

**MINISTRY OF SCIENCE AND TECHNOLOGY**

## DEMAND NO. 71

**Department of Scientific and Industrial Research**

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

		(In crores of Rupees)								
Major Head		Budget, 2001-2002			Revised, 2001-2002			Budget, 2002-2003		
		Plan	Non-Plan	Total	Plan	Non-Plan	Total	Plan	Non-Plan	Total
	Revenue	354.50	603.47	957.97	340.27	587.26	927.53	434.90	600.93	1035.83
	Capital	5.50	...	5.50	0.15	...	0.15	5.10	...	5.10
	<b>Total</b>	<b>360.00</b>	<b>603.47</b>	<b>963.47</b>	<b>340.42</b>	<b>587.26</b>	<b>927.68</b>	<b>440.00</b>	<b>600.93</b>	<b>1040.93</b>
1. Secretariat - Economic Services	3451	0.20	3.15	3.35	0.20	3.04	3.24	0.25	3.08	3.33
<b>Other Scientific Research</b>										
<i>Assistance to Council of Scientific &amp; Industrial Research</i>										
2. Administration	3425	11.00	145.75	156.75	10.00	145.75	155.75	10.00	150.00	160.00
3. National Laboratories	3425	188.50	387.55	576.05	188.50	379.35	567.85	310.00	393.00	703.00
4. Scientists' Pool	3425	...	5.80	5.80	...	3.40	3.40	...	4.00	4.00
5. Research Schemes, Scholarships and Fellowships	3425	5.50	51.10	56.60	4.20	46.00	50.20	5.00	50.65	55.65
6. Pilot Plant	3425	...	1.62	1.62	...	1.62	1.62	...	...	...
7. Residential Buildings	3425	10.00	8.40	18.40	7.00	8.00	15.00	...	...	...
8. Modernisation	3425	59.00	...	59.00	53.10	...	53.10	...	...	...
9. Intellectual Property & Tech. Management	3425	8.00	...	8.00	8.00	...	8.00	15.00	...	15.00
10. New Millennium Indian Technology Leadership Initiative	3425	50.00	...	50.00	50.00	...	50.00	45.00	...	45.00
11. Infrastructure Renovation and Refurbishing	3425	...	...	...	...	...	...	27.00	...	27.00
<b>Total Assistance to CSIR</b>		<b>332.00</b>	<b>600.22</b>	<b>932.22</b>	<b>320.80</b>	<b>584.12</b>	<b>904.92</b>	<b>412.00</b>	<b>597.65</b>	<b>1009.65</b>
12. Non-Plan Subsidies										
i) Interest Subsidy to NRDC										
13. National Information System for Science and Technology	3425	2.10	...	2.10	1.90	...	1.90	...	...	...
14. Assistance to Other Scientific Bodies										
14.1 Support for R&D Schemes to Central Electronics Limited										
14.2 Other Schemes / Programmes	3425	3.70	...	3.70	3.30	...	3.30	3.00	...	3.00
i. Prog. Aimed at Technological Self Reliance										
ii. Management, Administration & Infrastructure	3425	2.00	...	2.00	1.00	...	1.00	...	...	...
iii. Other Schemes	3425	6.10	...	6.10	5.47	...	5.47	3.00	...	3.00
	<i>Total</i>	<i>20.20</i>	<i>...</i>	<i>20.20</i>	<i>17.37</i>	<i>...</i>	<i>17.37</i>	<i>6.00</i>	<i>...</i>	<i>6.00</i>
15. Technology Promotion, Development and Utilisation Programme	3425	...	...	...	...	...	...	16.65	...	16.65
16. Investment in Public Enterprises										
i. Central Electronics Ltd.										
	4859	2.50	...	2.50	...	...	...	2.50	...	2.50
	6859	2.50	...	2.50	...	...	...	2.50	...	2.50
	<i>Total</i>	<i>5.00</i>	<i>...</i>	<i>5.00</i>	<i>...</i>	<i>...</i>	<i>...</i>	<i>5.00</i>	<i>...</i>	<i>5.00</i>
ii. National Research Development Corporation										
	5425	0.25	...	0.25	...	...	...	...	...	...
	7425	0.25	...	0.25	...	...	...	...	...	...
	<i>Total</i>	<i>0.50</i>	<i>...</i>	<i>0.50</i>	<i>...</i>	<i>...</i>	<i>...</i>	<i>...</i>	<i>...</i>	<i>...</i>
	<b>Total</b>	<b>5.50</b>	<b>...</b>	<b>5.50</b>	<b>...</b>	<b>...</b>	<b>...</b>	<b>5.00</b>	<b>...</b>	<b>5.00</b>
17. APCTT Building	5425	...	...	...	0.15	...	0.15	0.10	...	0.10
<b>Grand Total</b>		<b>360.00</b>	<b>603.47</b>	<b>963.47</b>	<b>340.42</b>	<b>587.26</b>	<b>927.68</b>	<b>440.00</b>	<b>600.93</b>	<b>1040.93</b>
<b>B. Investment in Public Enterprises</b>										
	Head of Dev	Budget Support	IEBR	Total	Budget Support	IEBR	Total	Budget Support	IEBR	Total
1. Central Electronics Ltd.	128595.00	2.45	7.45	...	...	...	...	...	...	...
2. National Research Development Corporation	13425	0.50	...	0.50	...	...	...	...	...	...
	<b>Total</b>	<b>5.50</b>	<b>2.45</b>	<b>7.95</b>	<b>...</b>	<b>...</b>	<b>...</b>	<b>...</b>	<b>...</b>	<b>...</b>
<b>C. Plan Outlay*</b>										
1. Secretariat - Economic Services	13451	0.20	...	0.20	0.20	...	0.20	0.25	...	0.25
2. Other Scientific Research	13425	354.80	...	354.80	340.22	...	340.22	434.75	...	434.75
3. Telecommunication and Electronics Industries	12859	5.00	2.45	7.45	...	...	...	5.00	...	5.00
<b>Total</b>		<b>360.00</b>	<b>2.45</b>	<b>362.45</b>	<b>340.42</b>	<b>...</b>	<b>340.42</b>	<b>440.00</b>	<b>...</b>	<b>440.00</b>

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

**2. Administration:** The ten 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 centre in catalyzing and facilitating the laboratories to achieve greater market orientation, self-sufficiency and global competitiveness. Support provided to national Laboratories has enabled ten of them to acquire ISO-9000 quality standards.. A new initiative of target setting and performance appraisal was initiated to bring in more of accountability of output. The initiative to set up an integrated MIS across the organization is progressing as scheduled, and as first step "personnel based MIS" has been set up across CSIR and for 'projects' in few labs on a trial basis.

The scheme has been re-named as R&D Management Support from 2002-03 onwards.

**3. National Laboratories:** CSIR has a network of 39 laboratories and 80 field stations/extension centres/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.

Laboratories face several constraints in attracting talented scientists and retaining them in CSIR, housing especially in metropolis and far flung location is one. Accordingly, a programme for the construction of dwellings has been initiated through a judicious mix of staff quarters and scientist apartments along with minimum facilities and amenities such as schools, dispensaries etc. and hence the scheme of residential buildings, staff quarters and other amenities merged with this Scheme.

**4. Scientist Pool:** Scientist Pool Scheme was initiated for temporary placement of highly qualified Indian scientists and technologists. It is proposed to continue support to Pool Officers / Senior Research Associates during 2002-2003 to avert the brain drain. The scheme has been merged into a single scheme and renamed as National S&T Human Resource Development from 2002-03 onwards.

**5. Research Schemes, Scholarships and Fellowships:** CSIR supports research and development programmes in institutions of higher learning such as Universities, IITs, IISc etc. through its Extra Mural Research Grant programmes. The programmes include the funding for placement of Junior and Senior Research Fellows, Research Associates, Visiting Associates, as well as INRIST and TOKTEN programmes for Non-Resident Indian scientists in various research institutions for short duration. The award of JRF is through a national examination system conducted jointly with UGC. This will be continued. The scheme has been merged into a single scheme and renamed as National S&T Human Resource Development from 2002-03 onwards.

In addition to above CSIR also supports temporary placement of highly qualified Indian scientists and technologists. It is proposed to continue support to pool officers ,senior research associates during 2002-2003 to avert the brain drain.

**6. Pilot Plant:** The Plant has been established to produce, small quantities of high-tech products that are otherwise unviable for industry to take up on commercial basis. On ZBB review , the scheme has been weeded out.

**7. Residential Building:** Programme for the construction of dwellings was initiated in CSIR to attract talented scientists and retain them in CSIR. On ZBB review, the scheme has been merged with National laboratories.

**8. Modernisation:** Modernization and upgradation of equipment and R&D facilities in CSIR Laboratories commenced from the budgetary support provided in 1997-98. Scheme completed and will not continue in 10<sup>th</sup> Plan.

**9. Intellectual Property (IP) and Technology Management:** The CSIR IP activities has been very encouraging. CSIR has been doubling its patent filing abroad every year. CSIR patent filing abroad now exceeds 500/ year. On the Technology Management front also CSIR has done well. It negotiated and tied up marketing of technologies with various Indian and Foreign companies. CSIR helped to promote a forum for discussing and finding solutions in the field of Management of Technology not only in the CSIR but also for other agencies.

**10. New Millennium Indian Technology Leadership Initiative (NMITLI)** is a far sighted, path setting initiative announced by the Union Finance Minister in the Budget Speech, 2000 with an outlay of Rs. 50 crore and seeks to support innovation centered scientific and technological developments as a vehicle to attain for the country a global leadership position in some selected niche areas. It is based on symbolic partnership between the government and private sector. The scheme has been assigned to be operated by CSIR.

After wide-ranging and wide-spread national consultations through letters, media, brainstorming meetings and posters, 28 potential areas have been shortlisted. Nine projects have been taken up involving 55 R&D institutions & 20 industrial R&D units.

**11. 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.

#### **12 Non Plan subsidies:**

i) **Interest subsidy 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.

**13. National Information System for Science and Technology (NISSAT):** NISSAT programme continued to maintain eight Information centres, and two nodes viz. on Chemicals and Engineering subsets of the Value Added Patent Information System (VAPIS). The library automation activities were initiated in more than 1700 institutions. Also, initiated action for the establishment of Internet Server for S&T and an Internet School to impart training to the users in specific surfing and usage of Internet. The quarterly NISSAT Newsletter "Information Today & Tomorrow" were published. Plan support to NISSAT discontinued in 2002-03.

#### **14. Assistance to Other Scientific Bodies:**

**14.1 Support to Research and Development Schemes of Central Electronics Ltd.:** 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.

**14.2 Other Schemes/ 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. PASTER Scheme is merged in "Technology Promotion, Development and Utilisation programmes" in 2002-03.

**(ii) Management Administration & infrastructure:** To house the various facilities and to also carry out the activities at the desired efficiency levels, building complex for DSIR is proposed to be built/acquired. This scheme is merged in "Technology Promotion, Development and Utilisation programmes" in 2002-03.**(iii) Other Scheme :** It comprises of the following schemes:

The Plan support to NRDC is basically for two programmes viz. Invention Promotion Programme (IPP) and Development and Promotion of Rural Technology (TPP). IPP mainly caters to promote and commercialise inventions by way of awarding meritorious inventions for converting their ideas into prototypes, provide financial support to prospective inventors etc. TPP mainly caters to needs of the development and commercialisation of rural technology by way of identifying, proving and demonstrating appropriate technologies in rural areas and also by way of assisting in commercialisation of selected rural technologies.

**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.

**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

**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.

**15. Grant in Aid for Technology Promotion, Development and Utilisation Programmes:** The scheme has been introduced in 2002-03 by merging the existing schemes viz. PASTER, RDI and SEETOT. The plan support also includes provision for Secretariat Economic Service and APCTT Schemes.

**16. Investment in Public Enterprises:****(i) Central Electronics Ltd.**

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:

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

**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).

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

**(ii) National Research Development Corporation.**

National Research Development Corporation (NRDC), a public sector enterprise under DSIR, is engaged in development, upscaling, licensing and commercialisation of indigenous technologies as well as export of technologies. The objectives of the Corporation are: commercialising of indigenous technologies, promotion and commercialisation of inventions, dissemination of information on technology transfer and development and promotion of rural technology.

As a result of a "New Approach" to the corporation activities, the corporation has been able to reverse the declining trend in technologies acquired from R&D laboratories for licensing. The organisations from which such technologies were acquired have been widened enormously to cover many laboratories under CSIR, ICMR, ICAR, DRDO, BARC, CPRI, DOE, RDSO, IITs, Universities and other large public sector enterprises. No budgetary support has been provided during 2002-03 for loan and equity of NRDC.

**17. APCTT Building:**

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