STANDING COMMITTEE ON ENERGY

(2002)

THIRTEENTH LOK SABHA

TWENTY SEVENTH REPORT

DEPARTMENT OF ATOMIC ENERGY

DEMANDS FOR GRANTS (2002-2003)

Presented to Lok Sabha on 23.4.2002

Laid in Rajya Sabha on 24.4.2002

LOK SABHA SECRETARIAT
NEW DELHI
April, 2002/Chaitra, 1924 (Saka)

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* Nominated to the Committee w.e.f. 5th March,2002
** Nominated to the Committee w.e.f. 17th January, 2002

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2.	Shri P.K.Bhandari	Director
3.	Shri R.S.Kambo	Under Secretary
4.	Shri P.C.Tripathy	Assistant Director

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* Ceased to be Member of the Committee w.e.f 9th April, 2002 consequent upon his retirement from Rajya Sabha

** Ceased to be Member of the Committee w.e.f 2nd April, 2002 consequent upon his nomination to the Standing Committee on Defence.

*** Nominated to the Committee w.e.f. 7th February,2002

@ Ceased to be Member of the Committee w.e.f. 4th January,2002 consequent upon his nomination to the Standing Committee on External Affairs.

@@ Nominated to the Committee w.e.f. 21st January, 2002

INTRODUCTION

I, the Chairman, Standing Committee on Energy having been authorized by the Committee to present the Report on their behalf, present this Twenty Seventh Report (Thirteenth Lok Sabha) on Demands for Grants (2002-03) relating to the Department of Atomic Energy.

2. The Committee took evidence of the representatives of the Department of Atomic Energy on 21st March, 2002.

3. The Committee wish to thank the representative of the Department of Atomic Energy who appeared before the Committee and placed their considered views. They also wish to thank the Department for furnishing the replies on the points raised by the Committee.

4. The Report was considered and adopted by the Committee at their sitting held on 10th April, 2002.

5. For facility of reference and convenience, the observations and recommendations of the Committee have been printed in bold letters in the body of the Report.

NEW DELHI;
10 April, 2002
20 Chaitra, 1924 (Saka)

SONTOSH MOHAN DEV,
Chairman,
Standing Committee on Energy.

PART - I
REPORT
CHAPTER-I

Introductory

The Atomic Energy Commission (AEC) which was created by a Government Resolution in 1948, is the apex body for formulation of policies and direction of the programmes relating to peaceful uses of atomic energy in electricity generation, medicine, agriculture and industry. The Commission implements its policies and programmes through the Department of Atomic Energy (DAE).

1.2 The main mandate of the Department is to enhance the share of nuclear power through deployment of indigenous and other proven technologies and also develop Fast Breeder Reactors and Thorium Reactors with associated fuel cycle facilities.

1.3 The Department build and operate research reactors and utilise the radioisotopes produced there for applications in medicine, agriculture and industry.

1.4 They develop advanced technology such as accelerators, lasers, control & instrumentation, supercomputers, bio-technology, information technology, materials technology and others.

1.5 The Department support basic research in nuclear energy and related frontier areas of science. They interact with universities and academic institutions and support development of their S&T programmes having a bearing on DAE's programme for mutual benefit.

1.6 They also work in fields relating to national security.

1.7 The atomic energy programmes comprise three sectors, namely, Nuclear Power Sector, Industries & Minerals Sector and Research & Development Sector.

1.8 The Nuclear Power Sector of the Department deals with design, construction and operation of commercial power reactors with associated safety in all its phases. This comprises building of Pressurised Heavy Water Reactors and development of Fast Breeder Reactors and Thorium Reactors on commercial scale. Associated waste management and environment monitoring and technology development relating to operation and maintenance of the reactors also form part of the programmes.

1.9 Industries & Minerals Sector is involved in industrial application of technologies developed in the R&D facilities and includes (a) programmes related to nuclear fuel cycle covering design, construction and operation of industrial plants for refining ores, fabrication of fuel, production of heavy water, instrumentation and control, etc. needed for sustained operation of the power reactors; and (b) applications of radioisotopes, radiation, laser and accelerator technology for development in industry, medicine, agriculture and food preservation.

1.10 Research & Development Sector provides R&D support to the Nuclear Power Programme of the Department. The R&D efforts of DAE are in multidisciplinary high technology areas. Significant achievements have been made in building technical capabilities in the design, construction and operation of Pressurised Heavy Water Reactors (PHWR); exploration, mining extraction, purification and conversion of nuclear materials; production of fuel element for nuclear reactors; production of heavy water; health and safety research; development and application of lasers and accelerators; development of Fast Breeder Test Reactors and related instrumentation; reprocessing of spent fuels; waste management and production and use of radioisotopes, besides basic research in frontier areas of S&T, particularly radio-astronomy, molecular biology, condensed matter physics, computer science, etc.

1.11 The observations of the Committee on the basis of the Scrutiny of Demands for Grants for the year 2002-03 are brought out in the succeeding Chapter.

CHAPTER II

ANALYSIS OF DEMANDS FOR GRANTS AND PLAN BUDGET OF THE DEPARTMENT OF ATOMIC ENERGY

The following two Demands for Grants have been submitted to Parliament by the Department of Atomic Energy (DA E) for the year 2002-03:

Demand No. 89 Atomic Energy

Relating to Revenue and Capital Expenditure on Atomic Energy Research and Development, Industrial Projects and the Secretariat of the Department	Rs. 2919.68 crore

Demand No. 90 Nuclear Power Schemes

Relating to Revenue and Capital Expenditure on Nuclear Power Generation and Ancillary Schemes	Rs. 3260.60 crore

2.2 The two Demands aggregating to Rs. 6180.28 crore comprise Rs. 2500.00 crore for Plan schemes and Rs. 3680.28 crore for Non-Plan expenditure. In addition, Plan schemes to the extent of 240.60 crore are to be met from Internal and Extra Budgetary Resources (IEBR)

2.3 The following are the budgetary allocations made to the Department of Atomic Energy during 2000-01, 2001-02 and 2002-03 and the percentage of increase over the previous year's allocation:-

(Rs. in crores)

Year	BE	Increase
2000-01	4942.99	8.91%
2001-02	5190.23	5%
2002-03	6180.28	19.08%

2.4 The details of actual revenue and capital expenditure for the year 2000-0, the Budget and Revised Estimates for 2001-02 and Budget Estimates for 2002-03 of the Department are given in the Appendix.

A. Budgetary Allocation

2.5 The Budget Estimates(BE) and Actuals for the year 2000-01, Budget Estimates(BE) and Revised Estimates(RE) for the year 2001-02 and BE for the year 2002-03 in respect of the three Sectors viz. Power, Industries & Minerals and Research & Development (R&D) Sectors of the Department of Atomic Energy are as under:

(Rs. in crores)

SECTOR	BE 2000-2001			ACTUALS 2000-2001			BE 2001-2002			RE 2001-2002		
	Plan	**Non-Plan**	**Total**	**Plan**	**Non-Plan**	**Total**	**Plan**	**Non-Plan**	**Total**	**Plan**	**Non-Plan**	
Power												
Budgetary Support	894.00	1636.34	2530.34	802.92	1545.75	2348.67	1093.00	1503.28	2596.28	940.00	1612.89	2
I.E.B.R.	438.00	0.00	438.00	336.46	0.00	336.46	149.00	0.00	149.00	482.00	0.00	4
I&M												
Budgetary Support	240.00	1095.15	1335.15	141.62	1047.38	1189.00	340.00	1112.64	1452.64	242.14	1064.69	
I.E.B.R.	55.06	0.00	55.06	17.00	0.00	17.00	26.50	0.00	26.50	22.70	0.00	2
R&D	420.00	657.50	1077.50	367.89	645.93	1013.82	459.00	682.31	1141.31	417.86	717.23	
Total Budgetary Support	**1554.00**	**3388.99**	**4942.99**	**1312.43**	**3239.06**	**4551.49**	**1892.00**	**3298.23**	**5190.23**	**1600.00**	**3394.81**	4
Total I.E.B.R.	**493.06**	**0.00**	**493.06**	**353.46**	**0.00**	**353.46**	**175.50**	**0.00**	**175.50**	**504.70**	**0.00**	5
GRAND TOTAL	**2047.06**	**3388.99**	**5436.05**	**1665.89**	**3239.06**	**4904.95**	**2067.50**	**3298.23**	**5365.73**	**2104.70**	**3394.81**	5

IEBR- Internal and Extra Budgetary Resources
I & M- Industries & Minerals
R & D- Research and Development

2.6 It is seen from the data that during 2000-01, the actual expenditure out of the budgetary support component was Rs.4551.49 crore as against the budgetary allocation of Rs.4942.99 crore. Thus, there was a shortfall in expenditure amounting to Rs.391.50 crore. The shortfalls in the three Sectors of the Department viz. Power, Industries & Minerals (I&M) and Research & Development (R&D) Sectors have been to the extent of Rs. 181.67 crore (Rs. 2530. 34 crore- Rs. 2348.67 crore), Rs. 146.15 crore (Rs. 1335.15 crore- Rs. 1189.00 crore) and Rs. 63.68 crore (Rs. 1077 . 50 crore- Rs. 1013.82 crore) respectively.

2.7 The Department of Atomic Energy have cited the following reasons for shortfall in expenditure during the year 2000-01 in the various units of the three Sectors of the Department:-

Heavy Water Plant, Baroda

(1) Postponement of water Cess payment,(2) Non-installation of EPABX, (3) Postponement of maintenance works, (4) Delay in receipt of wireless system, (5) Cancellation of purchase order for procurement of galvanic Isolator,(6) 90% payment planned towards supply of potassium Fluoride could not be released due to non receipt of claim and Economy in maintenance of vehicles. Reduction in OTA due to economy measures and delay in revival project. The approved BE was scaled down from Rs.13.23 crore to Rs.10.73 core at RE stage.

Heavy Water Plant, Tuticorin

There were delays in receipt of equipments, replacement of vehicles was deferred, reduction in fuel and maintenance cost and postponement of minor works due to rescheduling of shutdown. The approved BE of Rs.51.17 crore was downsized to Rs.46.58 crore at RE stage.

Heavy Water Plant, Kota

The savings were mainly on account of reduction in specific energy consumption as a result of energy saving efforts, downward revision in electricity tariff (Power

being charged @ Rs. 1.75/KWH as against Rs. 2.06/2.09 per KWH estimated at BE stage), postponement of Annual Turn Around to 2001-02. Economy in grant of OTA.

Heavy Water Plant, Manuguru

The savings were mainly on account of reduced consumption of Coal by use of better quality fuel due to introduction of Advanced Technology in running plant, reduction in water cess rate due to recycling of water, economy measures in TA/OTA, delay in recruitment of trainees, reduction in wages due to regularisation of daily- rated employees, due to late fabrication of body chasis of Mini Buses/Trucks, delay in receipt of bills from CISF, imposition of ban on procurement of vehicles.

Heavy Water Plant, Hazira

The savings were mainly on account of retrospective downward revision of rates for water charges and less consumption of energy due to shutdown of Plant for two months, recovery of escalation charges on account of difference in whole sale price index provisionally allowed and finally adjusted after clarification from Ministry of Finance.

Major Modifications to HWP, Baroda

The savings were mainly on account of difficulties in procurement due to import restrictions resulting in necessity to make alternative arrangements, Non-receipt of acceptance from M/s. Amonia Casale, Swizerland for converter loop modification and resultant delay in procurement of material by M/s. PDIL.

Retrieval and Restorage of Thorium Hydroxide at Edyar, Alwaye

The savings were mainly on account of delay in preparation of Detailed Technical Report (DTR) incorporating the changes in the scope of the Project on account of Technical Problems. In addition, soil investigation problem also delayed the project.

Waste Immobilisation Project – 3B, Tarapur

Savings were due to slow progress of project following delay in finalisation and award of Consultancy Contract. The BE of Rs.169 lakh has been scaled down to Rs. 75 lakh at RE stage.

Indian Rare Earths Ltd.

The entire provision of Rs.5 crore remained unutilised as the approval for joint venture proposal is awaited. The provision was withdrawn at RE stage.

Modernisation and Replacement Scheme for Existing Plants

Savings were due to delay in receipt of equipment such as Endcap Weld Eval. UT System, Slurry Extraction System, DM Plant,Vacuum Drum Filter,Spectroscopy Furnace etc. The shipment of TIG Welding Machine did not materialize due to sanctions, spectroscopy furnace proposed to be fabricated locally is now being imported due to non availability of components.

Dovetailing of 37 Element Bundle for TAPS

The savings were mainly on account of delay in procurement of Machinery and Equipment such as Tube decreasing equipment, SS containers, PLC units, Sintering furnaces, material movement system, etc. and related delay in taking up the Major Works.

Delay in finalisation of concepts and specifications due to changes in the process flowsheet in view of empty tube welding, rotary compacting; delay in finalising specification due to standardisation of equipment/sub systems for future spacers; delay in finalisation of layouts in view of the need to retro-fit the project in the existing building; non-receipt of man power sanction for the project.

Special Materials and Alloys Development

The savings were mainly on account of delay in receipt of imported items such as Scanning Electron Microscope, High Temperature Dilatrometer which were ordered during 2000-01 could not be procured as order acceptance not received from

the foreign supplier Servo Hydraulic Universal Testing Equipment procurement has been postponed to the next year, delay in finalisation of construction plan of New Zirconium Sponge Building.

Fuel Reprocessing of FBTR

The savings were mainly on account of reduction under Machinery and Equipment as MSM/Power Manipulators could not be procured as there were difficulties in locating the right vendors. Delay in delivery of pipes from NFC and instrumentation Tubings, non-receipt of required documents for release of final payments of Works Bills, Enforcement of economy measures in OTA and Foreign Travel Expenses.

Revamping of Power Reactor Fuel Reprocessing Plant

Delay in procurement of equipment like Contamination Monitor, Air Monitor, etc. The approved BE of Rs.5 crore was scaled down to Rs.3.64 crore in RE 2000-01.

Pilot Plant Facility for Refabrication Development

Slow progress of Major Works and delay in receipt of equipments. The supply of equipments viz. Far-FTIR and IR accessories anticipated before March 2001 were received in April 2001.

New Technology Development Project

The saving was attributable to the fact that the Design Engineering efforts take longer time than anticipated because of complexities involved. Consequently progress of Major Works was slowed down.

Board of Radiation and Isotope Technology

Saving was on account of delay in receipt of Materials and Supplies owing to non-commitment of foreign parties to supply hot cell equipment etc., and the resultant delay in taking up civil works.

Solid State and Spectroscopy

Saving was on account of delay in procurement of Machinery and Equipment, materials and supplies, slow progress of major works, deferment of purchase of vehicles etc.

BARC Inter Group Programme

Saving was on account of delay in receipt of Machinery and Equipment , Materials and Supplies viz. Temp. Controller, CAMECA, Wedge Coupling, Inconel Alloy 600 tubes, slow progress of major works etc.

Radiation Medicine Centre

Saving under the Project – Advances in nuclear medicine was due to spill over of procurement/payment towards medical cyclotron.

Chemistry Group

The savings were mainly on account of delay in procurement of Machinery and Equipments. The procurement of spectrometer for the Project materialised only during 2001-02.

Nuclear Fuels

The savings were mainly on account of delay in procurement of Machinery and Equipments. Provision made for Boring and Drilling Machine has not been fully utilised due to delay in procurement and payment.

Reactor

Saving was on account of procurement of Machinery and Equipment such as Outdoor Power Transformers, XLPE Insulator Power Cables, CRT Monitor, Robust Ract, Remote Pressure Vessel etc.

Civil Engineering

Saving was on account of delay in taking up of the works by the Public Works Department of Tamil Nadu Government owing to constraints faced by them.

Accelerator Programme Expansion

Savings was mainly due to non-materialisation of items like QP Magent Cores, Klystron Tubes, Circulators and RF Cavities etc.and also delay in awarding of sub-works of Indus II building.

Trombay Township Project

Saving was due to deferment in purchase of ready built flats from Air India pending finalisation of modalities, set back in construction schedule of efficiency apartments due to non-clearance of Municipal Corporation etc.

Variable Energy Cyclotron Centre

Saving was on account of delay in construction of super conducting cyclotron building., deferment of final payment for magnet frame etc.

Laboratories and other Non-residential Buildings

Saving was on account of non availability of air craft from NRSA hampering completion of the targeted air survey, delay in networking system, 350 KV Generator sets were received only in April, 2001.

Networking of DAE Units

Saving was on account of delay in procurement of Machinery and Equipment. Initial estimates for the equipment were inclusive of custom duty charges. Savings

are due to reduction of custom duty for the equipment and also reduction of the recurring charges of the satellite band width.

Nuclear Power Corporation of India Ltd.

During the year 2000-01 the approved budgetary support for NPCIL was Rs.834 crore which was subsequently reduced to Rs.749 crore in the RE stage. As against this, the utilization of the budgetary support was Rs.749 crore including Rs.226.77 crore towards the redemption of the debt utilized for advance procurement of TAPP-3&4. Besides, (i) higher rates of DA were adopted based on the DA instalments released during the preceding years, and (ii) suspension of LTC had brought down the expenditure on Salaries significantly. This apart, the Department enforced economy in travel expenses, overtime allowance, etc. bringing down the expenditure on these heads.

2.8 It is also observed from the data that during 2000-01, Plan expenditure out of the budgetary support component has been short of the Plan budgetary allocation in all the three Sectors of the Department. The total shortfall in Plan expenditure has been to the tune of Rs.241.57 crore (Rs.1554.00 crore – Rs.1312.43 crore). The shortfalls in the Power, I&M and R&D Sectors have been to the extent of Rs.91.08 crore (Rs. 894.00 crore- Rs. 802.92 crore), Rs.98.38 crore (Rs. 240.00 crore- Rs. 141.62 crore) and Rs.52.11 crore (Rs. 420.00 crore- Rs. 367.89 crore) respectively.

2.9 The Department have given the following reasons for shortfall in the Plan expenditure during 2000-01 in the three Sectors:-

Power Sector

During the 2000-01, the approved budgetary support for NPCIL was Rs.834 crore which was subsequently reduced to Rs.749 crore in the RE stage. As against this the utilization of the budgetary support was Rs. 749 crore including Rs.226.77

crore towards the redemption of the debt utilized for advance procurement of TAPP-3&4.

I&M Sector

Major Modifications to HWP, Baroda

The savings were mainly on account of difficulties in procurement due to import restrictions resulting in necessity to make alternative arrangements, Non-receipt of acceptance from M/s. Amonia Casale, Swizerland for converter loop modification and resultant delay in procurement of material by M/s. PDIL.

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Board of Radiation and Isotope Technology

Saving was on account of delay in receipt of Materials and Supplies owing to non-commitment of foreign parties to supply hot cell equipment etc., and the resultant delay in taking up civil works.

R&D Sector

Solid State and Spectroscopy

Saving was on account of delay in procurement of Machinery and Equipment, materials and supplies, slow progress of major works, deferment of purchase of vehicles etc.

BARC Inter Group Programme

Saving was on account of delay in receipt of Machinery and Equipment , Materials and Supplies viz. Temp. Controller, CAMECA, Wedge Coupling, Inconel Alloy 600 tubes, slow progress of major works etc.

Radiation Medicine Centre

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The savings were mainly on account of delay in procurement of Machinery and Equipments. The procurement of spectrometer for the Project materialised only during 2001-02.

Nuclear Fuels

The savings were mainly on account of delay in procurement of Machinery and Equipments. Provision made for Boring and Drilling Machine has not been fully utilised due to delay in procurement and payment schedule.

Reactor

Saving was on account of procurement of Machinery and Equipment such as Outdoor Power Transformers, XLPE Insulator Power Cables, CRT Monitor, Robust Ract, Remote Pressure Vessel etc.

Civil Engineering

Saving was on account of delay in taking up of the works by the Public Works Department of Tamil Nadu Government owing to constraints faced by them.

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Networking of DAE Units

Saving was on account of delay in procurement of Machinery and Equipment. Initial estimates for the equipment were inclusive of custom duty charges. Savings are due to reduction of custom duty for the equipment and also reduction of the recurring charges of the satellite band width.

2.10 Commenting on the shortfall in expenditure, Secretary, DAE stated during oral evidence as under:-

"In terms of the utilisation of the outlays, in fact, I am quite conscious of the difficulties and we have been making constant efforts to continuously improve our performance. What really happens is that in the process of the Government budgetary process, although there is a plan allocation but it goes by yearly review, and for that matter, within the Government it goes by virtually six monthly review, that is Budget Estimates and Revised Estimates. Two things happen. One is about the progress of expenditure. Although the desirable thing is that every month we should have a kind of uniform flow of expenditure, the progress of expenditure should be linear with respect of time in a calendar year.

But, I think, it is impossible. I have come to this conclusion. There is invariably peaking towards the last quarter. This is something to do with the budgeting process that we do. We also get letters from the other Ministries that this is not a correct thing. I also agree that this is not a correct thing but this is a ground reality. What happens is that first of all, you cannot spend unless you get the budget approval in yours hands, it comes in April or sometimes even it takes 15 days more. Then only we start ordering. In the middle of the year, we are thus not close to 50 per cent utilisation of the allocation. Obviously there is a gap. RE gets reduced. Once it is revised downwards, we cannot spend more. So, when we come before this Committee, it looks as if we have not utilised it. There are also shortfalls at RE stage because we have our own difficulties ……our procurement process is somewhat unpredictable compared to the procurement process in other sectors because of embargo as well as technological difficulties."

2.11 There was a shortfall in the utilisation of the IEBR during 2000-01 to the tune of Rs. 139.60 crore (Rs. 493.06 crore- Rs. 353.46 crore). While the shortfall in utilisation of IEBR by the Nuclear Power Corporation of India Limited (NPCIL) was Rs. 101.54 crore (Rs. 438.00 crore – Rs. 336.46 crore), the same by the Indian Rare Earths Limited (IREL) was Rs. 38.06 crore (Rs. 55.06 crore- Rs. 17.00 crore).

2.12 The details of IEBR during 2000-01, 2001-02 and 2002-03, the reasons for shortfall in utilisation of IEBR during 2000-01 and the reasons for variations between BE and RE of 2001-02, as furnished by the Department, are as under:-

(Rs. in crores)

2000-01		**2001-02**		**2002-03**
BE	**Actuals**	**BE**	**RE**	**BE**
493.06	353.46	175.50	504.70	240.60

2.13 The IEBR of Rs.493.06 crore in BE 2000-01 consisted of Rs.438 crore in respect of NPCIL and Rs.55.06 crore in respect of IREL. The actual of Rs.353.46 crore consisted of Rs.336.46 crore in respect of NPCIL and Rs.17 crore in respect of IREL. The actual utilisation of IEBR during 2000-01 was according to the final requirement with reference to the overall requirement of funds for plan programmes during the year.

2.14 The increase in IEBR in RE 2001-02 is mainly on account of higher amount of IEBR expected to be generated and utilised by NPCIL.

2.15 The main reason for the variation is that utilisation of internal resources is with reference to the overall requirement of funds during the year for financing the plan schemes. While surplus of internally generated funds are carried forward to the subsequent year raising for extra budgetary resources like borrowing from the market or from financial institutions is done according to requirements at the relevant time.

2.16 The IEBR included in the BE of NPCIL during 2000-01 was Rs.438 crore. As against this, the actual utilization of IEBR was Rs.336.46 crore. The reason for short fall in utilization of IEBR was mainly due to shortage in expenditure in TAPP-3&4, Kaiga 3&4, as well as CCR works at MAPS as explained below:

In case of TAPP 3&4, the shortfall in expenditure was due to the strategy for project implementation changed to the concept of large-supply-cum-erection packages. It took some time to reformulate the packages which resulted in some delay on entering into commitments. The activities on the manufacture of turbine generators were rescheduled and also the anticipated budget provision based on estimated cost for the item during the year did not materialize as the original contract terms including base price were retained. In addition, budget provisions made for advance payments along with the orders for some of the equipment did not materialize as per contract terms finalised. There was also deferment in payment of escalation for end-shields till completion of order. In case of Kaiga 3&4, the

shortfall in expenditure was due to delay in commencement of construction pending financial sanction. The reduction in CCR expenditure of MAPS was due to deferment of CCR activities.

2.17 There have been wide variations between BE and RE of 2001-02. The total allocation of Rs. 5365.73 crore in the year has been increased to Rs. 5499.51 crore. Thus, there has been an increase of Rs. 133.78 crore. However, in all the three Sectors, BE (both Plan and Non-Plan) has been reduced at RE stage. The reduction in Power, I&M and R&D Sectors has been Rs. 43.39 crore (Rs. 2596.28 crore – Rs. 2552.89 crore), Rs. 145.81 crore (Rs. 1452.64 crore – Rs. 1306.83 crore) and Rs. 6.22 crore (Rs. 1141.31 crore – Rs. 1135.09 crore).

2.18 It is also observed that Plan RE has been considerably lower than the Plan BE in all the three Sectors. The reduction in the Power, I&M and R&D Sectors has been to the extent of Rs. 153.00 crore (Rs. 1093.00 crore – Rs. 940.00 crore), Rs. 97.86 crore (Rs. 340.00 crore – Rs. 242.14 crore) and Rs. 41.14 crore (Rs. 459.00 crore – Rs. 417. 86 crore).

2.19 Giving reasons for such variations in the three Sectors, the Department have stated as under:-

R&D Sector

The proposal for the purchase of ready built flats from Air India has been dropped . Some of the infrastructural expenditure including construction of Schools are being shared by NPCIL. The construction of Convention Hall, Senior Officer's Guest House, renovation of OYC building has been postponed to X Plan. For one of the BRIT projects a Freeze Drying Unit was to be procured. The purchase order was placed on a German company who could get export clearance only by end of October 2001 and consequently the letter of credit open by end of November 2001. The delivery period being five months, the equipment is expected to be received April 2002.

I&M Sector

In respect of BARC, there was delay in awarding Consultancy Contract for Additional Waste Tank Farm and Spent Fuel Storage Facility, which has resulted in postponement of major works and delay in procurement of various M&E items as the jobs are to be done by P&C contractor to be appointed in consultation with Consultant. Delay in supply against various orders placed for procurement of specialised steel and optical glass etc. has also resulted in surrender of provision at RE.

Power Sector

During the year 2001-02 for NPCIL, budgetary support in the approved BE was Rs.1024.21 crore, which got revised at the RE stage to Rs.883 crore, as a post-budget decision by the Ministry of Finance. The reduction in the budgetary support was mainly due to reduction in the Russian Credit from Rs.224.21 crore in BE to Rs.30.12 crore in the RE. It was initially envisaged that advance payments for long delivery equipments could be substantially met out of Russian credit, but thereafter it was necessary to provide for cash payment of advance in terms of the agreement.

2.20 As regards the 9th Plan allocations to the various Sectors, the Department have furnished the following information :

(Rs. in crores)

ver Sector		**M Sector**		**D Sector**	
Plan lay	8.50	Plan lay	8.50	Plan lay	0.00
7-1998		7-1998		7-1998	
	uals		uals		uals
.20	.27	.00	.14	.00	.93

8-1999		8-1999		8-1999	
	uals		uals		uals
0.00	.25	.00	.88	.00	.08
9-2000		9-2000		9-2000	
	uals		uals		uals
4.00	.54	.00	.74	.00	.99
0-2001		0-2001		0-2001	
	uals		uals		uals
2.00	9.38	.06	.62	.00	.89
1-2002		1-2002		1-2002	
2.00	2.00	.50	.84	.00	.86

2.21 It is seen from the above data that the expenditure in all the three Sectors during the first four years of the Ninth Plan has been short of the allocation made. Again, the cumulative total of the actuals of the years 1997-98 to 2000-2001 and RE 2001-2002 is less than the Ninth Plan outlays for the three Sectors. The Department have informed that the actuals of the entire Ninth Plan expenditure would be less than the total outlay.

2.22 Regarding the utilisation of the 9th Plan allocations, Secretary, DAE stated during oral evidence as under:-

"I agree we have some difficulties. But in spite of that, I must bring to your notice that if we sum up all the utilisation of the allocation used in the R&D as well as in the Power Sectors in the Ninth Plan, we have used something close to 92 to 93 per cent of the Plan allocation. In the I&M Sector, I agree there is some shortfall. We have some problems. But we are constantly trying to improve.

But I accept that there is this little deficiency on which we are constantly working. In fact, we have project management framework and monitoring framework. We are constantly evaluating ourselves. Of course, the Ministry of Statistics and Programme Implementation also looks at it. So, we are constantly improving. We are, in fact, quite conscious of observations made by the Committee last time but these are some difficulties".

2.23 The Committee are concerned to note that there are wide variations between the Budget Estimates (BE) and the Revised Estimates (RE) in respect of the Department of Atomic Energy during the year 2001-02. BEs of all the three Sectors have been reduced at RE stage during the year. While this reduction has been negligible in the R&D Sector with just Rs. 6.22 crore, the same in the Power and I&M Sectors has been as much as Rs. 43.39 crore and Rs. 145.81 crore respectively. More distressing is the fact that the Plan BE of all the three Sectors has been substantially reduced at RE stage during the year. This reduction in the Power, I&M and R&D Sectors has been to the tune of Rs. 153 crore, Rs. 97.86 crore and Rs. 41.14 crore respectively. The reduction in the R&D Sector has been stated to be owing to shelving of the proposal for the purchase of ready built flats from Air India, delay in delivery of equipment by a German company, etc. As regards the reduction in the I&M Sector, the same has been attributed to delay in procurement of equipments and delay in awarding consultancy contract. Regarding the Power Sector, the Committee have been informed that BE for the Nuclear Power Corporation of India Limited (NPCIL) amounting to Rs. 1024.21 crore was reduced to Rs. 883 crore at RE stage as a post budget decision by the Ministry of Finance. The Committee do not approve of the said decision of the Ministry of Finance as such an action would tend to hinder the growth of the Nuclear Power Sector. The Committee desire that the Department of Atomic Energy should make all out efforts to utilise their budgetary allocations so as to avoid the need for a cut at RE stage.

2.24 The Committee note with concern that the Department of Atomic Energy have not been able to utilise a huge amount of Rs. 391.50 crore out of the budgetary support component during 2000-01. Out of a total budgetary support of Rs. 4942.99 crore, the actual expenditure has been only Rs. 4551.49 crore during the year. All the three Sectors of the Department - Power, Industries & Minerals (I&M) and Research & Development (R&D) - have registered shortfalls amounting to Rs. 181.67 crore, Rs.146.15 crore and Rs. 63.68 crore respectively.

The Committee are also unhappy to note that there has been a shortfall of as much as Rs. 241.57 crore in the Plan expenditure out of the budgetary support component. The shortfalls in Plan expenditure in the Power, I&M and R&D

Sectors have been to the tune of Rs. 91.08 crore, Rs. 98.38 crore and Rs. 52.11 crore respectively. The shortfalls in the I&M and R&D Sectors have been attributed to difficulties / delay in procurement of equipments, delay in preparation of Detailed Technical Report, delay in finalisation of consultancy contract, delay in purchase of ready - built flats, lack of approval for Joint Venture Projects, etc. which are mostly administrative in nature and could have been foreseen and avoided through proper advance planning. The Committee recommend that the Department should endeavour to avoid such delays in future as far as possible.

As regards the Power Sector, the Committee have been informed that the approved budgetary support of Rs. 834 crore in respect of the Nuclear Power Corporation of India Limited (NPCIL) was reduced to Rs. 749 crore at the Revised Estimates stage during 2000-01 and this amount of Rs. 749 crore was utilised during the year. The Committee would like to be apprised of the reasons for reduction of the approved budget at RE stage during 2000-01. Taking a serious view of the failure of the Department to fully utilise the budgetary allocations year after year, the Committee recommend that the Department should review and strengthen the budgetary mechanism and planning process so as to ensure full utilisation of the allocated amount.

2.25 The Committee are unhappy to note that the actual utilisation of the Internal and Extra Budgetary Resources (IEBR) during 2000-01 has been to the tune of Rs. 353.46 crore as against a target of Rs. 493.06 crore, resulting in a shortfall of Rs. 139.60 crore. While the Nuclear Power Corporation of India Limited (NPCIL) has contributed Rs. 101.54 crore to the shortfall, the remaining shortfall amounting to Rs. 38.06 crore has been caused by the Indian Rare Earths Limited (IREL). While the IEBR targets for NPCIL and IREL during 2000-01 were Rs. 438 crore and Rs. 55.06 crore respectively, these organisations spent only Rs. 336.46 crore and Rs. 17 crore respectively during the year.

It seems that no targets for IEBR generation was set for the year 2000-01 in respect of the other two Public Sector Undertaking viz. the Electronics Corporation of India Limited (ECIL) and the Uranium Corporation of India Limited (UCIL). The

Committee presume that the poor financial health of ECIL resulted in fixing of nil IEBR target for the undertaking. However, the case of UCIL is beyond comprehension. The Committee would like to be apprised of the factual position in this regard. The Committee also find that there is a wide variation between BE and RE of 2001-02 in respect of IEBR generation. BE amounting to Rs. 175.50 crore has been enhanced to Rs. 504.70 crore at RE stage. The Committee are at a loss to understand the rationale behind the fixation of unrealistic IEBR targets year after year. They understand that the capacity of the Department to raise external resources is negligible. Besides, the position of internal accruals of the Department is also not very healthy. Therefore, the Committee recommend that the Department should set realistic IEBR targets so that there is no setback to the planned activities of the Department.

2.26 The Committee note that the 9th Plan outlay for the Power, I&M and R&D Sectors was Rs. 5498.50 crore, Rs. 1368.50 crore and Rs. 1500 crore respectively. As against this, the actual expenditure in the first four years of the 9th Plan by these Sectors has been Rs. 3699.44 crore, Rs. 562.38 crore and Rs. 1105.89 crore. By adding the RE amount of the final year of the 9th Plan i.e. 2002-03, the cumulative total for the three Sectors comes to Rs. 5121.44 crore, Rs. 827.22 crore and Rs. 1523.75 crore. This cumulative total in the Power and I&M Sectors is far short of the 9th Plan outlay. This shortfall in the Power and I&M Sectors is to the extent of Rs. 377.06 crore and Rs. 541.28 crore respectively. The Committee are equally perturbed by the fact that in each of the first four years of the 9th Plan, the actual expenditure incurred by all the three Sectors has been less than BE. The Department have admitted that the actuals of the entire 9th Plan would be less than the total outlay. The Committee would like to be apprised of the projects of the Department that have been affected as a result of under - utilisation of funds. Considering the fact that the resources are scarce, they would like the Department to take corrective measures in this regard and ensure that realistic targets are fixed for 10th Plan taking into consideration all the constraints experienced during 9th Plan.

B. <u>Atomic Power Generation</u>

2.27 There are 14 Atomic Power Reactors at 6 different locations in the country with a total installed capacity of 2720 MWe.

2.28 The Department have furnished the data relating to the target and actual generation, in Million Units (MUs), and capacity factor, in % age, unit-wise for the calendar years 2000, 2001 and 2002 in the Table below. In respect of data for the year 2002, the actual generation and C.F are upto 28.2.2002 whereas the target is for full year.

GENERATION PERFORMANCE OF NUCLEAR POWER UNITS

UNIT	CAPACITY MWe	**CALENDAR YEAR 2000**			**CALENDAR YEAR 2001**			**CALENDAR YEAR 2002**		
		GENERATION (MUs)		CF %	GENERATION (MUs)		CF%	GENERATION (MUs)		CF%
		TARGET	ACTUAL		TARGET	ACTUAL		TARGET	ACTUAL *	
TAPS-1	160	1032	1296	92	820	1190	85	1107	220	97
TAPS-2	160	830	1122	80	1030	1316	94	896	226	100
RAPS-2	200	1208	1628	93	1208	1482	85	1365	277	98
RAPS-3	220	560	895	79	1157	1535	80	1440	197	63
RAPS-4	220	NO TARGET	42	89	886	1340	70	1440	305	98
MAPS-1	170	821	765	51	1080	1321	89	850	192	80
MAPS-2	170	1090	1439	96	990	1271	85	90	30	91
NAPS-1	220	1306	1556	81	1338	1744	91	1451	304	98
NAPS-2	220	1311	1487	77	1343	1484	77	1585	325	104
KAPS-1	220	1347	1850	96	1343	1710	89	1582	318	102
KAPS-2	220	1342	1674	87	1343	1885	98	1449	278	89
KGS-1	220	NO TARGET	176	73	1020	1369	71	1430	300	96
KGS-2 (FROM 16.3.00)	220	762	1116	73	1335	1440	75	1320	251	81
TOTAL	**2620**	**11609**	**15046**	**82**	**14893**	**19087**	**83**	**16005**	**3223**	**92**

Infirm power (before commercial operation) of RAPS-4, KGS-1, RAPS-3 and KGS-2 totaling 307 MUs not included in the generation for the year 2000.

In addition to above, RAPS-1 generated 772 MUs, 105 MUs and 91 MUs during the years 2000, 2001 and 2002 respectively.

Kaiga-1 and RAPS-4 commenced commercial operations with effect from 16.11.2000 and 23.12.2000 respectively.

* upto 28.2.2002

C. Tarapur Atomic Power Project – 3&4

2.29 The Tarapur Atomic Power Project (TAPP) –3&4 is located at Tarapur, Maharashtra. It is designated to feed electrical power to the Western Grid. The project financial sanction was accorded in the year 1991 at an estimated cost of Rs.2427 crore at 1990 price level. However, the commencement of construction was kept in abeyance due to constraints of financial resources. Subsequently, Government of India accorded approval in December 1997 for the revised cost estimates of Rs.6421 crore (1996 constant rupee value). The first pour of reactor building was achieved on 8.3.2000. Construction works are going on in full swing. All major purchase orders for TAPP-3&4 have been placed and the contractors have begun supply of equipment/mobilisation of facilities at site. 3.71 lakh cubic meters of concrete out of total of 5.04 lakh cubic meters has been poured. Based on the above progress of work, the criticality dates of October 2005 and July 2006 for Unit-4 and 3 respectively are expected to be achieved. The cumulative expenditure up to January 2002 has been Rs.2106 crore. The anticipated completion cost is Rs.6760 crore including escalation and IDC for completion.

2.30 The target for the physical progress of TAPP-3&4 by 31.3.2002, the end of Ninth Plan, was to achieve a cumulative physical progress of 47.7%. The physical progress achieved as on 28. 2. 2002 is 42.4% and with the current trend of progress, it is expected that a physical progress of about 44.2% will be achieved by 31.3.2002. A marginal gap of about 3.5% in the physical progress will be made up by accelerating the balance activities. The project is expected to be completed as per the approved schedule.

2.31 The approved outlay during the Ninth Plan (1997-2002) in respect of TAPP-3&4 was Rs.1973 crore. The anticipated utilisation is Rs.1410 crore. There has been a shortfall of Rs.563 crore. The shortfall is mainly on account of delay in commencement of the project. The project was to commence in 1997-98. However, the project commenced only

in December 1998 after obtaining approval for the revised cost estimates in December 1997. It took time to reactivate the old orders which were kept in abeyance earlier.

2.32 The budgetary outlay and actual / expected expenditure, in respect of TAPP 3&4, for the financial years 2000-01 and 2001-02 are given below along with the outlay for the year 2002-03.

(Rs. in crores)

Year	BE Outlay	Actual / Expected
2000-01	455.00	333.58 (Actual)
2001-02	653.00	653.00 (Expected)
2002-03	700.00	

2.33 The reasons for the under-utilisation of outlay during the financial year 2000-01 are:

As the strategy for project implementation was changed to the concept of large-supply-cum-erection packages, it took some time to reformulate the packages which resulted in some delay on entering into commitments. The activities on the manufacture of turbine generators were rescheduled and also the anticipated budget provision based on estimated cost for the item during the year did not materialise as the original contract terms including base price were retained. In addition, budget provisions made for advance payments along with the orders for some of the equipment did not materialise as per contract terms finalised. There was also deferment in payment of escalation for end-shields till completion of order.

2.34 However, the TAPP-3&4 project is presently progressing as per approved schedule. Construction activities are in full swing at site.

D. Prototype Fast Breeder Reactor (PFBR)

2.35 The Fast Breeder Test Reactor (FBTR) at Indira Gandhi Centre for Atomic Research (IGCAR) is the first fast reactor of its kind in the world that uses plutonium

uranium mixed carbide fuel. The Department have informed that the design for Prototype Fast Breeder Reactor (PFBR) is ready. Manufacturing Technology Development by the Indian industries has been practically completed. Most of R&D activities have been completed. Balance works will be completed in a year's time. Based on the Site Evaluation Report submitted by IGCAR, AERB has given its clearance for the Kalpakkam Site in October 2000. It has also given clearance on 18.2.2002 for Nuclear Steam Supply Systems (NSSS) Components after reviewing the same. Construction Licence for Site Excavation and first pour of concrete is under discussion with AERB. A 'No Objection Certificate' for Environmental Clearance is under issue by Tamil Nadu Pollution Control Board. There has been a delay of 6 months on account of public hearing and consequent clearance by Tamil Nadu Pollution Board. No Objection Certificate is expected from them in March 2002. Two Design Consultants have been appointed and the work is in progress. Detailed Project Report (DPR) has been discussed with Senior Officials of IGCAR, BARC, NPCIL and NFC. The same will be submitted to the Department immediately after the "No Objection Certificate" is received from the Tamil Nadu Pollution Board. After receipt of Financial Sanction from the Union Government, the construction of PFBR will start immediately by October 2002 and Construction completion is planned in 7 years.

2.36 In this connection, Secretary, DAE told during oral evidence as under :-

> "..the Indian nuclear fuel resource position is such that we have modest quantities of uranium and so for large capacities in future we have to develop additional technologies and they will come first through the Fast Breeder Reactor route. So, we want to launch the construction of Prototype Fast Breeder Reactor. This has been with us for some time and we are very close to that now".

2.37 Elucidating further, Secretary, DAE added during evidence as under :-

> "Now, we are going to the 500 MWe Prototype Fast Breeder Reactor... its design, technology development are almost complete……..We have gone through the

public hearing, I think the State clearance is around the corner, and then we have to get the Ministry of Environment and Forests clearance. Just at that point of time, we will switch on the construction after obtaining the approval of the Government".

2.38 As regards the advantages of the Kalpakkam site for the FBTR, Secretary, DAE stated during evidence as under :-

"At this moment we are planning to set up the first Fast Breeder Reactor at Kalpakkam".

2.39 When asked as to whether there is a proposal to set up FBTR at the RAPP site, , Secretary, DAE deposed before the Committee as under :-

"We are planning to set up the first Prototype Fast Breeder Reactor at Kalpakkam primarily because Kalpakkam is also a proven site and the entire design and development infrastructure for fast breeder reactor is located there".

2.40 Regarding the setting up of more Fast Breeder Reactors in the country in future, Secretary, DAE stated during evidence as under :-

"Coming to the question of Fast Breeder Reactor, it is one step higher and a newer technology. Looking at the supply of uranium that we have, it is inevitable that over a period of time, most of the nuclear power stations in India may have to be Fast Breeder Reactors. Up to 2020 or even beyond, the aggressive construction programme of nuclear reactors will perhaps remain in the thermal reactor domain, whether it is the Pressurised Heavy Water Reactor or the Light Water Reactor. For Fast Breeder Reactors, what we envisage is that in addition to the PFBR which we are planning at Kalpakkam, we may have another four 500 MWe Fast

Breeder Reactors as a part of 20,000 MWe programme. The location is open to decision. We will have to decide about it. It can be anywhere. But beyond that, progressively, proportion of Fast Breeder Reactors will improve. In 2020 horizon, the fast breeder contribution may be around 2500 MWe".

E. Advanced Heavy Water Reactor (AHWR)

2.41 The Department have stated that the Bhabha Atomic Research Centre has been developing the engineering design of the Advanced Heavy Water Reactor under the IX Plan Project "Advanced Reactor Development Programme". This reactor will be mainly utilising thorium as nuclear fuel for electricity generation. Under this 9th Plan Project, as originally planned, the detailed engineering design and development of the major nuclear systems have been completed. Specifications for several conventional systems of the reactor are being finalised to facilitate their detailed design with the help of consultants. A large number of experimental programmes, to support the detailed design of the reactor have been completed. On the basis of work carried out so far, a project report providing the major highlights of design, safety, costing, and another related aspects for this reactor will be issued by the end of the current plan period, i.e. March 2002, as scheduled. This document, on finalisation, will serve as the basis for seeking funds from the government for construction of the reactor. Some additional experimental programmes, and consultancy work, will be continued in the X Plan period basically for generating additional data, and for finalising detailed engineering designs of some of the conventional systems.

2.42 In this connection, Secretary, DAE stated during oral evidence as under:-

"…looking at our vast thorium resources, which is the ultimate objective of our programme, we have to ultimately get large energies out of thorium. So we have designed an Advanced Heavy Water Reactor and we would be taking up this reactor as a technology demonstrator in the Tenth Plan, essentially to make a beginning of large scale thorium utilisation".

2.43 Elaborating further, Secretary, DAE also stated during evidence as under :-

> "….we are looking at Advanced Heavy Water Reactor as a technology demonstration step towards large- scale thorium utilisation. The detailed project report is nearly complete. We are supposed to complete it by the end of this month, a few days from now. This work is going on, and this advanced system will allow us to carry out not only utilisation of thorium, but also build in advanced safety systems consistent with the modern trends about the nuclear safety".

2.44 The Committee are pleased to note that the generation of electricity by the operating Atomic Power Stations in the country has exceeded the targets set in this regard during the years 2000 and 2001. As against the targets of 11609 Million Units (MUs) and 14893 MUs, the actual generation has been 15046 MUs and 19087 MUs in 2000 and 2001 respectively. The Committee are also happy to note that all the Atomic Power units have exceeded their targets during these years, except the Madras Atomic Power Station (MAPS)–1 in the year 2000. Again, the Committee note that over 20% of the targeted generation for 2002 has been achieved during the first two months of the year. This is no doubt a very healthy sign. Equally pleasing is the fact that the Atomic Power Stations have maintained a high Capacity Factor during these years. The Capacity Factor which was 82% in 2000, increased to 83% in 2001 and further to 92% in the year 2002. However, the Committee are not clear about the reasons for the wide fluctuations in the Capacity Factors registered by the same unit in successive years. The fluctuation is evident from the Capacity Factors registered in 2000 and 2001 by Tarapur Atomic Power Station (TAPS)-1 and 2, Rajasthan Atomic Power Station (RAPS)-2 and 4, MAPS-1 & 2, Narora Atomic Power Station (NAPS)-1 and Kakrapar Atomic Power Station (KAPS)-1&2. The Committee desire to be apprised of the same.

The Committee note that the Department have an ambitious programme of achieving a capacity of 20,000 MWe nuclear power by the year 2020. They feel that the likely shut down of the old Atomic Power Stations like the Rajasthan Atomic Power Project-I and the focus of the Government to promote the Hydel Sector may further shrink the already low share of nuclear power in the total electricity generation in the country. The Committee, therefore, desire that the Government should redouble their efforts to meet the set target. The Committee also recommend that a perspective plan should be formulated by the Department to achieve the target of 20,000 MWe by 2020 and also to enhance the share of nuclear power from the present level of about 3 per cent to 10 per cent of the total electricity generation in the country. The Committee further recommend that the Department should expeditiously identify the areas in various parts of the country, especially in West Bengal, Assam and Himachal Pradesh to set up Nuclear Power Projects. The action taken in the matter may be conveyed to the Committee within six months of the presentation of this Report.

2.45 The Committee note that the Tarapur Atomic Power Project (TAPP)-3&4 (2x540 MWe) was accorded financial sanction in 1991 at an estimated cost of Rs. 2427 crore. Subsequently, the project cost was revised to Rs. 6421 crore in 1997. The Committee have been informed that the anticipated completion cost of the project is Rs. 6760 crore including escalation and Interest During Construction (IDC). Thus, there has been enormous time and cost overruns on the project. The Committee are also unhappy to note that as against the approved 9th Plan outlay of Rs. 1973 crore for the project, the anticipated utilisation is only Rs. 1410 crore. Thus, there has been a huge shortfall of Rs. 563 crore. The shortfall in the utilisation of allocation in the year 2000-01 has been to the tune of Rs. 121.42 crore. The shortfall in the utilisation of 9th Plan outlay has been attributed to delay in commencement of the project which could start only after obtaining approval for the revised cost estimates. The Committee feel that the process of obtaining approval for Revised Estimates, etc. should not be allowed to hold up the construction work and other related activities. Once a decision to start work on a

project has been taken in principle, then cost estimation, etc. and construction work should be allowed to go side by side for, the whole project cost is not to be spent in one go and secondly, holding up of construction work while awaiting approval for revised cost estimates would result in further time and cost overruns. The Committee also note that there would be a shortfall of about 3.5 per cent in the 9th Plan physical target of the project. The Committee expect the Department to make an in-depth analysis of the various factors responsible for physical and financial shortfalls and take remedial measures in this regard. They hope that the present completion schedule of October, 2005 and July, 2006 for the two units of the project would be adhered to. As recommended by the Committee in their earlier Reports, this period should be brought down to about five years.

2.46 The Committee are pleased to note that the Bhabha Atomic Research Centre (BARC) has already completed the detailed engineering design and development of major nuclear systems of the Advanced Heavy Water Reactor (AHWR). Equally pleasing is the fact that the Indira Gandhi Centre for Atomic Research (IGCAR) has also completed substantial R&D activities relating to the Prototype Fast Breeder Reactor (PFBR). The Committee would like to congratulate the Department on achieving these important milestones. They hope that the Project Report for AHWR Project, which was scheduled to be issued by March, 2002 has been issued as scheduled. As regards PFBR Project, the Committee desire that the Department/ IGCAR tie up with the Tamil Nadu Pollution Control Board to expedite the issuance of the 'No Objection Certificate'. Meanwhile, the Detailed Project Report (DPR) should be kept ready and as soon as the 'No Objection Certificate' is issued by the Tamil Nadu authority, the same should be submitted to DAE and finalised quickly. The Committee hope that the construction work on the Projects would be started before long and the projects completed in a time bound manner. At the same time, the Department may also consider the feasibility of setting up more such projects in other parts of the country after evaluating the suitability of the locations.

F. Indian Rare Earths Limited (IREL)

2.47 The Indian Rare Earths Limited (IREL) is engaged in mining and production of quality beach sand minerals and rare earths compounds. Some of the minerals produced by IREL find use in the Nuclear Power Programme while the others have wise ranging industrial applications. The main minerals produced by IREL from the beach sands at its three Units at Chavara (Kerala), Manavalakurichi (Tamil Nadu) and Chhatrapur (Orissa) are ilmenite, rutile zircon and monazite. It also produces Rare Earths Chloride from Monazite at its plant at Alwaye (Kerala).

2.48 Regarding the various Joint venture projects of IREL, the Department have furnished the following information**:-**

(1) JV with Austpac Resources N. L., Australia:

AusRutile (India) Pvt. Ltd. had filed an application with FIPB in March 2002 for foreign direct investment by Austpac Resources N. L., Australia, for the proposed joint venture with IREL. Austpac Resources have received a communication dated 2-11-2001 from FIPB stating that synthetic rutile production is not a desired value addition and hence the proposal has not been approved. This matter is being taken up with FIPB through DAE emphasizing that SR or slag production is an intermediate value addition and is as per the Mineral Sands Policy of 1998.

(2) JV for Bhimli Project:

IREL had entered into an MoU with Andhra Pradesh Mineral Development Corporation and National Mineral Development Corporation for exploiting the mineral deposits of Bhimli for value addition. In the light of objections due to nesting of Olive Ridley Turtles along the coast, the matter was taken up for review with Ministry of Environment & Forests (MoEF), after taking an expert opinion of Shri M. Kamal Naidu, ex-Chief Conservator of Forests, Govt. of Andhra Pradesh. However, MoEF after reconsideration, has rejected the application.

(3) JV for Kudiraimozhi Project:

For the Kudiraimozhi project in Tamil Nadu for which an MoU is entered into with WSIL Mineral Sands India Pvt. Ltd., IREL had asked Govt. of Tamil Nadu for reconsideration of its objection to release 465 hectares of reserved forest land for the project. The Environment & Forest Department of Govt. of Tamil Nadu have regretted their inability to comply with the request for clearance of 465 hectares of reserved forest land for Kudiraimozhi for mining purposes.

(4) JV with Saraf Agencies Ltd:

IREL had entered into an MoU with Saraf Agencies Ltd. for a 100,000 tpa SR Plant. Tata Iron & Steel have joined Saraf Agencies and a revised MoU is being entered into with the 3 parties for a proposed JV project at Orissa.

(5) JV with CMRL:

IREL has entered into an MoU with Cochin Minerals & Rutile Ltd. for a 100,000 tpa mineral separation plant in Kerala. The joint venture company has filed mining lease application with Kerala Govt.

2.49 Regarding the JV project with Austpac Resources, Australia, CMD, IREL stated during evidence as under:-

> "That particular project has got stuck at FIPB clearance level because the last communication that AUSTPAC has received from FIPB is that synthetic rutile is not considered as a value added material. So, they have challenged that it is not a value added material. Whatever we are trying to make there is not value added material, is what they said. So, there is no case for setting up such a joint venture facility".

2.50 In this connection, Secretary, DAE added the following during evidence:-

"..…we now have a new policy in terms of the use of the rare earth minerals. According to this new policy, and we are not talking about strategic minerals, they are on the borderline between strategic and non-strategic, are not like Uranium or Thorium, according to this policy, we are now encouraging the external participation, both Indian as well as foreign, on the condition that there must be a certain value addition. Nobody can just mine the ore and export it. There has to be a local or domestic value addition. Then, depending on the configuration, whether it is fully joint venture between Indian companies or there is a foreign element, there are some fine structures in that. But the basic principle is that there must be good value addition".

2.51 Commenting on the importance of the project, Secretary, DAE stated during evidence as under:-

"….this is a new technology which we thought will certainly add to the competitive capability in a bigger way. We would certainly write to the Committee, it will be of great help".

2.52 Elucidating further, Additional Secretary, DAE stated during evidence as under:-

"…..this is a purely technology demonstrator plant which has nothing to do with the profitability of the organisation per se. What we felt is, this new technology which the Australian party was bringing in would upgrade the Tio2 to content, which hitherto was being done by the Lurgi-Becher Process which took it up to 93 per cent. Their claim was that this will go up to 96 per cent. The Department of Industrial Policy and Promotion has a slightly different perception

that what we project because they think that pure synthetic rutile alone will not be the ultimate value addition. We must go in for the ultimate product which is either pigment or metal. That is where really it is not stuck. Their perception is that synthetic rutile which is an intermediate product does not constitute sufficient value addition. But we are contesting that and we will seek your assistance".

2.53 The Department have informed that the following schemes of IREL were taken up during the 8th Plan and carried forward to 9th Plan:

a) Chavara Plant:

1) MRP-II: The Dredge and Wet Concentration Plant (MRP-II) in Chavara was commissioned in August, 1997 as against April, 1997 in view of local labour problems and the strike at Chavara from October, 1996 to November, 1996. The total cost as per contract was Rs 14.04 crore without customs dty and the actual cost was Rs 20.55 crore. The increase in cost was due to L/C charges, customs duty and exchange variation amounting to Rs 6.33 crore and expenses for providing 11 KV supply (Rs 14 lakh) and salaries of project staff not provided under project cost earlier.

2) Microzir: A project for fine grinding Zircon was commissioned in June, 1997 as against January, 1997 envisaged earlier. Time overrun in the project completion was due to labour strike at Chavara from October, 1996 to November, 1996. There was no cost overrun on this project.

b) Manavalakurichi Plant:

Additional Recovery of Zircon/Rutile Project:

The project originally scheduled for completion in September, 1998 was completed in June, 1999.

Reasons for time overrun - During detailed engineering, some changes in flow-sheet and layout had to be incorporated based on plant-scale confirmatory test work carried out. Further, some of the imported items for which order was placed on a US Company could not be delivered in view of the US sanction and had to be resourced from indigenous availability. However, there was no cost overrun.

c) R. E. Division:

Prynce Project:

A project which was initially envisaged to produce 95% pure Neodymium Oxide was modified to produce higher purity of 99% pure Neodymium Oxide and was completed as per approved completion schedule. There was no cost overrun.

d) General:

Modernisation and Improvement schemes at various units spilled over to IX Plan were carried out as scheduled.

2.54 The Department have also informed that the following schemes of IREL which were taken up during 9th Plan, have been carried forward to 10th Plan:

1) Joint venture proposals for which a provision of Rs 55 crore was made in the IX Plan could not be implemented in view of the various approvals required and such joint venture proposals were carried forward to X Plan.

2) Dry Mill expansion at Chavara envisaged in IX Plan could not be taken up in view of the problems in land acquisition and has now been recast as expansion of capacity at Chavara in Phase-1 to be taken up in X Plan.

3) Project for retrieval and reprocessing of Thorium concentrate at 1200 tpy as proposed was recast for higher capacity to process 6000 tpy of Thorium concentrate in view of the potential to produce larger quantity of Uranium at 30 tpy and is being taken up as 10th Plan proposal.

4) For rehabilitation of DWCP and MSP of OSCOM scheduled for completion by March, 2002 i.e. in 9th Plan is likely to be completed by May 2002, in view of the delay in receipt of imported equipment. This is treated as 9th Plan proposal and no provision is made as a continuing scheme for 10th Plan as it was envisaged that the project would be completed before March, 2002 when the 10th Plan was initially finalised.

2.55 The Committee note with concern that a number of Joint Venture (JV) Projects of the Indian Rare Earths Limited (IREL) have run into rough weather. JV for the Bhimli Project in Andhra Pradesh has not found favour with the Ministry of Environment and Forests owing to concern for the Olive Ridley Turtles along the coast. Similarly, JV for the Kudiraimozhi Project in Tamil Nadu has also not materialised following objections by the Government of Tamil Nadu to release 465 hectares of reserved forest area for the project. The Committee note that obtaining various clearances from the Ministry of Environment and Forests and State Pollution Control Boards take a lot of time leading to cost and time overruns. The Committee feel that the Government should first clearly evaluate the benefits to be derived from any project vis-à-vis its environmental costs before they give permission to any Ministry / Department to start a project. But once a project is given permission to start, clearances from environmental angle and Pollution Control Boards should automatically come in a time bound manner. Again, JV with Austpac Resources, Australia for synthetic rutile production has not been possible due to lack of clearance from the Foreign Investment Promotion Board (FIPB) on the ground that synthetic rutile production is not a desired value addition. The Committee feel that the production of synthetic rutile through JV with Austpac Resources, Australia would

enhance the competitive capability of IREL. The Committee, therefore, recommend that the Department of Atomic Energy should impress upon the FIPB that the product has got the desired value addition capacity and be allowed the Joint Venture. However, in the alternative they should also explore the possibility of indigenous technology.

2.56 The Committee are unhappy to note that a number of projects of the Indian Rare Earths Limited (IREL) which were taken up during the 8th Plan, were carried forward to the 9th Plan. These include two projects of the Chavara Plant and one project of the Manavalakurichi Plant. While time overruns on these projects have ranged from 4 to 9 months, one of these projects viz. the Dredge and Wet Concentration Plant (MRP-II) has registered cost overruns of over 40 per cent. Though there has not been substantial delay on the projects, the Committee feel that all out efforts should always be made by the implementing agency to avoid cost overruns on its projects. The Committee have also been informed that four 9th Plan projects of IREL have been carried forward to the 10th Plan. Lack of approvals for Joint Venture Projects, problems in land acquisition, enhancement of project capacity and delay in receipt of imported equipment have been cited as reasons for delay on these projects. The Committee, while appreciating the difficulties experienced by the Department of Atomic Energy in procuring machines and equipments for its various projects, feel that sufficient efforts are not being made to encourage the domestic industry throughout the country to develop new infrastructure, etc. required by the Department. The Committee would like the Department /IREL to critically analyse the factors leading to delays and take advance / timely action to minimise such delays.

G. Board of Radiation and Isotope Technology (BRIT)

2.57 The Board of Radiation and Isotope Technology (BRIT), a constituent unit of the Department of Atomic Energy, is responsible for the production and supply of a variety of radioisotope products, radiation technology equipment such as gamma radiography

cameras and research irradiators, rendering radiation processing services for medical products, spices & condiments and allied products.

2.58. Radioisotopes produced in the research reactors at Trombay are formulated into a variety of radio-pharmaceuticals, radiation sources, and labelled compounds by BRIT. The four major areas of applications of radiation technology in which BRIT is actively involved are health-care, industry, agriculture and supporting research in life sciences and bio sciences.

2.59 As regards the budgetary allocations made to the Board of Radiation and Isotope Technology (BRIT) and expenditure incurred by it during 2000-01, the Department have furnished the following information:

(Rupees in crores)

	BE 2000-01	Actual 2000-01	Variation	Reasons for variation
Non Plan	25.00	18.72	- 6.28	Planned import of teletherapy Cobalt-60 did not materialize. Receipt of absorber rods from NPCIL could not be done due to RAPPCOF refurbishment work. Delay in procurement of certain items.
Plan	18.00	06.18	-11.82	Delay in receipt of imported items and supply of items by indigenous manufacturers/fabricators. Delay in commencement of civil work. Modifications to the existing facilities had to be done in a phased manner at the same location keeping the facilities operational. Relocation of certain facilities.

	BE 2001-02	RE 2001-02	BE 2002-03
Non Plan	25.93	24.12	25.01
Plan	08.50	06.00	08.01
Total	34.43	30.12	33.02

2.60 As regards the project for augmentation of production of cobalt – 60, the Department have stated that the major progress made in the project till now is related to the revamping of the existing RAPPCOF facility following the mandatory regulatory

reappraisal by the Atomic Energy Regulatory Board (AERB) and consequent midcourse corrections/revisions in the scope of the project. The physical significance of this is the revamped renewed ability to safely and reliably carry out recovery of cobalt-60 from the adjuster rods irradiated in the nuclear power reactors of the Nuclear Power Corporation of India Limited (NPCIL). Over 1 million curies of cobalt-60 was thus recovered following the revamping during the last one year at RAPPCOF.

2.61 Major works related to setting up the 2 additional hot cells are about to be commenced. The estimates for works are to be made available for floating the tenders during the next month.

2.62 Other technical progress aspects are as follows:

1. Design of mechanical equipment, like access door, different types of sleeves, etc. completed. Design of low active liquid waste sump completed.
2. Fabrication and procurement of major items like viewing windows, different types of sleeves, flasks, workshop machines and Health Physics instruments is completed.
3. Design Basis Report submitted to AERB appointed Safety Committee for comments.
4. Schedule of quantities and technical specifications are in final stage for tendering purpose.

2.63 The sanctioned cost of the project is Rs.17 crore. An expenditure of Rs.9.74 crore has been incurred up to January, 2002. No change in the cost of the project is envisaged now.

2.64 The project was to be completed by 31.03.2001. It is now expected to be completed by 31.03.2004. The delay is on account of additional workload connected with revamping of RAPPCOF following mandatory regulatory reappraisal. Additional time taken for assessing and excluding the feasibility to construct an additional water pool in the new facility as suggested by the regulatory body. The cumulative delay on

the project is also due to the preoccupation of the service engineering departments with the other on-going projects and the consequent inability to give the expected priority for this project.

2.65 The Committee are unhappy to note that the Board of Radiation and Isotope Technology (BRIT) has utilised just over one-third of the Plan budgetary allocation during 2000-01. Out of a total Plan BE of Rs. 18 crore, it has utilised a meagre Rs. 6.18 crore. Delay in receipt of equipments, delay in commencement of civil work and phased modifications of the existing facilities have been cited as reasons for non-utilisation of Plan budgetary allocation by the organisation. The Committee find that the organsiation had also failed to fully utilise the Plan budgetary allocation during 1998-99 and 1999-2000 and this fact had been commented upon by the Committee last year. The Committee do not appreciate the same mistake being repeated year after year. The Committee also note that the Plan BE of 2001-02 amounting to Rs. 8.50 crore has been reduced to Rs. 6 crore at RE stage. They would like to be apprised of the reasons for such reduction as also the measures taken by the organisation to ensure full utilisation of budgetary allocations in future.

2.66 The Committee are unhappy to note that the project of the Board of Radiation and Isotope Technology (BRIT) for augmentation of production of cobalt- 60 which was scheduled to be completed by 31.3.2001, is now scheduled to be completed by 31.3.2004. Though the Department have stated that no cost overrun on the project is envisaged, the Committee are not inclined to accept the claim. Either there has been over-estimation of cost earlier or the cost has not been re-assessed properly at present. The delay on the project has been attributed to additional workload connected with the revamping of RAPPCOF following the mandatory regulatory reappraisal and preoccupation of the service engineering departments with other on-going projects. The Committee can understand the delay caused by additional workload connected with the revision in the scope of the project following the mandatory regulatory reappraisal. However, they cannot accept the fact that the cumulative delay on the project is also due to the

preoccupation of the service engineering departments with other on-going projects and the consequent inability to give the expected priority for this project. The Committee do not approve of this lackadaisical approach of the Department. The Committee recommend that considering its importance, the project should be given due attention by the Department. They also recommend that the project should be completed within the extended time-frame.

H. Waste Immobilisation Plant, Kalpakkam

2.67 Plants for management of all types of radioactive wastes in operation at many nuclear facilities. The low and medium level radioactive wastes are treated in eco-friendly ways. The high level wastes, generated in very small quantities are immobilised in glass matrix (vitrification). Based on this technology, a Waste Immobilisation Plant (WIP) is in opertion at Tarapur and two more plants are coming up at Trombay and Kalpakkam.

2.68 Regarding the Waste Immobilisation Plant, Kalpakkam, the Department have furnished the following data:

Civil construction of all the plant structures is complete. Process and mechanical design of various equipment and accessories is complete. Fabrication of all major equipment has been complete. Utility and services equipment are in position. Piping layout drawings have been prepared and tender for installation is under release. Tender packages for electrical and ventilation works are ready for release. Process instrumentation design is complete and bulk instruments have been procured. Design of remote handling systems has been worked out and requisite systems and assemblies are being procured. The sanctioned cost of the project is Rs.4999.90 lakh. The project was to be completed by December 1995. As per the present estimates a total amount of Rs.7500.00 lakh would be spent on the project.

2.69 The Budget Estimates and the actual expenditure on the project from 1997-98 to 2000-01 have been as under :-

(Rs. in crores)

	BE	AE
1997-98	5.60	3.98
1998-99	7.40	6.23
1999-2000	10.00	4.47
2000-01	1.00	4.16

2.70 As regards the reasons for delay on the project, the Department have stated that the design of the plant was based on the Waste Immobilistion Project (WIP) set up at Tarapur. It was considered necessary to utilise the operational experience of Tarapur plant. The operational feed back and the improvements carried out in Tarapur plants, which could be used in the design of WIP (K), became available progressively from 1990-91 onwards. The project could not achieve the desire pace due to lack of experienced manpower and the restrictions imposed by the government on recruitment of the fresh manpower. The available manpower was also deployed for the implementation of other on-going projects for the management of radioactive waste generated from various nuclear installations.

2.71 The Department have also informed that the plant has been set up through total indigenous efforts and using locally available materials and equipment; except radiation shielding windows, magnetic flow meters and bellow sealed bellows operated control valves. The foreign exchange outgo constitutes less than 5% of the project cost. The project has gathered momentum and all efforts are being made to complete the remaining works by 3rd quarter of 2005.

2.72 The Committee are pleased to note that a Waste Immobilisation Plant is being set up at Kalpakkam through indigenous efforts, using locally available materials and equipments barring a few items. This will go a long way in suitably conditioning and storing the radioactive wastes emanating from the various nuclear installations in the country. However, the Committee are unhappy to note that the

plant which was envisaged to be completed in 1995, is likely to be completed only in 2005. There has also been a 50 per cent cost overrun on the project. As against the sanctioned cost of approximately Rs. 50 crore, an amount of Rs. 75 crore is likely to be spent on the project as per the present estimates. The delay has been attributed to the lack of experienced manpower, restrictions imposed by the Government on the recruitment of fresh manpower, deployment of available manpower for the implementation of other on-going projects, etc. The reasons advanced by the Department are hardly convincing. The Committee recommend that any restrictions put by the Government on fresh recruitment should not be made applicable to the Department of Atomic Energy and other similar scientific Departments so that important technical/research projects are not affected for want of trained personnel. The Committee feel that the Department should have put in concerted efforts to check the time and cost overruns on the project. Another area of concern is that the Department have failed to fully utilise the budgetary support provided for this project during 1997-98, 1998-99 and 1999-2000. Considering the fact that the resources are scarce, the Department should have productively utilised whatever allocations were made. The Committee hope that the Department would adhere to the current completion schedule of the project.

PART II

APPENDIX

(Vide para 2.4. of the Report)

(Rs. in crores)

Sl. No.	Major Heads	2000-01 Actuals		2001-02 BE		2001-02 RE		2002-03 BE		Remarks
		Plan	N-Plan	Plan	N-Plan	Plan	N-Plan	Plan	N-Plan	
1	2	3	4	5	6	7	8	9	10	11
	Demand No. 89									
	Revenue Section									
1	3451	-	8.30	-	9.35	-	9.64	-	9.97	This read comprises items like salaries, etc, of the Secretariat and Atomic Energy Commission
2.	2852	7.50	604.38	45.98	632.96	39.98	629.84	36.49	770.46	This head comprise items like R&D expenditure of Bhabha Atomic Research Centre, Nuclear Fuel Reprocessing Plants, Industry and Extension Programme and Support Services.
3.	3401	140.39	637.62	177.95	672.96	160.02	707.59	203.55	765.30	This head comprises items like R&D expenditure of BARC, Aided Institutions, IGCAR, CAT and contribution to International Atomic Energy Agency.
	Capital Section									
4.	4859	-	-	0.01	-	0.01	-	3.51	-	This head comprises items like R&D investment in Electronics Corporation of India Limited.
5.	4861	134.12	442.99	294.00	459.67	202.14	434.85	330.00	468.95	This head comprises items like BARC,NFC, Heavy Water Board, Fuel Reprocessing Industry and Extension Programme.
6.	5401	227.49	-	281.05	-	257.84	-	331.45	-	This head comprises items like BARC, IGCAR, VECC, CAT, etc.
7.	6859	-	-	0.01	20.01	0.01	-	-	-	This head comprises items like loan to ECIL.
	Demand No. 90									
	Revenue Section									
8.	2801	-	1545.75	-	1503.28	-	1612.89	-	1665.60	This head comprises items like Power Project Fuel Inventory and Waste Management.
	Capital Section									
9.	4801	639.92	-	850.79	-	909.88	-	1408.00	-	This head comprises items like Investment in Power Projects and FBTR.
10.	6801	163.00	-	242.21	-	30.12	-	187.00	-	This head comprises items like loans to Power Projects.

Demand No. 89
Adjustment of Revenue as reduction of expenditure
Revenue Section

11.	2852	-	(-) 2.68	-	(-)2.20	-	(-)2.80	-	(-)3.00	.
12..	3401	-	(-)8.24	-	(-)8.74	-	(-)9.85	-	(-)11.10	

Capital Section

13.	4861	-	(-)219.66	-	(-)168.33	-	(-)132.45	-	(-)143.62	