

MINISTRY OF SCIENCE AND TECHNOLOGY**DEMAND NO. 83****Department of Scientific and Industrial Research**

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

		<i>(In crores of Rupees)</i>								
Major Head	Budget, 2004-2005			Revised, 2004-2005			Budget, 2005-2006			
	Plan	Non-Plan	Total	Plan	Non-Plan	Total	Plan	Non-Plan	Total	
Revenue	645.90	650.00	1295.90	597.90	690.00	1287.90	825.03	711.00	1536.03	
Capital	4.10	...	4.10	2.10	...	2.10	20.97	...	20.97	
Total	650.00	650.00	1300.00	600.00	690.00	1290.00	846.00	711.00	1557.00	
1. Secretariat - Economic Services	3451	...	4.81	4.81	...	4.15	4.15	...	4.90	4.90
Other Scientific Research										
<i>Assistance to Council of Scientific & Industrial Research</i>										
2. Administration	3425	12.00	180.00	192.00	20.00	183.00	203.00	15.00	195.00	210.00
3. National Laboratories	3425	524.00	403.04	927.04	499.77	405.70	905.47	642.53	411.90	1054.43
4. Scientists' Pool	3425	...	4.00	4.00	...	4.00	4.00	...	4.00	4.00
5. Research Schemes, Scholarships and Fellowships	3425	8.00	58.00	66.00	5.00	93.00	98.00	10.00	95.00	105.00
6. Intellectual Property & Tech. Management	3425	20.00	...	20.00	5.00	...	5.00	30.00	...	30.00
7. New Millenium Indian Technology Leadership Initiative	3425	45.00	...	45.00	50.00	...	50.00	70.00	...	70.00
8. Infrastruture Renovation and Refurbishment	3425	10.00	...	10.00	1.00	...	1.00	30.00	...	30.00
Total Assistance to CSIR		619.00	645.04	1264.04	580.77	685.70	1266.47	797.53	705.90	1503.43
9. <i>Non-Plan Subsidies</i>										
9.1 Interest Subsidy to NRDC	3425	...	0.15	0.15	...	0.15	0.15	...	0.20	0.20
10. <i>Assistance to Other Scientific Bodies</i>										
10.1 Support for R&D Schemes to Central Electronics Limited	3425	3.00	...	3.00	3.00	...	3.00	...	...	...
10.2 Other Schemes/Programmes	3425	4.00	...	4.00	4.00	...	4.00	...	...	...
<i>Total</i>		<i>7.00</i>	<i>...</i>	<i>7.00</i>	<i>7.00</i>	<i>...</i>	<i>7.00</i>	<i>...</i>	<i>...</i>	<i>...</i>
11. Technology Promotion, Development and Utilisation Programme	3425	19.90	...	19.90	10.13	...	10.13	27.50	...	27.50
	5425	0.10	...	0.10	0.10	...	0.10	0.97	...	0.97
<i>Total</i>		<i>20.00</i>	<i>...</i>	<i>20.00</i>	<i>10.23</i>	<i>...</i>	<i>10.23</i>	<i>28.47</i>	<i>...</i>	<i>28.47</i>
12. <i>Investment in Public Enterprises</i>										
12.1 Central Electronics Ltd.	4859	2.00	...	2.00	...	...	...	10.00	...	10.00
	6859	2.00	...	2.00	2.00	...	2.00	10.00	...	10.00
<i>Total</i>		<i>4.00</i>	<i>...</i>	<i>4.00</i>	<i>2.00</i>	<i>...</i>	<i>2.00</i>	<i>20.00</i>	<i>...</i>	<i>20.00</i>
Grand Total		650.00	650.00	1300.00	600.00	690.00	1290.00	846.00	711.00	1557.00
B. Investment in Public Enterprises	Head of Dev	Budget Support	IEBR	Total	Budget Support	IEBR	Total	Budget Support	IEBR	Total
12.1 Central Electronics Ltd.	12859	4.00	...	4.00	2.00	...	2.00	20.00	...	20.00
C. Plan Outlay										
1. Other Scientific Research	13425	646.00	...	646.00	598.00	...	598.00	826.00	...	826.00
2. Telecommunication and Electronics Industries	12859	4.00	...	4.00	2.00	...	2.00	20.00	...	20.00
Total		650.00	...	650.00	600.00	...	600.00	846.00	...	846.00

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

2. Other Scientific Research- Assistance to CSIR

R&D Management Support: Various functional units/divisions located in CSIR Headquarters provide the R&D Management support to the national laboratories through the Scheme. The Headquarter is the focal point of the organization and catalyses and facilitates the laboratories by establishing, equipping and realising excellence in R&D, promoting brand equity, financial self-sufficiency, global competitiveness and disseminating organizational learning. It provides support to the laboratories for human resources development, international scientific collaboration, publicity and public relations, performance appraisal, scientific audit etc. It is the link between the laboratories, the government, the parliament and international agencies.

3. **National Laboratories:** The National Laboratory scheme is operated through 38 National Laboratories and 47 field Centres. The research programmes/project/activities of the National Laboratories have been categorized into the thirteen 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 and Manufacturing.

The key feature of CSIR's programmes during the Tenth Plan is the creation of major and innovative knowledge networks across and beyond CSIR laboratories. The focus of the programmes thus evolved have been to synergise the vast competencies developed in CSIR Laboratories and to implement the programmes/projects in network mode.

CSIR has to continuously upgrade its core competencies and research areas to be planned so as to provide the needed strength for successfully competing in emerging technologies for the years to come. 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.

CSIR infrastructure was built or acquired more than thirty years ago. Selective refurbishment & renovation of existing infrastructure will be carried out during the year.

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. CSIR is highly concerned with the gradual declining interest in science education and R&D as a career amongst young talents. 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 provides its facilities for project work and experimentation as well as carrying out student guidance and motivational programmes.

It is proposed to establish fellowships in trans-disciplinary areas, to deliberately support researchers to face up to the challenges of the future rather than be confined to areas where there are limited opportunities and challenges. CSIR 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.

It is also felt that necessary skills and knowledgebase of those in CSIR engaged in the IPR game need to be refurbished, particularly in some still unresolved issues such as 'traditional knowledge', 'genomic sequences', 'copyright on the Net' etc.

7. **New Millennium Indian Technology Leadership Initiative (NMITLI):** The 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.

8. **Infrastructure Renovation and Refurbishment (IT):** The CSIR has translated the S&T goals into viable, low risk and profitable choices. These are multi-location/multi-institution programmes with well-defined tasks. The tasks identified in each programme and their linkages form a matrix of inter-related milestones and activities with an identified inter-disciplinary teams at different locations/institutions.

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
- * 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.

9. Non-Plan Subsidies

9.1 **Interest subsidy to NRDC :** NRDC is to be reimbursed interest paid by them (in form of interest subsidy) on the loan granted to them by DSIR

10. Other Scientific Bodies

10.01 Support for R&D schemes to Central Electronics Limited:

Following projects are proposed to be undertaken:

- * Tuning of the process for Upgradation of the SPV operations to 10MWp 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.

10.2 **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 Utilisation Programmes.** TPDU Programmes would endeavour 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

12.1 **Central Electronics Limited:** CEL's operations can be broadly grouped into three areas, viz. solar photovoltaics (SPV), strategic electronics and railway electronics. CEL is the pioneer and a leading manufacturer of SPV cells, modules and systems. 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 radars.