

MINISTRY OF SCIENCE AND TECHNOLOGY

DEMAND NO. 81

Department of Science and Technology

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

		<i>(In crores of Rupees)</i>								
Major Head	Budget 2006-2007			Revised 2006-2007			Budget 2007-2008			
	Plan	Non-Plan	Total	Plan	Non-Plan	Total	Plan	Non-Plan	Total	
Revenue	1188.00	404.40	1592.40	911.50	221.07	1132.57	1454.40	246.70	1701.10	
Capital	152.00	1.60	153.60	42.50	1.93	44.43	71.60	2.30	73.90	
Total	1340.00	406.00	1746.00	954.00	223.00	1177.00	1526.00	249.00	1775.00	
1. Secretariat-Economic Services	3451	...	26.84	26.84	...	26.37	26.37	...	28.00	28.00
Other Scientific Research										
2. Modernisation of Mapping Organisations (SOI and NATMO)	3425	...	...	...	...	...	18.40	164.70	183.10	
	5425	...	...	...	...	...	11.60	0.90	12.50	
<i>Total</i>		...	...	...	...	...	30.00	165.60	195.60	
Survey of India										
3. Direction and Administration	3425	...	33.00	33.00	...	32.70	32.70	...	...	...
	5425	7.50	0.50	8.00	6.50	0.48	6.98	...	...	...
<i>Total</i>		7.50	33.50	41.00	6.50	33.18	39.68	...	...	...
4. Topographical Surveys	3425	...	82.62	82.62	...	81.52	81.52	...	...	...
5. Publication of Maps/Charts etc.	3425	...	14.90	14.90	...	14.32	14.32	...	...	...
6. Training and Research	3425	...	5.80	5.80	...	5.76	5.76	...	...	...
7. Other Schemes	3425	12.50	13.99	26.49	12.50	13.81	26.31	...	...	...
Total-Survey of India		20.00	150.81	170.81	19.00	148.59	167.59	...	...	...
Science and Technology										
8. National Atlas and Thematic Mapping Organisation	3425	2.00	9.90	11.90	2.00	9.85	11.85	...	...	...
	5425	1.00	...	1.00	1.00	...	1.00	...	...	...
<i>Total</i>		3.00	9.90	12.90	3.00	9.85	12.85	...	...	...
9. Autonomous Institutions & Professional Bodies	3425	...	...	...	...	...	...	421.00	24.85	445.85
10. Assistance to Scientific Bodies										
10.01 Indian Association for the Cultivation of Science, Kolkata	3425	33.00	2.40	35.40	33.00	2.28	35.28	...	...	...
10.02 Bose Institute, Kolkata	3425	22.00	2.40	24.40	22.00	2.28	24.28	...	...	...
10.03 Raman Research Institute, Bangalore	3425	20.00	2.40	22.40	20.00	2.28	22.28	...	...	...
10.04 Indian Institute of Astrophysics, Bangalore	3425	27.00	2.40	29.40	27.00	2.28	29.28	...	...	...
10.05 Indian Institute of Geomagnetism, Mumbai	3425	19.50	0.60	20.10	19.50	0.57	20.07	...	...	...
10.06 Indian Institute of Tropical Meteorology, Pune *	3425	9.00	2.20	11.20	...	...	...	...	...	...
10.07 Sree Chitra Tirunal Institute for Medical Sciences and Technology, Thiruvananthapuram	3425	60.00	7.60	67.60	70.00	7.22	77.22	...	...	...
10.08 Birbal Sahni Institute of Palaeobotany, Lucknow	3425	8.50	1.40	9.90	5.50	1.33	6.83	...	...	...
10.09 S N Bose National Centre for Basic Sciences, Kolkata	3425	11.00	0.40	11.40	11.00	0.38	11.38	...	...	...
10.10 Agharkar Research Institute, Pune	3425	7.00	1.00	8.00	7.00	0.95	7.95	...	...	...
10.11 Wadia Institute of Himalayan Geology, Dehradun	3425	11.00	1.20	12.20	11.00	1.14	12.14	...	...	...
10.12 Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore	3425	25.00	...	25.00	25.00	...	25.00	...	...	...
10.13 Technology Information, Forecasting and Assessment Council, New Delhi	3425	15.00	0.08	15.08	0.65	0.08	0.73	...	...	...
10.14 Vigyan Prasar	3425	7.00	...	7.00	6.00	...	6.00	...	...	...

No.81/ Department of Science and Technology

(In crores of Rupees)

Major Head	Budget 2006-2007			Revised 2006-2007			Budget 2007-2008			
	Plan	Non-Plan	Total	Plan	Non-Plan	Total	Plan	Non-Plan	Total	
10.15. Advanced Research Centre for Powder Metallurgy & New Materials, Hyderabad	3425	31.00	...	31.00	38.00	...	38.00	...	...	...
10.16 Other Institutes/ Other Professional Bodies	3425	20.00	3.12	23.12	19.50	2.96	22.46	...	...	...
10.17 National Accreditation Board for Testing and Calibration Laboratories (NABL), New Delhi	3425	5.00	...	5.00	2.00	...	2.00	...	...	...
10.18 Centre for Liquid Crystal Research	3425	3.00	...	3.00	1.00	...	1.00	...	...	...
10.19 State Observatory, Nainital	3425	11.00	...	11.00	15.00	...	15.00	...	...	...
<i>Total</i>		<i>345.00</i>	<i>27.20</i>	<i>372.20</i>	<i>333.15</i>	<i>23.75</i>	<i>356.90</i>	<i>...</i>	<i>...</i>	<i>...</i>
11. Research and Development Support										
11.01 Multi-disciplinary Research in Science and Technology (SERC)	3425	340.00	2.50	342.50	357.00	2.38	359.38	344.00	2.50	346.50
12. Programme for Special Technology Development and Coordination (Technology Development Programme)	3425	38.00	...	38.00	30.00	...	30.00	40.00	...	40.00
13. Seismology (Mission Mode Project)	3425	10.00	...	10.00	4.00	...	4.00	...	...	...
14. Technology for Bamboo Products (Mission Mode Project)	3425	35.00	...	35.00	30.00	...	30.00	...	...	...
15. S & T Programmes for Socio Economic Development	3425	...	...	...	...	...	...	95.00	...	95.00
15.01 S & T Entrepreneurship Development	3425	17.00	...	17.00	17.00	...	17.00	...	...	...
15.02 Science and Society Programme	3425	5.50	...	5.50	6.85	...	6.85	...	...	...
15.02.01 Women Component Plan	3425	30.00	...	30.00	30.00	...	30.00	...	...	...
15.03 S & T Communication and Popularisation	3425	15.00	...	15.00	10.00	...	10.00	...	...	...
15.04 State Council for Science & Technology (State S&T Prog)	3425	11.00	...	11.00	11.00	...	11.00	14.00	...	14.00
15.05 Other Schemes	3425	5.00	...	5.00	5.00	...	5.00	...	...	...
<i>Total</i>		<i>83.50</i>	<i>...</i>	<i>83.50</i>	<i>79.85</i>	<i>...</i>	<i>79.85</i>	<i>109.00</i>	<i>...</i>	<i>109.00</i>
16. International Co-operation										
16.01 Development Cooperation between India and UNDP (Vocational Training for Employment Generation)	3425	2.00	5.50	7.50	2.00	5.45	7.45	3.00	...	3.00
16.02 Others	3425	21.00	...	21.00	20.00	...	20.00	40.00	5.60	45.60
<i>Total</i>		<i>23.00</i>	<i>5.50</i>	<i>28.50</i>	<i>22.00</i>	<i>5.45</i>	<i>27.45</i>	<i>43.00</i>	<i>5.60</i>	<i>48.60</i>
17. National Centre for Medium Range Weather Forecasting *	3425	7.50	2.25	9.75	...	...	...	...	...	...
	5425	15.50	...	15.50	...	...	...	...	...	...
<i>Total</i>		<i>23.00</i>	<i>2.25</i>	<i>25.25</i>	<i>...</i>	<i>...</i>	<i>...</i>	<i>...</i>	<i>...</i>	<i>...</i>
18. Payment to Technology Development Board against Cess receipts	3425	...	33.50	33.50	...	4.92	4.92	...	20.80	20.80
19. Other Programmes	3425	6.50	0.25	6.75	4.00	0.24	4.24	6.00	0.25	6.25
	5425	...	0.50	0.50	...	1.45	1.45	...	1.40	1.40
<i>Total</i>		<i>6.50</i>	<i>0.75</i>	<i>7.25</i>	<i>4.00</i>	<i>1.69</i>	<i>5.69</i>	<i>6.00</i>	<i>1.65</i>	<i>7.65</i>
20. Synergy Projects	3425	20.00	...	20.00	12.00	...	12.00	10.00	...	10.00
21. Drugs and Pharmaceutical Research	3425	60.00	...	60.00	25.00	...	25.00	58.00	...	58.00
	7425	70.00	...	70.00	35.00	...	35.00	60.00	...	60.00
<i>Total</i>		<i>130.00</i>	<i>...</i>	<i>130.00</i>	<i>60.00</i>	<i>...</i>	<i>60.00</i>	<i>118.00</i>	<i>...</i>	<i>118.00</i>
22. National Mission on Nano Science & Nano Technology	3425	180.00	...	180.00	...	...	...	150.00	...	150.00

(In crores of Rupees)

Major Head	Budget 2006-2007			Revised 2006-2007			Budget 2007-2008		
	Plan	Non-Plan	Total	Plan	Non-Plan	Total	Plan	Non-Plan	Total
23. Science and Engineering Research Board	3425	...	...	...	...	...	100.00	...	100.00
24. Scholarships for Science in Higher Education (Oversight Committee Recommendation)	3425	...	...	...	...	...	100.00	...	100.00
25. Water Technology Initiative	3425	...	...	...	...	...	5.00	...	5.00
26. Innovations in Science Pursuit for Inspired Research (INSPIRE)	3425	...	...	...	...	...	10.00	...	10.00
27. Innovation Clusters	3425	...	...	...	...	...	5.00	...	5.00
28. Security Technology Initiative	3425	...	...	...	...	...	10.00	...	10.00
29. Mega facilities for Basic Research	3425	...	...	...	...	...	25.00	...	25.00
Total-Science and Technology	1237.00	81.60	1318.60	935.00	48.04	983.04	1496.00	55.40	1551.40
Total- Other Scientific Research	1257.00	232.41	1489.41	954.00	196.63	1150.63	1526.00	221.00	1747.00
Meteorology *									
30. Training	3455	0.58	1.95	2.53	...	...	...	...	...
31. Satellite Services	3455	4.89	6.83	11.72	...	...	...	...	...
32. Observatories and Weather Stations	3455	10.65	72.97	83.62	...	...	...	...	...
	5455	42.80	0.50	43.30	...	...	...	...	...
<i>Total</i>	<i>53.45</i>	<i>73.47</i>	<i>126.92</i>	...	...	...	...	...	...
33. Research and Development Programmes	3455	1.18	12.74	13.92	...	...	...	...	...
34. Other Meteorological Services	3455	5.20	36.71	41.91	...	...	...	...	...
35. Other Programmes	3455	2.50	14.95	17.45	...	...	...	...	...
	5455	15.20	0.10	15.30	...	...	...	...	...
<i>Total</i>	<i>17.70</i>	<i>15.05</i>	<i>32.75</i>	...	...	...	...	...	...
Total- Meteorology *	83.00	146.75	229.75	...	...	...	...	...	...
Grand Total	1340.00	406.00	1746.00	954.00	223.00	1177.00	1526.00	249.00	1775.00

* Schemes transferred to Ministry of Earth Sciences

C. Plan Outlay**:-	Head of Dev	Budget Support	IEBR	Total	Budget Support	IEBR	Total	Budget Support	IEBR	Total
1. Other Scientific Research	13425	1262.00	...	1262.00	964.16	...	964.16	1526.00	...	1526.00
2. Meteorology *	13455	105.00	...	105.00	...	...	...	...	...	...
Total		1367.00	...	1367.00	964.16	...	964.16	1526.00	...	1526.00
** inclusive of Works Outlay as below:-										
1. Other Scientific Research										
Survey of India										
Demand No.99	13425	1.00	...	1.00	3.87	...	3.87	...	...	...
Demand No.100	13425	4.00	...	4.00	6.29	...	6.29	...	...	...
<i>Total</i>		<i>5.00</i>	<i>...</i>	<i>5.00</i>	<i>10.16</i>	<i>...</i>	<i>10.16</i>	<i>...</i>	<i>...</i>	<i>...</i>
2. Meteorology *										
Demand No.99	13455	8.00	...	8.00	...	...	...	...	...	...
Demand No.100	13455	14.00	...	14.00	...	...	...	...	...	...
<i>Total</i>		<i>22.00</i>	<i>...</i>	<i>22.00</i>	<i>...</i>	<i>...</i>	<i>...</i>	<i>...</i>	<i>...</i>	<i>...</i>
Total		27.00	...	27.00	10.16	...	10.16	...	...	...

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

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

Survey of India:

4. **Topographical Surveys:** 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.

5. **Publications of Maps/Charts etc.:** The Department brings out departmental maps/charts on various scales and these

maps/charts include topographical maps, geographical maps, State maps and guide maps etc.

7. **Other Schemes:** Modern Photogrammetric methods are being extensively used for topographical, irrigation schemes, flood management and other developmental mapping.

The recent main activities have been:

- Strengthening of Geodetic Horizontal Net by Doppler Satellite Techniques.
- High precision level net densification.
- Geomagnetic secular change anomaly and tectonic features over Indian subcontinent.
- Analysis of difference of ocean levels between East and West Coasts.
- Recent Vertical Movements in India.

- vi. Micro-gravity variation and their use for earthquake prediction.
- vii. Digital Mapping - Creation of database and preparation of District Planning Maps.
- viii. Design of Motoring Atlas of India in digital environment.
- ix. Development of SOI PC/Auto CAD Photogrammetric Manplotter System
- x. Development of Software Package for Map-to-Map Cartographic Transformation.

8. National Atlas and Thematic Mapping Organization:

The 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.

Its functions are:

- i Preparation of the National Atlas of India in English and Hindi.
- ii Preparation of National Atlas maps in different regional languages.
- iii Preparation of thematic maps based on research studies on environmental aspects and their impact on social and economic development.
- iv Preparation and compilation of Land use and Land-capability maps of India on 1:1M scale and on larger scale and
- v Geographical researches.

9. Autonomous Institutions & Professional Bodies:

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

In the year 2007-2008 it is proposed to set up new autonomous institutions in the areas of Molecular Materials, Glaciology, ICT, Textiles, Innovation, Cancer and Advanced Studies.

10. Assistance to Scientific Bodies:

10.01 Indian Association for Cultivation of Science (IACS) Kolkata: The Indian Association for the Cultivation of Science, Kolkata is one of the oldest research institutions engaged in fundamental research in frontline areas of Physics and Chemistry and some inter-disciplinary areas.

10.02. Bose Institute, Kolkata: Bose Institute founded in 1917 by Acharya Jagdish Chandra Bose is devoted to research in Fundamental and Applied Sciences with emphasis in the area of Biology. The Institute has worked on improvements of plant productivity, nitrogen fixation and photosynthesis using modern biotechnology and plant breeding; studies of plants and marine organisms, investigation on the interaction of nuclear and other radiations with matter and studies in structure, function and dynamics of bio-molecules; studies on ecology, environmental pollution and related health problems and or microbes and parasites for industrial and medical application.

Regional Sophisticated Instrumentation Center (RSIC) functioning in the Institute provides Analytical Instrumentation Services to the users in the region.

10.03. Raman Research Institute, Bangalore: The Raman Research Institute (RRI) was founded by Prof. C V Raman in 1948 in Bangalore. The main fields of research at the Institute are Astronomy, Astrophysics and Liquid Crystals.

10.04. Indian Institute of Astrophysics, Bangalore Indian Institute of Astrophysics (IIA) is a research institution devoted to the science of Astronomy and Astrophysics.

10.05. Indian Institute of Geomagnetism, Mumbai: The Institute is devoted to give impetus to the growth of geomagnetism and allied fields in the country.

10.06. Indian Institute of Tropical Meteorology, Pune: (transferred to Ministry of Earth Sciences)

10.07. Sree Chitra Tirunal Institute for Medical Sciences and Technology, Thiruvananthapuram: It was declared as an Institute of National Importance by Act of Parliament in March, 1981 with the main objectives of developing biomedical engineering and technology, providing and demonstrating high standards of patient care in advanced medical specialties and developing postgraduate training programmes in advanced medical specialties and bio-medical engineering and technology.

10.08. Birbal Sahni Institute of Palaeobotany, Lucknow: The Institute was founded in 1948 in memory of the world renowned Indian Palaeobotanist, Prof. Birbal Sahni. It conducts applied and fundamental research on the varied aspects of plant fossils and disseminates the advanced palaeobotanical knowledge.

10.09. S N Bose National Center for Basic Sciences, Kolkata: It was established in June, 1986 with the objective of promotion of advanced studies in select branches of basic sciences and other basic sciences in frontier areas, including challenging theoretical studies of future applications.

10.10 Agharkar Research Institute, Pune: It was founded in 1946, has been engaged in research activities in the field of biological sciences.

10.11 Wadia Institute of Himalayan Geology, Dehradun: founded by Prof. D N Wadia in 1968, has been carrying out fundamental research in the fields of structural geology, metamorphicigneous petrology, geochemistry, sedimentology, geomorphology and palaeontology in Himalayan region. The programme of the Institute are oriented towards understanding the mountain building process and geodynamics of the Himalayas.

10.12 Jawaharlal Nehru Center for Advanced Scientific Research, Bangalore: The Center established by the Government of India during the Centenary Year of Jawaharlal Nehru, is devoted to scientific research at the highest level in frontier areas.

10.13 Technology Information, Forecasting and Assessment Council, New Delhi: The Council set up in February, 1988 pursues activities towards setting up of specialized sub-groups for examining and evaluating the existing state-of-the-art technology and the direction of future technological developments in various cross-sectoral areas as

well as in other sectors of the economy, both in India and abroad and of preparing technology forecasting reports, covering 10 years or longer periods, specially in production areas involving:

- a. Substantial investments of financial resources and
- b. Large volume of production.

10.14 **Vigyan Prasar:** Set up to undertake large scale science communication and popularization activities.

10.15 **Advanced Research Centre for Powder Metallurgy & New Materials, Hyderabad:** The Center was set up to carry out R&D on futuristic products and processes; to develop and produce components and devices on demonstration plant scale and to establish plant facilities for prototype production/technology demonstration, to provide training and establish modern technical information center and for technology transfer and commercialization.

10.16 **Other Institutes / Other Professional Bodies:** The Other Professional Bodies Scheme was initiated in the Department with the objective of encouraging active involvement of professional bodies and science academies extensively in the national S&T activities including formulation and implementation of S&T programmes, motivating the scientific professional bodies and academies for promotion of cohesive integrated scientific community, fermentation of new ideas in S&T and innovative approach to application of science and technology for national development constitute the other objectives.

It is also envisaged to support organization of S&T seminar/symposia as this is an accepted mechanism for exchange of ideas between the scientists working in frontier and emerging areas of science and technology and a critical exposure of the results is essential for further progress in such cases.

10.17 **National Accreditation Board for Testing & Calibration Laboratories, New Delhi:** The broad objectives of the scheme are to ensure and improve the quality of industrial products, provide consumer protection, promote export of Indian goods and monitor the quality of imported goods.

10.18 **Centre for Liquid Crystal Research, Bangalore:** The objectives of the Centre is to build a center of excellence which will have a focus on basic sciences and would also develop a bias towards technology, keeping in line with international trends on liquid crystal materials and devices.

10.19 **State Observatory, Nainital:** Government have approved the take-over of the State Observatory, Nainital as an autonomous R&D institute of the Department of Science and Technology.

11 Research & Development Support

11.01 **Multi-disciplinary 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:

- i. To promote research in newly emerging and frontline areas of Science and Engineering including multidisciplinary fields;
- ii. To selectively promote general research capability in relevant areas of Science and Engineering taking into

account existing research capabilities of the host institution; and

- iii. To encourage young scientists to take up challenging research and development activities.

12. **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, Patent Facilitating Cells, Instrument Development Programme, Technology Projects in Mission Mode, Joint Technology Projects and Drugs & Pharmaceuticals Research.

13. **Seismology (Mission Mode Project):** The mission mode project on Seismology envisages strengthening of seismological network in the Himalayas and its contiguous region with state-of-the-art robust earthquake monitoring systems for fine scale mapping of the earthquake hazard and ascertaining the seismogenic sources. The proposal envisages deployment of strong motion accelerographs and dense network of GPS.

14. **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.

15. **S&T Programme for Socio Economic Development:** The following plan schemes: S&T Entrepreneurship Development, Science & Society Programme, Women Component Plan, S&T Communication & Popularization and, Other Schemes: (i) Special Component Plan for the Development of Scheduled Castes, (ii) Tribal Sub-Plan which were hitherto separate Plan schemes have now been merged and renamed as 'S&T Programme for Socio Economic Development' insofar as budget outlays are concerned.

15.01 **S&T Entrepreneurship Development:** The main objective of the National Science and Technology Entrepreneurship Development Board (NSTEDB) is to deal with, on a sustained basis, the problem of unemployment and inappropriate employment among S&T persons through the instrument of Entrepreneurship Development Programmes such as setting up of Science and Technology parks and training facilities, etc. The scheme also envisages setting up of Technology Incubators to promote entrepreneurship.

15.02 **Science and Society Programme:** This scheme is aimed at improving the living conditions and removal of drudgery from rural population, weaker sections of the society and women. The scheme is intended to encourage research-oriented activities involving the new generation of scientists.

15.02.01 **Women Component Plan** the main objectives are to sponsor time-bound projects which can demonstrate the application of Science and Technology in improving the living conditions of women by reducing their drudgery, improving health and environment and by providing opportunities for income generation, thus leading to economic development with equity and social justice.

15.03 Science and Technology Communication and Popularisation: The National Council for Science and Technology Communication (NCSTC) has been charged with Policy and Plan-making responsibilities in respect of the twin objectives of popularization of Science and Technology (S&T), and inculcation of S&T temper among people.

15.04 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 co-coordinating and in general spreading Science and Technology activities at State level.

15.05 Other Schemes:

- (i) **Special Component Plan for the Development of Scheduled Castes:** Under this scheme activities relating to appropriate technology generation, dissemination, demonstration and field trials are envisaged.
- (ii) **Tribal Sub-plan:** Programmes relating to S&T intervention for improving the living conditions and earning capacity of tribals through skill development are being supported.

16. International Co-operation:

16.01 Development Cooperation between India and UNDP (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).

16.02 Others: This includes the programme of S&T cooperation with other countries.

- (i) **Integrated Long Term Programme of Cooperation in Science and Technology between India and the Republics of the CIS:** The objective of the programme is 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.
- (ii) **Indo-French Research Center for the Promotion of Advanced Research (IFCPAR), New Delhi:** The principal objectives of the Center are to promote co-operation in advanced areas of fundamental and applied scientific research between India and France to develop co-operation, through identification of scientists and scientific institutions of India and France likely to co-operate in a profitable way, to provide assistance in the form of grants and equipment as well as other appropriate means of support for pursuit of advanced research and to researchers of both the countries.
- (iii) **S&T Programme of Cooperation With Developed Countries:** Thrust would be placed on such programmes as would attract the inflow of technical assistance in forms compatible with the immediate national needs.

(iv) **S&T Programme of Cooperation With Developing Countries (STPCDC):** The objectives are to build S&T capability through programmes devoted to training, basic and applied research, consultancy, etc., to set up joint ventures, development and production programmes.

(v) **Indo-US Science and Technology Forum:-** The Forum is envisaged to facilitate and promote interaction of government, academia and industry between India and the United States of America in science, technology and other related areas

(vi) A Center for S&T for Non-aligned and other Developing Countries with the objectives of strengthening S&T co-operation; promoting mutually beneficial collaborative programmes; serving as clearing-house for information of technology capabilities to promote future co-operation; preparation of state-of-the-art reports through special panels of experts.

17. National Center for Medium Range Weather Forecasting: (*transferred to Ministry of Earth Sciences*)

18. 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.

19. Other Programmes pertains to expenditure incurred on Information Technology, the National Training Programme for scientists/technologists working with the Government of India, exhibitions and fairs as well as the capital expenditure of the Secretariat.

20. 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.

21. 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).

22. 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.

23. Science and Engineering Research Board: It is proposed that the Science and Engineering Research Board (SERB) will qualitatively enhance advanced basic research in India by launching major R&D programmes in selected frontier areas through the participation of its competent groups and established research centres. An accelerated growth in number of such programmes in institutions with ability to absorb larger funding would enhance significantly the global competitiveness of India in R&D and pave the way for gaining leadership status in at least some select areas.

24. 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.

25. 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 also the pilot testing of a credible number of products and referencing of selected technologies to the social contexts of the application regions.

26. Innovations in Science Pursuit for Inspired Research (INSPIRE): is to attract and foster talent in scientific

research. The scheme draws on the benefits from the previous experience in the education sector, but aims to expand the scale to gain critical size and mass.

27. 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. 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.

28. Security Technology Initiative: A science and technology initiative in the area of security is essential. A knowledge and innovation network and carefully designed initiative is considered necessary. A new national program is being proposed using the NMITLI type model.

29. 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 where technology denial forces building of capacities. DST along with DAE has identified areas where 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.

Meteorology: *(transferred to Ministry of Earth Sciences)*