

Sl. No.	Ministry/Department Name of the Autonomous Body	Amount of grants released in 1999-2000 (Rs in crore)
<b>Department of Atomic Energy</b>		
1.	Tata Memorial Centre, Mumbai	69.31
2.	Saha Institute of Nuclear Physics, Calcutta	28.00
3.	Institute of Physics, Bhubaneswar	7.79
4.	Atomic Energy Education Society's School, Mumbai	7.75
5.	Tata Institute of Fundamental Research, Mumbai	81.39
6.	Mehta Institute of Mathematical Physics, Allahabad	7.08
7.	Institute of Plasma Research, Ahmedabad	25.00
8.	Institute of Mathematics Science, Chennai	5.93
<b>Total</b>		<b>232.25</b>
<b>Department of Bio-technology</b>		
9.	National Institute of Immunology, New Delhi	13.90
10.	National Centre for Cell Science, Pune	8.34
11.	Centre for DNA finger printing and Diagnostics, Hyderabad	5.50
<b>Total</b>		<b>27.74</b>
<b>Ministry of Information Technology</b>		
12.	Centre for Development of Advance Computing, Pune	8.00
13.	Society for Applied Microwave Electronics Engineering Research, Mumbai	6.29
14.	Electronic Research and Development Centre of India, New Delhi	8.90
15.	National Centre for Software Technology, Mumbai	2.00
16.	Centres for Electronics Design and Technology of India, New Delhi	3.60
17.	Software Technology Parks of India, New Delhi	2.45
18.	Centre for Materials for Electronics Technology Research, New Delhi	5.65
19.	Centre for Liquid Crystal Research, Bangalore	1.96
20.	Society for Electronics Tests Engineering, New Delhi	1.05
21.	Education and Research Network, New Delhi	16.06
22.	Regional Computer Centre, Calcutta	0.26
23.	Regional Computer Centre, Chandigarh	0.09
<b>Total</b>		<b>56.31</b>

Sl. No.	Ministry/Department Name of the Autonomous Body	Amount of grants released in 1999-2000 (Rs in crore)
<b>Ministry of Environment and Forests</b>		
24.	Central Pollution Control Board, New Delhi	15.00
25.	Indian Institute of Forest Management, Bhopal	3.65
26.	Indian Council of Forestry Research and Education, Dehradun	67.95
27.	Padmaja Naidu Himalayan Zoological Park, Darjeeling	0.10
28.	G.B. Pant Himalayan Paryavaran Evam Vikas Sansthan, Almora	5.40
29.	Indian Plywood Research and Training Institute, Bangalore	2.38
30.	Centres for Excellence	6.90
<b>Total</b>		<b>101.38</b>
<b>Department of Science &amp; Technology</b>		
31.	Raman Research Institute, Bangalore	9.29
32.	Bose Institute, Calcutta	10.00
33.	Indian Institute of Tropical Meteorology, Pune	4.06
34.	Indian Association for Cultivation of Science, Calcutta	12.82
35.	Indian Institute of Astrophysics, Bangalore	21.87
36.	Indian Institute of Geo-magnetism, Mumbai	6.36
37.	Indian Science Congress Association, Calcutta	0.88
38.	Indian National Science Academy, New Delhi	5.73
39.	Birbal Sahni Institute of Palaeobotany, Lucknow	4.23
40.	Wadia Institute of Himalayan Geology, Dehradun	4.02
41.	S.N.Bose National Centre for Basic Sciences, Calcutta	2.83
42.	Indian Academy of Sciences, Bangalore	1.50
43.	J.N. Centre for Advanced Scientific Research, Bangalore	8.00
44.	National Academy of Science, Allahabad	0.51
45.	Technology Information Forecasting and Assessment Council, New Delhi	4.08
46.	Vigyan Prasar, New Delhi	1.00
47.	Agharkar Research Institute, Pune	3.10
48.	National Innovation Foundation, Gujarat	21.00
49.	Indian National Academy of Engineering, New Delhi	0.20
50.	Advanced Research Centre for Powder Metallurgy, Hyderabad	5.50
51.	National Accreditation Board for Testing & Calibration, New Delhi	2.00
<b>Total</b>		<b>128.98</b>

Sl. No.	Ministry/Department Name of the Autonomous Body	Amount of grants released in 1999-2000 (Rs in crore)
<b>Department of Space</b>		
52.	National Remote Sensing Agency, Hyderabad	13.00
53.	Physical Research Laboratory, Ahmedabad	20.48
54.	National MST Radar Facility , Gadanki	1.60
<b>Total</b>		<b>35.08</b>
<b>Department of Telecommunications</b>		
55.	Centre for Development of Telematics, New Delhi	80.97
<b>Total</b>		<b>80.97</b>
<b>Grand Total</b>		<b>662.71</b>

## APPENDIX – III

## Outstanding Utilisation Certificates

Ministry/Department	Period to which grant relates	Number of utilisation certificates outstanding at the end of March 1999	Amount (Rs in lakh)
Atomic Energy	1985-86	1	1.50
	1988-89	2	2.96
	1989-90	2	0.57
	1991-92	1	2.51
	1992-93	3	1.82
	1994-95	3	2.22
	1995-96	3	2.07
	1996-97	17	16.76
	1997-98	39	59.68
	1998-99	87	565.70
	<b>Total</b>	<b>158</b>	<b>655.79</b>
Environment & Forests	1981-82	15	5.79
	1982-83	21	41.00
	1983-84	90	58.50
	1984-85	143	229.80
	1985-86	121	495.40
	1986-87	74	533.77
	1987-88	290	8909.92
	1988-89	359	2543.18
	1989-90	549	194.23
	1990-91	70	123.30
	1991-92	91	1539.88
	1992-93	232	3026.11
	1993-94	64	74.18
	1994-95	142	1204.24
	1995-96	12	24.50
	1996-97	576	16139.78
	1997-98	721	10517.53
	1998-99	579	3108.84
<b>Total</b>	<b>4149</b>	<b>48769.95</b>	
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	98	140.66
	1990-91	17	227.46

Ministry/Department	Period to which grant relates	Number of utilisation certificates outstanding at the end of March 1999	Amount (Rs in lakh)
Ocean Development	1991-92	30	242.46
	1992-93	8	3.00
	1993-94	16	40.20
	1994-95	14	195.07
	1995-96	53	58.77
	1996-97	74	271.15
	1997-98	113	1805.93
	1998-99	152	4962.94
	<b>Total</b>	<b>760</b>	<b>8420.16</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	5	7.17
	1993-94	20	25.51
	1994-95	22	47.39
	1995-96	20	85.67
1996-97	42	119.45	
1997-98	72	454.44	
1998-99	112	510.97	
<b>Total</b>	<b>421</b>	<b>1302.20</b>	
Geological Survey of India (Department of Mines)	1997-98	1	4.00
	1998-99	6	93.93
	<b>Total</b>	<b>7</b>	<b>97.93</b>
Information Technology	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>Ministry/Department</b>	<b>Period to which grant relates</b>	<b>Number of utilisation certificates outstanding at the end of March 1999</b>	<b>Amount (Rs in lakh)</b>
Information Technology	1997-98	153	5456.00
	1998-99	204	7550.00
	<b>Total</b>	<b>700</b>	<b>18148.00</b>
Non-Conventional Energy Sources	1995-96	95	788.96
	1996-97	80	177.13
	1997-98	97	647.31
	1998-99	<i>Not available</i>	
	<b>Total</b>	<b>272</b>	<b>1613.40</b>
<b>Grand Total</b>		<b>6467</b>	<b>79007.43</b>

## APPENDIX – IV

Outstanding Action Taken Notes

Sl. No.	Report No. and Year	Chapter of the Report	Para No.	Pertains to	Brief subject
1.	5 of 1999	IX	9.1	Geological Survey of India	Residential quarters lying idle.
2.	5 of 2000	VII	7.1		Avoidable expenditure on rent
3.		II	2.1	Indian Council of Medical Research	Regional Medical Research Centre for Tribals, Jabalpur
4.		III	3.4	Council of Scientific and Industrial Research	Avoidable expenditure due to delay in construction of staff quarters
5.		IV	4.1	Ministry of Non-Conventional Energy Sources	Refuse incinerator-cum-Power generation Plant
6.		VI	6.1	Indian Council of Agricultural Research	Undue benefit to three private firms due to non-levy of liquidated damages
7.		VI	6.2		Avoidable payment of interest

