

MINISTRY OF SCIENCE AND TECHNOLOGY

DEMAND NO. 81

Department of Scientific and Industrial Research

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

(In crores of Rupees)

Major Head	Budget, 2002-2003			Revised, 2002-2003			Budget, 2003-2004			
	Plan	Non-Plan	Total	Plan	Non-Plan	Total	Plan	Non-Plan	Total	
Revenue	434.90	600.93	1035.83	369.90	610.00	979.90	511.90	616.41	1128.31	
Capital	5.10	...	5.10	5.10	...	5.10	8.10	...	8.10	
Total	440.00	600.93	1040.93	375.00	610.00	985.00	520.00	616.41	1136.41	
1. Secretariat - Economic Services	3451	0.25	3.08	3.33	...	2.95	2.95	...	4.00	4.00
Other Scientific Research										
Assistance to Council of Scientific & Industrial Research										
2. Administration	3425	10.00	150.00	160.00	10.00	151.65	161.65	11.00	155.00	166.00
3. National Laboratories	3425	310.00	393.00	703.00	291.65	393.00	684.65	392.00	402.61	794.61
4. Scientists' Pool	3425	...	4.00	4.00	...	4.00	4.00	...	4.00	4.00
5. Research Schemes, Scholarships and Fellowships	3425	5.00	50.65	55.65	5.00	49.95	54.95	7.00	50.00	57.00
6. Intellectual Property & Tech. Management	3425	15.00	...	15.00	15.00	...	15.00	17.00	...	17.00
7. New Millenium Indian Technology Leadership Initiative	3425	45.00	...	45.00	30.00	...	30.00	35.00	...	35.00
8. Infrastructure Renovation and Refurbishing	3425	27.00	...	27.00	1.00	...	1.00	30.00	...	30.00
Total Assistance to CSIR		412.00	597.65	1009.65	352.65	598.60	951.25	492.00	611.61	1103.61
9. Non-Plan Subsidies										
Interest Subsidy to NRDC	3425	...	0.20	0.20	...	0.45	0.45	...	0.30	0.30
10. Assistance to Other Scientific Bodies										
10.1 Support for R&D Schemes to Central Electronics Limited	3425	3.00	...	3.00	1.00	...	1.00	2.00	...	2.00
10.2 Other Schemes	3425	3.00	...	3.00	3.00	...	3.00	3.00	...	3.00
Total		6.00	...	6.00	4.00	...	4.00	5.00	...	5.00
11. Technology Promotion, Development and Utilisation Programme	3425	16.65	...	16.65	13.25	...	13.25	14.90	...	14.90
12. Investment in Public Enterprises										
Central Electronics Ltd.	4859	2.50	...	2.50	2.50	...	2.50	4.00	...	4.00
	6859	2.50	...	2.50	2.50	...	2.50	4.00	...	4.00
Total		5.00	...	5.00	5.00	...	5.00	8.00	...	8.00
13. APCTT Building	5425	0.10	...	0.10	0.10	...	0.10	0.10	...	0.10
14. Expenditure met from National Renewal Fund										
14.1 Implementation of Voluntary retirement scheme										
Central Electronics Ltd.	2852	...	...	...	...	8.00	8.00	...	0.50	0.50
Grand Total		440.00	600.93	1040.93	375.00	610.00	985.00	520.00	616.41	1136.41
C. Plan Outlay										
1. Secretariat - Economic Services	13451	0.25	...	0.25	...	...	...	...	...	...
2. Other Scientific Research	13425	434.75	...	434.75	370.00	...	370.00	512.00	...	512.00
3. Telecommunication and Electronics Industries	12859	5.00	...	5.00	5.00	...	5.00	8.00	...	8.00
Tota		440.00	...	440.00	375.00	...	375.00	520.00	...	520.00

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

2. R&D Management Support (Administration): The functional units/divisions located in CSIR Headquarters provide the R&D Management support to the national laboratories. The Headquarter has continued to act as a nerve center in catalyzing and facilitating the laboratories to achieve greater market orientation, self-sufficiency and global competitiveness. Support provided to national Laboratories has enabled them to acquire ISO-9000 quality standards. A new initiative and performance appraisal has been initiated to bring in more of accountability of output. The project based information system is being integrated with the accounting system for traceability of deliverables vis-a-vis budgeting. A Human Resource Development Centre is being operationalised to promote a professional and holistic human

resource management in CSIR. The Unit for R&D on Information Products at Pune will continue to create useful information products from the rich data and information base within CSIR.

3. National Laboratories: CSIR has a network of 38 laboratories 50 field stations/extension centers/regional centers located all over the country that undertake R&D in diverse areas of S&T. The extension and regional centers have been established to reach diverse users and disseminate knowledge and information on R&D capabilities, techniques and technologies developed by the National Laboratories of CSIR. Over the years CSIR has built-up great strengths in its manpower and infrastructure that cover a wide spectrum of R&D knowledge space. The synergy of CSIR's competencies is sought to be optimized by aligning its R&D programmes/activities more directly with the socio-economic objectives of the country focusing sharply on areas where

investments can yield maximum returns to CSIR and the country.

Under the National Laboratories, three types of activities are carried out, namely:

Continually building and refurbishing competence at globally competitive level, skills and competency in all scientific areas;

Taking up in-house projects with well defined objectives, deliverables, time frame and

Performing contract R&D for industry and other users to deal with problems through expertise gained over the years.

The focus of the programmes evolved have been to synergise the vast competencies developed in CSIR Laboratories and to implement the programmes/projects in network mode. The emphasis is also on deriving maximum output from less input. Accordingly categorisation of programmes have been carried out keeping in view the requirement at the national level, at CSIR level and at the laboratory level. Some of the projects would be implemented in a mission mode while others would be to further develop core competencies. The plan outlay during 2003-2004 includes the provision of Rs.10.00 crore each for Research and Development in Solar Energy and Wind Energy.

4. & 5. S&T Human Resource Development (Scientists pool & Research Schemes, Scholarships and Fellowships): CSIR has initiated schemes to attract brightest of youth taking to science education and R&D as a career viz. CSIR Programme on Youth for Leadership for Science (CPYLS) and Shyama Prasad Mukherjee (SPM) Fellowships at school level & post graduate levels respectively. CSIR provide supports to higher institutions of learning on S&T through supporting research schemes in the areas of their interest and S&T development in the country. It also provides fellowships and associateships for pursuing research by scholars.

It will 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. Also research scholars invariably seek employment with government R&D establishments - self-employment and entrepreneurship are wholly absent. CSIR will endeavour to inculcate 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 scheme was formulated 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, however the task of realizing adequate and appreciable value from the IPR is yet to be achieved. In-house CSIR has been consistently coming up with innovative and new schemes to promote and advance the knowledge of innovation and technology management. However the Indian industry and economy is presently in a retarding phase, except perhaps in pharma and biotech sectors and the results in the field are not visible. CSIR has ventured out globally to market its IPR and knowledgebase, and has met with limited success; this initiative will be enhanced.

7. New Millennium Indian Technology Leadership Initiatives: This scheme was initiated in 2000-01 to capture for the country global leadership position in few selected areas based on technology. The scheme necessitated intimate networking between diverse constituents of the innovation chain. The choice was to mount two or three large industry oriented projects or to seek windows of opportunity in farsighted science-technology intensive projects. Considering the sparse experience of Indian constituents to team up on large civilian commercial projects and

the high risks in putting large investment in two / three projects the scheme chose to focus on niche, high science- technology projects with high gain - risk potential. Even then the scheme has adopted a system of 'options funding' for the projects with flexibility to foreclose those projects that exceed the potential cost-benefit-risk thresholds. Accordingly a facilitative, enabling but stringent and rigorous monitoring system has been put in place.

8. Infrastructure Renovation & Refurbishment: The infrastructure for most of the CSIR laboratories was built or acquired over four decades ago some are even of older vintage. Thus the infrastructure is not suited for modern day globally competitive R&D especially in term of GLP, ISO, NABL requirements for accreditation and certification. These are proposed to be refurbished through a new scheme of infrastructure renovation.

9. Non Plan Subsidies

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

10. Assistance to Other Scientific Bodies

10.1 Support to Research and Development Schemes of Central Electronics Limited: Under this programme, R&D projects on: Development of SPV Technology for SPV Systems, Development of Dielectric for Microwave Applications, Development of High Throughput Aluminum Metallisation for UHE Solar Cells, Development of Switched Mode Power Plant, Process upgradation for large size solar cells using SPT, Development of New Ferrite Technology/Materials and Process Enhancement of Large Area Multi-crystalline Silicon Solar Cells were supported.

10.2 Other Schemes: Support is provided to National Research Development Corporation towards its following programmes:

11. Technology Promotion, Development and Utilisation Programmes:

- (i) **Programme Aimed At Technological Self Reliance:** The scheme on Programme Aimed at Technological Self-Reliance (PATSER) covers the activities relating to technology absorption, adaptation and demonstration and also capital goods development. The objectives of the scheme are to catalyse industry's efforts in absorption and upgradation of imported technology and to promote indigenous development of capital goods. Research, development, design and engineering projects for absorption and upgradation of imported technology as well as development and demonstration of new and improved technologies have been supported. While DSIR support has been catalytic and partial, the bulk of the financial contribution in any project has been from the industry. Furthermore, to nurture and promote technopreneurial skills of Indian citizens at individual level, projects are supported under a scheme viz. "Technopreneur Promotion Programme (TePP)", jointly operated by DSIR under the PATSER scheme and DST under the "Home Grown Technology" scheme of TIFAC. PATSER scheme is merged in "Technology Promotion, Development and Utilization Programmes" in 2002-03.
- (ii) **Research and Development by Industry:** The scheme on Research and Development by Industry (RDI) deals with all activities relating to recognition of In- house R&D units in Industry and non-commercial Scientific and Industrial Research Organisations, fiscal incentives and other mechanisms and initiatives towards supporting and encouraging the R&D initiatives of industry. There are around 1200 In-house R&D units in Industry having valid

recognition by DSIR at present.

- (iii) **Scheme to Enhance the Efficacy of Transfer of Technology:** The Scheme to Enhance the Efficacy of Transfer of Technology (SEETOT) essentially aims to facilitate acquisition and management of technologies, accelerate export of technologies and services, enhance our consultancy capabilities and increase awareness about the usefulness of consultancy services among the customers. The activities of Consultancy Development Centre (CDC) are also supported.
- (iv) **Asian and Pacific Centre for Transfer of Technology:** The Centre operates as an UN institution and DSIR is the focal point for its activities. The Government of India has provided host facilities to the Centre and provides institutional support on an annual basis through DSIR.

12. Investment in Public Enterprises:

Central Electronics Limited.

Central Electronics Limited (CEL) holds a unique position among the family of public sector enterprises in electronics, with its emphasis on indigenous technology inducted both from its in-house developments and from the country's national laboratories for its production programmes in diverse hi-technology areas of national relevance. The company's operations

are structured in terms of three product categories, which are also its corresponding business groups, as under:

(i) Solar Photovoltaics (SPV): Crystalline Silicon Solar Cells, Modules and SPV Energy Systems for rural, remote areas and industrial applications.

(ii) Electronic Systems: Railway Electronics Equipment, Cathodic Protection System for Oil/Gas Pipelines, Projection Television (PTV) Systems and Rural Automatic Telephones Exchanges (RAX) & Very Small Aperture (Satellite) Terminals (VSAT).

(iii) Electronic Components: Electronic Ceramics, Professional Ferrites for TV, Telecommunication and Defence, Microwave Ferrite Phase Shifters for Missile Radars, Microwave Components.

13. APCTT Building:

The plan budgetary support (capital) is meant for the purpose of the construction of the APCTT building.

14. Expenditure met from National Renewable Fund

14.1 Implementation of Voluntary Retirement Scheme

Central Electronics Limited

A supplementary was obtained during 2002-03 to implement VRS in Central Electronics Limited.