

**MINISTRY OF SCIENCE AND TECHNOLOGY**

DEMAND NO. 81

**Department of Science and Technology**

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

		(In crores of Rupees)								
Major Head	Budget 2005-2006			Revised 2005-2006			Budget 2006-2007			
	Plan	Non-Plan	Total	Plan	Non-Plan	Total	Plan	Non-Plan	Total	
Revenue	1092.65	393.30	1485.95	918.21	393.30	1311.51	1188.00	404.40	1592.40	
Capital	147.35	2.70	150.05	131.79	2.70	134.49	152.00	1.60	153.60	
<b>Total</b>	<b>1240.00</b>	<b>396.00</b>	<b>1636.00</b>	<b>1050.00</b>	<b>396.00</b>	<b>1446.00</b>	<b>1340.00</b>	<b>406.00</b>	<b>1746.00</b>	
1. Secretariat-Economic Services	3451	...	23.75	23.75	...	25.40	25.40	...	26.84	26.84
<b>Other Scientific Research</b>										
<b>Survey of India</b>										
2. Direction and Administration	3425	...	31.95	31.95	...	32.72	32.72	...	33.00	33.00
	5425	5.00	0.60	5.60	10.00	0.60	10.60	7.50	0.50	8.00
	<i>Total</i>	<i>5.00</i>	<i>32.55</i>	<i>37.55</i>	<i>10.00</i>	<i>33.32</i>	<i>43.32</i>	<i>7.50</i>	<i>33.50</i>	<i>41.00</i>
3. Topographical Surveys	3425	...	83.75	83.75	...	82.62	82.62	...	82.62	82.62
4. Publication of Maps/Charts etc.	3425	...	15.27	15.27	...	14.03	14.03	...	14.90	14.90
5. Training and Research	3425	...	4.30	4.30	...	5.57	5.57	...	5.80	5.80
6. Other Schemes	3425	14.55	13.93	28.48	14.55	13.80	28.35	12.50	13.99	26.49
<b>Total-Survey of India</b>		<b>19.55</b>	<b>149.80</b>	<b>169.35</b>	<b>24.55</b>	<b>149.34</b>	<b>173.89</b>	<b>20.00</b>	<b>150.81</b>	<b>170.81</b>
7. <i>Pharmaceutical Research</i>										
7.01 Pharmaceutical Research	3425	5.00	...	5.00	5.00	...	5.00	...	...	...
Amount met from PRDSF	3425	-5.00	...	-5.00	-5.00	...	-5.00	...	...	...
<i>Net</i>		...	...	...	...	...	...	...	...	...
7.02 Pharmaceutical Research	7425	4.00	...	4.00	4.00	...	4.00	...	...	...
Amount met from PRDSF	7425	-4.00	...	-4.00	-4.00	...	-4.00	...	...	...
<i>Net</i>		...	...	...	...	...	...	...	...	...
<b>Total-Pharmaceutical Research</b>		...	...	...	...	...	...	...	...	...
<b>Science and Technology</b>										
8. National Atlas and Thematic Mapping Organisation	3425	1.65	7.40	9.05	1.65	8.93	10.58	2.00	9.90	11.90
	5425	0.35	...	0.35	4.35	...	4.35	1.00	...	1.00
	<i>Total</i>	<i>2.00</i>	<i>7.40</i>	<i>9.40</i>	<i>6.00</i>	<i>8.93</i>	<i>14.93</i>	<i>3.00</i>	<i>9.90</i>	<i>12.90</i>
9. <i>Assistance to Scientific Bodies</i>										
9.01 Indian Association for the Cultivation of Science, Kolkata	3425	25.00	3.00	28.00	25.00	2.40	27.40	33.00	2.40	35.40
9.02 Bose Institute, Kolkata	3425	15.00	3.00	18.00	15.00	2.40	17.40	22.00	2.40	24.40
9.03 Raman Research Institute, Bangalore	3425	20.00	3.00	23.00	20.00	2.40	22.40	20.00	2.40	22.40
9.04 Indian Institute of Astrophysics, Bangalore	3425	19.00	3.00	22.00	26.00	2.40	28.40	27.00	2.40	29.40
9.05 Indian Institute of Geomagnetism, Mumbai	3425	18.00	0.75	18.75	21.25	0.60	21.85	19.50	0.60	20.10
9.06 Indian Institute of Tropical Meteorology, Pune	3425	8.00	2.75	10.75	8.00	2.20	10.20	9.00	2.20	11.20
9.07 Sree Chitra Tirunal Institute for Medical Sciences and Technology, Thiruvananthapuram	3425	60.00	9.50	69.50	70.00	7.60	77.60	60.00	7.60	67.60
9.08 Birbal Sahni Institute of Palaeobotany, Lucknow	3425	6.25	1.75	8.00	19.25	1.40	20.65	8.50	1.40	9.90
9.09 S N Bose National Centre for Basic Sciences, Kolkata	3425	11.00	0.50	11.50	11.00	0.40	11.40	11.00	0.40	11.40
9.10 Agharkar Research Institute, Pune	3425	6.00	1.25	7.25	6.00	1.00	7.00	7.00	1.00	8.00
9.11 Wadia Institute of Himalayan Geology, Dehradun	3425	10.00	1.50	11.50	10.00	1.20	11.20	11.00	1.20	12.20
9.12 Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore	3425	20.00	...	20.00	23.00	...	23.00	25.00	...	25.00
9.13 Technology Information, Forecasting and Assessment Council, New Delhi	3425	15.00	0.10	15.10	15.00	0.08	15.08	15.00	0.08	15.08

(In crores of Rupees)											
	Major Head	Budget 2005-2006			Revised 2005-2006			Budget 2006-2007			
		Plan	Non-Plan	Total	Plan	Non-Plan	Total	Plan	Non-Plan	Total	
9.14	Vigyan Prasar	3425	7.00	...	7.00	7.00	...	7.00	7.00	...	7.00
9.15	Advanced Research Centre for Powder Metallurgy & New Materials, Hyderabad	3425	25.00	...	25.00	25.00	...	25.00	31.00	...	31.00
9.16	Other Institutes/ Other Professional Bodies	3425	17.50	3.90	21.40	17.50	3.12	20.62	20.00	3.12	23.12
9.17	National Accreditation Board for Testing and Calibration Laboratories (NABL), New Delhi	3425	5.00	...	5.00	5.00	...	5.00	5.00	...	5.00
9.18	Centre for Liquid Crystal Research	3425	3.00	...	3.00	3.00	...	3.00	3.00	...	3.00
9.19	State Observatory, Nainital	3425	10.00	...	10.00	10.00	...	10.00	11.00	...	11.00
	<b>Total</b>		<b>300.75</b>	<b>34.00</b>	<b>334.75</b>	<b>337.00</b>	<b>27.20</b>	<b>364.20</b>	<b>345.00</b>	<b>27.20</b>	<b>372.20</b>
10.	<i>Research and Development Support</i>										
10.01	Multi-Disciplinary Research in Science and Technology(SERC)	3425	290.00	2.50	292.50	330.00	2.50	332.50	340.00	2.50	342.50
11.	Programme for Special Technology Development and Coordination (Technology Development Programme)	3425	35.00	...	35.00	35.00	...	35.00	38.00	...	38.00
12.	Seismology (Mission Mode Project)	3425	10.00	...	10.00	10.00	...	10.00	10.00	...	10.00
13.	Technology for Bamboo Products (Mission Mode Project)	3425	34.00	...	34.00	17.58	...	17.58	35.00	...	35.00
14.	<i>S &amp; T Programmes for Socio Economic Development</i>										
14.01	S & T Entrepreneurship Development	3425	16.00	...	16.00	16.00	...	16.00	17.00	...	17.00
14.02	Science and Society Programme	3425	9.00	...	9.00	9.00	...	9.00	5.50	...	5.50
14.02.01	Women Component Plan	3425	...	...	...	...	...	...	30.00	...	30.00
14.03	S & T Communication and Popularisation	3425	15.00	...	15.00	10.00	...	10.00	15.00	...	15.00
14.04	State Council for Science & Technology (State S&T Prog)	3425	10.00	...	10.00	10.00	...	10.00	11.00	...	11.00
14.05	Other Schemes	3425	5.00	...	5.00	5.00	...	5.00	5.00	...	5.00
	<b>Total</b>		<b>55.00</b>	<b>...</b>	<b>55.00</b>	<b>50.00</b>	<b>...</b>	<b>50.00</b>	<b>83.50</b>	<b>...</b>	<b>83.50</b>
15.	<i>International Co-operation</i>										
15.01	Development Cooperation between India and UNDP	3425	4.00	...	4.00	2.50	5.25	7.75	2.00	5.50	7.50
15.02	Others	3425	21.00	5.25	26.25	25.30	...	25.30	21.00	...	21.00
	<b>Total</b>		<b>25.00</b>	<b>5.25</b>	<b>30.25</b>	<b>27.80</b>	<b>5.25</b>	<b>33.05</b>	<b>23.00</b>	<b>5.50</b>	<b>28.50</b>
16.	National Centre for Medium Range Weather Forecasting	3425	12.00	2.00	14.00	9.00	2.00	11.00	7.50	2.25	9.75
		5425	8.00	...	8.00	8.00	...	8.00	15.50	...	15.50
	<b>Total</b>		<b>20.00</b>	<b>2.00</b>	<b>22.00</b>	<b>17.00</b>	<b>2.00</b>	<b>19.00</b>	<b>23.00</b>	<b>2.25</b>	<b>25.25</b>
17.	Payment to Technology Development Board against Cess receipts	3425	...	43.50	43.50	...	42.66	42.66	...	33.50	33.50
18.	Other Programmes	3425	6.70	0.25	6.95	6.70	0.25	6.95	6.50	0.25	6.75
		5425	...	1.50	1.50	...	1.50	1.50	...	0.50	0.50
	<b>Total</b>		<b>6.70</b>	<b>1.75</b>	<b>8.45</b>	<b>6.70</b>	<b>1.75</b>	<b>8.45</b>	<b>6.50</b>	<b>0.75</b>	<b>7.25</b>
19.	Synergy Projects	3425	7.00	...	7.00	8.64	...	8.64	20.00	...	20.00
20.	Drugs and Pharmaceutical Research	3425	70.00	...	70.00	45.00	...	45.00	60.00	...	60.00
		7425	80.00	...	80.00	60.50	...	60.50	70.00	...	70.00
	<b>Total</b>		<b>150.00</b>	<b>...</b>	<b>150.00</b>	<b>105.50</b>	<b>...</b>	<b>105.50</b>	<b>130.00</b>	<b>...</b>	<b>130.00</b>
21.	National Mission on Nano Science & Nano Technology	3425	200.00	...	200.00	...	...	...	180.00	...	180.00
	<b>Total-Science and Technology</b>		<b>1135.45</b>	<b>96.40</b>	<b>1231.85</b>	<b>951.22</b>	<b>90.29</b>	<b>1041.51</b>	<b>1237.00</b>	<b>81.60</b>	<b>1318.60</b>
	<b>Total- Other Scientific Research</b>		<b>1155.00</b>	<b>246.20</b>	<b>1401.20</b>	<b>975.77</b>	<b>239.63</b>	<b>1215.40</b>	<b>1257.00</b>	<b>232.41</b>	<b>1489.41</b>

(In crores of Rupees)										
Major Head	Budget 2005-2006			Revised 2005-2006			Budget 2006-2007			
	Plan	Non-Plan	Total	Plan	Non-Plan	Total	Plan	Non-Plan	Total	
<b>Meteorology</b>										
22. Training	3455	1.00	1.83	2.83	0.74	1.61	2.35	0.58	1.95	2.53
23. Satellite Services	3455	5.00	5.86	10.86	4.98	5.99	10.97	4.89	6.83	11.72
24. Observatories and Weather Stations	3455	12.00	65.65	77.65	11.15	67.95	79.10	10.65	72.97	83.62
	5455	45.00	0.50	45.50	45.00	0.50	45.50	42.80	0.50	43.30
	<i>Total</i>	<i>57.00</i>	<i>66.15</i>	<i>123.15</i>	<i>56.15</i>	<i>68.45</i>	<i>124.60</i>	<i>53.45</i>	<i>73.47</i>	<i>126.92</i>
25. Research and Development Programmes	3455	2.50	11.02	13.52	1.69	11.25	12.94	1.18	12.74	13.92
26. Other Meteorological Services	3455	9.50	28.72	38.22	6.05	30.47	36.52	5.20	36.71	41.91
27. Other Programmes	3455	1.00	12.37	13.37	0.68	13.10	13.78	2.50	14.95	17.45
	5455	9.00	0.10	9.10	3.94	0.10	4.04	15.20	0.10	15.30
	<i>Total</i>	<i>10.00</i>	<i>12.47</i>	<i>22.47</i>	<i>4.62</i>	<i>13.20</i>	<i>17.82</i>	<i>17.70</i>	<i>15.05</i>	<i>32.75</i>
<b>Total-Meteorology</b>		<b>85.00</b>	<b>126.05</b>	<b>211.05</b>	<b>74.23</b>	<b>130.97</b>	<b>205.20</b>	<b>83.00</b>	<b>146.75</b>	<b>229.75</b>
<b>Grand Total</b>		<b>1240.00</b>	<b>396.00</b>	<b>1636.00</b>	<b>1050.00</b>	<b>396.00</b>	<b>1446.00</b>	<b>1340.00</b>	<b>406.00</b>	<b>1746.00</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	1160.00	...	1160.00	980.77	...	980.77	1262.00	...	1262.00
2. Meteorology	13455	90.00	...	90.00	79.23	...	79.23	105.00	...	105.00
<b>Total</b>		<b>1250.00</b>	<b>...</b>	<b>1250.00</b>	<b>1060.00</b>	<b>...</b>	<b>1060.00</b>	<b>1367.00</b>	<b>...</b>	<b>1367.00</b>
<i>* inclusive of Works Outlay as below:</i>										
1. Other Scientific Research										
Survey of India										
Demand No.99	13425	1.00	...	1.00	1.00	...	1.00	1.00	...	1.00
Demand No.100	13425	4.00	...	4.00	4.00	...	4.00	4.00	...	4.00
<i>Total</i>		<i>5.00</i>	<i>...</i>	<i>5.00</i>	<i>5.00</i>	<i>...</i>	<i>5.00</i>	<i>5.00</i>	<i>...</i>	<i>5.00</i>
2. Meteorology										
Demand No.99	13455	1.00	...	1.00	1.00	...	1.00	8.00	...	8.00
Demand No.100	13455	4.00	...	4.00	4.00	...	4.00	14.00	...	14.00
<i>Total</i>		<i>5.00</i>	<i>...</i>	<i>5.00</i>	<i>5.00</i>	<i>...</i>	<i>5.00</i>	<i>22.00</i>	<i>...</i>	<i>22.00</i>
<b>Total</b>		<b>10.00</b>	<b>...</b>	<b>10.00</b>	<b>10.00</b>	<b>...</b>	<b>10.00</b>	<b>27.00</b>	<b>...</b>	<b>27.00</b>

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

#### Survey of India:

2. **Direction and Administration:** It provides for expenditure for administration of Survey of India.

3. **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.

4. **Publications of Maps/Charts etc.:** The Department brings out departmental maps/charts on various scales which include topographical maps, geographical maps, State maps and guide maps etc.

5. **Training & Research:** Center for Survey Training and Map Production at Hyderabad imparts training to departmental/extra departmental /foreign trainees in various fields of surveying and mapping.

6. **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.

iv. Analysis of difference of ocean levels between East and West Coasts.

v. 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.

#### 9. Assistance to Scientific Bodies:

##### 9.01 Indian Association for Cultivation of Science (IACS)

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

9.02. **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 attained major achievements in several areas of Physical and Biological Sciences.

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

9.03. **Raman Research Institute, Bangalore:** The Raman Research Institute (RRI) founded by Prof. C V Raman in 1948 in Bangalore became a grants-in-aid institution aided by the Government of India in 1972. The main fields of research at the Institute are Astronomy, Astrophysics and Liquid Crystals.

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

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

9.06. **Indian Institute of Tropical Meteorology, Pune:** It functions as a National Center for basic and applied research in tropical meteorology including weather modification with special reference to the tropics and sub-tropics.

9.07. **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 of the highest quality in advanced medical specialties and bio-medical engineering and technology.

9.08. **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.

9.09. **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.

9.10 **Agharkar Research Institute, Pune:** Founded in 1946, this Institute has been engaged in the research activities in the field of biological sciences.

9.11 **Wadia Institute of Himalayan Geology, Dehradun:** Founded by Prof. D N Wadia in 1968, this Institute 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 is oriented towards understanding the mountain building process and geodynamics of the Himalayas.

9.12 **Jawaharlal Nehru Center for Advanced Scientific Research, Bangalore:** This 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.

9.13 **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.

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

9.15 **Advanced Research Centre for Powder Metallurgy & New Materials, Hyderabad:** The Centre 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.

9.16 **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.

9.17 **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.

9.18 **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.

9.19 **State Observatory (ARIES), 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.

## 10 Research & Development Support

10.01 **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:

- 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.

11. **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.

**12. Seismology (Mission Mode Project):** DST has a mandate to provide earthquake information to the country. 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.

**13. 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.

**14. S&T Programme for Socio Economic Development:**

**14.01 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.

**14.02 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.

**14.02.01 Women Component Plan:** The main objectives of this 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.

**14.03 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 broad twin objectives of popularization of Science and Technology (S&T), and inculcation of S&T temper among people.

**14.04 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-ordinating and in general spreading Science and Technology activities at State level.

**14.05 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.

**15. International Co-operation:**

**15.01 Development Cooperation between India and UNDP:** 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).

**15.02 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.
- (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.

**16. National Center for Medium Range Weather Forecasting:** The aim of the programme is to develop global circulation model for preparing weather forecasts upto 3 days in advance and issuing agro-meteorological advisories to farmers for facilitating agricultural operations. Towards this objective a National Center for Medium Range Weather Forecasting with Super Computing facilities has been established. Setting up of more agrometeorological centers in different agroclimatic zones with suitable communication network is also envisaged.

**17. 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.

**18. Other Programmes** pertains to expenditure incurred on Information Technology, the National Training Programme for the Scientists/Technologists working with the Government of India, Exhibitions and Fairs as well as the Capital expenditure of the Secretariat.

**19. Synergy Projects:** The scheme is to be 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.

**20. 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).

**21. 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.

**Meteorology:**

**22. Training:** The training sections at Pune, New Delhi and Calcutta impart training in meteorology and in operation, maintenance and servicing of radio meteorological instruments and telecommunications. The meteorological training unit at Civil Aviation Training Center, Bamrauli serves the training requirements of the air traffic personnel of the Civil Aviation Department.

**23. Satellite Services:** IMD participated in space programme since the launching of the first Indian National Geostationary Satellite IA by ISRO in 1982. Valuable data & cloud

imageries are being received since then. With the deployment of second generation INSAT II A in August 1992 there has been much improvement in the quality of data and cloud imageries. Secondary data utilization center have been established to receive and process satellite cloud imageries directly at the other main forecasting offices from Main Data Utilization Centre, New Delhi. A total of 250 numbers disaster warning receivers under different programmes using INSAT had been deployed so far at the cyclone prone coastal stations to forewarn public & other agencies against impending bad weather including cyclones. Another 100 Disaster Warning Receivers utilizing digital transmission technology have been installed during 2002-03 and are fully functional.

**24. Observatories and Weather Stations:** The activities consist of recording of observatories and equipping ships, maintenance of inland and overseas meteorological telecommunication network for quick exchange of weather information reception of satellite weather, information to user interests like aviation, shipping, agriculture and flood control, issue of warnings against cyclones, etc. for protection of life and property.

**25. Research and Development Programmes:** The Research and Development activities of the department cover experimental work and research on basic and applied meteorology and seismology including design and development of the instruments.

**26. Other Meteorological Services:** The activities consist of manufacture, supply and maintenance of meteorological instruments and production of hydrogen gas at Departmental Workshops and supply of these to the upper air observatories. Meteorological data are processed into climatological statistics for application to nation building activities.

**27. Other Programmes:** These include payments of India's annual contribution to World Meteorological Organization and the International Seismological Center, Earthquake Risk Evaluation Centre, External Aided Projects & the Direction & Administration of the India Meteorological Department (IMD).