

**DEPARTMENT OF SPACE**

## DEMAND NO.88

**Department of Space**

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	2192.16	348.00	2540.16	1722.27	375.00	2097.27	2702.30	390.00	3092.30	
Capital	607.84	...	607.84	577.73	...	577.73	517.70	...	517.70	
<b>Total</b>	<b>2800.00</b>	<b>348.00</b>	<b>3148.00</b>	<b>2300.00</b>	<b>375.00</b>	<b>2675.00</b>	<b>3220.00</b>	<b>390.00</b>	<b>3610.00</b>	
1. Secretariat - Economic Services	3451	...	4.50	4.50	...	5.15	5.15	...	4.60	4.60
<b>Space Research</b>										
<b>Space Technology</b>										
<b>Launch Vehicle Technology</b>										
2. Geo -Synchronous Satellite Launch Vehicle	3402	17.95	...	17.95	19.42	...	19.42	11.30	...	11.30
3. GSLV MK-III Development	3402	218.54	...	218.54	143.48	...	143.48	291.48	...	291.48
	5402	231.46	...	231.46	196.52	...	196.52	125.96	...	125.96
<i>Total</i>		<i>450.00</i>	...	<i>450.00</i>	<i>340.00</i>	...	<i>340.00</i>	<i>417.44</i>	...	<i>417.44</i>
4. Cryogenic Upper Stage (CUS) Project	3402	1.67	...	1.67	1.57	...	1.57	2.00	...	2.00
5. Polar Satellite Launch Vehicle - Continuation (PSLV-C) Project	3402	108.73	...	108.73	103.50	...	103.50	97.69	...	97.69
	5402	11.27	...	11.27	1.50	...	1.50	2.31	...	2.31
<i>Total</i>		<i>120.00</i>	...	<i>120.00</i>	<i>105.00</i>	...	<i>105.00</i>	<i>100.00</i>	...	<i>100.00</i>
6. Vikram Sarabhai Space Centre (VSSC)	3402	102.42	102.87	205.29	107.66	104.76	212.42	125.95	111.17	237.12
	5402	65.85	...	65.85	134.29	...	134.29	92.65	...	92.65
<i>Total</i>		<i>168.27</i>	<i>102.87</i>	<i>271.14</i>	<i>241.95</i>	<i>104.76</i>	<i>346.71</i>	<i>218.60</i>	<i>111.17</i>	<i>329.77</i>
7. Indian Space Research Organisation - Inertial Systems Unit(IISU).	3402	10.48	...	10.48	16.31	...	16.31	16.89	...	16.89
	5402	1.52	...	1.52	2.27	...	2.27	2.93	...	2.93
<i>Total</i>		<i>12.00</i>	...	<i>12.00</i>	<i>18.58</i>	...	<i>18.58</i>	<i>19.82</i>	...	<i>19.82</i>
8. Liquid Propulsion Systems Centre	3402	49.94	38.86	88.80	54.51	41.59	96.10	101.52	44.36	145.88
	5402	3.73	...	3.73	2.48	...	2.48	8.57	...	8.57
<i>Total</i>		<i>53.67</i>	<i>38.86</i>	<i>92.53</i>	<i>56.99</i>	<i>41.59</i>	<i>98.58</i>	<i>110.09</i>	<i>44.36</i>	<i>154.45</i>
9. GSLV Operational (Continuation) Project	3402	171.56	...	171.56	168.15	...	168.15	188.71	...	188.71
	5402	9.61	...	9.61	8.36	...	8.36	11.89	...	11.89
<i>Total</i>		<i>181.17</i>	...	<i>181.17</i>	<i>176.51</i>	...	<i>176.51</i>	<i>200.60</i>	...	<i>200.60</i>
10. Space Capsule Recovery Experiment	3402	13.36	...	13.36	14.63	...	14.63	11.38	...	11.38
	5402	1.00	...	1.00	0.10	...	0.10	0.10	...	0.10
<i>Total</i>		<i>14.36</i>	...	<i>14.36</i>	<i>14.73</i>	...	<i>14.73</i>	<i>11.48</i>	...	<i>11.48</i>
<b>Total - Launch Vehicle Technology</b>		<b>1019.09</b>	<b>141.73</b>	<b>1160.82</b>	<b>974.75</b>	<b>146.35</b>	<b>1121.10</b>	<b>1091.33</b>	<b>155.53</b>	<b>1246.86</b>
<b>Satellite Technology</b>										
11. IRS P5(Cartosat)	3402	1.00	...	1.00	1.48	...	1.48	...	...	...
12. Cartosat-2	3402	6.95	...	6.95	6.34	...	6.34	1.49	...	1.49
	5402	3.45	...	3.45	1.26	...	1.26	...	...	...
<i>Total</i>		<i>10.40</i>	...	<i>10.40</i>	<i>7.60</i>	...	<i>7.60</i>	<i>1.49</i>	...	<i>1.49</i>
13. Oceansat-2	3402	48.50	...	48.50	23.32	...	23.32	52.23	...	52.23
	5402	1.50	...	1.50	1.38	...	1.38	1.89	...	1.89
<i>Total</i>		<i>50.00</i>	...	<i>50.00</i>	<i>24.70</i>	...	<i>24.70</i>	<i>54.12</i>	...	<i>54.12</i>
14. Resourcesat-2	3402	5.00	...	5.00	...	...	...	29.00	...	29.00
	5402	...	...	...	...	...	...	1.00	...	1.00
<i>Total</i>		<i>5.00</i>	...	<i>5.00</i>	...	...	...	<i>30.00</i>	...	<i>30.00</i>
15. ISRO Satellite Centre	3402	62.68	37.78	100.46	117.97	41.94	159.91	102.00	43.01	145.01
	5402	92.37	...	92.37	56.21	...	56.21	26.86	...	26.86
<i>Total</i>		<i>155.05</i>	<i>37.78</i>	<i>192.83</i>	<i>174.18</i>	<i>41.94</i>	<i>216.12</i>	<i>128.86</i>	<i>43.01</i>	<i>171.87</i>
16. Laboratory for Electro-Optics System	3402	10.65	...	10.65	9.98	...	9.98	10.90	...	10.90
	5402	4.52	...	4.52	5.02	...	5.02	1.44	...	1.44
<i>Total</i>		<i>15.17</i>	...	<i>15.17</i>	<i>15.00</i>	...	<i>15.00</i>	<i>12.34</i>	...	<i>12.34</i>
17. G-SAT 3 (Edusat)	3402	5.25	...	5.25	5.25	...	5.25	...	...	...
18. RISAT-1	3402	104.11	...	104.11	55.85	...	55.85	71.76	...	71.76
	5402	21.69	...	21.69	24.15	...	24.15	22.09	...	22.09
<i>Total</i>		<i>125.80</i>	...	<i>125.80</i>	<i>80.00</i>	...	<i>80.00</i>	<i>93.85</i>	...	<i>93.85</i>

**No.88/ Department of Space**

		(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
19. G.SAT-4	3402	19.50	...	19.50	19.42	...	19.42	9.90	...	9.90
	5402	3.00	...	3.00	3.08	...	3.08	0.10	...	0.10
	<i>Total</i>	<i>22.50</i>	...	<i>22.50</i>	<i>22.50</i>	...	<i>22.50</i>	<i>10.00</i>	...	<i>10.00</i>
20. Navigational Satellite System	3402	340.00	...	340.00	8.00	...	8.00	429.99	...	429.99
	5402	10.00	...	10.00	2.00	...	2.00	10.01	...	10.01
	<i>Total</i>	<i>350.00</i>	...	<i>350.00</i>	<i>10.00</i>	...	<i>10.00</i>	<i>440.00</i>	...	<i>440.00</i>
21. Semi Conductor Development	3402	15.00	...	15.00	16.50	...	16.50	25.00	...	25.00
22. METSAT-2	3402	...	...	...	...	...	...	4.54	...	4.54
	5402	...	...	...	...	...	...	0.46	...	0.46
	<i>Total</i>	...	...	...	...	...	...	<i>5.00</i>	...	<i>5.00</i>
23. Advanced Communication Satellite	3402	...	...	...	...	...	...	23.69	...	23.69
	5402	...	...	...	...	...	...	1.31	...	1.31
	<i>Total</i>	...	...	...	...	...	...	<i>25.00</i>	...	<i>25.00</i>
<b>Total - Satellite Technology</b>		<b>755.17</b>	<b>37.78</b>	<b>792.95</b>	<b>357.21</b>	<b>41.94</b>	<b>399.15</b>	<b>825.66</b>	<b>43.01</b>	<b>868.67</b>
<b>Launch Support, Tracking Network &amp; Range Facility</b>										
24. Satish Dhawan Space Centre - SHAR	3402	52.75	45.88	98.63	65.43	51.69	117.12	68.03	52.64	120.67
	5402	32.45	...	32.45	25.86	...	25.86	32.74	...	32.74
	<i>Total</i>	<i>85.20</i>	<i>45.88</i>	<i>131.08</i>	<i>91.29</i>	<i>51.69</i>	<i>142.98</i>	<i>100.77</i>	<i>52.64</i>	<i>153.41</i>
25. Second Launch Pad & Common Facilities	3402	0.10	...	0.10	...	...	...	...	...	...
	5402	4.90	...	4.90	5.51	...	5.51	...	...	...
	<i>Total</i>	<i>5.00</i>	...	<i>5.00</i>	<i>5.51</i>	...	<i>5.51</i>	...	...	...
26. ISRO Telemetry, Tracking & Command Network	3402	15.84	12.62	28.46	22.89	12.78	35.67	16.56	14.27	30.83
	5402	29.37	...	29.37	29.88	...	29.88	25.14	...	25.14
	<i>Total</i>	<i>45.21</i>	<i>12.62</i>	<i>57.83</i>	<i>52.77</i>	<i>12.78</i>	<i>65.55</i>	<i>41.70</i>	<i>14.27</i>	<i>55.97</i>
27. ISRO Radar Development Unit (ICRAD)	3402	1.13	...	1.13	2.01	...	2.01	1.69	...	1.69
	5402	0.25	...	0.25	0.43	...	0.43	0.17	...	0.17
	<i>Total</i>	<i>1.38</i>	...	<i>1.38</i>	<i>2.44</i>	...	<i>2.44</i>	<i>1.86</i>	...	<i>1.86</i>
<b>Total-Launch Support, Tracking Network &amp; Range Facility</b>		<b>136.79</b>	<b>58.50</b>	<b>195.29</b>	<b>152.01</b>	<b>64.47</b>	<b>216.48</b>	<b>144.33</b>	<b>66.91</b>	<b>211.24</b>
<b>Total-Space Technology</b>		<b>1911.05</b>	<b>238.01</b>	<b>2149.06</b>	<b>1483.97</b>	<b>252.76</b>	<b>1736.73</b>	<b>2061.32</b>	<b>265.45</b>	<b>2326.77</b>
<b>Space Applications</b>										
28. Space Applications Centre	3402	103.79	45.06	148.85	98.04	49.47	147.51	68.67	53.24	121.91
	5402	12.83	...	12.83	14.24	...	14.24	6.24	...	6.24
	<i>Total</i>	<i>116.62</i>	<i>45.06</i>	<i>161.68</i>	<i>112.28</i>	<i>49.47</i>	<i>161.75</i>	<i>74.91</i>	<i>53.24</i>	<i>128.15</i>
29. Development and Educational Communication Unit	3402	52.64	3.89	56.53	47.29	4.25	51.54	155.88	4.49	160.37
	5402	11.76	...	11.76	1.50	...	1.50	1.60	...	1.60
	<i>Total</i>	<i>64.40</i>	<i>3.89</i>	<i>68.29</i>	<i>48.79</i>	<i>4.25</i>	<i>53.04</i>	<i>157.48</i>	<i>4.49</i>	<i>161.97</i>
30. National Natural Resources Management System	3402	49.18	...	49.18	52.15	...	52.15	54.00	...	54.00
31. Earth Observation Applications Mission (EOAM)	3402	6.95	...	6.95	9.10	...	9.10	8.68	...	8.68
32. Regional Remote Sensing Service Centers (RRSSC)	3402	5.99	...	5.99	6.85	...	6.85	6.29	...	6.29
	5402	1.58	...	1.58	5.83	...	5.83	1.99	...	1.99
	<i>Total</i>	<i>7.57</i>	...	<i>7.57</i>	<i>12.68</i>	...	<i>12.68</i>	<i>8.28</i>	...	<i>8.28</i>
33. National Remote Sensing Agency	3402	6.46	7.54	14.00	6.46	7.54	14.00	12.46	7.54	20.00
34. Disaster Management System	3402	25.00	...	25.00	88.75	...	88.75	23.35	...	23.35
	5402	...	...	...	...	...	...	1.00	...	1.00
	<i>Total</i>	<i>25.00</i>	...	<i>25.00</i>	<i>88.75</i>	...	<i>88.75</i>	<i>24.35</i>	...	<i>24.35</i>
35. North Eastern Space Applications Centre	3402	5.00	...	5.00	5.00	...	5.00	3.00	...	3.00
<b>Total - Space Applications</b>		<b>281.18</b>	<b>56.49</b>	<b>337.67</b>	<b>335.21</b>	<b>61.26</b>	<b>396.47</b>	<b>343.16</b>	<b>65.27</b>	<b>408.43</b>
<b>Space Sciences</b>										
36. Physical Research Laboratory	3402	24.24	7.50	31.74	25.54	7.50	33.04	31.60	7.50	39.10
37. National MST Radar Facility	3402	5.82	...	5.82	5.82	...	5.82	7.28	...	7.28
38. RESPOND	3402	12.00	...	12.00	11.00	...	11.00	15.00	...	15.00
39. Sensor Payload Development / Planetary Science Programme	3402	7.11	...	7.11	3.58	...	3.58	5.60	...	5.60
40. Megha-tropiques	3402	8.00	...	8.00	8.00	...	8.00	28.40	...	28.40
	5402	...	...	...	...	...	...	0.10	...	0.10
	<i>Total</i>	<i>8.00</i>	...	<i>8.00</i>	<i>8.00</i>	...	<i>8.00</i>	<i>28.50</i>	...	<i>28.50</i>
41. Astrosat	3402	47.40	...	47.40	10.74	...	10.74	45.99	...	45.99
	5402	5.50	...	5.50	11.26	...	11.26	10.46	...	10.46
	<i>Total</i>	<i>52.90</i>	...	<i>52.90</i>	<i>22.00</i>	...	<i>22.00</i>	<i>56.45</i>	...	<i>56.45</i>

(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
42. Indian Lunar Mission - Chandrayaan - 1	3402	80.77	...	80.77	40.15	...	40.15	59.39	...	59.39
	5402	25.45	...	25.45	19.85	...	19.85	83.36	...	83.36
	<i>Total</i>	106.22	...	106.22	60.00	...	60.00	142.75	...	142.75
43. ISRO Geosphere Biosphere Programme (ISRO GBP)	3402	12.12	...	12.12	9.00	...	9.00	7.68	...	7.68
44. Others	3402	5.71	1.30	7.01	5.52	1.30	6.82	16.48	1.30	17.78
<b>Total - Space Sciences</b>		<b>234.12</b>	<b>8.80</b>	<b>242.92</b>	<b>150.46</b>	<b>8.80</b>	<b>159.26</b>	<b>311.34</b>	<b>8.80</b>	<b>320.14</b>
<b>Direction &amp; Administration / Other Programmes</b>										
45. Special Indigenisation/Advance Ordering	3402	59.98	...	59.98	65.28	...	65.28	109.00	...	109.00
	5402	...	...	...	...	...	...	1.00	...	1.00
	<i>Total</i>	59.98	...	59.98	65.28	...	65.28	110.00	...	110.00
46. Others	3402	3.43	30.85	34.28	3.43	36.95	40.38	3.43	35.42	38.85
	5402	5.72	...	5.72	6.39	...	6.39	12.86	...	12.86
	<i>Total</i>	9.15	30.85	40.00	9.82	36.95	46.77	16.29	35.42	51.71
<b>Total - Direction &amp; Administration / Other Programmes</b>		<b>69.13</b>	<b>30.85</b>	<b>99.98</b>	<b>75.10</b>	<b>36.95</b>	<b>112.05</b>	<b>126.29</b>	<b>35.42</b>	<b>161.71</b>
<b>INSAT Operational</b>										
47. Master Control Facility	3252	9.91	9.35	19.26	14.65	10.08	24.73	14.88	10.46	25.34
	5252	9.51	...	9.51	10.51	...	10.51	15.16	...	15.16
	<i>Total</i>	19.42	9.35	28.77	25.16	10.08	35.24	30.04	10.46	40.50
48. INSAT-3 Satellites (Including Launch Services)	3252	66.05	...	66.05	76.04	...	76.04	59.07	...	59.07
	5252	5.05	...	5.05	4.06	...	4.06	10.03	...	10.03
	<i>Total</i>	71.10	...	71.10	80.10	...	80.10	69.10	...	69.10
49. INSAT-4 Satellites(Including Launch Services)	3252	211.50	...	211.50	146.21	...	146.21	272.47	...	272.47
	5252	2.50	...	2.50	3.79	...	3.79	6.28	...	6.28
	<i>Total</i>	214.00	...	214.00	150.00	...	150.00	278.75	...	278.75
<b>Total - INSAT Operational</b>		<b>304.52</b>	<b>9.35</b>	<b>313.87</b>	<b>255.26</b>	<b>10.08</b>	<b>265.34</b>	<b>377.89</b>	<b>10.46</b>	<b>388.35</b>
50. Aid Materials & Equipment-Gross	3606	...	0.02	0.02	...	0.02	0.02	...	0.02	0.02
Deduct-Transfers to Functional Major Head	3606	...	-0.02	-0.02	...	-0.02	-0.02	...	-0.02	-0.02
Net-Aid Materials & Equipment	<i>Total</i>	...	...	...	...	...	...	...	...	...
<b>Grand Total</b>		<b>2800.00</b>	<b>348.00</b>	<b>3148.00</b>	<b>2300.00</b>	<b>375.00</b>	<b>2675.00</b>	<b>3220.00</b>	<b>390.00</b>	<b>3610.00</b>
<b>C. Plan Outlay</b>	Head of Dev	Budget Support	IEBR	Total	Budget Support	IEBR	Total	Budget Support	IEBR	Total
1. Space Research	13402	2800.00	...	2800.00	2300.00	...	2300.00	3220.00	...	3220.00

1. **Secretariat - Economic Services:** Provision is made for expenditure to be incurred on the Secretariat of the Department of Space.

2. **Geo-synchronous Satellite Launch Vehicle (GSLV):** The GSLV Project envisaged the development of a launch vehicle capable of launching 2 tonne class INSAT type of satellites into Geo-synchronous Transfer Orbit (GTO). The third test flight carrying the indigenous cryogenic engine & stage is planned for 2007.

3. **GSLV MK-III Development:** GSLV Mk-III is intended to develop a cost-effective launch vehicle capable of launching 4 tonne class of communication satellites in Geo-synchronous Transfer Orbit (GTO) and upto 10 tonne satellites in Low Earth Orbit. The first developmental flight of the vehicle is targeted for realization during 2008.

4. **Cryogenic Upper Stage (CUS) Project:** The objective of the Project is to develop and qualify an indigenous restartable cryogenic stage employing liquid oxygen as oxidizer and liquid hydrogen as fuel for the upper stage of GSLV.

5. **Polar Satellite Launch Vehicle-Continuation (PSLV-C) Project:** The PSLV is capable of placing 1400-1600 kg class IRS satellites in Polar Sun-Synchronous Orbit, 1000 kg class

satellites into Geo-synchronous Transfer Orbit and upto 2800 kg class satellites into Low Earth Orbit.

6. **Vikram Sarabhai Space Centre (VSSC):** VSSC is the lead center for the development of satellite launch vehicles and sounding rockets and houses the major test and fabrication facilities for launch vehicles.

7. **ISRO Inertial Systems Unit (IISU):** IISU is responsible for research & development in inertial sensors & systems for launch vehicles, satellites and allied satellite elements.

8. **Liquid Propulsion Systems Centre (LPSC):** LPSC is the lead center in the area of liquid and cryogenic rocket engines and stages for launch vehicle and small thrust engines for launch vehicles and spacecraft control.

9. **GSLV Operational (Continuation) Project:** The GSLV-Operational Project has been conceived to meet the launch requirement of 2 tonne class of operational INSAT satellites during the Tenth Plan and beyond. The launch of GSLV-F02 with INSAT-4C onboard is scheduled during the first half of 2006.

10. **Space Capsule Recovery Experiment (SRE):** The main objective of the Space Capsule Recovery Experiment (SRE) is to develop and demonstrate capability to recover an orbiting

capsule back on earth. SRE will be launched on-board PSLV during the first half of 2006.

**11. Indian Remote Sensing Satellite-P5 (Cartosat):** The main objective of IRS-P5 (Cartosat-1) project is to design and develop, launch and operate an advanced space-based cartography mission. The satellite has been successfully launched on-board PSLV-C6, on 5th May 2005.

**12. Cartosat-2:** The Cartosat-2 Project is an advanced high resolution satellite to support large scale cartographic mapping and thematic applications. Cartosat-2 is planned to be launched during first half of 2006 on board PSLV-C7.

**13. Oceansat-2:** The main objective of Oceansat-2 is to provide continuity of data & services hitherto provided by Oceansat-1 on Oceanography and coastal studies.

**14. Resourcesat-2:** Resourcesat-2 will be mainly for crop applications, vegetation dynamics and natural resources census applications and is intended to provide continuity of remote sensing data for Resourcesat-1.

**15. ISRO Satellite Centre (ISAC):** ISAC is the lead center for satellite development.

**16. Laboratory for Electro-Optics System (LEOS):** LEOS, working under the overall umbrella of ISAC, is responsible for research & development and production of electro-optic sensors.

**17. GSAT-3 (Edusat):** The primary objective of GSAT-3, launched on September 20, 2004 is to provide education to the masses of the country. The utilisation of EDUSAT (EDUSAT application) is covered under the head 'Development & Educational communication unit'.

**18. Radar Imaging Satellite-1 Project (RISAT-1):** Radar Imaging Satellite (RISAT) is intended to provide all-weather, day and night imaging capability providing vital inputs for various agricultural and disaster applications. The satellite is targeted for launch during 2007-2008.

**19. GSAT-4:** The Satellite will be utilized for conducting various experiments in the advanced satellite communication and early introduction of geo-based navigation system. The satellite is targeted for launch during 2006-2007.

**20. Navigational Satellite System:** The Indian Regional Navigation Satellite System (IRNSS), which is under approval cycle, when implemented is expected to provide position accuracies similar to GPS in a region centered around India with a coverage extending upto 1500 km from India. Besides this, Indian participation in global satellite navigation system is also under consideration.

**21. Semi Conductor Development:** The provision is for support to Semi-conductor Laboratory which has been registered as a society under the Societies Registration Act, 1860.

**22. METSAT-2:** The main objective of METSAT-2 is to provide continuity of meteorological data and services hitherto provided by METSAT-1 (redesignated as KALPANA-1), a dedicated meteorological satellite.

**23. Advanced Communication Satellite:** The main objective is to develop a 4 tonne class communication satellite incorporating advanced technologies of relevance for future.

**24. Satish Dhawan Space Centre-SHAR (SDSC-SHAR):** SDSC-SHAR provides the launch infrastructure as well as solid propellant processing.

**25. Second Launch Pad and Common Facilities:** The state-of-the-art Second Launch Pad & Common Facilities has been established at the Satish Dhawan Space Centre-SHAR to provide redundancy to the existing launch pad and also to enable launch of future advanced launch vehicles.

**26. ISRO Telemetry, Tracking and Command Network (ISTRAC):** ISTRAC provides spacecraft TTC and Mission Control services to major launch vehicle and spacecraft missions.

**27. ISRO Radar Development Unit (ISRAD):** ISRAD is responsible for research, development and production of radars.

**28. Space Applications Centre (SAC):** SAC is the lead center for the development of communication, meteorological and remote sensing payloads besides R&D in space applications.

**29. Development and Educational Communication Unit (DECU):** DECU is involved in the concept, definition, planning, implementation and socio-economic evaluation of developmental space communications applications. It also includes EDUSAT application.

**30. National Natural Resources Management System (NNRMS):** The National Natural Resources Management System (NNRMS) has the objective of ensuring optimal management/ utilization of natural resources by integrating information derived from remote sensing data with conventional techniques.

**31. Earth Observation Applications Mission (EOAM):** The main goals of the Earth Observation Applications Mission (EOAM) are to (i) evolve newer applications/R&D programmes based on technology trends leading to operational applications programmes; (ii) guiding total remote sensing applications programmes towards implementation of remote sensing-based solutions, and (iii) steering commercial activities of remote sensing involving development of value-added services.

**32. Regional Remote Sensing Service Centres (RRSSCs):** The five Regional Remote Sensing Centres (RRSSCs) at Bangalore, Dehradun, Jodhpur, Kharagpur and Nagpur have been established under the aegis of NNRMS with the prime objective of providing remote sensing application services to the users in the respective regions for better planning and optimal utilization of natural resources and also bring about awareness amongst the users on the potential of remote sensing and associated technologies.

**33. National Remote Sensing Agency (NRSA):** NRSA is a registered society and is the nodal agency for operational remote sensing activities in the country. It is responsible for acquisition, processing, distribution and archiving of data from remote sensing satellites.

**34. Disaster Management System (DMS):** The main objective of Disaster Management Support Programme is to provide Space inputs & services on a timely & reliable basis, for the Disaster Management System in the country.

**35. North Eastern Space Applications Centre (NE-SAC):** NESAC set up as an autonomous society jointly with North Eastern Council, is supporting the North Eastern Region by providing information on natural resources utilization and monitoring, developmental planning and interactive training using space technology.

**36. Physical Research Laboratory (PRL):** PRL, an autonomous institution funded by the Department of Space through grant-in-aid, is one of the premier research institutions in the country carrying out basic research in several areas of

experimental & theoretical physics, earth sciences, astronomy & aeronomy & planetary exploration .

38. **RESPOND:** The Sponsored Research (RESPOND) aims at strengthening the interaction between DOS/ISRO and Academic Institutions for generating human resource and supports research and developmental projects and other scientific activities at the academic institutions and R&D laboratories in the country in the areas of relevance to the Space Programme.

39. **Sensor Payload Development/Planetary Science Programme:** Includes funding requirement for advance action for activities related to scientific payload developments for space science and planetary exploration studies in different institutions and universities.

40. **Megha-Tropiques Project:** Megha-Tropiques is an ISRO-CNES (France) joint mission and is intended for studying tropical atmosphere and climate related to aspects such as monsoons, cyclones, etc., using a satellite platform.

41. **Astrosat:** The objective of the Astrosat project is to build and launch an astronomical observatory satellite for expanding the scientific knowledge about the evolution of stellar objects and gather valuable scientific data on high energy Astronomy and Astrophysics research. The satellite is planned for launch in the time frame of 2007-2008 onboard PSLV.

42. **Indian Lunar Mission - Chandrayaan-1:** The main objective of the Indian Lunar Mission - Chandrayaan-1 is for expanding the scientific knowledge about the Moon, upgrading the technological capability and providing challenging opportunity for planetary research for a large number of growing young people of the country benefiting the human society at large. The Chandrayaan-1 is targeted for launch during 2007 on-board the PSLV.

43. **ISRO Geosphere Biosphere Programme (ISRO GBP):** ISRO GBP encompasses the study of land and ocean

interaction, past climate, changes in atmospheric composition, aerosols, carbon cycle, bio-mass estimation, bio-diversity and other related areas of scientific investigation.

44. **Space Sciences - Others:** Under this, provision has been included mainly for Balloon Facility, Conferences/Symposia, Space Science Promotion, Multi-agency Projects, Acoustic Test Facility and Micro-Gravity Research Applications and modeling and prediction of Regional weather.

45. **Special Indigenisation/Advance Ordering:** Indigenisation envisages ISRO to have interface with the Indian Industry to develop various electronic components, semiconductors, materials, chemicals, etc., for the space programme. The scope of the scheme also includes procurement of certain long lead and critical items for futuristic missions.

46. **Others:** Under this, provisions have been included for ISRO Headquarters, International Co-operation, Centre for Space Science and Technology Education in Asia and the Pacific (CSSTE-AP), Search & Rescue Project and Civil Engineering Division.

47. **Master Control Facility:** MCF is responsible for initial orbit raising, payload testing and in-orbit operation of all geostationary satellites.

48. **INSAT-3 Satellites (including Launch Services):** The objectives of INSAT-3 Spacecraft Project are to (i) build five INSAT-3 satellites, INSAT-3A through INSAT-3E, keeping flexibility for mid-course corrections to accommodate emerging requirements, carry out mission planning, launch campaign and initial phase operations, and (ii) establish required programme elements for carrying out the same. INSAT-3D is targeted for launch during 2005-2006.

49. **INSAT-4 Satellites (including Launch Services):** The fourth generation INSAT-4 Satellite series has been planned to meet the capacity and service requirements projected for the Tenth Five Year Plan period. INSAT-4A has been successfully launched on Dec 22, 2005 on-board Ariane launcher of Europe.