Report of the Comptroller and Auditor General of India

for the year ended March 2001

Union Government
(Scientific Departments)
No.5 of 2002

Report of the Comptroller and Auditor General of India

for the year ended March 2001

Union Government
(Scientific Departments)
No. 5 of 2002

CONTENTS

PREFACE

This Report for the year ended 31 March 2001 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 three reviews and 17 paragraphs. The institutions reviewed are:

(i) Indian Agricultural Research Institute

(ii) National Dairy Research Institute

(iii) Zoological Survey of India

The cases mentioned in this Report are among those, which came to notice in the course of audit during 2000-2001. 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 2001 in few cases have also been mentioned wherever relevant.

OVERVIEW

The expenditure on Scientific Departments during 2000-2001 was Rs 11493.70 crore. This represented an increase of 21.62 *per cent* over the last two years. Of the total expenditure on Scientific Departments, Rs 4551.50 crore related to Department of Atomic Energy, followed by Department of Space, which accounted for an expenditure of Rs 1905.40 crore. With reference to the budget allotment, the Scientific Departments had an overall unspent balance of Rs 1309.03 crore. The Departments of Atomic Energy, Space, Environment and Forests spent Rs 493.95 crore, Rs 117.44 crore and Rs 249.71 crore less than the allocation respectively

This report contains three performance reviews and 17 paragraphs. An overview of audit findings contained in the report is given below :

REVIEWS

INDIAN COUNCIL OF AGRICULTURAL RESEARCH

Indian Agricultural Research Institute

The Indian Agricultural Research Institute (IARI), New Delhi, a constituent unit of Indian Council of Agricultural Research (ICAR) is a premier institution for agricultural research, education and extension in the country. It was accorded the status of a Deemed University in 1958 and has been offering M.Sc. and Ph.D. degrees in Agricultural Science. The IARI undertook 402 in-house projects during 1995-2001 without the approval of Staff Research Council and Board of Management. It completed 180 projects and 23 projects were either terminated or had not even started. However, final project reports were available for 55 projects out of 180. In 15 projects objectives were only partially achieved resulting in unfruitful expenditure of Rs 2.79 crore. The IARI completed only 40 sponsored projects which was low when compared to 180 in-house projects completed during 1995-2001. It incurred excess expenditure of Rs 75.12 lakh on sponsored schemes from its own resources and did not recover the excess amount from sponsoring agencies. There was

lack of demand for released varieties of wheat, paddy, maize etc. among the farmer community which indicates that the projects were undertaken without proper survey to identify the needs of the farmers. The National Phytotron Facility meant to provide controlled environment for study of response of plants to climatic conditions and established at total cost of Rs 10.55 crore, was not utilised effectively. The construction of a glass house complex which was to be completed by September 1989 at a total cost of Rs 98.58 lakh was not completed as yet even after incurring an expenditure of Rs 1.14 crore. The Board of Management, the Research Advisory Council and the Staff Research Council, which monitor research activities did not meet according to the norms fixed by ICAR. Consequently, the institutional arrangements for selection, review and evaluation of research projects and other functions in the IARI did not work effectively during 1995-2001. Negligence in proper documentation of the research projects also contributed to poor monitoring of the research projects.

National Dairy Research Institute

The National Dairy Research Institute (NDRI), Karnal a constituent unit of Indian Council of Agricultural Research, is a leading institution in the field of Diary Research. The Institute's progress in three major areas of R&D activities viz. (i) dairy production (ii) dairy processing and (iii) dairy extension/management in terms of practical applications/development of technologies was dismal. During 1996-1999, only 12 technologies were developed in-house and only one technology was transferred/commercialised. No technology was got patented. Extension activities of the Institute remained confined to Karnal district only. The monitoring and evaluation mechanisms in the Institute were neglected as Board of Management never met during 1998-2001. Staff Research Council and Research Advisory Committee which were to monitor the research activities of NDRI also did not meet regularly. There was a need for better herd management to reduce the mortality rate as 1149 animals died during 1996-2001 due to various diseases. There was delay in construction of Auditorium due to change in specification which resulted in cost and time overrun. Defective video projector system installed in February 1999 in auditorium at a cost of Rs 22.09 lakh was yet to be replaced. Spray drier plant received in August 1997 at a cost of Rs 35.65 lakh in Experimental Dairy Plant remained uncommissioned till date.

MINISTRY OF ENVIRONMENT AND FORESTS

Zoological Survey of India

Zoological Survey of India (ZSI) was established in 1916 to promote survey, exploration and research leading to advancement in knowledge of various aspects of the animal life of India. The primary objectives of survey and exploration work of 'faunal' resources in the selected areas was behind schedule for periods ranging from five to 13 years. There was slow progress in conducting status survey of endangered species. Research results were not published expeditiously resulting in their non-dissemination. Non-commissioning of Marine Aquarium Research Centre at Digha for about a decade adversely affected marine research and equipment worth Rs 49.25 lakh remained idle. Ineffective monitoring and evaluation resulted in delay in achievement of targets fixed by Ministry of Environment and Forests in 1987.

TRANSACTION AUDIT FINDINGS

COUNCIL OF SCIENTIFIC AND INDUSTRIAL RESEARCH

Infructuous expenditure on purchase of equipment

Structural Engineering Research Centre (SERC), Ghaziabad placed a purchase order in March 1989 for the import of Microprocessor Controlled Pressure cum Voltage Scanning (MCPVS) System for establishing Industrial Wind Tunnel (IWT). The complete equipment was received by March/May 1991. SERC incurred a total expenditure of Rs 25.41 lakh in its procurement. In July 1992, the Indian agent informed that the 200 MB Maxter hard disk could not be repaired and required replacement. However, no steps were taken to obtain the replacement and despite efforts made, the equipment could not be installed even ten years after its purchase, resulting in infructuous expenditure.

Wasteful expenditure on import of equipment

Central Fuel Research Institute attempted to install and commission sophisticated equipment imported at Rs 18.57 lakh without adequate expertise. It did not ask the supplier to replace the equipment within the guarantee period. Attempts to install and commission the equipment with the help of National Chemical Laboratory also failed. The equipment was lying unused and in defective condition since October 1994, rendering the entire expenditure wasteful.

MINISTRY OF INFORMATION TECHNOLOGY

Non-recovery of unspent grant after completion of a project

The Ministry of Information Technology, erstwhile Department of Electronics released Rs 117.50 lakh to Centre for Development of Advanced Computing (C-DAC) towards its share of expenditure for a project costing Rs 180.50 lakh. Though C-DAC completed the project at a cost of Rs 124.75 lakh, it did not refund the unspent grant of Rs 45.19 lakh.

Failure of department to safeguard financial interest of the State

In 1994, the erstwhile Department of Electronics (DOE) took up a project under its Technology Mission Programme to build a commercial system in collaboration with the user industry, to demonstrate the concept of retrofit automation of existing paper mills. Two paper mills were identified for the project.

In 1994-95, DOE released an amount of Rs 40.25 lakh to the two mills. As per terms of the release, both the firms were required to repay the amounts in installments after the fully functional system was handed over to them. According to these terms of repayment, one firm was to repay the whole amount by March 2000, while the other was to repay by January 2001.

In both cases, however, none of the installments had been repaid as of May 2001. The funds were released by DOE without signing formal agreements

and without obtaining any security in the form of bank guarantee/ bonds etc. The failure of DOE to safeguard interest of the Government while sanctioning funds resulted in undue benefit to the mills and non-recovery of dues worth Rs 40.25 lakh

Undermining Parliamentary Financial Control

Society for Electronics Test Engineering (SETE) was established as an autonomous body under Standardisation, Testing and Quality Certification (STQC) Directorate in February 1994. In September 1994, Secretary, Ministry of Information Technology, approved an arrangement by which the revenue generated from the services offered by STQC would be credited to SETE and would be utilised for meeting the requirements of STQC. A bank account (service account) was also opened by SETE for the purpose.

Over the period 1994-2000, an amount of Rs 11.29 crore was accumulated in the service account. In March 1999, Secretary MIT permitted STQC to incur an expenditure of Rs 9.00 crore out of these funds. The income generated by STQC is the revenue of the government. All revenues of the government are to be credited to the Consolidated Fund of India and no expenditure can be incurred, except with the authority of Parliament. The approval of the Secretary, MIT for crediting government receipts to a service account and authorising expenditure out of these funds was incorrect.

DEPARTMENT OF SCIENCE AND TECHNOLOGY

Avoidable expenditure

Satyendra Nath Bose National Centre for Basic Sciences incurred an avoidable expenditure of Rs 42.98 lakh during July 1995 to August 2000 towards consumption of electricity due to its failure to take appropriate action to get the contracted demand reduced.

INDIAN COUNCIL OF MEDICAL RESEARCH

Non-utilisation of land for 21 years

Even after 21 years and after incurring an expenditure of Rs 49.07 lakh on the maintenance of land acquired from Government of Maharashtra in 1980 for developing a primate colony, Indian Council of Medical Research/Institute for Research in Reproduction, Mumbai could not develop a workable blue print on the type of research facility to be established on the land.

DEPARTMENT OF ATOMIC ENERGY

Avoidable expenditure due to negligence

Negligence and undue delays by Directorate of Purchase and Stores of Department of Atomic Energy and Nuclear Fuel Complex (NFC), Hyderabad in inspection of equipment imported at a cost of Rs 1.64 crore resulted in its damage. The equipment was repaired at an additional cost of Rs 99.70 lakh.

DEPARTMENT OF SPACE

Avoidable expenditure on hiring of buses

Though Space Application Centre, Ahmedabad owned 12 buses and had adequate drivers, the Centre hired two/three buses from Ahmedabad Municipal Transport Service resulting in avoidable expenditure of Rs 50.15 lakh for the period February 1998 to July 2001.

MINISTRY OF ENVIRONMENT AND FORESTS

Unfruitful expenditure on construction of staff quarters

Arid Forest Research Institute constructed 80 additional Staff Quarters, when 24 existing quarters were lying vacant. 72 out of the additional 80 quarters were also not occupied since their construction in 1997. Thus, due to improper

assessment and lack of planning on the part of Indian Council of Forestry Research Education, expenditure of Rs 3.33 crore incurred on these quarters remained unfruitful.

DEPARTMENT OF SCIENTIFIC AND INDUSTRIAL RESEARCH

Wasteful expenditure

A project for development and establishment of pilot scale production of piezoelectric ceramic filters and resonators for use in electronic receiving equipment was executed by Central Electronics Limited, Sahibabad at a total cost of Rs 1.28 crore. The project aimed at the production of filters and resonators in a commercially viable manner. The contribution of Department of Scientific and Industrial Research was Rs 1 crore including Rs 10 lakh towards equipment for encapsulation and final testing. The line for pilot scale production of the components was not set up for want of encapsulating equipment, an essential requirement for commercialisation process. Imported components were cheaper owing to a liberalised import policy which was already in place when the investment decision was taken. The objective of the project was not achieved and entire expenditure of Rs 1 crore was wasteful.

DEPARTMENT OF OCEAN DEVELOPMENT

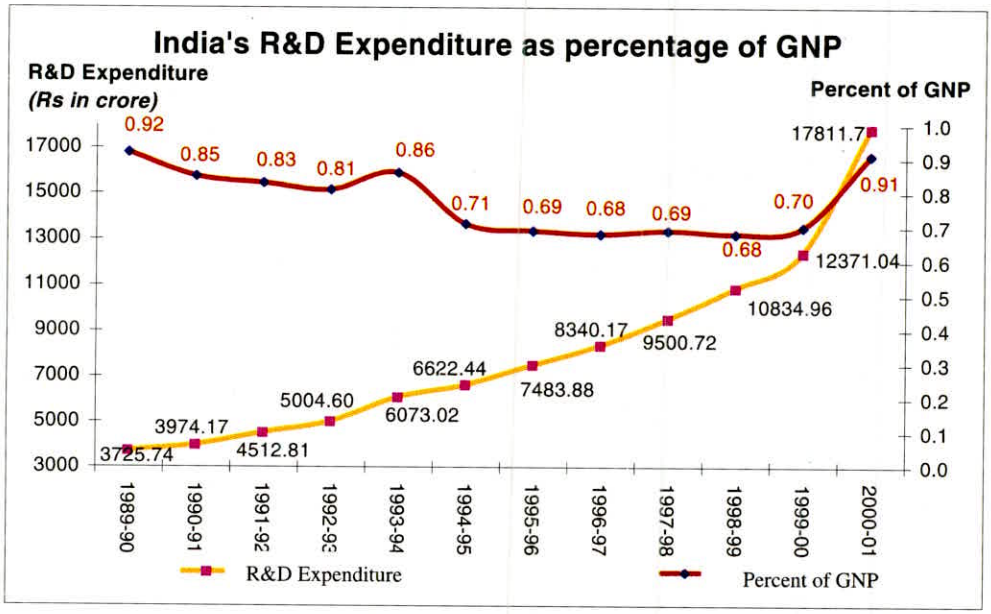
Wasteful expenditure on social welfare project for fishermen

A social welfare project was envisaged by Department of Ocean Development to assist fishermen in effective communication between boat to shore and boat to boat as well as receive emergency signals on a separate channel. Despite expenditure of Rs 3.40 crore and even after a lapse of more than four to eight years of targeted date of completion, none of the stations have been made fully operational. The respective state governments have not yet taken over these stations.

CHAPTER 1 : FINANCIAL MANAGEMENT

1 Introduction

The scientific and technological research base of the country consists of Laboratories, Research and Development (R&D) institutions, in-house R&D establishments etc. covering several disciplines including nuclear science and space science.



Provisional figures : *for years 1998-99 to 2000-01*

Source : Statistics provided by Department of Science and Technology and Central Statistical Organisation

Expenditure on R&D activity as a percentage of Gross National Product (GNP) has been below one *per cent*. In 2000-01, it increased appreciably by 21 basis points. Expenditure on R&D in most developed countries is over two *per cent* of GNP while some developing countries spend around 0.5 *per cent*. The need to enhance R&D expenditure to reach a level comparable to developed countries is one of the more significant issues facing the country's policy makers.

2 Growth of in–house R&D units

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 upto (1997-99)	14*

Source : Statistics provided by Department of Science and Technology

Although there was steep increase in R&D units in the industrial sector during the Sixth Five Year Plan, thereafter there was a sharp decline.

The funding of Science and Technology programmes is mainly through the budgetary support given by the scientific departments/agencies of the Central Government. Of the total R&D expenditure (2000-2001), the share of Central Government including the public sector was 66.45* *per cent*, whereas the share of the private sector was 22.85* *per cent*. The State Governments' share was only 10.70* *per cent*.

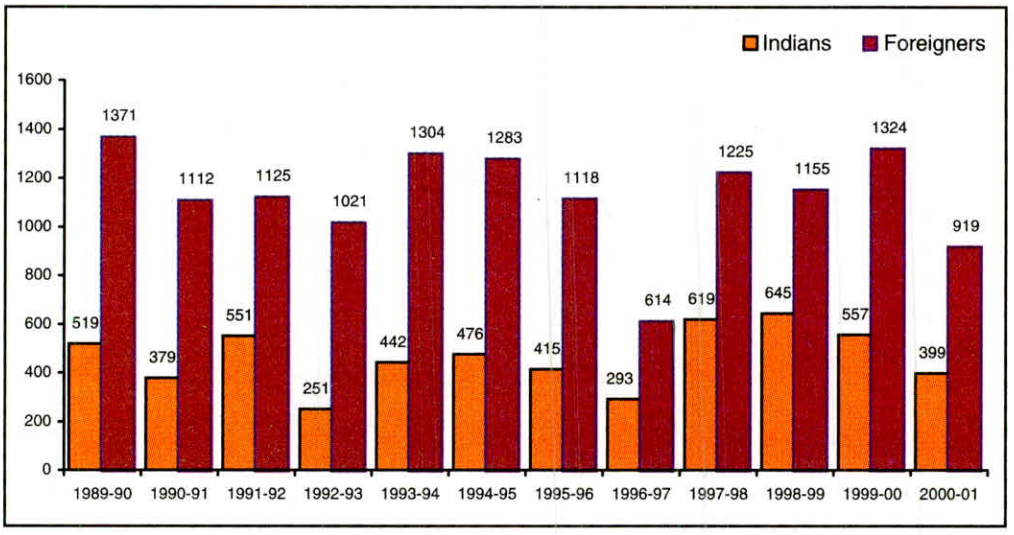
3 Output indicators

There are two key indicators of output of 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 are indicative of the direction in which the research efforts of the country are progressing.

3.1 Patents

The number of patents sealed in India declined from 1890 in 1989-90 to 1318 in 2000-2001. The number of patents sealed by Indians declined from 519 to 399 in 2000-2001 vis-à-vis 557 during the previous year. Year-wise details of patents sealed in India during the period 1989-2001 are indicated in the chart.

* Provisional figures



Source : Statistics provided by Patent Office, Kolkata

The number of patents sealed in the name of foreign nationals including multinational companies continued to be much higher than those sealed by Indians during the period 1989-2001.

3.2 Research papers

The number of research papers published in India by research laboratories under the Central and State governments and in-house R&D units of public and private sector industries in various areas of science and technology had declined from 50469 papers in 1995 to 42891 papers in 2000.

Details of research papers published are as follows :

Subject areas	1995	1996	1997	1998	1999♣	2000♣
Agriculture	11479	11516	11008	7872	11702	6521
Biological sciences	9956	9507	9028	7597	8948	7847
Chemical sciences	12567	13414	13210	12069	13384	11844
Physical sciences	5710	5636	5518	5048	5695	5415
Medical sciences	3988	4132	4619	4531	5633	5391
Engineering	3658	4540	4679	3463	4550	4398
Earth sciences	1290	739	674	362	890	419
Mathematics	1821	2166	2036	1321	1318	1056
Total	**50469**	**51650**	**50772**	**42263**	**52120**	**42891**

Source : Statistics provided by Department of Science and Technology

♣ Provisional figures – *Source : Department of Science and Technology*

4 Expenditure

Expenditure of major scientific departments/organisations, covered in this Report, during the year 2000-2001 in comparison to preceding two years is indicated in ***Appendix-I***. The Departments of Atomic Energy, Space and Indian Council of Agricultural Research accounted for 65.26 *per cent,* 67.86 *per cent* and 66.79 *per cent* of total expenditure during 1998-99, 1999-2000 and 2000-2001 respectively.

The establishment expenditure of the various Ministries/Departments including two major autonomous bodies viz. Council of Scientific and Industrial Research and Indian Council of Agricultural Research and its percentage to the total expenditure during 2000-2001 is shown in the following table :

Sl. No.	Ministry/ Department	Total Expenditure	Establishment Expenditure[$]	percentage of establishment expenditure
		(Rs in crore)		
1.	Department of Science and Technology	731.40	162.56	22.23
2.	Council of Scientific and Industrial Research	700.79	199.68	28.49
3.	Ministry of Information Technology	331.60	208.71	62.94
4.	Department of Biotechnology	151.57	107.38	70.85
5.	Ministry of Non-Conventional Energy Sources	345.96	335.31	96.92
6.	Geological Survey of India	251.88	249.05	98.88
7.	Department of Space	1905.40	257.69	13.52
8.	Department of Atomic Energy	4551.50	568.08	12.48
9.	Indian Council of Agricultural Research	1219.68	379.20	31.09
10.	Centre for Development of Telematics	125.26	34.75	27.74

[$] *figures as provided by the concerned Ministries/Departments*

It would be seen from the table above that the Ministries/Departments spent 12.48 *per cent* to 98.88 *per cent* of their total expenditure on cost of establishment.

4.1 Excess expenditure and unspent provisions under various Grant/ Appropriation

A summary of Appropriation Accounts of 2000-2001 in respect of the scientific departments/major scientific organisations 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	5045.45	4551.50	(-) 493.95	(-) 9.79
2.	Space	2022.84	1905.40	(-) 117.44	(-) 5.81
3.	Indian Council of Agricultural Research	1310.23	1219.68	(-) 90.55	(-) 6.91
4.	Environment and Forests, including Zoological Survey of India and Botanical Survey of India	965.00	715.29	(-) 249.71	(-) 25.87
5.	Science and Technology including Survey of India and India Meteorological Department	790.56	731.40	(-) 59.16	(-) 7.48
6.	Scientific and Industrial Research (including grants given to Council of Scientific and Industrial Research)	970.38	892.32	(-) 78.06	(-) 8.04
7.	Non-Conventional Energy Sources	448.46	345.96	(-) 102.50	(-) 22.86
8.	Geological Survey of India (Ministry of Mines)	255.84	251.88	(-) 3.96	(-) 1.55
9.	Information Technology	404.82	331.60	(-) 73.22	(-) 18.08
10.	Biotechnology	151.96	151.57	(-) 0.39	(-) 0.26
11.	Indian Council of Medical Research	168.53	168.53	-	-
12.	Ocean Development	158.00	103.31	(-) 54.69	(-) 34.61
13.	Centre for Development of Telematics (Department of Telecommunications)	110.66	125.26	(+) 14.60	(+) 13.19
	Total	**12802.73**	**11493.70**	**(-) 1309.03**	

The total unspent provision was Rs 1309.03 crore, representing 10.22 *per cent* of the 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 65.78 *per cent* of the overall unspent provision, revealed as under:

Grant No.90 – 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**	➢ Modernisation and replacement schemes for existing plant ➢ Dovetailing of 37 elements bundle for TAPS ➢ Board of Radiation and Isotopes technology
1998-99	58.11	3.12	
1999-00	145.99	6.68	
2000-01	312.28	12.42	

In three schemes executed under grant No.90 viz. Modernisation and replacement scheme for existing plant, Dovetailing 37 elements bundle of TAPS and Board of Radiation and Isotopes technology the unspent provisions ranged between 38 *per cent* to 100 *per cent* of the total provision during the years 1998-99, 1999-2000 and 2000-2001.

Grant No.91 - 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**	➢ Operation Expenses of Waste Management facilities at Tarapur ➢ PFBR – Phase II Development of Indigenous capability for MA
1998-99	156.41	7.28	
1999-00	67.99	2.84	
2000-01	181.66	7.18	

In two schemes executed under grant No.91 viz. Operation Expenses of Waste Management facilities at Tarapur and PFBR – Phase II Development of Indigenous capability for MA, the unspent provisions ranged between 35 *per cent* to 78 *per cent* of the total provision during the years 1998-99, 1999-2000 and 2000-2001.

Grant No.24 – 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**	➢ Taj Protection Mission ➢ Environmental Commission & Tribunal ➢ Eco-development around Important Protected Areas (IPAs)
1998-99	213.43	26.04	
1999-00	149.82	18.00	
2000-01	249.71	25.87	

In three schemes executed under grant No.24 viz. Taj Protection Mission, Environmental Commission & Tribunal and Eco-development around Important Protected Areas (IPAs) the unspent provisions ranged between 19 *per cent* to 100 *per cent* of the total provision during 1998-99, 1999-2000 and 2000-2001.

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 ➢ Cryo Project
1999-00	168.81	9.14	
2000-01	117.44	5.81	

There were 52 *per cent* to 100 *per cent* unspent provisions under three schemes executed under Grant No.93 viz. Cryo Stage Development, G. SAT – 2&3 and Cryo Project during 2000-2001.

4.2 Adverse balances appearing in the Finance Accounts

The adverse balances are negative balances appearing under the heads of accounts where normally there can be no negative balance. These arise due to misclassification or excess refunds or non-reconciliation of accounts or due to some other reasons. Statement No.13 of the Finance Accounts of the Union Government for the year 2000-2001 revealed the following cases of adverse balances relating to Scientific Departments:

(Rs in thousand)

1.	**MINISTRY OF NON-CONVENTIONAL ENERGY SOURCES**	
	MH 8658 – Suspense Accounts	
	101 – PAO Suspense	20 Dr.
2.	**DEPARTMENT OF OCEAN DEVELOPMENT**	
	MH 8658 – Suspense Accounts	
	1202 – Suspense Accounts Civil	342 Cr.

3.	**MINISTRY OF INFORMATION TECHNOLOGY**	
	MH 8670 – Cheques & Bills	
	102 – PAO cheques	(-) 100036 Cr.
	103 – Department cheques	(-) 31702 Cr.
4.	**MINISTRY OF SCIENCE AND TECHNOLOGY**	
	MH 8658 – Suspense Account	
	113 – Provident Fund	3 Dr.
	MH – 8443 – Civil Deposits	
	124 – Unclaimed Deposits in GPF	157 Dr.
5.	**MINISTRY OF ENVIRONMENT AND FORESTS**	
	MH 8443 – Civil Deposits	
	109 – Forest Deposits	7701 Dr.
	800 – Other Deposits	2696 Dr.

The adverse balance in the Department of Ocean Development has been continuing since March 1997. There has not been much improvement despite it being pointed out in the Reports of the Comptroller and Auditor General of India, Union Government (Scientific Departments) for the years ended 31 March of 1997, 1998, 1999 and 2000. In respect of Ministry of Environment and Forests, these were mainly proforma balances prior to formation of the Ministry (i.e. January 1985), which were transferred from Ministry of Agriculture. All these adverse balances require investigation and rectification.

5 Audit of accounts of autonomous bodies

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-II***.

In addition, the Comptroller and Auditor General of India may conduct supplementary/super-imposed audit of any of 53 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-III.***

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.

6 Outstanding utilisation certificates

Ministries/Departments are required to obtain certificates of utilisation of grants by the Ministry and Departments from the grantees i.e. statutory bodies, non-governmental 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. 5432 utilisation certificates for grants aggregating Rs 659.09 crore were outstanding as given in ***Appendix-IV.*** Utilisation certificates in 3541 cases aggregating Rs 373.21 crore were outstanding for more than three years. These included 2033 cases aggregating Rs 136.49 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 68.51 *per cent* of these amounting Rs 451.51 crore. Other main defaulting Ministries/ Departments were – (i) Department of Ocean Development (Rs 60.97 crore), (ii) Ministry of Information Technology (Rs 120.29 crore), (iii) Ministry of Non-Conventional Energy Sources (Rs 18.15 crore).

7 Follow up on Audit Reports

In its Ninth Report (Eleventh Lok Sabha) presented to Parliament on 22 April 1997, the Public Accounts Committee had recommended that Action Taken Notes (ATNs) 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 2000 revealed that as of December 2001, the following Ministries/Departments (the details thereof are

in ***Appendix-V)*** 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
Centre for Development of Telematics	1	1998-99
Ministry of Non-Conventional Energy Sources	1	1998-99
Department of Atomic Energy	1	1999-2000
Indian Council of Agricultural Research	4	1999-2000
Ministry of Information Technology	1	1999-2000
Department of Science and Technology	2	1999-2000
Council of Scientific and Industrial Research	2	1999-2000

CHAPTER 2 : INDIAN COUNCIL OF AGRICULTURAL RESEARCH

2.1 Indian Agricultural Research Institute, New Delhi

Indian Agricultural Research Institute (IARI) is the premier Institute for agricultural research, education and extension in the country. It was accorded the status of a Deemed University in 1958 for offering M.Sc. and Ph.D. degrees in Agricultural Sciences. The objective of IARI as a centre for academic excellence in post-graduate education and human resource development in Agricultural Sciences could not be achieved in full despite strength of faculty members during 1995-2001 being three times the number of students admitted for different courses. During 1995-2001, IARI worked on 402 in-house projects, of which it could complete only 180 projects. 129 scientists were not engaged on any in-house projects for periods ranging from one year to three years resulting in an unproductive expenditure of Rs 92.74 lakh on idle manpower. Several deficiencies ascribed to poor management of men and resources were noticed like non-achievement of research objectives, unfruitful, unproductive, excess and unauthorised expenditure in the research projects test checked. Research was driven more by their own scientists launching in-house projects which showed very poor results rather than being need based which is evident from the low number of sponsored projects. There was lack of demand for released varieties of wheat, paddy, maize etc. among the farmer community which indicated that the projects were taken up without adequate market survey and feed back. National Phytotron Facility, a major project, meant to provide controlled environment for study of response of plants to climatic conditions was not utilised effectively. Extension, technology transfer and consultancy services were not effectively carried out. 22 technologies developed by the IARI during 1995-2001 were not got patented. Glasshouse complex consisting of 10 glasshouses meant for research, remained incomplete even after the lapse of a decade. The review mechanism by various committees for monitoring the research activities was inadequate as periodical review and evaluation of each individual project was not carried out as per the norms fixed by ICAR. R&D activities of the IARI and financial management need close supervision/monitoring as well as strengthening in an appropriate manner so as to achieve its stated goal.

Highlights

- **The IARI undertook 402 in-house projects during 1995-2001 of which it completed 180 projects. 23 projects were either terminated or did not start. Final project reports were available for 55 projects only. Of the completed projects, 20 projects were test checked. In 15 projects objectives were only partially achieved resulting in unfruitful expenditure of Rs 2.79 crore.**

- **The IARI incurred excess expenditure of Rs 75.12 lakh in sponsored schemes from its own resources and it did not recover the excess amount from the sponsoring agencies.**

- **The IARI did not have the details of schemes for which Rs 3.93 crore remained unutilised for the last five years.**

- **National Phytotron Facility established at a total cost of Rs 10.55 crore was not used optimally.**

- **National Research Centre on Plant Biotechnology and Water Technology Centre incurred Rs 61.76 lakh in procuring and installing Plant Growth Chambers, which remained unproductive.**

- **Target of testing 25,000 seed samples by Central Seed Testing Laboratory was not achieved despite it being strengthened by providing new equipment worth Rs 34 lakh.**

- **The IARI did not patent 22 technologies developed by its eight divisions during 1995-2001. None of the developed technologies was transferred/commercialised as yet.**

- **Construction of Glasshouse Complex, scheduled to be completed by September 1989 was not completed even after lapse of more than a decade after incurring an expenditure of Rs 1.14 crore.**

- **The IARI incurred an avoidable expenditure of Rs 3.67 crore on the basis of electricity demand of 1494.76 KW, without upgrading the actual utilisation load of 500 KW.**

- **Monitoring of research and other functions of the IARI by bodies like Board of Management, Research Advisory Council, Staff Research Council etc. were not carried out in accordance with the norms fixed by the ICAR. Consequently, the institutional arrangements for selection, review and evaluation of research projects and other functions in the IARI did not work effectively.**

2.1.1 Introduction

Indian Agricultural Research Institute (IARI), New Delhi, a constituent unit of Indian Council of Agricultural Research (ICAR), is the premier Institution for agricultural research, education and extension in the country. It was set up in 1905 at Pusa (Bihar) and shifted to New Delhi in 1936. It is a deemed University (since 1958) offering Post Graduate and Ph.D. degrees in Agricultural Sciences.

The main objectives of the IARI are to:

(a) conduct basic and strategic research with a view to understand the processes, in all their complexity and to undertake need based research that leads to crop improvement and sustained agricultural productivity in harmony with the environment;

(b) serve as a centre for academic excellence in the area of post-graduate education and human resource development in agricultural sciences.

(c) provide national leadership in agricultural research, extension and technology assessment and transfer by developing new concepts and approaches and serving as a national referral point for quality and standards; and

(d) develop information systems, add value to information, share the information nationally and internationally and serve as a National Agricultural Library and database.

2.1.2 Organisational set up

The IARI is headed by a Director who is assisted by four Joint Directors for research, extension and administrative matters and Dean and Joint Director for education. Board of Management (BOM) is the apex body which is assisted by a Research Advisory Council (RAC) and Staff Research Council (SRC) for research activities; Extension Council for extension activities, Academic Council for education activities and an Executive Council for administrative matters.

The IARI has 19 divisions and five multidisciplinary research centres in New Delhi, nine regional stations/centres and two off season nurseries located in different parts of the country. Organisational chart is given in ***Annex-I***.

2.1.3 Scope of Audit

An audit review on the working of the IARI for the period 1990-95 was conducted and incorporated in the Report of the Comptroller & Auditor General of India (Scientific Departments) for the year ended 31 March 1995. The present audit review covers management of R&D activities including extension and education activities during 1995-2001.

2.1.4 Budget and expenditure

The IARI is financed mainly through grants released by the Department of Agricultural Research and Education (DARE) to the ICAR. It also receives funds from the Agricultural Produce (AP) Cess Fund, multilateral agencies like World Bank, United Nations Development Programme (UNDP) etc., and other departments/ministries for specific schemes.

Budget estimates, revised estimates and expenditure of the IARI, under plan and non-plan heads during 1995-2001 are as under:

(Rs in lakh)

Year	Plan			Non-Plan		
	BE	RE	Expenditure	BE	RE	Expenditure
1995-96	719	814	808.01	3094	3454	3434.71
1996-97	650	760	759.49	2929	4100	3750.56
1997-98	800	1058	1056.47	3200	4689	4673.34
1998-99	1047	935	934.56	4540	7329	6604.88
1999-00	950	925	922.34	7116	6710	6632.96
2000-01	945	700	694.95	6938	7280	7191.06

BE – *Budget Estimate* **RE** – *Revised Estimate*

IARI had incurred an excess Plan expenditure of Rs 4.55 crore during 1995-98 but there was saving of Rs 3.90 crore during 1998-2001 in relation to Budget estimates. In the case of Non-Plan expenditure, during the period 1996-2000, revised estimates were considerably higher than budget estimates. However, actual expenditure was lower. Budgetary management requires improvement.

2.1.4.1 Non-classification of funds

IARI did not have the details of the schemes for which Rs 3.93 crore remained unutilized

An analysis of closing balance of Rs 29.38 crore shown in the Annual accounts of the IARI for 2000-2001 revealed that IARI did not have the details of the schemes for which an amount of Rs 3.93 crore remained unutilised and kept under 'other schemes' for the last five years.

ICAR stated in June 2001 that the amount under "other schemes" related to the balance in respect of unidentified schemes prior to computerisation of accounts and could not be classified under the proper head. Action was being taken to transfer the amount to revenue as 'Unclaimed Lapsed Deposit'. The reply of ICAR indicated that the Chief Finance and Accounts Officer had not monitored the accounts of the schemes regularly for the last five years to ensure proper classification. Consequently Rs 3.93 crore under 'other schemes' remained unidentified/ unclassified.

2.1.4.2 Revenue generation

Against the target of Rs 19.05 crore fixed by the ICAR for revenue generation during 1996-2001, the IARI realised only Rs 12.32 crore. Further, the ICAR did not take into account the accumulated revenue receipt as on 31 March every year while releasing grant to the IARI next year. This resulted in accumulation of revenue receipt of Rs 10.86 crore as of March 2001. ICAR stated in June 2001 that revenue generation targets fixed by it were on the higher side and that the mandate of the IARI was not revenue generation. However, the audit comment is in relation to the targets fixed by ICAR; the target was either too high or was not sufficiently pursued.

2.1.5 Research activities

The IARI undertakes in-house research projects/schemes funded from the AP Cess Fund, sponsored by other Government departments/agencies and those funded by International agencies like World Bank etc. The details of these projects are indicated below :

Nature of project	Opening Balance (as of 1 April 1995)	Addition (during 1995-2001)	Completed (during 1995-2001)	Closing balance (as of 31 March 2001)
In-house	210	192	203 *(180+23♠)*	199
AP Cess Fund schemes	14	67	40	41
Sponsored	25	62	40	47
Externally Aided	15	59	17	57

♠ *terminated midway or had not even started*

It would be seen from the above table that an average of only 46 projects were completed in a year during 1995-2001. Out of 277 completed projects, only 57 projects were sponsored by outside agencies while the remaining 220 projects were out of their own resources.

Audit scrutiny of these research projects and schemes are discussed in the succeeding paragraphs.

2.1.5.1 In-house Projects

402 in-house projects were under implementation during 1995-2001, of which 210 had been carried over from previous years and 192 were added in this period. Of these IARI completed 180 projects; 23 projects were terminated midway or had not even started. Of the completed projects final reports were available only for 55 projects. In 15 out of 20 projects test checked in audit objectives were not achieved in full. There was a delay of one year to three years in completion of 88 projects and they were continued without any approval by SRC. Further, 12 projects were continued without critical appraisal.

2.1.5.1.1 Inadequate maintenance of Research Project Files

During 1995-2001, the IARI implemented 402 projects, which includes 210 projects started in April 1994 for a period of four to five years. These are detailed below:

Year	Opening Balance	Projects		Closing Balance
		Undertaken	Completed	
1995-96	210	22	-	232
1996-97	232	-	18	214
1997-98	214	05	67	152
1998-99	152	14	52	114
1999-00	114	130	61	183
2000-01	183	21	05	199
Total		**192**	**203***	

** includes 23 projects terminated midway or had not even started*

The IARI did not maintain Research Project Files. Consequently, the system of approval/ review and evaluation of projects was deficient

Research Project Files (RPFs) for all the 402 projects were required to be maintained in three parts viz., for project proposals (RPF-I), annual progress (RPF-II) and final reports (RPF-III) for approval and periodical monitoring of research projects by Staff Research Council (SRC) and evaluation of final reports by Research Advisory Council (RAC). In response to Audit comments on improper maintenance of the RPFs made in paragraph 4.1.5 of the Report of the Comptroller and Auditor General of India (Scientific Departments) for the year ended 31 March 1995, the ICAR in its Action Taken Note in October 1996 had stated that the practice of the RPFs discontinued earlier had been

revived. However, out of 210 projects started in April 1994, project proposals in the RPF-I were not prepared for 99 projects. Similarly, the RPF-II were not maintained for 110 projects, while for the remaining 100 projects, these were maintained intermittently and not for all the years during 1994-2000. The RPF I&II were also not maintained for all the 192 projects undertaken during 1995-2001. Of the 180 completed projects, the RPF-III was available for 55 projects. Further, contrary to the ICAR's instructions, copies of all the RPFs were also not sent to the ICAR during 1995-2001for overall monitoring. Thus, negligence in proper documentation of the research projects was a major draw back which also contributed to deficiency in the system of approval/review and evaluation of projects. As a result, it was not clear how the ICAR satisfied itself that the individual projects were 'on course' and if not how the deficiencies could be detected and rectified. Some audit findings in this regard are discussed in subsequent paragraphs. ICAR stated in June 2001 that RPFs for the period 1994-99 onwards were about to be completed and some RPFs had been received by it from the IARI.

2.1.5.1.2 Non-approval of projects

402 projects were not approved by Board of Management/ Staff Research Council for implementation

In July 1994, the IARI had decided that all the 210 new projects were taken as approved from April 1994, subject to approval by its BOM, though it was also mandatory to obtain SRC's approval. However, even the approval of the BOM was not obtained as of July 2001. Further, for 88 projects, which were to be completed by March 1998 by various divisions of the IARI, like Agronomy, Microbiology, Agricultural Chemistry and Genetics, the SRC's approval for extension was not obtained although there were delays of one year to three years in their completion. 12 projects, undertaken in April 1994 for a period up to March 1998 by divisions like, Water Technology Centre, Post-harvest Technology, Economics, Agricultural Engineering, Floriculture & Land scaping and Bio-Chemistry were still continuing without the approval for extension and critical appraisal by the SRC. Apart from this, 192 projects undertaken during 1995-2001 were also not approved by the SRC.

ICAR stated (June 2001) that each RPF was being generally discussed by the Divisional Budget and Research Committee and approved by the Head of the Division and finally by the competent authority i.e. Joint Director (Research). The contention of ICAR is not correct, as all the RPFs should be approved/reviewed by SRC/RAC as per the byelaws of the ICAR.

23 projects treated as completed had not even started or were terminated midway

It was further observed that in 13 divisions like Agricultural Extension, Economics, Genetics, Vegetable Crops, Entomology, Agricultural Physics, Nuclear Research Laboratory (NRL) etc., 23 projects treated as completed, did not even start or were terminated mid-way.

ICAR stated (June 2001) that some of the projects had been closed for various reasons like sudden demise of the Principal Investigator, non-provision of funds, routine activities of the division etc.

2.1.5.1.3 Improper Review and Evaluation

381 projects implemented during 1995-2000 were due for annual review by the SRC. However, no review of annual progress of individual projects was carried out in the SRC meetings held during 1995-2001. Instead, significant achievements of each Division, as presented by the Head of the Division, were only discussed. Similarly, none of the 180 completed projects were evaluated individually by the RAC. Therefore, the Director IARI deviated from the procedure prescribed for approval, review and evaluation of research projects.

ICAR stated (June 2001) that it was not possible for IARI to discuss each research project in SRC meetings; therefore, the Head of the Divisions presented the significant achievements of each project to SRC and RAC. However, the reply is unacceptable since as already pointed out, in the absence of proper documentation, there was no way to determine the progress of each project. It is clear that critical assessment by experts was not carried out and consequently the project teams could not benefit from the advice and suggestions of SRC/RAC. In addition, a significant deficiency noticed was that SRC had met only three times against the mandate of 12 times during 1995-96 to 2000-2001.

2.1.5.1.4 Non-achievement of objectives

Non- achievement of objectives of 15 projects resulted in unfruitful expenditure of Rs 2.79 crore

20 out of 55 completed projects were test checked to assess how far the objectives of in- house projects were achieved. It showed that only in five projects the research results had been published/disseminated. They include (i) reducing or preventing post harvest and storage losses in commodities, (ii) modification of package of practices of storage of finished products to ensure no undesirable residues on the produce at the time of consumption, (iii) reducing the use of inorganic nitrogenous fertilizer and improvement in physico-chemical properties of soils, (iv) revolutionizing the cut flower industry of gladiolus, (v) development of methods for analysis of pesticides and their metabolites by the researchers and laboratories involved in quality control measures etc. However, in the remaining 15 projects, audit noticed non-completion of research activities in nine projects, non-marketing/patenting of technology developed in four projects and improper

planning of research activities in two projects. Consequently, the objectives of all the 15 projects were not achieved fully. Therefore, the estimated expenditure of Rs 2.79 crore of the projects was largely unfruitful (IARI did not estimate the expenditure in two projects). The details are given in the ***Annex-II***.

2.1.5.1.5 Non-implementation of recommendations

Test check of records of minutes of meetings of the SRC/RAC held during 1995-2000 revealed that:

(i) the concerned Divisions were not informed of the decisions and recommendations of the SRC/RAC for compliance.

(ii) the proceedings were required to be sent to the ICAR for approval and review by the Director General. This was, however, not done. Thus, the IARI kept ICAR in the dark about the quality of research done and internal deficiencies existing in the system of research done in IARI.

(iii) the decisions and recommendations made in one meeting were not submitted in the subsequent meetings for confirmation

2.1.5.2 AP Cess Fund Schemes

IARI undertook 81 research projects funded from Agricultural Produce (AP) Cess Fund during 1995-2001. Of these, 14 had been carried over from previous years. Of these 81 projects, the IARI could complete 40 projects incurring an expenditure of Rs 4.56 crore. 18 out of 40 completed projects costing Rs 1.55 crore were test checked. It was observed that in five projects, as detailed below, the objectives were not achieved fully.

Unfruitful Expenditure

(i) In one of the projects namely – production of molecular probes for detection of citrus ring-spot and mosaic virus (June 1996 to August 1999) implemented at a total cost of Rs14.64 lakh, it was observed that the results obtained in the project were not utilised for the development of bud wood certification against the ring-spot and mosaic virus. The progress report revealed that unless this was done, the protection programme for citrus improvement in the country would be a futile exercise.

ICAR stated (June 2001) that bud wood certification programme might be enforced by legislation/notification through Central or State governments in due course of time. But ICAR did not initiate any action either with the Centre or with State Governments.

(ii) In another project viz. Soil solarisation – a non-chemical approach for management of weeds implemented during November 1994 to April 1999 at a cost of Rs 7.93 lakh, it was observed that the recommendations of SRC in February 1997 that the work of soil solarisation should be re-examined, was not implemented. Further, as per the comments of the referee, study on the autoecology of the perennial weed was required to be undertaken in different temperatures in controlled temperature growth chambers to generate further information. This was also not carried out resulting in non-achievement of important objective of evaluation of effect of soil solarisation on the germination and viability of important weeds. Therefore, the expenditure of Rs 7.93 lakh remained unfruitful.

ICAR did not specifically reply to the point on non-conducting of studies in different temperatures in controlled temperature growth chambers.

(iii) In the project- Production of fruit based beverages at pilot plant scale, implemented during June 1994 to July 1997 at a cost of Rs 4.77 lakh, the final report revealed that the results obtained were erratic and needed further confirmation. No action was taken for further confirmation of results. Apart from this, one of the objectives, namely, microbiological observations could not be made for want of specific methodology. Therefore, the expenditure of Rs 4.77 lakh was unfruitful.

ICAR confirmed (June 2001) that the microbiological observations were erratic and needed further confirmation.

(iv) On the project-Sulphur nutrition of oil seed crops and computation of its balance sheet, an expenditure of Rs 7.11 lakh was incurred during December 1995 to November 1998. Scrutiny of the project revealed that evaluation of different forms of sulphur in soil of different ecological zones and to develop a fractionation scheme which was one of the objectives was not achieved due to non-conducting of study.

ICAR accepted (June 2001) that the attempts made to develop a fractionation procedure were not successful.

(v) Scrutiny of the project- Investigations on the impact of cropping system on the recurrence of major wheat diseases with special reference to Karnal bunt implemented during January 1994 to January 1997 at a cost of Rs 4.39 lakh revealed that biological research to develop markers for quick detection of pathotypes and bench mark surveys of soil borne diseases to see the effect based cropping system on the recurrence of minor pathogenes, as suggested in the final report were not undertaken. ICAR stated in June 2001 that biological control of Karnal bunt and evaluation of germplasm was in progress and added that work on the pest risk analysis would be undertaken in the near future.

Thus, the expenditure of Rs 38.84 lakh incurred on these five projects remained unfruitful. It was further observed that none of the five projects mentioned above, was ever evaluated by the ICAR and acceptance of final report communicated to the IARI.

2.1.5.3 Sponsored projects

The IARI undertook 87 research projects sponsored by other Government departments during 1995-2001, which included 25 projects carried over from previous years. Only 40 projects were completed. The following points emerged during a test check of records:

Excess expenditure

IARI did not take any action to recover the excess expenditure of Rs 75.12 lakh in sponsored schemes

Excess expenditure incurred on sponsored schemes and non-reimbursement thereof from the sponsoring agencies had been commented upon in paragraph 4.1 of the Report of Comptroller and Auditor General of India (Scientific Departments) for the year ended 31 March 1995. The ICAR in its Action Taken Note in October 1996 had stated that the funding agencies had been requested to expedite the remittance of funds. Scrutiny of records revealed that the IARI continued to incur excess expenditure to the tune of Rs 75.12 lakh as of March 2001. Of this, Rs 48.44 lakh remained unreimbursed for a period of more than three years.

ICAR stated in June 2001 that the final figure of excess expenditure would be known only after the issue of audit utilisation certificate and added that wherever excess expenditure was made, sponsoring agencies were requested to remit the dues. However, no action was taken to obtain audit certificates for more than three years. This indicates lack of an effective system for timely settlement of accounts and issue of utilisation certificates.

2.1.5.4 Externally Aided Projects

During 1995-2001, the IARI implemented 74 projects funded by International Organisations like World Bank and United Nations Development Programme (UNDP), which included 15 carried over from the previous years. It completed 17 projects at a total outlay of Rs 23.34 crore. Test check of seven projects with an expenditure of Rs 17.89 crore revealed following audit comments:

2.1.5.4.1 Under-utilisation of National Phytotron Facility

The National Phytotron Facility established at a cost of Rs 10.55 crore was not utilised effectively

With the assistance of UNDP, National Phytotron Facility, meant to provide controlled environment for study of response of plants to climatic conditions, was established at the IARI in December 1998 at a total cost of Rs 10.55 crore. The facility, which started functioning from January 1999 had 22 Plant Growth Chambers and 10 Green Houses (Glass Houses) to carry out research. Audit scrutiny revealed that all the 22 plant growth chambers remained unused intermittently for periods ranging from 10 days to 342 days, while all the glasshouses remained non-functional for the periods ranging from four days to 537 days, during January 1999 to June 2000. The facility had been utilised only by the scientists of the IARI although it was meant for all the Institutes of the ICAR, State Agricultural Universities and other agencies engaged in agricultural research. Thus, the facility established at a cost of Rs 10.55 crore remained under-utilised.

ICAR stated (June 2001) that this was a new avenue in agricultural research and most of the ongoing projects had no inputs for its exploitation and added that a number of efforts had been made to promote the use of National Phytotron Facility among the institutions other than IARI. The reply is not acceptable since it indicates that the ICAR and IARI had not planned adequately for optimum utilisation for the phytotron facility on which Rs 10.55 crore had been invested.

2.1.5.4.2 Unproductive expenditure

Under World Bank aided National Agricultural Research Project (NARP), Water Technology Centre (WTC) of the IARI, imported three plant growth chambers from Canada, along with accessories in May 1995 at a total cost of Rs 28.14 lakh. WTC imported one more growth chamber in March 1997 at a cost of Rs 14.12 lakh. Due to delay in getting the required power supply, IARI could install the growth chambers only in December 1998.

Non-functioning of 10 plant growth chambers resulted in un-productive expenditure of Rs 61.76 lakh

Further, scrutiny of the logbooks of these chambers revealed that three growth chambers were utilised only for 13 experiments from December 1998 to March 2000. The WTC did not produce logbook of the other growth chamber. The 13 experiments carried out in the chambers were subsequently shifted to National Phytotron Facility (NPF) midway in March 2000 due to failure of all the growth chambers for technical reasons. Thereafter, all the four chambers remained non-functional and no action was taken to repair them.

Similarly, National Research Centre (NRC) on Plant Bio-technology procured nine growth chambers costing Rs 29.25 lakh between 1990 and 1995 for research and teaching. Of these, six chambers remained non-functional since 1995 onward due to technical problems. The IARI did not take any action for their repair. Thus, the entire expenditure of Rs 61.76 lakh incurred for the 10 growth chambers was largely unproductive.

ICAR stated in June 2001 that the chambers had already been used for studies, which did not succeed for more than 25 years. The reply is not acceptable because the chambers installed in December 1998 were under operation only for four months from December 1999 to March 2000 during which period experiments were shifted due to technical faults in the growth chambers. Regarding non-functioning of six growth chambers procured by NRC on Plant Biotechnology, ICAR stated that due to some technical problems the repair could not be done and scientists managed their work with the remaining functional growth chambers. However, the reply was silent about rectification of technical faults of growth chambers at WTC.

2.1.5.4.3 Unauthorised expenditure

IARI incurred unauthorised expenditure of Rs 20.10 lakh on other projects

Under the assistance of European Economic Community, Nuclear Research Laboratory (NRL) of the IARI implemented a project namely "Research on the fine structure of cotton fibres, on factors that determine this structure and on the significance of this structure for the technological value of the fibres" at a total cost of Rs 37.56 lakh, during January 1994 to September 1997. Contrary to the instructions of the ICAR that no equipment should be purchased after the completion of the project, NRL purchased 21 equipments costing Rs 9.03 lakh and a computer with accessories worth Rs 8.34 lakh during November 1997 to May 1999 after the completion of the project in September 1997. Further, it also incurred an expenditure of Rs 2.73 lakh on items not related to the project. IARI had disregarded the instructions given by the ICAR and the entire expenditure of Rs 20.10 lakh was therefore unauthorised.

The Director, IARI stated in September 2000 that majority of the equipments purchased after September 1997 were for research projects namely 'Structure property studies on fibres of naturally coloured cotton fibres and on the role of moisture hysteresis in screening cereal and other crops for rainfed cultivation', and meeting specific requirements of NRL in general and some scientists in particular. The reply is not tenable since the IARI had violated ICAR instructions that no expenditure should be incurred on completed projects.

2.1.6 Monitoring of research and other activities

Research and other activities of the IARI were not monitored

The non-functioning of the Research Council had been highlighted in the Report of the Comptroller and Auditor General of India (Scientific Departments) for the year ended 31 March 1995. The ICAR, in its Action Taken Note in October 1996, had stated that the Research Advisory Council (RAC) and Staff Research Council (SRC) had been constituted and were meeting periodically as prescribed. However, these bodies and Board of Management (BOM), Extension Council and Executive Council did not meet during 1995-2001 according to the norms fixed for their meetings.

The details of the meetings and the reasons for shortfall as stated by the IARI in May 2000/August 2001 are given below:

Name of Body	Number of meetings		Shortfall	Reasons for shortfall given by the IARI
	Required to be held	Actually held		
BOM	24	9	15	ICAR did not constitute BOM in time.
RAC	6	3	3	Non-availability of Chairman.
SRC	12	3	9	Subject matter specialists were not nominated by the ICAR
Extension Council	24	1	23	Due to non-compilation of project reports of technology transfer etc.
Executive Council	24	NIL	24	Policy matters had been discussed in the senior level officer meetings instead of Executive Council meeting.

Thus, the monitoring of Research and other activities of the IARI was not carried out at various levels as required. Consequently, the institutional arrangements for selection, review and evaluation of research projects and other functions in the IARI did not work effectively.

ICAR had constituted a Quinquennial Review Team (QRT) in November 1997 to review the activities of the IARI for the period 1990-97. But the Team was yet to commence the review. ICAR stated (June 2001) that information was being collected to update the status report and that the QRT would start reviewing the activities very soon.

2.1.7 Seed Science and Technology

Development and release of high yielding varieties of seeds for major crops is a priority of IARI. Examination of the IARI's activities in this regard revealed the following shortcomings :

2.1.7.1 Lack of demand for released varieties

During 1995-2001, the IARI released 44 seed varieties of major crops like wheat (14), paddy (1), maize (8), pearl millets (5), forage sorghum (2) and vegetable crops (14).

Breeder seed for varieties released by the IARI were not produced, indicating lack of demand from the farmers

The IARI, however, produced 594.2 quintals of breeder seed[∞] only for two varieties of wheat namely HD-2643 and HW-2004 during 1995-2000. IARI did not furnish details of breeder seed produced during 2000-2001. It did not receive indents for production of breeder seed of the other varieties from the Ministry of Agriculture. This indicated lack of demand of the varieties. The IARI had also not devised any feed back system to ascertain whether its released varieties were well accepted by farming community.

ICAR stated (June 2001) that 594.2 quintals breeder seed of wheat varieties HD 2643 and HW 2004 were produced during 1995-2000. Further, 5.1 quintals of Paddy against the demand of 2.8 quintals, 8 quintals of two varieties of maize and 5010 quintals of two varieties of forage sorghum were produced during 1999-2001 and that the breeder seed production for other varieties were being undertaken during 2000-2001. However, the reply of IARI was silent about the production of breeder seed of other varieties.

2.1.7.2 Non-release of varieties

IARI did not take remedial action to release the varieties developed and identified for release

The yield and disease resistance of seven varieties of wheat namely, HS-361, HS-364, HS-375, HS 396, HW-2043, HW-2045 and HW-2028 developed during 1995-2000, was found to be comparatively poor during field trials. Another variety HS-295 was not recommended for release by the Central Sub-

[∞] Breeder seed is the first stage of seed multiplication system and is produced from the nucleus seed obtained from breeders or developed by the seed producing agencies under the direct supervision of experts.

Committee on crop standards, notification and release of varieties in May 1991. The IARI did not take any further action to improve the strains and to release them.

The IARI also did not make efforts to analyse the reasons and overcome the problems faced during trials of the following varieties:

IARI did not analyse the reasons for the poor performance of varieties of crops

Name of crop	Name of varieties	Remarks
Paddy	Pusa-588-13-1-1	Dropped on account of inconsistent performance in the coordinated trial during 1995-97.
	Pusa-1107-23-102	It was not considered for release on account of lack of consistency in performance.
	Pusa-743	Dropped on account of poor grain quality.
Pearl Millets	Pusa-325 (Hybrid)	The yield of this hybrid was lower than the qualifying variety MH-518. It was thus not considered for release though the yield of hybrid was superior than the National check.

ICAR stated in June 2001 that breeding new strains and their testing for yield and resistance to disease was a continuous process. It also added that the varieties could not be released for various reasons. ICAR did not provide the reasons for poor performance during the field trials and action taken to improve the strains. Further, the statement of ICAR that the variety HS295 had been released in the year 1990 is not correct as the same variety was rejected for release by the Central Sub-Committee on crop standards, notification and release of varieties in May 1991.

The total quantity of breeder seed lying in stock as of March 2000 was 651 quintals (costing Rs 16.80 lakh) in 12 varieties of cereals and pulses, which were produced between 1994 and 2000. However, the IARI did not take any action for the disposal of the seeds remained in stock. IARI did not furnish the stock as of March 2001.

ICAR stated (June 2001) that the Ministry of Agriculture had been addressed to get the breeder seed lifted by the concerned state governments.

2.1.7.3 Non-achievement of targets of Central Seed Testing Laboratory

The target and objectives of Central Seed Testing Laboratory were not achieved

Central Seed Testing Laboratory (CSTL) had been strengthened to increase its capability to test 25,000 seed samples annually. However, it tested samples ranging from 7000 to 8000 per year during 1995-2001, which was below 50 *per cent* of the targeted samples. CSTL was also required to conduct purity and germination test for five percent of the total samples of seeds tested by

State Seed Testing laboratories (SSTLs). However, without ascertaining the total number of samples tested by SSTLs annually, CSTL received samples ranging from 4000 to 10,000 per annum from less than 45 out of 90 SSTLs during 1995-2001. Market survey to ensure sale of quality seed, which was one of the objectives of CSTL, was also not conducted during 1995-2001.

ICAR stated in June 2001 that in future all the SSTLs would be asked to send information about the total number of samples tested by them annually. ICAR also stated that a market survey had been conducted in respect of vegetable seeds.

2.1.8 Extension, Technology assessment, Patenting and Transfer

Providing leadership in agricultural extension, technology assessment and transfer is one of the objectives of the IARI. Test check of projects revealed the following deficiencies.

2.1.8.1 Ineffective functioning of Centre for Advanced Studies

In order to improve the quality of manpower in the field of agriculture extension through training, teaching and research activities, extension division of the IARI operated a scheme "Centre for Advanced Studies (CAS)" for agricultural scientists of the ICAR institutes, State Agricultural Universities (SAUs) and State Agriculture Departments.

As per the ICAR guidelines, training courses were to be conducted for 30 participants for 10/21/30 days. The details of training courses conducted by the IARI during 1995-99 are as follows:

IARI did not conduct trainings effectively to improve the quality of manpower

Sl. No.	Duration of Training	Number of	
		Days	Participants
1.	27.10.95 to10.11.95	15	24
2.	26.3.96 to 10.4.96	16	14
3.	24.10.96 to 7.11.96	15	20
4.	7.12.96 to 31.12.96	25	16
5.	4.3.97 to 15.3.97	12	17
6.	6.1.98 to 17.1.98	12	16
7.	18.2.98 to 28.2.98	11	8
8.	18.1.99 to 30.1.99	13	16

In none of the courses did the required number of 30 trainees participate. The duration of the courses was also not as per the guidelines of the ICAR. Consequently, the IARI incurred only Rs 33.38 lakh out of Rs 57.08 lakh

allocated during 1994-99 for this purpose. The IARI had also not devised any feed back system to ascertain the impact of the training.

The reply of ICAR (June 2001) that participants not exceeding 20 were found ideal was contradictory to its own guidelines, which felt that 30 participants were necessary for the training.

2.1.8.2 Non-Patenting of technology

In accordance with instructions of the ICAR, technology developed and know-how generated by its institutes should be patented. However, 22 technologies developed by eight divisions of the IARI during 1995-2000 were not patented. IARI stated that action on the patent applications would be taken by ICAR. ICAR had no further comments to offer (June 2001).

2.1.8.3 Transfer of technology without patenting

Division of Plant Pathology transferred a technology "Bioformulations Kalisena SD and Kalisena SL" to M/s Cadila Pharmaceuticals Ltd., Ahmedabad without patenting the technology. Against the premia of Rs 10 lakh, the IARI could realise Rs 5.00 lakh as the firm did not make the payment of balance amount. The IARI could also not collect 2.5 *per cent* royalty as of June 2001.

ICAR stated in June 2001 that out of two formulations one was still under test, which may be the reason for balance Rs 5 lakh not being paid and only recently had one product been launched. It further stated that an application was submitted by IARI for patenting the bioformulations. Transferring technologies to commercial firms without patenting them indicates the failure of ICAR to protect its intellectual property rights and its own interests.

2.1.8.4 Non-commercialisation of technology and non-rendering of consultancy services

IARI did not take action either to commercialise its technologies or to render consultancy services

Board of Management and Research Advisory Council of the IARI had approved in May 1997 the commercialisation of products, technologies, services and training with money value upto Rs 70 lakh so as to provide competitive ability as well as economic advantage for sustaining and enlarging the research efforts. However, the IARI did not take any action either to commercialise the technologies or to render consultancy services which was evident from the reply of the Divisions of the IARI as detailed below:

(a) Division of Nematology stated that biocontrol agents (value Rs 2000) identified was used for experimental work and their commercialisation had not

been made so far. Division of Entomology also stated that biocontrol agents were used in research studies both in the laboratory as well as in the fields and no sale was made during 1995-2000.

(b) Division of Soil science and Agricultural chemistry stated that the division had not produced or sold any soil test kit (value Rs 1500) during last three decades. A model was developed during the sixties and it was manufactured by a firm at Hyderabad at that time and since then there had not been any attempt in this direction.

(c) Division of Agricultural chemicals stated that whenever requests for analysis of the samples had been received, those samples had been analysed.

The reply of ICAR (June 2001) that the technologies were brought to the notice of entrepreneurs, published through a book entitled "A Handbook on commercialisation of research products and services" is not tenable in audit as no effective measures were taken to commercialise the technologies.

2.1.8.5 Publication of research papers

The terms and conditions of the schedule governing the Grant-in-aid from the ICAR stipulate that the results of the investigations and research, unless specifically approved by the Director General ICAR, should be first published in ICAR journals.

Test check revealed that 10 Divisions of the IARI did not follow these instructions and without the approval of Director General of the ICAR, published research papers in other scientific journals before these were published in the ICAR journals.

Accepting the facts, the IARI stated in November 2000 that the scientists were not aware of the procedure and that in future correct procedure would be followed. Further, publication of papers in top referred journals is one of the key indicators identified by ICAR to evaluate the performance of the Institute. However, in these 10 Divisions, it was noticed that 1138 research papers were published by the scientists whose number ranged from 208 to 215 during 1995-2000. Thus, the average contribution of scientific publications by each scientist per annum was only 1.07 in these 10 Divisions.

ICAR in June 2001 stated that since the publication of papers had been liberalized, scientists could send the papers for publication even without the approval of Head/Director if the same was not reviewed in 15 days time and that the research work was published in National and International journals as per procedure.

2.1.9 Educational Activities

In order to serve as a centre for academic excellence in the area of postgraduate education and human resources development in agricultural sciences, the IARI was conferred the status of a Deemed University in 1958. It awards M.Sc. and Ph.D. degrees in 20 different disciplines. Test check of this aspect revealed the following shortcomings:

2.1.9.1 Postgraduate education

The details of number of faculty members, students admitted and awarded M.Sc. and Ph.D. degrees in the IARI during 1995-2001 are given below :

As compared to the faculty, the number of students admitted and awarded postgraduate degrees was very small

Year	No. of faculty members	Number of students admitted			Number of students awarded degree		
		M.Sc.	Ph.D.	Total	M.Sc.	Ph.D.	Total
1995-96	491	72	115	187	34	118	152
1996-97	527	69	118	187	27	96	123
1997-98	548	81	127	208	27	96	123
1998-99	511	78	115	193	71	96	167
1999-00	508	78	97	169	61	81	142
2000-01	508	67	103	170	65	99	164

The number of faculty members ranged from 491 to 548 during 1995-96 to 2000-01. However, the number of students admitted and awarded degrees was continuously decreasing except in 1997-98. The highest number of students admitted was 208 in 1997-98. Further, the strength of the faculty members was extraordinarily high in relation to the number of students admitted. On an average, over the period 1995-96 to 2000-01, the strength of faculty members were three times the strength of students.

IARI did not furnish information regarding the number of students who left in the middle of the course. IARI stated in August 2001 that the information regarding students who left midway would be furnished in due course. It further stated that no provision was available to prevent the students leaving midway or to take action against them. However, steps need to be taken to discourage students leaving courses midway since the expenditure incurred for each student of M.Sc. and Ph.D. was about Rs 0.44 lakh and Rs 0.63 lakh respectively per annum.

All these facts point out that the objective of IARI as a centre for academic excellence in post-graduate education and human resource development in

Agricultural Sciences could not be achieved in full despite the fact that strength of faculty members during 1995-2001 was three times the number of students admitted for different courses.

2.1.9.2 Scheme of National Professor/National Fellow

To recognise outstanding and eminent scientists and to develop strong centres of research and education around them in the field of agriculture and allied sciences, the ICAR had financed four schemes of National Professor and five schemes of National Fellow to the IARI at a total outlay of Rs 4.10 crore and 1.54 crore respectively during 1995-2001. Scrutiny of records of six schemes (four of National Professor and two of National Fellow) revealed the following facts:

Progress report and expenditure statement were not submitted

(i) Each awardee of the scheme was required to submit annual progress report alongwith the progress of expenditure to the ICAR at the end of December each year. In one scheme namely, 'Drought tolerance mechanism in crops', awarded to Dr. S.K. Sinha for implementation during January 1995 to July 1999 completed at a total cost of Rs 1.08 crore, neither the progress report nor expenditure statement was submitted. Contrary to the condition that each scheme should be reviewed by a Committee to be set up by the ICAR, the said scheme, was not reviewed by the ICAR after its completion.

The reply of ICAR was silent about the review of the project by a committee.

ICAR released Rs 11.50 lakh two times resulting in excess release of Rs 11.50 lakh

(ii) In the project 'Monocarpic senescence, in relation to sink size and draught', the ICAR inadvertently released Rs 11.50 lakh for equipment, twice in 1995-96 and in 1996-97, resulting in excess release of Rs 11.50 lakh. The IARI, instead of refunding the excess amount, spent Rs 4.66 lakh and refunded only Rs 6.84 lakh to the ICAR, after a lapse of four years in March 2000. This excess expenditure of Rs 4.66 lakh was not regularised by the ICAR.

The reply of ICAR (June 2001) that the amount was refunded to ICAR and no expenditure was met out of this amount is not tenable since as per records out of Rs 11.50 lakh, only Rs 6.84 lakh was refunded to ICAR and the balance of Rs 4.66 lakh was spent which was not got regularized.

2.1.10 Works and Estate management

A sum of Rs 22.57 crore was outstanding as of March 2001 against the deposits made by the IARI with Central Public Works Department (CPWD) for execution of various works from time to time. Of this, advances of Rs 10.59 crore for 462 items of works were outstanding for three to 15 years.

ICAR stated (June 2001) that so far Rs 1.90 crore had been adjusted and that the matter had been brought to the notice of Chief Engineer CPWD for adjustment. However, the fact remained that advances of Rs 2.08 crore for 157 items of works remained outstanding for more than a decade. Major works like construction of 10 glasshouses, National Phytotron Facility, Lal Bahadur Shastri Centre for Advanced Research in Biotechnology and Crop Protection and their maintenance were test checked and comments are detailed in the succeeding paragraphs.

2.1.10.1 Non-construction of Glasshouse Complex

Glass House Complex to be completed by September 1989 was not yet completed as of December 2000 even after an expenditure of Rs 1.14 crore

Non-completion of construction of glasshouses due to delay and inadequate budget provisions for electrical requirements was brought out in Paragraph 4.1.9 of the Report of the Comptroller and Auditor General of India (Scientific Departments) for the year ended March 1995. The ICAR in its Action Taken Note in October 1996 had stated that two glasshouses had been handed over in November 1995. However, out of 10 glasshouses to be completed by September 1989 at a cost of Rs 98.58 lakh, the IARI took over only five glasshouses (between November 1995 and July 1999) without adequate electrical and water supply, which resulted in non-utilisation of the facility for research activities as of December 2000. All the 10 glasshouses including five under construction were damaged due to inadequate maintenance. Materials and fittings for water, electricity and air conditioners of the glasshouses were found missing and some were in unserviceable condition. The IARI had incurred Rs 15.27 lakh during the year 1998-99 for replacing the missing items. Further, 24 air conditioners, 48 stabilizers from two out of five glasshouses which were not completed, were taken over by the Glasshouse Committee in June 1996. The Committee obtained an undertaking from CPWD that the demonstration of the glasshouses would be done as soon as power supply was restored. No further progress was made for the demonstration of the glasshouses even after lapse of five years. Thus, even after a lapse of more than a decade (from 1989) and after incurring an expenditure of Rs 1.14 crore, the purpose of construction of glasshouses remained unachieved to a large extent.

ICAR, while confirming the facts stated (June 2001) that CPWD had partly handed over the glasshouses. However, the fact remained that the glasshouse complex has not been fully completed. Further, the reply was silent about the status of air conditioners and stabilizers which were taken over by the Glasshouse Committee in June 1996.

2.1.10.2 Excess payment to a construction agency

IARI did not recover Rs 11.35 lakh from a construction agency, although construction was completed in December 1998

The construction of National Phytotron Facility (NPF) was awarded to M/s National Projects Construction Company (NPCC) in May 1994. The IARI deposited Rs 4.54 crore with NPCC during September 1994 to April 1998. There was an unspent balance of Rs 11.35 lakh with NPCC, which was not refunded to the IARI although the construction was completed in December 1998. The advice of Chief Finance and Accounts Officer (CFAO) of the IARI that the amount of Rs 11.35 lakh was a saving to the project and therefore, should be refunded to the ICAR, was over-ruled by the Director, IARI. Rs 4.48 lakh out of Rs 11.35 lakh was adjusted towards the maintenance charges of National Phytotron Facility for the months of March 2000 to June 2000 without the approval of the ICAR. In reply to audit, the IARI stated in July 2000 that NPCC had been asked to refund the excess amount of Rs 11.35 lakh.

ICAR stated (June 2001) that in future, plan funds would not be appropriated for non-plan works. However, it did not mention the action taken for the recovery of Rs 11.35 lakh from NPCC.

2.1.10.3 Excess payment of electricity charges

IARI did not adjust excess payment of electricity charges of Rs 27.07 lakh

Prior to installation of electric meter, Delhi Vidyut Board (DVB) charged at the flat rate of 2 lakh units per month for the electricity consumed by National Phytotron Facility. Accordingly, a sum of Rs 34.07 lakh was paid to DVB towards electricity charges during February 1999 to May 1999 subject to final adjustment after installation of energy meter and on actual load consumption basis. The energy meter was installed on 1 May 1999 and the average consumption per month ascertained was 50,000 units. Accordingly, the electricity charges for four months from February 1999 to May 1999 worked out to Rs 7 lakh. The excess amount of Rs 27.07 lakh paid to DVB, which was to be adjusted against the future consumption of electricity, was not adjusted as of July 2000.

ICAR stated in June 2001 that the matter was being pursued with DVB.

2.1.10.4 Non-upgradation of temporary electricity load of 500 KW

IARI incurred excess expenditure of Rs 3.67 crore towards electricity charges

Non-upgradation of temporary electricity load of 500 KW to the sanctioned load of 1494.76 KW in the Lal Bahadur Shastri Centre for Advanced Research in Biotechnology and Crop Protection was commented upon in paragraph 4.1.9 of the Report of the Comptroller and Auditor General of India (Scientific Departments) for the year ended March 1995. The ICAR, in its Action Taken

Note in October 1996, had stated that full load and permanent connection could be issued only when the building completion certificate was submitted and that the IARI was approaching Municipal Corporation of Delhi (MCD) for this purpose. However, scrutiny of records revealed that the IARI continued to incur Rs 5.50 crore towards electricity charges for the same building during 1995-2000 on the basis of sanctioned load of 1494.76 KW without upgrading the temporary load of 500 KW. The IARI had still not obtained the completion certificate from MCD. Consequently, the IARI had to incur an avoidable expenditure of Rs 3.67 crore, being the excess expenditure incurred on the basis of 1494.76 KW against the utilisation of 500 KW. The IARI stated in September 2000 that it was not making excess payment to Delhi Electricity Supply Undertaking (DESU). The reply is not tenable as the Director General, ICAR had already brought to the notice of Municipal Commissioner, MCD in June 1996 the excess payment being made to DESU.

ICAR stated (June 2001) that as per the information of CPWD in December 2000, Delhi Vidyut Board (DVB) had already released the permanent connection in anticipation of building completion certificate and presently electric bills were being received for permanent load. However, ICAR did not specify the date from which temporary load had been upgraded. It is also evident that the matter of obtaining the permanent connection had been inordinately delayed.

2.1.11 Manpower

Staff position of the IARI during 1995-2001 is given below:

Year	Scientific		Technical		Administrative		Supporting	
	SS	MP	SS	MP	SS	MP	SS	MP
1995-96	720	697	994	891	710	654	2359	2275
1996-97	720	663	1146	1008	714	665	2359	2132
1997-98	720	660	1089	1004	647	602	2359	2014
1998-99	710	633	1080	953	687	653	2241	2089
1999-00	654	547	1080	947	689	661	2241	2031
2000-01	709	565	1029	922	663	630	2135	1912

SS – *Sanctioned strength* **MP** – *Men in position*

2.1.11.1 Excess strength

Men-in-position was not in accordance with the ratio specified by the ICAR

According to the ICAR, the ratio of staff strength to be maintained among scientific, technical, administrative and supporting staff was 1:1.5:0.5:2. In administrative staff, the excess sanctioned posts ranged from 287 to 362 while the excess staff in position ranged from 242 to 334. Consequently, the IARI incurred excess expenditure ranging from Rs 1.57 crore to Rs 2.16 crore per annum approximately on salary (worked out by taking into account minimum basic pay of a clerk). Similarly, an excess expenditure of Rs 3.13 crore to Rs 4.56 crore per annum approximately had been incurred for the excess supporting staff ranging from 574 to 835 during 1995-2001.

Accepting the comments on administrative staff, ICAR stated (June 2001) that all efforts were being made to reduce the administrative strength. It further stated that supporting staff were also posted to various hostels/units where the scientists carry out no research activities. This indicated the inability of ICAR for proper utilisation of the manpower.

2.1.11.2 Under-utilisation of scientific manpower

In six divisions, there was time lag of one year to three years between completion of old projects and start of new projects as detailed in the table below:

In six divisions, scientists ranging from 12 to 27 did not have in-house projects for a period from one year to three years

Sl. No.	Name of Division	Date of		Period spent without Projects	Number of Scientists involved
		Completion of old Projects	Starting New Projects		
1.	NRL	March 1998	April 1999	12 months	27
2.	Floriculture and land scalping	-do-	-do	-do-	12
3.	Fruits and Horticultural Technology	-do-	-do-	-do-	24
4.	Nemotology	-do-	-do-	-do-	27
5.	Extension	March 1997	-do-	24 months	23
6.	Economics	March 1997	Not started so far.	36 months upto March 2000.	16

As seen from the above, due to delay in taking up of new projects, 129 scientists of six divisions were not engaged on any in house project for periods ranging from one year to three years. The idle manpower had resulted in an unproductive expenditure of Rs 92.74 lakh.

ICAR stated (June 2001) that the scientists were engaged in the research projects and the projects were completed in March 1999. However, IARI had already furnished the information that the projects were completed in March 1997/ March 1998.

2.1.12 Accounts

2.1.12.1 Outstanding advances

Advances of Rs 24.89 lakh paid to officials for TA, LTC etc, Rs 22.06 lakh to government organizations and Rs 3.78 crore to other departments were pending for adjustment

Advances amounting to Rs 24.89 lakh paid to officials for TA, LTC and contingencies and Rs 22.06 lakh to Government organisations like Department of Audio Visual and Publicity (DAVP), Director General of Supply and Disposals (DGS&D), Central Printing and Stationery (CPS) and Rs 3.78 crore to other departments like Delhi Vidyut Board, Uttar Pradesh Rajya Nirman Nigam, National Building Construction Corporation etc. for purchase of stores construction etc. were outstanding for adjustment up to March 2001. Of this, Rs 17.55 lakh representing contingent advances was more than five years old, Rs 14.38 lakh accumulated from 1968-69 to 1992-93 against DGS&D and Rs 6.25 lakh from 1968-69 to 1982-83 against CPS and Rs 3.78 crore from 1966-67 to 2000-2001 against other departments.

ICAR stated in June 2001 that Rs 32 lakh remained outstanding on account of Department and personal advances; Rs 362.12 lakh against other Departments and that efforts were being made to clear the outstanding. This indicates lack of an effective system to recover outstanding dues from the pay bills of its own employees.

2.1.12.2 Non-reconciliation

Bank reconciliation was in arrears

IARI had four bank accounts and had formed a cell in January 1996 to ensure speedy reconciliation. The cell had completed bank reconciliation only up to September 1998, February 1999, March 1999 and May 1999 in the four bank accounts respectively. However, detailed scrutiny of these accounts revealed that cheques amounting to Rs 3.17 crore remained uncashed. Of these, in one bank account, uncashed cheques up to March 1979 amounting to Rs 7.87 lakh had not been cleared. Time barred cheques had not been cancelled and credited in the cash book. Rs 4.22 crore credited by the bank was not taken into cash book. Further, Rs 1.14 crore debited by bank was not taken into cash book. A sum of Rs 3.72 crore remained unrealised by the bank although it was accounted for in the cash book. Some of the transactions are pending for

more than two decades. The IARI replied in May 2000 that the bank reconciliation could not be done up to date for want of sufficient staff. The reply is not tenable as there was excess administrative staff ranging from 242 to 334 during 1995-2001. Further, these irregularities continued to persist inspite of the ICAR 's assurance in Action Taken Note on paragraph 4.1 of Report of the Comptroller and Auditor General of India (Scientific Departments) for the year ended March 1995, in October 1996 that all out efforts would be made to settle the old outstanding debits and credits.

ICAR stated in June 2001 that all efforts were being made to reconcile the accounts.

2.1.13 Management of stores and purchase

2.1.13.1 Irregular Purchase

IARI purchased various equipments costing Rs 69.23 lakh without inviting open tenders though the value of individual item exceeded Rs 2 lakh

IARI incurred an expenditure of Rs 1.30 crore during 1995-2000 for purchase of various equipments. Paragraph 8.1.4 of the Report of the Comptroller and Auditor General of India (Scientific Departments) for the year ended March 1997 had highlighted cases of purchases made without inviting open tenders. In 13 divisions test checked, 6 divisions like Agronomy, Plant Pathology, Plant Physiology, etc. purchased 15 items of equipment costing Rs 69.23 lakh without inviting open tenders, though the value of the individual item exceeded Rs 2 lakh. Further, the divisions did not maintain register of tenders despite instructions to maintain such records issued by the ICAR from time to time.

ICAR stated (June 2001) that the purchases were made after receipt of guidelines from Department of Personnel and Training that open tenders may be invited if the cost of the item exceeds Rs 2 lakh. However, open tenders were not invited even for items costing more than Rs 2 lakh. Further, the reply was silent about the regularization of such purchases by the competent authority.

2.1.13.2 Non-maintenance of assets register

As of March 2001, the IARI had assets like land and buildings, equipment, vehicles etc. worth Rs 97.08 crore. However, the IARI did not maintain asset register in form General Financial Rules-19 to depict the assets and their value despite instructions of the ICAR.

ICAR stated in June 2001 that efforts were being taken to maintain the assets register.

2.1.13.3 Non-conducting of physical verification

IARI did not conduct physical verification of stores regularly

IARI acquired equipment and stores worth Rs 4.05 crore during 1995-2001. Ten out of the 19 Divisions and two out of five Multi-Disciplinary Centres did not conduct physical verification of stores for 1999-2001 despite the instructions of the ICAR that physical verification should be conducted annually. Farm operation and service unit and Division of Fruits and Horticulture Technology did not conduct physical verification of stores from 1992 and 1995 respectively. The IARI did not furnish information about nine other divisions and three multidisciplinary centres.

While stating that the physical verification reports including regional stations of IARI would be submitted in the first week of April 2001, ICAR, in its reply in June 2001 did not indicate further developments after April 2001.

2.1.14 Library Services

Non-achievement of objectives

Agricultural Research Information System was not used for exchanging information among the ICAR Institutes etc.

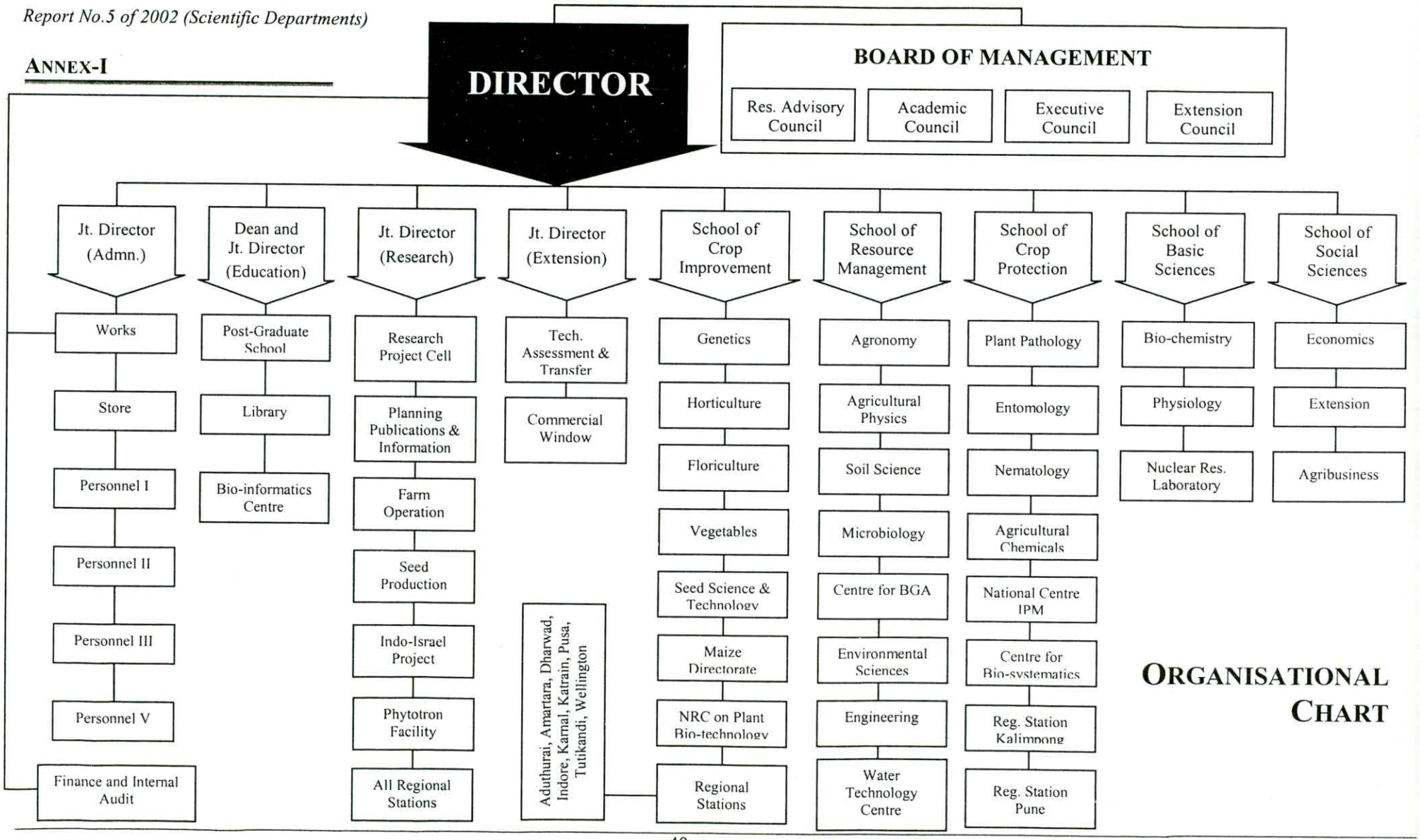
IARI library was equipped with Agricultural Research Information System (ARIS) for strengthening information management among the ICAR Institutes and State Agricultural Universities (SAUs) etc. The IARI incurred Rs 1.69 crore during 1995-2001 for developing data bases and providing linkage for collecting, updating and exchanging all information relating to agriculture. However, the facilities were not inter-connected with other Institutes of the ICAR /SAUs. Further, no software was developed. Thus, the major objective of establishing ARIS was not fulfilled.

IARI stated in August 2001 that inter institutional net work connectivity has not been established as the work would involve considerable expenditure as licence fees. The reply underscores the fact that while planning the scheme, the aspect of payment of licence fees was not analysed, which ultimately resulted in non-achievement of the objectives of ARIS.

Physical verification of library was last conducted in the year 1990. IARI stated in August 2001 that action was being taken to conduct physical verification.

The reply is indicative of the fact that the scientist of IARI were indulged in self projection rather than publishing the research results in ICAR journals. It also indicated lack of overall control and supervision by IARI and ICAR over their scientists.

ANNEX-I



ORGANISATIONAL CHART

ANNEX-II

Sl. No	Name of Project, Periodicity and Estimated cost	Objectives	Practical Utility	Audit Comments
1	Role of Extension Personnel in various Rural Development Programmes in selected states of India (April 1994 to March 1995) Rs. NIL	To study the role expectation, role performance, training needs and degree of involvement of extension personnel, study of technical problems in implementing rural development programmes and to suggest alternatives to strengthen the programmes.	To solve the problems of integrated rural development programmes.	The project was initially planned for four years up to March 1998. Only review of literature was done during 1994-95 and the project was closed in March 1995 due to the fact that the nature of the project was very vast. This indicated that the planning of the project was improper.
2	Studies on post Harvest Engineering and Technology of cereals, pulses, oilseeds and fruits. (April 94 to March 99.) Rs. 27.07 lakh	Development and Testing of small scale processing equipment, popularisation and development of technologies for utilisation of by-products of oil seeds, pulses and fruits and economic and ergonomic evaluation of developed equipment.	To introduce low cost technology and equipment to help in generating local employment and slowing down migration to urban areas.	The project was extended up to March 2000 without the approval of Staff Research Council. The final report revealed that the processing equipment was not developed for brassica. Economic and ergonomic evaluation of the equipment developed for pigeon pea, sunflower, fruits and vegetables was not done. Technologies for utilisation of products of oil seeds, pulses and fruits were also not developed.
3	Improvement of egg plant (April 94 to March 99) Rs. 3.85 lakh	Enrich germplasm from indigenous and exotic sources and develop genetic lines, assess genetic lines for evolution of hybrids and improved varieties, and develop production technology of hybrids and improved varieties	To ensure substantial economic returns to the brinjal growers.	Final report revealed that no germplasm from indigenous and exotic sources were collected and genetic lines developed. Further, production technology of hybrids and improved varieties were not developed completely.
4	Studies on use of Non-conventional sources of energy and alternate Fuels to meet Farm Energy requirements. (Jan. 95 to March 2000) Rs. 4.50 lakh	To develop Solar Energy based dehydrators for fruits and vegetables, IKW photovoltaic system of IKW peak rating and its matching farm implements and a technology for efficient conversion of agro-waste and firewood to energy for farm use.	The technologies being developed under this project would be useful for households to meet their cooking needs which is an energy extensive operation	The final report revealed that the solar cabinet dryer and green house type tunnel dryer can be used economically on commercial scale. However, IARI did not take any action for patenting the technology for its commercialisation. No activity developing a technology for efficient conversion of agro-waste and firewood to energy for farm use and also crop residue for briquettes and producer gas as alternate fuel for rural households was undertaken.

5	Selection of superior clones of commercial mango cultivars for exports. (April 94 to Feb. 99) Rs. 47.62 lakh	To survey the commercial and research organisation for locating and collecting superior clones of commercial mango cultivars for exports and to assess growth bearing and fruit quality of selected clones for direct cultivation as well as utilisation for breeding programmes.	Fruits characters like sizes, shapes, colour, quality and shelf life and high yield to boost export of mango fruits.	The final report revealed that characteristics were studied for only one out of 13 clone selected. No activities were undertaken to assess their maturity respiration, growth etc. at low and ambient temperature for selecting the best clones.
6.	Socio-Economic validation of High Yield varieties of pulses- an action research. (January 95 to June 98) Rs. 75,000/-	To determine the adoption of components of pulses production technology and to study the economics of pulses production, test the performance of high yielding varieties of pulses under different cropping systems and to analyse the constraints in pulses production and assess the nature and extent of intake of pulses by the farming families.	The study would be helpful to validate the improved pulses varieties under different cropping systems from socio-economic point of view for its wider adoption.	The final report revealed that data from farm women on intake of different pulses in family diet including training and education of women about the importance of pulses was not collected. No survey was carried out in the states of Uttar Pradesh and Madhya Pradesh. The final report was limited to only Delhi & Haryana. Thus, the services of the nine Scientists involved in the project were not utilised at optimum level.
7.	Food consumption pattern and Nutritional status of women and children in the changing agricultural scenario. (April 95 to March 99) Rs. Nil	To study changes in food production, per capita availability of food in Delhi Villages and to investigate the food intake of vulnerable groups mainly pregnant and lactating mothers, pre-school children and adolescent girls and boys and to compare the food and nutrient intake of these groups with the recommended standards of ICMR.	To ascertain the food consumption pattern and the nutrient intake at household level in Delhi villages.	The final report revealed that the data collected on the dietary intake of vulnerable groups suggests that there is a need for educating the families especially the women folk regarding the role of diet and good nutrition for health and family welfare. The suggestions given by the Project Leader regarding possible future line of work are very general. Concrete steps required to be taken by IARI in future keeping in view of the importance of the project needs to be highlighted.
8.	Operational Research Project in Applied Plant Breeding and Genetics (April 94 to March 2000.) Rs. 8.50 Lakh	To study the genotype cropping system interaction and compatibility in different crop combination, genetic improvement in upgrading of crop productivity in farmers field, testing of advanced genotypes (AVT II) under various crop sequences at IARI farm and farmers to farmers seed multiplication programme of IARI- Varieties.	In order to promote the adoption, there is a need to formulate new agriculture technology, suitable strategy to transfer location specific technology involving superior genotypes and to identify constraints.	The final report revealed that information on bench mark survey, introduction of crop varieties in the adopted villages, training programmes to farmers and front line demonstration of wheat crop activities on genotype cross cropping system, role of genetic improvement, setting of advanced genotypes, multiplication of seed of IARI etc. were not conducted.

9.	Environmental Issues and Impact Assessment of Resource Management in Rice Based Cropping System. (April 94 to March 98.) Rs. 28.80 lakh	To sustain, stabilise and maximise productivity in the rice based cropping system through constant monitoring, estimate methane and nitrous oxide emission from rice based cropping system and develop suitable models to characterise and improve rice based system including brassica, chickpea and sunflower.	The estimation of methane and nitrous oxide and the contribution towards the global warming due to the methane emission from rice.	The final report of the project revealed that the activities for the productivity in the rice based cropping system through constant monitoring of the natural floral and fauna and microbes were not undertaken. The estimation of nitrous oxide emission and development of suitable model to characterise and improve production-system of brassica, chickpea and sunflower were also not done.
10.	Standardisation of technology for growing Rose, Gladiolus and Carnation under cover (1994 to March 99) Rs. 22.05 lakh	To find out optimum spacing for rose, gladiolus and carnation under cover, optimum pruning/pinching requirement for rose and carnation under cover, standardise nutritional requirement for rose, gladiolus and carnation under cover and study the water requirement for rose, gladiolus and carnation under cover.	This study will help to standardise the flower production technology and flower growing to export flowers.	The final report revealed that at least half acre green house with all hi-tech facilities and system were the essential requirements to carry out the project for flower cultivation under poly house to get any fruitful results. However, in the project proposal against facilities required for the project it was mentioned as "NIL". Thus, it is evident that the project was undertaken without the proper planning of requirement of facilities.
11.	Low cost storage of fresh and processed horticultural produce (Jan 94 to Dec. 98) Rs. 25.90 lakh	Development of commercially viable low cost cool chamber using minimum conventional and more of non-conventional energy and its application in other areas of horticulture and biotechnology.	To bring down the temperature by partial refrigeration so that most of tropical fruits and irradiated potato can be stored, to reduce post harvest losses in remote areas and generate more employment	The final report revealed that the cool chamber developed would be of immense help to the small and marginal farmers and the big size chamber could be installed by the cooperatives for the benefit of the farmers. However IARI did not take any action to patent and transfer the technology to the users.
12.	Utilisation of Horticultural waste. (April 94 to March 99) Rs. 13.76 lakh	Isolation identification and evaluation of useful biochemical components, evaluation of waste as animal feed, new product development from waste material and stabilisation of fruits and vegetables waste.	Conversation of field and factory waste into value added by products to bring the fruit processing industry on sound economic footing.	The final report revealed that technologies for production of bio-gas from fruit waste, dehydrated figs and tent type solar dryer were developed, However IARI did not take any action to patent the technologies developed.

13.	Integrated pest Management of cereals (April 94 to March 95) Rs. 50 lakh	Search for newer strategies of pest management and devising eco-friendly approach against key pest of wheat, sorghum maize and pearl millets. Effective integration of host plant resistance, cultural control, bio-control and need based chemical control strategies.	The studies would provide newer sources of resistance, newer methods of chemical, cultural and other control measures.	The final report revealed that research on sorghum and pearl millets was only carried out and not for wheat & maize. Further, stress on effective integration on cultural control and bio-control strategies, which was one of the main objectives of the project, was not done.
14.	Development and transfer of quality assured bio-fertilizer technology at doorstep of farmers for Integrated Rural Development. (April 1994 to March 2000) Rs. 36.20 lakh	Scaling up of experimental data for model, prototype design, bio-technological development, innovation, multiplication and transfer of the rhizobium inoculants for commercialisation,.	To enhance the crop productivity, improve the soil fertility, employment generation via setting up of tiny entrepreneurial unit of bio-fertilizer.	Scrutiny of project undertaken in pursuance of the Parliamentary Committee revealed that prototype design and bio-reactors were developed but not patented. Further, results of screening and selection of new phosphate solubilising bacterial isolate experiments were awaited. No further activities for the commercialisation of the Rhizobium inoculants were carried out by IARI.
15.	Clonal propagation of Mango, Papaya and Guava through Tissue Culture (April 1994 to March 1998) Rs. 9.76 lakh	Clonal multiplication specially in cross pollinated fruit crops like mango, guava and papaya to maintain genetic uniformity in the plant progeny and to standardise the *in-vitro* technique for development of true-to-type plants.	To multiply newly developed high breed by breeders/ nurserymen and to supply planting material for commercial orchard.	The final report revealed that embryo rescue technique developed in grapes and mango would be a boost in assisting breeding programme. In papaya, the culture did not proliferate satisfactorily to produce large number of shootlets for rooting. However, IARI did not take action either to introduce the technique developed in grapes and mango in the breeding programmes nor to undertake further studies to overcome the problems in papaya.

2.2 National Dairy Research Institute, Karnal

National Dairy Research Institute (NDRI) was conferred the status of Deemed University in March 1989. It also undertakes basic and applied research in the area of dairying production, processing, dairy economics and management. There was a heavy drop out rate in various courses offered by the Institute under its academic programmes in the field of Dairy Science and Technology. Test check of the projects completed during 1996-2000 revealed partial fulfilment of objectives, inconclusive results, foreclosure of the projects without assigning any reasons etc. NDRI had no effective mechanism for transfer of technology. It could commercialise only one out of 12 technologies developed during 1996-2000 and no patent was obtained after June 1995. Monitoring and evaluation of research activities of the NDRI by different agencies was inadequate. It restricted the application of extension activities only to Karnal District and was unable to develop a strong consultancy base for generating funds to reduce dependence on Government funding. There was an imbalance in the strength of scientific cadre with a shortage of senior scientists.

Highlights

- **Only one out of 12 technologies developed was commercialised. After 1987, only one patent was obtained in 1995. There was inconclusive/ partial fulfilment of objectives in 25 out of 111 completed in-house projects.**

- **In the Indo-German Collaborative research project, the NDRI failed to test the technology developed in the absence of ultra-high temperature processing equipment.**

- **In the ATI-NDRI collaborative project, the work was not completed and extension of the project was not agreed to by the Council resulting in non-achievement of objectives of the project despite incurring expenditure of Rs 19.67 lakh.**

- **The NDRI is a national level institute for breeding technology, feeding technology, fodder demonstration, animal health care and animal management but dissemination of the technical know-how in the fields were confined to Karnal District only.**

- **Death of 1149 animals occurred due to various diseases and mortality rate ranged between 12.26 *per cent* to 22.29 *per cent* of the herd strength.**

- **Monitoring and evaluation of the research activities/ results were inadequate. Research Advisory Council did not meet in 1997 and 1999. Staff Research Council met only once in 1996 and 1998. There was no meeting of the Board of Management (BOM) during 1998-2001. Review of the NDRI for five years after 1992 by the Quinquennial Review Team was not conducted.**

- **Utilisation of Experimental Dairy Plant was only to the extent of 34 *per cent* of its capacity. Non-commissioning of spray drier plant received at a cost of Rs 35.65 lakh in August 1997 resulted in hampering of research work & financial losses due to non-production of skim milk powder.**

- **There was a time over run of 11 years in the construction of auditorium building due to change in specifications and consequent cost over run.**

- **Video projector system installed in the auditorium at a cost of Rs 22.02 lakh was defective.**

- **Bio-gas plant constructed at a cost of Rs 24.5 lakh was shut down owing to its malfunctioning.**

2.2.1 Introduction

The NDRI, Karnal, is a constituent unit of Indian Council of Agricultural Research (ICAR), under Department of Agricultural Research and Education (DARE) of the Ministry of Agriculture. The Institute was conferred the status of Deemed University by the University Grants Commission in March 1989.

The mandate of the Institute was:

(a) to undertake basic and applied research in the area of dairying covering production, processing, economics and management,

(b) to develop dairy farming systems for different agro-climatic conditions and demonstrate models for transfer of technology,

(c) to organise and conduct programmes at under-graduate and post-graduate levels in various branches of dairy science,

(d) to organise short-term specialised training programmes and vocational courses,

(e) to collaborate with National and International agencies for dairy research and development,

(f) to provide consultancy to dairy industry, dairy farmers and other dairy development agencies, and

(g) to act as a referral centre on dairy research.

2.2.2 Organisational set-up

The NDRI is headed by a Director, who is the Chairman of the Board of Management. The Board has 11 members (including members of the Governing Body as nominated by the President of the ICAR Society and Joint Directors/Project Directors/Head of Divisions of Institute) and is the highest policy making body. The activities of the Institute are managed through Research Advisory Committee (RAC), Staff Research Council (SRC), Executive Council, Academic Council and Extension Council. Organisational set up of the Institute is given in *Annex–I.*

2.2.3 Scope of Audit

Audit of the NDRI is conducted under section 20(1) of the Comptroller and Auditor General's (Duties, Powers and Conditions of service) Act, 1971. The working of NDRI had been reviewed twice earlier and the findings were included in the Reports of Comptroller and Auditor General of India, Union Government (Scientific Departments) for the year ended March 1990 and for the year ended March 1996 respectively. The present review covers management of research and development activities including extension activities, consultancy, patents, commercialisation of technology, manpower management and financial management.

2.2.4 Financial management

During 1996-97 to 2000-2001, the NDRI incurred an expenditure of Rs 12607.07 lakh against the receipt of Rs 13914.31 lakh. After surrendering an amount of Rs 1164.26 lakh, Institute retained an amount of Rs 142.98 lakh. The Quinquennial Review Team (QRT) had recommended

generation of funds to the extent of at least one third of the annual budget. The NDRI had not been able to achieve the target and could only generate internal resources up to 5.71 per cent of its budget in 2000-2001.

2.2.4.1 Budget and expenditure

The NDRI is financed mainly through grants released by the ICAR, which in turn is funded by the grants from Department of Agricultural Research and Education. It also receives funds from the Agricultural Produce Cess Fund, other Departments/Ministries and from World Bank through ICAR for specific schemes.

The budget provisions and expenditure incurred by the Institute during the period 1996-2001 under Plan and Non-plan heads was as under:

(Rs in lakh)

Year	Budget provision			Expenditure			Savings	Surrender
	Plan	Non-Plan	Total	Plan	Non-Plan	Total		
1996-97	345.00	1506.00	1851.00	344.64	1505.95	1850.59	0.41	-
1997-98	450.00	1845.00	2295.00	444.98	1842.20	2287.18	7.82	-
1998-99	309.00	2514.00	2823.00	305.35	2387.29	2692.64	7.62	122.74
1999-00	500.00	2786.50	3286.50	343.91	2368.29	2712.20	115.48	458.82
2000-01	600.81	3058.00	3658.81	592.39	2472.07	3064.46	11.65	582.70
Total	**2204.81**	**11709.50**	**13914.31**	**2031.27**	**10575.80**	**12607.07**	**142.98**	**1164.26**

An amount of Rs 134.75 lakh was not surrendered to the Council

During 1998-2001, the NDRI surrendered an amount of Rs 1164.26 lakh under establishment charges due to non-filling of vacant posts and also under works. Further, an amount of Rs 134.75 lakh was retained without any approval. NDRI, Karnal surrendered Rs 587.00 lakh during 2000-01 whereas ICAR had taken into account surrender of Rs 582.70 lakh. The difference had not been reconciled.

The Council stated in June 2001 that savings for the period 1996-97 to 1998-99 were very nominal and in 1999-2000 a sum of Rs 44 lakh pertained to Letter of Credits opened on 28/29 March 2000 for which debit notes were not issued by the bank for booking expenditure in Institute's accounts. Further, 70 *per cent* of the saving portion and matching grant, which was over and above the revised estimate, could not be utilised fully since these do not form part of

budget and therefore the amount is not budgetary saving. The saving is the difference of revised budget estimates and expenditure during a year after adjustment of amount surrendered. Hence, contention of Institute that 70 *per cent* saving is over and above revised estimates, is not correct. ICAR's reply does not explain why grants were provided over and above the revised estimate. Further, the NDRI has failed to produce requisite records in support of the present reply furnished to audit.

2.2.4.2 Revenue generation

The NDRI generates resources through sale of milk, dairy products, auction of animals and sale of farm produce. While the QRT (1986-92) had recommended that the Institute should generate funds to the extent of at least one third of the annual budget, NDRI had agreed to generate funds up to 15 *per cent* of the expenditure in the next five years. However, the NDRI had been able to generate internal resources only up to 5.71 *per cent* during 2000-2001.

ICAR stated in June 2001 that the revenue earnings targets had to be viewed against the infrastructure available and the mandate of the Institute on research activities. It added that NDRI was not a revenue earning department. The contention of Council was not acceptable since there was ample scope for revenue generation in experimental dairy plant as brought out subsequently.

2.2.5 Research and Development activities

2.2.5.1 In-house projects

According to its mandate, Institute had to undertake basic and applied research in the area of dairying i.e. production, processing, dairy economics and management. The NDRI undertook 185 in house projects during 1996-2000, of which 49 had been carried over from previous years and 136 were added in this period. Of these 185 projects, the NDRI could complete 111 projects.

The position of in-house research projects during the years 1996 to 2000 is given below :

Year	On-going project at the beginning of the year	New projects undertaken	Number of projects completed	Number of on-going projects at the end of the year
1996	49	33	4	78
1997	78	27	13	92
1998	92	-	63	29
1999	29	57	15	71
2000	71	19	16	74

Research results of 22.52 *per cent* completed in house projects were inconclusive or had partial fulfilment and 15.32 *per cent* projects foreclosed without assigning any reasons and only one technology was transferred

Test check of these completed projects revealed that 25 i.e. 22.52 *per cent* projects were inconclusive or only partially fulfilled the objectives. Research in four projects was of preliminary nature, which could not be exploited for practical application while two projects were of academic nature/low priority. 17 projects were foreclosed by the SRC without recording any reason in a meeting held in July 1998. The RAC, in its meeting of 23 October 2000, had desired that the relevance of ongoing programmes be reviewed and programmes that had lost relevance be phased out by 2000. NDRI was silent regarding the compliance of this decision. Further, in the absence of detailed budgeting of in-house projects, the actual expenditure incurred by the NDRI on these projects could not be ascertained.

A scrutiny of in-house projects undertaken further revealed that while selecting priorities for basic and applied research in order to fulfil the needs of end users in terms of practical applications/ development of technologies, the Institute's progress was inadequate since during 1996-1999 only 12 technologies were developed (i.e. Dairy Technology 8, Dairy Engineering 3, Dairy Microbiology 1). Only one technology was transferred/ commercialised. The Institute had not furnished the information for the year 2000. Thus, the NDRI failed to focus on the development of technologies, which would have direct relevance to the end users/farmers/industry.

As regards inconclusive or partial fulfilment of objectives in respect of 25 projects, ICAR accepted the facts in respect of nine projects. It added that two projects had since been terminated and that studies were being continued in three projects. In respect of the balance 11 projects, ICAR stated (June 2001) that either the studies had been completed as per technical programme or the project reports had been presented covering all aspects. The reply of the ICAR is not tenable as reply was either inconclusive or silent about the observation of the SRC regarding the completion of the project. Thus, the endeavour made on these projects to a large extent has not yielded any fruit and the entire expenditure made on the projects was rendered waste.

Regarding foreclosure of 17 projects ICAR stated (June 2001) that no specific reasons were assigned project wise. However, the SRC felt that in some projects the experimental animals were not made available and with inadequate animals only limited data could be generated wherefrom it was not possible to draw valid conclusions. This would indicate that the projects were being taken up by NDRI without ascertaining the availability of adequate resources. Thus, efforts made on these projects till their foreclosures were unfruitful.

As regards project cost, ICAR agreed that project cost which included consumables, non-recurring items and pay of scientists was only tentatively given in RPF-1, which is the project proposal format.

The Council accepted the facts (June 2001) of development of only 12 technologies during the period 1996-99 with the result RAC and SRC had also suggested that the Institute should give more priority to problem solving projects in future so that technologies could be developed for field application.

2.2.5.2 Sponsored projects

The NDRI undertook 44 sponsored projects, of which only 11 sponsored projects were completed during the period 1996-2001.

A test check of three sponsored projects however, revealed as under :

2.2.5.2.1 Non-dissemination of technologies

(a) Indo-German collaborative research project

Project concluded without dissemination of technology to end-users

The NDRI undertook an Indo-German collaborative research project entitled "Studies on heat stability of membrane - concentrated milk meant for ultra-high temperature (UHT) sterilisation" during 1996 to 1999 with foreign assistance of Deutsche Mark 84600. The project was undertaken with the major objective of employing membrane systems to concentrate milk and examine the heat stability and other physical properties of the product as influenced by the compositional modifications effected by the concentration process. However, the project was concluded without any dissemination of technology to end-users and to that extent was unsuccessful.

Accepting the facts, the NDRI stated in August 2000 that the objective was achieved but the information generated under the project would be utilised in practice by subjecting the concentrate to UHT sterilisation. In the absence of

UHT processing equipment, it had not so far been possible to test the technology at application level. It was also stated that it was pursuing another sponsored project under which a UHT pilot plant would be procured and technology dissemination would be achieved.

However, the Council stated (June 2001) that the major component under the project was the visit of scientists to Germany for acquainting them on *"Heat stability and other physical properties"* of milk using UHT, which had been achieved and the absence of UHT processing equipment has not hampered Human Resource Development (HRD). The Council's reply conveys the impression that visit of scientists to Germany as part of the HRD component was the primary objective of the project, which is not acceptable to audit.

(b) Agricultural Produce Cess fund project

Non-quantification of main technical programme

The NDRI under took an ad-hoc research project to be financed out of Agricultural Produce Cess Fund of the Council in April 1993 entitled "Methanogenesis and production of green house gases under animal husbandry system" at a cost of Rs 24.60 lakh to be completed by 31 March 1998.

The objectives of the project were :

(a) Study of the extent of methane production by ruminants on different feeds available in various regions.

(b) Characterization of the rumen micro-organism degrading feed constituents into VFA, CO_2 and CH_4 in ruminants and study the effect of methane inhibitors in methane production.

(c) Development of management strategies with methane inhibitors and manipulation of rumen fermentation for minimising gaseous emission from ruminants.

Against the sanctioned cost, the NDRI received Rs 21.48 lakh of which an expenditure of Rs 18.69 lakh was incurred till completion of project in March 1998. The final report of project disclosed that the main technical programme i.e. methane production in different regions could not be quantified because the ruminant livestock was not available region wise. The final report also made certain suggestions for future line of work in order to clarify the position with reference to green house gas emission by Indian ruminant livestock. The project was not evaluated by an expert scientific panel to assess the achievement against objectives.

The Council stated (June 2001) that all the three objectives had been achieved but the data was based on *in-vitro studies,* as it was not possible to measure methane production from live animals placed in different regions of the country. The Council also stated that there was no provision to evaluate the funded project at the Institute level except by SRC and it was for ICAR to get it evaluated. The Council was silent about the suggestion for future line of work and status of evaluation of project to assess its successful completion. The Council's reply has to be viewed in light of the fact that the data is based on in-vitro studies. The institute has failed to measure methane production from live animals in different region of the country even on sample basis. Thus, the data generated by the Institute to that extent was incomplete.

(c) ATI-NDRI Collaborative Project

Unfruitful expenditure on the project of Rs 19.67 lakh

A collaborative project entitled, "Studies on the evaluation and modification of the cold process molasses urea block (MUB) lick to improve the rumen fermentation and reduce methane production in ruminant animals" funded by Appropriate Technology International (ATI), Washington was taken up by NDRI in May, 1995 for five years i.e. upto 14.4.2000 at a cost of Rs 22.20 lakh. The project had the following objectives:

(i) To study the effect of supplementation of MUB lick (cold process) on straw based diet on intake, digestibility nutrient utilisation and nutrient balances.

(ii) To study the effect of supplementation of MUB lick to straw diet on rumen fermentation pattern.

(iii) To study the methane production on feeding of MUB lick to ruminant animals in the field in collaboration with other project partners.

(iv) To modify the MUB lick if required for high propionate and lower methane production.

(v) To study the effect of feeding cold process blocks on rumen fermentation and methane production.

(vi) To study the effect of MUB lick on production performance of the animals.

(vii) To evaluate the feasibility of SF tracer gas in methane measurement technology for implementation in Indian conditions.

During the project period Institute received an amount of Rs 21.67 lakh against which an expenditure of Rs 19.67 lakh was incurred. However, the Principal Investigator had left NDRI in 1999 and the Project remained incomplete. The Council did not agree to extend the project. Resultantly, the expenditure of Rs 19.67 lakh proved unfruitful.

2.2.5.3 Extension activities

The NDRI restricted its application of extension activities only to Karnal district and did not publish the booklet on technologies developed after 1988 for dissemination of technology.

Extension activities were restricted only to Karnal district

Extension deals with the dissemination of technical know-how to clientele/dairy farming community through different activities. It involves education of farming/dairying community. A scrutiny of six completed in-house research projects of Extension Division for the period 1996-1999 revealed that four research projects, which were confined only to Karnal district remained inconclusive ***(Annex-II)***. Further, technologies in the field of breeding, feeding, fodder demonstration, animal health care and animal management were transferred to eight villages in 1996, 13 villages in 1997, three villages each in 1998 and 1999 in Karnal district. In view of this, one of the important requirements of the system to have widespread linkages with dairy farming community was missing. Hence extension activities of the Institute at national level were required to be reviewed and a concrete action programme needs to be formulated for application across the country.

The SRC in the meeting held in December 1999 observed that there was a need to develop subject matter specialisation for dissemination of technologies developed at the NDRI for infusion in the rural and industry sectors. No concrete action was taken by the NDRI in this regard.

The Council stated (June 2001) that the extension activities were being done by Krishi Vigyan Kendra (KVK), Trainers Trainee Centre (TTC) and two centres of advanced studies - Eastern Regional Station, Kalyani, Southern Regional Station, Bangalore and that the research findings/technologies were effectively disseminated through Dairy Samachar/News bulletins circulated to state dairy departments, State Agricultural Universities. The Council was silent about the details of technologies handed over to Extension Division in the absence of which it is not clear how the extension activities were being carried out. Lack of adequate extension activity was reflected in RAC meeting held in October 2000 in which it was observed that extension

mechanism had not been established effectively and therefore, proper linkages with end users must be developed.

2.2.6 Patenting and transfer of technology

The NDRI had no effective mechanism for transfer of technology. Out of 111 completed in house projects, 12 technologies were developed and no technology got patented.

After 1987, only one patent could be obtained in 1995

While examining the issues relating to development, patenting and transfer of technology, it was found that there was no effective mechanism in the NDRI for transfer of technology. Although 111 in-house projects were completed and 12 technologies were developed during 1996-2000, no technology was got patented by the NDRI. After 1987, only one patent had been obtained in June 1995. The NDRI had sent the proposal to the ICAR for filing the patents in seven technologies during 1996-2001. Further progress in the matter was not made available to audit.

The Council stated (June 2001) that the applications filed for patenting the technology would be pursued. However, the fact remains that no patent has been awarded to NDRI in the last six years.

2.2.7 Consultancy

During 1996-2001, the NDRI failed to attract dairy industry for major consultancies and earned only Rs 26.69 lakh through consultancy.

NDRI could not attract dairy industry for rendering major consultancies

Government of India had emphasised the development of indigenous technology and its effective transfer to Industry. Accordingly, a Consultancy Service Board was established at the NDRI, Karnal to facilitate transfer of technologies developed on the basis of Research and Development (R&D) work in the areas of dairy production, dairy processing and dairy management on professional basis.

However, NDRI's performance as regards earnings from consultancy services was inadequate. It was able to earn only Rs 26.69 lakh during 1996-2001 and that too, from sale of starter culture and service charges towards testing of samples. It did not perform any consultancies for industry. The Consultancy Board did not meet during 1998-2000 as against the requirement of meeting once in three months. Consequently, NDRI failed in generating alternate resources to reduce dependence on government funding.

The Council stated (June 2001) that the consultancy work at NDRI was in its infancy and that earnings from consultancy in 2000-2001were considerably high. However, consultancy fees earned during 2000-2001 were only Rs 5.17 lakh. The negligible earnings were indicative of a failure to effectively promote its consultancy capabilities with the dairy industry in the country.

2.2.8 Monitoring and evaluation

Institute failed to conduct any meeting of the RAC during 1997 and 1999. The frequency of the SRC meeting was also not observed, the QRT was overdue for the last three years and no meeting of the BOM i.e. highest policy making body was held in 1998-2001.

Monitoring and evaluation arrangements were inadequate and neglected

The research activities of the NDRI are monitored by the SRC, RAC, BOM and QRT. The internal review of in-house research projects is done by the SRC while external review of research activities is done by the RAC. The SRC was to meet twice and the RAC once in a calendar year and the QRT was to meet after every five years. It was, however, observed that no meeting of the RAC was held in 1997 and 1999. Similarly, the SRC met only once in 1996 and 1998. Resultantly, concerned projects did not have the benefit of suggestions of the SRC/RAC. It was essential to review ongoing research programmes to adjudge their relevance in the national and global context and to ensure that they were consistent with NDRI mandate.

Further, the proceedings of the SRC meetings held between August, 1996 and December, 1999 revealed that the SRC did not monitor the follow-up action on the recommendations of the QRT (1986-1992) with respect to technical programmes of the Institute as was already pointed out in paragraph 5.1.6 of the Report of Comptroller and Auditor General of India Union Government (Scientific Departments) for the year ended March 1996. Further, the Quinquennial Review, which was essential for monitoring the progress of research, its relevance and excellence, and providing guidelines for fulfilment of mission and achievements of goals of Institute, was over due for the last three years. As such, the review of the NDRI could not be made by the QRT for the period 1993-99.

The Board of Management (BOM) which is the highest policy making body of the Institute, was required to meet at least once in a quarter every year. However, it held only three meetings i.e. two in 1996-97 and one in 1997-98 and none during 1998-2001. Thus, monitoring and evaluation mechanisms in the NDRI were inadequate and neglected.

The Council's reply (June 2001) was not specific to the points raised in audit. Instead the Council briefly referred to the meetings of the QRT constituted to study and assess the work done by NDRI during the period 1986 to 1991.

2.2.9 Supporting activities

2.2.9.1 Decrease in yield of fodder crops

Decrease in average yield per acre of fodder crops led to its insufficient supply

The NDRI had a total area of 1396.56 acres. Of this, 948.68 acres were under cultivation, where fodder crops like jawar (single cut), jawar (multi cut), berseem, maize (winter), oats etc. and grain crops like paddy, wheat, barley and oats are sown. An expenditure of Rs 53.03 lakh was incurred on fertilizers and chemicals during 1996-2001. In the case of fodder crops there was constant steep decrease in average yield per acre i.e. Jawar (single cut) 187.68 quintals (qtls.) to 73.17 qtls., Jawar (multi cut) 314.42 qtls. to 231.85 qtls., maize (winter) 138.75 qtls. to 49.87 qtls. and oats 166.86 qtls. to 129.02 qtls. per acre during the above period.

The Council stated (June-2001) that the trend was reversed in 1999-2000 but production of fodder crop could not attain its production level of 1996-97. It added that fluctuations were due to seasonal effects and all efforts would be made to have high yield per unit area of all the crops.

2.2.9.2 Decreasing herd strength and heavy mortality

During 1996-2001, 1149 animal died due to various diseases

As on 1 April 1996, the Institute had a herd strength of 830 cows, 360 buffaloes and 437 goats. The herd strength came to the lowest on 1 April 1998 when it went down to 713 cows, 336 buffaloes and 286 goats. During the period 1996-2001, 1149 animals died due to various diseases and the mortality rate ranged from 12.26 *per cent* to 22.29 *per cent* of the herd strength. BOM in its meeting held in May 2001 had also stressed the need for better management to reduce mortality rate.

The Council accepted (June 2001) that the mortality was higher in 1998-99 in case of young calves due to unfavourable weather conditions for which steps were being taken by modification in microclimate of calf sheds/pens etc. The Council further stated that by concerted effort mortality rate had been reversed. However, the mortality rate was still 13.18 *per cent* in 1999-2000.

2.2.9.3 Decline in milk production

During 1996-2001, total milk production decreased from 13.98 lakh kg to 13.39 lakh kg

During 1996-2001, the herd strength of the NDRI which includes cows, buffaloes and goats ranged from 1321 to 1627. Of this, average number of animals in milk per day remained between 444 to 483. The details of total milk produced with wet average of cow (breed-wise), buffalo and goat per day was as under :

Year	Total milk production *(In lakh kg)*	Average per day in kg.					
		Cow				Buffalo Murrah	Goat
		SW	TP	KS	KF		
1996-97	13.98	7.8	6.2	10.9	11.5	7.9	1.2
1997-98	13.83	7.7	6.0	10.0	10.8	7.4	1.1
1998-99	11.72	7.4	5.5	8.5	9.6	5.9	1.05
1999-00	12.95	7.7	5.5	9.7	11.2	6.7	1.25
2000-01	13.39	7.0	5.3	9.5	11.3	6.7	1.1

SW – *Sahiwal* **TP** – *Tharparkar* **KS** – *Karan Swiss* **KF** – *Karan Fries*

There was considerable decrease in average milk production, which ranged from 5.12 *per cent* to 22 *per cent* in case of cow, 25.31 *per cent* in buffalo and 12.5 *per cent* in case of goat during the period 1996- 99.

Thus, the milk production of the elite herd of the NDRI, which was one of the few scientific and organised dairy herds in the country decreased during the period 1996-99.

The Council stated in June 2001 that efforts were being made for increasing herd strength of indigenous cattle breeds by introducing superior exotic germ plasm for improving the productivity, timely monitoring of various breeding, feeding and health management practices.

2.2.9.4 Artificial Insemination

During 1996-2001 semen doses costing Rs 1.84 crore were accumulated

The artificial breeding complex of the Institute had been involved in the production, processing, preservation, storage and distribution of quality semen from cow and buffalo bulls of high genetic merit. The main objective was to collect their semen under regular progeny testing/breeding/training programmes for which 90 to 100 bulls were kept in the NDRI. In April 1996, the NDRI had 5,46,513 doses of semen. It produced 2,74,592 doses during 1996-2001 and at the close of March 2001 it had 5,24,770 doses costing Rs 1.84 crore.

During the period 1996-2001, the NDRI utilised only 2,43,851 doses through Institutes' projects i.e. Institutional Village Linkage Programmes KVK/TTC and Extension Division of the Institute including division's research projects to improve and produce the higher genetic breeds. It sold 33,389 doses costing Rs 5.96 lakh to farmers/development agencies/state organisation under various progeny testing programme/projects. Thus, excessive numbers of doses accumulated year to year without anticipating the actual requirements.

The Council stated (June 2001) that against 5,71,120 doses of semen at the close of March 2000, the Institute had 5,28,895 doses on 30.11.2000. The Council further stated that frozen semen doses were required under progeny testing programme of the Institute and to maintain the extension activities. The reply of Council was not tenable since large accumulation of semen doses was clearly indicative of excessive production over requirement.

2.2.9.5 Experimental Dairy Plant

Available infrastructure was not used optimally

The ICAR sanctioned a revolving fund of Rs 85 lakh in July 1989 for existing Experimental Dairy plant to utilise available infrastructure up to the optimum level and to generate more revenue. The profit earned was to be utilised for creating more facilities for research and training.

In response to audit observation in paragraph 19.8.1 of the Report of the Comptroller and Auditor General of India, Union Government (Scientific Departments) for the year ended, March 1990, the ICAR had assured profitable utilisation of the plant. Yet the plant continued to be operated much below the rated capacity of 10000 litres per day. The processing capacity of the plant, which ranged from 5800 to 7000 litres per day during the period 1991-96, decreased to 3378 to 5819 litres per day during 1997-2001. Utilisation/operation of the plant during 1998-99 to 1999-2001 was only 34 *per cent* of the capacity.

The earnings from sale of dairy products also decreased from Rs 219.61 lakh during 1996-97 to Rs 201.86 lakh in 1998-99. Thus, the objective of utilising the available infrastructure of experimental dairy upto the optimum level and generating more research and training facilities remained unachieved.

Council's reply (June 2001) that products were manufactured according to demand for dairy products was not tenable in the absence of any detailed record of demand. The poor performance of plant was discussed in the 34th meeting of Management Committee of Experimental Dairy held in June 2000,

which had opined that the scheme had not been very effective during the last three years.

2.2.9.6 Non-commissioning of Spray Drier Plant

Spray drier plant which was received in August 1997 costing Rs 35.65 lakh could not be commissioned as of July 2001

Reference is invited to paragraph 5.1.10 of the Report of Comptroller and Auditor General of India, Union Government (Scientific Departments) for the year ended March 1996. It had been mentioned that though approval for procurement of a spray drier costing Rs 32 lakh was given by the ICAR in March 1992, the supply order was placed by the NDRI only in October/November 1995 at a cost of Rs 35.65 lakh.

The equipment, which was received in August 1997, had not been commissioned as of July 2001. NDRI also failed to impose any penalty on the supplier. Non-commissioning of spray drier within prescribed time even after payment of Rs 25.57 lakh had resulted in hampering of research work and financial losses due to non-production of skim milk powder. Despite improper functioning of spray drier further payment of Rs 1.52 lakh made to the supplier lacked justification.

The Council while accepting the facts stated (June 2001) that the spray drier plant unit had been installed and that full-fledged operation of the plant would start by 31 May 2001. However, the spray drier plant was not operational as of July 2001.

2.2.9.7 Non-utilisation of Bio-Gas Plant

Bio-gas plant constructed at a cost of Rs 24.5 lakh in June 1994 could not be alternatively utilised for want of funds

As supplementary energy source for boilers installed in Experimental Dairy, the NDRI constructed a bio-gas plant in June 1994 at a cost of Rs 24.5 lakh. The Ministry of Non-Conventional Energy Sources paid Rs 18 lakh while the balance of Rs 6.50 lakh was paid by NDRI. Out of three boilers, one boiler was connected on experimental basis in June 1994. During 1994 to 1998, the plant supplied the bio-gas for 890 hours only to the experimental dairy. Under-utilisation of bio-gas plant was highlighted in paragraph 5.1.10 of the Report of Comptroller and Auditor General of India, Union Government (Scientific Departments) for the year ended March 1996. In its Action Taken Note, the ICAR stated in October 1997 that a committee was examining the need for connecting two or more boilers to use gas in the event of break down in either of them. However, it was observed that there was no improvement in its functioning and the plant was shut down in March 1999. A technical committee constituted to suggest alternative uses identified different options for its use but additional funds of Rs 8.15 lakh were considered necessary.

Till date the NDRI failed to arrange funds for the purpose rendering the bio-gas plant established at a cost of Rs 24.5 lakh unfruitful.

The Council stated (June 2001) that the bio-gas plant installed at NDRI was not successful. Council also stated that the proposal for alternative use would be considered when the additional non-plan funds were available or in the X^{th} Plan proposal for restoring the plant to working condition.

However, further deterioration in the condition of the plant by the time requisite funds are arranged cannot be ruled out.

2.2.10 Education activities

The Institute was conferred the status of 'Deemed University' in March 1989. The Institute is the most important contributor of skilled manpower required by dairy industry, research and development institutions and State Agricultural Universities. The Institute offers academic programmes at the undergraduate and postgraduate level in the field of Dairy Science and Technology. The number of students admitted to various courses offered by the Institute and students who left midway during the period 1996-97 to 2000-2001 was as under:

Name of Course	No. of seats	Year-wise No. of students admitted/left				
		1996-97	1997-98	1998-99	1999-00	2000-01
National Dairying Diploma	30	28/01	22/01	11/4	15/02	8/00
B. Tech.	30	30/6	35/20	26/10	32/11	29/12
M.Sc./M.Tech.	60*	47/14	56/20	40/04	54/08	62/04
Ph.D.	60	24/8	19/7	29/14	31/01	33/06

** No. of seats in M.Sc./M. Tech. in 1999-2000 were 56*

The glaring fact emerging from the table is the heavy drop out rate in various courses. Admission into diploma course was in any case low since 1998-99. The percentage of dropouts in B.Tech. ranged from 20 *per cent* to 57.14 *per cent*. The Institute has not evolved any mechanism to fill up the vacant seats. This aspect needs consideration given that the Institute is the only one of its kind in the country. The Institute could also explore the possibility of operating a waiting list to fill up seats falling vacant owing to dropouts.

2.2.10.1 Career guidance, training and Placement Cell

A Placement Cell has been constituted at NDRI in order to provide career guidance, training and placement for the students in various disciplines. For B.Tech. (DT) graduates, placement through the cell was 100 per cent. Around 20 per cent of M. Tech./M.Sc. were placed through the cell.

2.2.10.2 Short-term specialised training programme and vocational courses

Dairy Extension Division of the Institute had conducted only four training programme and vocational courses. The Institute's contention that the training objectives were being fulfilled by the KVK/TTC of Institute, is not tenable since KVK/TTC had their own mandate for which they are funded by the Council separately. Thus, there is a need to conduct short term specialised training programme and vocational courses at institute level to achieve the mandate.

2.2.11 Manpower management

Imbalance in scientific cadre strength

NDRI could not rationalise the mis-match in cadre strength of scientists, which was due to shortage of 46 senior scientists and 10 principal scientists while 28 scientists were in excess

There was an imbalance in various grades of scientists, senior scientists, and principal scientists as detailed below :

	Position as on 31 March 2001		
	Sanctioned Posts	Staff in Position	Excess/Shortage #
Scientist	147	175	(+) 28
Senior Scientist	58	12	(-) 46
Principal Scientist	28	18	(-) 10
Total	**233**	**205**	**(-) 28**

 # (-) for shortage and (+) for excess

As on 31st March 2001, there was an excess in the cadre of scientists and shortage of 46 in the cadre of senior scientists and 10 in principal scientist's cadre. There was no principal scientist in Agricultural Statistics, Animal Nutrition and Animal Physiology. Further there was no senior scientist in Agricultural Statistics, Food Science and Technology, Animal Genetics and Breeding, Animal Nutrition, Animal Physiology and Animal Reproduction, Live Stock Production and Management and Dairy Chemistry. There were excess scientists in the disciplines of Animal Nutrition and Pharmacology (8),

Biochemistry (3), Agricultural Structure and Process Engineering, Chemical Engineering. (11), Fish and Fish Science (1) and Livestock Production Technology (1).

The records revealed that the excess scientists were posted by the ICAR without consulting the NDRI, although the matter was brought to the notice of ICAR. Resultantly, there was uneven distribution with regard to subject-matter specialists within the given cadre strength. The thrust areas of research, therefore, lacked the required leadership at senior level.

The Council stated (June 2001) that the cadre strength of the Animal Sciences Division of the Council was being reviewed. It added that the strength of scientists in the Institute had decreased and that senior scientists had increased by 20. However, this was incorrect since there were 33 scientists in excess on 31 March 2000 as compared to 28 on 31 March 2001. Similarly, as against 48 vacancies in senior scientist on 31 March 2000, there were 46 vacancies on 31 March 2001.

2.2.12 Works Management

2.2.12.1 Delay in construction of auditorium at the NDRI, Karnal resulting in extra expenditure of Rs 361.85 lakh

Absence of proper scrutiny of scope of work led to cost over run of Rs 361.85 lakh and time over run of 11 years

NDRI awarded the work for construction of auditorium to Central Public Works Department (CPWD) at a cost of Rs 83.27 lakh in April 1985.

CPWD further allotted the construction work for its structural portion to a contractor in November 1987 who failed to start the work till May 1988 for want of detailed drawings. Due to unforeseen circumstances, existing agreement was closed and fresh tenders were called for by CPWD. In April 1992, CPWD revised the estimate to Rs 357.71 lakh and the administrative approval and expenditure sanction were accorded by the ICAR in March 1994 which included additional items of work.

The auditorium building was taken over by the NDRI in December 1997 with some minor defects to be rectified later by CPWD. In March 1998, CPWD further revised the estimates of auditorium to Rs 445.13 lakh due to enlargement of scope of work. The NDRI had deposited an amount of Rs 348.01 lakh to CPWD. The Council's approval for revised estimates had

not yet been received. Thus, failure to properly assess scope of work in the beginning coupled with lack of co-ordination between NDRI/ICAR and CPWD, resulted in frequent change in scope of work; increase in plinth area and incorporation of additional items. Consequently, there has been delay in completion of work which would entail cost over run.

The Council stated (June 2001) that Institute could not dictate terms to the CPWD as regards the furnishing of revised estimates, as they are solely dependent on CPWD for technical matters.

However, the Council was silent as regards the frequent changes in scope of work, increase of plinth area and incorporation of additional items entailing delay in completion of work and avoidable increase in cost due to escalation.

2.2.12.2 Installation of defective video projector system in auditorium

Defective video projector system was installed at a cost of Rs 22.02 lakh

The ICAR accorded sanction for providing and installing a video projector system in the auditorium in March 1997 for Rs 23.19 lakh. The NDRI released Rs 11.59 lakh in June 1997 and Rs 10.43 lakh in March 1998 to CPWD for providing and installing of equipment. In February 1999, CPWD asked NDRI to take over the video projector but the latter refused as the projector did not meet specifications given in the order. The NDRI requested CPWD in August 1999 to replace it or refund Rs 22.02 lakh. In July 2001, CPWD agreed to replace the projector by another as per Institute's specification. As at the end of July 2001, replacement had not been made.

The Council while accepting the facts stated (June 2001) that NDRI was making efforts to have the system installed by CPWD and that the Institute would claim the amount if CPWD failed to install the projector.

2.2.13 Accounts

2.2.13.1 Outstanding advances

Outstanding advances of Rs 4.66 lakh related to the years prior to 1995-96

While the Council had stated (June 2001) that outstanding advances were Rs 122 lakh as of March 2001 the information furnished by Institute (July 2001) indicates that advances outstanding were Rs 270.01 lakh as given below :

(Rs in lakh)

Year	Government Departments	Government officials (TA/LTC)	Contingent	Total
Upto 1986-87	2.55	-	-	2.55
1987-96	0.21	-	1.90	2.11
1996-97	-	0.01	1.07	1.08
1997-98	-	-	0.78	0.78
1998-99	-	-	5.19	5.19
1999-00	1.72	1.22	4.17	7.11
2000-01	112.43	0.82	137.94	251.19
Grand Total	**116.91**	**2.05**	**151.05**	**270.01**

Out of Rs 270.01 lakh, advances amounting to Rs 4.66 lakh related to the years prior to 1995-96.

2.2.13.2 Bank reconciliation

Bank reconciliation was in arrears

Bank reconciliation of Institute was in arrears. However, bank reconciliation for the period ended 30 May 2000 revealed the following discrepancies:

(i) Credit of Rs 34.34 lakh in 132 cases had been accounted for by the bank but did not appear in the Institute's account. Of these, Rs 13.94 lakh pertained to the period February 1992 to March 1996 and Rs 20.40 lakh pertained to the period 1996-97 and onwards.

(ii) Since August 1989, Bank had debited Rs 108.40 lakh in 340 cases on account of letter of credit. Of these, Rs 47.14 lakh in 253 cases pertained to the period up to 1995-96 and Rs 61.26 lakh in 87 cases pertained to the period 1996-May 2000. This had been pointed out in the Report of Comptroller and Auditor General of India, Union Government (Scientific Departments) for the year ended March 1996. However, there was no improvement.

(iii) Credit of Rs 22.39 lakh in 22 cases had been accounted for in the cash book but bank had not afforded credit in bank account. The amounts pertained to the period between March 2000 to May 2000.

(iv) NDRI issued cheques amounting to Rs 10.18 lakh in 137 cases during the period January 1999 to May 2000. All the 137 cheques were time barred and Institute had not taken steps to cancel these cheques.

(v) Bank reconciliation statement in respect of National Agricultural Technology Project (NATP) for the month of January 2001 revealed that receipt of Rs 7,79,000/- was shown in the cash book of NATP. The bank had not afforded the credit since September 2000. The Institute accepted the facts in July 2001 and assured early settlement of the amount.

(vi) NDRI maintained a separate bank account in respect of Revolving Fund for Experimental Dairy Plant. As on 31 March 2001, it had a balance of Rs 140.92 lakh. The account had never been reconciled and produced to audit. Transactions relating to this account were not exhibited in the ICAR/NDRI accounts since inception.

The Council stated (June 2001) that the reconciliation was in progress and further progress would be communicated to audit.

2.2.13.3 Non-maintenance of assets register

Assets Register was not maintained to reconcile the value of assets as per the annual accounts

In accordance with Government of India decision 7(b) below rule 149(3) of General Financial Rules, the assets register in form GFR-19 should be maintained. All assets wholly/partially acquired out of Government grant and assets disposed off should be taken in this register and at the time of closure of financial year, progressive balances of all such assets should have been worked out and reconciled with the figures as shown in the annual accounts. In the absence of assets register, assets valuing Rs 33.52 crore acquired as of March 2001 could not be verified in audit.

The Council stated (June 2001) that reconciliation and correct reflection of the statement of assets and assets register would be ensured during 2000-01. However this has not yet been done.

2.2.14 Physical verification of stores

Physical verification was not conducted as per instructions contained in GFRs

The physical verification of stores for the year 1999-2000 had not been carried out as per the instructions contained in Rules 117 & 118 of the General Financial Rules (GFRs). As per provision in Rule 118 all discrepancies were required to be brought to account during physical verification, but this was not done since no list of inventory was prepared. The physical verification report was silent on the unserviceable stores. The balances appearing in divisional stock registers had not been reconciled with the stock register of central stores.

Further, physical verification of stores of Health Complex (1998-99) had revealed that a large number of time-barred medicines/syrup/injections costing

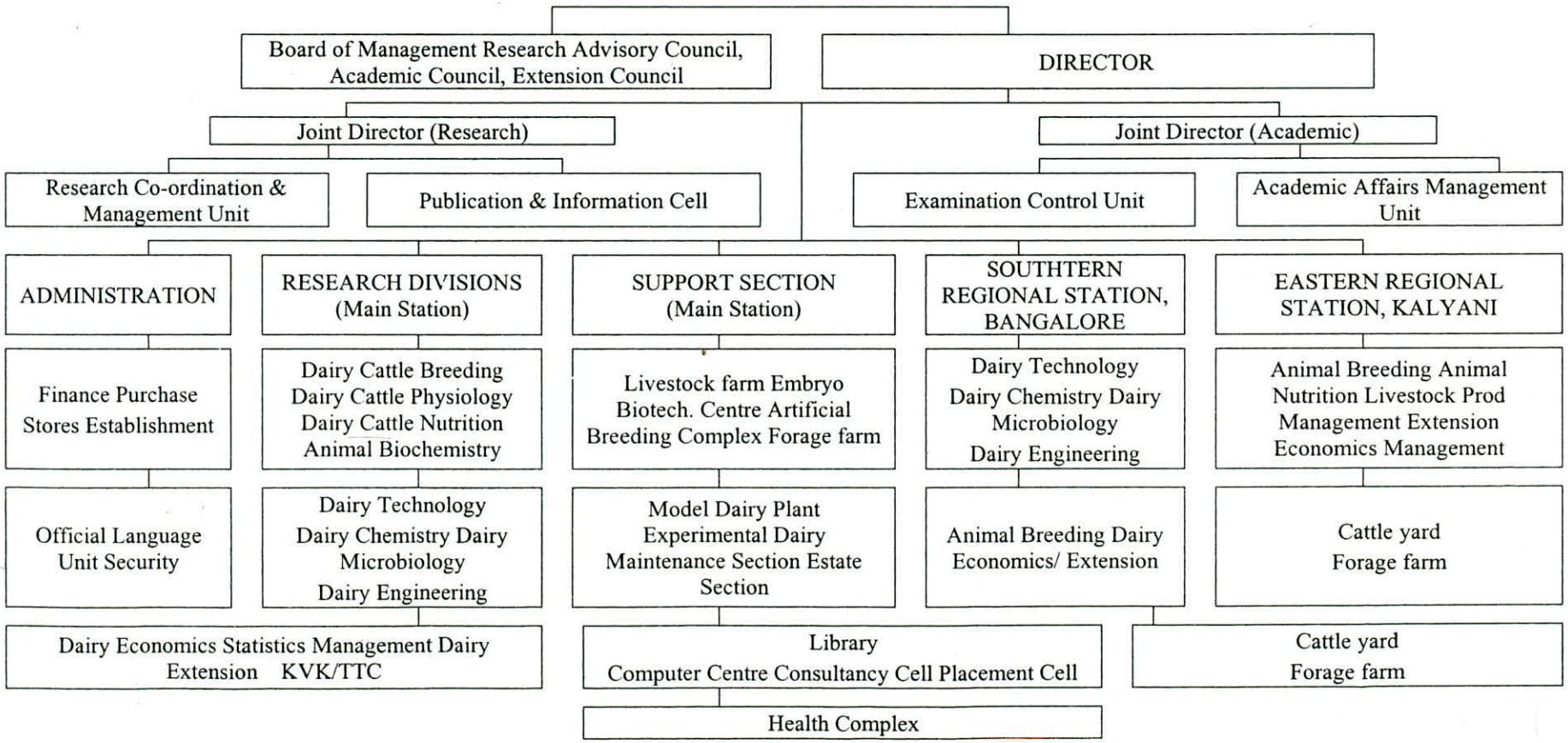
Rs 25,000/- in the current ledger and ledger for the year 1998-99 were written off by Senior Medical Officer without approval of competent authority. However, during 1999-2000 the physical verification of medicines had not been done.

Two stock registers of Ayurvedic and Allopathic medicines for the year 1996-97, 1998-99 and three registers of injection & dressing for the year 1996-97, 1997-98 and 1998-99 containing stock entries of Rs 21.41 lakh were stated to be stolen for which a departmental inquiry had already been instituted.

The Council stated (June 2001) that physical verification of stores for all divisions/ sections had been completed for the year 1999-2000 as per GFR. Council further stated that the reconciliation between the Divisional Stock Register and Central Stores Register would be carried out at the earliest. For the irregularity noticed in Health Complex, the Council stated that suitable action had already been initiated.

ANNEX-I

ORGANISATIONAL STRUCTURE OF THE NDRI



ANNEX-II

IN-HOUSE RESEARCH PROJECTS OF EXTENSION DIVISION

Sl. No.	Name of the project	Remarks
1.	**1.8.3.1.(I - I)** An analysis of attributes of selected dairy farming innovations in relation to the determinants of their adaptability in N-W states of India (1995 to 1997)	The study has been carried out in one district each of two states namely Hisar, Moradabad of Haryana & U.P. respectively. As per final report the project was required to be taken on large scale for generalisation covering full states instead of two districts.
2.	**1.8.2.1.(s)** Action Research project on transfer of dairy husbandry practices among farmers in Karnal district - An impact study (1995-2000)	SRC observed in its meeting during 22.7.1998 to 1.8.1998 that there was no merit in continuing the project as nothing significant had been reported so far. Therefore, the project was closed in December 1998 by SRC. Council accepted the facts (June 2001).
3.	**1.8.3.1.(m-1)** A study on Research Extension and farmer linkage in ICDP Karnal (1996-1998)	The final report of the project disclosed that researchers had very poor linkages with extension workers and they rarely visit villages. The project is also confined to Karnal District.
4.	**1.8.1.2.(i-2)** Evaluation of Dairy Extension Services in NDRI adopted villages (1997-99)	SRC meeting held in 22.07.1998 to 01.08.1998 desired to conclude the project by December 1998. Further the study was confined in the adopted villages of NDRI in District Karnal only. Council stated (June 2001) that nothing conclusive was reported in SRC meeting held on 1.8.98 and it was recommended to logically conclude the project.
5.	**1.8.3.1.(n-1)** Incidence of reproduction disorder and other ailments in cattle and buffalo in and around Karnal under field conditions. (1997-2000)	Neither the project file was produced to audit nor the project was presented in the SRC meeting held during 22.7.98 to 1.8.99. The project was confined to Karnal. Council stated (June 2001) that due to ill health and transfer of Project Leader, the project could not progress satisfactorily.

CHAPTER 3 : MINISTRY OF ENVIRONMENT AND FORESTS

3.1 Zoological Survey of India

Zoological Survey of India (ZSI) failed to fulfil its primary objectives in the areas of exploration and survey of 'faunal' resources, taxonomic studies, status survey of endangered species. ZSI also failed in publishing results of survey and studies leading to non-dissemination of information. An aquarium planned for operation by 1990 for educational and recreational purposes was yet to be established even after a lapse more than 10 years. There were instances of costly equipment either lying idle or being under utilised.

Highlights

- **Survey and exploration work of 'faunal' resources in the selected areas was behind schedule for periods ranging from five to 13 years.**
- **Equipment costing Rs 22.68 lakh procured for taxonomic studies was lying unutilised since April 1996 for want of trained manpower.**
- **Slow progress in conducting status survey of endangered species.**
- **Research results were not published expeditiously resulting in their non-dissemination.**
- **Non-commissioning of Marine Aquarium Research Centre at Digha for about a decade adversely affected marine research and resulted in idling of equipment worth Rs 49.25 lakh.**
- **Ineffective monitoring and evaluation resulted in delay in achievement of targets fixed by MoEF in 1987.**

3.1.1 Introduction

Zoological Survey of India (ZSI) was established in 1916 to promote survey, exploration and research leading to advancement in knowledge of various

aspects of the animal life of India. Ministry of Environment and Forests (MoEF), the administrative Ministry of ZSI redefined the objectives of ZSI in December 1987

The primary objectives of ZSI are:

(i) Exploration and survey of 'faunal' resources;

(ii) Taxonomic studies;

(iii) Status survey of endangered species;

(iv) Publication of results through departmental journals; publication of fauna of India;

The secondary objectives of ZSI included maintenance and development of national zoological collection and central referral, information, advisory and library services, maintenance of museums at headquarters and regional stations and environmental impact studies wherever specially asked for by the MoEF.

3.1.2 Organisational set up

ZSI is headed by a Director. Besides its headquarters in Kolkata with 18 divisions, there are 16 regional field stations. Monitoring of day-to-day activities of ZSI is conducted through two internal committees viz., half yearly Monitoring Committee and Screening Committee. In addition MoEF, in January 1997 constituted Programme Advisory Committee (PAC) for proper and comprehensive study of various aspects of ZSI. An organisational chart is at ***Annex-I***.

3.1.3 Scope of Audit

The present audit review seeks to examine the performance of ZSI in relation to exploration and survey of 'faunal' resources, taxonomic studies, status survey of endangered species, publication and some other activities of ZSI from 1994-95 to 2000-2001.

3.1.4 Financial Outlays

Against the total provision of 17.73 crore and Rs 43.48 crore under Plan and Non Plan during 1994-2000, ZSI spent Rs 17.82 crore and Rs 44.10 crore respectively. MoEF allocated Rs 5.78 crore and Rs 10.15 crore for the year 2000-2001 under Plan and Non Plan heads as detailed below :

(Rs in lakh)

Year	Plan		Non plan	
	Provision	**Expenditure**	**Provision**	**Expenditure**
1994-95	268	275	560	550
1995-96	268	256	589	583
1996-97	273	262	597	635
1997-98	295	356	815	800
1998-99	340	299	866	908
1999-2000	329	334	921	934
2000-2001	578	NA	1015	NA

3.1.5 Exploration and survey of 'faunal' resources

Of 12 first priority areas to be surveyed by 1993, 9 were incomplete as of April 2001. Similarly, of 17 second priority areas to be surveyed by 1996, 12 remained to be completed.

Survey of 'faunal' resources of an area involves inventorisation of specimens of that area. The mode of survey is by conducting tours to the selected area, collection of specimens and recording and inventorisation of the specimens collected. ZSI had already surveyed nearly one third of the country by December 1987. MoEF had directed ZSI to complete faunistic survey of the remaining two-third geographical area by 2000. The areas to be surveyed were categorised under first and second priority. Under the first priority, 12 areas were to be surveyed by 1993, while under the second priority 17 areas were to be surveyed by 1996.

The status of survey as of June 2001 under first priority areas was as follows :

Sl. No.	State Area	Target Year	Status (As of June 2001)	Time Overrun (years)
HIMALAYAN ECOSYSTEMS				
1.	Himachal Pradesh	1991	Not completed	10
2.	Uttar Pradesh (Himalayan Portion)	1990	Not completed	11
3.	Jammu & Kashmir (Himalayan Portion)	1993	Not completed	8
4.	Sikkim	1990	Completed	
5.	Arunachal Pradesh	1991	Not completed	10

Sl. No.	State Area	Target Year	Status (As of June 2001)	Time Overrun (years)
DESERT ECOSYSTEMS				
6.	Rajasthan		Completed before 1987	
7.	Gujarat	1990	Not completed	11
8.	Ladakh	1993	Not completed	8
MARINE ISLANDS ECOSYSTEMS				
9.	Lakshadweep	1987	Completed	
10.	Adaman & Nicobar Islands	1993	Not completed	8
TROPICAL RAIN FORESTS				
11.	Western Ghats	1992	Not completed	9
12.	North-Eastern States	1991	Not completed	10

Surveys of nine first priority areas were incomplete

Surveys of nine first priority areas were not completed till date. MoEF had directed ZSI in 1987 to conduct the surveys of 11 priority areas through 10 task forces drawn from the regional field stations and headquarters. These task forces were to be strengthened through re-deployment and recruitment. Surveys conducted during 1994-2001 by the task forces were checked in audit. Earlier records of tours/ surveys undertaken were not available at ZSI. The annual action plan of ZSI shows that ZSI had planned to undertake 120 tours covering six areas over the period 1994-2001, 112 of which were finally undertaken. Number of tours planned during a year declined from 37 planned in 1994-95 to only 7 in 2000-01, though the men-in-position had remained almost the same. No tour was planned or undertaken for survey of three areas, Himachal Pradesh, Uttar Pradesh and Gujarat. MoEF in reply (December 2000) stated that the survey of these three regions was an on-going project. The reply of the Ministry is not tenable in view of the fact that no tour was planned or undertaken which was essential for completion of survey.

No tour was undertaken for HP, UP and Gujarat

Of the nine areas where survey remained to be completed as on June 2001, functioning of task force in four areas, Uttar Pradesh, Andaman & Nicobar Islands, Ladakh and Jammu & Kashmir were test checked in audit for the period 1994-2001. 22 tours were planned in these areas as per annual action plan of which 19 were undertaken.

Despite directives of the Ministry adequate efforts were not made for re-deployment and recruitment of staff

Test audit revealed that despite directives of the Ministry, sufficient efforts for re-deployment and recruitment of staff were not made. MoEF in 1987 had directed ZSI to revise the strength of existing task force in Uttar Pradesh from nine to 13. The additional manpower was to be arranged through recruitment and redeployment. ZSI did not redeploy the staff after 1987. Only one non-

technical staff member was recruited. The 'faunal' resources of Jammu & Kashmir was to be surveyed by 1993 by strengthening the task force of High Altitude Zoology Field Station (HAZFS), Solan. MoEF directed ZSI to revise the strength of the task force from five to nine by recruitment. Though four posts were created only two were filled.

The progress of the 'faunal' survey of an area was not evaluated at any stage

To assess the efficacy of the tours undertaken for the surveys, tour reports, half-yearly evaluation report of ZSI and minutes of PAC meetings were studied. It was seen that the efficacy of the tours for survey has not been commented on at any stage. The progress of the 'faunal' survey of an area had also not been evaluated at any stage, which is indicative of lack of effective monitoring on part of ZSI as well as the Ministry.

MoEF had also identified 17 areas for survey under second priority and had desired completion of the work between 1988 and 1996. The status of survey as of June 2001 under second priority areas was as follows:

Sl. No.	Area and State	Target Year	Status (As of June 2001)	Time Overrun (years)
ESTUARINE AND BRACKISHWATER ECOSYSTEMS				
1.	Chilka Lake, Orissa	1988	Not completed	13
2.	Sunderbans, West Bengal	1988	-do-	13
3.	Rushikuliya Estuary, Orissa	1988	-do-	13
4.	Hooghly-Matla, West Bengal	1988	Completed	
5.	Mahanadi Delta, Orissa	1993	Completed	
6.	Krishna-Godavari Delta, Andhra Pradesh	1995	Not completed	6
FRESHWATER ECOSYSTEMS				
7.	Osman Sagar, Andhra Pradesh	1993	Completed	
8.	Kabar, Bihar	1992	Not completed	9
9.	Dal and Wular, Jammu	1994	Not yet initiated	7
10.	Gobind Sagar, Punjab	1995	Not yet initiated	6
11.	Loktak, Manipur	1996	Not completed	5
BIOSPHERE RESERVES				
12.	Nilgiri (Tamil Nadu, Karnataka and Kerala)	1990	Not completed	11
13.	Nanda Devi (Uttar Pradesh)	1990	-do-	11
WETLANDS				
14.	Ashtamudi (Kerala)	1991	Completed	
15.	Ujni (Maharashtra)	1991	Completed	

Sl. No.	Area and State	Target Year	Status (As of June 2001)	Time Overrun (years)
MANGROVES				
16.	Sunderbans (West Bengal)	1989	Not completed	12
17.	Andamans (Andaman & Nicobar)	1989	-do-	12

ZSI did not undertake any tour in respect of nine areas out of 12

ZSI did not complete survey of 12 out of 17 areas till June 2001, despite time overrun ranging from five to 13 years. ZSI did not maintain any records showing surveys undertaken over the period 1987-1993. Over the period 1994-2001, ZSI planned 36 tours and undertook 26 tours for survey of second priority areas. Number of tours planned during a year declined from eight tours planned in 1994-95 to only one tour in 2000-01, though there was no decline in manpower. ZSI did not undertake any tour during 1994-2000 in respect of nine areas out of 12.

Test check of three areas namely, Dal and Wular (Jammu and Kashmir), Govind Sagar (Punjab), and Loktak (Manipur) was taken up in audit.

Survey of Loktak, Manipur was to be completed by 1996. Scrutiny revealed that ZSI undertook only one survey in 1996-97 out of five surveys, which were planned during 1994-2001. MoEF stated in December 2000 that the survey and inventorisation was partially completed by the Scientist who was later posted to Hyderabad. However, the work remained incomplete as of June 2001.

MoEF directed ZSI in 1987 to complete survey of Dal and Wular (Jammu and Kashmir) by 1994 by strengthening the joint task force from Freshwater Biological Station (FBS), Hyderabad and High Altitude Zoology Field Station, Solan. But the survey of the area was not initiated as yet. MoEF stated in December 2000 that the survey could not be initiated due to lack of scientific manpower in FBS, Hyderabad. Thus, due to failure to associate scientific staff, the surveys of Dal and Wular (Jammu and Kashmir) remained incomplete as of June 2001.

Survey in respect of Govind Sagar (Punjab) was to be completed by 1995 by strengthening the joint task force from FBS, Hyderabad and Northern Regional Station, Dehradun as per directives of MoEF of 1987. But the survey work was not initiated as yet. MoEF stated in December 2000 that the survey was not initiated due to lack of manpower at FBS, Hyderabad. Thus, survey of Govind Sagar (Punjab) remained incomplete as of June 2001.

3.1.6 Slow progress of taxonomic studies

3.1.6.1 *In view of non-completion of 'faunal' survey, taxonomic studies of specimens could not be completed*

Taxonomic studies are intended to identify and classify organisms and place them in appropriate taxons.

Taxonomic studies are conducted following collection of specimens during survey. MoEF had directed in 1987 that the taxonomic study of the specimens collected were to be completed within an year's time following the collection. Thus, completion of taxonomic studies of first priority areas was scheduled to be completed by 1994 and that of second priority areas by 1997. Since the surveys of nine first priority areas and 12 second priority areas were not completed as of June 2001, taxonomic studies too were not complete. Audit found that ZSI did not maintain any records showing year-wise number of specimens collected and taxonomically identified. Thus, taxonomic studies could not be completed by ZSI.

3.1.6.2 *Equipment meant for taxonomic studies remained underutilised*

Non-utilisation of equipment since April 1996 for want of trained manpower

ZSI procured one Scanning Electron Microscope at a cost of Rs 22.68 lakh in August 1989 for enhancing its functional capabilities in ascertaining the taxonomic identity of animal species. The equipment was installed in August 1990 and was being used up to March 1996. However, it remained unutilised since April 1996 for want of trained manpower. MoEF stated in December 2000 that efforts were being made to train scientists of ZSI in different institutions to use the microscope. Thus, failure of ZSI to provide trained manpower resulted in under utilisation of the equipment costing Rs 22.68 lakh.

3.1.7 Status survey of endangered species

Status survey of 66 species of mammals, 46 of birds, three of amphibians and large number of invertebrates remained to be completed as of June 2001. Only survey of 11 mammals could be done.

The objective of status survey of endangered species is to determine the range of distribution, range of movement, population status, habitat and ecological requirement along with threat factors etc. of endangered species. MoEF, in 1987, had directed ZSI to conduct status survey of 77 species of mammals, 46 species of birds, 15 species of reptiles, 3 species of amphibians and large

number of invertebrates by 1995. ZSI did not prepare any plan to achieve the target. The status survey was to be completed on priority basis by deploying scientists from Regional Stations and the Headquarters. However, ZSI undertook status survey of only 11 species (mammals). Non-completion of status surveys of remaining species within the target date was attributed to the retirement of several scientists/specialists. The reply has to be viewed in the light of the fact that no proper action was taken by ZSI to fill the posts arising due to retirement.

Though MoEF stated in December 2000 that ZSI had undertaken status survey of 11 species, it was seen from the records of ZSI that it had completed status survey of only eight endangered species. Of eight completed surveys, ZSI published status report of only three endangered species as of April 2001.

3.1.8 Publications

ZSI publishes Fauna of India and Fauna of States which provides the identification keys and distributional ranges of the species and genera belonging to a particular group as well as of species of economic importance. Publication of other priced journals interalia provides guidelines for the management of species as well as conservation areas. This literature also serves as the foundation of different Environmental Impact Assessment studies and generates base line data for applied research particularly in the field of wildlife management, medicine, pest management and fisheries.

MoEF in December 1987 had targeted publication of at least 50 volumes of Fauna of India during 1991-2000. It was, however, observed that only nine volumes on Fauna of India were published by ZSI during 1991-2001. Poor progress was due to delay in submission of volumes on Fauna of India by the respective groups of experts. Thus, 41 volumes of Fauna of India were yet to be published even after expiry of one year after the target date of 2000.

Publication of Fauna of States provides complete information on the 'faunal' wealth of the country. MoEF in December 1987 had set a target for compilation of data and publishing the fauna of all the 20 States by 2000. However, ZSI had published only six state Fauna series, namely Orissa, Lakshadweep, West Bengal, Meghalaya, Andhra Pradesh and Delhi. Test check of state fauna projects revealed that they were behind schedule for periods ranging between two and six years.

ZSI publishes the results of survey and studies in its priced journals. The journals are (i) Records of ZSI (Quarterly), (ii) Memoirs of ZSI (Occasional),

(iii) Bibliography of Indian Zoology (Annual) and (iv) Annual Reports of the ZSI. It was observed that during 1994-95 to 2000-2001, ZSI published 4800 copies of Records of ZSI worth Rs 14.95 lakh. Of these, 2265 copies worth Rs 6.11 lakh were lying unsold as of April 2001. Similarly, out of 1400 copies on Memoirs of ZSI worth Rs 2.96 lakh which were published during 1994-2001, 421 copies worth Rs 0.89 lakh were lying unsold as of April 2001. The Bibliography of Indian Zoology for the years 1991,1992 and 1993 was belatedly published in April 1999. The Annual Report for the year 1992-93 was published in May 1995. Besides, the Bibliography of Indian Zoology was not published after April 1999 and the Annual Report was not published after 1995.

3.1.9 Non commissioning of Marine Aquarium and Research Centre, Digha

The setting up of Marine Aquarium and Research Centre (MARC), Digha was approved by the Planning Commission during the Sixth Five Year Plan period with the objective of exhibiting live marine fauna in an aquarium for education and recreational purposes as well as to conduct research on selected marine forms in captivity. The centre was planned to be operational by 1990.

Mention was made in paragraph 3.2.10 of Report of the Comptroller and Auditor General of India (Scientific Departments) for the year ended March 1991 regarding delay in commissioning of MARC at Digha despite incurring an expenditure of Rs 233.08 lakh up to June 1990. MoEF had stated in its Action Taken Notes in March 1993 that the aquarium would be commissioned in the latter half of 1993. However, the centre could not be commissioned as of June 2001. Civil construction in regard to the aquarium was completed by Central Public Works Division (CPWD) in 1990-91. During trial run in November 1991, CPWD found that the pumps meant for water circulation system were defective and intimated ZSI in April 1992. Despite being aware of the defects in pumps of the intake well and also in pumps installed in the aquarium, ZSI awarded a work order to a private firm in August 1992 at a cost of Rs 48.95 lakh for the supply of live animals and for furnishing the aquarium. In November 1992, the firm requested ZSI to rectify the defects in the system. ZSI, instead of taking up the matter with CPWD for rectifying the defects asked the firm in March 1994 to rectify the defects in the system as an additional work outside scope of contract. The cost of additional work was to be assessed by CPWD. The firm fitted the pumps but did not connect them for water circulation. The firm requested ZSI in July 1995 that the pre-assessment of works already done by the firm, along with the work of connection to be

done should be worked out by ZSI through CPWD within August 1995. ZSI, without conducting any pre-assessment cancelled the contract in December 1995 without assigning any reasons. ZSI had paid an amount of Rs 34.37 lakh to the firm towards part payment for the work.

Project visualised in Sixth Five Year Plan had not been commissioned as yet

ZSI did not pursue the matter with CPWD for about four years and approached them only in November 1999 to rectify the defects of the water circulation system and furnish the aquarium. Thus, the project visualised in the Sixth Five Year Plan (1980-85) and scheduled for commissioning in 1990 had not been commissioned as yet.

MoEF stated in December 2000 that ZSI could not commission the Centre as the entire matter was subjudice throughout the period from 1995 till date. The reply of MoEF was not tenable since the balance works could have been done by inviting fresh tender as suggested by the Ministry of Law, Justice and Company Affairs after cancellation of the contract. The reply of MoEF has also to be viewed in light of its own observation made in March 2000 that ZSI had not properly pursued the case.

As a result of non-commissioning of MARC, Digha, research studies on commercially threatened species like Seahorse, Seacucumbers, Sacred Chanck, Horseshoe Crab, Ornamental Coral Reef, associated species like Turbo Trochus, Fishes etc. which could be reared in the laboratory and ranched into the wild to safeguard and ensure future breeding of the species in the wild, could not be undertaken. Research in captivity could not be undertaken to prevent possible extinction of commercially threatened species like Sea Horse. As regards research studies on commercially threatened species, MoEF stated in December 2000 that the species which were pointed out by audit were not normally found in the Digha coast. The contention of MoEF was to be viewed in light of its comment that the said species were only to be reared in the MARC, Digha. ZSI did not offer any comments on this issue. As regards research in captivity, MoEF accepted the facts and stated in December 2000 that it would be taken up as soon as the water circulation system was made functional by CPWD.

3.1.9.1 *Costly equipment remained idle for a long time*

Two costly equipment worth Rs 49.25 lakh procured at the MARC, Digha remained idle for long periods as detailed below :

One Amino Acid Analyser procured by ZSI in 1992 at a total cost of Rs 36.25 lakh for ascertaining the amino acid structure, its pattern and chemical

configuration in the biological tissue comprising of protein/peptides for marine species, had not been commissioned till December 2000. MoEF stated in December 2000 that due to closure of the foreign firm immediately after its import the instrument could not be commissioned. MoEF also stated that the equipment would be made operational by locating a local suitable company. ZSI stated in April 2001 that many local companies had been approached for repair and maintenance of the machine. The reply of ZSI disclosed the fact that the instrument had not been commissioned (April 2001).

Equipment procured in 1994 remained unutilised due to lack of expertise

One High Performance Liquid Chromatography (HPLC) system procured by ZSI in February 1994 at a cost of Rs 12.96 lakh for monitoring of marine pollution and biological contents study, was not utilised due to lack of expertise. MoEF stated in December 2000 that HPLC was being used at MARC, Digha. However, ZSI itself had stated in May 2000 that the equipment was not being utilised.

3.1.10 Monitoring

There was inadequate monitoring of schemes in ZSI

ZSI has three committees to monitor and evaluate its research activities. While Screening Committee (SC) and Half Yearly Monitoring Committee (HYMC) consists of members from ZSI, Programme Advisory Committee (PAC) consists of the members from MoEF, ZSI and experts from other organisations. Though SC met annually and HYMC met twice a year as per prescribed frequency during 1994-2000, PAC met only on three occasions. No meeting was conducted up to July 2000 as against two meetings in a year as prescribed by MoEF in January 1997.

Though the discussion of PAC was minuted, the discussion of SC and HYMC were not minuted during 1994-2001. In the absence of recorded minutes of these two committees, follow up action on important suggestions/ recommendations of the members could not be verified. Though PAC was constituted by MoEF to conduct comprehensive study of various aspects of ZSI, its minutes did not establish that various aspects of ZSI had in fact been comprehensively studied by the said committee. Scrutiny of the minutes of PAC revealed that the projects were not evaluated with reference to target and shortfalls. The reasons for delay in completion of the project and remedial measures proposed thereon were also not recorded. In the absence of such recorded details, Audit could not evaluate the effectiveness of monitoring mechanism in ZSI.

3.1.11 Conclusion

ZSI failed to fulfil its primary objectives of exploration and survey of 'faunal' resources, taxonomic studies, status survey of endangered species, publication of results, adversely affecting data required for eco-conservation and biodiversity programmes of the government.

ANNEX-I

ORGANISATIONAL CHART

DIRECTOR

HQ at Calcutta (Divisions)	16 Field Stations
1. Lower Invertebrate Division	1. Eastern Regional Station, Shillong (Meghalaya)
2. Crustacea Division	2. Desert Regional Station, Jodhpur, (Rajasthan)
3. Malacology Division	3. Gangetic Plains Regional Station, , Patna (Bihar)
4. Entomology Division (A)	4. Northern Regional Station, Dehradun.
5. Entomology Division (B)	5. High Altitude Zoology Field Station, Solan (H.P.)
6. Arachnology Division	6. Western Regional Station, Pune (Maharashtra)
7. Fish Division	7. Central Regional Station, Jabalpur (M.P.)
8. Herpetology Division	8. Marin Biological Station, Chennai (Tamil Nadu)
9. Hicher Chordeta Division	9. Southern Regional Station, Chennai (Tamil Nadu)
10. Palaeozoology Division	10. Andaman & Nicober, Regional Station, Port Blair.
11. Ecology Division	11. Fresh Water Biological Station, Hyderabad (A.P.)
12. Wildlife Conservation Division	12. Estuarine Biological Station, Berhanpur (Orissa)
13. Field Survey Division	13. Western Ghat Regional Station, Calicut (Kerala)
14. Training and Extension Division	14. Arunachal Pradesh Field Station, Itanagar (A.P.)
15. Museum and Taxidermy Division	15. Marin Aquarium & Research Centre, Digha, W.B.
16. Fauna Division	16. Sundarban Field Research Station, W.B.
17. Information & Documentation Division	
18. Publication Division	

CHAPTER 4 : COUNCIL OF SCIENTIFIC AND INDUSTRIAL RESEARCH

4.1 Infructuous expenditure on purchase of equipment

Structural Engineering Research Centre, Ghaziabad procured a Microprocessor Controlled Pressure cum Voltage Scanning system at a total cost of Rs 25.41 lakh. The equipment remained uninstalled ten years after its purchase.

Structural Engineering Research Centre (SERC), Ghaziabad placed a purchase order on M/s Pressure, USA for import of Microprocessor Controlled Pressure cum Voltage Scanning (MCPVS) system in March 1989 at FOB (Free on Board) cost of Rs 25.09 lakh. The MCPVS system is a device used to measure dynamic pressures on various parts of a model placed in an Industrial Wind Tunnel (IWT). The equipment is specific to the IWT. Though the delivery was scheduled for August 1989, the incomplete system was received only in July 1990. The remaining parts of the system were received in March/ May 1991. SERC also paid freight charges of Rs 0.32 lakh in July 1990. Efforts were made to install the equipment in September 1991 without success. In July 1992, the Indian agent reported that the 200 MB Maxter hard disk could not be repaired and required replacement. Software for initialisation, calibration, and data acquisition was in the said hard disk. However, the hard disc was not replaced. SERC did not take further steps to obtain the replacement. Five years later, in August 1997, SERC Ghaziabad contacted SERC, Chennai and M/s HP – India for help in installation of the system with the model wind tunnel but without result. In March 1998, SERC also contacted an expert from National Aerospace Laboratories (NAL), Bangalore. However, no progress could be made in the matter. The MCPVS system procured at a cost of Rs 25.41 lakh remains un-installed ten years after its purchase.

The warranty clause given by the supplier was effective for a period of one year from the date of shipment instead of from the date of satisfactory installation. SERC could, therefore, not enforce replacement of the damaged hard disk. As the hard disk was central to the functioning of the equipment, the MCPVS system remained uninstalled (May 2001).

In reply, SERC accepted that the equipment was still lying un-installed. However, SERC stressed that there was no loss due to this non-installation as the MCPVS system was required for measurement on large models in the IWT which finally was not set up in SERC, Ghaziabad. Pressure measurements on the model wind tunnel could be handled efficiently by the strain gauge, an alternative pressure-measuring device. However, the reply of SERC does not detract from the fact that the MCPVS could not be installed even after ten years. Since the equipment was no more required as setting up of IWT had been shelved, the entire expenditure of Rs 25.41 lakh on procurement of the MCPVS had been rendered infructuous.

Audit reported the matter to the Department in July 2001; who have not replied as of December 2001.

4.2 Wasteful expenditure on import of equipment

Central Fuel Research Institute attempted to install and commission sophisticated equipment imported at Rs 18.57 lakh without adequate expertise. Attempts to install and commission the equipment with the help of National Chemical Laboratory also failed. The equipment was lying unused and in defective condition since 1994, rendering the entire expenditure wasteful.

Central Fuel Research Institute (CFRI), Dhanbad imported Automatic Gieseler Plastometer from M/s W. Feddeler GmbH & Co, Germany at a cost of Rs 18.57 lakh in October 1994. The equipment was required for determining initial softening point, maximum fluidity and solidification temperature which are the vital critical parameters of coal, essential for proper utilisation of coal for the purpose of production of steel and other grade cokes. Since installation and commissioning were not the responsibility of the supplier, CFRI attempted installation/commissioning of equipment in December 1994. However, the equipment could not be commissioned. This was taken up with the supplier in February 1995 and one defective part was replaced. CFRI in January 1998, commissioned the equipment with the help of National Chemical Laboratory (NCL), Pune on payment of Rs 0.95 lakh as consultancy charges. However, the equipment did not run and all attempts to utilise the equipment thereafter during January 1998 were not successful. The

equipment has continued to remain in this defective condition and has remained unused from January 1998 to date.

Though it lacked the expertise to commission the equipment, CFRI did not make the supplier responsible for installation and commissioning the equipment. This resulted in equipment imported at Rs 18.57 lakh remaining defective and unused since its receipt in October 1994. Besides, Rs 0.95 lakh spent as consultancy charges to NCL was also unfruitful.

Audit reported the matter to the Department in August 2001, who have not replied as of December 2001.

4.3 Irregular subsidy

Failure of Central Electro Chemical Research Institute, Karaikudi to get a separate low tension power supply for the staff quarters resulted in irregular subsidy of Rs 18.57 lakh to the employees.

Central Electro Chemical Research Institute (CECRI), Karaikudi, a constituent unit of Council of Scientific and Industrial Research gets high tension electricity from Tamil Nadu Electricity Board (TNEB) for its office premises. Initially, when the rates for the high tension supply were lower than the domestic rates, CECRI extended the supply to the staff quarters also and occupants were charged at the same rates as applicable for the high tension supply.

Subsequently, the rates for high tension and low tension (domestic) power supplies were raised from time to time, during 1994-2001. The rate per unit for high tension power supply increased from Rs 2.10 in 1994-95 to Rs 2.45 in 1998-99 and to Rs 2.80 from January 2000. For domestic power supply the charges were levied in slab rates based on consumption from Re 0.60 to Rs 2.20 during the period 1994-95 to 1997-98, Re 0.65 to Rs 2.75 during 1998-99 and Re 0.75 to Rs 3.05 in January 2000.

However, during the above period, CECRI had been recovering electricity charges from the occupants of staff quarters at the rates applicable to low tension power supply but was paying TNEB at the rates applicable to high tension power supply. Thus, CECRI had been subsidising electricity supplied

to its employees for their domestic use, by not obtaining low tension domestic supply line for the staff quarters. The irregular subsidy on this account during the period from April 1994 to March 2001 amounted to Rs 18.57 lakh.

CECRI stated in January 2001 that the matter regarding separate low tension connection for quarters was taken up with TNEB during 1995. Though CECRI furnished certain details in June 2001, information regarding requirement of power load for quarters, other facilities etc. called for by TNEB in July 2001 were yet to be furnished.

Thus, the failure to get a separate low tension connection for staff quarters and lack of follow up action since 1995 to get the same resulted in irregular subsidy of Rs 18.57 lakh to the employees.

Audit reported the matter to the Department in August 2001; who have not replied as of December 2001.

4.4 Avoidable expenditure

CFRI incurred avoidable expenditure of Rs 78.29 lakh during 1991-92 to 2000-01 towards consumption of electricity.

Central Fuel Research Institute (CFRI), Dhanbad entered into an agreement with Bihar State Electricity Board (BSEB) in January 1963 for supply of electrical energy in bulk through High Tension Line for use in its Laboratory and the staff quarters. BSEB is charging industrial rate for supply of electrical energy. However, CFRI was recovering charges at domestic rate for energy supplied to the occupants of the staff quarters which was lower than the industrial rate at which it was making payment to BSEB. Mention was made in Para 36 of the Report of the Comptroller and Auditor General of India for the year ended March 1990 (No.2 of 1991) regarding the loss of Rs 7.32 lakh which was sustained by CFRI for supplying electricity to the occupants of the staff quarters during the period April 1987 to March 1990. CSIR stated in November 1990 that BSEB had been requested to provide separate individual connections to the occupants of the staff quarters. BSEB expressed its inability in September 1991 in giving service connection to the individual staff quarters. But CFRI did not assess the amount of liability to be borne by it in

the event of delinking by BSEB. It was, however, noticed that during 1991-2001 CFRI paid Rs 132.53 lakh to BSEB for electricity supply to the staff quarters and recovered only Rs 54.24 lakh.

CFRI stated in April 2001 that BSEB would not like to take on the liability of CFRI for giving service connection to the individual quarters. In order to avoid payment of extra expenditure towards consumption of electricity, CFRI should have assessed the economics of separating the connection and assured BSEB that it would make the necessary payment.

Thus, inadequate initiative on the part of CFRI resulted in incurrring avoidable expenditure of Rs 78.29 lakh during 1991-2001 towards consumption of electricity. Such avoidable expenditure would continue till such time separate service connections are provided to individual quarters.

Audit reported the matter to the Department in September 2001, who have not replied as of December 2001.

4.5 Unproductive expenditure

Injudicious initiation of the work on an inter-laboratory project before ensuring release of fund by the sponsor (i.e. the Department of Power) resulted in unproductive expenditure totalling Rs 22.06 lakh.

Council of Scientific and Industrial Research (CSIR), New Delhi submitted an inter-laboratory project titled "High Concentration Coal Slurry" costing Rs 379.33 lakh to the Department of Power for funding. Regional Research Laboratory (RRL), Bhubaneswar, RRL, Bhopal, Central Fuel Research Institute (CFRI), Dhanbad, National Metallurgical Laboratory (NML), Jamshedpur and Central Mechanical Engineering Research Institute (CMERI), Durgapur were to participate in the project. The Technical Advisory Board of CSIR advised the participating laboratories/institutes to initiate the work on the project from April 1991 without the consent/approval of the sponsor for funding the project.

NML, Jamshedpur and CMERI, Durgapur did not initiate the work for non-release of fund for the project. However, CFRI Dhanbad, RRL Bhopal and RRL Bhubaneswar started the work on the project from April 1993, May 1993

and July 1994 respectively. RRL, Bhopal conducted the work up to June 1993 and incurred an expenditure of Rs 0.20 lakh. Since no funds for the project were released by the Department of Power, CFRI closed the project in October 1994, whereas RRL Bhubaneswar continued till December 1997 and incurred an expenditure of Rs 21.86 lakh. CFRI expressed its inability to intimate the expenditure which it had incurred on the project up to the date of closure since separate accounts for the in-house projects had not been maintained.

Thus, initiation of the work on the inter-laboratory project before ensuring release of funds by the sponsor (i.e. the Department of Power) resulted in unproductive expenditure totalling Rs 22.06 lakh being incurred by the participating laboratories of CSIR.

Audit reported the matter to the Department in August 2001, who have not replied as of December 2001.

CHAPTER 5 : MINISTRY OF INFORMATION TECHNOLOGY

5.1 Undermining Parliamentary Financial Control

The decision of Secretary, Ministry of Information Technology, to credit Government receipts into a separate account instead of Consolidated Fund of India and to incur expenditure out of it, violated the provisions of the Constitution of India and the financial rules and put the expenditure beyond the financial control of the Parliament.

The unauthorised approval of the Ministry of Information Technology (MIT) to credit revenue receipts earned through its Standardisation, Testing & Quality Certification (STQC) Directorate on account of services offered to the electronic industry, outside the Consolidated Fund of India put the expenditure beyond the financial control of the Parliament. The decision of the Ministry was against the provisions of Article 266 of the Constitution of India, under which all revenues received by the Government of India, all loans raised by the Government by the issue of treasury bills, loans or ways and means advances and all moneys received as repayment of loans shall form one Consolidated Fund of India.

Standardisation, Testing and Quality Certification (STQC) Directorate is an attached office of MIT, erstwhile Department of Electronics (DOE). It operates laboratories/ centres through out the country and offers services including testing, calibration, certification, training, counselling and developmental assistance to the electronic industry. Prior to September 1994, money earned by STQC centres/laboratories was deposited into government account.

With the establishment of Society for Electronics Test Engineering (SETE) an autonomous body under STQC Directorate in February 1994 and with the concurrence of Integrated Finance Division (IFD) and approval of the Secretary, DOE, it was decided to entrust marketing and business development of STQC services to SETE in September 1994. Income generated from these services would be credited to SETE and would be utilised for meeting the requirements of STQC. In September 1994, STQC issued directives to all its

laboratories that revenue earned on training, seminars, workshops, counselling, certification and specialised testing etc. should be deposited with SETE. A bank account (Service Account) was also opened by SETE in September 1994 in which the receipts from laboratories/centres of STQC was asked to be credited. Over the period 1994-2000, an amount of Rs 11.29 crore including interest had accumulated under this account.

In March 1999, Secretary, MIT permitted STQC to incur expenditure of Rs 9 crore out of these funds towards procurement of equipment of laboratories/centres. An amount of Rs 0.16 crore was also spent on revenue expenses. The balance amount of Rs 2.13 crore was credited to the Consolidated Fund of India.

The decision of DOE/MIT was questionable on the following grounds:

(i) Being an attached office of a government department, the income generated by laboratories/centres of STQC was revenue of the Government. As per Rule 6 of the Receipt & Payment (R&P) Rules and Rule 3 of the General Financial Rules, all moneys received on account of revenues or receipts shall without undue delay be paid in full into the accredited bank for inclusion in Government account. The approval of the Secretary, DOE for crediting the Government receipts in other than Consolidated Fund of India violated the Financial Rules as well as Article 266 of the Constitution of India.

(ii) As per Article 114 (3) of the Constitution of India, no money can be withdrawn from the Consolidated Fund of India except under appropriation made by law passed in accordance with that Article. Since the amount earned by laboratories/centres of STQC as revenue ought to have been credited to Consolidated Fund of India, no expenditure could be met against this, save with the authority of the Parliament. By incorrectly crediting receipts to the SETE service account and meeting the expenditure out of it, the Ministry by-passed the authority of Parliament. The decision also violated the R&P Rules since Government receipts are not to be utilized for meeting departmental expenditure.

(iii) For any change in the accounting procedure, Department/ Ministry is required to consult the Comptroller and Auditor General of India. However, it did not consult the Comptroller and Auditor General of India before changing the Accounting procedure. Even the

Controller General of Accounts was not consulted as it was mandatory under Rule 191 (2) of R&P Rules of the Government of India.

MIT stated in August 2001 that SETE services account was closed in 1998-99. However, it was seen in audit that the account was still continuing as of March 2001 with a closing balance of Rs 1.63 lakh.

A similar case had appeared as Paragraph 17.1 in Report No. 2 of 2000 (Civil) pertaining to Ministry of Textiles, where funds were kept outside Consolidated Fund of India and expenditure was incurred. The Public Accounts Committee had examined the case and had observed that by spending money without approval of the Parliament the action of the Ministry had the effect of bypassing the authority of Parliament.

5.2 Failure of department to safeguard financial interest of the State

Failure of Department of Electronics to safeguard interest of the Government while sanctioning funds to the firms resulted in unintended benefit to them and non-recovery of Rs 40.25 lakh.

Under appropriate Automation Promotion Programme of Ministry of Information Technology (MIT) erstwhile Department of Electronics (DOE), Centre for Development of Electronic Systems (CDES), at Central Electronics Engineering Research Institute (CEERI), Chennai, had developed state of the art electronic instruments and system for modernising the Indian Pulp and Paper industry. To prove its commercial worthiness, a programme was taken up to build a commercial system under the Technology Mission Programme of DOE in collaboration with the user industry. The objective of the programme was to enhance productivity of small/medium paper mills of the country at an affordable price. The methodology was used to demonstrate the concept of retrofit automation of existing paper mills with the electronics instrumentation and system for establishing a cost effective system. The implementing agency was CDES, at CEERI Chennai.

M/s Sidharth Paper Mills, a division of M/s Rollatainers Ltd., Faridabad was identified by DOE for this project. It was jointly agreed in December 1993 that the total cost of Rs 47.50 lakh would be shared between M/s Rollatainers Ltd.

and DOE, their respective shares being Rs 25.00 lakh and Rs 22.50 lakh. The DOE share was given as initial project advance to be repaid by M/s Rollatainers in three yearly instalments without any interest after expiry of one year from date of handing over of the equipment to the company. Accordingly, DOE sanctioned a project titled "Retrofit Automation in paper sector (Sidharth Paper Mills)" in March 1994 at a total cost of Rs 47.50 lakh. The duration of the project was two years. The funds to the extent of Rs 20.25 lakh was released in March 1994 and May 1995 with the concurrence of the Integrated Finance Division (IFD) of the Department. The fully functional system was handed over to the firm in October 1997. As per the repayment terms of the retrofit project, M/s Rollatainers was to pay back Rs 20.25 lakh in three equal instalments, due in March 1998, March 1999 and March 2000. However, none of the instalments had been repaid to DOE as of May 2001.

Similarly, DOE sanctioned in December 1995 another project titled "Retrofit Automation in Paper Sector (Mysore Paper Mills, a State Government Undertaking)" at a total cost of Rs 45 lakh. The project time frame was two years. DOE contribution was Rs 20 lakh as an advance to be paid back on mutually agreed terms. Accordingly, DOE released Rs 20 lakh between December 1995 and December 1997. The duration of the project was extended up to March 1998. The retrofit automation system was taken over by the Mysore Paper Mills in July 1998 after satisfactory performance of all the sub-systems. According to mutually agreed terms, the firm was required to refund the advance without any interest in three instalments due in January 2000, July 2000 and January 2001. Audit found that the firm has not paid any instalment as of May 2001.

The Department in both cases, requested the firms for repayment. The crucial snag Audit noted was that DOE advanced these funds without signing any formal agreement and without obtaining security in the form of Bank guarantee/ bonds to safeguard the interest of government in the event of non-payment by the firms. This clearly points to a lapse in safeguarding the financial interest of the Department. The fact that the project was sanctioned after clearance from the IFD of the Department makes this omission more serious. It is noticed that no further action has been taken by DOE to obtain refund.

In reply, MIT in August 2001 stated that it was not felt necessary to obtain bank guarantees or bonds etc. as it was considered that the participating industries were also taking a certain amount of risk in this process and added

that efforts were on to recover the funds from the firms. However, the retrofitting operation had been carried out successfully to the satisfaction of the firms and the systems helped them enhance production. MIT in September 2001 has added that when it started pressing the firms for payment, both the firms have avoided doing so citing non-satisfactory working of the systems. Thus, the recovery of funds advanced to the firms remains doubtful.

Thus, failure of DOE to safeguard interest of the Government while sanctioning funds to the firms resulted in extension of unintended benefit to them and also non recovery of Rs 40.25 lakh.

5.3 Non-recovery of unspent grant after completion of a project

Unspent grant of Rs 45.19 lakh lying with C-DAC after completion of project has not been refunded even after a lapse of nearly three years.

The Ministry of Information Technology (MIT) erstwhile Department of Electronics (DOE) approved in March 1994 a mission mode project on fibre optic system and products at a total outlay of Rs 451.30 lakh for implementation in four years by three agencies including Centre for Development of Advanced Computing (C-DAC), Pune. The project was aimed at development of fibre optic products in the country. C-DAC's share of project cost was Rs 180.50 lakh of which DOE's contribution was Rs 117.50 lakh and C-DAC was to contribute Rs 63 lakh. While expenditure on equipment, travel, system engineering and market development were attributable to DOE, C-DAC was to defray the expenditure on consumables and contingencies. The staff salary component of Rs 43 lakh was to be shared, Rs 30 lakh by DOE and Rs 13 lakh by C-DAC.

Between March 1994 and October 1997, DOE released the entire quantum of Rs 117.50 lakh based on financial progress report submitted by C-DAC. The project was completed in December 1998 on which C-DAC had spent only Rs 124.75 lakh of which Rs 72.31 lakh was attributable to DOE. Thus, an amount of Rs 45.19 lakh remained unspent out of the grants given by DOE. Besides, C-DAC earned Rs 6.78 lakh by way of interest up to 1997-98 out of the grants released.

C-DAC did not refund the excess grant of Rs 45.19 lakh and accrued interest of Rs 6.78 lakh after completion of the project.

When audit brought this to the notice of MIT in July/August 2000 the Ministry directed C-DAC in March 2001 to refund the excess grant of Rs 45.19 lakh rejecting the argument of C-DAC that the excess release was for overhead charges. The C-DAC has not refunded the excess released grant so far (November 2001).

MIT stated in November 2001 that the excess grant of Rs 45.19 lakh would be recovered from the future releases to C-DAC.

CHAPTER 6 : DEPARTMENT OF SCIENCE AND TECHNOLOGY

6.1 Avoidable expenditure

Failure to take timely action for completion of construction work resulted in avoidable expenditure of Rs 42.98 lakh on the power not actually consumed from July 1995 to August 2000.

Satyendra Nath Bose National Centre for Basic Sciences (SNBNCBS), Kolkata an autonomous body of Department of Science and Technology (DST) planned to construct its own building at Calcutta in two phases. Phase-I commenced in December 1990. SNBNCBS, without ensuring funds for construction of Phase-II entered into an agreement with the West Bengal State Electricity Board (WBSEB), Kolkata in July 1994 for supply of electricity for a period of five years ranging from 350 KVA to 1000 KVA for both phases of the proposed building.

As per the agreement, the Centre was required to pay minimum charges per annum for the contracted demand. SNBNCBS, even before approaching DST for sanction of funds for Phase-II obtained electric connection from WBSEB in June 1995. Phase-I of the construction was completed in July/August 1995 and SNBNCBS shifted to the new campus in January 1996. Phase-II of the construction was yet to commence as no proposal for expenditure sanction had been sent to DST. Despite the uncertainty of time schedule regarding Phase-II construction, the Centre did not approach WBSEB under the provisions of the agreement to reduce the contracted demand. During the period up to August 2000 the actual consumption ranged between 210 KVA and 282 KVA. The Centre paid Rs 42.98 lakh as charges for the shortfall of average minimum guaranteed revenue during this period in addition to regular charges for electricity consumed.

SNBNCBS approached WBSEB only in May 2000 to reduce the contracted demand only after expiry of agreement of July 1994 though pointed out as early as 1996 by Audit. Accordingly, WBSEB reduced the contracted demand through a fresh agreement on 31 August 2000. Thus SNBNCBS had incurred an avoidable expenditure of Rs 42.98 lakh for the power not consumed by it during the period July 1995 to August 2000 as the actual consumption of power was much below the contracted demand.

SNBNCBS stated in August 2000 that the Centre could not review the future power demand, as the construction work was uncertain due to legal case. The reply is not tenable, as the Centre had failed to take appropriate action to get the contracted demand reduced in view of the uncertainty of construction under Phase-II. DST has not sanctioned funds for Phase-II of the construction till October 2001.

Thus, failure to take appropriate action of getting contracted demand reduced and delay in obtaining sanction of DST for Phase-II of the construction resulted in an avoidable expenditure of Rs 42.98 lakh on the power not actually consumed.

Audit reported the matter to the Department in October 2001 who have not replied as of December 2001.

6.2 Avoidable expenditure on water charges

Failure to take timely action to rectify the faulty water meters led to avoidable expenditure of Rs 11.90 lakh on water charges.

India Meteorological Department (IMD), Pune draws water from Pune Municipal Corporation (PMC) for IMD campus and Meteorological Observatory at Agriculture College campus, Pune. The conditions of water supply stipulated that PMC would charge for the water consumed by IMD on the basis of quota fixed for each connection or on average consumption whichever was more for the period the water meters were faulty. Two water meters installed at IMD campus and Agriculture College campus were faulty. PMC raised bills for water supplied during the period April 1994 to February 1999 based on bi-monthly quota of 3900 and 240 kilo litres and IMD paid Rs 12.67 lakh in settlement of the claim, whereas, monthly average consumption was only 60 and 65 kilo litres. Resultantly, IMD incurred an avoidable expenditure of Rs 11.90 lakh on water charges during the above period. Even prior to April 1994, IMD paid water charges based on quota fixed, as the water meters were faulty. The Department had not provided audit with information required to work out the avoidable expenditure prior to April 1994.

IMD did not take any effective action to repair/replace the faulty meters till it was pointed out by Audit in May 1998/February 1999. IMD got these faulty

meters made functional in February 1999/August 1999. PMC corrected the bills for water consumption during the period March 1999 to February 2000 on actual consumption. However, PMC refused to admit the claim of Rs 11.90 lakh from IMD on the ground that it had raised the bills for the water charges as per the conditions of water supply, hence IMD had not made any excess payment to it.

Thus, failure of IMD in taking timely action to rectify the faulty water meters led to avoidable expenditure of Rs 11.90 lakh on water charges.

Audit reported the matter to the Department in September 2001, who have not replied as of December 2001.

CHAPTER 7 : INDIAN COUNCIL OF AGRICULTURAL RESEARCH

7.1 Avoidable payment of electricity charges

Lack of effective follow up action by NBPGR and poor co-ordination with CPWD led to avoidable payment of Rs 1.46 crore on account of load violation charges and low power factor charges

National Bureau of Plant Genetic Resources (NBPGR), a constituent unit of Indian Council of Agricultural Research (ICAR) obtained electricity connection of 96 KW from Delhi Vidyut Board (DVB) in November 1995 for test running of their equipment at Plant Quarantine Green Houses near National Gene Bank at Delhi, initially for a period of 6 months which was extended from time to time. The DVB on the request of NBPGR enhanced temporary service connection in November 1996 to 498.45 KW. The temporary service connection load was for a specific period of 2 months only and was to be utilised strictly for testing of the equipment.

In November 1996, after the completion of the construction work for providing 700 KW load on permanent basis for the Gene Bank, DVB asked NBPGR for availing of the permanent connection after completion of the commercial formalities viz. (i) Test Report alongwith list of installation and shunt capacitors, (ii) Test certificate of HT equipment from Delhi Administration/CEA (iii) Lift fitness certificate issued by Inspector of lifts (iv) NOC from Chief Fire Officer (v) Completion certificate of the building and (vi) Dues clearance certificate of existing connection.

DVB gave a period of 30 days to NBPGR to complete the formalities failing which NBPGR was liable to pay minimum demand charges alongwith the rental and maintenance charges with effect from the date of expiry of the notice period of 30 days in addition to temporary connection charges. NBPGR could not complete the formalities and obtain the permanent connection for four years till October 2000. The electric load consumed by NBPGR was always in excess of the sanctioned load of 498.45 KW, and it varied between 812 KW and 587 KW. Besides, NBPGR could not maintain the required power load factor at 0.85 level due to defects in the shunt capacitors and other electrical equipment. Resultantly, the bills raised by DVB included temporary charges, load violation charges @ 30 *per cent* of the

total tariff and 20 *per cent* to 48 *per cent* surcharge on basic charges plus energy charges for failure to maintain the required power load factor level. In all, NBPGR made an avoidable payment of Rs 1.46 crore on account of temporary charges, load violation charges and low power factor surcharge upto October 2000.

ICAR stated in March 2001 that the responsibility for completing the commercial formalities rested with CPWD and that NBPGR had immediately approached CPWD for this purpose. ICAR further stated since it was not possible to supply commercial information to DVB within stipulated period, NBPGR was left with no option but to continue the temporary connection till October 2000 for running the long term cold storage modules to conserve valuable seed/genes.

However, it is difficult to appreciate that it took NBPGR/CPWD four years to complete the formalities required by DVB for which a period of 30 days had been stipulated. In so far as the power load factor was concerned, NBPGR took up the issue of non-functioning of load factor equipment only once in August 1998. The lack of effective follow up action on the part of NBPGR and its poor co-ordination with CPWD were factors mainly responsible for an avoidable payment of Rs 1.46 crore on account of temporary charges, load violation charges and low power factor surcharge.

CHAPTER 8 : INDIAN COUNCIL OF MEDICAL RESEARCH

8.1 Non-utilisation of land for 21 years

Even after a lapse of 21 years and expenditure of Rs 49.07 lakh, a workable blue print on the type of research facility to be established on 23 acres of land acquired in 1980 has not crystallised.

Institute for Research in Reproduction (IRR), Mumbai, a unit of Indian Council of Medical Research (ICMR), acquired 23 acres of land from the Government of Maharashtra at Sasunavghar, Vasai, Thane District in June 1980 on payment of Rs 0.50 lakh as occupancy charges to set up a biological farm for developing a primate colony. The Institute spent Rs 15.57 lakh on construction of internal roads, main-gate, watchmen shed, bore-wells and other miscellaneous items till March 2001. The Institute also deployed three to five watchmen for watch and ward duties and spent Rs 33 lakh on their salary during the period June 1980 to May 2001.

In May 1988, the Director General, Indian Council of Medical Research observed that primate facilities existed in other institutions and the animals of these institutes could be utilised for laboratory research relating to drugs for research in reproduction, and therefore, there was no need to develop a primate colony. Accordingly, ICMR decided in July 1988 to utilise the land for housing all three research institutes of ICMR in one place in Mumbai. However, this proposal did not mature due to a number of logistic reasons and want of budget provisions.

Accepting the facts, ICMR stated in August 2001 that a project proposal to establish a National Centre for Primate Breeding and Research as a separate research centre to meet the need of primates of research Centres and Medical colleges at an estimated cost of Rs 52.74 crore to be completed by middle of X Five Year Plan was being submitted. ICMR also stated that the Ministry of Health and Family Welfare was willing to support this project. However, in the absence of any firm commitment for funding the project, utilisation of the land in the near future remains doubtful.

IRR clarified in November 2001 that no primate breeding centre presently exists and that the law prohibits trapping of forest primates. Primates were also not being imported. IRR confirmed that research work, especially in medical science, was suffering for want of bred monkeys.

Thus, even after the passage of 21 years and incurring of an expenditure of Rs 49.07 lakh, a workable blue print on the type of research facility to be established on the land has yet to emerge.

CHAPTER 9 : DEPARTMENT OF ATOMIC ENERGY

9.1 Avoidable expenditure due to negligence

Negligence and undue delay in inspecting the equipment costing Rs 1.64 crore on its receipt, resulted in damage due to seepage of rain water and consequential additional expenditure of Rs 99.70 lakh on its repair.

Directorate of Purchase and Stores (DPS) of Department of Atomic Energy (DAE) placed an order on a foreign firm in August 1990 for supply of one Ionization Mass Spectrometer with accessories and spares at a cost of DM 750837.25, equivalent to Rs 1.07 crore, for urgent replacement of old and obsolete equipment at Nuclear Fuel Complex (NFC), Hyderabad, a unit of DAE. The terms and conditions of the purchase order stipulated that DPS would arrange an open insurance cover issued by New India Assurance Company Limited (NIACL).

DPS did not clear the equipment immediately on its receipt on 27 June 1991 at Mumbai by air consignment. The consignment was cleared only on 22 July 1991, when it was found to be completely wet due to rain water.

DPS on 30 July 1991 lodged an insurance claim for Rs 93.56 lakh on United India Insurance Company Limited with whom the consignment was reinsured by the NIACL as provided in the purchase order.

DPS transported the packages from the airport to Bhabha Atomic Research Centre warehouse at Trombay (Mumbai) where it was stored till 7 August 1991 and thereafter, it was sent to NFC, Hyderabad on 8 August 1991. Though it was already known that the packages were wet, NFC did not open and inspect them on receipt on 13 August 1991. NFC opened the packages only on 21 October 1991, after over two months and found that the equipment was damaged.

The service engineer of the supplier who visited NFC during 26 to 29 September 1992 could not install the equipment and reported that there was severe damage due to seepage of water on all units in the Ion Source Cabinet and rusting of the internal components and connectors.

In February 1992, the insurance company, while rejecting DPS insurance claim for Rs 93.56 lakh, attributed the damage to negligence and undue delay of over 20 days by DPS/NFC in transporting the equipment to Hyderabad from Mumbai and over two months delay in opening the packages for inspection at Hyderabad, which resulted in rusting of the equipment due to rain water. The Air Cargo Carriers also rejected DPS's claim for damages on the ground that while there was only an insignificant damage caused by wetness, the real damage was due to not examining the equipment immediately in August 1991 and repairing it at that time. DPS subrogated the right for recovery of the claim for damage from the carrier to the insurance company in May 1993.

DPS was also not able to export the damaged equipment to the supplier for repair, as the supplier's Government did not give permission for the re-export. NFC repaired the equipment departmentally after procuring fabricated/partly assembled components and utilising in-house expertise at a cost of Rs 99.70 lakh and made it operational on manual mode in November 1997.

Though, DPS again requested the insurance company to settle the claim, the latter again rejected the claim in December 2000 on the ground that DPS had paid the premium only on 27 August 1991, though the spectrometer was declared for insurance on 17 July 1991. Hence, it was not covered for insurance.

DAE stated in December 2001 that non-payment of insurance claim was being taken up with the Cabinet Secretariat as per the advice of the Ministry of Law.

Thus, negligence and undue delay by DPS and NFC in transporting the equipment costing Rs 1.64 crore from Mumbai Airport to Hyderabad and not inspecting it immediately on receipt at NFC resulted in its damage. The repairs to the equipment cost an additional amount of Rs 99.70 lakh. Further, DPS also failed to pay the premium immediately on declaring the equipment for insurance, which ultimately resulted in rejection of the insurance claim by the Insurance Company. No action has been taken by DAE to fix responsibility for the delays in inspection of equipment on receipt and in arranging proper insurance cover.

CHAPTER 10 : DEPARTMENT OF SPACE

10.1 Avoidable expenditure on hiring of buses

Space Application Centre, Ahmedabad incurred avoidable expenditure of Rs 50.15 lakh due to hiring of buses from AMTS when it had its own fleet.

The Space Application Centre (SAC), Ahmedabad a constituent unit of Department of Space (DOS) operated 16 bus routes for the benefit of its employees prior to January 1998. Of the 16 routes, 10 were operated with its own fleet and the remaining six were operated by hiring Ahmedabad Municipal Transport Service (AMTS) buses. Consequent on the introduction of transport allowance with effect from August 1997, the employees were asked to give their options either to draw the allowance or to avail of the free transport facility. Subsequently, SAC decided in January 1998 to operate only eight routes. Even though SAC had 12 buses and Heavy Vehicle Drivers (HVDs) to operate these buses, the Centre continued to operate two/three routes with buses hired from AMTS. SAC paid Rs 60.80 lakh to AMTS for the buses hired during the period February 1998 to July 2001. Had the Centre operated its own fleet, the operational expenses on running buses on these routes would have been Rs 10.65 lakh during the above period. Thus, avoidable expenditure of Rs 50.15 lakh had been incurred by hiring buses from AMTS.

SAC stated in July 2001 that the number of HVDs available for general pool operation was 14 of whom two were chronically ill. It was also stated that, six vehicles were more than 20 years old. However, they could not be condemned as the vehicles did not meet the norms of having run four lakh kms. The department further justified the hiring of AMTS buses on the ground that Ahmedabad city being prone to riots, it decided to use the service of AMTS also to avoid damages of Government vehicle in the event of a riot.

However, prior to January 1998, SAC operated 10 routes with its own fleet. The present reply of the department that some vehicles were more than 20 years old and that the city was prone to riots was not convincing.

Thus, the continued hiring of AMTS buses from February 1998 when the centre had adequate buses and drivers for general pool operation resulted in avoidable expenditure of Rs 50.15 lakh.

Audit reported the matter to the Department in November 2001, who have not replied as of December 2001.

CHAPTER 11 : MINISTRY OF ENVIRONMENT AND FORESTS

11.1 Unfruitful expenditure on construction of staff quarters

Due to inaccurate assessment of requirement of quarters, 72 of 80 staff quarters constructed at Arid Forest Research Institute remained vacant since its construction in 1997. As a result, Rs 3.33 crore incurred on its construction remained unproductive.

Indian Council of Forestry Research and Education (ICFRE), Dehradun accorded administrative approval and expenditure sanction in December 1993 for the construction of 40 staff quarters at the cost of Rs 176.67 lakh and in December 1994 for the construction of 40 more quarters at the cost of Rs 120.50 lakh at Arid Forest Research Institute (AFRI), Jodhpur under World Bank Project.

AFRI, Jodhpur decided to construct 80 quarters at new Campus, where it already had 99 staff quarters at its main campus, of which 24 were not occupied. The construction of the 80 quarters was completed in 1997 at the cost of Rs 3.33 crore. Of these 80 quarters, 72 quarters were not occupied till August 2001.

The Board of Governors of ICFRE in June 2001, approved a proposal to rent out surplus residential accommodation at new Campus of AFRI to other Central Government Departments/Organisations for their employees on suitable terms and conditions. The Director of AFRI was to finalise the terms and conditions after consultation with legal advisors. The terms and conditions were not finalized till August 2001 and a total of 96 quarters were still lying unoccupied.

The ICFRE, Dehradun stated in September 2001 that the Institute was in its initial stage and that the 80 additional quarters were constructed to accommodate all the staff members who were likely to be allotted in the near future. The contention of ICFRE was not acceptable as against the total sanctioned strength, only 113 posts were filled up by August 2001. The remaining 66 vacant posts were mainly in group 'C' and 'D' categories, which

cannot be filled due to ban on recruitment etc. Ministry of Environment and Forests endorsed the reply of the ICFRE (November 2001).

In summary, due to deficient planning and inaccurate assessment, 80 staff quarters were constructed without any need, with the result an expenditure of Rs 3.33 crore incurred on these 80 quarters remained unproductive.

CHAPTER 12 : DEPARTMENT OF SCIENTIFIC AND INDUSTRIAL RESEARCH

12.1 Wasteful expenditure

The entire expenditure of Rs one crore incurred out of the funds of the Department of Scientific and Industrial Research remained wasteful as the objective of the project for development and establishment of pilot scale production of piezoelectric ceramic filters and resonators for use in electronic receiving equipment could not be achieved.

The Standing Finance Committee (SFC) of the Department of Scientific and Industrial Research (DSIR) in March 1995 approved a project for development and establishment of pilot scale production of piezoelectric ceramic filters and resonators for use in electronic receiving equipment at a cost of Rs 128 lakh. The project was to be implemented by Central Electronics Limited (CEL) over a period of two years i.e. by March 1997. The contribution of DSIR to the project was Rs one crore including Rs 10 lakh for equipment for encapsulation and final testing.

The project aimed at the production of filters and resonators in a commercially viable manner. CEL in its proposal had pointed out that piezoelectric ceramic filters and resonators had a high market demand in the country, which was being met through imports. After satisfactory development of the products, it would be possible to supply the components at prices competitive to the cost of the imported components. The commercial production of filters and resonators involved manufacturing of piezo-electric filters and resonators, testing and standardising of the components and encapsulating it suitably.

DSIR released Rs one crore for the project as grant-in-aid during the period March 1995 to February 1997. In December 1996, the Monitoring Committee (MC) suggested that production-cost analysis be carried out and suitable equipment/technology be adopted for volume production for a competitive product price. CEL was advised to identify and procure the encapsulating material required for completion of the project and for identification of mass production equipment. The project was also extended up to December 1997. No production – cost analysis was carried out by CEL. In the MC meeting of

August 1997, CEL expressed its difficulty in procurement of encapsulating material for the product.

In December 1997, CEL formally closed the project without setting up the line for pilot scale production of the component even though it was stated in the completion report that material/component was developed successfully and that the process for producing piezoelectric chips had been standardised. CEL attributed its inability to pack the chips for want of encapsulation equipment/material. CEL stated that no agency/supplier was willing to supply the encapsulating equipment alone. However, the entire grant of Rs one crore including Rs 10 lakh meant for encapsulation equipment and final testing was spent by CEL.

In February 1999, during final evaluation of the project, CEL expressed its inability before Technical Advisory Committee (TAC) to set up a pilot level production for want of encapsulating equipment. No further action was taken in this regard by CEL. Thus pilot scale production of piezoelectric ceramic filers and resonators could not be achieved despite development and standardisation of material component parts.

In response, DSIR stated in August 2000 that pilot production of these components could not be taken up for want of viable encapsulating equipment. Further, due to liberalisation, cheaper imports were available in the market. The reply has to be viewed in the light of the facts that encapsulation was an essential part of the commercialisation process, hence the reply begs the question how the project was cleared without ensuring this essentiality. Efforts towards procurement of suitable packing material were made only after the MC pointed it out in December 1996, a year before the scheduled completion of the project. Further, when efforts at encapsulation failed, no initiative was taken by CEL to develop the equipment on its own as suggested by the MC. The contention that cheaper imports are available due to liberalisation rendering the project unviable apparently is an after thought since liberalised import policy regime was already in place when the project was taken up in March 1995. The fact is that the investment decision was taken without due diligence and considering all the emerging factors. No techno-economic feasibility study was also done before launching the project. This was a case of faulty investment by DSIR.

DSIR stated (September 2001) that CEL was now in a position to commercialise the technology and set up the production facility provided that

the encapsulating equipment was procured or developed in India. However, the contention of DSIR has to be viewed in the context of availability of cheaper imports in the market as they have themselves pointed out. Moreover, the objective of productionising ceramic filters and resonators on pilot scale has remained unfruitful.

CHAPTER 13 : DEPARTMENT OF OCEAN DEVELOPMENT

13.1 Wasteful expenditure on social welfare project for fishermen

Department of Ocean Development embarked on a project to assist fishermen by establishing shore radio stations at 16 locations in two phases. None of these stations has been made completely operational despite expenditure of Rs 3.40 crore and even after a lapse of more than four to eight years of targeted date of completion. Due to unsatisfactory performance of the shore station equipment the respective state governments have not taken over these stations.

Department of Ocean Development (DOD) envisaged a project to assist fishermen in effective communication between boat to shore and boat to boat as well as to receive emergency signals on a separate channel. The project essentially comprised of erecting a shore station and supplying handheld walkie-talkie sets to the fishermen.

DOD accorded administrative approval for the project titled 'Development and production of low cost communication equipment for fishing vessels' in December 1991 at a total cost of Rs 1.27 crore under a Central Plan Scheme.

The project was to be implemented in two centres each in four states viz. Andhra Pradesh (Machilipatnam and Kalingapatnam), Karnataka (Malpe and Honnavar), Kerala (Neendhakara and Quiandi) and Tamil Nadu (Tuticorin and Nagapattinam). No Standing Finance Committee (SFC) was constituted to review the project before sanction as per prescribed norms.

DOD placed an order on Marine and Communication Electronics (India) Ltd. (MACE), an Andhra Pradesh Government Undertaking in April 1992 for development, production and supply of communication equipment comprising of shore station equipment and VHF walkie-talkie sets with other essential accessories as also installation and commissioning of shore stations at a cost of Rs 1.27 crore. No formal agreement was concluded. The entire work order was to be executed by MACE by July 1993. The shore stations were to be handed over to the respective State Governments after obtaining satisfactory reports. However, there were delays in the completion of the project and validity period for supply and services was extended from time to time.

In November 1994, DOD decided to establish another shore station at South Goa (Betul). Even though, MACE failed to execute the previous order as per time schedule, DOD placed another order on MACE at a cost of Rs 7.72 lakh in November 1994. Meanwhile, DOD released Rs 1.26 crore to MACE between December 1991 and September 1994.

Despite repeated extension of time schedule, shore stations scheduled for commissioning by July 1993 could be commissioned only partially between January 1994 and February 1995. Besides, MACE did not provide maintenance facilities. DOD had to incur an additional expenditure of Rs 25.25 lakh on account of maintenance contract and supply of spares and accessories. DOD encashed the bank guarantee of Rs 25 lakh furnished by MACE as the firm did not fulfil its contractual obligations.

In 1996, Kerala withdrew from the project being dissatisfied with the performance of the shore station equipment and walkie-talkie. Though DOD stated in August 2001 that the walkie-talkie and accessories supplied to two stations in Kerela were taken back and reallocated to the other four states, no records are available in the DOD to show number of sets reallocated to various stations.

Apart from short supply of various items ranging from 22 to 88 *per cent*, various deficiencies/shortcomings were noticed in the working of shore station equipment supplied by MACE. As a result, none of the shore stations except at South Goa could be put into full operation. Some of the shortcomings/ deficiencies noticed at these shore stations are detailed below:

- Functional efficiency of the Radio telephones were not up to the mark and intended range of 40 km was not achieved. The intended range was also found insufficient for deep-sea fishing.
- The walkie-talkie sets had a short range and were not found satisfactory.
- The height of the towers was inadequate to cover the range of 40 km from the shore.
- The battery chargers did not match with the walkie-talkies.
- Except Goa, in none of the stations all the walkie-talkies were distributed to the beneficiaries.

Meanwhile, in March 1996, MACE was declared a sick unit and went into liquidation in September 1997. Based on legal advice, DOD requested the official liquidator for reimbursement of losses of Rs 25.25 lakh incurred on operation and maintenance etc. However, DOD in August 2001 had admitted that there were no chances of recovery.

DOD also provided free of cost annual maintenance for continuous operation and maintenance of these shore stations and equipments for a duration of one year during May 1997 to May 1998. While DOD stated that shore stations in Goa, Karnataka, Andhra Pradesh and Tamil Nadu were working satisfactorily so long as DOD was providing annual maintenance up to May 1998, none of the shore stations could be handed over to the respective state governments even as of August 2001 thereby raising serious doubt on the claim of DOD. No records are available with DOD regarding the maintenance of these shore stations and equipment after May 1998.

Notwithstanding the fact that implementation of Phase-I was far from satisfactory, DOD decided to execute the project at ten more shore stations in seven other states, Maharashtra (Worli and Ratnagiri), Orissa (Chandipur and Paradeep), West Bengal (Fraserganj and Shankarpur), Goa (Salegao), Pondicherry (Periya Veerampattinam), Andaman & Nicobar Island (Marine Hill, Port Blair) and Lakshdweep (Minicoy Islands) under Phase-II.

The Standing Finance Committee (SFC), in July 1996, approved the Phase II at an outlay of Rs 3.25 crore and instructed DOD to award the work to the selected firm after ascertaining its financial soundness and to complete the work within six months from date of signing the agreement. The SFC had also approved the proposal involving Society for Applied Microwave Electronics Engineering and Research (SAMEER) for providing consultancy services.

DOD entered into an agreement with M/s Punjab Wireless Systems Ltd. (Punwire), a Punjab Government controlled organisation in November 1996 for providing, installing and commissioning of self supporting towers, VHF radio telephones, matching generator sets, tool kits, walkie talkie sets and additional Ni-Cd batteries etc. The entire work under the agreement was to be completed within a period of six months, i.e. by May 1997. Accordingly, a work order for Rs 3.13 crore was placed on M/s Punwire in December 1996.

Subsequently, Maharashtra government withdrew from the scheme and DOD withdrew from Lakshadweep owing to operational constraints.

DOD released Rs 1.86 crore to the firm between March 1997 and March 1999 to M/s Punwire. However, M/s Punwire failed to execute its contractual obligations as per agreement. An amount of Rs 17.57 lakh was paid to SAMEER between March 1996 and March 1998 as consultancy charges. Owing to slippages in schedule, DOD assigned the balance work in March 2000 to National Institute of Ocean Technology to be implemented with help of SAMEER at a total cost of Rs 10 lakh.

Even four years after the targeted completion date of Phase II of the project, the work at the shore stations remained incomplete. The shore stations were not operational in any of the states. The detailed status of the project in individual states as of November 2001 was as under:

Orissa: In two shore stations in Orissa, M/s Punwire had constructed the shore stations and supplied the equipment. However, during the super cyclone in October 1999 the tower at Paradeep collapsed. This was yet to be re-erected. The testing of the equipment was yet to be completed at Chandipur.

West Bengal: In two shore stations in West Bengal, M/s Punwire had constructed the shore stations and supplied the equipment. However, the shore stations at both the sites were not yet operational.

Goa: The communication tower was yet to be erected and the station remained to be commissioned. The VHF sets were not tested and the training of the fishermen was not complete.

Pondicherry: The communication tower is yet to be installed as electric work is yet incomplete. The equipments need to be tested before commissioning of the shore station and training to fishermen is to be imparted.

Andaman and Nicobar Islands: The Port Management Board of Andaman and Nicobar administration had taken over implementing of the project from DOD in January 2001. The beneficiaries of the programme had not been identified and the fishermen remained to be trained.

As on November 2001, none of the shore stations of either Phase I or II had been completed satisfactorily and handed over to the respective state governments. Thus, the project launched by DOD for the welfare of the fishermen community remained incomplete despite spending Rs 3.40 crore.

Accepting the facts in November 2001, DOD stated that the systems in West Bengal and Orissa would be commissioned before the end of this financial year after rectifying the minor defects in the power battery, installation of tower, replacement of cable, etc. and after completion of residual construction work, erection of tower and installation of shore station equipment in Pondicherry and North Goa.

P. Narayana Murty

(P.N. MURTY)
Principal Director of Audit,
Scientific Departments

New Delhi
Dated : 1 FEB 2002

Countersigned

V. K. Shunglu

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

New Delhi
Dated : 1 FEB 2002

APPENDIX – I

Expenditure incurred by Scientific Departments/Organisations during 1998-99, 1999-2000 and 2000-01.

Sl. No.	Ministry/Department/Organisation	1998-99	1999-2000	2000-2001
		(Rs in crore)		
1.	Atomic Energy	3793.57	4356.00	4551.50
2.	Space	1401.70	1677.39	1905.40
3.	Indian Council of Agricultural Research	972.48	1275.86	1219.68
4.	Environment and Forests including Zoological Survey of India and Botanical Survey of India	606.18	663.03	715.29
5.	Science and Technology including Survey of India and India Meteorological Department	545.43	621.83	731.40
6.	Department of Scientific and Industrial Research (including grants given to Council of Scientific and Industrial Research)	735.38	816.45	892.32
7.	Non-Conventional Energy Sources	298.57	316.12	345.96
8.	Geological Survey of India (Ministry of Mines)	386.14	235.84	251.88
9.	Information Technology	146.79	195.06	331.60^
10.	National Informatics Centre	141.75	135.83	-
11.	Biotechnology	114.18	127.77	151.57
12.	Indian Council of Medical Research	106.67	128.53	168.53
13.	Ocean Development	105.15	105.49	103.31
14.	Centre for Development of Telematics (Department of Telecommunications)	96.72	116.12	125.26
Total		**9450.71**	**10771.32**	**11493.70**

^ *including expenditure incurred by National Informatics Centre*

APPENDIX – II

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

Sl. No.	Name of the Autonomous Body	Amount of grants released in 2000-01 *(Rs in crore)*
1.	Wild Life Institute of India, Dehradun	6.40
2.	Central Zoo Authority of India, New Delhi	11.01
3.	Sree Chitra Tirunal Institute of Medical Sciences and Technology, Thiruvananthapuram	22.00
4.	Technology Development Board, New Delhi	62.79
5.	Indian Council of Agricultural Research, New Delhi	1310.23
6.	Indian Council of Medical Research, New Delhi	168.53
7.	Council for Scientific and Industrial Research, New Delhi	876.79
Total		**2457.75**

APPENDIX – III

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 2000-01 *(Rs in crore)*
	Department of Atomic Energy	
1.	Tata Memorial Centre, Mumbai	66.43
2.	Saha Institute of Nuclear Physics, Calcutta	26.40
3.	Institute of Physics, Bhubaneswar	8.97
4.	Atomic Energy Education Society's School, Mumbai	7.50
5.	Tata Institute of Fundamental Research, Mumbai	88.20
6.	Mehta Institute of Mathematical Physics, Allahabad	8.28
7.	Institute of Plasma Research, Ahmedabad	46.00
8.	Institute of Mathematics Science, Chennai	8.85
	Total	**260.63**
	Department of Bio-technology	
9.	National Centre for Plant Genome Research	3.50
10.	National Institute of Immunology,	15.67
11.	National Centre for Cell Science, Pune	8.40
12.	Centre for DNA finger printing and Diagnostics,	6.00
13.	National Brain Research Centre	5.00
	Total	**38.57**
	Ministry of Information Technology	
14.	Centre for Development of Advance Computing, Pune	10.00
15.	Society for Applied Microwave Electronics Engineering & Research, Mumbai	10.60
16.	Electronic Research and Development Centre of India, New Delhi	9.90
17.	National Centre for Software Technology, Mumbai	2.50
18.	Centre for Materials (C-MET)	5.50

Sl. No.	Ministry/Department Name of the Autonomous Body	Amount of grants released in 2000-01 *(Rs in crore)*
19.	Centre for Liquid Crystal Research, Bangalore (CLCR)	1.66
20.	Education and Research Network, (ERNET)	15.00
21.	Centre for Electronics Development and Technology of India	4.50
22.	Electronics and Computer Software Export Promotion Council	2.00
	Total	**61.66**
	Ministry of Environment and Forests	
23.	Central Pollution Control Board, New Delhi	16.00
24.	Indian Institute of Forest Management, Bhopal	3.70
25.	Indian Council of Forestry Research and Education, Dehradun	53.82
26.	Padmaja Naidu Himalayan Zoological Park, Darjeeling	0.12
27.	G.B. Pant Himalayan Paryavaran Evam Vikas Sansthan, Almora	4.95
28.	Indian Plywood Research and Training Institute, Bangalore	1.88
29.	Centres for Excellence	7.27
	Total	**87.74**
	Department of Science & Technology	
30.	Raman Research Institute, Bangalore	9.07
31.	Bose Institute, Calcutta	9.47
32.	Indian Institute of Tropical Meteorology, Pune	5.20
33.	Indian Association for Cultivation of Science, Calcutta	11.40
34.	Indian Institute of Astrophysics, Bangalore	22.16
35.	Indian Institute of Geo-magnetism, Mumbai	6.99
36.	Indian Science Congress Association, Calcutta	1.03
37.	Indian National Science Academy, New Delhi	6.54
38.	Birbal Sahni Institute of Palaeobotany, Lucknow	5.10
39.	Wadia Institute of Himalayan Geology, Dehradun	4.96
40.	S.N. Bose National Centre for Basic Sciences, Calcutta	2.96
41.	Indian Academy for Sciences, Bangalore	1.55
42.	J.N. Centre for Advanced Scientific Research, Bangalore	7.50
43.	National Academy of Science, Allahabad	0.65

Sl. No.	Ministry/Department Name of the Autonomous Body	Amount of grants released in 2000-01 *(Rs in crore)*
44.	Technology Information Forecasting and Assessment Council, New Delhi	54.09
45.	Vigyan Prasar, New Delhi	1.00
46.	Agharkar Research Institute, Pune	3.92
47.	Advanced Research Centre for Metallurgy, Hyderabad	6.50
48.	National Accreditation Board for Testing & Calibration Laboratories, New Delhi	2.20
	Total	**162.29**
	Department of Space	
49.	National Remote Sensing Agency, Hyderabad	12.72
50.	Physical Research Laboratory, Ahmedabad	22.20
51.	National MST Radar Facility , Gadanki	1.92
52.	North Eastern Space Application Centre	1.00
	Total	**37.84**
	Department of Telecommunications	
53.	Centre for Development of Telematics, New Delhi	110.66
	Total	**110.66**
	Grand Total	**759.39**

APPENDIX – IV

Outstanding Utilisation Certificates

Ministry/Department	Period to which grant relates	Number of utilisation certificates outstanding at the end of March 2000	Amount *(Rs in lakh)*
Atomic Energy	1985-86	1	1.50
	1988-89	2	2.96
	1989-90	1	0.21
	1991-92	1	2.51
	1992-93	2	0.75
	1994-95	3	2.22
	1995-96	3	2.07
	1996-97	15	16.33
	1997-98	26	47.35
	1998-99	30	82.43
	Total	**84**	**158.33**
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

Ministry/Department	Period to which grant relates	Number of utilisation certificates outstanding at the end of March 2000	Amount *(Rs in lakh)*
Environment & Forests	1995-96	12	24.50
	1996-97	485	15815.12
	1997-98	613	9852.70
	1998-99	433	479.09
	Total	**3804**	**45150.71**
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	97	114.60
	1990-91	17	227.46
	1991-92	30	242.46
	1992-93	8	3.00
	1993-94	16	40.20
	1994-95	12	179.47
	1995-96	53	58.77
	1996-97	61	211.41
	1997-98	98	1297.80
	1998-99	119	3249.43
	Total	**696**	**6097.12**
Space	1976-77	1	0.05
	1977-78	1	0.15
	1979-80	2	0.21
	1980-81	3	0.61
	1981-82	2	0.27
	1982-83	17	6.12

Ministry/Department	Period to which grant relates	Number of utilisation certificates outstanding at the end of March 2000	Amount *(Rs in lakh)*
Space	1983-84	8	1.35
	1984-85	15	3.96
	1985-86	6	1.58
	1986-87	12	4.05
	1987-88	8	5.08
	1988-89	3	3.43
	1989-90	3	3.08
	1990-91	4	5.64
	1991-92	1	1.24
	1992-93	2	1.75
	1993-94	7	2.97
	1994-95	11	15.42
	1995-96	7	6.94
	1996-97	25	51.54
	1997-98	28	61.17
	1998-99	97	481.98
	Total	**263**	**658.59**
Information Technology	1992-93	6	10.00
	1993-94	3	11.00
	1994-95	9	60.00
	1995-96	8	37.00
	1996-97	11	13.00
	1997-98	31	1597.00
	1998-99	56	910.00
	1999-2000	147	5869.00
	1/4/2000 to 30/9/2000	71	3522.00
	Total	**342**	**12029.00**

Ministry/Department	Period to which grant relates	Number of utilisation certificates outstanding at the end of March 2000	Amount *(Rs in lakh)*
Non-Conventional Energy Sources	1983-84	3	13.17
	1984-85	1	2.19
	1993-94	2	53.43
	1994-95	6	88.23
	1995-96	47	437.98
	1996-97	42	82.20
	1997-98	80	432.17
	1998-99	62	705.50
	Total	**243**	**1814.87**
Grand Total		**5432**	**65908.62**

APPENDIX – V

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	V	5.1	Centre for Development of Telematics	Wasteful expenditure due to abandoning of scheme.
3.		IV	4.1	Ministry of Non-Conventional Energy Sources	Refuse incinerator-cum-Power Generation Plant.
4.	5 of 2001	II	2.55 to 2.121	Indian Council of Agricultural Research	Indian Veterinary Research Institute, Izatnagar.
5.			4.1 to 4.25		Unfruitful expenditure due to project failures and non-commercialisation of technologies.
6.			4.26 to 4.29		Blockage of fund.
7.			4.30 to 4.34		Poor project management.
8.		III	3.1 to 3.120	Council of Scientific and Industrial Research	Indian Institute of Petroleum, Dehradun.
9.			3.121 to 3.203		National Institute of Oceanography, Goa.
10.		V	5.23 to 5.25	Department of Atomic Energy	Recovery at the instance of audit.
11.		VI	6.6 to 6.12	Department of Science and Technology	Idle investment on land.
12.			6.13 to 6.18		Wasteful expenditure in production of a film.
13.		IX	9.1 to 9.2	Ministry of Information Technology	Delay in commercialisation of a system.