

**MINISTRY OF SCIENCE AND TECHNOLOGY**

## DEMAND NO. 83

**Department of Science and Technology**

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

*(In crores of Rupees)*

Major Head	Budget 2008-2009			Revised 2008-2009			Budget 2009-2010			
	Plan	Non-Plan	Total	Plan	Non-Plan	Total	Plan	Non-Plan	Total	
Revenue	1465.00	248.10	1713.10	1458.50	318.60	1777.10	1702.50	355.60	2058.10	
Capital	65.00	1.90	66.90	64.50	2.40	66.90	72.50	2.40	74.90	
<b>Total</b>	<b>1530.00</b>	<b>250.00</b>	<b>1780.00</b>	<b>1523.00</b>	<b>321.00</b>	<b>1844.00</b>	<b>1775.00</b>	<b>358.00</b>	<b>2133.00</b>	
1. Secretariat-Economic Services	3451	...	29.87	29.87	...	40.13	40.13	...	50.23	50.23
<b>Other Scientific Research</b>										
2. Modernisation of Mapping Organizations (SOI and NATMO)	3425	11.00	168.87	179.87	21.16	247.10	268.26	9.50	263.62	273.12
	5425	5.00	0.50	5.50	8.00	0.25	8.25	6.50	0.40	6.90
<i>Total</i>		16.00	169.37	185.37	29.16	247.35	276.51	16.00	264.02	280.02
<b>Science and Technology</b>										
3. Autonomous Institutions & Professional Bodies	3425	421.00	21.00	442.00	455.50	19.00	474.50	536.00	21.00	557.00
4. Research and Development Support - Multi-Disciplinary Research in Science and Technology(SERC)	3425	415.00	2.00	417.00	415.00	1.80	416.80	535.00	2.00	537.00
5. Technology Development Programme	3425	35.00	...	35.00	43.00	...	43.00	50.00	...	50.00
6. Technology for Bamboo Products (Mission Mode Project)	3425	20.00	...	20.00	20.00	...	20.00	40.00	...	40.00
7. S & T Programmes for Socio Economic Development	3425	95.00	...	95.00	101.00	...	101.00	108.00	...	108.00
8. State Science & Technology Programme	3425	10.00	...	10.00	14.00	...	14.00	15.00	...	15.00
9. Vocational Employment Generation	3425	1.00	...	1.00	1.00	...	1.00	...	...	...
10. International Cooperation	3425	50.00	5.31	55.31	50.00	6.06	56.06	50.00	8.50	58.50
11. Payment to Technology Development Board against Cess receipts	3425	...	20.80	20.80	...	4.28	4.28	...	10.00	10.00
12. Information Technology	3425	4.00	...	4.00	4.00	...	4.00	5.00	...	5.00
13. National Training Programme for Scientists/Technologists working with Government of India	3425	5.00	...	5.00	5.00	...	5.00	5.00	...	5.00
14. Other Programmes	3425	...	0.25	0.25	...	0.23	0.23	...	0.25	0.25
	5425	...	1.40	1.40	...	2.15	2.15	...	2.00	2.00
<i>Total</i>		...	1.65	1.65	...	2.38	2.38	...	2.25	2.25
15. Synergy Projects (o/o Pr. Scientific Adviser)	3425	8.00	...	8.00	16.00	...	16.00	20.00	...	20.00
16. Drugs and Pharmaceutical Research	3425	40.00	...	40.00	40.00	...	40.00	30.00	...	30.00
	7425	60.00	...	60.00	56.50	...	56.50	66.00	...	66.00
<i>Total</i>		100.00	...	100.00	96.50	...	96.50	96.00	...	96.00
17. National Mission on Nano Science & Nano Technology	3425	145.00	...	145.00	130.00	...	130.00	130.00	...	130.00
18. Scholarships for Science in Higher Education (Oversight Committee Recommendation)	3425	85.00	...	85.00	85.00	...	85.00	40.00	...	40.00
19. Water Technology Initiative	3425	5.00	...	5.00	5.00	...	5.00	15.00	...	15.00
20. Innovations in Science Pursuit for Inspired Research (INSPIRE)	3425	85.00	...	85.00	40.34	...	40.34	60.00	...	60.00
21. Innovation Clusters	3425	5.00	...	5.00	5.00	...	5.00	7.00	...	7.00
22. Security Technology Initiative	3425	5.00	...	5.00	2.50	...	2.50	7.00	...	7.00

(In crores of Rupees)

Major Head	Budget 2008-2009			Revised 2008-2009			Budget 2009-2010			
	Plan	Non-Plan	Total	Plan	Non-Plan	Total	Plan	Non-Plan	Total	
23. Mega facilities for Basic Research	3425	20.00	...	20.00	5.00	...	5.00	40.00	...	40.00
<b>Total-Science and Technology</b>		<b>1514.00</b>	<b>50.76</b>	<b>1564.76</b>	<b>1493.84</b>	<b>33.52</b>	<b>1527.36</b>	<b>1759.00</b>	<b>43.75</b>	<b>1802.75</b>
<b>Total- Other Scientific Research</b>		<b>1530.00</b>	<b>220.13</b>	<b>1750.13</b>	<b>1523.00</b>	<b>280.87</b>	<b>1803.87</b>	<b>1775.00</b>	<b>307.77</b>	<b>2082.77</b>
<b>Grand Total</b>		<b>1530.00</b>	<b>250.00</b>	<b>1780.00</b>	<b>1523.00</b>	<b>321.00</b>	<b>1844.00</b>	<b>1775.00</b>	<b>358.00</b>	<b>2133.00</b>
<b>C. Plan Outlay</b>	Head of Dev	Budget Support	IEBR	Total	Budget Support	IEBR	Total	Budget Support	IEBR	Total
1. Other Scientific Research	13425	1530.00	...	1530.00	1523.00	...	1523.00	1775.00	...	1775.00
<b>Total</b>		<b>1530.00</b>	<b>...</b>	<b>1530.00</b>	<b>1523.00</b>	<b>...</b>	<b>1523.00</b>	<b>1775.00</b>	<b>...</b>	<b>1775.00</b>

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

2. **Modernisation of Mapping Organizations (Sol and NATMO):** Survey of India (Sol) and National Atlas and Thematic Mapping Organization (NATMO) are operationally two different entities, but in so far as the budget outlays are concerned the two schemes have been merged and renamed as 'Modernisation of Mapping Organizations'.

The Survey of India, the principal national surveying and mapping organization is mainly responsible for producing topographical maps and providing survey support to the defence forces and various national development projects in the country.

The National Atlas and Thematic Mapping Organization set up in 1956 primarily aims at preparing National Atlas of India. Subsequently, its scope and activities were extended to new fields of geographical research, thematic mapping covering all the academic and applied aspects of geography and allied subjects.

3. **Autonomous Institutions & Professional Bodies:** There are 24 independent autonomous institutions and professional bodies situated at different locations of the country having different mandates. However, in so far as the budget outlays are concerned these schemes have been merged and renamed as 'Autonomous Institutions & Professional Bodies'.

#### 4. Research & Development Support

**Multidisciplinary Research in Science and Technology (SERC):** The Department of Science and Technology, as a part of its S&T promotional activity has been supporting R&D programmes under Science and Engineering Research Council (SERC). The objectives of the SERC are as under:

- To promote research in newly emerging and frontline areas of Science and Engineering including multidisciplinary fields;
- To selectively promote general research capability in relevant areas of Science and Engineering taking into account existing research capabilities of the host institution; and
- To encourage young scientists to take up challenging research and development activities.

5. **Programme for Special Technology Development & Coordination (Technology Development Programme):** The programme is aimed at developing indigenous technology through joint projects with industry and socio-economic Ministries. It also includes activities relating to development of Natural Resources Data Management System (NRDMS), Patent Facilitating Cells (PFC), Instrument Development Programme (IDP), Joint Technology Projects (JTP), Inter-Sectoral S&T

Advisory Council (IS-STAC), Disaster Management Cell (DMC), National Spatial Data Infrastructure (NSDI), Fly Ash Unit (FAU) and the National Good Laboratory Practices Compliance Monitoring Authority (NGLPCMA).

6. **Technology for Bamboo Products (Mission Mode Project):** The programme would impart a significant boost to the usage of bamboo, promote specialized products for commercialization and would generate good employment opportunities. New tools and techniques would be introduced to enhance the manner in which the bamboo resources are used in the country leading to greater efficiencies and a sensitive use of new materials.

7. **S&T Programmes for Socio Economic Development:** The following plan schemes: S&T Entrepreneurship Development, Science & Society Programme, Women Component Plan, S&T Communication & Popularization, Special Component Plan for the Development of Scheduled Castes and Tribal Sub-Plan which were hitherto separate Plan schemes have now been merged and renamed as 'S&T Programme for Socio Economic Development' in so far as budget outlays are concerned.

8. **State Councils for Science and Technology (State S&T Programme):** The objective is to establish and support State Councils for S&T to act as focal points in the States and Union Territories for planning, guiding, evaluating, monitoring, coordinating and in general spreading Science and Technology activities at State level.

9. **Vocational Training for Employment Generation:** Includes the schemes -Technology Development Centers (TDC), Technology Resource Centers (TRC), Vocational Training for Employment Generation, Information Technology for Sustainable Agricultural Production System in Punjab (ITSAPSP), Mission for Application of Technology for Urban Renewal Engineering (MATURE) and S&T Entrepreneurship Parks – Technology Business Incubators (STEP-TBI).

10. **International Cooperation: (Indo-US S&T Forum, Indo French Centre for Promotion of Advanced Research and S&T Programme of Cooperation with Other Countries):** This includes the programmes of S&T cooperation with the United States of America, France and other developed and developing countries to undertake collaborative projects in the identified thrust areas in frontiers of S&T; related areas of Science for basic research and to explore other possible areas for future cooperation.

11. **Payment to Technology Development Board against Cess Receipts:** The provision is for payment to Technology Development Board against net proceeds of cess realized under Technology Development Board Act, 1995. The Board has been set up to help the indigenously developed technologies reach

the stage of commercial application and for grafting imported technologies for wider domestic applications.

**12. Information Technology:** The scheme pertains to expenditure incurred on Information Technology (IT).

**13. National Training Programme for the Scientists/Technologists working with the Government of India,** is an initiative undertaken with a view to provide holistic training to scientists working in the Government sector and aims at empowering scientists with capabilities. The programmes are categorized broadly to cater to general management development areas, specific and highly specialized areas, techno-scientific management covering multi-disciplinary areas, etc.

**14. Other Programmes:** It depicts Exhibitions and Fairs as well as the Capital expenditure of the Secretariat.

**15. Synergy Projects (O/o Principal Scientific Adviser):** The scheme is operated by the Office of the Principal Scientific Adviser to the Government of India. The objective of having a separate budget allocation is to enable that Office to play a catalytic role in taking up selective R&D and technology development projects in a number of important areas where multiple scientific and technological agencies are involved.

**16. Drugs & Pharmaceuticals Research:** The scheme is to be used for the purpose of supporting research and development programmes and setting up of national facilities for furthering R&D activities in the country and for defining areas of relevance and value to the Indian populace and intensifying the work in such areas by synergizing the core competence of the constituents (publicly funded R&D institutions and the Indian Pharmaceutical Industry).

**17. National Mission on Nano Science & Nano Technology:** The following areas of research have been identified for immediate attention:

- a. studies of free atomic and molecular clusters, cluster assembled materials, low-dimensional structures and quantum dots
- b. nano-electronics and nano-photonics
- c. applications: nano-coatings, nano-device based sensors and diagnostics kits, controlled and targeted drug delivery systems, nano-phosphor based display devices, etc.

**18. Scholarships for Science in Higher Education (Oversight Committee Recommendation):** As per the recommendation of the Oversight Committee a new scholarship initiative - commencing at the pre-university stage to tap and retain bright science students in science streams during their BSc./MSc. programmes is expected to provide an annual accretion of 10,000 'best in class' future researchers per year, which should enable India to become a Global Corporate Research Hub.

**19. Water Technology Initiative:** The focus of the program is in design and development of low cost solutions for domestic use of technologies for safe drinking water. Since quality is the

main consideration of safe drinking water research, such technologies which employ nano materials and filtration technologies are being focused. The initiative would include the pilot testing of a credible number of products and referencing of selected technologies to the social contexts of the application regions. The multi-component programme on water, proposed to be launched by this Department in response to the Supreme Court's directive to address the water shortage problem, is a collaborative initiative with other knowledge partners to explore and understand the scientific basis of the domestic water problem being faced in different pockets of the country and apply suitable technological interventions, that are acceptable at the local level, for alienating the problem.

**20. Innovations in Science Pursuit for Inspired Research (INSPIRE):** To attract and foster talent in scientific research, a separate scheme is being proposed. The scheme draws benefits from the previous experience in the education sector, but aims to expand the scale to gain critical size and mass.

**21. Innovation Clusters:** Whereas the education and industrial infrastructure in the country are developing in parallel, there is a need to develop an innovation infrastructure to link knowledge products to the generation of wealth. Competitiveness innovation clusters are emerging in global platform. Numerous success stories of such innovation clusters benefiting the academy and industrial sectors have been reported. It is necessary for India to mount such an initiative under an effective public-private partnership model in areas where the trade and advantages have already been established and the clustering processes are evident. Evidence based selection of the sectors and locations for innovation clusters will be essential.

**22. Security Technology Initiative:** Internal security is a subject of concern in modern civilizations in many countries. A science and technology initiative in the area of security is essential. This technology would involve a careful selection and symbiosis of many disciplines. A knowledge and innovation network and carefully designed initiative is considered necessary. Since DST enjoys the benefit of linkages with a vast network of institutions, it has already made a preliminary attempt to structure and implement the national initiative. A new national programme is being proposed using the NMITLI type model.

**23. Mega Facilities for Basic Research:** Basic research in the country has been depending upon mega and capital intensive facilities created by other countries. This practice has led to asymmetries in credit sharing. Further, Indian expertise to build advance scientific instruments and devices does not get fostered outside the strategic areas of research. DST along with DAE has identified areas where an effective partnership of the two departments can bring about an effective capacity building in the university and academic sector for building mega facilities for basic research.