CHAPTER – VI

Department of Scientific and Industrial Research

6.1 Non-recovery of penal interest

Failure of Department of Scientific and Industrial Research to impose penal interest on delayed remittances of its share of income from projects funded to private industries resulted in non-recovery of ₹ 2.55 crore.

The Department of Scientific and Industrial Research (DSIR) sanctioned projects under the Technology Promotion Development and Utilisation Programme (TPDU)[33] to various private industries for development of technology and demonstration of process/products. As per the guidelines of the programme, a lump-sum amount of royalty amounting to 1.3 times the total amount of grants-in-aid released to it was to be remitted to DSIR in five annual instalments from the commencement of commercial sale of the products.

The National Research Development Corporation, New Delhi (NRDC), a Public Sector Enterprise under DSIR with expertise in transfer of technology, was identified for realisation of the lump-sum amount of royalty from private industries. For this purpose, DSIR entered (December 2002) into a Memorandum of Understanding (MoU) with NRDC which contained the terms and conditions relating to duties and responsibilities of both the parties. As per the MoU, NRDC was to license the technology and know-how developed through the projects to the executing agencies and would periodically collect lump sum and/or royalty payments, third party licensing fee, etc. due from the project executing agencies. An account of such payments including interest accrued thereon would be maintained by NRDC in a separate account and deposited in a separate 'No lien bank account'. The amount, so collected, was to be invested in short term fixed deposits. An annual statement of this account and the transactions made from this account was to be submitted to DSIR by the 15 April of every year.

The MoU also stipulated that 75 *per cent* of the net income pertaining to the lump sum and/or royalties, third party licensing fees, etc. and interest accrued thereon would be remitted to DSIR by 30th April of every year. NRDC was liable to pay a penal interest of 12 *per cent* per annum for any delay in remitting the payment to DSIR.

[33] A central scheme implemented by DSIR.

Scrutiny of records of DSIR revealed that a total of ₹ 46.13 crore was recovered by NRDC during the year 2007-08 to 2016-17 from different private industries on account of royalty. Of this, 75 *per cent* share of ₹ 34.60 crore was remitted to DSIR after delays ranging from 11 days to over three years[34]. The delay in remittance of DSIR's share of income made NRDC liable to pay penal interest of ₹ 2.55 crore for the period from 2007-08 to 2015-16.

Audit observed that DSIR did not pursue the issue of delay in remittance of the amounts due to it nor did it recover the penal interest of ₹ 2.55 crore for the delayed remittances. Further, NRDC neither maintained a separate account for such payments nor did it deposit the income in a separate 'No lien bank account' as stipulated in the MoU. NRDC also did not invest the amount in the short term fixed deposits as envisaged in the MoU. However, DSIR did not take any action to ensure compliance of the terms and conditions of the MoU entered into with NRDC. The inaction of DSIR in imposing penal interest on the delayed remittance of its share of income from the projects funded by it resulted in non-recovery of ₹ 2.55 crore. In addition, interest income was lost due to not investing in short term fixed deposits.

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

6.2 Management of Eleventh Five Year Plan projects of CSIR

Audit of 27 selected Eleventh Five Year Plan projects under the National Laboratory Scheme of Council of Scientific and Industrial Research revealed deficiencies in monitoring system in terms of non-constitution/ delayed constitution of the Task Forces/ Sectoral Monitoring Committees/ Research Councils and shortfall in the number of meetings these agencies had to conduct to oversee the implementation of the projects.

6.2.1 Introduction

The Council of Scientific and Industrial Research (CSIR) is an autonomous body under the Department of Scientific and Industrial Research (DSIR) which carries out scientific and industrial Research and Development (R&D). The Society of CSIR comprises of 28 members and is headed by the Prime Minister of India with the Union Minister, Science and Technology, as its Vice President and Director General (DG) CSIR as the ex-officio Secretary. The affairs of CSIR are administered, directed and controlled by a Governing Body (GB) which is headed by DG CSIR. There are 38 laboratories of CSIR located all over the country.

[34] Excluding the year 2016-17 in which no delay was observed.

During the Eleventh Five Year (2007-12) Plan (FYP), CSIR proposed programmes such as Supra-Institutional Projects[35] (SIP), Network Projects[36] (NWP), Inter-Agency Projects[37] (IAP) and Projects for Creation of Facilities[38] (PCFs). To manage these diverse R&D projects, CSIR formulated (October 2007) a generic guideline titled 'Guidelines on implementation, monitoring and financial governance of Eleventh FYP projects under National Laboratories Scheme' (Guidelines). During 2007-2012, CSIR undertook 97 projects at a total sanctioned cost of ₹ 2,650.39 crore[39].

An audit of the Eleventh FYP projects was conducted in 10 selected laboratories of CSIR based on geographical spread and a total of 27 projects (eight SIPs - ₹ 304.33 crore, 17 NWPs - ₹ 505.96 crore and two IAPs - ₹ 26.21 crore) with sanctioned cost of ₹ 836.50 crore to assess the effectiveness of monitoring of the projects with reference to the Guidelines. The selected laboratories, projects undertaken by these laboratories, approved cost of these projects and actual expenditure are given in ***Appendix XII*****.**

6.2.2 Inadequate monitoring

The Guidelines envisaged a two tier monitoring system for monitoring of the projects. At the Project Level, a Task Force (TF) was to be constituted for all the projects. In case of SIPs and IAPs where CSIR is the majority stake holder, Director of the Laboratory would constitute the TF under his Chairmanship with members from scientific groups involved in the project. In case of NWPs, the DG CSIR in consultation with the Director of the nodal laboratory will constitute the TF under his chairmanship with members from participating laboratories involved in the project**.** At CSIR Headquarters' Level, for NWPs, a Sectoral Monitoring Committee (SMC) was to be constituted by the DG CSIR consisting of eminent Scientist/ Technologist as chairperson, external experts, chairman of the Task Forces, Financial Adviser, CSIR and Head of Research Development and Planning Division, Network Projects (RDPDNWPs). In case of SIPs and IAPs, the monitoring is through Research Councils (RCs) of the implementing laboratories. In case of IAPs where the outside agency provided major share of budgetary support, implementation of the project would be from the concerned agency.

The TF was to formulate proposals for consideration by the GB/ Expenditure Finance Committee (EFC) detailing the activities including deliverables, milestones, financial

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[35] There is at least one overarching programme drawing strength and participation from a majority of the groups within the laboratory.

[36] The projects aim at networking of expertise, resources and facilities from more than one laboratory.

[37] The projects would involve synergy with the industry, academia and Government.

[38] The projects were formulated for creation of world class domain specific facilities in select laboratories to maintain internationally competitive knowledge generation capabilities in key technology areas.

[39] 33 SIPs (₹ 754.30 crore) *plus* 45 NWPs (₹ 1501.70 crore) *plus* 8 IAPs (₹ 139.20 crore) *plus* 10 PCFs (₹ 209.21 crore) *plus* one Project implemented by CSIR (₹ 45.98 crore).

phasing over the five years as well as outputs and outcomes of the projects in a proforma prescribed by Government of India. The TF shall prepare the micro details of the work plan of the project in terms of scientific outputs (patents, publications, etc.), activities and yearly/ half-yearly targets and quantifiable deliverables. The work plan as approved by GB would be submitted to the SMC in case of NWPs and RC in case of SIPs and IAPs for its consideration and endorsement.

The SMCs were to evolve suitable parameters in-consultation with the Task Force, review the physical progress of the project for achievement of the parameters on half-yearly basis, assess and advise the mid-course changes/corrections in the project to achieve the desired objectives, provide adequate internal warning mechanism for DG CSIR in case of projects registering no or slow progress and make suitable recommendations and provide periodic report to DG CSIR on the progress of the project.

TF and SMC were to meet at least two times in a year (once in six months) to review the progress of the Projects.

Audit noted that:

i) TF was constituted in only 10 out of 27 selected projects. In five of these 10 projects, the TFs were constituted after a delay of one year from the start of the project. In five projects, the TF was not constituted. In these five cases, the projects were monitored through Research Councils/ Laboratory. For the remaining 12 projects, the status of formation of TF was not available.

ii) In 17 selected projects under NWPs where SMCs were to be constituted, CSIR had constituted SMCs in only five cases. SMCs were not constituted in three cases and the status of formation of SMCs in the remaining nine cases was not known.

iii) There was shortfall in frequency of meetings for monitoring of the projects by TF and SMC as given in Table 6.1 below.

Table 6.1: Shortfall in conduct of meetings of TF and SMC where these were constituted

Nature of project	Task Force meetings		Sectoral Monitoring Committee meetings	
	Constituted	Range of short fall in conduct of meetings of TF (%)	Constituted	Range of short fall in conduct of meetings of SMC (%)
NWPs	7	30 to 70	5	80
SIPs	2	70 to 90	Not Applicable	
IAP	1	30	Not Applicable	

iv) The Guidelines stipulate that the TF shall send half-yearly performance report to DG CSIR by 15th September and 15th April of every year. However, no such

reports were submitted in two of the 10 projects where the TFs were constituted. In five cases, the shortfall in submission of reports was 80 to 90 *per cent*. In the remaining cases, the status of sending half-yearly performance reports to CSIR was not on record.

6.2.3 Non-submission of Project Completion Reports in the prescribed form

According to the Guidelines, Project Completion Reports (PCR) were to be prepared for all the projects in a prescribed proforma. The TFs of the respective projects are responsible for preparation of PCRs. The completion report shall be submitted to the SMC/ RC and the PCR with SMC/ RC remarks and approval shall be forwarded to DG CSIR. The objectives mentioned in the PCRs were to be the same as stated in the project proposal. The prescribed proforma of PCR shall also include details of objectives not achieved along with justification.

Audit noted that:

i) Though the PCRs were prepared in all 27 projects completed, TF had submitted the PCR in only two cases to the SMC/ RC. Further, the RC had reviewed and approved the PCR and forwarded the same to DG CSIR in only one of these two cases.

ii) Of the 27 PCRs prepared, 13 PCRs were prepared in the stipulated proforma while PCRs of 10 projects contained partial information. PCRs pertaining to four projects were not in compliance with the proforma prescribed by CSIR.

Deficiencies/ discrepancies noticed in the preparation of PCR are indicated below:

Project	Detail	Observation
SIP 001	Under the project, National Aerospace Laboratories (NAL) was to undertake 12 construction works under five disciplines at a total cost of ₹ 15.44 crore. During 2009-13, NAL spent ₹ 9.12 crore towards works and services leaving an unspent balance of ₹ 6.31 crore. It was mentioned that the objectives were achieved at the end of the project.	Audit observed that under Propulsion and Energy Systems discipline ₹ five crore was earmarked for setting up an experimental wind farm on 50 acres of forest land in Karnataka. However, the land procurement could not be pursued and hence civil works proposed for Avionics Integrated Test Facility, establishment of Wind Turbine Field test centre and Advanced Composite Technology Development Centre were not undertaken. However, NAL did not indicate these facts in its PCR and incorrectly stated that the objectives of the project had been achieved.
SIP 006	Under the project it was proposed to create a disease database (LSDB) that would catalogue the information available at different neurological centres across India.	Audit noted that the original source was redundant and the data was not maintained. As such, the facts were misrepresented in the PCR.

Project	Detail	Observation
	It was reported in the PCR that all promised deliverables of the project has been completed and the applicability of the basal variation database for few of the objectives has been successfully demonstrated.	
SIP 017	Under the project, National Physical Laboratory (NPL) proposed to construct a clean room facility (1,000 m^2) for housing of equipment of processing silicon cells and characterization of solar cells. It was reported in the PCR that the complete process line, diffusion furnaces and mask aligner could not be installed due to inadvertent procedural delays in Clean Room construction.	The project commenced in April 2007 and CSIR accorded (July 2007) in-principle approval for construction of clean room. The construction was scheduled to be commenced in September 2007 and completed by September 2008. NPL awarded the contract for construction of clean room to a firm in March 2008 and the work of construction was completed in May 2014. In the meantime, the project was completed in March 2012. As a result of non-completion of clean room within the project period, the equipment meant for installation in the clean room could not be housed. Further, couple of equipment worth ₹ 2.20 crore were received after the completion date of the project and six equipment worth ₹ 8.47 crore out of project cost of ₹ 14.63 crore were installed after the completion of project indicating lapses in monitoring and avoidable delays.
SIP 023	The objective of the project was development of technology based on porous and dense ceramic membranes in the energy and the environment sectors. The objective was grouped into five activities, envisaging development of one or more Intellectual Property Rights (IPR)/ Technology in each activity. From the PCR it was observed that in three activities no IPR was developed.	The justification for the same was not recorded.
SIP 026	One of the objective of the Project which started in March 2008 was developmental studies on malaria lead molecule 97/78 (collaborative cum licensing agreement with IPCA Laboratories Limited, Mumbai (IPCA)) and in the PCR (March 2012), it was mentioned that the objectives had been achieved and the Phase-I	CSIR entered (November 2004) into an agreement with IPCA for commercial manufacture of CDRI compound 97/78 as an anti-malarial agent. The said technology had already been developed and CDRI had entered (2004) into an agreement with IPCA Labs for further development of the product for commercial manufacturing. These facts

Project	Detail	Observation
	Clinical trial of Candidate drug 97/78 are underway in collaboration with IPCA.	were misrepresented as have been concluded under the current project (SIP 026) which is not factually correct.

6.2.4 Generation of Intellectual Property Rights

The guidelines of CSIR stipulate that patents, copy rights, trade mark, registered design, know-how for the process / product / design are included in intellectual property. In case of NWPs, where a number of CSIR laboratories were involved, it was stipulated that there should be a proper understanding and sharing of credits before beginning of the project between participating laboratories.

Audit observed that targets for Intellectual Property Rights (IPRs) were mentioned in project proposals of 18 projects. Out of a target of 171 IPRs proposed to be developed from these 18 projects, 78 IPRs were developed. It was further noticed that there was no mention of understanding and sharing of credits in the project proposals of any of the selected NWPs. Out of total 50 IPRs developed from 14 NWPs which proposed development of IPRs in the project proposals, only four patents were stated to be developed jointly.

6.2.5 Lack of action in involving industries for commercialization of technologies

Eleventh FYP projects under the National Laboratory Scheme aimed at generation of new knowledge which could be used for public goods, private goods, strategic goods and societal goods. It was stipulated in the Guidelines that industries were to be involved at a convenient stage as decided by the TF for effective commercialization of the research output. Business models adopted for commercialization of outputs of the projects should employ the same guidelines as those adopted by CSIR for all other projects. Valuation of intellectual property generated from the projects for commercialization was to be carried out as per the existing guidelines of CSIR for business models.

Audit observed that no efforts were made to involve industries and make them stake holders in 13 of the 17 selected NWPs. Further, deliverables in terms of 40 new technologies were proposed to be developed in 15 of the 27 selected projects. Against the 40, a total of 22 technologies were developed of which only nine technologies were commercialised and revenue of ₹ 46 lakh realised from these technologies after completion of the project.

6.2.6 Impact assessment of projects not done

The Guidelines stipulated that third party audit should be conducted of the PCRs to assess the achievements vis-a-vis the envisaged deliverables for further direction. Audit noted that third party evaluation of the PCRs was not done in 14 of the 27

completed projects as prescribed in the Guidelines. No information was available in respect of the remaining 13 projects.

6.2.7 Conclusion

Audit of 27 selected Eleventh Five Year Plan projects under National Laboratory Scheme of CSIR revealed deficiencies in monitoring with reference to the Guidelines issued in this regard. The Task Forces/ Sectoral Monitoring Committees/ Research Councils were either not constituted or constituted with delays. There was shortfall in the number of meetings these agencies had to conduct to oversee the implementation of the projects. There were deficiencies/ discrepancies in the preparation of Project Completion Reports. Action taken to involve industries with the projects for effective commercial exploitation of the technologies was absent.

The observations were sent to the DSIR in October 2017; their comments were awaited (December 2017).

6.3 Avoidable payment of electricity charges

Delayed action by Indian Institute of Chemical Biology, Kolkata, for reducing the contract demand resulted in avoidable expenditure of ₹ 64.90 lakh towards billing demand charges paid to West Bengal State Electricity Distribution Company.

An Institute intending to get electricity connection is required to apply in a prescribed format along with required documents to the distribution licensee. The application includes *inter alia* the requirement of load along with the basis of projection of the load. Based on site visit by engineers of the distribution licensee, the contract demand is sanctioned and institutions are required to deposit the prescribed Earnest Money Deposit and an agreement is signed between Head of the Institute and distribution licensee. The institute can change the contract demand once in a year based on the actual consumption/projections. It is the responsibility of the institute to periodically review the contract demand with reference to actual power consumption to avoid unnecessary expenditure on electricity.

The Indian Institute of Chemical Biology, Kolkata (IICB), a constituent laboratory of the Council of Scientific and Industrial Research[40], entered into an agreement (December 2011) with the West Bengal State Electricity Distribution Company Limited (WBSEDCL) for a contract demand of 1,000 KVA. As per the tariff order, demand charges are levied on actual maximum demand recorded in a month or 85 *per cent* of contract demand, whichever was higher, along with the charges for actual consumption at rates applicable from time to time.

[40] An autonomous society under Department of Scientific and Industrial Research

WBSEDCL commenced electricity supply to the Salt Lake premises of IICB from April 2013. IICB requested (December 2013) WBERC to reduce the contract demand to 200 KVA for next six months i.e. up to June 2014. WBSEDCL stated that as per extant rules, reduction of contract load/ downward revision of contract demand could be done after one year from the date of effect of service i.e. April 2014 and advised IICB to apply again before May 2014 for reduction of contract demand. IICB took up the matter again with WBSEDCL in December 2014 for reduction of contract demand to 200 KV but did not pursue the matter further and no reduction was actually effected.

Audit analysis of the electricity bills (May 2014 to March 2017) revealed that the actual consumption was persistently lesser by 58 *per cent* to 98 *per cent* than the contract load. On being pointed out by Audit in February 2017, IICB re-assessed (April 2017) the contract demand as 500 KVA and the same was reduced from 1,000 KVA to 500 KVA (May 2017)

Audit noted that had IICB pursued the reduction of contract load to 200 KV in April 2014 and ensured timely assessment of contract load after operationalising of its facilities in January 2016, the Institute could have avoided the excess expenditure of ₹ 64.90 lakh during May 2014 to March 2017.

CSIR stated (October 2017) that although attempt was made in December 2014 for reduction of contract demand to 200 KVA, it was not pursued as IICB could not assess the optimal requirement of electric load due to delay in implementation of various projects and scientific activities.

Reply is not tenable as IICB had the option to reduce or enhance the contract demand once in a year depending on status of implementation of various projects/scientific activities. Hence, failure of IICB to timely align its contract demand with their actual power consumption resulted in avoidable expenditure of ₹ 64.90 lakh which could have been utilised to meet other requirements of the Institute.