



सत्यमेव जयते

**REPORT OF THE
COMPTROLLER AND AUDITOR GENERAL
OF INDIA**

FOR THE YEAR ENDED 31 MARCH 1989

NO. 2 OF 1990

UNION GOVERNMENT

(SCIENTIFIC DEPARTMENTS)



सत्यमेव जयते

**REPORT OF THE
COMPTROLLER AND AUDITOR GENERAL
OF INDIA**

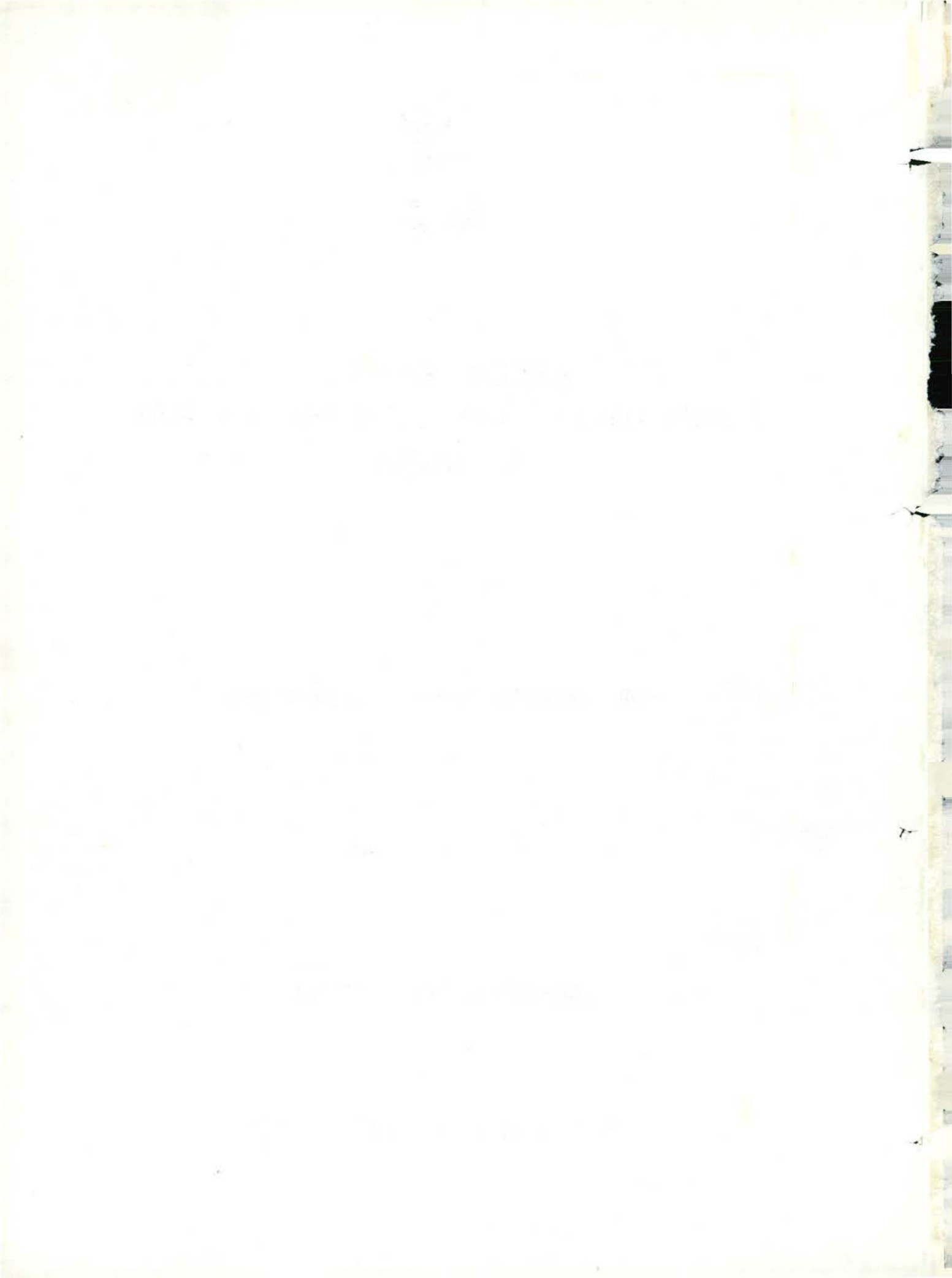
11 MAY 1990

FOR THE YEAR ENDED 31 MARCH 1989

NO. 2 OF 1990

UNION GOVERNMENT

(SCIENTIFIC DEPARTMENTS)



ERRATA

TABLE OF CONTENTS

<u>Page</u>	<u>Column</u>	<u>Line</u>	<u>For</u>	<u>Read</u>
(i)			Add (i) under page column against Prefatory Remarks.	
(ii)			Add (iii) under page column against Overview.	
(iii)	1	2	Insert "Calcutta" after Regional Computer Centre	
		(from bottom)		
	1	9	Installing	Installation of

OVERVIEW

	1	12	was	were
	1	13	Approval	Approvals
	1	16	were	was
(vii)			Line Delete "Vehicle" appearing after figure 574.	

CHAPTERS OF AUDIT REPORT

1	2	6	States	Stages
8	2	1	Read "Chapra town" for "Chapraown"	
		4	Read "Some" for "Source"	
15	2	4	Clerance	Clearance
18	2	19	behind	being
19	1	7		Stations are now
22	Sub para (iii)	1		In respect of
23	Sub para (vi)	8	States	Sites
24	2		Figure "18.66" deleted	
29	2	8	was	were
34	Table		The figure "26.23" deleted from Col. "Head" and inserted under Col. "Expenditure".	
36	2	34	differenciation	differentiation
42	2		The word "at" inserted between "Valued" and Rs.12.33 lakhs"	
44	1		Sup-para 23.11 line 8 from bottom The word "of" inserted between 'debits' and "Rs.6.70 lakhs"	
58		8	The figure corrected as "10.61".	
61	1		Last but one line delete 'a constituent of the'	
62	2	29	omputers	computers

93	5	50	ουθιουαζ	ουθιουαζ
91	1	Γραφειο του Γραφειου Αρχειου του Γραφειου		
39	5	17	ηφεισσημεριου	ηφεισσημεριου
50	5	2	αετα	αετα
53	απο βαση (α)	8	αετα	αετα
55	απο βαση (α)	1		απο βαση (α)
18	1	1		απο βαση (α)
18	5	16	ρετα	ρετα
12	5	4	ερετα	ερετα
8	5	4	αετα	αετα
1	5	6	αετα	αετα
(III)	1	10	αετα	αετα
(III)	1	11	αετα	αετα
(III)	1	12	αετα	αετα
(B)	Αποβαση του Γραφειου Αρχειου του Γραφειου			
(B)	Αποβαση του Γραφειου Αρχειου του Γραφειου			

BASE COL GWA ΓΡΑΦ ΕΡΧ ΚΕΛΔ

ΑΡΧΙΒ

TABLE OF CONTENTS

	PARAGRAPH	PAGE
Prefatory Remarks		
Overview		
CHAPTER I		
Outlay on Scientific Departments	1	1
CHAPTER II		
DEPARTMENT OF ATOMIC ENERGY		
Food irradiation and processing laboratory	2	2
Blocking of capital and wasteful expenditure on accommodation	3	3
R Excess procurement of mild steel plates	4	4
Payment of electricity charges	5	4
Expenditure on overtime allowance	6	4
DEPARTMENT OF ELECTRONICS		
Irregular release of grants-in-aid	7	5
MINISTRY OF ENVIRONMENT AND FORESTS		
DEPARTMENT OF ENVIRONMENT, FORESTS AND WILD LIFE		
Ganga Action Plan	8	5
Delay in fabrication of a bus body	9	23
MINISTRY OF SCIENCE AND TECHNOLOGY		
DEPARTMENT OF SCIENTIFIC AND INDUSTRIAL RESEARCH		
Delayed installation of imported microfilming unit	10	24

INDIA METEOROLOGY DEPARTMENT

Non-recovery of service charges	11	24
---------------------------------	----	----

SURVEY OF INDIA

Avoidable payment of interest charges	12	24
Idle printing machine	13	25
Utilisation of computers	14	25
Installation of a cartographic camera	15	26

DEPARTMENT OF SPACE

Delay in installing a washing and drying unit	16	26
Non-installation of imported equipment	17	27
Excess procurement of a chemical	18	27
Infructuous expenditure on soil and hydrographic surveys for a jetty	19	28
Haphazard upgradation of radiographic facilities for Polar Satellite Launch Vehicle	20	29
Administrative lapse in fixing licence fee	21	29

CHAPTER III

AUTONOMOUS BODIES

Accounts and utilisation certificates	22	31
---------------------------------------	----	----

MINISTRY OF AGRICULTURE

DEPARTMENT OF AGRICULTURAL RESEARCH AND EDUCATION

INDIAN COUNCIL OF AGRICULTURAL RESEARCH

Indian Agricultural Research Institute	23	31
--	----	----

Faulty planning resulting in blocking of funds	24	47
Idling of machinery due to delay in arranging refrigeration facility	25	48
Blocking of funds due to non-supply of vital technical specification	26	48
Inadequate appraisal at project proposal stage	27	49
Installing an imported equipment	28	49
Lack of planning in procurement of a computer system	29	50
Delay in procuring dehumidifying plant	30	50
Avoidable expenditure on excess vehicles	31	50
Construction of office-cum-laboratory building at Jharnapani	32	51
Idle/unserviceable equipment	33	51
Unplanned establishment of a research station	34	52
Purchase of multipurpose live stock feed plant	35	53

DEPARTMENT OF ATOMIC ENERGY
Institute of Physics, Bhubaneswar

Delays in implementation of a Pelletron project	36	53
---	----	----

DEPARTMENT OF ELECTRONICS
National Centre for Software Technology

Premature release of grants-in-aid	37	54
------------------------------------	----	----

Regional Computer Centre

Procurement of a computer system	38	54
----------------------------------	----	----

MINISTRY OF SCIENCE AND TECHNOLOGY

DEPARTMENT OF SCIENTIFIC AND
INDUSTRIAL RESEARCH

Council of Scientific and Industrial Research

Survey of Scientific personnel	39	55
Recurring loss on transport facilities	40	56
Blocking of capital and non fulfilment of objectives	41	56
Improper planning in the construction of a research complex	42	57
Unfruitful expenditure on research project	43	58
Avoidable payment of interest	44	58
Purchase of chilling unit	45	58
Import of defective equipment	46	59
Unfruitful expenditure on rotary kiln facilities	47	59
Non utilisation of land	48	60
Wasteful expenditure on selective dissemination of information	49	60
Infructuous expenditure on continuacne of a Research Centre without a scientist etc.	50	61
Acquisition of land	51	61
Purchase of computer systems without software and packages	52	62

MINISTRY OF SCIENCE AND TECHNOLOGY

DEPARTMENT OF SCIENCE AND TECHNOLOGY

Indian Association for cultivation of Science

Import of Spectrophotometer	53	63
-----------------------------	----	----

CHAPTER IV

DEPARTMENTALLY MANAGED GOVERNMENT UNDERTAKINGS

Position of Proforma accounts	54	65
-------------------------------	----	----

DEPARTMENT OF ATOMIC ENERGY
Tarapur Atomic Power Station

Unnecessary import of pumps	55	65
-----------------------------	----	----

APPENDIXES

Appendix I : Instances of delays in sanctioning of scheme		67
Appendix II : Schemes not completed within scheduled dates		68
Appendix III: Anticipated dates of completion extended from time to time		69
Appendix IV : Outstanding Utilisation Certificates		70
Appendix V : Idling of scientific personnel		72
Appendix VI : Scientists working on unapproved projects		74
Appendix VII: Premature termination of research projects		75
Appendix VIII: Non-implementation of approved technical programme		77
Appendix IX : Improper implementation of research programmes		79

Appendix X	: Breeder seed production of IARI varieties	80
Appendix XI	: Summarised Financial Results of departmentally managed Government Undertakings.	81

PREFATORY REMARKS

This Report for the year ended 31 March 1989 has been prepared for submission to the President under Article 151 of the Constitution. It relates mainly to matters arising from test audit of the financial transactions of the Scientific Departments of the Union Government and Autonomous Bodies under these departments.

2. The Report includes, among others, reviews on Ganga Action Plan and Indian Agricultural Research Institute and paragraphs on Food Irradiation and Processing Laboratory, procurement of computer systems, purchase of equipment etc.
3. The cases mentioned in this Report are among those which came to notice in the course of audit during the year 1988-89 as well as those which came to notice in earlier years but could not be dealt with in previous years, matters relating to the period subsequent to 1988-89 have also been included, wherever considered necessary.

OVERVIEW

The Audit Report for the year ended 31 March 1989 contains 55 paragraphs including 2 reviews. The points highlighted in the Report are given below :

I. GANGA ACTION PLAN

To prevent and control the pollution in river Ganga an Action Plan consisting of 262 schemes and costing Rs.196.23 crores was put through as Phase-I of the Plan during 1985 to 1989. Submission of schemes for approval was delayed beyond the cut off date by about two years. The schemes submitted to the Ganga Project Directorate was deficient in technical details and some were approved without target dates. Approval to the schemes by the Ganga Project Directorate were delayed upto 52 weeks as against the designed time limit of 4 to 8 weeks. Consequently, completion of the schemes were delayed and only 70 schemes against 262 targetted were completed till June 1989. In respect of 23 schemes, even preparatory work had not started. Delays led to cost escalation of Rs.3.40 crores on completed schemes. Also out of the international assistance of Rs.64.24 crores, only Rs.11.48 crores could be utilised.

Monitoring of schemes was entrusted to consultancy firms which were engaged at a cost of Rs.95 lakhs. No action was taken on the reports of consultancy firms and no specific decision for removing the causes for the delay was taken.

The setting up of electric crematoria, to prevent throwing of dead bodies progressed at slow pace due to wrong and non-selection of sites.

The Action Plan had successfully established low cost sanitation facilities in some of the cities but the core component of installing or renovating sewage pumping station and sewage treatment plants, cleaning up of trunk sewer lines, tapping of nalas to prevent the flow into the river etc. progressed at a slow pace.

The linkages between sewage flow, volume of sewage pumping and sewage treatment were not integrated to achieve best possible results for money spent. Industrial effluent treatment plants remained to be set up in 11 cases.

Water flow modelling and monitoring across and along the river with reference to 42 parameters remained to be done.

No action had been taken to ensure minimum flow of water between Haridwar and Allahabad to improve the water quality in the river.

In the absence of the above, the upgradation of water even to bathing purposes quality remained to be achieved in Kanpur, Allahabad and Varanasi.

In Haridwar, monitoring of river water was not done and in West Bengal, the effectiveness of the scheme could not be assessed. In Bihar, marginal improvement in quality of water was noticed at three sampling stations.

An amount of Rs.138.43 crores had been spent on Ganga Action Plan till June 1989 which included expenditure on schemes like establishment of river front facilities involving Rs.13.18 crores, city improvement facilities involving Rs.10.83 crores and schemes for Chapra town, Bihar involving Rs.2.04 crores. These were outside the scope of the Action Plan. Also included in the expenditure was the maintenance cost of Rs.3.11 crores on six sewage pumping stations in Uttar Pradesh, Rs.2.13 crores paid as supervision charges and unaccounted advance to a contractor, Rs.0.68 crore being cost of material diverted, Rs.2.27 crores of unapproved expenditure on land, jeeps, establishment of divisions etc. Norms for establishing the river front facilities in areas proximate to the river was not followed and Rs.25.90 lakhs had been spent only in Kanpur.

(Paragraph 8)

II. INDIAN AGRICULTURAL RESEARCH INSTITUTE

Research Management in Indian Agricultural Research Institute (IARI) was deficient with three tier Research Project File System not being implemented. This made assessment of progress of research and contribution by individual scientist not possible. Research in IARI till April 1987 was without any reference to identified needs or identified thrust areas. Only in April 1987, guidelines for research were issued and 305 projects initiated before 1980 continued without critical appraisal. 41 projects due to be terminated were not terminated for four years after the due date.

The Research Council which is the apex body for approving research programmes did not meet regularly and had so far approved only 17 research programmes in 3 divisions out of 18. This had resulted in uncoordinated research and duplication.

Quinquennial review teams were not being appointed regularly and the recommendations of the teams when made, were not implemented. The previous quinquennial review team was for the period 1972-1982 and the latest one was appointed in 1988. The ICAR review committee had reiterated the importance of these schemes and their recommendations.

Due to poor monitoring of research, 206 scientists in 69 projects were inadequately deployed and infructuous expenditure thereon was Rs. 4.51 crores.

37 scientists in 16 other projects did not implement the approved technical programme for want of various resources and wasteful expenditure was Rs.95 lakhs.

Agro Energy Centre with a sanctioned strength of 16 scientists and land of 20 acres had only one approved project and spent Rs.28.97 lakhs.

Agriculture Engineering Division designed only two implements in a period of 9 years with 23 scientists, 40 technicians, 59 staff members and a workshop.

Extension and Technology transfer activities revealed several gaps and farmers preferred the breeder seeds produced by the State Agricultural Universities which were more eco-specific.

Mass production of rhizobium for nitrogen fixation did not take off.

The statutory responsibilities under the Seed Act 1966 were not fulfilled and distribution of quality seeds could not be ensured. In short, due to a variety of inadequacies, the yield in research farms could not be converted into regular production techniques and wide gaps existed.

The number of students were far less than the number of faculty members.

The system of appointing professors of eminence was not operationalised properly resulting in infructuous expenditure of Rs.32.65 lakhs. ICAR Review Committee recommended revamping of the system.

Financial Management, Estate Management, Stores Management etc. exhibited weaknesses facilitating frauds, non accountal of stores and equipment, arrears in rent collection, non-accountal of farm and orchard produce and Rs.8.42 crores remaining as deposits with various agencies.

(Paragraph 23)

III. Food Irradiation

Bhabha Atomic Research Centre put through a research project in 1965 for irradiating and increasing the shelf life of perishable food items at a cost of Rs.85 lakhs. It was completed in 1970-71 but the research continues with an annual expenditure of Rs.37.80 lakhs. Creation of large scale research facilities intended for developing a commercially viable technique without the acceptance of user agencies had resulted in sub-optimal utilisation of facilities, uncoordinated growth in scientific manpower and research expenditure of Rs.400 lakhs. Irradiation of onion is pending development of a mobile onion irradiator. Also the rules for irradiation as well as for marketing remained to be finalised and the department did not clarify how the discriminating consumers would distinguish between irradiated and unirradiated food items.

(Paragraph 3)

IV. Installation of cartographic camera

While a cartographic camera was purchased by Survey of India in August 1985 at a cost of Rs.111 lakhs, proposals for making the accommodation ready to house the equipment was made in May and August 1985. Ministry afforded the financial sanctions in January 1987 resulting in the imported cartographic camera lying idle for 41 months.

(Paragraph 15)

V. Testing of foot and mouth disease vaccine

112 acres of land were allotted to the Indian Veterinary Research Institute, Bangalore free of cost to build high security quarantine system to test foot and mouth disease vaccine. While staff quarters were built, the quarantine system has not been set up because of lack of clarity about the building designs which were changed thrice. Twelve years have passed by and the vaccine is batch tested at Mukteswar, where testing facilities of international standards are not available. Rs.51.81 lakhs paid to CPWD remained unproductive.

(Paragraph 24).

VI. Delays in implementation of a pelletron project

The Institute of Physics, Bhubaneswar, awarded the construction of Pelletron building without proper designs. The work was stopped in June 1987 by the contractor after completing 47 per cent of the work but no penalties were imposed on him. The balance work was awarded, in August 1989, to another contractor after a delay of 26 months. The pelletron accelerator costing Rs.122 lakhs, received in February 1989, is stored in a temporary shed.

(Paragraph 36).

VII. Uncoordinated imports

Vikram Sarabhai Space Centre imported 2980 pounds of a chemical in three instalments through three different stores organisations at a cost of Rs.37.59 lakhs. The chemical would lose strength with efflux of time. Yet only 562 pounds of the chemical were utilised though the department had 8000 pounds of

requisite resin for formulations. Rs.27.72 lakhs remained blocked because of un-coordinated purchase without immediate need.

(Paragraph 18).

VIII. Uninstalled precision centrifuge

Precision centrifuge with counter rotating platform was ordered for in June 1985 at a cost of Rs.116.98 lakhs. 26 packages were received in Bombay in August 1986 but only 25 reached VSSC. The missing package was traced and the component therein was found damaged. Despite the resupply at a cost of Rs.27.20 lakhs the entire equipment remains uninstalled for want of another component for which export clearance from the foreign government was necessary. Also four tests to the supplied equipment remained to be completed by the supplier who has been paid 96 per cent of the contractual price and his Indian agent 50 per cent of the commission.

(Paragraph 17).

IX. Idle computers

- (i) Central Marine Fisheries Research Institute ordered for a computer in March 1986 at a cost of Rs.18 lakhs. Although the computer was ready in August 1986, the site was not ready till March 1988. The computer was installed with software in May 1988, after a delay of about 21 months.

(Paragraph 29)

- (ii) National Centre for Software Technology was given Rs.144.75 lakhs in November 1985 for procuring VAX-8600 computer system at cost of Rs.89 lakhs and for constructing an advance training facility at a cost of Rs.45 lakhs. The computer was procured in April 1987 but the land for the advance training facilities had not been purchased.

(Paragraph 37).

- (iii) Regional Computer Centre, Calcutta obtained a grant of Rs.390 lakhs during 1984-88 for procuring a Cyber 180/840 computer system. The computer was ready for despatch in

November 1986. Since the Centre wanted to shift the site to a central place in Calcutta, the supplier was asked to with-hold shipping till February 1988. Ultimately the system was installed temporarily at the original site in March 1989, after incurring an additional avoidable expenditure of Rs.142 lakhs.

(Paragraph 38)

- (iv) In order to modernise and develop a comprehensive financial and administrative information system, Council of Scientific and Industrial Research ordered in February/June 1987, 40 Personal computers and a major computer system-SM 32 at a cost of Rs.100.94 lakhs. The computers were to be commissioned within 12 weeks and the laboratories were to adopt the software to be developed. The computers were delivered by August 1988 and 32 laboratories indicated that these were not completely installed and hence only 65 per cent of the cost had been paid. There were complaints about components, hardware, software, training and non supply of manuals. Software packages had not been developed till October 1988. In all Rs.82.87 lakhs had remained blocked.

(Paragraph 52)

X. Survey of scientific personnel

The study of scientific man power in the country was undertaken in 1947. The data collected through the census of 1981 have been published without interpretation regarding the various mismatches between education, employment, brain drain etc. Rs.100 lakhs have been spent only between 1981 to 1986-87. Nearly 40 years have lapsed since the study was undertaken and other organisations of Government of India have also been engaged in scientific manpower data collection. In November 1989 CSIR decided to discontinue the study.

(Paragraph 39).

XI. Unnecessary import of pump

Though an Indian public sector company had developed expertise to refurbish/repair pumps and the

indentor indicated that the order on a foreign company should be withdrawn within three days of the placement of the letter of intent, Department of Atomic Energy persisted with the order on the ground that cancellation would mean loss of credibility for the department in the international market. The pump imported at a cost of Rs.106.55 lakhs remained unutilised for more than five years till November 1989 and the guarantee for the pump had expired by December 1988.

(Paragraph 55).

XII. Other interesting points

- (i) Department of Electronics released Rs.9 lakhs to Kendriya Vidyalaya, Malda for starting a vocational course on computers but the Vidyalaya did not have the power to start the course. The irregular grant was recalled after 33 months.

(Paragraph 7).

- (ii) A space saving camera and components were imported at a cost of Rs.5.01 lakhs, in 1987 by Department of Scientific and Industrial Research. Ironi cally it could not be installed till September 1989 for want of space.

(Paragraph 10).

- (iii) On the basis of reconnaissance survey an expert of the erstwhile Ministry of Shipping and Transport advised the Department of Space against the establishment of a jetty at Sriharikota. However, the department contracted for soil and hydrographic surveys. While soil survey was discontinued in December 1980, hydrographic survey was continued and ultimately short closed on the plea that the jetty would be uneconomical and the location of the jetty at Sriharikota was difficult. The cycle of events meant an infertuous expenditure of Rs.8.38 lakhs.

(Paragraph 19).

- (iv) National Bureau of Soil Survey and Land use Planning, Bangalore had a fleet of 17 vehicles for 4 scientists resulting in non-utilisation of

vehicles for 574 vehicle months and non-utilisation of the services of the drivers for 266 man months.

(Paragraph 31).

- (v) A regional centre for Central Institute of Medicinal and Aromatic Plants was started in 1978 at Tung, Darjeeling. As against a requirement of 400 acres of land, only 4 acres were made available by the State Government and hence the development work could not be initiated. Consequently, the Institute, CSIR Review Committee, Scientific Advisory Committee to the Prime Minister, Special Committee constituted by CSIR, the Governing body and the Society of CSIR had all recommended closure of the Centre between 1982 to 1989. Till September 1989, the Centre was not closed and Rs.8.72 lakhs have been incurred on the Institute. No scientist was posted to the Centre after December 1984.

(Paragraph 50).

- (vi) Central Mechanical Engineering Research Institute, Durgapur put through a project on large volume plasma system in May 1982 without proper conceptual framework and without consultation with user industries. Configuration of the project was redesigned

thrice and ultimately the project was given up after spending Rs.17.64 lakhs.

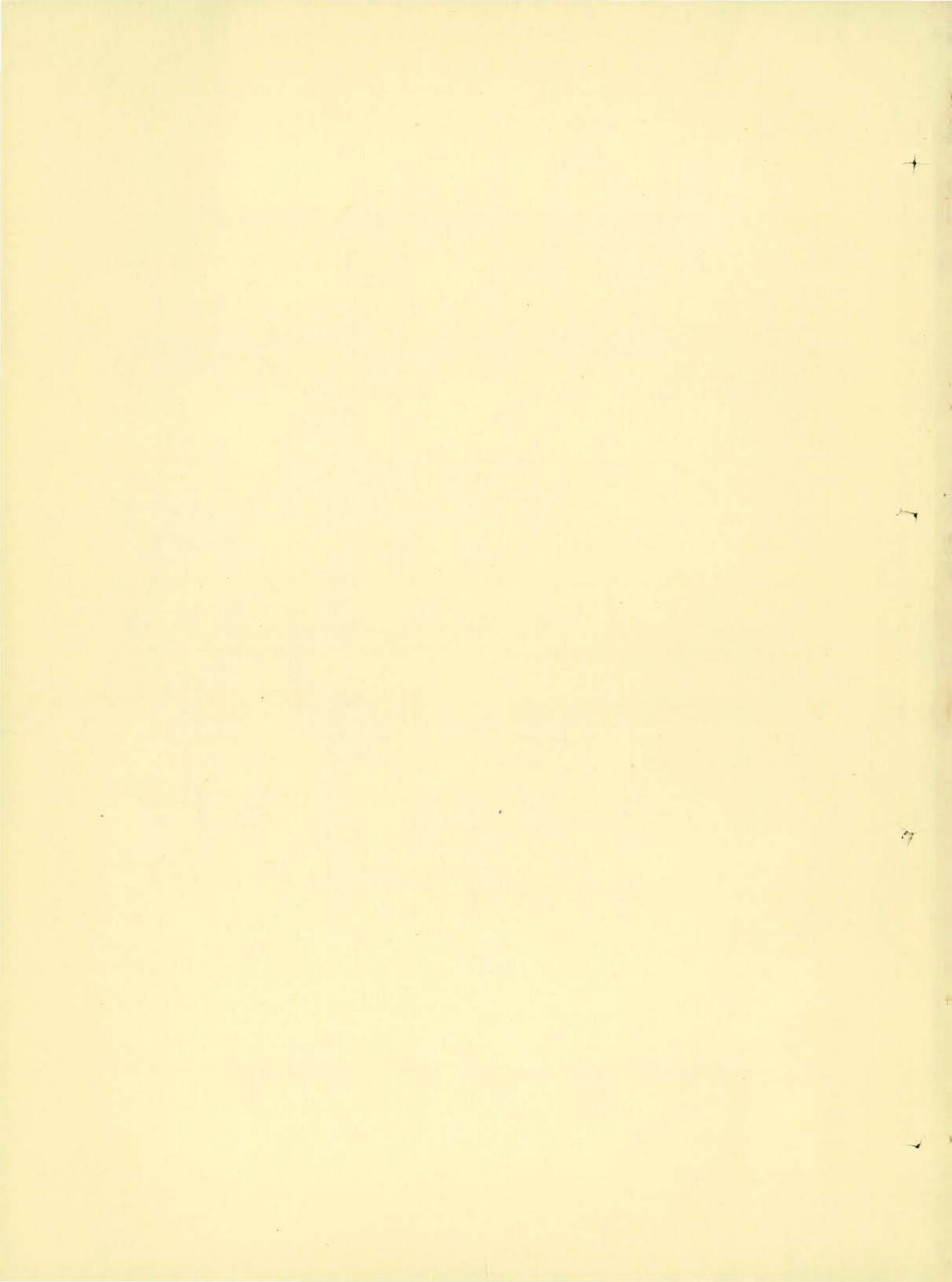
(Paragraph 43).

- (vii) In December 1986, Central Mining Research Station, Dhanbad imported survey instruments and soft ware. The infrastructural facilities became ready in March 1988 and thereafter the instruments were installed. Meanwhile the warranty period expired but the instruments required repair/resupply. Neither the supplier nor his Indian agent have completed the installation and Rs.50.55 lakhs remain blocked.

(Paragraph 41)

- (viii) Since 1959 National Aeronautical Laboratory is extending transport facilities to staff on "no profit no loss" basis. Subsequently the facility was extended to the children of the staff for going to school. The number of staff buses increased from 2 to 21 and the transport charges had not been revised after 1963-64 for the staff and after October 1975 for the officers. During the period 1966 to 1982 the laboratory incurred a loss of Rs.56.90 lakhs. Information for the subsequent period was not furnished to Audit and the facility is being continued with recurring loss.

(Paragraph 40).



CHAPTER I

1. Outlay on Scientific Departments

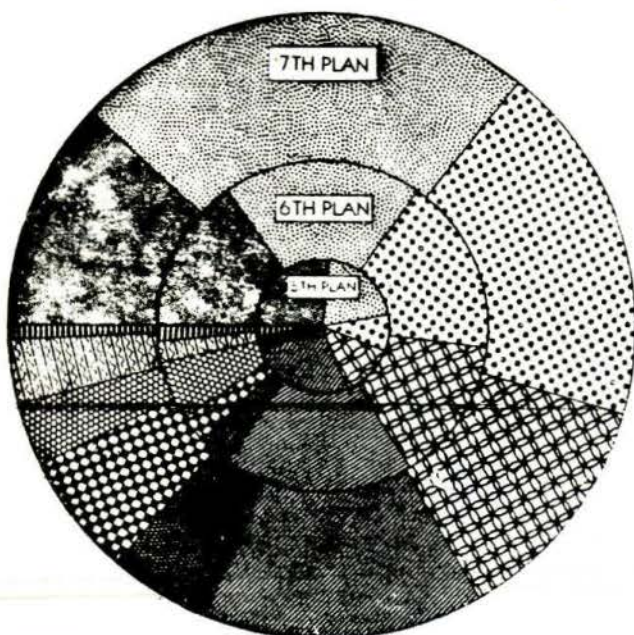
The last forty years had seen increasing expenditure on science. The plan allocation which was only Rs.14 crores in the First Five Year Plan increased to Rs.4398 crores (estimated) in the Seventh Five Year Plan. Together with non-plan expenditure, the outlay on science was estimated to aggregate Rs.7496 crores in the Seventh Plan period representing 1.10 per cent of the Gross National Product.

The *per centage* distribution of Fifth, Sixth and Seventh Plan allocation for major scientific departments is illustrated below :-

The expenditure in the first four years of the Seventh Plan period is given below:

(In crores of rupees)

Department	1985-86	1986-87	1987-88	1988-89
(i) Atomic Energy	963.03	1098.58	1110.09	1202.20
(ii) Space	229.10	310.00	347.08	434.26
(iii) Electronics	110.91	100.87	127.61	149.42
(iv) Non Conventional Energy	119.79	124.80	99.36	115.32
(v) Bio-Technology	0.04	14.32	24.43	41.49
(vi) Ocean Development	14.12	16.29	16.24	25.09
(vii) Science & Technology	294.54	320.02	337.19	402.61
(viii) Environment & Forest	79.51	121.72	153.24	193.41
(ix) Indian Council of Agricultural Research	250.44	284.23	320.12	377.55
(x) Indian Council of Medical Research	39.90	38.52	43.14	63.34



(Courtesy : DST Publication 1986-87)

Science and planning at macro and micro levels have to go hand in hand to expand the effectiveness of science. Audit has come across cases where planning at conceptual stages, project states, etc. were weak and feed backs, controls and corrective actions were inadequate. Instances like failure to preposition facilities leading to idling of equipment, both in digenous and imported, specifically requisitioned for achieving research objectives and non-optimisation of resources noticed in test audit have been mentioned in this report.

CHAPTER II

DEPARTMENT OF ATOMIC ENERGY

Bhabha Atomic Research Centre

2. Food Irradiation and Processing laboratory

The programme relating to application of ionize radiation for preservation of perishable food was initiated in the Bio-chemical and Food Technology (BFT) Division of Bhabha Atomic Research Centre (BARC) in 1964.

In September 1965, the Department of Atomic Energy (DAE) approved the setting up of a Food Irradiation and Processing Laboratory (FIPLY) at an estimated cost of Rs.85 lakhs. It included the cost of two irradiation plants valued at Rs.14.50 lakhs supplied by Canada free of cost under the Colombo Plan, civil and electrical works amounting to Rs.51.50 lakhs, shipping charges, customs duty and clearance and installation cost of irradiators Rs.12 lakhs and food processing and analytical equipment Rs.7 lakhs.

It was envisaged that FIPLY would facilitate research for pilot-scheme experimentation in food irradiation and prolong the shelf-life of fruits, vegetables, seafood products and foodgrains. It was expected that based on the results obtained and feasibility of the process thereof it should be possible to have suitable irradiation facilities designed, fabricated and installed by DAE for commercial practice in areas of availability of raw materials and with the help of other appropriate agencies. It was stated that pilot-scale experimentation in radiation for disinfection of cereals and grains will aid in the evolution of processes for radiation of foodgrains and subsequent storage in suitably designed silos. The FIPLY project was completed in 1970-71 involving a total outlay of Rs. 93.70 lakhs. The research on irradiation continues. The average annual expenditure only on pay and allowances was about Rs.37.80 lakhs. Expenditure on materials, spare parts and accessories has continued. The total expenditure on irradiation research would be of the order of Rs.400 lakhs.

The number of scientific and other personnel grew up from 32 in 1964 to 240 in 1974 in the BFT division. Out of this, FIPLY project alone accounted for 37 persons.

Significant developments in work of FIPLY were briefly as under:

- * 200 scientific papers are published each year;
- * Bio-chemical studies on the defence mechanism in potatoes against soft rotting and the effect of irradiation are being conducted. For onions, the studies have been completed.
- * Studies for irradiating wheat and perishable products have been completed.

An important pre-requisite to commercial irradiation of food is the clearance to be given by all related agencies like Ministry of Health. DAE had initiated a proposal for clearance of other Central Government agencies for irradiation of wheat, potatoes and onions in 1971. After prolonged discussions a Committee of Secretaries recommended (April 1985) that Government should accept in principle the techniques of irradiation as a basis for preservation of spices, frog legs and prawns for export and for storage of onions and potatoes for domestic consumption. A National Monitoring Agency (NMA) was also constituted in January 1987 to deal with all aspects on irradiation of food and it was stated (September 1988) that NMA has finalised the rules which will be incorporated in the Atomic Energy Act and Prevention of Food Adulteration Act, for control of irradiation of food and trade in irradiated food. NMA had also accorded clearance in April 1987 for conducting large pre-commercial trials on irradiated onions to determine economic feasibility and marketability and consumer acceptance. In so far as foodgrains are concerned problems had been anticipated in the storage of irradiated grain. Department of Food also had reservations because the current methods of storage of wheat may not be suitable for irradiated grains and the wheat may get recontaminated.

The following points arise in this regard:

- * the creation of large-scale facilities intended for introduction of commercial practice without the acceptance of user agencies had resulted in sub-optimal utilization of facilities as revealed by the fact that irradiation plants were in use for 43 days in 1981-82, 17 days in 1982-83, 21 days in 1983-84 and 23 days in 1984-85.
- * the modalities of the marketing of irradiated items by various agencies remain to be worked out by Government.
- * manpower for irradiation research had been allowed to grow significantly.
- * a mobile onion irradiator has not been developed so far.

DAE stated in November 1989 that FIPLY was started primarily for conducting basic and applied research and commercial application of the results of the research was not envisaged at that stage. Manpower is stated to have gone down to 90 in November 1989 from 103 in 1987. It has further been stated that an onion irradiator is under fabrication, completion of which is likely to be within about 1 1/2 years due to delays in freezing of the design and in obtaining necessary components for the irradiator. Further, according to the Department, a Board for Radiation and Isotope technology has been recently set up for developing the commercial application. It was also stated that the use of the irradiation facilities will go up after clearance is given by Government for the internal consumption of the irradiated food.

As regards the modalities for marketing irradiated items, the department stated that these could be worked out after the rules to regulate the consumption of such items are finalised and notified. Rules could be framed after test marketing is done and for this ten tones of onions have been irradiated for trial purposes. These will be released after the storage period of six months is over.

The reply of the Department does not yet clarify how discerning consumers can differentiate between irradiated foods and those not irradiated.

3. Blocking of capital and wasteful expenditure on accommodation

- (a) In March 1982 the Department of Atomic Energy entered into a purchase agreement for a flat measuring 1780 sq.ft. in Andheri. The flat was meant for a dispensary and was to cost Rs.3.20 lakhs. The possession of the flat was taken over in August 1983. Upto April 1988, an expenditure of Rs.0.80 lakh was incurred towards stamp duty, registration fee, municipal taxes, maintenance charges etc. The dispensary remained to be opened.

In December 1988, the department stated that alteration works were being carried out and that the dispensary would be opened in due course. In July 1989 it was stated that there were some objections from staff for opening the new dispensary in lieu of the existing one at Bandra. The objections were withdrawn when department became inclined to open the new dispensary in addition to the existing one at Bandra. It was also found that the locality in which the flat was situated had more facilities than it had before and so it was decided to open the new dispensary after carrying out the necessary modifications to the flat. It was stated (November 1989) that financial sanction for Rs.2.56 lakhs had been issued in September 1989 for making additions and alterations to the building and the Municipal Corporation had been approached for necessary permission to open the dispensary. In all, Rs.4.00 lakhs had remained blocked for over six years due to non-occupation of the flat.

- (b) The Directorate of Purchase and Stores of the department prior to its shifting in August 1986 to Trombay was located in Mohatta Building, Bombay since July 1972. The directorate had an accommodation of 21300 sq.ft. on a rental of Rs.11,877 per month. Since the directorate needed only 5000 sq.ft., after shifting to Trombay, for its old records a decision was to be taken for utilisation of the remaining space. Other units of the department who were queried indicated in April 1987 a total requirement of 14256 sq.ft.

These were sent to the Directorate of Estate Management (DEM) but no final decision was taken.

In December 1988, the DEM replied that though they had explored the possibility of using the vacant accommodation, it had been decided to hand over the premises to the landlord due to some legal complications arising out of sub leasing etc. In July 1989, it was stated that Indian Rare Earth Ltd, an undertaking of the department had agreed to occupy a part of the building and the balance accommodation on second floor was decided to be handed over to the land-lord. In November 1989 it was stated that action to surrender the third floor also was underway.

Thus, except the accommodation required for keeping old records, other accommodation remained unutilised from September 1986 to October 1989 and no final action was taken. The department incurred a wasteful expenditure of Rs.3.81 lakhs, during September 1986 to October 1989 on unoccupied accommodation.

4. Excess procurement of mild steel plates

Rajasthan Atomic Power Project, Kota, ordered during December 1985 to July 1987, 1197.724 tonnes of mild steel plates which included 1074.704 tonnes procured from the Steel Authority of India Limited, 44.665 tonnes procured from the Tata Iron and Steel Company Limited and 78.355 tonnes transferred from the Narora Atomic Power Project. The Department stated, in October 1988, that the material ordered for arrived by July 1987.

Out of 1197.724 tonnes so procured, only two nominal issue of 525 kgs. and 740 kgs. of mild steel plates took place after 25th November 1987. The balance quantity of 1196.459 tonnes, valued at Rs.106 lakhs (approximately), was lying in stock (May 1988).

Such large quantities of steel plates had remained unused mainly due to a change in the design of units. Had a firm decision regarding the design been taken at the initial stages taking into account all the relevant aspects, Rs.106 lakhs paid for procurement of 1196.459 tonnes would not have remained blocked. The Department stated, in October 1988, that the steel plates had been procured for use in the reactor building as well as for meeting the requirements for the

entire project. According to the Department, steel plates were generally in short-supply and it was necessary that advance procurement action was taken so that the material was available for issue according to the project schedule. This is not borne out by the short lead time taken for delivery of steel plates, in the instant case. In July 1989 the Department replied that the mild steel would be utilised in the embedded parts at the construction stage of the reactor and plant building. Thus there was no immediate requirement for mild steel and the advance procurement far ahead of requirement meant blocking Rs.106 lakhs.

5. Payment of electricity charges

As per the agreement entered into by the Heavy Water Plant, Talcher, Department of Atomic Energy and the Orissa State Electricity Board, in July 1977, if at any time during the continuance of the agreement, the plant is destroyed or damaged by fire or explosion, rendering it wholly or substantially unfit for use, the Heavy Water Plant, on giving seven days notice in writing to the Electricity Board of such breakdown, should not be obliged to take or pay for a greater supply of electrical energy under the agreement than what it actually consumed.

On 29th April 1986, a fire accident occurred in the plant and the plant ceased to function. The plant authorities, however, failed to report the incident within the stipulated period and instead reported the matter to the electricity board only on 13th August 1986. The Board granted relief only from 20th August 1986 and rejected the request to give relief from April 1986 since the matter was reported late.

The Department stated in August 1989 that initially the plant authorities opined that the plant could be operated after by-passing the damaged portion but the High Power Committee and the Safety Review Committee appointed in May 1986 decided not to re-start the plant until all the additional safety measures were implemented. Due to delay in reporting the accident, the plant incurred an avoidable expenditure of Rs.8.98 lakhs.

6. Expenditure on overtime allowance

Heavy water produced at Talcher was uneconomical because the fertiliser plant which supplied the feed gas was operating at less than 25 per cent of its

capacity. It was stated in the Annual Report of the Department for 1986-87 that the decision of the Government regarding upgrading the fertilizer plant was awaited. Meanwhile the heavy water plant was being operated to establish the process on a steady basis and to produce such amounts of heavy water as were feasible.

As of February 1989, the plant had a sanctioned strength of 458 personnel against which 388 were in position; the shortages were 10 in the scientific/technical officers grade, 33 in technical staff, 2 in administration and 25 in the auxiliary category.

It was observed in Audit that despite long periods of shut-down of the plant during 1985-86 to December 1988, overtime allowance amounting to Rs.53.52 lakhs as detailed below was paid to the staff.

Year	Shut down period (hours)	Overtime allowance paid	annual establishment bill (Rupees in lakhs)
1985-86	6994	11.51	50.23
1986-87	8491	11.37	59.01
1987-88	6178	17.58	60.94
1988-89 (upto December 1988)	6590	13.06	56.43
Total:		53.52	

The department stated in February 1989 that under the shift roster system obtaining in the plant, prescribed manning could not be fulfilled unless some employees were deployed on overtime. The contention is not tenable because the overtime allowance amounted to almost 19 to 29 per cent of the establishment bill in each year though the shortages in manpower was only about 15 per cent. Since the department had recognised that heavy water produced in Talcher was uneconomical due to limited supply of gas, efforts should have been made to restrict overtime bill.

DEPARTMENT OF ELECTRONICS

7. Irregular release of grants-in-aid

The proposal from the Kendriya Vidyalaya, Malda for starting a new vocational course on computers and servicing and repair of common electronic products was approved by the Department of Electronics and in May 1986, Rs.9 lakhs were released as grants-in-aid. Out of Rs.9 lakhs, Rs.3 lakhs were to be utilised for purchasing electronic equipment, Rs.5 lakhs for

purchasing a computer, Rs.0.75 lakh for paying honorarium and Rs.0.24 lakh for training the staff to run the course.

The grant was released without the knowledge of the Kendriya Vidyalaya Sangathan, the administrative authority for Kendriya Vidyalayas. In the monitoring group meeting held in August 1986, the Deputy Commissioner of the Sangathan explained the procedure required to be followed in general for starting a vocational course in the Kendriya Vidyalayas and the policy of the Sangathan in this regard. It was also explained that new vocational courses could be started only with the approval of the Ministry of Human Resource Development, Department of Education and the Board of Governors of the Sangathan. It was also pointed out that no Kendriya Vidyalaya in the country was running a course in the vocational stream and the syllabus on vocational course in computer education required to be got approved by the Central Board of Secondary Education. In short, the proposed vocational course at the Kendriya Vidyalaya, Malda was funded without proper approvals. The department was hasty in releasing Rs.9 lakhs in one instalment and should have checked with the sister Ministry i.e. Ministry of Human Resources Development as to whether the Kendriya Vidyalaya, Malda had the necessary mandate to start new vocational course. The department also did not take timely action to recall the grant since the Deputy Commissioner, Kendriya Vidyalaya Sangathan had made it known in August 1986 that the Vidyalaya at Malda could not on its own start a new vocational course. The department stated in June 1989 that the amount had since been recovered together with the interest of Rs. 1.14 lakhs.

MINISTRY OF ENVIRONMENT & FORESTS

DEPARTMENT OF ENVIRONMENT, FORESTS AND WILD LIFE

8.0 Ganga Action Plan

8.1 Introduction

The river Ganga has, over the years, been subjected to continuous pollution due to untreated sewage and industrial effluents, residues, pesticides and insecticides washed into it from the farms and fields. Most



of its water in the upper ridges is diverted into canals. Recognising the magnitude of the problem and realising the importance of water quality as a cardinal element of river management, an Action Plan had been prepared by the Department of Environment, in December 1984, for cleaning the river of urban wastes from cities and towns situated in the states of Uttar Pradesh, Bihar and West Bengal on the basis of a survey conducted by the Central Board of Prevention and Control of Water Pollution (1984).

- * The principal thrust of the Action Plan was immediate reduction of the pollution load on the river and establishment of treatment systems which were technically and financially self-sustaining. In the first phase class I cities were chosen because the population in these cities covered 82.5 per cent of the total urban population living on the river bank which contributed 88.5 per cent of the total sewage flowing into the river Ganga. The Action Plan envisaged :
 - * renovation of existing trunk sewers and outfalls to prevent the overflow of sewage into Ganga.
 - * construction of interceptors to prevent direct flow of sewage and other liquid wastes into Ganga.

- * renovation/ installation of sewage pumping station and sewage treatment plants.
- * arrangements for bringing human and animal wastes from locations proximate to the sewage/sullage digestors for sanitary disposals, production of energy and manure.
- * providing sullage or sewage pumping station at the outfall point of open drains to divert the discharge from the river into the nearest sewers and treatment plants.
- * alternative arrangements to prevent discharge of animal wastes from cattle sheds located on the river bank.
- * low cost sanitation schemes in areas adjoining the river to reduce or prevent the flow of human wastes into the river.
- * biological conservation measures based on proven technique for purification of streams etc.

The Central Government, in February 1985 set up the Central Ganga Authority for the planning and execution of a time-bound programme to prevent the pollution of the river Ganga.

8.2 Scope of Audit

The review covers the progress of the implementation of the Ganga Action Plan and the reasons for the delay, the cost escalation, deviations from the approved programme, and impact of the programme.

8.3 Organisational set up

The Central Ganga Authority (Authority) was set up in February 1985 with the Prime Minister as its Chairman for determining policies and programmes, to allocate resources and for mobilising public support. An inter-departmental Steering Committee was also set up under Central Ganga Authority to formulate the components of the Action Plan and to administer and monitor its implementation. In June 1985 the Department of Environment set up the Ganga Project Directorate (Directorate) to service the Central Ganga Authority and the Steering Committee, to appraise and approve the schemes prepared and submitted by the field agencies and release funds; coordinate and monitor the progress of the schemes; and assess the effectiveness by monitoring the quality of water at critical points and report to the Steering Committee. A monitoring committee was set up under Member (Science) Planning Commission in January 1986. The organisational set up in the states are :

Uttar Pradesh: Department of Urban Development is the nodal department and the Uttar Pradesh Jal Nigam, Jal Sansthan and Nagar Mahapalikas are the implementing agencies.

Bihar: Urban Development Department is the nodal agency while Bihar State Water and Sewage Board (BISWAS Board) is the implementing agency.

West Bengal: Department of Environment is the coordinating authority while the Calcutta Metropolitan Development Authority (CMDA) is the executive agency.

8.4 Highlights

- * Action Plan did not specify the river water quality to be achieved after implementation of the scheme. Subsequently it was decided to upgrade the river water atleast upto bathing class category but a standard methodology for monitoring water quality could not be evolved

which rendered evaluation of the implementation of the Action Plan difficult.

- * The core programme of setting up sewage treatment plant and pumping station progressed at low pace. Training of personnel for efficient running of these plants was not taken up though provided in Action Plan.
- * Treatment plants for industrial effluent were still to be set up in many places.
- * No scheme for ensuring minimum flow of water in the river has been taken up though it is essential for effective pollution control.
- * Monitoring was inadequate despite engagement of consultants at high cost. Scheme-wise monitoring was not done.
- * In the cities of Kanpur, Allahabad and Varanasi, the improvement in the quality of river water was marginal. At Haridwar, monitoring of river water quality was not being done. In West Bengal, the impact could not be assessed. In Bihar, improvement was noticed at three sampling stations.
- * Till June 1989, only 70 of the 262 schemes of Phase I of Action Plan had been completed. In 23 schemes, even the preparatory work had not commenced. 86 per cent of the plan funds is likely to be spent but 66 schemes will spill over into the next plan period. Schemes were sanctioned without complete project reports and without target dates.
- * Schemes were continued to be sanctioned till late 1988, though the cut off date was February 1986; time taken to sanction schemes was between 20 to 52 weeks against the approved time frame of 4 to 8 weeks. This resulted in time over run.
- * Cost over run ranged from 10 to 28 per cent in the schemes completed in all the three States.
- * International assistance was not utilised fully.
- * Norms for setting up toilet complexes within three kilometers from the river bank was not followed.

- * Payment of higher unit rates for low cost sanitation schemes than that approved by Ganga Project Directorate resulted in large excess expenditure.
- * Repair costs of Rs.1.15 lakhs for the residence of the Superintending Engineer and for the office of the Bihar State Water and Sewage Board Office were charged to the Action Plan.
- * Progress in setting up electric crematoria has been tardy. Wrong selection of site, non selection of site, non award of work etc. have impeded the progress.
- * Supervision charges for construction of community toilet complexes were agreed to be paid though disallowed by the Directorate resulting in a liability of Rs. 33.15 lakhs.
- * 80 per cent contractual cost was paid in advance to contractor without codal provisions or Government approval. Of the advance payment of Rs. 2.88 crores made over in two years, the contractor rendered account for only Rs. 1.08 crores.
- * Low cost sanitation schemes in Patna and for Bhagalpur were sanctioned at different unit rates resulting in excess expenditure of Rs. 39.10 lakhs.
- * Targets for construction of different categories of low cost sanitation units were not fulfilled resulting in achievement of 5.2 per cent in one category and 136.4 in another.
- * Funds ranging from 6 to 13 per cent of the sanctioned outlay were spent on schemes which were outside the Action Plan or pollution control.
- * A sum of Rs. 13.18 crores was sanctioned for river front facilities for better bathing facilities, approach roads, restsheds, changing rooms etc.
- * An amount of Rs. 10.83 crores was sanctioned for improvement of lanes/byelanes leading to ghats, purchase of dumper plier trucks, civil works for dumping of garbage etc. which were essentially city development activities.
- * Schemes costing Rs. 2.04 crores were

sanctioned for Chapraown in Bihar which was not situated on the banks of the river Ganga.

- * Materials worth Rs. 68.34 lakhs were purchased and transferred to source of the divisions of U.P. Jal Nigam which had no link with Ganga pollution control works.
- * Works estimated to cost Rs. 25.90 lakhs were undertaken by Kanpur Nagar Mahapalika in locations not provided in the Action Plan.

8.5 Strategy

The strategy was to renovate existing trunk sewers and outfalls, construct interceptors to prevent direct flow of sewage and wastes into Ganga; renovate or install sewage pumping station and sewage treatment plants; provide sullage or sewage pumping station at the outfall points to divert the discharge; arrange for bringing human and animal wastes from proximate locations to digesters for sanitary disposal and production of energy and manure; prevent discharge of animal and human wastes from cattle sheds proximate to the river; provide low cost sanitation schemes in areas adjoining the river, etc.

8.6 Allotment of Funds

The Central Ganga Authority decided (October 1985) upon an outlay of Rs. 240 crores for phase-I of the Action Plan which comprised 270 schemes. Since only 262 schemes were finally approved, the outlay was reduced to Rs.227.77 crores. Out of this, Rs.196.23 crores were provided in the budget of the Ministry of Environment and Forests for release to the state level implementing agencies as grants. The annual allotment of funds were as under :

Year	In crores of rupees				
	Uttar Pradesh	Bihar	West Bengal	Others (GPD etc.)	Total
1985-86	4.61	0.45	1.00	0.46	6.52
1986-87	16.02	2.48	5.92	1.38	25.80
1987-88	19.09	6.31	16.43	1.17	43.00
1988-89	16.54	12.44	25.79	2.14	56.91
1989-90	26.00	10.00	26.00	2.00	64.00
Total	82.26	31.68	75.14	7.15	196.23

The Action Plan was hundred per cent Central Government scheme though a small portion of funding was come from the State Government of Uttar Pradesh, World Bank and the Government of Netherlands.

8.7 Physical and financial progress

The progress of works under the Action Plan has been as follows :-

Year	No. of schemes sanctioned	Target for completion	No. of schemes completed till June 1989	Original allocation	Actual expenditure
				----- (Rs. in lakhs) -----	
1985-86	26	Target	7	6.52	6.52
1986-87	104	Not fixed		52.00	25.80
1987-88	81	45	13	48.25	43.00
1988-89	51	84	47	57.00	56.91
1989-90	—	100	3	64.00	6.20 (Upto June 1989)
Total	262	229	70	227.77	138.43

As against an outlay of Rs. 240 crores, for 270 schemes, Rs. 227.77 crores had been provided for 262 schemes and the cumulative expenditure up to June 1989 was Rs. 138.43 crores. The physical progress, however, was only 26.7 per cent till June 1989. Ex

penditure at the end of the Seventh Plan period is not likely to exceed 86 per cent of the funds provided and 82 per cent of the outlay.

The State-wise status as on 30th June 1989 was as follows:-

State	Schemes sanctioned	Preparatory work commenced	Cumulative physical progress				
			Less than 10 per cent	10 to 50 per cent	More than 50 per cent	Completed Schemes	Scientific Schemes
Uttar Pradesh	106	21	7	10	21	42	5
Bihar	45	1	2	11	16	13	2
West Bengal	111	1	10	33	52	15	—
Total	262	23	19	54	89	70	2.67
<i>per centage</i>	100	8.78	7.25	20.61	33.97	26.72	2.67

The physical progress achieved so far, clearly indicates that there would be considerable time over run and the schemes would be spilling over into the next plan period.

The Ganga Project Directorate stated, in June 1989, that it has been assessed that 66 schemes will be spilling over. It accepted (March 1989) that there had been delays in land acquisition, finalisation of tenders etc.

8.7.1 Sanctions to schemes

The Authority decided in October 1985 that the feasibility reports of the schemes should be submitted

by December 1985, and the time to be taken for clearance was fixed as eight weeks for schemes costing over Rs. 1 crore and four for others. In many cases however, the directorate took from five months to a year with consequential adverse impact on the time schedules (Appendix I). Again, it was stressed in June 1986, that State Governments/agencies should prepare scheme-wise/town-wise time schedules and the Directorate would monitor the progress of the work on the basis of these time schedules. The Authority also decided that all the schemes would be cleared latest by February 1986. The time schedule was not adhered to and schemes were cleared even after two years. Out of 262 schemes, 51 schemes at a total cost of Rs.43.25 crores were sanctioned during April to September 1988, as under :-

State	Year	No. of schemes sanctioned upto September 1988	Original cost	Funds released	Expenditure incurred upto June 1989
-----Rs. in Crores-----					
Uttar Pradesh	1985-86	11	6.97	4.61	9.17
	1986-87	42	28.17	16.02	23.51
	1987-88	19	50.19	19.09	20.18
	1988-89	34	28.87	16.54	4.41
	1989-90	-	-	26.00	0.83
	Sub total	106	114.20	82.26	58.10
Bihar	1985-86	7	4.47	0.45	2.17
	1986-87	12	4.80	2.48	5.74
	1987-88	17	16.99	6.31	12.11
	1988-89	9	7.33	12.44	1.80
	1989-90	-	-	10.00	-
	Sub total	45	33.59	31.68	21.82
West Bengal	1985-86	8	5.90	1.00	6.34
	1986-87	50	28.09	5.92	22.10
	1987-88	45	67.43	16.43	21.29
	1988-89	8	7.05	25.79	2.96
	1989-90	-	-	26.00	0.42
	Sub total	111	108.47	75.14	53.11
Ganga Project Directorate	1985-86	-	-	-	5.15
	1989-90	-	-	-	0.20
	Sub total	-	-	-	5.35
Total		262	256.26	189.08	138.38

The Directorate stated, in March 1989 that apart from the fact that appraisal of the schemes especially those relating to interception, diversion and treatment of waste water was time consuming, in several cases the project reports received from the implementing agencies had to be referred back for further clarification resulting in delays. It was also stated that the steering committee had extended the last date for sanctions to 30th June 1988.

8.7.2 Completion of schemes

Out of 70 schemes reported to be completed till June 1989, completion reports had been received only for 21 schemes. There were slippages ranging from 10 to 21 months in the cases test checked (Appendix II). In many cases even the revised dates of completion had been revised more than once (Appendix III). While admitting the slippages, Directorate stated, in March 1989, that the revised dates had to be ex-

tended keeping in view the field conditions. Some of the schemes examined in Audit are:

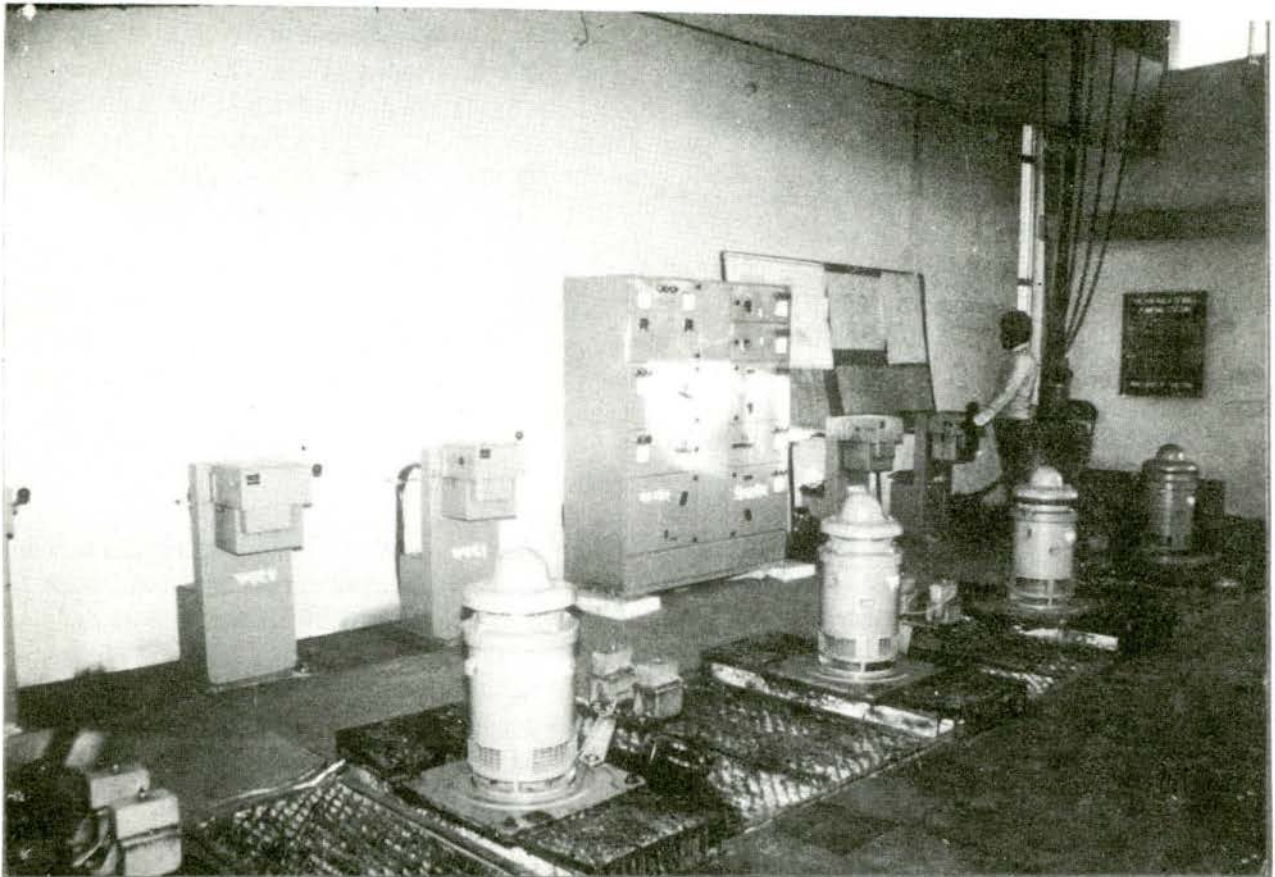
- (i) Electric crematorium at Monghyr: The Directorate sanctioned only Rs.33.58 lakhs for two furnaces and the work was to be completed by July 1987. The order for the furnace was placed only in August 1987 and it was found that the cost of each furnace was Rs.10.02 lakhs as against the estimate of Rs.5.5 lakhs. This necessitated submission of a revised estimate in September 1988 and the scheme remained incomplete.
- (ii) Re-commissioning of pumping station at Patna: The Directorate sanctioned Rs.16.80 lakhs, in June 1987, for recommissioning of the pumping station to be completed by April 1988. The work was completed by September 1988 and expenditure of Rs. 17.51 lakhs had been booked till September 1988.

BISWAS Board submitted a revised estimate of Rs. 21.26 lakhs in August 1988.

- (iii) Pirmohine sewage pumping station, Patna: The Directorate sanctioned Rs. 9.50 lakhs, in June 1986, for the sewage pumping station and the work was to be completed by June

1987. It was actually completed in September 1988 for Rs. 13.69 lakhs.

The Directorate stated in (March 1989) that the cost escalation in the above three schemes was due to additional components, under estimation of furnace cost, overall inflation, etc. This indicated inadequate analysis of cost before sanctioning a project.



PIRMOHINE SEWAGE PUMPING STATION, PATNA.

- (iv) Laying of intercepting sewers in Baranagar, West Bengal: Tenders for laying and intercepting sewers in Baranagar Municipality in West Bengal at an estimated cost of Rs. 19.41 lakhs were invited in March 1987. But the work order was not issued till October 1987 since financial sanction from the Directorate was not received. By October 1987, the validity of the lowest offer had expired. The second lowest tenderer, accepted the work in March 1988 which resulted in extra expenditure of Rs. 1.05 lakhs.

incurred on 70 completed schemes as indicated below:-

State	No. of schemes completed	Sanctioned cost	Actual expenditure
(Rupees in crores)			
Uttar Pradesh	42	18.69	20.55
Bihar	13	2.98	3.80
West Bengal	15	3.20	3.92
Total	70	24.87	28.27

8.7.3 Utilisation of international aid

The delays in execution of work led to cost over-run. An additional expenditure of Rs. 3.40 crores was

- (i) World Bank had offered Rs. 46.24 crores as financial assistance for the following cori-

ponents of the Action Plan assuming its completion within the Seventh Plan :

	(Rs. in crores)
i) Technical assistance	2.35
ii) Training	0.61
iii) Equipment	4.28
iv) Other works (setting up of treatment Plant at Haridwar, Kanpur and Allahabad)	39.00

	46.24

The cost of the above components after adding physical and price contingencies as per World Bank practices worked out to Rs. 57.77 crores. The utilisation of the assistance till June 1989 was as under :-

City	Month of sanction	Sanctioned cost	Expenditure incurred till June 1989
(Rs. in crores)			
Hardwar	January, 87	2.60	1.82
Allahabad	February, 87	9.11	3.17
Kanpur	June, 87	20.23	1.87
		-----	-----
		31.94	6.86
		-----	-----

In Kanpur and Allahabad, supplier of sewage treatment plants have filed law suits adversely affecting the progress of the Action plan Works, which were to be completed by the end of the Seventh Plan period have not been awarded so far (June 1989). The Directorate stated (January 1990) that the existence from World Bank was available till 1996.

- (ii) In April 1986, Government of Netherlands offered economic and technical assistance of Rs. 18 crores within overall Seventh Plan outlay for execution of the Integrated Sanitation Schemes for Kanpur and Mirzapur under the Action Plan. Against this, ten schemes in Kanpur and eight schemes in Mirzapur were sanctioned upto August 1988 involving an expenditure of Rs. 21.19 crores. However, an expenditure of only Rs. 4.62 crores was incurred till June 1989 and expenditure in respect of five schemes was nil. Physical progress in 12 out of the 18 schemes was also nil. In two Schemes, the physical progress was 10 per cent and in one scheme, it was 68 per cent and in, three, it was less than 25 per cent. Thus, the funded schemes were considerably behind schedule.

8.8 Monitoring of schemes

Appraisal, approval and monitoring of projects are the major functions of the Ganga Project Directorate.

The Directorate engaged two private consultancy firms from April 1986 for monitoring the progress of the work. A sum of Rs.95 lakhs had been paid till June 1989 to these two consultancy firms. The Directorate stated, in March 1989, that it did not have sufficient manpower for inspecting the 262 schemes spread over 27 towns and 1500 Kms.

The Directorate was not stipulating the target dates of completion for the schemes at the time of sanction which made monitoring of the schemes ineffective. The Directorate stated in March, 1989 that starting and completion dates of the schemes were stipulated by the consultancy firms in consultation with the implementing agencies after the sanction was accorded.

The Directorate also cleared a number of schemes without detailed project reports. The administrative approvals were given subject to the condition that financial sanction would be issued only on receipt of complete project proposals. Some illustrative cases are detailed below :

- (i) Scheme on Water supply in Jajmau area in Kanpur under integral sanitation project : The scheme was sanctioned at a cost of Rs. 191.42 lakhs in June 1988 and financial sanction was to be issued after receipt of detailed engineering design to be prepared jointly by Uttar Pradesh Jal Nigam and consultants from Netherlands. Expenditure till June 1989 was Rs. 73.45 lakhs and physical progress was 'nil'.
- (ii) Expansion of sewerage system at Jajmau, Kanpur: On the basis of an advance copy of draft project report from consultants from Netherlands, the Directorate issued administrative approval for the scheme in June 1988 at an estimated cost of Rs. 292 lakhs. The financial sanction had not yet been issued (September 1988) as the detailed project report was incomplete and contained many deficiencies.
- (iii) Construction of modules for the treatment of sewage on UASB process Jajmau, Kanpur : Administrative approval and financial sanction was accorded by the Directorate in February 1988 at an estimated cost of Rs. 65.47 lakhs. The scheme was taken as a pilot

project and its performance was to be assessed by a team consisting of representatives from the implementing agency, an independent research institution, Ganga Project Directorate and the consultants from Netherlands for designing and carrying out necessary modification in the construction of four such modules of the same capacity. The cost of the scheme was based on the firmed up cost arrived after evaluation and acceptance of the tender by the UP Jal Nigam. The scheme could not be completed within the stipulated time of June 1988 and the expenditure till June 1989 was Rs. 65.89 lakhs with physical progress being 17 per cent. Directorate without, awaiting the evaluation report for the unit accorded administrative approval in June 1988 for four other modules at an estimated cost of Rs. 197 lakhs. The Directorate stated (January 1990) that the implementation of these four modules would be after the assessment of the first plant is done.

Technical analysis and review of the progress was one of the important items of reference to the Monitoring Committee. The Committee was to report to the Authority after every three months. During 1986 and 1987, the Committee met thrice each year and discussed in general terms, the progress of sanctioning of the schemes and funds, water quality monitoring and modelling aspects, maintenance of minimum flow of water into the river etc. No in-depth discussion regarding delays in the completion of schemes was held and no corrective action was suggested to speed up the completion of schemes.

8.9 Sewage treatment plants and pumping stations

8.9.1 Delay in setting-up plants and pumps

Schemes for setting up sewage treatment plants require more time than other schemes under the Action plan. On the other hand, unless the plants are in operating condition, the objective of reducing pollution cannot be achieved. It was, however, noticed in Audit that there were inordinate delays in sanctioning the plants. Out of 35 schemes costing Rs. 107.28 crores, 29 schemes costing Rs. 89.14 crores were sanctioned only after 1987-88.

Consequently, till June 1989 no expenditure had been incurred in respect of seven schemes in Bihar which indicated that even the preliminary works had not been started. In Uttar Pradesh, award of work had been delayed because of court case. In West Bengal also no schemes has been approved for sewage treatment plants. Thus, till June 1989, only Rs. 25.76 crores (24 per cent of the sanctioned amount) had been spent. The Directorate stated in March 1989, that the sanctioning of sewage treatment schemes were time consuming, and interception of drains and diversion of waste water to sewage farm by themselves had resulted in reduction of pollution load. However, the quality of water in Ganga cannot be improved unless sewage treatment plants are put through.

8.9.2 Maintenance of sewage treatment plants and sewage pumping stations

Action plan envisaged that each sewage treatment plant would function as resources recycling unit producing energy, poultry feed, fish and irrigant and thereby earn revenue sufficient for meeting its operation and maintenance cost. Pursuant to the decision taken in the second meeting of the authority held in June 1986, an expert group examined the subject in detail and concluded that operation and maintenance cost of pumping stations should be regarded as part of the operation and maintenance cost of sewage treatment. For this purpose, the revenue and expenditure in respect of sewage treatment plant and final pumping stations would be kept separate and distinct.

The total net annual deficit if any, in the operation and maintenance cost of the sewage treatment plants to be set up under the Action plan would range between Rs. 6 and Rs.11 crores. Decision to defray recurring cost of operation and maintenance, had not been taken so far. The Directorate stated, in March 1989, that the issue was engaging the attention of the Central Ganga Authority and it had also been taken-up with the State Governments.

Till August 1989, sanctions were issued for renovation/construction of 34 sewage treatment plants and 23 pumping stations. These included two schemes for operation and maintenance of sewage treatment plant in Bihar, at a cost of Rs. 46.00 lakhs. As against this the expenditure till August 1989 was Rs. 110 lakhs and the expenditure was far in excess of the sanctioned cost.

In Uttar Pradesh, an expenditure of Rs. 3.11 crores was shown to have been incurred on maintenance of sewage treatment plants by UP Jal Nigam in the expenditure statement in June 1989. Considering that no treatment plants and only six Sewage pumping station were completed in Uttar Pradesh, maintenance cost of Rs.3.11 crores appeared to be very high. The Directorate stated, in March, 1989 that the monthly expenditure reports were under scrutiny.

sanctioned for areas not adjoining the river. Illustratively, in Kanpur city, a scheme was sanctioned at a cost of Rs. 49.87 lakhs which included 8 complexes to be constructed, costing Rs. 20 lakhs and located at a distance of more than three kilometers from the river. In all 106 complexes involving Rs. 163.64 lakhs out of total 151 complexes sanctioned for Kanpur, Allahabad and Varanasi were located in areas fairly away from its banks.

8.10 Training

The Steering Committee recommended in November 1987 training of the staff in the efficient operation of the sewage treatment plant and a manual of operation and maintenance be prepared. The Directorate stated, in March 1989, that action was on way both for providing a permanent training facility and for preparing manuals.

Similarly, in 7 cases in Patna, 11 in Bhagalpur, 12 in Munger and 11 in Chapra were taken-up at sites which were not adjacent to the river bank.

The Directorate stated, in March 1989, that the choice of sites was made by the local municipality and proximity to the river was only one of the parameters used. The socio-economic fabric of a locality and the adequacy of the existing toilet facilities were also taken into account while choosing the sites. Such liberal interpretation could lead to the normal municipal programmes being included within the Action Plan.

8.11 Low cost sanitation schemes

8.11.1 Norms for implementation not followed:

Low cost sanitation schemes were to be taken up in areas adjoining the river. But many schemes were

The details of community toilet complexes to be constructed by March 1989 are given below :-

Town	Sanctioned cost	Funds released	Expenditure	Number of complexes	Target date	Completed
(Rs. in lakhs)						
1. Kanpur	49.87	49.87	49.87	20	December 1987	19
2. Allahabad	55.28	50.28	50.00	21	March 1989	20
	50.25	50.25	45.00	47		17
3. Varanasi	52.89	52.89	52.89	17	December 1987	11
	79.88	79.88	79.88	46	December 1987	39
	13.11	13.11	10.00	5	September 1989	Nil
	301.28	296.28	287.64	156		106

At Varanasi, 63 complexes (17 at ghats and 46 in the city area) were envisaged to be constructed by December 1987 at an estimated cost of Rs.132.77 lakhs. As per monthly progress report for March 1989, 62 complexes (16 at ghats and 46 in the city area) were reported completed and the entire provision of Rs.132.77 lakhs was shown as utilised. The local records disclosed that only 50 were actually completed (11 at ghats and 39 in the city area). At Allahabad, out of 68 complexes to be completed at a

cost of Rs. 105.53 lakhs by March 1988 only 37 were completed spending Rs.95 lakhs. Shortfall was attributed to non-availability of sites. Money spent was not proportionate to the physical targets.

Construction of complexes was entrusted to the same private firm in Kanpur, Allahabad and Varanasi. By March 1989, the private firm was paid Rs.33.15 lakhs as supervision charges though the Directorate had disallowed the payment of supervision charges, in

August 1986. The agreement with the private firm was also not uniform in all the three cities. While security deposits were deducted in respect of works awarded in Allahabad it was not deducted for the works awarded at Kanpur and Varanasi. Between May 1987 and March 1989 payments totalling Rs. 287.64 lakhs were made (Kanpur : Rs. 49.87 lakhs, Allahabad : Rs. 95.00 lakhs, Varanasi : Rs. 142.77 lakhs). Till March 1989, the firm had rendered accounts for only Rs. 107.64 lakhs for Varanasi. No accounts against advances at Kanpur and Allahabad were stated to have been rendered (May 1989).

8.11.2 Excess amounts sanctioned

- a) In 16 municipalities of West Bengal, 29952 sanitary units were sanctioned for implementation at a total cost of Rs. 5.67 crores. The unit cost including project preparation fee was taken as Rs.1888 instead of Rs. 1840 because the contingency charges were calculated as 5 per cent instead of 3 per cent resulting in excess expenditure of Rs. 14.22 lakhs.
- b) The approved specifications envisaged pit privies to be provided with leech pit made of brick work. Baidyabate municipality in West Bengal constructed 475 pit privies with leech pit made of earthen rug, the unit cost of which was Rs.1251 only. On this basis, the admissible cost of 475 pit privies was Rs.5.94 lakhs but the municipality incurred Rs.8.48 lakhs. The municipality had not so far recovered the excess amount of Rs.2.54 lakhs paid to the beneficiaries and contractor.

In the case of Berhampur, Nabadwip and Garulia municipalities of West Bengal which did not adhere to the unit cost sanctioned by the Directorate for construction of Low cost sanitation units, the excess expenditure was Rs.5.43 lakhs.

- c) In Patna, the Municipal Corporation had been

regularly undertaking the conversion of dry latrines into water pour system in households within its jurisdiction before taking up the scheme under Action Plan. Clearance from the Municipal Corporation was not taken to ensure that there was no overlap in the schemes executed by the Directorate and by the Municipal Corporation.

In May 1987, the Directorate sanctioned conversion/construction of 6097 latrines in Patna. The rate adopted ranged between Rs. 1631 and Rs. 3608 per unit depending on the number of users in each household. It was, however, seen that in earlier contract, the contractor had charged uniform rate of Rs.1520 per unit irrespective of the type of unit constructed. It was also seen that the Directorate had sanctioned, in November 1986, construction/ conversion of 4300 latrines in Bhagalpur adopting a flat rate of Rs. 1280 per unit. Thus, the rate adopted in May 1987 was higher as compared to the earlier rate and different from the rate adopted for Bhagalpur. The total excess expenditure amounted to Rs. 39.10 lakhs. The Directorate stated (January 1990) that in the revised estimates for both the schemes uniform rates have been adopted.

Out of 6097 latrines, 3387 were dry private house latrines to be converted into pour-flush latrines. Only 176 out of 3387 were actually converted. The remaining 2710 latrines were to be constructed anew but 3696 latrines were constructed exceeding the target by 35 per cent (approximately). In all, Rs.88.53 lakhs were spent. Similarly, in Bhagalpur against a target of converting 2600 latrines, none had been converted till January, 1989. In Mokawah, Barauni Rs. 112.11 lakhs had been sanctioned for execution of low cost sanitation schemes. No expenditure had, however, been incurred till January 1989.

8.12 Diversion of funds

- (i) Rs. 24.01 crores were sanctioned for schemes not included in the Action plan, as shown below :-

(Amount in crores of rupees)

State	River front facilities		Others		Total	
	No.	Amount	No.	Amount	No.	Amount
U.P.	7	5.48	29	9.47	36	14.95
Bihar	3	0.85	3	1.06	6	1.91
W.Bengal	24	6.85	1	0.30	25	7.15
	34	13.18	33	10.83	67	24.01

Schemes under river front facilities were sanctioned for better bathing facilities, facilities for better river traffic, construction of approach roads to the river, rest-sheds, ladies change rooms etc. Under other schemes, expenditure was incurred on purchase of hand-carts, containers, dumper plier trucks, trailer, civil works for dumping of garbage, improvement of approach lanes to ghats, etc. These are part of city development works to be undertaken by the local/state governments from their own funds.

The Authority had been apprised that some of the schemes projected by the State Governments were not directly related to the Action plan and some for lateral and branch sewers though connected technically to pollution control could not be financed, under the Action plan.

The Directorate stated in March 1989 that Action plan was not intended to be a fully comprehensive list and special packages were sanctioned in some of the more important cities. It added that some schemes (solid waste management) were sanctioned to help the municipalities in modernising their operations. It was also stated that laying of new trunk and branch sewers were approved only in respect of Kanpur for one segment and was considered absolutely necessary for achieving the objectives of Action plan.

- (ii) Works estimated to cost Rs. 25.90 lakhs were undertaken by the Kanpur Nagar Mahapalika in locations not provided for in any of the phases of the Action plan, like construction of community toilet complex at Shuklaganj and Unnao (Rs.2.97 lakhs) and for an electric crematorium (Rs.22.93 lakhs). Actual expenditure till March 1989 amounted to Rs. 20.01 lakhs.
- (iii) For a sewage treatment plant at Kanpur, estimated to cost Rs. 2023 lakhs, only land

had been acquired at a cost of Rs.88.24 lakhs. Though the contract for the plant was yet (May 1989) to be finalised, expenditure of Rs.313.49 lakhs was incurred including Rs.142 lakhs on procurement of materials. Materials costing Rs.68.34 lakhs had been transferred to U.P. Jal Nigam divisions though these had no links with the pollution control works under the Action plan.

- (iv) BISWAS Board had taken up pollution control in Chapra town though neither the Index Plan attached to the Interception and Diversion Scheme prepared by the BISWAS Board nor municipal map of Chapra town showed that the town was situated on the banks of the river. The preliminary feasibility report for Chapra town did not also list Chapra as a pollution point of the river. The disposal of waste from Chapra town which is situated on the banks of Saryu-a tributary of Ganga-is through a semi-pucca nala called 'Khanua Nala' which falls into the river GOGRA (SARYU) meeting Ganga at Doriganj at a distance of 12 KM from Chapra. Yet, three schemes costing Rs.204.29 lakhs had been sanctioned.

Further, Rs.1.15 lakhs had also been spent on the repair of residence of the Superintending Engineer, BISWAS Board and BISWAS office which was outside the scope of Action Plan.

8.13 Effectiveness of Ganga Action Plan

8.13.1 There are three main parameters amongst 42 viz. DO, BOD and MPN to test the quality of water, DO denotes dissolved oxygen; the more the oxygen, the better the quality and DO should not be less than 5 mg per litre in any case. BOD denotes bio-chemical oxygen demand; less the BOD, better the quality

and BOD should not be more than 3 mg per litre in any case. MPN denotes the most probable number of coliform in the water and should not be more than 500 numbers per hundred milli-litres.

There are different standards of water for different uses. The Central Pollution Control Board has fixed - Class 'A' standard as fit for drinking purposes, Class 'B' for bathing, Class 'C' for drinking purposes after treatment, Class 'D' for aquatic life and Class 'E' for receiving wastes. According to the Central Pollution Control Board, water in the Ganga in many parts below Haridwar is of either Class 'C' or 'D'. The Action Plan did not specify the standard to be achieved after the implementation of the schemes.

However, in the 8th meeting (December 1986) of the Steering Committee it was decided to bring the quality to Class-B.

With a view to assess the physical, chemical and biological characteristics of the Ganga water, water was monitored in 27 sampling stations along the river and it was seen that BOD content to be high near ghats and low in the mid stream. The matter was discussed in the Monitoring Committee in September 1988 and it was suggested that an expert committee including representatives from Central Water Commission should go into the details and recommend a standardised methodology for baseline trend and impact location monitoring. Thus, till September 1988, a standard methodology for monitoring water quality could not be settled rendering evaluation of the impact of Action plan difficult.

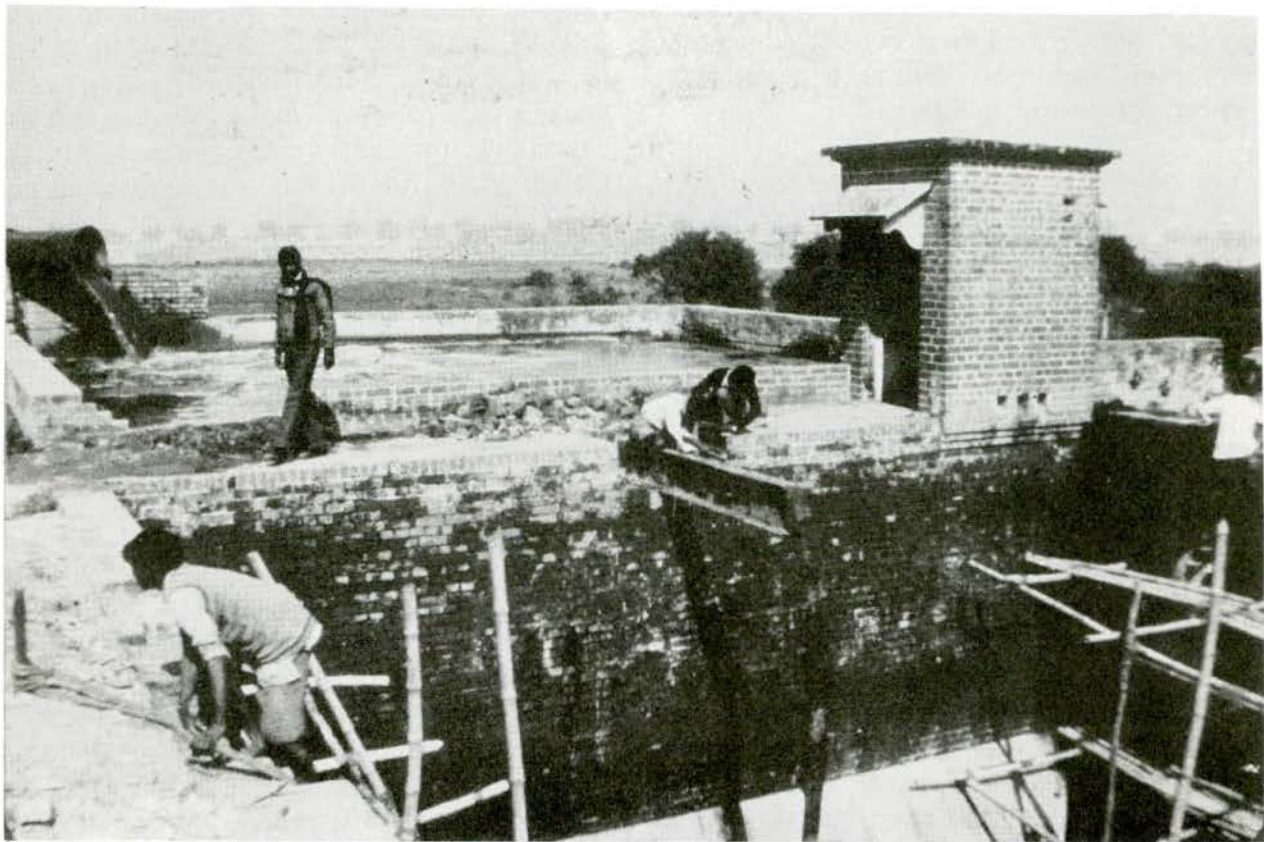
The Directorate stated, in March 1989, that the exercise on water quality modelling has been taken up for the first time in this country at their initiative in collaboration with Indian Institute of Technology, Bombay and Thames Water Authority, United Kingdom.

The impact of the schemes on reducing pollution are not being indicated in the reports sent to Authority despite the issue having been discussed in the meetings. Only in May 1989, the State Governments were requested to provide periodic reports on the impact of the schemes in improving the river water quality. A review in Audit regarding the impact of Action Plan in selected cities revealed that in the four cities of Kanpur, Allahabad, Varanasi and Haridwar in Uttar

Pradesh, 106 schemes had been taken-up during 1985-89, accounting for expenditure of Rs.5379.53 lakhs of which Rs.96 lakhs had been spent on renovation of sewage pumping stations at Varanasi by UP Jal Nigam prior to the implementation of the Action plan. Out of these 106 schemes, 30 (estimated cost Rs.1240.16 lakhs) did not fall within the objectives of the Action Plan and Rs.796.94 lakhs have so far been spent on them (March 1989). Of the 76 schemes conforming to the objectives, 23 were completed at a cost of Rs. 1820.92 lakhs exceeding their estimated cost by 53.10 lakhs. Expenditure incurred on remaining 53 ongoing schemes till March 1989 was Rs. 2761.67 lakhs against the estimated cost of Rs. 8092.02 lakhs.

8.13.2 At Haridwar, sewage generation was assessed to be 14 mld against water supply of 20 mld in 1981. Currently it is about 36 mld and together with Rishikesh it would be 54 mld. 75 per cent of the sewage was proposed to be tackled and 21 schemes estimated to cost Rs.1054.41 lakhs were undertaken. Till March 1989, work of the value of Rs.875.13 lakhs was executed, and 10 schemes involving Rs.469.59 lakhs were completed. Out of 37 drains contemplated for tapping, only 23 were tapped from February 1986 to December 1988.

A sewage treatment plant of 18 mld capacity was planned at Kankhal which was far too short of the pollution load to be tackled. Some of the sewage pumping stations were set up/renovated by March 1986 but the main station could come up in January 1989 and the treatment plant was likely to be completed by March 1990. As regards sewage pumping, seven new stations have been added to the existing seven, taking the pumping capacity to 172 mld as against the target demand of only 54 mld. Further, in Rishikesh - Haridwar union, the number of sewer users was very low. In a survey conducted by U.P. Jal Nigam in Rishikesh, only 60 per cent of the houses (only 971 out of 1615 houses of the sewer area) were connected to the sewerage system. In Haridwar, it was still lower i.e. only 21 per cent houses (159 houses out of 754 houses) had sewer connection. Reasons for low percentage of sewer connection were attributed to dearth of laterals and connecting sewers. Besides, most of the houses had their own septic tank and did not need sewer connection. In view of these, substantial expenditure under Action Plan on setting up pumping stations for 172 mld remains unexplained. The impact



Low cost sanitation scheme

on river water, as a result of this scheme was not available, as monitoring was not done.

8.13.3 Kanpur city generates 397 mld of sewage and out of this 320 mld of sewage was targeted to be tackled under Action plan. The capacity of sewage treatment plants planned was, however, only 160 mld. In addition, nala tapping was also planned to prevent sewage flow into the Ganga. But this required, sewage to be cleared in the first instance to accommodate the additional flow. Tapping of ten nalas, which discharged 23.67 mld of sewage was sanctioned, in March 1986, at a cost of Rs.29.12 lakhs and was scheduled to be completed by March 1988 to synchronise with the setting up of the Sewage pumping stations. The work was, however, completed only by December 1988 after incurring an expenditure of Rs.29.57 lakhs. Till March 1989, sewer cleaning could not be completed for 28 kilometres and four nalas continued to pollute the river to the extent of 7.71 mld.

There were three other major nalas (Sisamau, Nawabganj, and Guptarghat) which contributed about 235

mld or 58 per cent of the total pollution. The tapping of these nalas was done under the Kanpur Urban Development Project. Sisamau nala which alone contributed 183.16 mld is being tapped only partially and balance tapping of this nala had not been given preference in the Action Plan.

Out of 600 kilometers of sewer line network in Kanpur, trunk and main sewers of 74 kilometers were identified as choked. Out of this, 42 kilometers were to be cleaned by March 1988 against which only 14.19 kilometers could be cleaned by March 1989. Four sewer cleaning machines procured at a cost of Rs.5.08 lakhs could clean only 150 meters in a month on an average against the norm of 500 metres per month. As a result, the main sewage pumping station at Jajmau, commissioned, in November 1988 at a cost of Rs.202.89 lakhs to handle 160 mld of sewage could on an average get only 55 mld of sewage from November 1988 to March 1989 for being pumped, and the remaining sewage was spilling into the river. Further, in the absence of sewage treatment plant, the contract for which was yet (March 1989) to be finalised, due to legal difficulties, the pumped sewage

which could not be utilised on the sewage farm was finding its way back into the Ganga. The Directorate stated (January 1990) that 52 kilometres of trunk and main sewers have since been cleared and Jal Sansthan had been asked to speed up the completion of balance work. According to the Directorate, the pumping stations now getting 100 mld of sewage, against the capacity of 160 mld.

The Central Pollution Control Board had indicated in December 1984 that the quality of water in Kanpur was not above class C (fit for drinking after full treatment). The Action Plan envisaged improvement of the water to class B (fit for bathing). It was noticed that during January 1987 to January 1989 the dissolved oxygen DO in the water ranged in permissible limits except at one or two sampling points where it recorded 3.2 to 4.7 mg per litre. BOD ranged between 0.38 mg and 1.95 mg per litre in upstream sampling points and in downstream reaches it was 12.33 mg to 30.86 mg - far too beyond the tolerance level of 3 mg per litre.

In sum, the planned capacity of the sewage pumping station is only 50 per cent of the sewage that was proposed to be tackled in phase I of the Action Plan. Since the work of sewer cleaning, nala tapping especially the tapping of Sisamau nala, and establishment of sewage treatment plant are behind schedule quality of water at Kanpur remains far below the anticipated levels.

8.13.4 At Allahabad, the pollution load to be tackled under the Action Plan was 75 per cent of 147/248 mld, Sewage treatment plant with a capacity of only 60 mld had been planned which is below the 75 per cent target. The contract for the proposed plant of 60 mld capacity was, however, yet to be finalised, due to the court proceedings.

The main sewage pumping station at Gaughat was developed to handle 160 mld of sewage per day against the existing capacity of 60 mld. However, the rising main pipelines over the railway over Yamuna bridge had only 60 mld capacity. Bigger diameter pipes were planned to be laid for a further load of 100 mld. The Railway authorities did not agree and so it was decided to raise the head of the pumps at Gaughat and provide enhanced velocity of 1.8 meters per second (mps) against the normal 0.8 mps. The pump-

ing station at Gaughat with 160 mld capacity was installed and commissioned in October 1988 at a cost of Rs.312.98 lakhs. However, all five pumps of 37,000 litres per minute (lpm) capacity each called for major repairs within six months of commissioning, necessitating stoppage of pumping since April 1989. Moreover, the total sewage collection at Gaughat was only 49.71 mld during the period October 1988 to March 1989. The Directorate stated (January 1990) that the capacity of treatment plant has been decided upon keeping in view the peak flows of waste water and future needs. The Directorate also stated that the faulty pumps have since been rectified at supplier's cost.

Thirteen identified nalas contributed 243.22 mld out of 248 mld pollution load. Tapping of only 9 nalas carrying 220.47 mld of pollution was completed spending Rs. 137.42 lakhs.

Two sewage farms of Naini and Dandi were remodelled at a cost of Rs.12.38 lakhs with a command area of 3,000 acres. The demand for sewage at the farm was only 1 to 2 mld per day. Resultantly the bye-pass channel in trans-Yamuna remodelled at a cost of Rs.79.56 lakhs was discharging untreated surplus sewage of 47 to 48 mld downstream of the Sangam back into the Ganga.

In view of the Kumbh Mela 1989, interception of Salori nala was undertaken as an interim arrangement at a cost of Rs.16 lakhs in anticipation of approval by the Directorate and was dismantled after March 1989 resuming release of 3.94 mld of sewage into the Ganga.

In Allahabad, the objective was to upgrade the river water quality to class B. A test check of the records for February 1988 to July 1989 revealed that river water had dissolved oxygen (DO) within permissible tolerance but BOD was 5.03 mg to 3.64 mg and MPN ranged between 2624 to 10488 against the permissible 500 numbers per 100 millilitres for class B standards.

Thus, in Allahabad, the main pumping station is designed to tackle a load of 160 mld but the sewage treatment plant for which contract was yet to be awarded, will have capacity for 60 mld. The problem is compounded because in the Gaughat pumping station, only 50 mld sewage was collected which is less than one third of its capacity and one fifth of the total

sewage generated in the city. This was indicative that the sewer lines were heavily choked and nearly 200 mld untreated sewage was going back into the Ganga. While Rs.1144.53 lakhs had been spent on pollution control schemes, only 2 to 3 mld sewage was being diverted away from the river to the sewage farms.

8.13.5 At Varanasi pollution load was to be reduced by 75 per cent i.e. 95 mld/183 mld as per 1981/1990 load. The Action Plan envisaged augmenting the pumping capacity at Konia from the existing 28 mld to 130 mld and establishment of a 80 mld capacity new sewage treatment plant at an estimated cost of Rs.2,300 lakhs. The augmented Konia pumping station was scheduled for completion in December 1989. The proposed plant would be capable of handling only one-third of the sewage likely to be generated and 60 per cent of load designed to be pumped, when it is completed by December 1990. Further, a command area of 800 hectares was identified for utilisation of the treated effluents and for that purpose water channels, etc. were repaired at a cost of Rs.44.05 lakhs.

Audit noticed that the Konia pumping station worked for 533 hours in 1986-87, 144 in 1987-88 and 271 in 1988-89 against the norm of 7,200 hours per annum. The output of pumping was restricted to two to three mld reportedly due to poor demand for sewage from the farmers. This being so, augmentation of pumping at Konia to 128 mld was unnecessary and 124-125 mld of sewage was likely to find its way back into the river.

Sewage of 27 mld out of 39.66 mld carried by nine nalas was tapped under the Action Plan. However Mansarovar drain having a discharge of 3 mld had remained untapped. Till March 1989, Rs.86.72 lakhs were spent on it against the revised estimate of Rs.96.93 lakhs. The work was to be completed by May 1988 but had not been completed till May 1989. Time and cost overruns were attributed to changes in the design of the building for the pumping station. The Directorate stated (January 1990) that tapping of Mansarovar drain had since been completed.

A sum of Rs.22 lakhs was spent till March 1989, of which the Directorate's share was Rs.13.84 lakhs on the construction of Nagwa drain in Varanasi to shift its outfall 800 metres upstream. The drain was to handle the left over sewage of Assi nala. With the

construction of pumping station at Assi nala, there was no sewage left for diversion to Nagwa drain. The expenditure was not necessary.

The Action Plan envisaged cleaning and repairing of outfalls and trunk lines and not other category of sewers. However, Rs.5.43 lakhs had been spent till March 1989 on cleaning branches and laterals.

A River Police Squad was to be fully operative at Varanasi by March 1988 to prevent dead bodies and carcasses being thrown into the river. In September 1986, the Directorate sanctioned Rs.27 lakhs for purchasing three launches, three speed boats, wireless sets and life saving equipment. Upto March 1989, Rs.11.71 lakhs had been deposited as advance for the speed boats, wireless sets and on establishment expenses. The squad remained ineffective for want of equipment.

Since the quantity of sewage diverted was negligible and there was mismatch between sewage pumping and treatment at Konia, the river water quality in terms of BOD was never within permissible limits, except for one month in July 1987. Though dissolved oxygen was within permissible limits, MPN ranged from 5,400 to 24,000 against the norm of 500.

8.13.6 In Chapra (Bihar) Rs.170.15 lakhs was sanctioned for interception and diversion schemes including for sewage treatment plant. The site of the sewage treatment plant had not been finalised and the interception and diversion scheme not completed though an expenditure of Rs.99.56 lakhs had been incurred.

It was noticed that in Patna the total pollution in terms of BOD was targeted to be reduced from 6615.80 lbs to 1588 lbs per day. However, no arrangement for monitoring the BOD level had been made (January 1989). Further, the city's existing sewage treatment plant had a capacity of 28.2 mld and the present diversion of sewage to this treatment plant could provide 10.55 mld based on the down water flow. The inadequacy of the sewage running lines resulted in 12.18 mld waste water getting discharged into Ganga.

In Munger, Rs.280.50 lakhs were sanctioned for interception and diversion schemes (Rs.182.50 lakhs) and for sewage treatment plant (Rs.98 lakhs) to reduce the pollution load on Ganga. While Rs.46.05 lakhs on the interception and diversion scheme had been spent, untreated waste water continued to flow into the

Ganga. The site for the sewage treatment plant also remained to be selected.

In Bhagalpur, construction of a Sewage Treatment Plant at Rs.89.50 lakhs had been sanctioned. The plant was however, yet to be constructed and waste water continues to be discharged into Ganga (January 1989) despite an expenditure of Rs.68.92 lakhs on the sewage schemes and Rs.16.55 lakhs on the sewage treatment plant.

Bihar State Pollution Board has sampling stations and data regarding water supplies in respect of four stations were available as given below :-

Monitoring station	Year	Parameters BOD in ml	Analysis DO in ml
Buxar	1985	1.0	6.3
	February 1989	0.4	5.8
Koilwar	1985	1.0	6.7
	December 1988	8.2	8.6
Kurjee	1985	0.8	6.4
	February 1989	0.6	8.38
Rajmahal	1985	1.6	6.4
	February 1989	0.4	8.7

While improvement in water quality was noticed at three monitoring stations, at Koilwar there was a sharp increase in the BOD.

8.13.7 In West Bengal, the Action Plan left out of its scope industrial pollution which contributed 25 per cent to the total pollution load. It was also not known to the Calcutta Metropolitan Development Authority (January 1989) whether the industrial pollutants were ever identified or any proposal for management of industrial pollutant was initiated.

In the municipal towns of Bhatpara, Baranagar and Kamarhati of West Bengal, schemes for interception, diversion and establishment of sewage treatment plants were started by Calcutta Municipal Corporation in July 1987 to be completed by October 1990. The progress achieved upto December 1988 was 11.17 per cent for interception and diversion and 2.90 per cent for sewage treatment. At Bhatpara, renovation of 1.86 mld treatment plant and pump house were completed, but laying of sewer was incomplete (January 1989). In Baranagar - Kamarhati, the progress of work was only 2.01 per cent though the scheme was approved by the Directorate in July 1987. As the schemes have not been completed, the impact of prevention of pollution under Action Plan could not be assessed.

8.14 Industrial effluent: An Expert Committee identified 68 industrial units in the three states as gross polluters of the river Ganga, out of which 25 have set up effluent treatment plants, and in eleven units, plants were under construction. Of the remaining 32 units, 5 have closed down, 17 are public sector units and 10 have not set up the plants.

Of the 17 public sector units, 3 have set up the plants and 12 units are in the process of doing so. In the case of one unit, closure notice had expired and prosecution proceedings were being launched. In the case of another unit, closure notice and prosecution had been delayed.

8.15 Maintenance of minimum flow in the river for pollution control:

The Authority decided in October 1985 that the Directorate should prepare a paper in consultation with the Ministry of Water Resources regarding the minimum flow of water in the river to maintain water quality. The paper was discussed in the Ministry of Water Resources in June 1986. Subsequently, water quality modelling exercises were initiated. These exercises indicated that the flow of water in the river Ganga in the stretch between Haridwar and Allahabad was quite low in the lean season and the position was very critical at Kanpur. It was concluded in July 1987 that the matter should be placed before the Authority.

The Authority, after discussion in June 1988, decided that a multi-disciplinary study should be taken up and the Ministry of Water Resources would set up an interdisciplinary group for the purpose and determine the terms of reference in consultation with the Ministry of Environment and Forests. The study was to be completed within six months and report furnished before December 1988. The Ministry of Water resources have drafted the terms of reference but the study group had not yet been constituted (September 1989).

Unless minimum flow of water is maintained in the river particularly between Haridwar and Allahabad, water quality standards sought to be achieved under Action Plan cannot be reached.

8.16 Other interesting points

(i) Non-accountal of revenue realised

Out of Rs. 3.79 lakhs (January, 1989) collected on account of sale proceeds of bill of quantity under the Action Plan schemes, only Rs. 1.86 lakhs were accounted by BISWAS Board. No instructions regarding accountal of this type of revenue has been issued and the matter was also not reported to the Directorate.

(ii) Additional liability incurred for not accepting lowest tender

The lowest tender of 11.20 per cent below the estimated cost of Rs. 45.18 lakhs for laying and intercepting sewers in Baranagar Municipal area in West Bengal was rejected and the second lowest offer of 8.89 per cent above the estimate was accepted (November, 1987) on the ground that the lowest rates were likely to be revised in the near future. But a rate 21.15 per cent below the estimate prepared on the basis of the same schedule of rate was accepted for intercepting sewers in Garden Reach area in January 1989. Thus, additional expenditure of Rs. 9.36 lakhs was incurred.

(iii) Non release of state government share

In respect three schemes to be executed at Varanasi and costing Rs. 143.42 lakhs, the Directorate had released its share of grants but the share of the State Government amounting Rs. 71.71 lakhs was not released.

(iv) Inadmissible project preparation cost

- (a) The Directorate accepted in principle to bear expenditure on project preparation cost at actuals subject to the maximum limit of 4 per cent of the project estimate. CMDA engaged consultants for preparation of project estimates for the scheme "Interception and diversion of sewers of Hooghly, Chinsura and South Subarban(East) areas" and paid Rs. 11.50 lakhs. However, CMDA charged the Directorate Rs. 29.38 lakhs on the basis of 4 per cent of the actual cost of the project. The Directorate had been overcharged to the extent of Rs. 17.88 lakhs, and the amount was treated as sundry receipts by CMDA.

- (b) The project estimates for several low cost sanitation schemes were prepared by multiplication of the unit cost by the number of latrines to be converted, and no consultants were engaged for preparation of project estimates. However project preparation cost of 4 per cent amounting to Rs. 21.75 lakhs had been charged to the Directorate for 29952 units of latrines in 16 municipal towns of West Bengal, which was inadmissible.

(v) Irregular expenditure

- (a) A sum of Rs. 38.48 lakhs was spent by BISWAS Board on establishment expenses of five divisions and two circles during 1987-89 without the approval of Directorate.
- (b) A sum of Rs. 11.99 lakhs was spent on certain items of work by BISWAS Board in 1986-89 which were not approved by the Directorate. A sum of Rs. 14.30 lakhs was spent by the BISWAS Board during 1986-89 on items which were not directly related to Action Plan and the sanction of the Directorate for these was not shown to Audit.
- (c) The Directorate intimated BISWAS Board in September 1988 that it was not possible to make payment for land as the schemes were primarily a municipal function. Despite this, the Board incurred an expenditure of Rs. 12 lakhs (November 1988) over acquisition of land, the possession of which has not been taken so far (February 1989).
- (d) The Directorate had indicated, in September 1988, that it was not possible to sanction money for land for Gulbighat crematorium under the Action plan. However, an amount of Rs. 8.20 lakhs had been sanctioned for acquisition of land at five other sites.
- (e) In Uttar Pradesh, expenditure amounting to Rs.62.47 lakhs was incurred without obtaining approval of the Directorate. This included expenditure of Rs. 2.83 lakhs on purchase of a jeep and a car, Rs. 17.12 lakhs on road cutting charges and Rs. 5.87 lakhs on acquisition of land, Rs. 1.80 lakhs as supervision charges, Rs. 14.14 lakhs on salary of

staff of the Ganga Project Cell, Varanasi, Rs. 10.24 lakhs on man hole covers purchased in Kanpur and Allahabad, Rs. 4.25 lakhs transferred to Nagar Mahapalika accounts, Rs. 2.57 lakhs on Xerox machine and Rs. 3.65 lakhs on advertisements and purchase of spares, etc.

- (f) At Allahabad, 9 out of 27 projects were yet to be sanctioned, but UP Jal Nigam, Allahabad, went ahead with the work on these and expenditure amounted to Rs. 74.63 lakhs.
- (g) To educate a large number of people regarding the present state of pollution and the way the pollution of the Ganga river can be stopped, an exhibition at Sonapur/Patna was held during the year 1986-87. An expenditure of Rs. 6.23 lakhs was incurred, but the Directorate agreed to bear only Rs. 1.21 lakhs. The balance has not been regularised but remains charged to the Directorate.

(vi) Electric crematorium at Allahabad

The Directorate sanctioned (February 1987) construction of a crematorium at a cost of Rs. 22.07 lakhs at Allahabad. An electric furnace was procured in March 1989 at a cost of Rs. 11.72 lakhs which is lying idle as the site for the crematorium was yet to be decided.

The Directorate stated (January 1990) that the original state had to be changed following representations from the public and the work at new site would start shortly.

(vii) Utilisation certificates

Till June 1989, 262 schemes have been sanctioned at total cost of Rs.256.26 crores for implementation of the schemes under the Directorate. The amount of expenditure incurred in respect of each scheme has been reported monthly by the implementing agencies/ State Governments. But till date, the completion reports in respect of the completed schemes and utilisation certificates in respect of the grants have not been furnished by them to the Directorate.

The Directorate stated in March 1989 that they have been impressing upon the implementing agencies as well as the State Governments to send schemewise utilisation certificate. As regards completion reports, it has been stated that the implementing agencies have expressed their difficulty as closure of accounts, after commissioning of a scheme, takes some time and that they would be sending completion reports soon.

The Directorate stated (June 1990) that utilisation certificates for grants issued prior to March 1989 had been received except in the case of Bihar and completion reports had since been received in respect of 38 schemes.

9. Delay in fabrication of a bus body

The State Forest Service College, Dehradun purchased a bus chassis in May 1984 through the Director General of Supplies and Disposal (DGSD) rate contract at a cost of Rs.1.64 lakhs for their education programme. The indent for fabrication of a bus body on the chassis was initially placed on DGSD in October 1984. The DGSD suggested the building of the body by the college itself. Three tenders were received in response to the advertisement in February 1985 and sent to the Director of Forest Education (DFE) in April 1985 along with the recommendations of a committee. The Director did not accept the recommendations of a committee. Once again, an indent was placed on DGSD for fabrication of the bus body in September 1985. DGSD returned the indent since the requirement was less than ten in number. Subsequently tender notices were issued in May and July 1986. As the response was poor, the authorities constituted a committee in November 1986 to negotiate with the DGSD approved firms. On the basis of the recommendations of the committee the fabrication job was entrusted to a firm in June 1987 for Rs.1.42 lakhs which was completed in March 1988.

Due to delay in getting the bus operational, the college incurred an expenditure of Rs.6.08 lakhs (approximately) towards hiring of private buses during June 1984 to March 1988 for conducting study tours.

The Ministry stated in October 1989 that "the delay was caused due to administrative procedure which is noted for future guidance".

**MINISTRY OF SCIENCE AND
TECHNOLOGY**

**DEPARTMENT OF SCIENTIFIC AND IN-
DUSTRIAL RESEARCH**

10. Delayed installation of imported microfilming unit

In view of the ever increasing number of foreign collaboration agreements being received in the Department of Scientific and Industrial Research and limitation of storage space, the Department decided in March 1987 to procure a microfilming unit consisting of micro film camera/processor, reader-printers, accessories and chemicals, micro film reader and micro film storage equipment. The first two equipment were to be imported and the rest were to be indigenously procured.

Purchase order for micro-film camera/processor was placed on a foreign firm for US \$6094 (Rs.0.83lakh) excluding agents commission of Rs.0.04 lakh in May 1987 and was received in December 1987. A sum of Rs.2.97 lakhs was paid including freight, customs duty and central warehousing charges. An order for reader printer was placed on another foreign firm at a cost of Japanese Yen 575145 (Rs.0.50 lakh) in March 1987 and was received in August 1987. An amount of Rs.1.54 lakhs was paid including customs duty and clearance charges.

The micro film camera/processor were installed only in September 1989, after Audit raised the point. The department stated, in September 1989, that the delay was due to lack of space and it has now been installed by finding space from within the available accommodation. Till then, the reader printer, though installed earlier could not be put to use in the absence of the micro film camera/processor. Thus the purpose of acquisition of equipment remained defeated for lack of accommodation and there was blocking of funds amounting to Rs.4.51 lakhs for more than 21 months.

INDIA METEOROLOGY DEPARTMENT

11. Non recovery of service charges

The India Meteorology Department (IMD) provides meteorological services to various Undertakings of the Central Government and levies charges. A test

check of records of IMD revealed that an amount of Rs.18.66 crores was yet (March 1989) to be recovered from the following organisations:-

Undertaking	Amount due	Period to which the charges pertain
	(Rs. in crores)	
International Airports Authority of India (IAAI)	18.56	1978-87
Rashtriya Chemical and Fertilizers Ltd.	0.06	1983-85
Indian Oil Corporation (Mathura Refinery)	0.04	1980-85

		18.66

IAAI was set up in April 1972 as a public sector undertaking and it took over from the Civil Aviation Department the control and management of the four international airports at Bombay, Calcutta, Delhi and Madras. IMD continued to provide aviation meteorological services to IAAI, but only in December 1977, the Ministry of Tourism and Civil Aviation decided that IAAI should pay for the services rendered by IMD. Thereupon, in May 1978, IMD submitted details of the cost of services rendered by it and the annual cost amounted to Rs.173.07 lakhs. In a meeting held in April 1980, IAAI broadly agreed to the cost of services and on 31st March 1980 had also paid an on account payment of Rs.140 lakhs for the year 1978-79.

IAAI, however continued to make only on account payments and several meetings in November 1981, September 1985 and August 1987 had not resolved the issue. Thus, IAAI has been paying Rs.33.07 lakhs less for each year for the last ten years. Ministry stated, in October 1989, that the recovery may take some more time but the department has been advised to pursue the matter vigorously. However, substantial money was yet to be recovered for services rendered by IMD to IAAI.

SURVEY OF INDIA

12. Avoidable payment of interest charges

In November 1980, Government of Gujarat provisionally allotted a piece of land at Gandhi Nagar to the Survey of India (SOI) measuring 10,500 square metres and 10,000 sq.m. for office and residential accommodation respectively. In March 1984, the above land was finally allotted to SOI and the total cost intimated as Rs.72 lakhs. According to the Resolution

of allotment the entire cost was payable on or before 14th April 1984 failing which interest at 20 per cent was payable. After obtaining sanction in July 1983, the SOI had made part payment of Rs.47.55 lakhs in March 1984 leaving a balance of Rs.24.45 lakhs. The sanction for payment of the remaining amount was applied for by SOI in March 1984 and it was issued by the Ministry only in July 1986. The payment was made to the Government of Gujarat in September 1986. Interest of Rs.11.41 lakhs was also paid to the Government of Gujarat in July 1987 on account of delayed payment. Thus delay in affording sanction resulted in avoidable payment of Rs.11.41 lakhs.

The Ministry stated in September 1989 that they had to consult Ministry of Urban Development on certain issues which resulted in the delay. But twenty eight months is too long a period for such consultations since provisional allotment of land had been made 5 1/2 years earlier and it was known that penal interest would be payable for any delayed payment.

13. Idle printing machine

In March 1988, the Director, Map Publication, Survey of India, Dehradun, had placed an order for a single colour sheet-fed offset printing machine at a cost of Rs.8.38 lakhs. The machine was received in July 1988 and Rs.7.55 lakhs, being 90 per cent of the price, and insurance charges were paid. Due to non provision of infrastructural arrangements the machine had not been installed so far (June 1989).

Further, free after sales service for twelve months including free periodic maintenance, repair and replacement of parts has been lost because the machine was not installed within one month from the date of its receipt. Against the contractual provision for two weeks free of cost training to the operator and maintenance personnel two officials had undergone training only for six days each.

Department accepted the facts in November 1989 and stated that the printing press has since been installed (November 1989). Also suitable training for the personnel have been arranged in October 1989.

Thus, procurement of the equipment without proper planning had led to idling of an investment of Rs.7.55 lakhs for 16 months as well as losing the benefit of free after sales service.

14. Utilisation of computers

Survey of India, South Central Circle, Hyderabad purchased in July 1980 a micro computer-78 with 64 KB memory at a cost of Rs.5.03 lakhs for being used in computing field traverse/triangulation work. In 1977, Party No.78 had purchased a micro computer-2200 (Rs.0.43 lakh) which did not have alpha character and so could not be used effectively.

According to the log books the micro computer-2200 was not in use since November 1982 and the other from February 1982. The quarterly returns regarding utilisation of computers showed that the computers were used only for one hour a day. Survey of India held that first computer was beyond repair as production of the model was stopped. Micro-78 was maintained by a service contract involving payment of Rs.0.32 lakhs per annum. A sum of Rs.1.94 lakhs had been paid as maintenance charges till March 1988 though as per log books, the computer was not used beyond February 1982. The payment of maintenance charges was therefore wasteful. Further, during the period 1981-82 to June 1987, the computing work was got done through CMC and a sum of Rs.2.43 lakhs had been paid towards hire charges for computers.

Audit took up the issue of poor utilisation of the computers with Survey Party in July 1988. The Director General, Survey of India was addressed by the Survey Party in December 1988 for condemning and disposing off both the computers. It was stated in March 1989 that the sister units of Survey of India would be contacted to find out whether these computers could be used in whole or in part in their units and if the sister units declined the offer, the computers would be auctioned locally.

According to Ministry of Science and Technology (May 1989) the computers were in use beyond 1982 but due to change of officers in the unit (OC-78 Party) the log books were not maintained after 1982 and that suitable instructions have since been issued to the Director/OC Unit to maintain log books for all computers in future. It was further stated that as regards condemning and disposing off these computers, a Committee had been formed, and a decision was awaited. However, the reply of the Ministry was silent as to why computing work had to be entrusted to CMC.

Thus computing work was got done through an outside agency and at a cost. Micro-78 bought at a cost of Rs.5.03 lakhs and maintained at a cost of Rs.1.94 lakhs was sparingly used and the investment did not yield the optimal returns. Since the computing work was got done through outside sources, payment of maintenance charges even after February 1982 when the computer was in disuse was wasteful.

15. Installation of cartographic camera

In order to replace an old and outdated camera for cartographic printing of photographs, Survey of India (SOI) placed an order on a foreign firm in November 1984 through the Director General, Supplies and Disposals for a cartographic dark room camera, at a cost of Rs.1.09 lakhs. The consignment was shipped from West Germany in June 1985 and reached Bombay in August 1985. After payment of Rs.0.86 lakh as customs duty and Rs.0.82 lakh as transportation charges, the camera reached SOI, Dehradun in October 1985.

Earlier, SOI had placed an indent for a similar camera in January 1982 and this was cancelled in March 1982 since suitable accommodation was not available. The procurement was revived after availability of accommodation was confirmed in September 1983.

The accommodation had, however, to be renovated at a cost of Rs.1.16 lakhs and the necessary estimates were obtained from Central Public Works Department in February 1985. Another estimate for renovating electrical installations at a cost of Rs.1.76 lakhs was obtained in May 1985. These two estimates were forwarded to the Ministry of Science and Technology in May and August 1985 by the Surveyor General of India. Twenty four letters were exchanged between various authorities and in the meantime, the estimates were revised upwards to Rs.4.49 lakhs. Financial sanction was received from the Ministry in January 1987.

SOI realised that the estimates had not provided for airconditioning the accommodation and a sum of Rs.2.40 lakhs was necessary for this purpose. The sanction of the Surveyor General for airconditioning the room was obtained in July 1988. Thus the sanction for renovating the building had been obtained 17 months after import of the camera and the proposal for airconditioning was mooted 32 months later.

Audit had pointed out the lapses in April 1987 and SOI had replied in January 1989 stating that the camera would be installed after airconditioning arrangements were completed. In June 1989, SOI informed that the camera had since been installed and became operational in March 1989.

The case revealed that due to piecemeal and delayed proposals for renovating and airconditioning the room and delay in obtaining the necessary sanctions, a sophisticated imported camera acquired at a cost of Rs.1.11 lakhs had to remain idle for a period of 41 months. Ministry accepted the facts in November 1989.

DEPARTMENT OF SPACE

16. Delay in installing a washing and drying unit

Vikram Sarabhai Space Centre (VSSC), Department of Space (DOS) developed a process for converting rayon cloth into carbon cloth, in 1980. Carbon cloth is required in ablative nozzles and convergent liners in solid propellant rockets and presently the requirement is met out of imports since the process developed has not been converted into a production technology. One of the reasons for the delay is the non-availability of washing and drying unit to enable the upscaling of the process from 75 mm width to one metre width carbon cloth.

VSSC had placed a purchase order in February 1986 for a washing and drying unit at a cost of Rs. 5.81 lakhs with supply due in June 1986 and commissioning by the end of 1987. The unit was despatched in March 1987 after prior inspection by the engineers of VSSC and Rs.5.08 lakhs was paid.

The unit was damaged in transit and it was set right by March 1989. While commissioning the unit certain components like heating elements etc. were found to be defective and these remained to be repaired. In addition, a cloth inspection unit purchased in March 1985 at a cost of Rs.0.44 lakh was also damaged during transit and hence, could not be installed so far. In all Rs.5.52 lakhs remained blocked.

The Department stated in January 1990 that the washing and drying unit had since been repaired in July 1989. As regards productionisation of the technology developed by VSSC the department stated that an

agreement had since been entered into with a private company and commercial production was expected to start in 24 months.

Failure to produce carbon cloth for which processes had been developed nine years ago, had resulted in carbon cloth being stock piled, since there was a apprehension of possible embargo on the export of this item by foreign governments. An expenditure of Rs.4 crores had been incurred in 1984 in the import of carbon cloth and further imports were made in 1988-89 also. VSSC should have given thrust to the above technology programme and productionisation through and external organisation could have been attempted earlier.

17. Non-installation of imported equipment

On the basis of a limited tender enquiry, Vikram Sarabhai Space Centre (VSSC), Trivandrum placed an order in June 1985 on a foreign firm for supply, installation and commissioning of a precision centrifuge with counter rotating platform and related electronic console at a cost of US \$ 8,48,622 (about Rs.116.98 lakhs) excluding US \$ 21.721 payable to Indian agent at the exchange rate prevailing on the date of the contract. The system was to be delivered within 270 days from the date of the order and 180 days from the date of receipt of the letter of credit. The letters of credit were opened in August 1985.

Out of 26 packages of consignment despatched by the supplier, by air, 25 reached Trivandrum on 15th August 1986. The short-landed item, viz. shaft assembly, was a critical part of the system and was subsequently traced in the Bombay airport. The shaft assembly reached Trivandrum on 26th August 1986 in a damaged condition. The supplier with whom the matter was taken up replied, in November 1986, that VSSC engineers who had conducted the preshipment inspection had issued the preliminary acceptance certificate in July 1986. Subsequently, the supplier inspected the system at VSSC and stated that the damaged part required replacement.

The supplier had also pointed out in November 1986 that its engineers deputed for testing and installing the centrifuge had to return without accomplishing the task because VSSC was not ready.

A second contract was entered into in May 1987 at a total cost of Rs.27.20 lakhs for replacement of the

shaft and deputing suppliers personnel for installation, etc. The new shaft was received in November 1987. The Department stated in September 1989, that an insurance claim for reimbursement of Rs. 27.20 lakhs has been preferred in December 1988, and the claim has been admitted and settlement was expected soon.

However, the centrifuge system, installed and commissioned had not yet been finally accepted because four specific tests were yet to be done. Two of these tests could not be done due to non-availability of inertial grade accelerometer. The accelerometer can be obtained only after the necessary export licence is granted by the foreign government. Two other tests were not performed due to mechanical hysteresis.

As per the original contract, only 92 *per cent* of the payment was to be made on proof of despatch and 8 *per cent* was payable after final acceptance of the system. As the supplier insisted on release of the contract amount, VSSC agreed and released the same in November 1986. In all Rs.141.38 lakhs had so far been paid including the cost of the replaced shaft assembly. Also the Indian agent has been paid Rs. 1.36 lakhs, i.e., 50 *per cent* of his commission.

According to VSSC, the system was scheduled to be installed and commissioned in October 1986. Due to the damage to the main shaft assembly and due to four tests remaining to be done, the system remained to be accepted though three years had passed by since the receipt of the system. The department stated in September 1989 that the suppliers had since been served with a legal notice for failure to fulfill the terms and conditions of the contract.

18. Excess procurement of a chemical

Vikram Sarabhai Space Centre(VSSC), placed an order on a foreign firm in October 1983, through special procurement team (SP-6) for the supply of 1102.3 lbs of a chemical with delivery by November 1983. Against the above order, 1120 lbs of the chemical at a cost of Rs.12.55 lakhs were received and transferred to Rocket Propellant Plant (RPP) stores in August 1984. It was actually taken to stock in June 1986. In June 1986, 240 lbs of the chemical were issued to Solid Motors Project (SMP) Stores and the balance quantity of 880 lbs as well as 95.50 lbs received on transfer from Satellite Launch

Vehicle (SLV) stores were kept in stock (cost Rs.10.08 lakhs).

Another order for 1100 lbs of the above chemical was placed through SP-7 team in June 1984 on the same firm with delivery due in three months. The consignment, imported at a total cost of Rs.13.50 lakhs, was taken into SMP stores in November 1984. 122 lbs thereof were issued in September 1986 and the 978 lbs (cost Rs.12 lakhs) were kept in RPP stores.

Another order for 660 lbs of chemical was placed by SMP stores (since renamed as Solid Propulsion Propellant and Chemical) on another firm in November 1986. 220 lbs costing Rs.5.90 lakhs including duties were received by air and taken in RPP stores and consumed by July 1987. 440 lbs valued at Rs.5.64 lakhs were received in April 1987 and transferred to RPP Stores. The second consignment was of lower value because of a change in the rate of duties.

The department stated, in August 1989, that the utilisation of the chemical had been affected due to difficulties and delays in importing certain resins and hoped that with the utilisation of alternative indigenous resins the difficulty could be overcome. It was, however, seen that the department had 8000 pounds of the relevant resin in store during December 1984 to April 1987. According to the department, the chemical is procured afresh for each formulation and if the chemical of reduced strength is to be reformulated, the time and cost would be enormous. In the context of the above reply, storing of 2393.50 lbs of chemical was injudicious. Also, ordering of the chemical by two different SP teams as well as a third time in November 1986 was uncoordinated and without reference to the stock available in stores.

Thus, lack of coordination in ordering an expensive chemical resulted in excess procurement and blocking of capital to the extent of Rs. 27.72 lakhs.

19. Infructuous expenditure on soil and hydrographic surveys for a jetty

The Department of Space planned to construct a jetty at Sriharikota Range Centre (SHAR) in 1978 for unloading cargo and for berthing the patrol boat of

the Centre. To determine the location and the type of jetty that should be constructed, the department requested the erstwhile Ministry of Shipping and Transport for technical advice. In July 1978, the expert of the Ministry, on the basis of a reconnaissance survey advised against the construction of jetty since it would be exposed to the rigours of waves and cyclones and considerable investment and maintenance cost would become necessary. The expert suggested that Madras port could be advantageously used for berthing the patrol boat as well as for receiving sea-borne cargo.

In August 1978, the department decided that it would not be advisable to berth the patrol boat at Madras port on security considerations and decided to have a jetty at SHAR. The department spent Rs.0.12 lakh on tide pole readings as the first stage of exploratory work and a work order for soil survey was issued in January 1979. The contractor after doing Rs.0.26 lakh worth of work by August 1980, pleaded his inability to carry out soil investigation in the sea. In December 1980, it was decided to discontinue soil survey as the department reviewed the need for a jetty in the context of difficulties faced in deciding the location of the jetty and in the context of the expansion programme for the SHAR.

Meanwhile, in September 1978, the department had also engaged the Minor Port Survey Organisation of the erstwhile Ministry of Shipping and Transport for conducting hydrographic survey and Rs.5.70 lakhs were deposited with the above organisation for the survey. In December 1980, SHAR felt that due to safety reasons, the jetty should be located two kms south of the earlier location and accordingly enlarge the area of the hydrographic survey. For the additional area to be surveyed, the department deposited a further sum of Rs.2.70 lakhs in March 1981. In July 1986, it was stated that the hydrographic survey was not completed and was short-closed as it was felt that the jetty at SHAR would be uneconomical and Madras port could be advantageously utilised. Consequently Rs. 0.40 lakh became due from the Ministry. The department stated (November 1989) that they have since initiated action to effect recovery.

The department stated, in November 1989, that the data collected could still be utilised. This is not correct since neither of the surveys has been completed. The soil survey work was discontinued by

December 1980 while the hydrographic survey was continued thereafter. Also the surveys were commenced without considering the economic justification for constructing a new jetty. In sum, Rs.8 lakhs spent on hydrographic survey and Rs.0.38 lakh spent on soil survey had become infructuous.

20. Haphazard upgradation of radiographic facilities for Polar Satellite Launch Vehicle

The Department of Space decided in September 1982 to upgrade its eight million electronic volts (MeV) radiographic facilities including real time test in Sriharikota Range (SHAR). Accordingly, the Department placed an order in February 1983 for supply, erection and commissioning of a 15 Me V linear accelerator at a cost of Rs.81.50 lakhs (5,13,680 pounds).

The equipment was delivered at site in November 1984. The building for the equipment and other matching facilities, like supply of chilled water, demineralised/distilled water, safety systems etc. were however not ready by then.

The work for the building was awarded (Rs.30.18 lakhs) in May 1983 but one of the items in the tender had not been quoted for and so the work for this team was subsequently awarded (Rs. 32.34 lakhs) in January 1984. The civil work was completed in February 1986.

The requirement for chilled water was made known by the supplier in May 1983 and an indent was raised in July 1983 and tenders opened in April 1984. The technical clarifications and correspondence with the supplier were concluded by October 1984.

After observing the departmental for malities, orders were placed in February 1985. By then the validity of tenders had expired (June 1984) and a new purchase order was placed at a cost of Rs. 2.95 lakhs in January 1987 after floating fresh tenders. According to the departmental report of January 1989, the water chilling plant which has been installed in January 1989 was of poor quality.

The accelerator which arrived at site in November 1984 was damaged by a cyclone that hit SHAR. The supplier agreed to refurbish the damaged equipment at his own cost. The equipment was exported back and reached the supplier in November 1985.

The refurbished accelerator arrived in March 1987 but its commissioning could not be completed due to failure of various components and non-availability of chilled water and distilled/demineralised water. In all, the erection engineers visited the site four times. In March 1988, the supplier informed that the failures in the target assembly and the guide within the equipment was due to contaminated water supplied to the equipment. The supplier demanded defrayal of travelling expenses of the engineers from their second visit and also wanted compensation for the refurbishment of the guide and re-supply of various components. These claims were negotiated and finally the department agreed to pay Rs.17.79 lakhs. After repairs etc. the equipment was commissioned on 1st December 1988 without neutron radiography which was agreed to be supplied within 16 weeks thereafter. The equipment again broke down on 14th December 1988. The engineer visited SHAR in January 1989 and suggested that the equipment be run at 2200 rads per minute against the rated 6000 rads per minute. The supplier also agreed to substitute the damaged target assembly and other components. The supplier also took sample of the water for further testing. The department stated in September 1989 that the machine was being operated with the same energy level unit.

Thus the 15 Me V accelerator remained to be fully commissioned. The department could have avoided counter claims about poor water supply and peripherals not being ready had it taken adequate advance action and conducted acceptance tests completely.

21. Administrative lapse in fixing licence fee

Consequent on the Fourth Pay Commission's recommendations, orders were issued by Government, in June 1987 fixing the flat rate of licence fee to be recovered for different types of residential accommodation. The change in rate was to take effect from July 1987.

Department of Space (DOS) had granted (August 1987) certain concessions in licence fee to its employees at Sriharikota Range (SHAR) for a period of three years from January 1987. While implementing the orders for new rates of licence fee, DOS agreed (July 1988) to continue the concessional

rates. However, while fixing the licence fee SHAR did not follow the mode of calculating the living area or the license fee therefor given in the guidelines issued by the Ministry of Urban Development. Consequently, SHAR is recovering licence fee at a lower rate resulting in continuing short receipt of Rs.3.06 lakhs per annum excluding the concession.

DOS stated, in December 1989, that different rates of licence fee had been fixed for similar category of quarters because these were built at different points of time with different floor areas etc. However, Government of India had taken this factor into account while issuing the above guidelines. Thus, DOS had not implemented the guidelines in full resulting in a continuing short receipts.

CHAPTER III

AUTONOMOUS BODIES

22. Accounts and Utilisation Certificates

The accounts of autonomous bodies pertaining to Scientific Departments and which are receiving financial assistance from Government are being audited by the Comptroller and Auditor General of India under various provisions of the Comptroller and Auditor General's (Duties, Powers and Conditions of Service) Act, 1971.

As on 31st March 1989, there were 35 Central autonomous bodies of Scientific Departments whose annual accounts were to be audited by the Comptroller & Auditor General of India under the Comptroller and Auditor General's (Duties, Powers and Conditions of Service) Act, 1971. The annual accounts for 1988-89 in respect of 24 bodies had not been received (December 1989).

The audited accounts of five autonomous bodies viz. Sree Chitra Tirunal Institute of Medical Sciences and Technology, Indian Council of Medical Research, Council of Scientific and Industrial Research, Indian Council of Agricultural Research and Wild Life Institute of India along with the separate Audit Reports on each individual body/organisation are presented to the Government of India every year for being placed before Parliament.

22.1. Delay in submission of accounts by autonomous bodies:-

The Committee on papers laid on the Table of the House" recommended in their First Report (5th Lok Sabha) 1975-76 that after the close of the accounting year every autonomous body should complete its accounts within a period of three months and make them available for audit and that the reports and the audited accounts should be laid before Parliament within nine months of the close of the accounting year. For the year 1987-88 audited accounts together with separate Audit Reports thereon of these five autonomous bodies (Scientific Departments) were to be placed before Parliament. Of these, the accounts of only the autonomous body viz. Sree

Chitra Tirunal Institute of Medical Sciences & Technology were made available for audit within the prescribed limit. Submission of accounts in respect of Indian Council of Medical Research, Council of Scientific & Industrial Research, Indian Council of Agricultural Research and Wild Life Institute of India, Dehra Dun was delayed from one to three months.

22.2. *Outstanding Utilisation Certificate*:- Certificates of utilisation of grants were required to be furnished by the Ministries/Departments concerned to the Controllers of Accounts in respect of grants released to statutory bodies, non-government institutions etc. for specific purposes indicating that the grants had been properly utilised on the purposes for which they were sanctioned, and that, where the grants were conditional, the prescribed conditions had been fulfilled. The Ministry/Department-wise details indicating the position of outstanding utilisation certificates are given in Appendix -IV.

MINISTRY OF AGRICULTURE DEPARTMENT OF AGRICULTURAL RESEARCH AND EDUCATION

Indian Council of Agricultural Research

23. Indian Agricultural Research Institute

23.1 Introduction

In 1905 Agricultural Research Institute at Pusa, Bihar was set up. It was shifted to New Delhi in 1936 and was renamed as Indian Agricultural Research Institute (IARI) in 1947. Since 1966, the administrative control of IARI vests in Indian Council of Agricultural Research (ICAR).

23.2. Scope of Audit

IARI is audited under Section 20(1) of the Comptroller and Auditor General's (Duties, Powers and Conditions of Service) Act, 1971. This review covers generally the activities of IARI for the period 1985-89. While conducting the review, the recommenda-

tions of the ICAR Review Committee, which were submitted in March 1988, were also kept in view to the extent these were applicable to IARI.

23.3. Organisational set up

IARI is headed by a Director and managed by a Board of 24 members, of which 12 are external experts and 12 are from within IARI. The Board is assisted by Executive Council, Research Council, Extension Council, Academic Council and a Standing Finance Committee. IARI is divided into 18 divisions and has 6 multi-disciplinary laboratories/centres at New Delhi, 11 regional stations and 3 off-season nurseries. Besides the above, the institute houses the Project Directorate of the All India Coordinated Research Project (AICRP) on wheat and serves as the coordinating centre for fourteen other All India Coordinated Research Projects and works in close collaboration with Agricultural Universities and State Departments of Agriculture.

IARI had about 5278 to 5443 sanctioned posts during the last four years, of which scientific personnel were only 927. As on 1st April 1989, it had 4794 personnel of which 724 were scientist and 976 technical personnel.

23.4. Highlights

* Agricultural Research was started in 1905 and Indian Agriculture Research Institute, Delhi was set up in 1947. The mandate of IARI included basic and applied research efforts in development of high yielding, disease and pest resistance crop varieties, improvement of selected horticultural crops, development of technique for nitrogen fixation, widening of genetic base for wheat, research in micro organisms, research in heterosis for vegetable improvement etc. It has 18 divisions, six multi-disciplinary laboratories, 11 regional stations, three off-season nurseries. As on 1st April 1989, it had 4794 personnel of which 724 were scientists and 976 technical personnel. The expenditure in 1988-89 was Rs.22.63 crores. Posts filled up in respect of ongoing plan projects or terminated projects were converted into non-plan posts in 1985-86 and non-plan expenditure increased by Rs.115.37 lakhs in that year. Posts temporarily sanctioned were continued without further sanction.

- * Till April 1987, research in IARI was without any reference to identified need or identified thrust areas. 380 projects started before 1982 were continued without any critical appraisal. 41 projects were also not terminated as per schedule and terminated four years later.
- * Only 17 projects pertaining to three divisions had been approved by the research council though all the research programmes carried out in IARI are to be approved by a three tier system ending with Research Council.
- * Monitoring of research through annual progress reports and evaluating the contribution of individual scientists were not systematic. In July 1988, 80 per cent of the cases had not been monitored or evaluated. Research council did not have regular meetings for this purpose.
- * Quinquennial review teams were not regularly appointed and even when appointed, the recommendations of such teams had not been implemented. 206 scientists in 69 projects were therefore inadequately deployed and the infructuous expenditure amounted to Rs.4.51 crores.
- * Quinquennial review team had, in fact, reviewed research programmes for a decade instead of five years due to delay in their appointment. ICAR Review Committee was of the opinion that the quinquennial review team plays an important role in projecting the institute programmes and functions in accordance with the national policies and priorities. The Committee suggested that review and evaluation should be carried out at regular intervals and their recommendations should be implemented.
- * Agro-energy Centre with sanctioned strength of 16 scientists has only one approved project since November 1983. Four research projects were put through without approval. Rs. 28.97 lakhs had been spent upto April 1988. Only 4 acres of land out of 20 acres allotted had been utilised.
- * Non submission of research programmes and unapproved research resulted in infructuous expenditure of Rs.85.77 lakhs.

- * Due to delay or non-receipt of any communication from the research council, research was continued without submitting any annual progress report. Rs. 17.81 lakhs was the infructuous expenditure.
- * Due to non-coordination, research was duplicated in two laboratories and was finally terminated. Also, projects were continued when the project leaders went on deputation but the other personnel on the project were not redeployed. 12 projects in 8 divisions with 21 scientists were prematurely terminated and the scientists were relocated.
- * Two Professors of Eminence were appointed to two prestigious projects which ultimately were terminated/abandoned causing infructuous expenditure of Rs.32.65 lakhs.
- * 37 scientists engaged on 16 projects had not implemented the technical programme properly due to non-allotment of land, transfer of staff, non-availability of vehicles/equipments, etc. and the infructuous expenditure was Rs.95.06 lakhs.
- * An Indo-US project costing Rs.255.06 lakhs sanctioned in 1984 has not been put through though Rs.29.37 lakhs have been spent. A divisional project for the same objective was already on and the additional provision was superfluous.
- * The statutory obligation under Seeds Act of 1966 was not fulfilled by the Central Seed Testing Laboratory of IARI resulting in failure to promote uniformity in test results, non-conduct of market survey etc. to ensure quality seeds are distributed.
- * Agriculture Engineering Divisions had been able to design only two agricultural implements during 1978-1987 though 23 scientists, 40 technicians, 59 staff members and a workshop was dedicated for this purpose.
- * Extension activities of IARI were limited to Delhi, Haryana, Madhya Pradesh and Uttar Pradesh though IARI has 11 regional stations in various states. Research council pointed out in 1982 several gaps and wanted IARI to review its programmes and identify the reasons. No action had been taken.
- * IARI survey in 1987 revealed that farmers did not retain high yielding seeds supplied to them for multiplication, sowing etc. A test check of breeder seed programme revealed that only in 9 out of 26 new varieties production was undertaken.
- * New Technology for mass production of rhizobium was developed in 1974 and equipments were fabricated by 1977. However, the technology remains to be transferred.
- * In the education programme, number of students were far less than the number of faculty members. Also significant number of students discontinued their studies mid-course and in a number of cases students extended their studies far beyond the normal duration.
- * IARI did not maintain accounts regarding land usage, crop sown, consumables like seeds, fertilizers, insecticides etc. Produce was not being regularly handed over to stores and when handed over, no accounts were maintained.
- * IARI has 1664 residential quarters of various types. 139 quarters were under unauthorised occupation from 1983 and Rs. 11.55 lakhs remained to be recovered from the occupants.
- * Construction activities include unapproved construction and buildings not dedicated to research. Expenditure is essentially confined to IARI, Delhi. Accountal of deposits with CPWD is poor. Expenditure in excess of approved estimates is prevalent and CPWD makes suo moto adjustments. Due to non-vacation of a building by a scientist, a construction programme sanctioned in March 1973 got delayed and the estimated cost had gone up by Rs.21.49 lakhs and Rs.7.63 lakhs deposited with CPWD remained blocked.
- * Estimated cost for Crop protection building included the cost of jeeps to be purchased by the CPWD for its own use. Also Rs.172 lakhs were deposited in March 1987, while the work was awarded only in December 1988.
- * In April 1986, regional stations at Shimla acquired land for construction of a laboratory at a cost of Rs.4.71 lakhs. However, the land had remained unutilised.

- * Rs.21.37 lakhs remained unaccounted in bank accounts out of which Rs.18.89 lakhs were more than ten years old. Due to lack of timely action, records with the bank have been destroyed. Due to non-observance of prescribed procedures, frauds were facilitated involving Rs.1.71 lakhs. Rs.8.42 crores deposited with various agencies have been pending settlement and some of them were as old as 20 years.
- * Rs.1.38 crores released as house building advance was not supported by mortgage deeds. Insurance policies were due in respect of Rs.0.46 crore.
- * Asset register was not maintained. Assets exhibited in the annual accounts included those which have been transferred to other organisations.
- * Internal audit was weak and in arrears for the last ten years.
- * Stores accounts were in bad shape and the handing over and taking over of stores were in arrears in several divisions. Physical verification of stores was also in arrears.
- * 73 items of equipments valuing at Rs.96.22 lakhs had not been accounted for, and in 80 per cent of the cases, log books were not maintained.
- * An imported micro processor (February 1985) costing Rs. 11.36 lakhs remained unpacked till May 1987. It was installed in January 1988 but could not be fully utilised for want of air-conditioners.
- * Mobile Soil Testing Unit consisting of a van and technical personnel was utilised only for 45 days in a period of eleven years.

23.5. Functions

IARI conducts basic and applied research; teaches at post graduate level and organises training courses at national and international levels; undertakes extension education and transfer of technology within Union Territory of Delhi, and the states of Haryana and Uttar Pradesh.

The basic and applied research efforts include development of high yielding, disease and pest resistant crop varieties, improvement of selected horticultural crops, development of techniques for nitrogen fixation, widening of genetic base for wheat, research in micro-organisms, research in heterosis for vegetable improvement etc.

According to the annual report for 1988, a number of new varieties had been released or identified during the year in wheat, rice, barley, maize, oilseeds, cotton and horticultural crops. The entire research programme was stated to be reorganised to provide necessary thrust in the frontier areas of research, and the farmer to farmer 'Quality Seed Production Programme' was initiated during the year. The report said 47 Qtls. of nucleus seed, 732 Qtls. of breeder seed and 821 Qtls. of IARI seed were distributed to different seed production agencies during the year. A total of 7062 farm families were stated to be covered under the 'Transfer of Technology' programme.

23.6. Budget and expenditure

IARI is mainly financed through grants released by the Department of Agricultural Research and Education (DARE) to the ICAR. Funds are also provided from the Agricultural Produce Cess Fund and by foreign agencies and other departments/ministries of Central Government for specific schemes. IARI received the following funds during 1985-89:

(Rupees in lakhs)

Head	1985-86		1986-87		1987-88		1988-89	
	Budget provision	Expenditure	Budget provision	Expenditure	Budget provision	Expenditure	Budget provision	Expenditure
Non-Plan	1268.90	1277.20	1455.00	1489.33	1483.00	1553.74	1600.00	1792.49
Plan	270.00	154.92	200.00	269.01	200.00	116.13	200.00	231.27
Agricultural Produce Cess Fund	39.24	40.82	17.53	23.22	18.94	24.56	16.73	
ICAR Schemes	-	44.51	-	37.64	-	78.45	-	81.49
PL-480 Schemes	26.75	26.19	-	8.16	-	8.20	29.71	26.41
Deposit Schemes	-	4.83	-	130.96	-	83.24	-	105.42
	1604.89	1548.47	1672.53	1958.32	1701.94	1864.32	1846.44	2263.31

During the last four years, the non plan expenditure exceeded the budget provision indicating in adequate budgetary control. 414 projects of the Sixth Plan period were continued during Seventh Plan and the expenditure was treated as non-plan expenditure instead of Plan. Also posts filled up in respect of on going projects or terminated projects were converted into non plan posts, in 1985-86, and the non-plan expenditure increased by Rs.115.37 lakhs in that year. In addition, a test check of the establishment bill showed that 141 group 'A' posts sanctioned before 1980-81 were operated till 1987-88 without sanction and the irregular expenditure was Rs.532.98 lakhs. Similarly, 143 group 'A' posts temporarily sanctioned after 1980-81 to 1985-86 were continued without sanction. According to IARI, proposals had been sent to ICAR from time to time for continuation of these temporary posts and approval was still awaited.

ICAR Review Committee had observed that the Institute had grown simply by accretion of the staff and staff under one Five Year Plan had become committed during the subsequent plan period and so on from plan to plan and not by real requirements. The Committee had recommended a review of cadre strength to meet future needs, redeployment of staff and freezing of vacancies.

23.7. Research Projects

In 1979, IARI started a 3-tier system for approval of projects. The new projects were to be initially approved by the divisional Budget and Research Committee (BRC) followed by Research Coordination Committee (RCC) for ensuring inter-disciplinary linkages and avoidance of duplication of research etc. and ultimately by the Research Council (RC). IARI did not evolve any system for prioritisation of research programmes, identification of thrust areas, mandates, missions, etc. and no guidelines were issued to enable scientists to choose and formulate research projects.

In November 1985, a Committee was constituted to identify major thrust areas and mandates and formulate guidelines. The committee issued the guidelines in April 1987 and thereafter, IARI issued instructions to reorient research with reference to the guidelines. Those projects which did not form part of thrust areas were to be dropped. It was seen in audit

that 305 projects started before 1980 were continued without any critical appraisal, beyond their due dates because the thrust areas etc. had not been identified. Similarly, 75 projects started between 1980 and 1982 were also continued without any review of their progress. In addition, 41 projects which were due to be terminated during 1980-81 were terminated only in January 1985, indicating avoidable expenditure on research.

Even after the guidelines were issued the divisions instead of formulating new research projects continued the ongoing projects without any change and without any appraisal of the achievements or needs. In all, only 17 new projects pertaining to three divisions had been approved by the RC till June 1988. Research in other divisions are yet to be scrutinised. According to IARI the ongoing research programme may eventually be merged when the research council gives approval to the new projects. This clearly indicates that research in IARI had yet to be structured or streamlined.

ICAR Review Committee suggested in March 1988 that Institute Research Committees should be formed in which policy makers, planners, scientist, user departments and farmers can actively participate for identification of problems and for formulation of research projects annually in relation to the mandate of the institute.

In 1975, ICAR introduced a system of Research Project File (RPF) to facilitate periodic monitoring and five yearly assessment of the scientists. The RPF consisted of the basic information in RPF-I, the annual progress report including the contribution of individual scientists in RPF-II and the final report in RPF-III. At the end of 1985, IARI had sent to ICAR RPFs of only 529 scientists as against 775 in position. A test check revealed that nearly 80 per cent of the RPFs were incomplete even in July 1988. Further, Research Council which was to review the research programmes, their progress and utilisation of research facilities and which should meet once a quarter had no meeting in 1986-87 and from December 1987 to July 1988.

The progress of 130 research projects in 14 Divisions which were to be reviewed during 1980 to 1986 in terms of the conditions of their sanction had not

been reviewed and the projects were allowed to be continued upto December 1987. IARI accepted (July 1988) that there was no general review because no mechanism existed.

RPF II is to be critically evaluated by heads of divisions and forwarded to the Director in respect of each scientist. It was, however, noticed that the assessment was being done without any critical evaluation. In the 46th meeting of the RC held in August 1988, it was proposed that it should be made mandatory for every Division to organise annual meetings at which every scientist should present his annual progress report along with assessments of the heads of the divisions who were also required to send annually their recommendations and suggestions to the Director, IARI without which the annual progress reports will not be accepted. This remains to be implemented and so the mechanism to monitor, evaluate and review research projects remains ineffective. IARI accepted the facts (November 1989).

A test check of the projects put through in the various laboratories revealed delays in decision making and communication of decisions, abandonment of the project due to inadequate pre-project appraisal, non-provision of facilities after starting the project, non-implementation of technical programme, etc. In fact, the system of quinquennial review prescribed to tone up the management of research was not implemented. Consequently, the research schemes put through by IARI during the period 1972-1982 and All India Coordinated Research Projects on Nematode, Pests etc. for the period 1973-1983 were reviewed together. Further, it was also noticed that the recommendations of the teams wherever appointed, were not implemented in full. A test check revealed 206 scientists in 69 projects were inadequately deployed and the total infructuous expenditure amounted to Rs.4.51 crores. The details are given below:

- (i) The Agro-Energy Centre was set up in November 1983 to conduct research on biomass production, utilisation, socio-economic studies and technology transfer with a sanctioned strength of 16 scientists, eight technical personnel, eight administrative and five supporting staff. Upto April 1988, the Centre had spent Rs.28.97 lakhs inclusive of Rs.19.90 lakhs on pay and allowances against the budget provision of Rs.50.88 lakhs. Budget and Research Committee recom-

mended (October 1984) five research projects and Research Council approved only one project in February 1986 though it had been started 16 months earlier without approval. And out of 20 acres of land allotted to the Centre only four acres could be utilised for the above research project. However RPF I and RPF II have not been submitted (November 1989).

In May 1988, Project Director, one scientist and two technical assistants were transferred out. Subsequently, one technical assistant and two administrative staff were also transferred out. However, four administrative, three technical and seven supporting staff, continued with the Centre although no research work could be carried out. IARI stated (November 1989) that since it was a new programme, few scientists were engaged in planning, organisation etc. Subsequently, IARI found that agro energy research had been initiated in a number of places and therefore the centre at IARI was wound-up and the work was taken up by a small section in Agronomy Division.

- (ii) Sixty eight scientists of 19 divisions/units were not engaged on any research project for periods ranging upto eight years either because they did not submit any research project or because the project submitted by them were not approved by the Research Council. This led to an infructuous expenditure of Rs.85.77 lakhs (Appendix V).
- (iii) Research Council (RC) approved in May 1980 and April 1981 two research projects viz "Mutational processes with emphasis on disease resistance cytoplasmic differentiation etc." and "Genetic improvement of oilseed and legumes" with a common project leader and five associates. The project was to be implemented in Nuclear Research Laboratory during January 1975 to August 1985. The project leader was transferred on foreign service in October 1981 and subsequently retired in July 1984. Meanwhile, in July 1982, the RC decided to keep the two projects in abeyance and sought necessary clarification from the project leader on his return since the associates disclaimed any knowledge of the details of project. No further action was taken by IARI against the five associates for not implementing the

projects. IARI stated (November 1989) that the projects were not initiated and so the associates, were ignorant about the project. Another project of Genetics Division "Cytogenetics of invitro cell culture in relation to development" which was in existence since July 1976 was approved by RC in April 1980. The project was to be completed in May 1987. RPF II was not submitted and the scientist was transferred to Bio-technology Centre in April 1985 where he was assigned a new project in June 1987. IARI stated (September 1989) that no documents relating to the project from 1980 onwards were available. Non-implementation of the above three research projects resulted in infructuous expenditure of Rs 23.10 lakhs representing proportionate pay and allowances of the personnel. Cost of equipment, contingent expenditure etc. have not been included.

- (iv) Due to overall reorganisation 12 scientists in six divisions had been working on projects not approved. The scientists had continued the work due to delay or non receipt of any communication from the RC. The annual progress reports of these projects were also not submitted. The total infructuous expenditure was Rs.17.81 lakhs (Appendix VI). IARI accepted the facts (November 1989).
- (v) The Research Council (RC) approved the project "Studies on ecology and control of rice pests with special reference to plant hoppers etc." for implementation during the period January 1979 to December 1985 by Nuclear Research Laboratory. However, in April 1984, RC recommended termination of the project as it duplicated the work done in Entomology division and the final report was submitted in June 1989.

In respect of another project "Studies on the control of fruit fly *Dacus dorsalis* and stored grain pests by gamma radiation" approved for implementation during the period January 1979 to December 1985, involving three scientists in the Nuclear Research Laboratory, RC recommended termination in April 1984 because of prohibitive costs and suggested that this type of research should not be encouraged in the country. The Project

Director who had agreed to have the matter critically examined did not do so. The project was terminated in 1985 when the project leader went on deputation abroad. IARI accepted the facts (November 1989) and the infructuous expenditure in both the cases was Rs.4.08 lakhs.

- (vi) Twelve projects in eight divisions involving 21 scientists were prematurely abandoned/terminated as the concerned scientists either got relocated or retired. The infructuous expenditure was Rs.42.12 lakhs (Appendix VII).
- (vii) In April 1983, ICAR approved the award of Professors of Eminence in Entomology Division for a period of three years at a total cost of Rs.20.06 lakhs. The Professor and two scientists were to work on "Studies on Non-Conventional methods for insect and pest control". The project started in May 1983 and in September 1985, the Professor submitted a proposal to extend the project for three years since during the two year period, only three out of six items had been taken up. In April 1986, ICAR terminated the project due to unsatisfactory performance. The infructuous expenditure was Rs.22.84 lakhs. In March 1984, another Professor of Eminence was appointed in Agricultural Chemicals Division for a period of three years at a total cost of Rs.9.86 lakhs to work on "Studies in light induced transformations affecting fate of pesticides." The project was started in May 1984 with two associate scientists but was abandoned in May 1986, due to the retirement of the Professor. The infructuous expenditure was Rs. 9.81 lakhs. ICAR Review Committee was also of the opinion that the scheme of appointing professors of eminence had not accomplished the purpose and therefore the scheme in its present form should be discontinued.
- (viii) Twenty three scientists in seven divisions did not implement the approved technical programme in 10 projects because of lack of interest by the scientific staff, transfer of staff, non-availability of funds, delay in despatch of seeds for trials, delay in approval of projects, non-allotment of land and lack of

manpower, vehicles, equipments, laboratory facilities, etc. The infructuous expenditure was Rs.66.13 lakhs(Appendix VIII).

- (ix) In six other projects in three divisions, 14 scientists could not implement the research programmes properly and the unfruitful expenditure was Rs.28.93 lakhs (Appendix IX).
- (x) During 1985-86 to 1987-88, 19 to 22 Projects were implemented under AP Cess fund and Rs.88.40 lakhs were spent. A test check revealed that the objectives and technical programmes of these schemes were identical to the ongoing divisional research projects and the work was done by the same set of scientists. The scientists concerned did not furnish complete details of their various research responsibilities, to enable ICAR to take a correct decision. Similarly, in regard to research work in progress, particulars of work already done or being done under the divisional research projects were never indicated. It was also not being indicated whether the proposed scheme could be aggregated with any other scheme financed by the ICAR.

Cess Fund support for research schemes was meant to fill critical gaps in research schemes under taken by various institutions or to solve particular problems which limit agricultural production. However, in IARI, it was seen that Cess Fund was being utilised as a means of complementary financing to on going research programmes. The records showed that in October 1987, the Director, IARI himself had suggested to mycology and plant pathology division to utilise Cess Fund and PL-480 Fund to overcome paucity of funds for the ongoing research programmes. IARI stated, in November 1989, that such multi-source funding form part of the overall research effort. This is not acceptable because research programmes should be clearly visualised, conceptualised and structured so that correct decisions are taken. Absence of such procedure leads to absence of financial discipline.

- (xi) There were also instances of repetitive and superfluous research e.g. project on "tissue culture in improvement of Horticultural Crops (papaya and mango)". This was started in the Horticulture and Fruit Technology Division in January 1979 and was to be completed by January 1984, at a cost of Rs.3.84 lakhs though research had been done only on Papaya. However, in November 1983, another project "Clonal multiplication of papaya through tissue culture" was got approved from AP Cess Fund at a cost of Rs.2.46 lakhs for a period of three years with the same objectives. According to the Principal Investigator, the programme under Cess Fund was submitted as per the advice of the ex-Director of IARI to get some additional funds for building necessary infrastructure and manpower. The ICAR review committee also observed as under:

"Duplication of research efforts by the commodity Institutes and the AICRPs concentrating on a particular crop/ commodity/ species must be avoided. At present, lack of co-ordination among them is reflected in their review mechanism."

In June 1987, the Bio-Technology Centre of IARI started yet another project for 'Micro propagation in crop plants' including papaya through tissue culture. Audit pointed out that according to Horticulture and Fruit Technology Division, a self-sustaining tissue culture propagation system for papaya had been developed to produce 20000 plants per month, and so the above research scheme was superfluous. Bio- technology Centre stated, in June 1988, that a whole set of intermediate steps had to be worked out for wider applicability of the tissue culture system. This showed that there were over rated claims and lack of co-ordination between various Divisions/Units of IARI.

- (xii) In October 1984, an Indo-US project on post harvest technology of fruits and vegetables was sanctioned at four centres including IARI. The budget provision for IARI centre for the seventh plan was Rs.255.06 lakhs (ICAR share Rs. 56.81 lakhs and U.S. Aid

Rs.198.25 lakhs). This included Rs.131.91 lakhs for equipments and Rs.27.26 lakhs for construction. Nine scientists were working under the project. Even after four years neither any equipment had been procured nor the required laboratories had been constructed. It was stated that facilities for the programme were already available and the Indo US project was the same as the divisional project and as such the same scientists had been deployed on the project. The total expenditure under the project upto 1988-89 amounted to Rs.29.37 lakhs. In sum, additional provision under the Indo - US project was superfluous. IARI stated (November 1989) that some of the equipments had since been purchased and action was being taken to purchase the rest. As regards construction, it had been sanctioned and some amount had also been deposited with the CPWD. Regarding research, it was stated that there could not be any tight barriers in a broad subject, and any scientific effort may be complementary to the other related areas and vice versa.

(xiii) Under the Seeds Act 1966, Central Seed Testing Laboratory (CSTL) has been notified to regulate seed trade in the country and make quality seeds available to the farmers. CSTL carries out basic and applied research on seeds and undertakes training/teaching in seed testing. It has ten scientists, six technical, five administrative and three supporting staff. In collaboration with the state laboratories, CSTL promotes uniformity in test results. State laboratories are required to submit five *per cent* of the samples tested by them during a particular period to CSTL which in turn, would conduct purity and germination tests. A test check revealed that in the last three years, less than 50 *per cent* of the state laboratories sent their seeds for further testing by CSTL. It could not be ascertained whether the required five *per cent* of the samples

tested by those laboratories were sent to CSTL in the absence of figures of samples tested by those laboratories. Thus the objective of promoting uniformity in testing results remained defeated. The details are as under:

	1985	1986	1987
No. of State seed testing laboratories	57	62	72
No. of state laboratories from whom seed samples were received	28	25	34
No. of samples received	5141	5598	4245

Further, instead of conducting both physical purity and germination tests, CSTL conducted only germination tests. Out of 5141 and 5598 seed samples analysed by the CSTL, germination results revealed variations in 35 to 36 *per cent* of the samples. In respect of individual field crops, the variations ranged between 19 to 58 *per cent* in 1985 and 18 to 100 *per cent* in 1986. The variations were attributed to sampling errors, lack of adequate facilities and trained staff and inadequate understanding and integration of results by the state laboratories. IARI stated, in August 1989, that since they had no statutory control over the working of the state laboratories it was difficult to achieve the objectives. As regards variations in test results, IARI stated that this was due to variations in samples used for testing and the state laboratories not complying with the seed sampling rules.

CSTL is also to conduct referee testing with a view to pinpoint the specific reasons for variability in seed testing results of State laboratories. Under this programme, one sample each of paddy and bhindi, radish and chilly was distributed during 1986 and 1987 respectively by CSTL to 62 state seed testing laboratories. The analysis revealed the following position :-

Year	No. of laboratories to which samples sent	No. of laboratories which responded	Crop	Result (Number out of tolerance)	per centage
1986	62	35	Bhindi	12	34
1986	62	35	Paddy	11	31
1987	62	51	Radish	31	61
1987	62	51	Chilly	35	69

CSTL is also required to conduct market surveys and compile annual all India seed analysis data so that the certified seed offered for sale are of quality. However, CSTL had not conducted the surveys since 1987 and had not compiled the analysis data from 1985 onwards. As regarding training/teaching, CSTL had not conducted any teaching programme during 1986- 87 and only two training courses were organised during 1987. According to IARI (August 1989), the surveys could not be conducted due to paucity of funds and transport facilities.

- (xiv) Agricultural Engineering Division was established in 1945 to conduct research on agricultural implements, design, develop and modify village implements, plant protection tools, storage structures etc. Twenty three scientists, forty technicians and fifty nine other staff members and a workshop was dedicated for this purpose. The expenditure incurred by the division including the workshop during 1985-86 to 1987-88 amounted to Rs.96.80 lakhs.

During 1978 to 1987, 16 projects were under taken and 22 agricultural implements were designed. Of these only two viz., "animal drawn integral tool bar" and "khurpa-cum-sickle" were released in 1984 and 1987 respectively. The Research Council constituted (November 1985) in its 41st meeting a screening committee for evaluating the implements/machines etc., developed by the division. No implement was submitted to the committee (January 1989) as none of the implements was ready for evaluation. In the light of the large number of staff and the expenditure the result was disproportionate.

- (xv) The Quinquennial Review Team had recommended in their report for the period 1972-1982 that the Fruit and Horticulture division, should devote more resources for citrus fruits and for 'Amrapali'. IARI stated, in November 1989, that since 1982 work was mainly aimed at introduction and assessment of lemons and no work had been undertaken on sweet orange, grape fruit and mandarin.

Regarding lack of action in implementing the recommendations of the review team on nematodes, pests of crops and their control, the Project Co-ordinator stated that the Quinquennial review team had submitted its report to the ICAR and was pending with ICAR.

As could be seen from the above, the Quinquennial Review Committee had reviewed research programmes for a decade instead of 5 years due to delay in their appointment. The next review committee was also constituted only in 1988 and its report is awaited.

ICAR Review Committee was of the opinion that the Quinquennial Review Teams play an important role in projecting the Institute's programmes and functions in accordance with the national policies and priorities. The Committee suggested that review and evaluation by Quinquennial Review Team should be carried out at regular intervals and their recommendations should be implemented.

23.8. TECHNOLOGY TRANSFER AND EDUCATION

Though IARI has 11 regional stations, the extension activities were limited to contiguous areas of New Delhi and the states of Uttar Pradesh, Bihar and Madhya Pradesh only as detailed below :-

District	Period	Major problems
1. Gurgaon	1984 onwards	Water deficit semiarid sandy belt.
2. Sultanpur and Rai-bareilly	1985 onwards	Low agricultural productivity.
3. Lakhimpur Kheri	1985-87	Tribal Area.
4. Munger	1986 onwards	Flood prone area.
5. Gorakhpur and Deoria	1987-88	Water management and low productivity.
6. Fatehpur and Banda	1988 onwards	Rain-fed area, soil and water problems.
7. Raigarh	1988 onwards	Rain-fed tribal area.

IARI stated, in November 1989, that the regional stations did not have the scientists and extension personnel who can be assigned this work. As regards restriction of extension education and transfer of technology to the Union territory of Delhi and some villages of Haryana and Uttar Pradesh, IARI stated,

in November 1989, that the activities could not be extended to other areas for lack of infrastructural facilities and inadequate funding.

It was also noticed that there was a wide gap between yields obtained in the experimental farm in IARI and the actual yields in the selected villages. For example, the national average yield for wheat was 15.70 quintals per hectare against 50 quintals per hectare obtained in research farms. RC had pointed out this technology transfer gap and it was decided that agricultural extension division of IARI should review its programmes and identify the reasons. No action has been taken. In short, the benefits of research had not percolated down to farmers who could have been benefited.

The Research Council had decided in July 1982 that there should be greater interaction between farmers and the Extension Council. Consequently, it was decided that production units should visit one division of IARI each month and make a note of those research findings which were capable of being transferred to farmers. IARI, had not implemented this and no record of research findings suitable for transfer of technologies actually transferred to the farmers during the last five years were maintained. IARI accepted, in November 1989, and stated that the mechanism of involving production units may not be as effective as direct involvement of the scientists concerned with the farmers.

A survey conducted by the IARI in 1987 revealed that the farmers covered under "Integrated Whole Village Agricultural Development Approach" programme, initially adopted the high yielding seeds supplied to them but did not retain these seeds to propagate them further since they were under pressure to sell their produce immediately after the harvest. Thus, the technology transfer programmes did not achieve the desired objectives.

A breeder seed programme is organised by ICAR, crop and variety wise. A test check in relation to wheat, rice and maize revealed that out of 26 new varieties, (wheat : 11, rice : 2, maize : 13) released by IARI during 1982-88, sufficient quantities of breeder seeds were produced during 1985-88 only in respect of two wheat varieties (HD 2285 and HD 2329) and one Maize (Early Composite). In respect of five other wheat varieties and two maize, the quantity of breeder

seeds produced was minimal. No breeder seed was produced in respect of other 19 varieties as there was no demand (Appendix - X). According to IARI, the state departments of agriculture preferred seeds and varieties propagated by the state agricultural universities. In addition, IARI also was handicapped since it did not have the machinery for popularisation of its varieties. In this context, IARI had not reviewed whether the research programmes should be as extensive as hitherto.

A new technology for mass production of rhizobium was developed at a cost of Rs. 3.78 lakhs during 1974-84. According to the final report (1985), a cheap non-synthetic medium from agricultural and industrial wastes had been developed for rhizobium culture production in 1977, and subsequently improvised fermentors had also been fabricated. The technology developed was, however, not put to use. IARI stated, in November 1989, that the production of rhizobium culture through fermentors could not be adopted in IARI, due to limited demand and as regards transfer of technology to actual users, investigations were being continued on fermentor improvisation, standardisation of growth parameters etc. Thus, for more than 10 years the technology remained to be transferred.

The IARI was conferred the status of a Deemed University in 1958 under the University Grants Commission Act, 1956. The Institute provides post graduate education in 17 disciplines and in 16 disciplines for Ph.D. The faculty/teaching staff strength and the number of students admitted during the last five years from 1984-85 to 1988-89 was as under:-

Year	Faculty Members (Teaching staff)	Number of Students admitted		
		M.Sc	Ph.D	Total
1984-85	401	94	116	210
1985-86	430	57	94	151
1986-87	454	74	128	202
1987-88	470	80	120	200
1988-89	476	80	133	213

The number of students varied from 57 to 94 for M.Sc and from 94 to 133 for Ph.D. As compared to the large number of faculty members the number of students admitted to various courses was very small.

IARI stated, in November 1989, that availability of accommodation was the major limiting factor. Also the faculty members were stated to be engaged in

research in addition to teaching. However, the faculty facilities provided in individual disciplines far exceeded the indicated demand and the allocation of time between research and teaching for the faculty member was not indicated.

The expenditure incurred by the IARI on the educational activities during the last five years excluding pay and allowances of staff and faculty amounted to Rs.281.84 lakhs. The expenditure had increased from Rs.22.84 lakhs in 1984-85 to Rs.107.72 lakhs in 1988-89.

Although the number of students admitted during the last five years remained at the same level, the expenditure on fellowships and contingencies as compared to 1984-85 increased more than four fold and twice respectively during 1988-89. IARI stated, in November 1989, that this was due to enhancement in the rates of fellowships and payment of arrears.

The duration for postgraduation and doctoral courses is two academic years. However the postgraduate students were being allowed four years and Ph.D students five years to complete their studies. It was also noticed that as many as 61 Ph.D students admitted to various courses during 1981-82 to 1984-85 were still on rolls of the Post Graduate School as of October 1988. On the other hand, 10 M.Sc. and 70 Ph.D students admitted during the period 1981-82 to 1987-88 discontinued. The grant of fellowships to those students amounting to Rs.10.33 lakhs became infructuous.

IARI had not evolved any mechanism to enforce recovery of fellowships from students, who discontinue their studies. Only an undertaking without any penal provision was being obtained from the students. No action has ever been taken to recover the amount paid to such students. IARI stated in November 1989, that in the absence of a national policy and in view of ICAR directive of September 1977, it had not been possible to take a decision about recovery.

23.9. Farm land and produce

Out of the campus area of 500 hectares in New Delhi, 296 hectares are utilised for research and 204 hectares are used for offices, laboratories, hostels, residences, roads etc. The farm land for each cropping season is allotted on the basis of requirements

submitted by the individual units. Some of the units/divisions have been allotted land on permanent basis. Specialised equipment consumables, seeds, fertilizers, insecticides etc. are provided by the respective divisions. It was noticed in Audit that no accounts of crops sown, land utilised, seeds, fertilizers, insecticides etc. utilised or produce harvested are being maintained by the scientists/divisions. In most of the cases no produce was being handed over to stores or accounted for in the divisional records. Even where produce was handed over it was belated and without indicating the period and source of the produce. IARI stated, in January 1989 that the seeds/crops produced were retained by the scientists concerned for experimental purposes.

As distinct from farm produce, the accounts of the seed material meant for propagation were not maintained by IARI Regional Stations at Karnal and Katraín. Similarly, the scientists/divisions who received such seed material also failed to maintain the accounts though during 1985-86 to 1987-88 the Seed Research Station at Karnal had transferred 1509 quintals of seed valued Rs.12.23 lakhs to various divisions of IARI.

8747 kgs. of breeder seed produced at regional station, Karnal was converted into grains during 1985-86 as the agencies for whom the breeder seed was produced did not lift them. The grains were sold to staff members and the loss to IARI was Rs. 0.42 lakh. Another quantity of 4276 kgs. of breeder seed was converted into IARI seed during 1985-86 to 1987-88 resulting in short realisation of about Rs. 0.19 lakh. Further, 2614 Kgs. of seed valued at Rs. 0.11 lakh was destroyed and written off during 1985-86 due to long storage. Similarly, 297.47 kgs. of breeder seed of vegetables produced at Regional Station, Katraín was not lifted by the indentors and was lying in store since 1984. The loss was about Rs.0.18 lakh. In all, the test check revealed a loss of Rs.0.90 lakh.

IARI has a farm/orchard of 52.50 acres, and accounts of trees or produce or the inputs utilised were not being maintained. The fruits were being auctioned each year, with the reserve price being one rupee per kg. irrespective of the type of fruit. The quantity of fruits likely to be obtained from the orchard was not properly assessed and whenever auction of fruits was not finalised no account of the fruits obtained from the orchard was maintained. IARI

stated, in October 1989, that the reserve price had been raised from 1988-89.

At the instance of Audit, IARI issued instructions in October 1987 for regular main tenance of farm produce records in the prescribed proforma. However, this has not been followed.

23.10. Works and housing

IARI, New Delhi has 1664 residential quarters of various types. Out of this, 124 quarters were declared in 1974 unsafe for occupation. 31 of these were repaired during 1987-89 at a cost of Rs. 6.62 lakhs. IARI stated in June 1989, that repairs of remaining 93 quarters could not be completed for want of funds. Further, 139 quarters are under unauthorised occupation from 1983 onwards. IARI stated, in June 1989, that 61 quarters had since been got vacated and action was being taken in respect of others. Rs. 11.55 lakhs are due from the occupants as of December 1988. Out of this, Rs. 3.81 lakhs are due in respect of revised licence fee with effect from September 1984. IARI stated, in June 1989, that Rs. 2.71 lakhs have since been recovered. Inordinate delay in allotment of quarters, ranging upto 21 months was also noticed which resulted in loss of Rs. 2.07 lakhs in 305 cases.

A major portion of the plan expenditure of the IARI was on construction activities inclusive of unapproved constructions and buildings not dedicated to research. Also major portion of the expenditure was confined to IARI, Delhi. The plan provision during 1985-90 was Rs. 759.52 lakhs. In the first three years, Rs. 303.21 lakhs were spent including Rs. 61.58 lakhs on unapproved works and Rs. 181.89 lakhs were spent on minor works and annual repairs and main tenance out of non plan funds. Rs. 29.12 lakhs in respect of 42 minor works were met out of plan funds and IARI stated that this was due to paucity of funds under non-plan. It was seen in Audit that even during Sixth Plan period nearly 83.3 per cent of the funds had been spent on IARI Delhi and nearly 18.7 per cent were on unapproved works. Further, only 16.6 per cent of the money spent related to laboratories etc. and 83.4 per cent of the construction activity pertained to buildings not dedicated for research. 76 per cent of the money allocated for laboratories etc. was not utilised. Even in this, the money utilised out of the funds allotted a large portion remained as deposits and remained unutilised for

several years. Many of the works for which deposits had been made had not been initiated for several years and Audit pointed out to IARI in July 1987 that 31 works for which deposits amounting to Rs. 16.09 lakhs were made during August 1977 to January 1984 had not been initiated. Similarly, 84 works completed during 1974 to 1984 had an unspent balance of Rs. 60.89 lakhs which had not been refunded. CPWD was also transferring deposits and unspent balances from one work to another or from one division to another, without proper accountal and IARI was accepting these transfers without critically examining them. For example, CPWD had transferred Rs. 77.56 lakhs from Construction Division VIII to another division which was neither accounted nor checked by IARI. In the case of work "Physiology and Biochemistry Building", IARI had deposited Rs. 143.53 lakhs whereas CPWD had taken it as Rs. 136.53 lakhs. IARI had not raised any objection regarding short accountal.

In cases of works where CPWD had spent amount in excess of sanction, suo moto adjustments have been made without getting revised approval of the IARI. Fourteen such cases were cited which IARI accepted. Further, where ICAR approval had been obtained, changes were effected by IARI/CPWD without revised approval. For example, ICAR had approved construction of 100 staff quarters at a cost of Rs. 108.20 lakhs whereas IARI constructed 337 staff quarters at an estimated cost of Rs. 225.91 lakhs. Land was developed for the above purpose at a cost of Rs. 19.91 lakhs without any provision.

In March 1983, ICAR approved construction of an extension building to the administrative block of IARI for Rs. 30.51 lakhs. The site therefor was handed over in January 1988 since a scientist was living in a quarter on that land. Due to this, the work has not been started till January 1989 and the estimated cost has gone upto Rs. 52.00 lakhs. Also Rs. 7.63 lakhs deposited with CPWD is blocked for the last six years.

In February 1987, ICAR had approved construction of crop protection building at an estimated cost of Rs. 688.01 lakhs. The estimates included Rs. 5.46 lakhs for diesel jeeps to be bought by the CPWD for the works. This was irregular. Further, while Rs. 172.00 lakhs have been deposited in March 1987, the work was awarded only in December 1988 and another deposit of Rs. 157.00 lakhs was made in January 1989.

Similarly, the case of construction of 14 type-V quarters, Rs. 45.00 lakhs were deposited in March 1985 whereas the work was awarded only in November 1987. In the above cases, apart from blocking of capital, there was likelihood of cost climbing up due to delay in commencement of work.

IARI also got constructed a Shopping Centre and Cafeteria at an estimated cost of Rs. 21.06 lakhs. The building was also to house a bank. Since the bank declined to occupy the accommodation, the space was modified to be used as trainees hostel at a cost of Rs. 2.52 lakhs. The accommodation meant for shops and cafeteria have not been occupied since September 1987. Four Gypsy Huts were modified as laboratories to be used by Agricultural Chemical Division at a cost of Rs.3.08 lakhs. However, the accommodation remains unoccupied in the last five years for want of window shutters, etc.

In the last five years, only for the Regional Station at Shimla, land measuring 6852 square yards was acquired in April 1984, at a cost of Rs. 4.71 lakhs for construction of laboratory buildings, residential quarters, etc. The possession of land except one out-house was taken in August 1984. The land has not been utilised so far and research work has suffered and funds have remained blocked. IARI stated (November 1989), that CPWD had been requested to prepare the estimates for construction of buildings and as regards farm land, field experiments had been scheduled for 1989-90.

23.11. Accounts

A test check of bank reconciliation statement for May 1989 revealed that cheques issued during February 1971 to March 1979 (Rs.7.58 lakhs) and April 1979 to November 1988 (Rs.1.36 lakhs) remain uncashed. These time barred cheques had not been cancelled and amounts credited in the Cash Book. Of the credits of, Rs.4.48 lakhs not accounted Rs.4.43 lakhs pertained to the period prior to March 1979. Further, of the bank debits Rs.6.70 lakhs, Rs.5.75 lakhs related to the period prior to March 1979 and were not accounted for. Non accountal of debits in IARI accounts meant understatement of expenditure. Out of Rs. 1.55 lakhs deposited into the bank, Rs. 1.13 lakhs remained unaccounted even after ten years. In spite of yearly audit comments, unadjusted debits/credits continued. Belatedly in May 1988, IARI requested

the bank to provide duplicate statements of account for the period February 1971 to March 1977 and the bank informed in July 1988 that they were preserving records only for 8 years and details were not available. Thus, due to lack of timely action, IARI is unable to account for Rs. 18.89 lakhs. IARI accepted the fact and stated, in June 1989, that certain other means were being explored to settle unadjusted items.

In July 1986, Chemistry Division was paid Rs. 0.89 lakh for conducting a training course on soil testing. The actual expenditure was Rs.0.56 lakh and Rs.0.13 lakh was returned. A sum of Rs.0.20 lakh was misappropriated by the cashier of the division. Adjustment account thereof was submitted by the division only in December 1987 and in the copy of the covering letter one deposit of Rs.0.10 lakh was changed to Rs. 0.30 lakh. The fraud came to light when deposit entries were linked in objection book. The Cashier admitted his role and disciplinary proceedings were initiated in January 1988. The money has yet to be recovered.

On a suggestion by Audit in January 1988, a review of earlier adjustments was conducted and six more cases of misappropriation amounting Rs.1.51 lakhs were reported during April/May 1988. The modus operandi in all these cases was the same and this was facilitated by non observance of the prescribed procedure. The latter cases were reported to the Police in May 1988. IARI stated (June 1989) that a case against the ex-cashier had been filed in the court in November 1988.

In January 1984, ICAR had sanctioned IARI Centre for Plant Virology under an UNDP/ICAR assisted Project "Agricultural Education and Research for Accelerated Agricultural development- Establishment of new Centres of advanced studies". The project was to run for seven years upto 1989-90. UNDP provided consultants, training and equipments. ICAR sanctioned Rs.17.13 lakhs upto 1987-88 of which Rs.7.80 lakhs was for fellowships, and Rs.1.30 lakhs for workshops and seminars and Rs.8.03 lakhs for contingencies. IARI did not award any fellowships or arrange seminars and workshops. Thus Rs.9.10 lakhs remained unutilised and in January 1987 ICAR allowed IARI to utilise this amount for appointing two research associates. This amounted to diversion of funds.

In the last 17 years IARI had released Rs.286.53 lakhs as House Building advance to 463 employees. Out of them, 223 who had been paid Rs.137.97 lakhs, have not executed the mortgage deeds so far (June 1989), 83 employees who have been paid Rs.46.27 lakhs have not furnished the insurance policies. These cases were not effectively pursued. IARI accepted the facts (June 1989).

Of the deposits made by IARI upto March 1988, Rs.8.42 crores were pending adjustment in December 1988. The details are:

Departments	Amount Outstanding	Period to which relate (Rupees in lakhs)
Central Public Works Department (CPWD) Director General Supplies and Disposals (DGSD)	810.37	1964-65 to 1987-88
Government of India Stationery Office, Calcutta	19.89	1967-68 to 1987-88
Other departments/ agencies	6.36	1968-69 to 1982-83
	5.41	1966-67 to 1987-88
	842.03	

Out of the above, Rs.139 lakhs related to the period prior to 1978-79 and some are more than 20 years old. Rs.114.61 lakhs were due from CPWD for the works completed prior to 1982-83. Similarly, Rs. 6.26 lakhs deposited with DGS&D prior to 1982- 83 remained to be adjusted though the supply orders were either cancelled or stores were not supplied. Rs. 6.36 lakhs deposited with the Stationery office, Calcutta prior to 1982-83 remained to be recovered. IARI stated (July 1989) that Rs.87.43 lakhs out of Rs. 842.03 lakhs have since been adjusted.

Regional Stations of the IARI at Karnal, Katrain, Indore and Pusa (Bihar) supply seeds on credit basis. As on 30th September 1988 Rs.4.40 lakhs were outstanding mostly against State Government agencies. IARI stated, in June 1989, that an amount of Rs.1.91 lakhs have since been recovered.

According to the Annual Accounts for 1988-89, IARI held assets valued at Rs.28.38 crores. However, this included assets pertaining to those units which had since been converted into independent institutes and assets which have been transferred to other Institutes from time to time, such as National Bureau of Plant Genetic Resources (April 1978), Directorate

of Pulses Research, Kanpur, (April 1984) etc. The assets shown in the annual accounts were not supported by asset registers and the correctness of the value of assets was not susceptible of verification. IARI accepted the facts(June 1989).

Similarly, registers and broadsheets for Deposits, Advances, Suspense and Remittance transactions were not maintained. Ledger and broadsheets of provident fund for 1987-88 were not complete and were not produced to Audit (September 1988). Broadsheet and ledger balances had not been reconciled since 1985-86. The balances under suspense (Rs.3.83 lakhs) and remittances (Rs.33.09 lakhs) were pending without any adjustment. Proper accounts in respect of 'Deposit Works' or departmental works were not being maintained either by the accounts or by the administrative authority.

As on 30th June 1988, out of 50 units/stations internal audit of 48 units/stations was in arrears from 1978-79 to 1987-88. Inordinate delay in conducting internal audit defeats the very purpose of internal audit. IARI stated (June 1989) that arrears would be wiped out as soon as some qualified staff become available.

23.12. Store and stock accounts

A test check revealed many deficiencies/ shortcomings in the maintenance of Store and Stock Accounts like complete specifications of the equipments/stores purchased not being recorded in the stock ledgers: similar items of stores/equipments being recorded at different folios and registers; scheme wise/project wise stock ledgers not being maintained; the items listed not being transferred to the main stock ledgers after closure of the scheme/project; value ledger not being maintained etc. There were also abnormal delays ranging from 2 to 9 years in the handing over/taking over charge of permanent articles of stores and non-conduct of physical verification of stores in various divisions. In most cases new stock registers were opened by the successor storekeepers without earlier balances. Due to this, stores worth several lakhs of rupees remained unaccounted for. Illustratively, in Genetics Division the handing over/taking over charge was pending since January, 1981 and 230 items of permanent stores/equipments valued at Rs. 2.16 lakhs were lying unused for several years, since the scientists concerned have since retired or resigned.

The physical verification of permanent articles of stores had not been conducted in several divisions for period ranging up to ten years.

Letters of credit (LC) were opened in respect of imported equipments after deposit of margin money. These were not being monitored periodically and adjusted as and when equipments were received. Also, when the import order for the equipment was cancelled, corresponding action to cancel the LC was not being taken. A test check in audit revealed that four LCs opened during February 1985 to March 1986 for Rs.9.15 lakhs were cancelled late and the bank refunded the money after a lapse of 13 to 24 months. The bank had also deducted service charges of Rs.0.75 lakh though the deposit had remained with the bank which was a financial advantage to the bank.

As per the Annual Accounts of IARI, tools, plants, machinery and equipment held by the IARI as on March 31st 1988 were valued of Rs. 531.16 lakhs. These did not include equipment etc. procured under the foreign aided projects. 73 items of equipment, spares and accessories valued at Rs. 96.22 lakhs in nine divisions had not been accounted for in the Stock ledgers as these were directly received by the scientists concerned. According to the instructions issued by the IARI in June 1984, log book of each equipment was required to be maintained. However, in 80 per cent cases, the log books had not been maintained and could not be verified whether the equipment were actually utilised. A test check revealed 15 instances of equipment valued at Rs.50.80 lakhs remaining unutilised and lying idle in 12 divisions.

IARI procured in December 1984 a computer system under UNDP programme costing Rs. 7.91 lakhs. It was installed in May 1985 but commissioned only in October 1985. An uninterrupted power supply system (UPS) was also purchased in February 1985 at a cost of Rs. 0.41 lakh. The computer went out of order in September 1986. The service/maintenance contract had expired in April 1986. The machine was got repaired in February 1987 but again went out of order in March 1987. IARI in December 1987, decided to enter into a service maintenance contract with a firm charging Rs. 1.80 lakhs per annum and procure through them a new UPS system costing Rs. 3.28 lakhs. A sum of Rs. 2.95 lakhs was also paid as advance in January 1988. UPS was to be supplied within two months but was supplied in November

1988. IARI had stated (June 1989) that the supply of UPS system was not pressed for as they were not ready with the room to house UPS system and 10 KVA electric supply. The computer system was put into operation only in June 1989. Thus the computer system costing Rs. 11.60 lakhs remained idle for 27 months. IARI accepted the facts (November 1989).

In February 1985, the Division of Soil Science and Agricultural Chemistry imported from Netherlands one microprocessor controlled x-ray diffractometer (model PW 1710) with accessories at a total cost of Rs. 11.36 lakhs including Rs. 1.00 lakh as installation and technical service charges payable to the Indian agent. The equipment was received in October 1985 but remained unpacked till May 1987 as the Indian agent was not paid his charges. The amount drawn by the Division in March 1987 was however reported misappropriated by the cashier of the division. The warranty period expired in April 1987.

The equipment was installed in January 1988 but could not be fully utilised due to break down of the air conditioning system and defects in the machine. Thus the equipment costing Rs. 11.36 lakhs could not be put to use for nearly 2 1/2 years. IARI accepted the facts (November 1989).

A mobile soil testing van was being maintained by the Soil Science and Agricultural Chemistry division. The staff employed for the Van consisted of one technical assistant, one driver and two technicians. The mobile soil testing van was received under Technical Cooperation Mission from USA. During the period of seven years, from 1977-84, the van was used for 45 days. According to the IARI, the van did not move and no work was done with it during 1984-88. The technical staff were diverted to other units. Thus, the van remained idle during the last 11 years. The IARI stated, in November 1989, that since most of the states had built their own soil testing laboratories, the objective of the procurement of the van disappeared.

On 31st December 1988, the IARI had a fleet of 101 vehicles of which 28 vehicles were lying unserviceable from 1978 onwards. IARI purchased 18 vehicles during 1984 to 1988 in replacement of the condemned vehicles. A test check revealed that in respect of one vehicle (DLE 8392) replacement was

got sanctioned twice, first during 1984 quoting the number of vehicle as DLE 8393 and again during 1987 for vehicle No. DLE 8392. Thus, two new vehicles were purchased against one condemned vehicle.

While sanctioning the replacement of vehicles, ICAR had instructed IARI that new vehicles should be purchased only after the old vehicles were condemned and disposal action initiated. The IARI, however, purchased 18 vehicles as replacements during 1984 to 1988, without initiating disposal action of condemned vehicles. All the 28 unserviceable vehicles were yet to be disposed off (November 1989). Due to delay in their disposal IARI was incurring an avoidable expenditure of about Rs. 0.30 lakh per annum on insurance and road tax etc. 22 of the 28 vehicles were still being used by various divisions after getting these repaired at a heavy cost although running of these vehicles was uneconomical.

Sixteen tractors valuing Rs. 4.62 lakhs were grounded in the division of Farm Operations and Service Unit prior to 1979-80. IARI sent a proposal, in December 1979, to the ICAR for sanction of the condemnation of the unserviceable tractors and their disposal through the DGSD. It was not pursued closely. ICAR, in September 1985, informed the IARI that the Director, IARI was competent to condemn and dispose off the tractors after obtaining a certificate of unworthiness from the authorised workshop. No further action has, however, been taken so far (November 1989). The tractors had been lying in open for the last ten years, resulting in further loss in realisable value

24. Faulty planning resulting in blocking of funds

Indian Veterinary Research Institute, Bangalore, was allotted 112 acres of land free of cost by Karnataka Government to construct high disease quarantine systems as per international standards. These sheds were required to test foot and mouth disease vaccine to be manufactured by the Institute. The Institute proposed completion of the buildings by 1976-77 and that of residential accommodation for staff by 1977-78. The preliminary estimates for housing 46 animals in the cattle shed, received from the Central Public Works Department (CPWD) in May 1977, indicated the cost as Rs.41.98 lakhs. The

Institute was also asked to pay Rs.11.36 lakhs to CPWD for arranging bulk electricity supply to the cattle sheds. This was paid in March 1978. In September 1978, Rs.10.40 lakhs was paid to the CPWD for constructing the cattle sheds. In March 1980, a further deposit of Rs.6.00 lakhs was paid to CPWD for the above work.

Despite these various deposits, there was delay in finalising the proposal due to lack of clear idea as to how these isolation sheds were to be constructed and how the effluents containing virus were to be treated and disposed off. In July 1976, CPWD reiterated its suggestion made 18 months earlier that a team consisting of one Architect, one Civil Engineer and one Airconditioning Engineer could be sent abroad for learning the techniques and the specifications. Both proposals were not approved. The then Joint Director of the Institute on his return from abroad, wrote to CPWD in July 1976 that the isolation shed should have the capacity for 86 animals and detailed the exhaust air system and treatment to be given for effluents. In 1980, the Senior Architect, CPWD recorded that they were working on this scheme for the previous five years and the working drawings had already been revised atleast three times by then. He said since the Institute was not able to visualise and conceive the requirement, a team of technical officials from CPWD should be sent abroad before any further work was done on this project.

On the basis of the revised requirement indicated by the Institute, the project cost was revised in May 1984 to Rs.161.76 lakhs. Administrative approval was given in March 1985 and a further amount of Rs.24.05 lakhs was deposited with the CPWD. On the basis of the administrative approval accorded in March 1985, tenders were called for and work was awarded in August 1987. Subsequently, CPWD was asked to pend the work. Ventilation, cold storage, electrical installations, incinerator etc. had also not been provided for in the above estimates and further revised estimates scaled up to Rs.236 lakhs due to escalation in costs. Thereupon, a meeting between the CPWD and the Institute was held in December 1987 and to contain the total investment, it was decided that the facility would be scaled down to house 24 heads of cattle. Accordingly, revised drawings and electrical requirements were required to be submitted by the CPWD by January 1988.

In the meanwhile, 36 staff quarters were constructed by the CPWD. 30 of these staff quarters were accepted during May 1977, November 1978 and June 1987 and 6 staff quarters remained to be accepted. These 30 staff quarters have remained vacant for varying periods and in all they were vacant for 1706 months, working out to an average of 57 months for each staff quarter. ICAR stated, in July 1989, that 20 quarters had been allotted to staff and efforts to allot the remaining quarters were being made by the Institute.

Due to poor conception regarding the requirements of the isolation sheds, the project has been delayed for the last 12 years. The delay could have been averted if the suggestion of CPWD engineers to depute a team of experts abroad, had been heeded. ICAR stated, in July 1989, that the visit of three engineers abroad has since been approved by the Ministry of Urban Development and so it was considered advisable by the Institute not to go ahead with the civil work which otherwise would have resulted in in fructuous expenditure.

In the absence of the high disease security cattle sheds the vaccines are batch tested at Mukhteswar where modern testing facilities of international standards are not available. In sum, Rs.51.81 lakhs paid to CPWD remains unproductive, land allotted has not been utilised and the staff quarters remained vacant for many months.

25. Idling of machinery due to delay in arranging refrigeration facility

Central Institute of Fisheries Technology (CIFT), Cochin, placed an indent with the Directorate General of Supplies and Disposals (DGSD) for supply, installation and commissioning of an ammonia refrigeration plant in June 1977. An acceptance of tender (A/T) for Rs.2.81 lakhs was placed by DGSD with firm 'A' in October 1977 for the supply in April 1978 or earlier. The plant was required to operate the belt freezer and plate freezer received free of cost (Rs.9.34 lakhs) under foreign aid in March 1975. Since there was a delay in furnishing the requisite certificates by CIFT for availing of the concessional rate of excise duty, the firm intimated revised prices in February 1979 and finally declined in May 1979 to supply the plant under the old prices. The A/T was cancelled in August 1979 without any financial repercussion on either side.

A fresh A/T was placed on firm 'B' by DGSD in August 1980 at a cost of Rs.4.50 lakhs for supply, installation, commissioning and handing over of the plant due in November 1980 or earlier. The plant was, however, commissioned only in June 1985.

CIFT reported that the plant did not work from inception due to defective compressor and asked for free repairs (August 1986) under the warranty clause. Firm 'B' attributed the defects to faulty operation of the plant by CIFT. A joint inspection of the plant was conducted in November 1988 by the supplier and Inspecting Officer of the DGSD besides CIFT's officials when it was decided to rectify the defects before March 1989. The supplier was willing to carry out the repairs free of labour cost but wanted CIFT to bear the cost of replacement parts. The defects had, however, not been rectified (November 1989) since firm B is demanding release of 10 per cent out of 20 per cent cost of the original A/T which remains to be paid in the absence of commissioning of the indigenous equipment.

Thus, due to a series of delays, CIFT had to incur avoidable expenditure of Rs.1.69 lakhs. A foreign machinery worth Rs.9.34 lakhs gifted under Norwegian aid is idling for more than 14 years for want of an indigenous accessory. The case indicated that no serious effort was made to expedite matters, resolve differences between the supplier and the Institute or look for alternatives to set right a common but defective indigenous accessory for which Rs. 3.60 lakhs have been paid and remained blocked.

26. Blocking of funds due to non-supply of vital technical specification

Central Institute of Fisheries Technology (CIFT), Cochin, placed an indent in March 1984 with the Directorate General of Supplies and Disposals (DGSD) for import of Mobile Metal analyser required for analysing 20 different elements and alloys. Before the necessary clearance from the Department of Electronics was obtained and certain technical features of the instrument resolved the CIFT deposited Rs.4.5 Lakhs in March 1984 and Rs.3.5 lakhs in December 1984 with the Chief Controller of Accounts, Department of Supply. After waiting for 1 & 1/2 years, DGSD cancelled the indent in September 1985 since there was no

progress in resolving the technical features and in obtaining the clearance from the Department of Electronics. Consequently, CIFT requested the DGSD for refund of deposit in August 1986. The amount had not been refunded. There was thus a premature placement of indent resulting in blocking of funds to the tune of Rs.8 lakhs.

The Council stated, in July 1989, that there were special features to the instrument which were required to be referred to the suppliers. The Council did not explain why the special requirements could not be resolved in a period of one and a half years, especially, when it was ordered as a proprietary item.

27. Inadequate appraisal at project proposal stage

In order to have a cheaper alternative fuel in place of coal for curing tobacco, the Central Tobacco Research Institute (CTRI), Rajahmundry, placed an order in April 1984 on the National Small Industries Corporation, New Delhi for the supply of a saw dust briquetting machine at a cost of Rs.4.28 lakhs. The machine received in August 1984 was installed in October 1984. It however, went out of order soon after and remained idle for about 18 months, whereafter it was got repaired at an expenditure of Rs.0.22 lakh.

Since the CTRI did not have the expertise to operate the machine gainfully, it had to be placed at the disposal of a private firm, with ICAR approval, in December 1986. The firm was allowed to operate the machine for one year on the condition that 200 tonnes of briquettes would be supplied free of cost to the CTRI.

According to the private firm, the briquette machine achieved production efficiency of only 59 per cent. The punch and dies in the machine were wearing out fast and replacements were expensive and time consuming. Resultantly, the cost of production of briquettes proved to be very high. While it was estimated by CTRI that paddy husk briquettes would cost 50 per cent and saw dust briquettes 33 1/3 per cent of the cost of coal fuel, the private firm's calculations showed that the fuel cost would be Rs.583 per tonne for coal and Rs.1230 per tonne for the briquettes. Ultimately, the machine was returned by the firm in May 1988, without supplying briquettes.

Audit had taken up the matter of unutilised briquette machine in 1987. In July 1988 CTRI stated that the Central Mechanical Engineering Research Institute (CMERI) Durgapur was being consulted on how to make effective use of the machine. ICAR further stated in January 1989 that as soon as a suitable die punch was prepared by CMERI, the machine would prove highly profitable.

In sum, the briquette machine was procured without proper pre-investment survey and project appraisal leading to an idle investment of Rs.4.50 lakhs.

28. Installation of an imported equipment

The Central Agricultural Research Institute, Port Blair, ordered on a foreign supplier in February 1985, for a double beam atomic absorption spectrophotometer with accessories at a cost of Rs.2.05 lakhs and with free warranty of one year for the instrument and accessories. The Indian agent was to install the instrument free of cost. An irrevocable letter of credit was opened in October 1985. The instrument arrived at Calcutta airport on 18th December 1985 but was cleared on 11th March 1986 after incurring Rs.0.05 lakh as demurrage charges. A sum of Rs.0.10 lakh was spent on transportation of the equipment from Calcutta to Port Blair by air. The Director of the Institute noted that there were delays in such matters despite a liaison office functioning in Calcutta.

While the Institute could procure nitrous oxide gas only in May 1986, acetylene gas was ultimately procured in May 1988. An engineer from the Indian agent visited the Institute in August 1988 for installing and commissioning the equipment but did not succeed in bringing the instrument into programme mode due to some inherent fault. Another engineer visited the Institute during 27th January 1989 to 2nd February 1989 and found the main and analogue board defective. The board was taken for rectification but had not been received back (July 1989). Thus, the equipment procured in December 1985 had not been installed till July 1989. Meanwhile, some soil testings to be carried out with this equipment had to be carried out in Calcutta and a scientist was deputed for the purpose. The expenditure thereon was Rs.0.03 lakh. Since, however, only two occasions of soil testing arose in a period of 42 months, the need for an exclusive equipment of this type

at Port Blair is not well established. Besides, the instrument is yet to be installed due to inherent faults and Rs.2.20 lakhs are blocked for more than three years and a half.

29. Lack of planning in procurement of a computer system

The Central Marine Fisheries Research Institute (CMFRI), Cochin, placed an indent on the Director General Supplies and Disposals (DGSD) for the procurement of a Computer system and deposited Rs.15 lakhs in February 1985 and Rs.3 lakhs in November 1985. The final order was placed by DGSD in March 1986 on Electronics Corporation of India Limited (ECIL) with delivery in 28 to 36 weeks.

In August 1986, ECIL informed CMFRI that the computer was ready for delivery and requested for inspection before despatch. In September 1986, CMFRI expressed its inability to take delivery as the infrastructure for installation of the equipment was not ready. The civil/electrical works for the computer room were awarded in April 1987 by the Central Public Works Department (CPWD) and completed in March 1988. The computer, after inspection, was taken delivery of and installed in April 1988. The Software was subsequently installed in May 1988.

In sum, Rs.18 lakhs were blocked for about two years. ICAR attributed the delay in installing the computer to ECIL for delayed submission of the site plan and to CPWD in execution of civil and electrical works.

30. Delay in procuring dehumidifying plant

Indian Institute of Horticulture Research, Bangalore (IIHR), deposited Rs.4.99 lakhs in March 1985, with the National Seeds Corporation Limited (NSC) for airconditioning work including procurement of a cooling and dehumidifying plant which was required for "National Seeds Project, Phase-I" to store vegetable germplasm having very short viability under controlled temperature and humidity. Since the project terminated in March 1985, the IIHR requested the ICAR in January 1986 to transfer the amount of Rs.4.99 lakhs, deposited earlier with NSC for procurement of the

above equipment under 'Breeder's Seed Project'. A further sum of Rs.0.47 lakh was also deposited with the NSC in March 1986 for the above equipment. The second project also reached culmination in March 1986 but the equipment had not been procured and supplied by NSC to the IIHR.

IIHR stated, in August 1988, that the NSC had originally awarded the work in June 1984 and since the contractor wanted price escalation the order was terminated in 1985. The termination order was subsequently revoked at the request of the contractor but as the work had not been taken up it was again terminated in 1986. Tenders were again invited by NSC in August 1986 but the single tender received quoted exorbitant rates and was, hence, rejected. NSC invited fresh tenders in February 1988.

ICAR stated (January 1989) that to minimise the cost of equipment and fabrication time, several modifications had been suggested and a time schedule has been prepared by them and the commissioning of the equipment would be completed by June 1989. In June 1989, the ICAR, however, stated that the NSC had finally intimated that they were not in a position to get the airconditioning work executed for want of necessary technical expertise and agreed to refund the deposit with interest thereon. On receipt of refund, the work would be taken up through the CPWD.

Thus, the equipment needed for the two projects which were over by March 1986 could not be procured even upto June 1989 resulting in blocking of funds to the extent of Rs.5.46 lakhs for over four years. The ICAR should have ascertained whether NSC had the necessary expertise for procuring the plant, before depositing the money. The deposit was initially made when the first project was getting concluded and the deposit was transferred to another project which was also getting over in a couple of months thereafter. Obviously the equipment was superfluous for either of the projects for which it had been earmarked.

31. Avoidable expenditure on excess vehicles

The regional centre of the National Bureau of Soil Survey and Land Use Planning, (NBSSL) Bangalore, was maintaining a fleet of 17 vehicles (15 jeeps with trailers, one mini bus and one station wagon).

The mini bus was transferred to ICAR in August 1986. Out of 15 jeeps, seven had not been in use for long periods as indicated below:

Vehicle No.	Months from which not in use	Number of months for which vehicles not used till March 1988
MYB 4458	January 1975	158
MYB 4470	May 1980	94
MYS 4462	October 1980	89
MYV 6475	December 1980	88
MYV 6473	April 1983	60
CAI 8625	October 1983	53
MYO 4312	April 1984 to December 1986	32
		----- 574 -----

NBSSL stated in February 1988, that the regional centre had a sanctioned strength of 14 scientists against which only six were in position. Even out of the six, one had gone on study leave and one transferred to Head quarters. According to NBSSL, if all the scientists were in position, all the vehicles could have been put to use. Due to non-utilisation of the vehicles, the services of drivers were also not used to the extent of 266 man-months upto March 1988 resulting in infructuous expenditure of Rs. 3.46 lakhs.

In addition to under-employment of drivers, the Institute also incurred, during 1982-83 to 1986-87, an expenditure of Rs.4.03 lakhs on the maintenance of 12 out of the 17 vehicles.

ICAR accepted the facts in July 1989, but did not indicate the action proposed to be taken by them for curtailing the wasteful expenditure.

32. Construction of office-cum-laboratory building at Jharnapani

In 1979, the Central Public Works Department (CPWD) had framed a preliminary estimate for Rs.17.35 lakhs for construction of a main office-cum-laboratory building at Jharnapani, Nagaland for a research complex of the Indian Council of Agricultural Research (ICAR). Keeping in view remoteness of the area, general delay in execution of works by CPWD etc, ICAR decided, in December 1982, to entrust the execution of the work to the Nagaland Development Authority. In March 1984, sanction was issued to the estimate prepared (Rs.26.24 lakhs) by the Authority and full amount was deposited by September 1985. In April 1986, revised estimate for a sum of Rs.29.89 lakhs was submitted but sanction thereto was not accorded till September 1987.

In May 1986, the Authority intimated completion of construction. The Director of the research complex opined in his letter to ICAR (September 1986) that the workmanship of the building was not upto the mark and appointed a committee of technicians to inspect the building and submit a report. He also wanted an expert committee under the chairmanship of Director (Works), ICAR to inspect the building. The expert committee reported that the building was constructed by cutting a terrace from a sloping hillock without proper retaining walls and drainage channels to allow flow of rain water to drain. The committee also opined that the causes for the cracks had not been properly investigated and remedial measures taken were not adequate. Besides, it was also pointed out that wood-work was not properly done. The technicians committee had reported in December 1986 that the cracks were vertical, horizontal and diagonal in beams, pillars and structural walls. Six periodical reports were submitted by this committee during April to July 1987.

In August 1987, it was reported by the complex that three walls had collapsed besides damage to the doors/windows/electrical fittings. Another committee was appointed which verified the site and stated that the damage was due to heavy land slide. In July 1989, ICAR replied to audit that the damages to the building had been rectified by the Authority at its cost and the building would be taken over after inspection by Director (Works).

Thus, for 39 months the building could not be taken over because of poor workmanship and subsequently three walls of the building collapsed and Rs.26.24 lakhs remained blocked. By entrusting the work to the Authority, neither speedier execution nor lesser cost was achieved. Having entrusted the work to the Authority, no arrangements were made for periodically supervising the work under the direction of Director (works) of ICAR. Resultantly, a building with sub-standard workmanship has been built which is yet to be taken over. Also the escalation cost claimed by the Authority was to be settled.

33. Idle/unserviceable equipment

Central Sheep and Wool Research Institute, Avikanagar, imported, in December 1977, an automatic amino acid analyser at a cost of Rs.2.33

lakhs. The equipment was received in March 1979 and installed and tested by the suppliers in November 1979. The equipment however, went out of order in March 1981.

In November 1980, the Indian agent of the supplier had forwarded a list of essential spares for the equipment and enquired about entering into an annual service contract. The Institute kept silent about the annual service contract since they had their own instrumentation engineer but obtained in December 1980 the proforma invoice for the spares required. In September 1981, the Indian agent was requested for annual check up of the analyser which was not functioning due to a number of defects. In February 1982, the Indian Agent informed that spares may first be procured to put the analyser back into operation.

The Institute obtained a proforma invoice for the spares in May 1983 but the order was placed only in March 1984. A letter of credit (LC) for Rs.0.48 lakh was opened in April 1984. The spares were not supplied since the validity period of the LC was not extended despite the request by the Indian agent in June 1984. Another LC for Rs.0.48 lakh was opened in November 1985 against which the spares were received in January 1986. In February 1986, the Indian agent was requested to depute an engineer to put the equipment in working condition. The advance payment of service charges of Rs.0.05 lakh was remitted in August 1986. ICAR stated in July 1989 that the amount of Rs.0.05 lakh has been recovered in February 1989 since the engineers who visited the Institute in April/June 1987 could not repair and put the equipment in working order. The equipment was yet to be repaired.

Thus, the equipment procured at a cost of Rs.2.81 lakhs (including spares) could not be utilised since March 1981 for research work rendering the expenditure infructuous.

34. Unplanned establishment of a research station

Central Tobacco Research Institute (CTRI), Rajahmundry, selected 82.12 acres of land in Kalavacherla village in Andhra Pradesh for its flue-cured virginia tobacco (FCVT) research programme. The State Government was addressed, in December 1982, to initiate acquisition proceedings for 35.96 acres of land and Rs.4 lakhs were paid in June 1983 as advance.

Activities for establishing the research station commenced in April 1983 and, in December 1983, ICAR indicated that staff proposals for FCVT programme were under consideration. In July 1984, ICAR clarified that the decision of the managing committee of CTRI for FCVT research should have been followed up with detailed project proposals before opening the centre. ICAR directed CTRI to approach the State Government for de-notifying the acquisition proceedings and March 1985 was set as the deadline for closure of FCVT research.

CTRI replied ICAR that if acquisition proceedings were carried to conclusion, only Rs.2 lakhs would become additionally payable whereas with de-notification proceedings, Rs.1.08 lakhs would become payable as compensation to land-owners, which would be infructuous. Thereupon, ICAR decided in August 1984 not to opt for de-notification. The cost of the site however rose from Rs. 6.00 lakhs to Rs. 19.26 lakhs as certain additional amount payable because of interest etc. had not been included. ICAR was led to wrong decision by CTRI.

In May 1985, ICAR earmarked the above mentioned land for Krishi Vigyan Kendra (KVK) activities of CTRI. Subsequently, Rs.8.73 lakhs were also released for construction. This course of action was dictated by circumstances because CTRI had earlier identified for KVK activities another piece of farm land and a building which were subsequently declared not suitable.

Due to the closure of FCVT programme, one 30 KVA generator acquired by CTRI at a cost of Rs.1.42 lakhs in March 1987, remained idle. CTRI stated, in April 1989, that this generator had since been diverted to another research station though not yet installed. Also Rs. 8.53 lakhs spent on acquisition of barns, barns material, fertiliser etc. for FCVT research became infructuous because the programme was foreclosed.

ICAR stated in July 1989, that the land at Kalavacherla is now fully utilised and the piece of land earlier earmarked was not suitable because it had higher clay content for growing oil seeds and the land also had higher atmospheric pollution. In sum, due to procedural lapses in obtaining proper financial sanction, there was avoidable expenditure of Rs.27.99 lakhs on acquisition of land and construction of building for KVK activities and infructuous expenditure was

in excess of Rs.8.53 lakhs due to foreclosure of FCVT research.

35. Purchase of multipurpose live stock feed plant

An Acceptance of Tender for supply, erection and commissioning of a multi purpose live stock feed plant was placed in November 1973 by the Director General Supplies and Disposals (DGSD), on behalf of the Indian Veterinary Research Institute (IVRI). The supply was to be completed by May 1974 and erection by August 1974. The plant was to cost Rs.11.62 lakhs and, in addition, freight charges up to Rs.0.50 lakh were payable. By March 1973, IVRI had deposited Rs.12.05 lakhs.

The plant was supplied by June 1975 and some spares and additional items were supplied by June 1976. In September 1976, a joint inspection was conducted which declared that 90 *per cent* erection was completed. The balance of supply and rectification of defects etc. were not completed and the firm was given periodical extensions up to August 1980. When the plant was sought to be commissioned in September 1980, it was found defective.

In October 1985 IVRI intimated DGSD that the repairs to the machine would cost Rs.3.55 lakhs and the loss of benefit to the IVRI by not utilising the machine was Rs.2,843 per day. IVRI also purchased another pelleting machine at a cost of Rs.0.99 lakh, in May 1986, to avoid continuous loss on fodder being used in mash form. Since the multi purpose plant remained uninstalled and the supplier firm had gone into liquidation in April 1985. DGSD, in May 1988, issued a notice to the official liquidator of the firm cancelling the contract and notifying that the balance work would be completed at the risk and expense of the firm. DGSD also returned Rs.1.43 lakhs being the balance out of the deposit Rs.12.05 lakhs.

ICAR accepted the facts in July 1989 and stated except for the pelleting machine all the other sections of the plant were now being put to use but did not explain why the repairs were not undertaken earlier and also did not furnish the date from which the plant has been installed.

The case revealed a series of delays in not ensuring timely delivery, erection and commissioning of the

plant or cancellation of the contract and lack of adequate action to put the plant to use in the best possible time.

DEPARTMENT OF ATOMIC ENERGY

Institute of Physics, Bhubaneswar

36. Delays in implementation of a pelletron project

The Institute of Physics, Bhubaneswar, under the Department of Atomic Energy was sanctioned in January 1986, Rs.165 lakhs (Rs.130 lakhs for machinery and equipment and Rs.35 lakhs for consultancy and civil work) for its pelletron project. This was revised to Rs.359.04 lakhs in January 1989 and consisted of Rs.191.42 lakhs for machinery and equipment and Rs.167.62 lakhs for building.

The civil engineering and sanitary works of the pelletron building was awarded in December 1986 at a cost of Rs.33.10 lakhs and it was to be completed in June 1987. The contractor stopped the work in June 1987, after completing only 49.06 *per cent* of the work. After exchange of some correspondence, the contractor had informed, in December 1987, that the delay in construction work was due to failure of the Institute in supplying steel and constant revision to the design of the building. The stoppage of work was put up before the Governing Council of the Institute in March 1988 and it was decided that the contract should be terminated without imposing any penalty on the contractor. Accordingly the contract was terminated in March 1988.

The contractor had been paid in all Rs.15.20 lakhs after deducting Rs.0.38 lakh for defective work. Rs.3.52 lakhs had been paid to the architect as professional charges.

For the balance work, tenders were invited in January 1989 with date of opening of tenders as March 1989. The balance work including civil, electrical and airconditioning works were awarded to another contractor in August 1989 with a stipulated time of nine months and with a clause for

repair of the earlier work at a cost of Rs. 3.34 lakhs. The work was commenced in September 1989. Even after re-invitation of tenders in January 1989, it had taken seven months to award the work.

On the other hand, the Institute placed an order, in November 1986, for design, manufacture, testing, delivery, erection and commissioning of a pelletron accelerator at a cost of Rs.1.32 crores (US \$956847) with a lead time of 12 months. The equipment was received in February 1989 and 90 per cent payment of Rs.1.21 crores was made. A sum of Rs.0.83 lakh was spent on loading/unloading, transportation and storage charges. The department had sanctioned construction of a temporary shed to house the accelerator, at a cost of Rs. 1.60 lakhs.

Since the building is not ready, the equipment is lying in packed condition. It will be months before the construction of the building would be completed together with various infrastructural facilities. The Institute has also spent (February 1989) Rs.0.48 lakh on insurance premium for the stored equipment. The department stated, in October 1989, that the completion of the building got delayed due to circumstances beyond the control of the Institute and as such there was no premature ordering of the equipment.

The case revealed undue delay between termination of earlier contract (March 1988) and in reawarding the work (August 1989) resulting in blocking of Rs.1.22 crores. Also the delay to the project has adversely affected the facilities being made available to the scientists as the equipment was meant to build an experimental infrastructure.

DEPARTMENT OF ELECTRONICS National Centre for Software Technology

37. Premature release of grant-in-aid

Department of Electronics released to the National Centre for Software Technology, grant-in-aid of Rs.144.75 lakhs in November 1985. Out of the above grant, Rs.89 lakhs were to be utilised for importing a VAX-8600 computer system and Rs.45 lakhs for constructing the advance training facility.

A letter of intent for the computer was issued to the vendor in December 1985 followed by a purchase

order in June 1986. The computer was installed in April 1987.

The land for the advance training facility was initially allotted only in December 1987 by the City and Industrial Development Corporation (CIDCO), an undertaking of the State Government of Maharashtra. The National Centre intimated the department in the same month that they would not be able to utilise the grant-in-aid already released for this purpose before March 1988 since some more formalities had to be gone through before initiating the construction. The Department was also requested not to release the grant meant for the year 1987-88. The grant of Rs.45 lakhs released in November 1985 had remained idle for 44 months, till July 1989 because the land allotted by CIDCO was under commercial rates and so was not acceptable to the National Centre. The department stated that negotiations for acquiring suitable land were still continuing (July 1989).

Due to premature release of grant, the National Centre had unutilised funds of Rs.74.71 lakhs as on 31st March 1988 and the advance training facility has not come up.

Regional Computer Centre, Calcutta

38. Procurement of a computer system

Regional Computer Centre, Calcutta, a scientific society under the joint trusteeship of the Department of Electronics (DOE), University Grants Commission and Government of West Bengal decided in September 1985 to import one Cyber 180/840 computer system along with satellite computer. DOE approved the proposal in January 1986.

To meet the expenditure towards the cost of the system as well as for infrastructural facilities, the Regional Centre received grants amounting to Rs.3.90 crores from the three trustees during 1984-1988. In May 1986, the purchase contract was concluded. The system was to cost Rs.184.21 lakhs including freight and insurance. An irrevocable letter of credit was opened in October 1986 and the system was expected to be shipped by December 1986.

While the system was on order, there was also a proposal to shift the location of the Regional Centre to central Calcutta to provide more efficient

data processing to the users. A final decision on the proposed restructuring of the Regional Centre and its shifting to central Calcutta was finalised only in December 1987. Meanwhile the supplier was asked to withhold the shipping of the system, which was ready for despatch in November 1986 till February 1988. Consequently, the letter of credit was also extended from time to time till June 1988 and commitment charges of Rs.1.35 lakhs was paid to the bank on this account. Due to the above delay, the Regional Centre had to pay customs duty of Rs. 138 lakhs and additional octroi duty thereon amounting to Rs.2.76 lakhs since exemption from payment of customs duty for cyber 180/840 was withdrawn in March 1987.

Also a satellite system for which Rs.25.76 lakhs were spent was imported alongwith the Cyber system. This was to provide service to the users in Central/North Calcutta. This however, could not be installed because of the doubts about the location of the main system. Initially, in June 1986, the Geological Survey of India (GSI) Calcutta had confirmed the availability of accommodation for housing the satellite system. The Regional Centre could not pursue this with the GSI in the absence of a firm decision. Subsequent to the decision of the Board of Trustees in December 1987 to continue the Regional Centre at Jadavpur, GSI was contacted in April 1988 for allotting the accommodation for the satellite centre. In June 1988, GSI expressed its inability to provide the promised accommodation. The Regional Centre approached other organisations for accommodation but with no results.

Since the warranty period of the main and the satellite system was valid for only one year from March 1988, the Regional Centre installed the systems temporarily in their existing premises in March 1989 and tested them in parallel mode for a period of three months. Since then, the satellite system is stated to be functioning as a stand-alone system.

In sum, Regional Centre had to incur an additional expenditure of Rs.142 lakhs towards customs duty, etc. due to the delay in shipment of the computer as desired by the Regional Centre. The satellite system has neither been fully integrated nor has this been installed in central Calcutta, so as to be useful for a large number of users as originally planned.

MINISTRY OF SCIENCE AND TECHNOLOGY

DEPARTMENT OF SCIENTIFIC AND INDUSTRIAL RESEARCH

Council of Scientific and Industrial Research

39. Survey of scientific personnel

With a view to assessing the strength of scientists and technologists, a scientific manpower committee was appointed in August 1947 and the work relating to the preparation of a roster of such talent available in the country was entrusted to the Council of Scientific and Industrial Research (CSIR). The data compiled by CSIR was only a partial reflection of the scientific manpower situation in the country due to poor response of voluntary organisations. It was then decided to collect the data with the cooperation of the Registrar General of Census operation and a monograph was published by CSIR after the 1961 census. A wider coverage was attempted in 1971 by covering all degree holders and technical personnel. The Registrar General published the data in the form of utility tables. In the 1981 census, efforts were made to collect data on 20 per cent sample basis in 12 States and complete enumeration in the remaining States. CSIR received the data in May 1981 and approached the National Informatics Centre (NIC) for processing of data. NIC declined in January 1983 due to their preoccupation.

CSIR stated (April 1988) that coding work of schedules was entrusted to the Indian Society of Agricultural Statistics which completed the work in March 1984. CSIR completed the work of computerisation and formulation of tables etc. in August 1985. It was however seen from the files that as of December 1985, only seven lakh schedules had been coded while thirteen lakh schedules remained to be coded. In view of this backlog the work was awarded to Rail India Technical and Economic Services (RITES) in addition to Regional Computer Centre Chandigarh. The target for completion of work was fixed as 31st December 1986.

The work relating to printing was awarded only in February 1987. The books were stated to have been

received in May 1987 and the distribution/despatch work was started in August 1987. It was proposed in the Introductory chapter of the book to make a study and interpretation of the data regarding mismatch between educational output and employment market, mis-utilisation of scientific and technical personnel in non-technical jobs, internal brain drain, mismatch between education/training and employment, region-wise and field-wise mobility, statistical relationship between various parameters such as qualifications, employment, earnings, vertical and horizontal mobility etc. It was also stated that comparative studies of the data of similar nature could be carried out and models of educational and manpower planning could be formulated.

The Department of Science and Technology (DST) is separately publishing Research and Development Statistics in which manpower data are analysed. Also another census is due in 1991 whereas interpretation of 1981 data is yet to be done. No meeting of the Advisory Board of the Degree Holders and Technical Personnel (DHTP) was held after August 1985 to have any discussion about the achievements/results/proposals on the subject. It was stated that a formal meeting was held in May 1987 but no agenda or minutes were recorded. In the absence of utilisation of data and model building, the expenditure of about Rs.100 lakhs incurred during the years 1981 to 1986-87 has not afforded full benefit to the community and nearly 40 years have elapsed since the commencement of the project.

CSIR stated, in November 1989, that this survey work was a historical legacy and the governing body of CSIR has taken a decision to discontinue the study as an in house project.

40. Recurring loss in transport facilities

The Council of Scientific and Industrial Research (CSIR) had agreed in 1959 to extend transport facility to the staff of the National Aeronautical Laboratory (NAL), Bangalore, on a 'no profit no loss' basis. The facility was extended since the laboratory was then situated outside the municipal limits and accommodation facility and public transport facilities were poor. Initially the facility was limited to members of the staff working in the wind tunnel centre situated at a distance of five kms. from the laboratory. Subsequently, the facility was extended

to all the members of the staff working in the laboratory and also to the children of the staff for going to schools situated in the city. Consequently, the number of staff buses increased from two in 1963-64 to 21 in 1979-80. It was noticed that the transport charges fixed in 1963-64 had not been revised in the last 25 years though the cost of transportation had increased. Only in the case of officers drawing more than Rs.1000 per month, the rate was revised from Rs.20 to 25 per month in October 1975. Due to non-revision of rates, NAL incurred a total loss of Rs.27.81 lakhs during 1966-82.

In addition to the above, the state government had also withdrawn in July 1963 the concession on Motor Vehicle Tax extended to NAL vehicles. This resulted in payment of Rs.29.09 lakhs upto March 1982. The total loss thus added upto Rs.56.90 lakhs. NAL did not furnish the figures for the period subsequent to March 1982.

The matter of revision of rates of recovery for transportation was taken up in Audit in 1981-82. Only in December 1987, NAL furnished a reply stating that if the rates were to be revised on 'no profit no loss' basis, the rates to be charged would be enormous for the employees. It was also stated that if the transport facilities were not provided, regular attendance of staff may be affected which will have far-reaching repercussions on an important national project carried out at NAL.

CSIR stated, in December 1989, that they had taken up the matter with NAL and NAL had informed that they were conscious of the high cost of operation of the service and expressed difficulties in adhering to 'No Profit No Loss' principle. CSIR in reply had told NAL that there was no alternative to the above principle. CSIR hoped that there would be improvement in the situation.

Thus upto March 1982, the loss on transportation was Rs.56.90 lakhs and the facility was being continued with recurring losses. The initial decision to operate the services on 'no profit no loss basis' was not adhered to.

41. Blocking of capital and non-fulfilment of objectives

Central Mining Research Station, Dhanbad, placed an order in December 1985 on a foreign firm for supp-

ly of survey instruments and software maps at a cost of Rs. 41.80 lakhs including Indian agent's commission of Rs. 2.18 lakhs. The instruments were covered by warranty for 12 months for optical and mechanical components and six months for electronic components beginning two weeks after the date of inspection in foreign country or date of shipment of the equipment at the latest.

The instruments, costing Rs.42.65 lakhs were airlifted to Calcutta airport in December 1986 and were released in February 1987 after paying terminal charge of Rs.0.35 lakh. The instruments were highly sophisticated and needed special storing at a particular temperature. Since these facilities were not made ready, the instruments, which reached the Research Station in February 1987, were kept in a general store in packed crates.

After a lapse of eight months after the receipt of the instruments, the work for site preparation and infrastructure was awarded in November 1987 for a sum of Rs.5.58 lakhs. Consequently, 90 per cent of the Indian agent's commission amounting to Rs.1.97 lakhs had to be released in March 1988 and when the supplier expressed his willingness to install the instrument in October/November 1987, the Research Station could not avail itself of the opportunity because of its failure in making the infrastructure available which became ready only in March 1988. Meanwhile the warranty period expired. The Research Station, therefore, took up the installation on its own as per directions of the supplier but could not succeed. Some of the instruments required repair but the supplier and the Indian agent did not show interest to complete the installation. The instruments were lying inoperative without being installed entailing blocking of capital of Rs.50.55 lakhs and non-fulfilment of objectives.

CSIR accepted the facts, in December 1989, and stated that final report regarding installation and commissioning was still awaited from the research station.

42. Improper planning in the construction of a research complex

The Council of Scientific and Industrial Research (CSIR) approved in 1978, for phased execution, the total building plan for the main laboratory of its

constituent unit, the Centre for Cellular and Molecular Biology (CCMB), Hyderabad which was operating from another laboratory. The plan covered approximately an area of 85055 square feet. The work for construction of 24889 square feet (as Phase I) consisting of two storeys in the central area and two storeys in one of the wings was awarded in April 1979 for Rs.20.86 lakhs to be completed by April 1980. The cost was subsequently revised to Rs.32.31 lakhs with the inclusion of additional work for Rs.2.88 lakhs and Rs.8.57 lakhs towards escalation etc. The approval for revised cost was given in 1980. In the meanwhile, CCMB decided in July 1980 to construct two additional storeys covering 30,000 sq.ft. under Phase-I at an estimated cost of Rs.20.90 lakhs taking the total cost of Phase-I to Rs.53.21 lakhs. The building was finally completed in July 1981 at a cost of Rs.50.08 lakhs but remained unoccupied till August 1985.

Further, due to non-occupation and maintenance the flooring laid at a cost of Rs.1.35 lakhs got discoloured and spoilt and 'Vinyl' flooring had to be laid at a cost of Rs.6.79 lakhs. Rs.0.26 lakh also had to be spent on repairs to floors. Similarly, sanitary and water supply fittings costing Rs.1.64 lakhs had been broken or stolen during the period of non-occupation. Rectificatory works apart from replacement had to be carried out at an additional cost of Rs.0.57 lakh.

By January 1983, CCMB had incurred Rs.18.10 lakhs towards internal electrification when it was realised that big electrical switch panels would create magnetic fields which would adversely affect the performance of the instruments. It was, therefore, decided to remove the switch panels with associated conduits and connections from rooms to corridors. The rectificatory work was done at an additional cost of Rs.2.70 lakhs. Magnetic interference from electrical circuits is a normal feature and should have been foreseen by the scientists and extra expenditure avoided.

CCMB replied in July 1989 that the building after its completion was partly occupied by accounts and stores and could not be used for research purposes as the award of work for infrastructural facilities like internal electrification, airconditioning, vacuum compressed air, laboratory furniture etc. got delayed by four years. CCMB have added that such delays could be avoided if approval to such building complexes is

given in their entirety right at the beginning even though release of funds may be spread over a number of years and if the appropriate number of staff for the construction and other services are placed in position before commencement of the construction.

In sum, an asset constructed at a cost of Rs.50.08 lakhs remained unutilised for four years and CCMB had to incur avoidable expenditure of Rs.10.21 lakhs on replacements and rectifications. While accepting the facts, CSIR stated, in December 1989, that CSIR do not subscribe to the view that the blocking of funds and the additional expenditure incurred were on the part of CCMB or the CSIR but appears to be due to the system in which the CCMB or the CSIR Headquarters have to operate.

43. Unfruitful expenditure on a research project

The Central Mechanical Engineering Research Institute, Durgapur, proposed a project "Development of large volume plasma system" in May 1982, since plasma jet application had wide use in metal cutting, welding, surfacing, spraying etc. The project was approved by the Research Advisory Committee (RAC) in September 1982 for a period of 35 months at a cost of Rs.6.65 lakhs with a manpower of 17 and a feasibility report was submitted and approved in February 1983. The project was enlarged in September 1983 to run for 45 months, with a manpower of 147 and the estimated cost was revised to Rs.102 lakhs.

In September 1984, RAC advised that the project be redefined with details. This was done and project with a revised budget of Rs.34.17 lakhs and manpower of 44 was considered by RAC in June 1985 and it was decided to be continued only if sponsored by specific user industries. In the absence of a sponsorer the project was held in abeyance. By February 1986, Rs.17.64 lakhs had been spent on the project and a single arc plasma torch was designed and fabricated.

The project was dropped in December 1988. The CSIR stated in October 1989 that the project was taken up as a product development one with a view to getting sponsorship. The scope of the project was also modified more than once to try to make it attractive. Unfortunately a sponsorer could not be found and the project had to be abandoned ultimately. The

case illustrated poor project planning at conceptual stage and so value for Rs. 17.64 lakhs spent was not realised.

44 Avoidable payment of interest

In January 1984, Central Glass and Ceramic Research Institute (CGCRI), Jadavpur, was allotted by Government of West Bengal four acres of land on 999 years lease at a cost of Rs.29.04 lakhs with the condition that 50 *per cent* amount would be paid within 90 days failing which the allotment would be cancelled. Further it was stipulated that interest would be charged at seven *per cent* per annum for first two years and at the rate of ten *per cent* for the third year on the balance fifty *per cent* after which the offer of land would stand cancelled. CSIR accorded sanction in March 1984 but payment was made in May 1984. CGCRI reminded CSIR in February 1985 after a lapse of nine months, to sanction payment of the second instalment. CSIR asked CGCRI (March 1985) to request the State Government of West Bengal to adjust Rs.10.02 lakhs due from the State Government towards the cost of another land at Kalyani. CGCRI requested the CSIR not to link these two issues in view of the interest condition included in the offer. CSIR took up the matter of adjustment of dues and waiver of interest with the State Government in May, July and December 1985 and October 1986. The State Government informed the CGCRI in October 1986 that this was not possible. Ultimately in December 1986, CSIR approved the payment of the balance of Rs.14.52 lakhs. A sum of Rs.3.37 lakhs was also paid as interest charges in February 1988 which was avoidable. CSIR stated (December 1988/June 1989) that the payment of interest was made under protest and the matter was being pursued.

45. Purchase of chilling unit

For the polycrystalline silicon pilot plant, sanctioned by the Council of Scientific and Industrial Research (CSIR) in March 1982, the National Chemical Laboratory (NCL), Pune, placed an order in April 1984 for supply, erection, testing etc. of one unit of brine plant (chilling unit) alongwith equipments and accessories at a cost of Rs.3.72 lakhs. In a meeting held with the supplier in May 1984, it was decided that the plant would be based on cascade refrigeration system having two independent compressors with

no extra cost. Accordingly, an amendment to the purchase order was issued in September 1984. The plant and accessories, except one fly wheel and some other items, were received in March 1985 and payment of Rs.3.14 lakhs was released to the supplier in the same month. Action to remind the supplier for supplying the balance items and completing the erection was initiated in September 1985, after a delay of six months. Despite exchange of correspondence upto February 1986, there was no progress. The matter was again taken up by the laboratory with the supplier in May 1987 i.e. after a lapse of over one year when the supplier was asked to install the chilling unit. The supplier did not respond till December 1987. Thereafter, no action was taken by the laboratory.

The Laboratory stated in July 1988 that the equipment received in March 1985 could not be installed in time as it required civil work and other engineering inputs. The chilling facilities, were however, made available to the silicon pilot plant from other existing chilling units.

CSIR stated in May 1989 that the equipment could not be installed in time due to change in the site and the supplier was reluctant to co-operate with the laboratory but that the laboratory was making efforts to pursue this vigorously with the supplier to complete the job.

Thus, the chilling unit purchased at a cost of Rs.3.14 lakhs in March 1985 remained to be installed and commissioned even after a lapse of four years resulting in blocking of funds.

46. Import of defective equipment

Regional Research Laboratory, Jorhat, ordered on a foreign firm in June 1986 for a computer controlled X-ray diffractometer. An irrevocable letter of credit was established in August 1986 for US \$ 109511 (Rs.14.48 lakhs) including commission of Rs.0.35 lakh payable to an Indian agent.

The equipment reached the laboratory in March 1987 after an expenditure of Rs.0.06 lakh was incurred on transportation etc. The laboratory also purchased one water cooler and voltage stabilizer for Rs.0.14 lakh for servicing the equipment. Several attempts to

install the equipment failed because of faulty components. The equipment was eventually commissioned in March 1988 but within two days the computer system of the equipment went out of action. As there was no indigenous facility to repair the computer system, the supplier agreed to replace the same free of charge. However, the supplier had informed the Indian agent in April 1989, that due to export restriction the replacement of the defective computer parts may be time-consuming, if not difficult. CSIR stated in June 1989 that the generator part of the instrument was working and the computer part which went wrong has been returned for replacement. This is stated to have been replaced by the supplier in July 1989.

Though the laboratory had placed the order for the equipment direct on the foreign supplier, the laboratory had not addressed the later for setting right the defective equipment. It was only approaching the Indian agent. Thus, an equipment procured at a cost of Rs.14.62 lakhs has operated sub-optimally for more than 2 1/2 years.

47. Unfruitful expenditure on rotary kiln facilities

The Regional Research Laboratory (RRL), Bhubaneswar, decided (February 1984) to set up rotary kiln facilities for the purpose of metal extraction from seabed manganese nodules by sulphation roasting process and to ascertain the techno-economic viability of the sulphation route. The Executive Committee of the RRL had approved a financial outlay of Rs.3.50 lakhs for setting up the facility. Two supply orders were placed for supply of kiln and accessories by February 1985, and for installation and commissioning, by June 1985, at a cost of Rs.2.28 lakhs and Rs.1.25 lakhs in November 1984 and February 1985 respectively. The equipment alone was supplied in June 1985 after a delay of four months and commissioning could not be carried out as defective parts worth Rs.0.47 lakh had to be taken back for rectification. In July 1985, after replacement of defective parts, an attempt was made by the firm to commission the facility for trial run but failed due to breakdown of the furnace. Two more attempts in September and December 1985 also met with failures. Commissioning was eventually completed on 6th February 1986. The firm extended the guarantee up to 5th February 1987 against manufacturing defects.

The RRL released the final payment of Rs.0.40 lakh in April 1986 and the total payment worked out to Rs.3.39 lakhs. However, when RRL put the furnace to use, the kiln developed operational problems leading to damage of the entire system in May 1986. The cost of repair was estimated to be Rs.0.60 lakh (July 1987). In response to a legal notice served in October 1987, the firm disowned responsibility and stated that the supply was guaranteed only against manufacturing defects whereas the damage was due to mishandling and non-compliance of instructions given in the manual. The kiln remained unrepaired (February 1989) and further notices served on the firm were of no avail. No attempt had also been made to repair the kiln through another agency though the cost involved is marginal and would have enabled RRL to have the needed facility in the last 48 months.

No legal action for delay in commissioning had been instituted against the supplier. CSIR stated (June 1989) that the kiln was likely to be repaired by the firm and installed in July 1989 and also accepted that there were delays. The kilns procured at a cost of Rs.3.39 lakhs had not afforded any benefit to RRL and also the progress of research project on magnesium extraction - a strategic material - has been stalled.

In sum, RRL has been unable to effectively set right even a low value indigenous equipment in a period of 48 months.

48. Non-utilisation of land

In May 1970 the National Physical Laboratory (NPL), New Delhi, acquired 1.15 acres of land at Naraina Industrial Estate from the Delhi Development Authority (DDA) at a cost of Rs.2.40 lakhs for their Electronics Components Production Unit (ECPU).

ECPU was subsequently separated from NPL and set up as a public sector undertaking in June 1974 styled as Central Electronics Limited (CEL). In July 1980 it was decided by CSIR that while ownership of the land would continue to vest in NPL, CEL could develop the land and construct a building for its use for an initial period of five years. No development or construction work was however undertaken by either of the two organisations.

Till November 1979, NPL had incurred an expenditure of Rs.3.36 lakhs towards acquisition of the land and associated expenses, construction of the compound wall, and property taxes etc. Thereafter NPL has been incurring expenditure towards property tax (vacant land tax) at the rate of Rs.0.06 lakh per annum. The land acquired 19 years ago has remained idle.

CSIR accepted (October 1989) the facts and stated that the matter of handing over the land to any other sister organisation is under consideration.

49. Wasteful expenditure on selective dissemination of information service

Indian National Scientific Documentation Centre, New Delhi, started in 1978 selective dissemination of information (SDI) service and two experts were sent to Canada for operational training. However, the experts left the Centre in 1981.

From 1979 the Centre had also subscribed to three bibliographic data bases namely (i) CA Search; (ii) INSPEC and (iii) COMPENDEX for running the service. In all, Rs.21.83 lakhs had been spent for 157 CA Search tapes: (Rs.8.63) lakhs, 144 INSPEC tapes: (Rs.7.92) lakhs and 96 COMPENDEX tapes: (Rs. 5.28) lakhs during 1979 to 1988.

54 tapes, (CA Search - 41 COMPENDEX - 4 and INSPEC - 9 costing Rs.2.97 lakhs were found missing. It was stated by Indian National Scientific Documentation Centre, that some tapes had not been actually received from the foreign suppliers, some were lost due to shifting of the INSDOC, and some due to dislocation, poor storage and repeated shifting of the tapes between the Centre and the three regional centres etc.

The CSIR stated, in October 1989, that the Centre did not have compatible computer system at the time when the tapes were acquired but INSPEC and COMPENDEX tapes were put to good use by the Indian Institute of Science, and Central Machine Tool Institute, Bangalore to whom these were loaned. CSIR also stated that efforts were on to locate the missing tapes. In sum, Rs.21.83 lakhs spent on SDI did not yield commensurate benefits. There was also loss of tapes valued at Rs.2.97 lakhs.

50. Infertuous expenditure on continuance of a research Centre without a Scientist

The Regional Centre of Central Institute for Medicinal Aromatic Plant at Tung, Darjeeling, was established in 1978. The object of the centre was to cultivate aromatic plants as well as medicinal plants in this agroclimatic zone. Fifty *per cent* of the expenditure on the centre was to be borne by the State Government of West Bengal who had also agreed to allot 400 acres of land. Since only four acres of land was made available in March 1978, large-scale cultivation/field trials/research and development work could not be taken up and for this reason, it was recommended by the Institute in 1982 that the regional centre may be closed.

However, no action was taken by CSIR since closure of a research centre was stated to be very difficult. CSIR stated in April 1989 that after the Review Committee on the working of CSIR pointed out that field centres established nationwide had not served the real purpose and CSIR could divest itself of these centres and Scientific Advisory Committee to the Prime Minister also concurred with this view, CSIR appointed a special committee on restructuring of field centres in February 1988. One of the centres recommended for closure, by the special committee, was Tung centre. In September 1989, the Governing Body and the Society of the CSIR had taken a decision to close the Centre. The actual date of closure and expenditure till then has not been indicated by CSIR.

It was pointed out by Audit in July 1988 that the centre was operating without facilities and an expenditure of Rs.8.72 lakhs incurred during 1977-78 to 1987-88 was infertuous. In sum, the original centre had continued for more than ten years without adequate facilities and even without a scientist since December 1984. Even after the Institute and research council had recommended the closure of the centre, CSIR inordinately delayed the decision for more than seven years and decided to close down the centre only in September 1989.

51. Acquisition of land

- (i) National Metallurgical Laboratory, Jamshedpur a constituent unit of the paid Rs.6.30 lakhs as advance to Adityapur Industrial

Area Development Authority (Authority) in April 1973 for acquiring 90 acres of land for setting up a hydro-electric metallurgy project. The project did not materialise due to lack of funds etc. and so was approved to be closed in July 1987. Meanwhile, in April 1975, the laboratory had been given possession of 21.83 acres of land (cost: Rs.1.53 lakhs) and had been informed by the Authority that the balance 68.17 acres would be allotted after vacant possession of land was obtained for which court case had been initiated. The laboratory was also asked whether it would like to acquire some other land in lieu thereof or prefer refund of the advance. The laboratory declined to have an alternative site but preferred to have a refund of the advance only in December 1988. The CSIR stated, in November 1989, that necessary claim for refund of the cost of land was being made.

- (ii) In March 1976, the laboratory advanced a sum of Rs.2.45 lakhs to the Authority for allotment of 35 acres of land to be used for a housing colony. The Authority intimated (August 1982) that the land in question came under 'Rayati' land and therefore it would not be possible to give possession of the land. In September 1982, the laboratory approached for an alternative site. So far no land has been allotted and a formal decision is to be taken for obtaining refund of the cost of land.
- (iii) For establishment of a Central School, the laboratory paid a sum of Rs.0.70 lakh to the Authority in March 1977 and acquired 10 acres of land in January 1979. A boundary wall was also constructed in April 1980 for Rs.0.50 lakh. Though the project had the approval of the CSIR, the laboratory could not secure necessary funds and build the school. Meanwhile, the Authority took back the plot for re-allotment. An assurance was, however, given that another plot of land would be allotted when the laboratory was ready with the requisite funds. The actual expenditure on putting up the boundary wall was also promised to be refunded. In December 1988, the laboratory claimed the refund of Rs.1.20 lakhs but with no results.

Thus a sum of Rs.8.42 lakhs advanced for acquisition of land for various purposes had remained blocked for periods ranging from 12 to 16 years without any benefit to the laboratory. CSIR accepted the facts in November 1989.

52. Purchase of computer systems without software and packages

In May 1986, the Council of Scientific and Industrial Research (CSIR), decided to modernise and develop a comprehensive financial and administrative information system through introduction of computers at CSIR headquarters in New Delhi and the 39 national laboratories spread all over the country. The laboratories were to adopt the software to be developed in respect of personnel information, inventory control, pension payments, pay roll, project accounting, bank reconciliation, purchases, annual account and balance-sheet, etc. It was accepted that the laboratories would create, manage and update periodically the data and send the processed information to CSIR head quarters on floppies and the headquarters was to collect the information across the laboratories and send back the collected information on floppies to the laboratories for their reference. In order to achieve the above objective, CSIR ordered for, in February 1987 and June 1987, 40 personal computers and a major computer system - SM-32 at a cost of Rs.88.16 lakhs. 39 out of 40 personal computers were meant for the various field organisations and the major computer system along with one personal computer was meant for CSIR headquarters.

Details regarding selection of the supplier were not made available to Audit. However, Electronics System Punjab Limited (ESPL) indicated a cost of Rs.1.71 lakhs for each personal computer in July 1987. Subsequently, in July 1988, the ESPL demanded central excise duty of Rs.16,800 and surcharge on sales tax of Rs.369 per piece. In all, the price per personal computer system worked out to Rs.1.89 lakhs. In addition, Rs.0.70 lakh was also payable on the software releases and updates thereof to operate the computers. According to the agreement, 65 per cent of the total hardware and software prices were payable on proof of despatch; 31.5 per cent thereof was payable after acceptance tests and 3.5 per cent was payable after three months of the accep-

ance tests against bank guarantee for the warranty given in respect of the computers. The cost of SM-32 computer system supplied to CSIR headquarters was Rs.25.34 lakhs including excise duty. In all, the total cost of the supply amounted to Rs.100.94 lakhs. The annual maintenance cost for all the computers agreed to be paid was about Rs.7.5 lakhs.

The computers were to be delivered within a period of two to three weeks from the date of order and the software delivery was to be completed within six weeks from the date of the order. Installation and commissioning were to be completed within 12 weeks from the date of order.

There was no consensus amongst laboratories either about the need or the capability of the computer system decided to be purchased. Eight institutes/laboratories felt that the system was not required. Some refused to accept the system or refused payment after delivery. Almost all the other laboratories/institutes had other comparable computer systems which could have been used for achieving the objective. However, a decision was taken to have a single uniform system in all the laboratories.

The supply of computers was delayed and was made only during July 1987 to August 1988. By September 1988, 32 laboratories indicated that only individual units had been supplied and no networking had been done to connect the three terminals. Only in three laboratories the computers had been completely installed. There were also complaints about short supply of components, hardware failures, non-supply of software, non-supply of manuals and failure to train the staff. Due to these failures, 32 out of the 34 laboratories which had responded to the Audit query by January 1989 had indicated that only 65 per cent payment had been made. None of the laboratories/institutes had entered into the annual maintenance contract. The ESPL had failed to install the system even after 15 months of supply despite the fact that a meeting had taken place between Additional Director General, CSIR and the Managing Director of the ESPL in December 1987 wherein the ESPL was asked to settle all the pending technical problems within a period of 10 days.

SM-32 computer system installed at CSIR headquarters was first tested in July 1987 and was again tested in February 1988. The third testing was done in July 1988 and CSIR reported that the system has

not been working trouble-free since its installation.

As regards packages to be developed for specific objectives mentioned earlier, it was seen that a meeting of the working group for computerisation of accounts records was held in October 1988 and all the packages were reported to be under development. Amongst the various packages, the inventory control system and pension payment system packages were expected to be completed by December 1988 and pay roll package by November 1988. In the above meeting also it was decided that the ESPL should be asked to complete the installation of the computer system and also complete the training programme as required under the purchase contract. The computers had not been installed (July 1989).

While a consolidated order was placed by the CSIR headquarters, the monitoring of supply, installation and commissioning was poor and the individual laboratories were asked to fend for themselves. Many laboratories had complained that the response from the supplier was poor. Eleven laboratories which did not have suitable accommodation for housing the computer indicated that they had spent Rs.6.52 lakhs on airconditioning, construction, etc. All the laboratories had not responded to the Audit query in this regard.

Three laboratories indicated that they had paid Rs.0.70 lakh each for the operational software like LOTUS, etc. In the absence of other packages to be developed by CSIR for specific objectives, neither the hardware nor the software was being put to use.

In sum, Rs.82.87 lakhs had been spent without the computers being used. Even when the individual laboratories had a comparable system available to them the new system was ordered for, which was not prudent and the objective of modernisation of financial and administrative information systems has not been achieved.

CSIR stated, in October 1989, that the system has since been commissioned in 35 laboratories and is partially installed in three laboratories leaving out two laboratories where it has not been installed, but there were some problems in net working in some of laboratories. Certain soft-ware packages have

been developed and are in use in some of the laboratories and packages relating to social welfare accounting and financial accounting were under intensive testing. A meeting has already been held with ESPL on installation of SM-32 system and remedial steps suggested by them, have been put through. As a result of these measures, the Headquarters system was now fully operational. CSIR was awaiting reports from the field laboratories regarding the net working of individual units with the Headquarters computer.

DEPARTMENT OF SCIENCE AND TECHNOLOGY

Indian Association for Cultivation of Science

53. Import of spectrophotometer

Indian Association for the Cultivation of Science, Calcutta, a grantee institution, procured one spectrophotometer with accessories in June 1978 from a foreign firm at a cost of Rs.4.40 lakhs including agency commission of Rs.0.39 lakh. The service engineer of the foreign firm commissioned the equipment in June 1979 but it was not performing satisfactorily. In May 1981 the Association reported that the spectrophotometer was lying idle. Spares worth Rs.0.49 lakh were purchased in 1981 and 1982. In November 1982, the service engineer of the supplier failed to operate the machine when it was found that the electronic system of the equipment had gone out of order. In May 1983, the foreign engineer again worked on the instrument but with no avail. In October 1985, the Association observed that the instrument, which was giving continuous trouble from the day of its installation, was unworkable. The Indian agent was informed that interferometer may need realignment. The Indian agent observed (October 1985) that the instrument was the only one of its kind in India and was not being manufactured any more. In February 1986, the Association again reported that the instrument was not working even after restoration of the delay line by the foreign firm in November 1985. In March 1987, the delay line was once again found to be not working and meanwhile in July 1985 the agency had been transferred to another Indian firm who, in August 1988, stated that despite attempts made by the

engineer of the foreign supplier in November and December 1987, the equipment still remained out of order.

The department stated, in June 1989, that when the spectrophotometer worked, good research was done

and some research papers had also been published. But the fact remains that the spectrophotometer has been defective from the very beginning and during the last 11 years it has not provided the anticipated benefits to the Association. No legal remedy had also been resorted to by the Association.

CHAPTER IV

DEPARTMENTALLY MANAGED GOVERNMENT UNDERTAKINGS

54. Position of Proforma Accounts

On 31st March 1989, there were two departmentally managed government undertakings of commercial and quasi commercial nature namely Heavy Water Pool Management and Nuclear Fuel Complex under scientific departments.

The financial results of these undertakings are ascertained annually by preparing proforma accounts outside the general accounts of government.

With the formation of Nuclear Power Corporation of India Limited with effect from 17th September 1987, the proforma accounts in respect of Tarapur Atomic Power Station, Madras Atomic Power Station and Rajasthan Atomic Power Station II are to be prepared by the respective Atomic Power Station authorities upto the period ending 16th September 1987. Proforma accounts of Rajasthan Atomic Power Station II for the years 1985-86 to 1987-88, (upto September 1987), Madras Atomic Power Station for the year 1986-87 and 1987-88 (upto September 1987) and revised accounts in respect of Tarapur Atomic Power Station for the year 1986-87 and 1987-88 (upto September 1987) are still awaited (October 1989).

A synoptic statement showing the summarised financial results of all the departmental undertakings on the basis of their latest available accounts is given in Appendix XI. It will be seen that the proforma accounts in respect of Heavy Water Pool Management for the years 1982-83 onwards has not been received (October 1989). The accounts of Nuclear Fuel complex for the year 1986-87 and 1987-88 have also not been received (October 1989).

DEPARTMENT OF ATOMIC ENERGY

55. Unnecessary import of pumps

Tarapur Atomic Power Station (TAPS) had imported four clean up pumps for two units of the

power station. Since the performance of these pumps was found to be deteriorating, efforts were made to refurbish these with the help of two Indian firms. Since only two pumps could be refurbished, the department decided in July 1977 to purchase two more pumps from a foreign firm 'B'. The performance of refurbished pumps was also found satisfactory but the department was not certain of the continued working of these pumps for a period of three to four years and hence, decided to import one additional pump and a telex intent was sent to a foreign firm on 31st March 1984 which was acknowledged on 3rd April 1984. On 4th April 1984 the Engineer-in-charge, TAPS requested the department to hold back the letter of intent since there was a possibility of carrying out satisfactory repairs to the original pumps purchased earlier. While this telex was sent to TAPS, the indenting officer reiterated on 7th April 1984 that the order should be cancelled as the cost involved was very high (Rs.62.29 lakhs), and the Indian firm had assured the availability of rotor for repairing the pumps. When the Power Project Engineering Division of the Department was appraised of the matter, it was decided in April 1984 that the cancellation of the order would mean loss of credibility for the department in the international market, and so the order should hold firm. Ultimately a regular purchase order was placed in July 1984. By the time the pump and spares were delivered in December 1985 the cost rose to Rs.106.55 lakhs due to exchange rate variation. The stores were lying idle and Rs.106.55 lakhs remained blocked for more than three and a half years. The guarantee period for quality and workmanship of the pump had also expired in December 1988.

The Nuclear Power Corporation of India Limited to which TAPS had been transferred stated in February 1988 that the pump was procured as a standby arrangement.

The department stated in November 1989 that by the time the order was placed the indigenous capability to refurbish the pumps had not been fully

established though the notings in the file had mentioned of such possibilities. To avoid any revenue loss due to stoppage of generation of power, the stand by generator was ordered and efforts were being taken to instal the pump. The reply was not tenable

as the availability of rotor for the pump and capability to repair the pump in India in case of need had been proven seven years before the order was placed and the indentor himself had advised cancellation of the order.

New Delhi

The 1 MAR 1990




(S. SATHYAMOORTHY)

Director of Audit-II,

Commerce, Works & Miscellaneous

Countersigned



New Delhi

The 7 MAR 1990

(T.N. CHATURVEDI)

Comptroller and Auditor

General of India

APPENDIX - I
INSTANCES OF DELAY IN SANCTIONING OF SCHEME
(Refers to paragraph 8.7.1)

S.No.	Name of the scheme	Date of submission of Project Report	Amount sanctioned (Rs. in lakhs)	Date of sanction	Time taken to sanction the scheme
1.	Tapping of water flow dwelling, Haridwar, U.P.	February 1986	19.90	August 1986	5 months
2.	Laying of relieving sewer in Kydganj Area, Allahabad, U.P.	March 1986	22.17	August 1986	5 months
3.	Micro Level intensive monitoring of River Ganga at Allahabad, U.P.	June 1986	8.43	November 1986	5 months
4.	Interception of Mansarovar drain, Varanasi, U.P.	September 1986	52.12	April 1986	7 months
5.	Renovation of kunds/talabs Varanasi, U.P.	October 1986	23.10	July 1987	7 months
6.	Low cost sanitation, interception of sewage and human excrementa at Pacca Mahal, Varanasi, U.P.	July 1986	22.07	February 1987	7 months
7.	Walking platform from Prahlad Ghat to Rajghat Panchkashi Marg, Varanasi, U.P.	February 1986	29.25	January 1987	11 months
8.	River front development, Nabadweep, (West Bengal)	August 1986	48.20	July 1987	11 months
9.	Low cost sanitation, Nabadweep, (West Bengal)	August 1986	37.92	July 1987	11 months
10.	River front development, Banskheria	May 1986	2.12	December 1986	7 months
11.	Inception and diversion Scheme Zone II, Titagarh	October 1986	68.15	June 1987	8 months
12.	Interception and diversion and treatment scheme for South Suburban (East), Calcutta	November 1986	791.00	June 1987	7 months

APPENDIX - II
SCHEMES NOT COMPLETED WITHIN SCHEDULED DATES
(Refer to Paragraph 8.7.2)

S.No.	Name of Scheme	Sanctioned cost (Rs. in lakhs)	Date	Scheduled date of start	Scheduled date of completion	Anticipated/actual date of completion	Slip-page
1.	Renovation and re-commissioning of Saidpur Sewage treatment plant and setting up of Laboratory, Patna, Bihar.	159.32	October 1985	November 1986	September 1987	Completion Report not available (July 1989)	21 months
2.	Recommissioning of BEUR STP Patna, Bihar	25.65	October 1985	Not available	September 1987	Completion Report not available (July 1989)	-do-
3.	Diversion of waste water from Mithapur PS to BEUR STP Patna, Bihar	86.84	November 1986	January 1987	December 1987	Included in the completion report of July 1989. Hence presumed completed in July 1989.	18 months
4.	Intercepting sewer connection of etc. Zone I, Chandan Nagar, West Bengal	93.45	December 1985	July 1986	October 1987	Completion Report awaited in July 1989	13 months
5.	Intercepting sewer connection of etc. Zone II, Chandan Nagar, West Bengal	94.72	December 1985	July 1986	October 1987	Completion Report awaited in July 1989	12 months
6.	Intercepting sewer connection of etc. Zone III, Chandan Nagar, West Bengal	90.61	December 1985	June 1986	November 1987	Completion Report awaited in July 1989	18 months
7.	Trunk sewer and pump house Phase-I Chapra 001 (Bihar)	82.51	October 1986	March 1988	May 1988	Completion still awaited.	13 months
8.	Renovation of trunk and pump house Phase-I Chapra (Bihar)	34.69	May 1987	Not available	February 1988	Completion shown in March 1989 Status Report	18 months
9.	Interception and diversion of sewage from Patna Medical College, Patna	6.34	May 1987	Not available	Dec. 1987	Completion shown in March 89 Status Report	More than a year
10.	Low cost sanitation Chapra, Bihar	33.78	September 1986	Not available	May 1988	Completion shown in March 1989 Status Report	10 months

APPENDIX - III

ANTICIPATED DATE OF COMPLETION EXTENDED FROM TIME TO TIME

(Refer to paragraph 8.7.2)

S.No.	Name of the Scheme	Date of sanction	Scheduled date of completion	First revised date of completion	Second revised date of completion	Present status	Remarks
1.	New sewer pumping station at Krishna Ghat including additional work for special repair, Patna	November 1985	June 1987	June 1988	August 1988	Reported (March 1989) to have been completed.	The anticipated dates of completion are based on reports of the Consultants upto June 1988 as only these were made available to Audit.
2.	New sewer pumping station at Antaghat etc. Patna.	November 1985	April 1987	May 1988	October 1988	-do-	
3.	Recommissioning of Exhibition Road pumping station (Part I & III), Patna.	June 1987	April 1988	Aug. 1988	October 1988	Completion Report still awaited.	
4.	New pumping station at Pirmohani, Patna	June 1986	June 1987	May 1988	September 1988	-do-	
5.	Diversion of waste water from Mithapur P.S to BEUR STP, Patna.	November 1986	December 1987	June 1988	November 1988	-do-	
6.	Recommissioning of BEUR STP, Patna.	October 1985	September 1987	June 1988	July 1988	-do-	
7.	Interception and dimension (Part I), Bhagalpur.	March 1988	June 1989	July 1989	March 1990	-do-	

APPENDIX - IV
OUTSTANDING UTILISATION CERTIFICATES
(Refers to paragraph 22.2)

Ministry/Department	Period to which grant relates (upto September 1988)	Number of utilisation certificates outstanding at the end of March 1988	Amount (in lakhs rupees)
1	2	3	4
Atomic Energy	Upto September 1987	-	Nil
Electronics	1976-77	35	44.00
	1977-78	52	238.16
	1978-79	64	308.00
	1979-80	137	385.00
	1980-81	130	327.00
	1981-82	194	644.00
	1982-83	108	309.46
	1983-84	137	335.52
	1984-85	201	1757.45
	1985-86	128	1215.93
	1986-87	202	1680.00
	1987-88	168	8326.16
		-----	-----
		1556	15570.68
		-----	-----
Environment and Forests	1980-81	31	36.95
	1981-82	91	53.98
	1982-83	142	171.90
	1983-84	100	134.29
	1984-85	501	959.11
	1985-86	122	224.08
	1986-87	349	3410.01
	1987-88	753	2161.86
		-----	-----
		2089	7152.18
		-----	-----
Ocean Development	1981-82	4	190.00
	1982-83	4	50.26
	1983-84	32	384.01
	1984-85	64	240.82
	1985-86	96	247.72
	1986-87	116	431.83
	1987-88	65	636.97
		-----	-----
		381	2181.61
		-----	-----
Science and Technology	1976-77	8	22.20
	1977-78	61	66.49
	1978-79	166	267.91
	1979-80	228	373.26
	1980-81	383	414.45
	1981-82	480	655.47
	1982-83	725	780.80
	1983-84	790	580.63
	1984-85	899	1524.57
	1985-86	1185	2688.99
	1986-87	1898	3580.48
	1987-88	2527	4511.17
		-----	-----
		9350	15466.45
		-----	-----

(i) Non-Conventional Energy Sources	1983-84	393	1498.07
	1984-85	698	2942.42
	1985-86	776	5696.68
	1986-87	907	5407.75
	1987-88	1055	5356.82
		-----	-----
		3829	20901.75
		-----	-----
(ii) India Meteoro- logy Department	1986-87	1	0.19
	1987-88	1	0.10
	1988-89	2	12.90

		4	13.19
		-----	-----
Space	1976-77	1	0.05
	1977-78	1	0.15
	1978-79	2	0.08
	1979-80	5	0.39
	1980-81	12	1.35
	1981-82	11	6.32
	1982-83	35	19.55
	1983-84	39	19.63
	1984-85	81	30.77
	1985-86	59	38.15
	1986-87	73	34.09
	1987-88	81	50.59
	1988-89	50	64.42

		450	295.54
		-----	-----

APPENDIX - V
IDLING OF SCIENTIFIC PERSONNEL
(Refers to paragraph 23.7)

S.No	Division	No. of Scientists	No. of Scientist months lost	Amount (Rs. in lakhs)	Remarks
1.	Mycology & Plant Pathology	(a) 4	80	2.60	Scientists joined in May 1985, February 1986, December 1986 and January 1987 respectively, Research proposals submitted to RC in December 1987 and approved in January 1988.
		(b) 1	96	2.50	No work was done. The scientists attributed (May 1988) this to diversion of funds and staff by the Project Coordinator.
2.	Project Coordinator, Nematodes	1	50	1.95	According to Project Coordinator (July 1988) scientist joined in November 1983 but started working from 1985 and after the approval of the competent authority and submitted RPF II and III. Research Planning and Coordination Cell of the IARI stated (July 1988) that the scientist was not working on any project.
3.	Agricultural Physics	2	48	1.40	IARI stated (September 1989) that RC has decided in 1981 to start work on remote sensing. So the project started in 1981. According to RPF II of 1981 and 1982 no work was done. RC approved the project only in January 1983.
4.	Seed Technology/ Central Seed Testing Laboratory	2	76	2.88	Scientists joined in January 1984 and March 1985 respectively. One was assigned a project in July 1986 and the other was not. IARI stated (November 1989) that the second scientist was also engaged on various research problems.
5.	Bio Technology Centre	1	36	0.56	Work not started as location of the project is not decided.
6.	Nematology	(a) 1	35	1.48	Scientist joined in March 1984 and left in January 1987. When approval of RC was not obtained for any research project.
		(b) 1	10	0.35	Joined the division in March 1987 and resigned in December 1987. No work was assigned.
7.	Agro-energy Centre	(a) 1	35	1.80	Joined in November 1983 and retired in September 1986. No work was done as the project was not approved by the RC.
		(b) 5	100	4.90	Three scientists were transferred to other divisions, and one retired. No work was carried out as no approved research projects were assigned to them. IARI accepted the facts (November 1989).
8.	Project Coordinator, Maize	6	234	9.05	Five research projects submitted in 1987 remained to be approved by RC. IARI stated (November 1989) that due to shortage of time project could not be taken up for consideration by RC.
9.	Entomology	1	25	1.20	Earlier project on which the scientist was working terminated in May 1986. Since then, he had not worked on any approved project.

10. Bio- Chemistry	(a) 2	72	2.80	IARI stated (April 1988) that the projects terminated in December 1983. Extension proposal was not approved. New project started from January 1987 was approved by RC in September 1987.
	(b) 1	96	2.80	IARI was not aware (January 1989) of the project on which the scientist was working.
	(c) 1	19	0.54	Joined in June 1985 but assigned a project in December 1986, project was terminated without formal approval of RC.
	(d) 1	19	0.60	The earlier project terminated in 1985. No project was assigned till his transfer to Wheat Directorate in July 1986.
11. Floriculture and Landscaping	(a) 4	143	5.08	The scientists joined in November 1983, April 1983, June 1986 and May 1987 respectively. No research was assigned. New projects proposed in October 1987 were approved by RC in January 1989.
	(b) 1	24	1.04	Joined the division in April 1984 and sought retirement in March 1986. No research was assigned.
12. Agricultural Extension	(a) 11	480	20.80	No research project was sanctioned from 1984 to 1988. Nine proposals were in the final stage of approval by the RC.
	(b) 3	86	3.10	Two scientists joined in March 1985 and July 1985 respectively. The third joined in April 1986 and resigned in December 1986. No research work was assigned to them till July 1988.
13. Vegetable Crops	(a) 1	27	1.56	Earlier project was terminated in April 1983. No new project was formulated when the scientist retired till July 1985. IARI stated (August 1989) that the project was extended by the RC in February 1986.
	(b) 1	37	1.44	Scientist joined the division in July 1985. No research project has been assigned so far (July 1988). IARI stated (August 1989) that since new projects were not entertained by the RC, the scientist was deployed from November 1986 on Indo-US Project on Post Harvest Technology.
14. Regional Centre at Bangalore	1	37	1.39	Scientist informed IARI in June 1984 that he had no approved project during January 1981 to January 1984, and hence no RPFs. IARI stated (September 1989) that the scientist was engaged on administrative responsibilities.
15. Agronomy	2	74	3.15	The scientists were not working on any research project. IARI stated (September 1989) that the scientists devoted their time in preparing research proposals from November 1985 to December 1987 for a workshop.
16. Water Technology Centre	5	87	2.40	IARI stated (August 1989) that one scientist worked on the project connected with his Ph.D. work which was not approved by the RC. For others neither project reports nor information regarding their association in any project were available.
17. Agricultural Engineering	2	73	2.30	These scientists were not assigned any project prior to January 1988. The IARI stated (August 1989) that the scientists were engaged on training programmes and extension work for nearly 83 days during the period August 1985 to December 1987.
18. Agriculture Chemistry	1	59	1.30	Scientists had no approved project. IARI stated (January 1989) that approval for engaging the the scientist in two divisional projects was communicated in July 1988.
19. Nuclear Research Laboratory	5	182	4.80	These scientists had no approved research project. IARI stated (September 1989) that the scientists were assigned the project from August 1987 which was approved by RC in July 1988.

APPENDIX -VI
SCIENTISTS WORKING ON UNAPPROVED PROJECTS
(Refers to paragraph 23.7)

S. No.	Name of the Division	No. of scientists	Name of the project and period	Estimated cost (Rs. in lakhs)	Remarks
1.	Fruit and Horticulture Technology	1	Improvement of citrus (acid lime) (March 1985 to December 1988)	1.50	IARI stated (October 1989) that the project was approved by RC in April 1989 as a sub-project with the date of start as July 1987.
2.	Mycology and Plant Pathology.	1	Investigation on bacterial disease of mung bean (January 1980 to March 1986)	3.00	Project was approved by the Joint Director (Research) in April 1984. Division stated that RPF I was delayed due to detailed discussions and modifications suggested by the BRC. However RC, ultimately rejected the project but work was carried on.
3.	Mycology and Plant Pathology	2	Role of Vesicular Arbuscular growth with special reference to Maize and Urid. (January 1984 to December 1987).	2.20	Project proposal sent in August 1984 was not approved by RC. However a new project to be started from January 1988 was approved by the RC in January 1989.
4.	Regional Station, Katrain.	1	Bulbuous ornamental crops and their improvement (March 1986 to May 1987)	0.70	Project proposal submitted in September 1986 was not approved by RC. The scientist transferred in May 1987 and project abandoned. IARI accepted the facts (November 1989).
5.	Plant Physiology	1	Plant growth and development in relation to Biological Nitrogen fixation (July 1981 to June 1985)	3.00	The Project proposal and the annual progress reports for 1981 to 1984 were approved by the Joint Director (Res.) in January 1986. Project was not approved by RC. IARI accepted the facts (November 1989).
6.	Regional Station Indore	2	Development of agro-techniques for dry land (black cotton soil) for Central Zone. (May 1984 to July 1988)	2.56	Project proposal submitted to RC in May 1984 was not approved.
7.	Regional Station Indore	1	Collection, maintenance, evaluation and cataloguing of wheat germ-plasm (August 1983 to July 1987).	1.88	Project was approved by the BRC in March 1985. RC did not take any decision. RPFs were therefore not submitted.
8.	Agricultural Extension	3	A study of the Technoeconomic and socio-personal constraints in adoption of improved mustard technology (December 1982 to December 1987)	2.97	Faculty decided in October 1982 that problem oriented research should be carried out instead of the earlier approved project. As the sowing period was to start shortly the project was started without waiting for approval of the RC. IARI accepted the facts (November 1989).

APPENDIX VII
PREMATURE TERMINATION OF RESEARCH PROJECTS
(Refers to paragraph 23.7)

S.No.	Name of the Division	No. of scientists	Name of the project and period	Unfruitful expenditure	Remarks
1.	Fruit and Horticulture Technology	1	Rootstock studies in stone fruits (January 1979 to December 1985)	0.35	Project Leader went on deputation in March 1980. On return in May 1983, he started a different project. IARI stated (October 1989) no other scientist could be assigned the project and the project was suspended on March 1980.
2.	Fruit and Horticulture technology	1	Improvement of minor fruits Ber and phalsa (1979 to 1985)	2.86	Project was abandoned in 1985 when the project leader was transferred. The evaluation report (1984) stated that the scientist touched periphery of a number of problems without depth. Even the rootstock collected had not been identified. Division stated that Ber and phalsa were perennial fruits and a new variety cannot be evolved in a short time.
3.	Fruit and Horticulture technology	1	Improvement in Guava Orchardng (January 1979 to December 1989)	1.43	RPF II for 1983 indicated that seedlings could not be evaluated as fruits were stolen and flowering or fruiting could be produced in high density orchard. The project was abandoned due to retirement of Project Leader in June 1986. RPF II from 1984 to 1986 not submitted. IARI accepted the facts (October 1989).
4.	Entomology	2	All India Multi-locational research programme on Acralogy (Destructive mite pests and predatory mites) (October 1984 to December 1987)	1.82	Project abandoned in October 1986 without completing the technical programme. IARI stated (August 1989) that the research associate had left and two posts remained vacant.
5.	Mycology and Plant Pathology	3	Tristeza and greening disease of citrus and their management by selection of rootstock, use of chemicals and vector control (January 1974 to December 1985).	5.00	No progress report was submitted. Services of the Project Leader were terminated in April 1983. One associate retired in August 1981 and the other joined P.G. School (September 1979).
6.	Mycology and Plant Pathology	2	Investigation on viral diseases of Cucurbit (January 1980 to December 1985)	1.79	Project Leader proceeded on deputation in April 1981. Another scientist allotted to this project in July 1981 was transferred in March 1984.
7.	Agronomy	3	Development of Maize production technology (June 1977 to April 1985)	7.86	Project Leader and associates transferred to AICRP and project abandoned. Project Leader informed (February 1984) that facilities were not provided to complete the project. Division stated (April 1989) that another project leader was appointed in 1983 but he had not submitted the RPFs. The original project leader and his associate were not assigned any project from June/July 1983 to March 1988.

8.	Genetics	1	Mutation as cellular process in E.Coli and Azotobacter (July 1976 to December 1986)	3.10	Project abandoned in April 1983 as the Scientist proceeded on deputation abroad. On his return in April 1984, he was not assigned any project till April 1985. He was transferred to Bio-technology Centre and a new project was assigned only in January 1987.
9.	Genetics	3	Metagenesis as a tool for breeding the negative co-relatives between quantitative characters determining yield and quality in bread wheat (November 1976 to November 1986).	6.36	Project abandoned due to the transfer of the leader in August 1984. One of the associates retired in 1983 and the other transferred to Seed Technology Division in 1985. RPFs was yet to be submitted (July 1988). Project leader was re-transferred to Genetics Division in April 1987, but no project has been assigned. IARI stated (October 1989) that a new project was assigned to him in January 1989.
10.	Project Directorate Wheat	1	Studies on phenotypic stability for grain quality of Indian Wheats (September 1982 to September 1987)	1.20	Project was abandoned in 1986 without achieving any result since the scientist was transferred to CSTL where a new project was assigned from July 1987.
11.	Bio-chemistry	2	Utilisation of unconventional waste agricultural products (Cucurbit seeds) 1980 to 1987	3.70	Project Leader retired in October 1985 and the project was terminated.
12.	Vegetable crops	1	Screening, evaluation and breeding resistance of leaf curl virus of tomato (November 1982 to October 1985 and extended upto May 1986).	6.65	Project funded by Department of Science and Technology. ICAR recommended extension for two years. DST extended only upto May 1986. Due to the retirement of the Principal Investigator, project terminated in February 1986. Unspent balance of Rs. 4.78 lakhs not refunded. IARI stated (August 1989) that refund is being made to DST.

APPENDIX -VIII
NON IMPLEMENTATION OF APPROVED TECHNICAL PROGRAMME
(Refers to paragraph 23.7)

S. No.	Name of Division	Name of the project and period	No. of Scientists	Expenditure (Rs in lakhs)	Remarks
1.	Agricultural Physics	Improvement of soil physical conditions to increase production of problematic areas	3	16.00	A Review Committee constituted by ICAR in April 1980 opined that the project staff had no interest in the project work and the technical programme was not carried out. Even after 13 years, the basic objective to identify the problem areas in this field in the Union territory of Delhi was not undertaken. Committee recommended in 1981 to close the centre but it continued with two scientists, two technical assistants and beldars. The annual report of the AICRP for 1983-84 graded the overall work of this centre as 'poor'. The principal investigator and scientists working at Delhi centre left the project in February 1986. New scientists were assigned the work from that date. Division had no knowledge of RC report. Only on receiving the Audit memo (June 1988) the report was obtained. IARI accepted the facts (September 1989).
2.	Agricultural Physics	X-Ray analysis of the crystal structure of biological molecules (July 1981 to June 1986)	1	1.03	Not undertaken for lack of Weisenberg Camera and lack of funds. IARI accepted the facts (September 1989).
3.	Mycology and Plant Pathology	Management of major diseases of wheat (rust, bunt and yellow dwarf) by resistance breeding and chemicals (1980-1985)	5	3.68	Preliminary studies conducted during 1981. Most of the work was on rust diseases and not on Karnal bunt, which was contrary to the decision of the RC taken in October 1984. IARI stated (July 1988) that the incidence of Karnal bunt was negligible in 1982 to 1984. Baycor treatment results were obtained only for 1981. A separate project on Karnal bunt had been started from 1987-88 under PL 480 programme. One of the associates of the project abandoned the project in 1981. IARI approval was communicated in November 1987. IARI accepted the facts (August 1989).
4.	Mycology and Plant Pathology	Investigation on fungal diseases of tomato with special reference to wilt. (1981-1987)	1	1.01	Approved technical programme commenced after August 1983, and programme implemented earlier was unfruitful. According to the project leader, no land was allotted for the project from 1985 to 1987. Evaluation report for 1986 also indicated that there was no wilt in tomato at IARI farm which indicated that the technical programme could not be implemented. IARI accepted the facts (September 1989).
5.	IARI Regional Station Karnal	All India Coordinated Barley improvement project	2	15.00	In 1986-87, data could not be analysed in time due to the transfer of staff. Due to lack of funds, experimental seeds could not be sent to the cooperative centres and testing centres in time. Consequently, trials were repeated in 1987-88. Project Coordinator alleged non-cooperation of IARI at the annual Barley Workshop in October 1987 and sought ICAR intervention.
6.	Genetics	Improvement of Triticals & Wheat through the utilisation of allied species and Genera. (December 1976 to December 1986)	1	2.85	RPF II for 1980 and 1981 did not indicate any progress. Evaluation report for 1981 stated that the contribution of the scientist was not clear. RPF II from 1982 to 1985 were not submitted. In June 1986, the scientist was transferred to another project. IARI accepted the facts (September 1989).

7. Genetics	Cytochemical and cytogenetical studies on distant hybridisation in Jute, Brassica & Cotton (July 1976 to July 1986)	5	17.00	RPF for 1983 stated that the project suffered for want of facilities and non availability of land. IARI stated (September 1989) that it may not always be possible to allot land at the most appropriate time due to rotation of crops.
8. Nematology	Studies on entomophilic Nematodes (January 1977- December 1984)	1	2.75	Only survey work in IARI farm was carried out and the work suffered due to constraints of manpower, vehicle and facilities for insect rearing. IARI accepted the facts (August 1989).
9. Agricultural Engineering	Improvement of bio-gas-generation and utilisation (November 1979 to December 1985).	3	1.96	Civil Engineer was not appointed. IARI stated (November 1989) that other institutions have taken up detailed studies on design of bio-gas plant and so structural aspects need not be studied further.
10. Bio-Chemistry	Biological evolution of Protein quality & chemicals score of aminoacids of newly developed varieties of cereals. (July 1982 to December 1987)	1	4.85	Facility and equipments were not provided. Project was terminated in April 1985.

APPENDIX - IX
IMPROPER IMPLEMENTATION OF RESEARCH PROGRAMMES
(Refers to paragraph 23.7)

S. No.	Name of the Division	No. of scientists	Name of the project & period	Amount (Rs. in lakhs)	Remarks
1.	Fruit and Horticulture Technology	1	Standardisation of citrus rootstocks (1966 to 1987)	6.95	It was stated (May 1988) that the work done upto 1978 was pooled to have preliminary information. Thus, after 22 years a standardised rootstock was yet to be identified and recommended. IARI stated (October 1989) that trials on a few selected rootstocks have been undertaken under a new project from January 1988.
2.	Fruit and Horticulture Technology	3	Development of high density orchards in mango and citrus (1979 to 1986)	1.45	In July 1979, citrus plants were planted. In 1980, gap filling was done in some cases. In 1981 and 1982 the project was kept in abeyance as one of the associates went on deputation abroad though the project leader and another associate were available. The project leader retired in January 1983 and the associate who returned from abroad reported (1983) that a number of plants had died for unknown reasons. 500 seedlings were raised in the nursery during 1984 and planted during 1985. Thus, work done from 1979 to 1983 proved infructuous. IARI accepted the facts (October 1989).
3.	Fruit and Horticulture Technology	3	Propagation techniques in fruit plants (Mango and guava) and rootstocks studies (January 1979 to January 1989)	2.43	Project terminated in December 1986 and the project leader retired in January 1987 without submitting final report. No research papers or reports were brought out. Division commented (1985) that the work done was minimal and contained no data. IARI accepted the facts (October 1989).
4.	Fruit and Horticulture Technology	5	Improvement of mango by breeding (1978 to 1987)	5.82	There were frequent changes of project leader and associates. No new improved varieties of mango were introduced during the last 10 years. The division stated (May 1988) that it was not possible to develop a variety but there were some promising hybrids under testing. IARI stated (October 1989) that release of hybrid- Amrapali (1979) could be considered as an achievement.
5.	Agricultural Engineering	1	Design and Development of Pusa Reaper (December 1968 to December 1988)	9.50	RC noted (1980) that the machine which had been patented in 1969 was only prototype and cannot be used by farmers. ICAR also noted that no test report was given. In the RC meeting of July 1981, it was pointed out that the scientist concerned had been defying the directives and finding excuses for not making progress since 1969. It was also pointed out that private manufacturers had marketed reapers based on similar concept but given up due to non acceptance by the farmers. The project was terminated in July 1981. But revived in December 1986 by Director IARI. Scientist has not submitted the project proposals or RPFs (July 1988). IARI accepted the facts and stated (August 1989) that the high level committee appointed by ICAR in 1987 to look into the performance of the project leader, submitted its report in May 1988. The decision of ICAR was awaited.
6.	Floriculture and Landscaping	1	Investigation on Genetical and other methods of improvement of yield and quality of rose oil in India (April 1982 to March 1987)	2.78	In January 1987, it was stated that due to delay in the implementation of the schemes, the identification of superior clones was still continuing, breeding programme was yet to be taken up and the experiment on pruning, spacing etc. were still in preliminary stages. The project was terminated in March 1987. ICAR scientific panel observed (May 1987) that the progress was not satisfactory. IARI continued to book the expenditure (Rs. 2.36 lakhs). IARI accepted the facts (August 1989).

APPENDIX - X
BREEDER SEED PRODUCTION OF IARI VARIETIES
(Refers to paragraph 23.8)

Crop	Year	Variety	Breeder seed Produced/allocated for Production		
			1985-86	1986-87	1987-88
Wheat	1983	HD 2278	-	-	-
		HD 2281	-	-	-
		HI 617 (Sujatha)	42.00	38.00	25.00
		HI 784 (Swati)	-	-	-
	1985	HD 2285	62.00	768.00	350.80
		HD 2329	467.00	781.29	140.00
		HD 2307	1.00	0.50	1.00
		HD 2327	-	3.55	-
	1988	HD 2270	-	3.85	4.01
		HD 2402 977	-	2.80	-
Rice	1986	Pusa 169	-	-	-
		Pusa 205	-	-	-
Maize	1984	Diara-3	-	0.24	0.80
		Pusa Kundan	-	-	-
		Pusa Chandan	-	-	-
		D-765	-	-	0.20
		Maize early composite	-	15.00	65.00
		Pusa Chandrika	-	-	-
	1986	Pusa Prakash)	-	-	-
		MCV-508)	-	-	-
		M.L. Makka-41	-	-	-
	1987	Pusa Arun	-	-	-
	1988	Ganga 11	-	-	-
		Dhawal Composite	-	-	-
		Composite I	-	-	-
		Composite II	-	-	-

APPENDIX - XI

SUMMARISED FINANCIAL RESULTS OF DEPARTMENTALLY MANAGED GOVERNMENT UNDERTAKINGS

(Refers to Paragraph 54)

Sl No.	Name of the Undertakings	Period of Accounts	Government Capital	Block Assets (Net)	Depreciation todate	Profit(+) Loss (-)	Interest on Govt. capital	Total return	Percentage of total return to Mean Capital	Remarks
(in Lakhs of Rupees)										
1.	Tarapur Atomic Power Station, Bombay	1986-87	8808.48	3578.90	4431.38	(+)2212.71	1179.14	3391.85	17.84	Nuclear Power Corporati of India had been request ed in October 1989 to send the revised account for 1986-87 and 1987-88 (Upto September 1987) for certification/ checking.
2.	Heavy Water Pool Management, Bombay	1981-82	9829.11	1.10	0.84	(+) 148.10	550.78	698.88	7.99	The proforma accounts for the year 1982-83 onwards are awaited. Department has been reminded in October 1989.
3.	Madras Atomic Power Station, Kalpakkam	1985-86 MAPS-I	11301.74	9410.52	797.29	(+) 856.38	959.95	1816.33	14.23	Revised accounts under certification.
		(21-3-86 to 31-3-86) 1986-87	11049.94 23009.26	10834.25 19786.63	11.70 1569.34	(+) 46.33 (-) 742.41	28.16 1952.24	74.49 1209.83	0.64 4.95	
4.	Nuclear Fuel Complex, Hyderabad	1985-86	4743.66	3581.38	267.99	(-) 1997.41	1140.39	(-)857.02	-	Figures are based on un-audited proforma account Accounts for 1986-87 & 1987-88 are yet to be furnished.
5.	Rajasthan Atomic Power Station, Kota	1984-85 1985-86 1986-87 1987-88 (upto 16-9-1987)	17671.06	12856.55	3759.60	(-) 1852.06	1736.10	(-)115.96	-	Accuracy of figures in the proforma accounts awaited from the Department since large-scale changes in 1984-85 figures were found necessary. Proforma accounts for the year 1985-86 to 1987-88 (upto September 1987) are awaited. Department had been reminded in October.

