## *MINISTRY OF SCIENCE AND TECHNOLOGY*

DEMAND NO. 69

### Department of Scientific and Industrial Research

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

*(In crores of Rupees)*

| | Major Head | Budget , 2000-2001 Plan | Non-Plan | Total | Revised, 2000-2001 Plan | Non-Plan | Total | Budget, 2001-2002 Plan | Non-Plan | Total |
|---|---|---|---|---|---|---|---|---|---|---|
| Revenue | | 349.50 | 615.38 | 964.88 | 324.98 | 583.13 | 908.11 | 354.50 | 603.47 | 957.97 |
| *Capital* | | *5.50* | *...* | *5.50* | *2.50* | *...* | *2.50* | *5.50* | *...* | *5.50* |
| **Total** | | **355.00** | **615.38** | **970.38** | **327.48** | **583.13** | **910.61** | **360.00** | **603.47** | **963.47** |
| 1. Secretariat - Economic Services | 3451 | 0.20 | 3.15 | 3.35 | 0.20 | 3.04 | 3.24 | 0.20 | 3.15 | 3.35 |
| **Other Scientific Research** | | | | | | | | | | |
| *Assistance to Council of Scientific & Industrial Research* | | | | | | | | | | |
| 2.Administration | 3425 | 10.60 | 149.00 | 159.60 | 10.60 | 141.20 | 151.80 | 11.00 | 145.75 | 156.75 |
| 3. National Laboratories | 3425 | 156.75 | 392.00 | 548.75 | 156.75 | 374.10 | 530.85 | 188.50 | 387.55 | 576.05 |
| 4. Scientists' Pool | 3425 | ... | 5.62 | 5.62 | ... | 5.62 | 5.62 | ... | 5.80 | 5.80 |
| 5. Research Schemes, Scholarships and Fellowships | 3425 | 4.50 | 58.48 | 62.98 | 4.50 | 49.50 | 54.00 | 5.50 | 51.10 | 56.60 |
| 6. Pilot Plant | 3425 | ... | 1.63 | 1.63 | ... | 1.58 | 1.58 | ... | 1.62 | 1.62 |
| 7. Residential Buildings | 3425 | 9.60 | 5.41 | 15.01 | 9.60 | 8.00 | 17.60 | 10.00 | 8.40 | 18.40 |
| 8. Modernisation | 3425 | 60.00 | ... | 60.00 | 60.00 | ... | 60.00 | 59.00 | ... | 59.00 |
| 9. Intellectual Property & Tech. Management | 3425 | 7.90 | ... | 7.90 | 7.90 | ... | 7.90 | 8.00 | ... | 8.00 |
| 10.New Millenium Indian Technology Leadership Initiative | 3425 | 50.00 | ... | 50.00 | 25.00 | ... | 25.00 | 50.00 | ... | 50.00 |
| **Total Assistance to CSIR** | | **299.35** | **612.14** | **911.49** | **274.35** | **580.00** | **854.35** | **332.00** | **600.22** | **932.22** |
| 11. Non-Plan Subsidies | | | | | | | | | | |
| Interest Subsidy to NRDC | 3425 | ... | 0.09 | 0.09 | ... | 0.09 | 0.09 | ... | 0.10 | 0.10 |
| 12. National Information System for Science and Technology | 3425 | 2.10 | ... | 2.10 | 2.10 | ... | 2.10 | 2.10 | ... | 2.10 |
| 13. Assistance to Other Scientific Bodies | | | | | | | | | | |
| 13.1 Support for R&D Schemes to Central Electronics Limited | 3425 | 3.70 | ... | 3.70 | 3.70 | ... | 3.70 | 3.70 | ... | 3.70 |
| 13.2 Other Schemes / Programmes | | | | | | | | | | |
| i. Prog. Aimed at Technological Self Reliance | 3425 | 7.20 | ... | 7.20 | 7.20 | ... | 7.20 | 8.40 | ... | 8.40 |
| ii. Management, Administration & Infrastructure | 3425 | 1.00 | ... | 1.00 | 1.00 | ... | 1.00 | 2.00 | ... | 2.00 |
| iii. Other Schemes | 3425 | 5.45 | ... | 5.45 | 5.93 | ... | 5.93 | 6.10 | ... | 6.10 |
| | *Total* | *17.35* | *...* | *17.35* | *17.83* | *...* | *17.83* | *20.20* | *...* | *20.20* |
| 14. Investment in Public Enterprises | | | | | | | | | | |
| i.Central Electronics Ltd. | 4859 | 2.50 | ... | 2.50 | 1.00 | ... | 1.00 | 2.50 | ... | 2.50 |
| | 6859 | 2.50 | ... | 2.50 | 1.00 | ... | 1.00 | 2.50 | ... | 2.50 |
| | *Total* | *5.00* | *...* | *5.00* | *2.00* | *...* | *2.00* | *5.00* | *...* | *5.00* |
| ii.National Research Development Corporation | 5425 | 0.25 | ... | 0.25 | 0.25 | ... | 0.25 | 0.25 | ... | 0.25 |
| | 7425 | 0.25 | ... | 0.25 | 0.25 | ... | 0.25 | 0.25 | ... | 0.25 |
| | *Total* | *0.50* | *...* | *0.50* | *0.50* | *...* | *0.50* | *0.50* | *...* | *0.50* |
| | **Total** | **5.50** | **...** | **5.50** | **2.50** | **...** | **2.50** | **5.50** | **...** | **5.50** |
| 15. Lumpsum provision for Projects/ Schemes for North-East Region & Sikkim | 2552 | 30.50 | ... | 30.50 | 30.50 | ... | 30.50 | ... | ... | ... |
| ***Grand Total*** | | ***355.00*** | ***615.38*** | ***970.38*** | ***327.48*** | ***583.13*** | ***910.61*** | ***360.00*** | ***603.47*** | ***963.47*** |
| **B. Investment in Public Enterprises** | Head of Dev | Budget Support | IEBR | Total | Budget Support | IEBR | Total | Budget Support | IEBR | Total |
| 1. Central Electronics Ltd. | 12859 | 5.00 | 2.50 | 7.50 | 2.00 | 1.60 | 3.60 | 5.00 | 2.45 | 7.45 |
| 2. National Research Development Corporation | 13425 | 0.50 | ... | 0.50 | 0.50 | ... | 0.50 | 0.50 | ... | 0.50 |
| **Total** | | **5.50** | **2.50** | **8.00** | **2.50** | **1.60** | **4.10** | **5.50** | **2.45** | **7.95** |
| **C. Plan Outlay*** | | | | | | | | | | |
| 1. Secretariat - Economic Services | 13451 | 0.20 | ... | 0.20 | 0.20 | ... | 0.20 | 0.20 | ... | 0.20 |
| 2. Other Scientific Research | 13425 | 349.80 | ... | 349.80 | 325.28 | ... | 325.28 | 354.80 | ... | 354.80 |
| 3. Telecommunication and Electronics Industries | 12859 | 5.00 | 2.50 | 7.50 | 2.00 | 1.60 | 3.60 | 5.00 | 2.45 | 7.45 |
| **Total** | | **355.00** | **2.50** | **357.50** | **327.48** | **1.60** | **329.08** | **360.00** | **2.45** | **362.45** |

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

2. **Administration**: The various 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 seven of them to acquire ISO-9000 quality standards; a few labs are at advanced stage of achieving this. A new initiative of target setting and performance-linked incentive was introduced to bring in more of accountability of output. The first step of three-tier hardware infrastructure envisaged in terms of LAN at the Headquarters and the laboratories has been accomplished. The initiative to set up MIS is progressing as scheduled, and as first step "personnel based MIS" has been setup across CSIR and for 'project' in few labs on a trial basis.

3. **National Laboratories:** CSIR has a network of 40 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.

4. **Scientists'Pool:** Scientists' Pool Schemes aim for temporary placement of highly qualified Indian scientists and technologists. It is proposed to continue support to pool officers during 2001-2002.

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 progrmmes include the funding for placement of Junior and Senior Research Fellows, Research Associates, Visiting Associates, as well as INRIST and TOKTEN programmes which support placement of Non-Resident Indian scientists in various institutions for short duration. The award of fellowships is through a national examination system conducted jointly with UGC.

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. Funding would be continued for production of variety of optical glasses through ceramic pot technology developed by CGCRI, Calcutta for defence and strategic needs of the country.

7. **Residential Buildings, Staff quarters and other amenities:** Housing is one of the major constraints for attracting talented scientists and retaining them in CSIR. A programme for the construction of dwellings has been emphasized through a judicious mix of staff quarters and scientist apartments along with minimum facilities and amenities such as schools, dispensaries etc.

8. **Modernisation:** Modernisation and upgradation of equipment and R&D facilities in CSIR laboratories has commenced from the budgetary support provided in 1997-98. The equipment and R&D facilities as per the Plan are being modernised and upgraded.

9. **Intellectual Property and Technology Management:** The IP activities have been encouraging. On the Technology Management front CSIR 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):** It 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 will be based on partnership between the government and private sector. The scheme has been assigned to be operated by CSIR.

After wide-ranging and widespread national consultations through letters, media, brainstorming meetings and posters, 28 potential areas have been shortlisted. Groups have been set-up to prepare detailed project proposals at national level for 12 of the areas in the first phase.

11. **Non Plan subsidies:**

**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 during 8th Plan by DSIR.

12. **National Information System for Science and Technology (NISSAT):** NISSAT programme continued to maintain eight Information centers, 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, action was initiated 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.

13. **Assistance to Other Scientific Bodies:**

13.1 **Support for Research and Development Schemes to 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 are supported.

13.2 **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 technopreneural skills of Indian citizens at individual level, projects are supported under a scheme viz. "Technopreneur Promotion Programme (TePP)", jointly operated by DSIR under the PASTER scheme and DST under the "Home Grown Technology" scheme of TIFAC.

(ii) *Management, Administration & infrastructure*: To house the various facilities and also to carry out the activities at the desired efficiency levels, building complex for DSIR is proposed to be built within the Technology Bhavan complex. Delhi Urban

Arts Commission has already cleared an architecture layout of a building complex.

(iii) *Other schemes*: It comprises the following schemes:

**(a) 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.

**(b) 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.

**(c) 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.

**14. Investment in Public Enterprises:**

**(i) 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:

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

**(b) 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).

**(c) 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 commercialization of indigenous technologies as well as the export of technologies. The objectives of the Corporation are: commercializing of indigenous technologies, promotion and commercialization 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 licencing. The organizations 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.