CHAPTER – III

Department of Atomic Energy

3.1 Activities of Heavy Water Board

Delay in decision making for dismantling and disposal of the closed Heavy Water Plant at Baroda and delay in closure of the Heavy Water Plant at Talcher by the Heavy Water Board resulted in avoidable expenditure of ₹ 68.26 crore on their maintenance. There was time overrun of one month to more than seven years in 29 projects and cost overrun of ₹ 12.32 crore in five projects. Oxidation system established at a cost of ₹ 8.66 crore could not be utilised due to lack of feeder gas.

3.1.1 Introduction

The Department of Atomic Energy (DAE) is engaged in the development of nuclear and radiation technologies and their application in the fields of agriculture, medicine, industry and basic research. It involves the use of Pressurized Heavy Water Reactors (PHWR) operated by the Nuclear Power Corporation of India Ltd. (NPCIL), a public sector undertaking of DAE, to generate nuclear power. An important component of a PHWR is Heavy Water[4] (HW) which is required initially by the PHWRs to attain criticality and thereafter as a moderator[5] and coolant[6] during operation and periodically to make up for losses[7].

The Heavy Water Board (HWB), one of the industrial units under DAE, is responsible for production of HW and nurturing and facilitating R&D activities in the connected areas of technology. Its mandate includes design, engineering, construction, operation and maintenance of Heavy Water Plants as well as development of new processes, regular production of HW, development of technologies and production of solvents required for closed nuclear fuel cycle activities. HWB has set up seven Heavy Water Plants (HWPs) at various locations in the country.

The activities of HWB are monitored by a Board which consists of 11 members with the Chief Executive as the Chairman of the Board and representatives from DAE,

[4] D_2O-Deuterium Oxide

[5] Moderator is required in a thermal reactor to slow down the neutrons produced in the fission reaction so that the chain reaction can be sustained.

[6] Heat energy produced in the fission reactor is removed by coolant. Heavy Water is used as a primary coolant to transport heat generated by the fission reaction to secondary coolant, light water.

[7] Loss of HW due to leakage, evaporation, etc., during operation is to be made-up by refilling HW.

BARC, NPCIL, DPS[8], HWB and distinguished Scientists/Professors from the Indian Institutes of Technology.

The budget and expenditure of HWB for the period from 2012-13 to 2016-17 is given in Table 3.1 below.

Table 3.1: Budget and Expenditure for 2012-2017

(₹ in crore)

	2012-13	2013-14	2014-15	2015-16	2016-17
BE	701.05	830.00	936.82	1,032.00	1,123.58
Actual	812.50	864.89	1,053.58	1,025.76	1,066.26
% Variation	16	4	12	-1	-5

As seen from above, there was excess of expenditure over Budget Estimates during 2012-13 to 2014-15 ranging from four to 16 *per cent* and unspent budget of one and five *per cent* during 2015-16 and 2016-17.

HWB executed 39 projects during the 10th, 11th and 12th Five Year Plans related to up-keep of plants[9], procurement of equipment for replacement and spares and acquisition of land. The total sanctioned cost of the projects was ₹ 420.43 crore, against which an expenditure of ₹ 266.61 crore i.e. 63.4 *per cent,* was incurred up to March 2017.

An audit of HWB and HWPs was conducted to examine the management, maintenance and operation of HWPs and implementation of projects covering the period from 2012-13 to 2016-17. Two out of four operating plants and three closed/ suspended plants were selected for detailed audit. Of the 39 projects executed by HWB, 33 ongoing/ completed projects covering an expenditure of ₹ 250.77 crore were selected based on stratified random sampling method.

3.1.2 Audit Findings

3.1.2.1 Management of Heavy Water Plants

(a) Avoidable expenditure of ₹ 68.26 crore on maintenance of closed plants

(i) Heavy Water Plant, Baroda

HWP Baroda was commissioned in 1977 at a cost of ₹ 34.74 crore and was linked to the Gujarat State Fertilizers & Chemicals Limited (GSFC) for feed synthesis gas. Due to the GSFC commissioning (1998) a less energy intensive new ammonia plant and consequent non-availability of feed synthesis gas, operations at the HWP Baroda had to be stopped with effect from April 2011.

The Atomic Energy Commission (AEC) in its meeting held in March 2011 stated that the majority of equipment at HWP Baroda had served their useful life and the usable

[8] Directorate of Purchase and Stores, the centralised procurement unit of DAE.

[9] Revamping & modernisation, minor modification, improvements in safety, environment and energy conservation, ageing management and system up-gradation, etc.

plant/equipment could be utilised in other DAE facilities, the remaining were to be declared as scrap/surplus and disposed of as per the extant rules of the Department.

After lapse of five years thereafter, HWP Baroda constituted a committee in June 2016 for preparation of cost estimate for dismantling the towers, piping and structure material of the plant. Based on the recommendation of the committee to dismantle and dispose about 20 *per cent* of the total structure and consider disposal of the remaining on as-is-where-is basis, the Board approved (September 2016) dismantling and disposal of surplus material of HWP Baroda. The Committee estimated the total cost for dismantling of main plant and Front End Unit at ₹ 3.60 crore.

Subsequently, the Board suggested in March 2017 that a comprehensive disposal methodology be adopted so that the expenditure required for dismantling can be met from the proceeds of the expected revenue generation on account of the disposed items. Board further directed that the proposal for dismantling and disposal of plant should be forwarded to DAE for submission to the AEC. In October 2017, the AEC in its 230th meeting approved the dismantling and disposal of surplus material.

Audit observed that DAE took five years to constitute a committee for disposal of towers, piping and structural material of the plant. During this delay of five years in formation of committee and decision for dismantling and disposal, HWP Baroda had to continue to incur avoidable recurring expenditure towards maintenance of main plant since its closure in April 2011. The expenditure incurred since April 2011 to March 2017 towards maintenance of the main plant amounted to ₹ 13.92 crore.

(ii) Heavy Water Plant, Talcher

HWP Talcher was set up in April 1985 at a cost of ₹ 73.83 crore and was linked to the feed synthesis gas available from Fertilizer Corporation of India Limited (FCIL). In April 1994, the operation of this plant was suspended due to non-availability of feed synthesis gas from FCIL on sustained basis. DAE explored the possibility of developing a front-end technology during the period 2004 to 2011 to re-start its operations but it was subsequently abandoned due to high cost of production.

In September 2016, the Board felt that it would not be prudent to restart HWP Talcher as the process deployed for HW production at Talcher was not used anywhere in the world and the plant could not achieve sustained operation due to several process related problems. It accordingly decided that a committee should be formed to take a view regarding closing HWP Talcher. Based on the recommendation of the committee formed by HWB in October 2016, the Board submitted a proposal (November 2016) to DAE for closure of HWP Talcher. The proposal was pending for approval of DAE as of April 2017.

Audit observed that despite non-availability of feed synthesis gas since April 1994 and even after the front-end technology proved to be a non-starter in April 2011, the plant was not declared 'closed' and HWB continued to incur expenditure towards

preservation of plant and its maintenance. HWB had incurred an expenditure of ₹ 54.34 crore towards maintenance of the plant from April 2011 to March 2017.

HWB stated (March 2017) that a front end technology was being studied at HWP Baroda for installation at Talcher for its re-start. Audit observed that the front end technology had been unsuccessfully demonstrated at HWP Baroda which was then permanently closed by AEC in April 2011 due to high energy consumption and uneconomical operation. Hence, the delay in closure of HWP Talcher remained unexplained.

Thus, delay in dismantling and disposal of spares of HWP Baroda and delay in closure of HWP Talchar resulted in avoidable expenditure of ₹ 68.26 crore on maintenance and preservation of the two plants from April 2011 to March 2017.

3.1.2.2 Project Management

Eighteen of the 33 selected projects[10] related to retrofitting, revamping, major repairs, procurement of spares and storage equipment and the remaining 15 projects pertained to developmental activities. As of March 2017, 23 projects were completed and 10 were ongoing.

(a) Time and cost over-run in the projects

Audit observed delays in implementation in 29 out of the 33 selected projects. The delays in these projects ranged from one month to seven years as detailed in the Table 3.2 below.

Table 3.2: Time overrun in projects

Time overrun	Projects
Less than one year	4
Between one and five years	24
More than five years	1

The delays in completion of the projects were attributable *inter alia* to repeated re-tendering, delay in grant of approval at different stages, deficient technical assessment and lack of effective follow up of proposals. Audit also observed that in five projects, time overrun resulted in consequent cost overrun of ₹ 12.32 crore in the projects. The increase in the cost of the projects ranged from 12 to 40 *per cent.* The details of the projects are given in ***Appendices VII A and VII B*****.**

(b) Delay in revamping of Integrated Information System

DAE instructed (April 1996) all its units to place orders relating to software development on Electronics Corporation of India Ltd.[11] (ECIL) wherever it was in a position to fulfil the requirements.

[10] Against sanctioned cost of ₹ 400.03 crore, an expenditure of ₹ 250.77 crore was incurred up to March 2017.

[11] A Public Sector Undertaking under DAE

Based on a proposal of HWB, DAE sanctioned (January 2013) a project "Revamping of existing Integrated Information System (IIS) application software along with IT infrastructure" at HWB and five HWPs at an estimated cost of ₹ 10 crore. The project was to be completed by March 2016. HWB floated a tender in March 2013. However, due to huge variation between the cost quoted in the bids ranging from ₹ 21 to ₹ 48 crore and the estimated cost, HWB re-tendered the work in February 2014.

In the meantime, HWB informed the Apex Committee at its meeting held in October 2013 for implementation of DAE's project titled DIMIS[12] that it was in the process of designing a new Management Information System and that the requirement of DIMIS would be included in it. In this meeting, ECIL expressed its willingness to provide support in the development of the DIMIS project.

Accordingly, HWB scrapped the earlier tender and floated (May 2014) another tender with a revised scope of work against which only one bid was received. HWB re-issued (September 2014) a fresh tender notice, against which again, a single bid was received. Further, there was a huge variation between the estimated cost and the quoted cost and HWB did not pursue the tender.

Thereafter, HWB enhanced the sanctioned cost of the project to ₹ 14 crore with the approval of DAE (November 2016) and the project duration was re-scheduled to December 2018. HWB submitted (December 2016) a proposal to DAE for placing the order on ECIL through MoU for revamping of existing IIS application software with DIMIS. Approval of DAE was awaited as of March 2017. However, an expenditure of ₹ 5.93 crore had been incurred on the project as of March 2017 against the sanctioned cost of ₹ 14 crore.

Audit observed that despite DAE's instructions of April 1996, HWB did not approach ECIL in the first instance even though the majority of works related to development, testing, deployment and support for the proposed ERP software. Further, though HWB was aware of the changes in the software system in view of DIMIS requirements since October 2013, it did not include the requirements while re-tendering in February 2014. The huge variation between the estimated and quoted costs on two occasions was indicative of the inability of HWB to assess cost requirements accurately.

HWB stated (February 2017) that ECIL had expressed their willingness for DIMIS project and not for HWB-IIS project. The reply of HWB is not tenable as DAE had instructed in 1996 that ECIL had to be approached in the first instance for all developmental activities of software.

[12] DAE Integrated Management Information System (DIMIS) to integrate all information available with various units / sub-units in DAE for effectively managing its manpower, financial resources, project monitoring, security aspects, etc.

Thus, the project sanctioned in January 2013 was delayed by more than four years and remained incomplete due to multiple cancellations with an expenditure of ₹ 5.93 crore already having been incurred.

(c) Non-utilisation of Oxidation Plant

HWP Kota undertook (May 2009) a project for Oxidation plant at a cost of ₹ 10 crore and scheduled date of completion of July 2012. The plant was to be utilised for storage of tritiated water. The project was completed and the oxidation plant was commissioned in March 2013 at a cost of ₹ 8.66 crore. After test operation for 72 hours, there was no operation thereafter due to non-availability of feed gas from Heavy Water Clean Up Facility (HEWAC).

Thus, HWB installed an Oxidation plant without ensuring sustained availability of feed gas which resulted in non-utilisation of the plant and an idle cost of ₹ 8.66 crore since last four years.

(d) Under-utilisation of Plant

HWB had set up two plants at Talcher (2003) and Baroda (2010) for production of Tri Butyl Phosphate (TBP) with installed capacity of 60 MT and 130 MT per annum respectively. Both the TBP plants are operational.

Audit observed that actual utilisation of TBP was much less than the installed capacity of the existing two plants as detailed in Table 3.3 below:

Table 3.3: Demand, Production and Utilisation of TBP at HWP, Baroda and Talcher

(in MT)

Year	Installed Capacity	Actual production	Demand raised per year	Utilisation	Closing Balance
2011-12	-	-	-	-	114.35
2012-13	190	165.50	123.7	198.54	81.31
2013-14	190	151.85	147.7	79.85	153.31
2014-15	190	158.08	167.7	148.49	162.90
2015-16	190	139.68	177.7	73.03	229.55
2016-17	190	158.28	197.7	85.03	302.80
Total	**950**	**773.39**	**814.5**	**584.94**	**302.80**

Out of the total installed capacity of 950 MT of TBP over the five years from 2012-13 to 2016-17 from the two plants and against a total demand of 814.5 MT from users[13] over the same period, there was production of 773.39 MT against which only 584.94 MT of TBP was utilised. There remained 302.80 MT of TBP as closing balance as on January 2017.

Though the installed capacity of the existing plants exceeded the actual production achieved, the demand raised as well as the utilisation, DAE approved (February 2015)

[13] User of TBP are Heavy Water Board, Nuclear Fuel Complex, Nuclear Recycle Board, Nuclear Recycle Group, Indian Rare Earths Ltd., Indira Gandhi Centre for Atomic Research, Bhabha Atomic Research Centre, etc.

a project for setting up of another Solvent Production Plant[14] at Tuticorin at a sanctioned cost of ₹ 38 crore which includes production of TBP. Inspite of supply being less than the demand, no user seems to have been hampered. This shows that demand was unrealistic. With un-supplied stock remaining in hand, the need to set up a third plant also needs careful assessment.

The proposal/Detailed Project Report (May 2014) was based on demand projected by the users for various types of solvents. It was felt that it would be advantageous to establish a combined plant facility for all types of solvents as it would reduce both project as well as operating costs. The project was approved by DAE in February 2015 with completion target of 36 months i.e. by February 2018. HWB had incurred an expenditure of ₹ 57.54 lakh on this project till March 2017.

Audit observed that the initial proposal was for separate plants for TBP and other solvents. There was clearly no requirement of additional production capacity for TBP since utilisation of TBP was only 73.03 MT in 2015-16 and 85.03 MT in 2016-17 against actual production of 139.68 MT in 2015-16 and 158.28 in 2016-17. It was further noted that combined plants predominantly produced TBP. Hence, setting up of a separate plant to produce only those solvents that were in short supply could have been considered.

Thus, setting up of a third Plant that included production of TBP while the capacity of the existing two plants remained under-utilised has the risk of either idling of the third plant or under-utilisation of its capacity.

3.1.2.3 Management of Heavy Water Pool

The entire production and purchase/import of HW is transferred to a "Heavy Water Pool". The purchase, storage, central accounting, inventory management and distribution to various users of HW was declared a commercial activity with effect from 1 July 1979. Heavy Water Pool is treated as a capital asset and HWB maintains Proforma Accounts in respect of the Heavy Water Pool Management (HWPM). However, HWB did not submit Proforma Accounts from the year 2013-14 onwards. Due to non-submission of Proforma Accounts, the financial position of HWB for four years during 2013-14 to 2016-17 could not be ascertained.

Though DAE decided (2004) to review every five years the costing of Heavy Water and accounting and pricing of Heavy Water pool taking into consideration the developments taking place during the intervening period, no review of the pricing policy due in 2009 had been carried out as of March 2017.

3.1.2.4 Other issues

(a) Non realisation of compensation claim

According to Rule 9 of GFRs, 2005, it is the duty of the Department to ensure that the receipts and dues of the Government are correctly and promptly assessed, collected and duly credited to the Consolidated Fund or Public Account, as the case may be.

[14] Solvents – TBP (150 MTPA), D2EHPA-II, TiAP and DHOA (20-30 MTPA)

A Captive Power Plant (CPP) was set up in 1991 at HWP Manuguru to ensure reliable steam and power supply to the process plant for production of HW. In January 2005, HWB decided that since the steam and electrical consumption in the main plant had reduced due to intensive energy conservation measures and process optimisation, the plant was in a position to export 12 MWe of power. Accordingly, HWB entered (February 2005) into an agreement with Power Trading Corporation Ltd. (PTC) for sale of 12 MWe of power. As per the terms and conditions, PTC shall pay compensation at 20 *per cent* of tariff per kwh of short fall in excess of permitted deviation of 15 *per cent* in drawing of power.

Audit observed that during the period from December 2014 to February 2017, compensation of ₹ 6.51 crore was receivable from PTC towards shortfall in extraction of power. However, HWP Manuguru failed to take up the matter with PTC and recover the amount. Audit further observed that there was no prescribed date for payment of the compensation in the agreement entered with PTC nor in any subsequent correspondence.

Thus, failure to take timely action resulted in outstanding compensation claims of ₹ 6.51 crore.

(b) Non fulfilment of environment obligation

Ministry of Environment, Forest and Climate Change (MoEFCC) notified (September 1999) guidelines for use and disposal of fly ash produced at coal/lignite based power plants. The guidelines stipulated utilisation of the entire quantity of fly ash generated in the power plants in a phased manner. According to the Notification, every coal or lignite based thermal power plant shall make available ash without any payment for the purpose of manufacturing ash-based products such as cement, concrete blocks, bricks, etc. Subsequently, MoEFCC amended (November 2009) the notification, stipulating utilisation of fly ash in a phased manner starting from at least 50 *per cent* within one year to 100 *per cent* within five years[15] of date of issue of the amendment. A further amendment (March 2015) required the power plants to display their stock of fly ash on their websites and update it every fortnight.

A Captive Power Plant (CPP) commissioned at HWP Manuguru consumed about 1,200-1,600 MT coal per day and generated around 300-720 MT of ash per day. In pursuance of the directives of MoEFCC, HWP established (March 2011) a dry fly ash collection, segregation and storage facility at a cost of ₹ 11.66 crore.

Audit observed that HWP Manuguru could not utilise fly ash as prescribed in the MoEFCC notification. As of March 2017 i.e. after eight years from the MoEFCC

[15] The notification prescribed utilization of at least 50 *per cent* within one year; 60 *per cent* within two years; 75 *per cent* within three years; 90 *per cent* within four years; and 100 *per cent* within five years.

notification, HWP Manuguru utilised only 66 *per cent* against MoEFCC's prescribed scale of 100 *per cent*. Further, HWB did not display fly ash stock position in its website, which was against MoEFCC's directives.

Thus, HWP, Manuguru failed to fulfil its obligations to mitigate environmental pollution through safe utilisation of fly ash.

(c) Avoidable payment towards transportation of coal

HWP Manuguru entered (December 2008) into an agreement with a firm for operation and maintenance of external coal handling system in its Captive Power Plant area. This agreement was valid for a period of five years i.e. up to October 2013, with a provision for extension by two more years on the satisfactory performance of the contractor. The agreement was subsequently extended up to October 2015. After fresh tendering process (January 2015), the work was awarded to the same firm (February 2016) for a period of five years up to January 2021 as this was the only firm that responded to the tender.

As per the work order, a minimum quantity of 60,000 MT per month/ 2,400 MT per day of coal was to be transported by the firm to HWP Manuguru. In case of loss of transportation hours due to reasons not attributable to contractor, compensation[16] was payable to the firm.

On scrutiny of the measurement book along with the payments made to the firm for the period April 2012 to February 2017, it was observed that HWP Manuguru indented and received coal ranging between 200 MT to 60,715 MT every month and the quantity exceeded 60,000 MT only in three months (December 2012, January 2014 and January 2016). Due to the shortfall in drawing coal, HWP Manuguru paid ₹ 7.66 crore as compensation to the firm.

Consistent shortfall in drawing of coal for nearly five years from April 2012 to February 2017 indicates that HWP Manuguru did not assess its actual requirements accurately.

HWP Manuguru stated (July 2016) that any reduction of minimum quantity of 60,000 MT without reducing inputs/resources for O & M of the system will only work out in the benefit of the contractor. It added that transportation of 60,000 MT of coal in a month mentioned in the work order is the minimum quantity required to achieve break-even point to meet the expenditure of establishing semi-permanent nature resources involving skilled workmen and specialized tools and tackles to execute ropeway system Operation & Maintenance activities.

The reply is not tenable in view of the fact that the average requirement of coal during the five-year period April 2012 to February 2017 was only 40,076 MT. The coal transportations exceeded 60,000 MT only on three occasions.

[16] Compensation for 1 MT = Basic price for 60,000 MT as per agreement *Plus* Escalation due to hike in labour wages *divided* by 60,000 MT.

Thus, HWP Manuguru failed to realistically assess the quantity of coal to be transported which resulted in payment of ₹ 7.66 crore towards compensation.

3.1.3 Conclusion

Audit of Heavy Water Board revealed undue delays in taking decisions for dismantling and disposal of the closed Heavy Water Plant at Baroda and for closure of the Heavy Water Plant at Talcher resulting in avoidable expenditure of ₹ 68.26 crore on maintenance.

Further, projects undertaken by HWB suffered from delays in execution. Of the 33 selected projects, there were delays in implementation in 29 projects for time period ranging from one month to more than seven years. There was cost over-run in five projects. An oxidation plant was installed at a cost of ₹ 8.66 crore without ensuring sustained availability of feed gas.

DAE also failed to take timely action for realisation of compensation claims totaling ₹ 6.51 crore as of March 2017 from PTC. There were shortcomings in discharge of environment obligations regarding safe disposal of fly ash by one plant as well as failure to realistically asses the transportation of coal in captive power plants that resulted in avoidable payment of ₹ 7.66 crore.

The matter was referred to DAE (November 2017); its reply was awaited as of December 2017.

3.2 Short-realisation of ground rent

Directorate of Construction Services and Estate Management was unable to renew license agreements and revise ground rent in respect of land leased to oil companies due to lack of decision by Department of Atomic Energy which resulted in short realization of rent and interest of ₹ 12.78 crore. Besides, an amount of ₹ 50.39 lakh towards interest on delayed payment of ground rent was also recoverable.

The Directorate of Construction Services and Estate Management, Mumbai (DCSEM), the construction wing of the Department of Atomic Energy (DAE), entered (1997) into license agreements with Hindustan Petroleum Corporation Limited (HPCL), Bharat Petroleum Corporation Limited (BPCL), Reliance Industrial Infrastructure Ltd. (RIIL) and National Organic Chemical Industries Ltd. (NOCIL) to route these companies' oil pipelines underneath land belonging to DAE at Anushakti Nagar, Mumbai. License agreements were for a period of 10 years from August 1997 to July 2007.

The annual ground rent for use of the land was fixed at 10 *per cent* of the valuation of the land done through the Director of Town Planning, Government of Maharashtra (DTP). The licensees were to pay interest at the rate of 12 *per cent* per annum for delay in payment of rent.

For the purpose of fixing license fee, DAE referred (1997) the matter of valuation of land to DTP who advised (2001) that the land value mentioned in the Ready Reckoner

should be considered. The oil companies objected (2001) to these rates and referred the matter again to DTP. On the advice (February 2002) of DTP for re-considering the license fee and based on a meeting (July 2002) between representatives of oil companies and DCSEM, the rate of license fee was fixed at 10 *per cent* on 35 *per cent* of the value of land mentioned in the Ready Reckoner for the area occupied[17]. Accordingly, rent was calculated from the date of agreement i.e. August 1997 and paid by the oil companies.

Since the tenure of the license agreements was to expire in July 2007, DCSEM approached DAE (February 2007) for renewal of the agreements. DAE asked (March 2007) DCSEM to work out revised rate of license fee chargeable on renewal of agreements from August 2007 at a uniform rate based on the actual land value as per the Ready Reckoner without applying any concessions. However, the oil companies declined to accept the revised ground rent stating that changes in formula for working out ground rent was made without taking their consent and requested to continue to charge the ground rent worked out on 35 *per cent* of land value as agreed in 2002.

After a meeting (June 2008) with representatives of oil companies, DAE approached DTP for fresh valuation of land who advised (July 2010) DCSEM to adopt the provisions of a Government of Maharashtra Resolution (August 2008) which provided for lease rent of 10 *per cent* of the market value plus interest at Prime Lending Rate (PLR). Accordingly, DCSEM submitted (August 2010) a proposal to DAE for renewal of licence agreement for a further period of 10 years. Since then, the matter has remained under correspondence with DAE. Meanwhile, DCSEM decided (November 2015) to enhance the ground rent at the rate of 15 *per cent* after every three years.

No decision was taken by DAE on revision of ground rent and renewal of agreements. Due to non-revision of ground rent, the oil companies continued to pay rent at the earlier concessional rate. This resulted in short realization of ground rent plus interest of ₹ 12.78 crore[18] in respect of HPCL, BPCL, RIIL for the period from August 2007 to July 2017 and NOCIL for the period August 2007 to July 2012[19]. In addition, an amount of ₹ 50.39 lakh towards interest for the period from 1997 to 2002 towards delayed payment of ground rent was also outstanding from HPCL, BPCL and NOCIL.

DAE stated (December 2017) that the proposal for renewal of the licence agreement with oil companies was submitted to the Atomic Energy Commission (AEC) in May 2011 and thereafter to the Cabinet and based on the orders of the Cabinet (March 2011/November 2011/July 2012), it was decided to refer the matter to Ministry of

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[17] Rent = (35 *per cent* of the land value as per Ready Reckoner x area occupied) x 10 *per cent*

[18] ₹ 11.35 crore (₹ 7.66 crore rent + ₹ 3.69 crore interest at the rate of 12 *per cent* per annum) in respect of HPCL, BPCL and RIIL and ₹ 1.43 crore (₹ 78.04 lakh rent + ₹ 64.51 lakh interest) in respect of NOCIL.

[19] NOCIL ceased to operate the pipeline from June 2006 and cleared the outstanding dues up to July 2012 at the old rates.

Finance. DAE added that the proposal had been forwarded to the Member (Finance), Atomic Energy Commission.

The fact, however, remained that inability of DAE to decide the revision of license fee for the past seven years resulted in short realization of ground rent and interest of ₹ 12.78 crore. Further, DCSEM allowed the oil companies the benefit of using the Government land without any valid agreement for nearly 10 years and at a concessional rent. In addition, an amount of ₹ 50.39 lakh towards interest on delayed payment of ground rent was also not recovered.

3.3 Outstanding dues pending for recovery

Board of Radiation and Isotopes Technology failed to take timely action to establish proper mechanism for realizing payments towards sale of radioactive material and allied products which resulted in outstanding dues of ₹ 10.71 crore pending for recovery.

The Board of Radiation and Isotopes Technology, Mumbai (BRIT), is an independent unit of the Department of Atomic Energy (DAE) which provides products and services based on radiation and isotopes for applications in healthcare, agriculture, research and industry to various Government and non-Government users on payment basis. As per the terms and conditions, the payments were to be received within 30 days after the receipt of invoice towards the sale of radioactive material. If the payments were not received within the stipulated time, further supply was to be suspended without any formal notice.

As of January 2017, an amount of ₹ 19.07 crore was due from customers in 942 cases for sale of radioactive materials. Of these, ₹ 2.75 crore in respect of 154 cases pertained to the period prior to 2010. The age-wise details of outstanding dues are shown in Table 3.4 below.

Table 3.4: Outstanding dues towards sale of radioactive materials

Financial Year	No. of cases	Amount (₹)
Prior to the year 2000	29	25,42,734
2000-10	125	2,49,83,152
2010-14	151	3,42,19,437
2014-15	104	1,31,68,266
2015-16	138	2,41,22,691
2016-17 (up to January 2017)	395	9,16,28,434
Total	**942**	**19,06,64,711**

Audit test checked 36 out of 58 high value[20] cases of private parties and observed that payment of ₹ 23.48 lakh due from three customers was no longer realizable as their whereabouts were not known. In another seven cases, dues of ₹ 44.70 lakh

[20] Valuing more than ₹ one lakh.

were pending for period ranging from three to 11 years as of February 2017 and their realization was now doubtful.

Audit further observed that there was no mechanism in place for timely realization of previous dues before making new supplies. Though reminders for settlement of dues were sent occasionally, supplies were continued for more than a year without ensuring realization of dues towards the previous supplies as stipulated in the terms and conditions of the invoices. There were no penal provisions in place in case of non-payment or delay in receipt of outstanding dues. Reconciliation of accounts between BRIT and the customers was also not done. The lack of any institutional mechanism for realization of dues from customers coupled with lack of meaningful follow up resulted in non-recovery of sales proceeds of ₹ 19.07 crore including loss towards non-realizable dues of ₹ 23.48 lakh from three customers.

The matter had been regularly brought to the notice of BRIT by Audit since 2006 onwards. However no action was taken by BRIT till June 2016 when BRIT decided to supply radioactive materials to Universities and Research Institutes after obtaining advance payment. In the case of non-Government institutions having outstanding dues of more than ₹ four lakh, BRIT decided to stop future supply forthwith. BRIT also decided (from 01 April 2016) to include a clause in its invoices for levy of interest at the rate of 10.7 *per cent* if dues were not received within 30 days from the date of dispatch of the supply.

BRIT stated (February 2016) that proposal was being made for write off of the unrecoverable amounts. BRIT added (October 2017) that the outstanding amount had been reduced from ₹ 19.07 crore to ₹ 10.71 crore.

The fact, however, remained that failure to take timely action to establish an effective mechanism for recovering payments for its products resulted in outstanding dues towards sale of radioactive material amounting to ₹ 10.71 crore (as of October 2017) in 602 cases. Of this, ₹ 2.53 crore (318 cases) pertained to non-Government users.

The matter was referred to DAE in September 2017; its reply was awaited as of December 2017.

3.4 Irregular Leave Travel Concession claims

Nuclear Fuel Complex Hyderabad did not exercise stipulated checks before passing Leave Travel Concession bills of its employees which resulted in payment of ₹ 40.11 lakh towards irregular claims.

Rule 21 of the General Financial Rules, 2005, states *inter alia* that every officer is expected to exercise the same vigilance in respect of expenditure incurred from public moneys as a person of ordinary prudence would exercise in respect of expenditure of his own money and that expenditure from public moneys should not

be incurred for the benefit of a particular person or a section of the people unless (a) a claim for the amount could be enforced in a Court of Law, or (b) the expenditure is in pursuance of a recognized policy or custom.

Rule 2.30 of the Drawing and Disbursing Officer (DDO) Manual stipulates certain checks that are to be exercised by the DDO while passing Leave Travel Concession (LTC) claims including checking of serial numbers of tickets in order to safeguard the financial interests of the Government against fraud, misappropriation and inadmissible claims.

Test-check of vouchers in respect of LTC claims of employees of Nuclear Fuel Complex, Hyderabad (NFC), a unit of Department of Atomic Energy (DAE), for the period 2013-15 revealed that 32 cases of claims were submitted for e-tickets booked under LTC 80 scheme of Air India. However, the Boarding Passes for actual travels indicated different e-ticket numbers. This indicated that actual journeys were not performed against the LTC 80 tickets for which claims had been submitted by the employees. NFC however passed these such claims and made payment of ₹ 40.11 lakh to the employees.

Audit cross checked the travel details of the 32 employees from Air India and noticed that 31 persons had performed the journeys and the name of one employee, who had claimed LTC and was paid ₹ 0.86 lakh, did not appear in the travel details with Air India. It was also confirmed that 20 employees had claimed fares higher than actually paid to Air India and were paid excess amount of ₹ 15.02 lakh by NFC. For the remaining 11 employees, excess payment made could not be worked out due to non-availability of full travel details.

Thus, failure to exercise the stipulated checks before passing bills resulted in payment of ₹ 40.11 lakh towards irregular LTC claims including ₹ 24.81 lakh[21] in respect of the 21 cases whose travel details were confirmed from Air India and unverified payment of ₹ 15.30 lakh towards the remaining 11 cases which requires investigation.

The instances of payment of irregular LTC claims mentioned in this audit observation are those which came to notice of audit in the course of test checks of bills of LTC claims and do not exclude risks of similar other instances. Department may ensure that all the LTC claims are examined and verified again to obviate the possibility of similar irregularities.

DAE stated (October 2017) that it had been decided to refer the matter to Chief Vigilance Officer of the Department for investigation.

[21] ₹ 23.95 lakh towards claims made by 20 persons and ₹ 0.86 lakh towards payment made by one person whose name did not appear in the travel details with Air India.