

MINISTRY OF SCIENCE AND TECHNOLOGY

DEMAND NO. 82

Department of Scientific and Industrial Research

A. The Budget allocations, net of recoveries, are given below:

		(In crores of Rupees)								
Major Head	Budget 2005-2006			Revised 2005-2006			Budget 2006-2007			
	Plan	Non-Plan	Total	Plan	Non-Plan	Total	Plan	Non-Plan	Total	
Revenue	825.03	711.00	1536.03	737.03	745.00	1482.03	974.90	775.00	1749.90	
Capital	20.97	...	20.97	18.97	...	18.97	0.10	...	0.10	
Total	846.00	711.00	1557.00	756.00	745.00	1501.00	975.00	775.00	1750.00	
1. Secretariat - Economic Services	3451	...	4.90	4.90	...	4.51	4.51	...	5.25	5.25
Other Scientific Research										
<i>Assistance to Council of Scientific & Industrial Research</i>										
2. Administration	3425	15.00	195.00	210.00	15.00	217.00	232.00	15.00	233.00	248.00
3. National Laboratories	3425	642.53	411.90	1054.43	593.00	419.49	1012.49	735.00	432.25	1167.25
4. Scientists' Pool	3425	...	4.00	4.00	...	4.00	4.00	...	4.50	4.50
5. Research Schemes, Scholarships and Fellowships	3425	10.00	95.00	105.00	5.00	100.00	105.00	10.00	100.00	110.00
6. Intellectual Property & Technology Management	3425	30.00	...	30.00	30.00	...	30.00	40.00	...	40.00
7. New Millenium Indian Technology Leadership Initiative	3425	70.00	...	70.00	60.00	...	60.00	90.00	...	90.00
8. Infrastructure Renovation and Refurbishment	3425	30.00	...	30.00	10.00	...	10.00	50.00	...	50.00
Total Assistance to CSIR		797.53	705.90	1503.43	713.00	740.49	1453.49	940.00	769.75	1709.75
9. <i>Non-Plan Subsidies</i>										
9.01 Interest Subsidy to NRDC	3425	...	0.20	0.20	...	...	...	...	...	...
10. <i>Assistance to Other Scientific Bodies</i>										
10.01 Support for R&D Schemes to Central Electronics Limited	3425	...	...	...	...	...	...	5.00	...	5.00
10.02 Other Schemes/Programmes	3425	...	...	...	4.00	...	4.00	5.00	...	5.00
<i>Total</i>		...	...	...	4.00	...	4.00	10.00	...	10.00
11. Technology Promotion, Development and Utilisation Programme	3425	27.50	...	27.50	20.03	...	20.03	24.90	...	24.90
	5425	0.97	...	0.97	0.97	...	0.97	0.10	...	0.10
<i>Total</i>		28.47	...	28.47	21.00	...	21.00	25.00	...	25.00
12. <i>Investment in Public Enterprises</i>										
12.01 Central Electronics Ltd.	4859	10.00	...	10.00	10.00	...	10.00	...	...	...
	6859	10.00	...	10.00	8.00	...	8.00	...	...	...
<i>Total</i>		20.00	...	20.00	18.00	...	18.00	...	...	...
Grand Total		846.00	711.00	1557.00	756.00	745.00	1501.00	975.00	775.00	1750.00
B. Investment in Public Enterprises	Head of Dev	Budget Support	IEBR	Total	Budget Support	IEBR	Total	Budget Support	IEBR	Total
12.01 Central Electronics Ltd.	12859	20.00	...	20.00	18.00	...	18.00	...	...	...
C. Plan Outlay										
1. Other Scientific Research	13425	826.00	...	826.00	738.00	...	738.00	975.00	...	975.00
2. Telecommunication and Electronics Industries	12859	20.00	...	20.00	18.00	...	18.00	...	...	...
Total		846.00	...	846.00	756.00	...	756.00	975.00	...	975.00

1. **Secretariat - Economic Services-** Provides for expenditure of the Secretariat of the Department.

Other Scientific Research-Assistance to Council of Scientific and Industrial Research (CSIR)

2. **R&D Management Support**

The various functional units/divisions located in CSIR Headquarters provide the R&D management support to the National Laboratories through the Scheme. It provides support to the laboratories for human resources development, international scientific collaboration, publicity and public relations, performance appraisal, scientific audit etc.

3. **National laboratories**

The National Laboratory scheme is operated through 38 National Laboratories and 39 field Centres. The research programmes/projects/activities of the National Laboratories have been categorized into the fourteen major socio-economic sectors viz. Aerospace; Biology and Biotechnology; Chemicals; Earth Resources and Natural Hazards Mitigation; Ecology & Environment; Electronics and Instrumentation; Energy; Food & Food processing; Health Care, Drugs & Pharmaceuticals; Housing & Construction; Information Dissemination and Products; Leather; Materials, Metals, Minerals & Manufacturing; and Metrology.

CSIR during the Tenth Five Year Plan has undertaken major network projects across CSIR laboratories. CSIR is currently operating 55 projects in a network mode, during the current year two more projects would be included as network projects. The projects interalia encompass establishment of capabilities in the newer S&T areas, generation of technological know-how and strategic options over a wide spectrum of science & technology, human resource development etc.

The core competencies to be continuously developed are in the areas of aerospace science & technology, modern biology and biotechnology, chemistry, geophysics, oceanography, material science, computer aided studies, expert system, parallel computation etc.

4 & 5 National S&T Human Resource Development

To promote and foster the upgradation of the stock of qualified, highly specialised scientists/engineers and technologists in R&D in all disciplines of S&T in the country; an integrated approach for the national human resource development for S&T by encouraging and promoting research in the universities and institutions of higher learning and support organisations to hold symposia/seminars and conferences for promotion of scientific temper. To reinstate the glory of science amongst youngsters, various programmes and activities are being taken up through a true Team India partnership, which involves participation from eminent scientists and experts from academia, in-house industrial R&D units etc.

In order to promote interest, excitement and excellence in science education at school and undergraduate levels, each CSIR laboratory has a plan to adopt at least one school and one college in its sphere of influence. The laboratory will provide its facilities for project work and experimentation as well as carrying out student guidance and motivational programmes.

CSIR has established fellowships in trans-disciplinary areas, to support researchers to face up to the challenges of the future. CSIR also inculcates a spirit of entrepreneurship in the research scholars to establish their own R&D enterprise through appropriate motivation, skills development and venture financing.

6. Intellectual Property & Technology Management

The objective of the scheme is to enhance the volume and value of Intellectual Property (IP) generated by CSIR and to share the best innovation and technology management practices organizationally and with the Indian S&T community at large. The volume of IP rights secured by CSIR has greatly increased over the time. The major task, however, is to realize adequate and appreciable value from the IPR.

Necessary skills and knowledgebase in the area of IPR in CSIR are being refurbished, particularly in some still unresolved issues such as 'traditional knowledge', 'genomic sequences', 'copyright on the Net' etc.

7. New Millenium Indian Technology Leadership Initiative (NMITLI)

NMITLI scheme envisages to catalyze innovation centered scientific and technological developments as a vehicle to attain for Indian economy a global leadership position in selected niche areas in a 'Team India' partnership. NMITLI therefore looks beyond present day technologies and seeks to build, capture and retain for India a leadership position in the global arena based on technology by synergising the best competencies of publicly funded R&D institutions, academia and private industry. Thus, it is based on the premise of consciously identifying, selecting and supporting potential winners.

8. IT Infrastructure Renovation and Refurbishment

In order to expedite research through network approach the vital components are:

- * Strengthening of computation and data resources,
- * ICT support to S&T programmes and R&D areas,
- * Inter-laboratory networking,
- * Cross boundary information and compute resource sharing,
- * Information access (intra and inter) laboratory,
- * Utilisation of generated knowledge,
- * ICT Infrastructure in Labs,
- * Monitoring and assessment of CSIR Networked Projects,
- * E-enabled uniform system for business development, inventory control, purchases, personnel management and human resource development, and
- * Information system to support insight to the R&D issues.

These requirements necessitate that CSIR set-up an efficient Scientific Knowledge Management System by creating a CSIR wide Grid consisting of functional virtual Grids related to areas of concern. These virtual sub-Grids may consist of labs/institutes, where specialists and data together form a complete resource in an area of research.

10. Assistance to Other Scientific Bodies

10.01 **Support for R&D scheme to Central Electronics Limited.** Following projects are proposed to be undertaken:

- * Tuning of the process for Upgradation of the SPV operations to 10 MWp especially for the multi crystalline Solar Cells.
- * Augment production capacity for Digital Axle Counter installing Automated Test Equipment (ATE) for production testing to cater for substantially increased demand expected in coming years.

- * Develop new high grade PZT materials for future technologies in Sonar area.
- * Induct Train Actuating Warning System (TWAS) at Level Crossings of Indian Railways

10.02 **Other Schemes/Programmes:** Support is provided to National Research Development Corporation towards its following programmes:

- (a) Invention Promotion Programme
- (b) Technology Promotion Programme
 - * Promotion of Rural & Household Technologies.
 - * Promotion of Export of Technology
 - * Informatics for Technology Transfer
 - * Technology Development Programme for Priority Projects.

11. **Technology Promotion, Development and Utilization (TPDU) Programmes:** TPDU Programmes would endeavor to encourage industry to increase their share in country's R&D expenditure, support a larger cross section of small and medium industrial units to develop start-of-the art globally competitive technologies of high commercial potential, catalyze faster

commercialization of lab-scale R&D, enhance the share of technology intensive exports in overall exports, strengthen industrial consultancy & Technology management capabilities and establish user friendly information network to facilitate scientific & industrial research in the country. The specific components of the scheme are:

- * Industrial R&D Promotion Programme.
- * Technology Development and Innovation Programme.
- * Technology Management Programme.
- * International Technology Transfer Programme.
- * Consultancy Promotion Programme.
- * Technology Information Facilitation Programme.

12. Investment in Public Enterprises

12.01 **Central Electronics Limited.** CEL's operations can be broadly grouped into three areas, viz. Solar photovoltaics (SPV), strategic and railway electronics. Most of the technologies for SPV products have been developed in-house. In the field of strategic electronics, CEL is the only indigenous manufacturer of phase control modules which is a key element of phased array radar.