

DEPARTMENT OF SPACE

DEMAND NO. 90

Department of Space

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

Major Head	Actual 2011-2012			Budget 2012-2013			Revised 2012-2013			<i>(In crores of Rupees)</i> Budget 2013-2014			
	Plan	Non-Plan	Total	Plan	Non-Plan	Total	Plan	Non-Plan	Total	Plan	Non-Plan	Total	
Revenue	1761.30	999.19	2760.49	2476.43	1100.00	3576.43	1747.97	1080.00	2827.97	1875.69	1177.00	3052.69	
Capital	1023.78	...	1023.78	3138.57	...	3138.57	2052.03	...	2052.03	3739.31	...	3739.31	
Total	2785.08	999.19	3784.27	5615.00	1100.00	6715.00	3800.00	1080.00	4880.00	5615.00	1177.00	6792.00	
1. Secretariat - Economic Services	3451	...	8.86	8.86	...	9.12	9.12	...	10.10	10.10	...	10.48	10.48
Space Research													
Space Technology													
Launch Vehicle Technology													
2. GSLV MK-III Development	3402	82.94	...	82.94	64.82	...	64.82	64.84	...	64.84	15.00	...	15.00
	5402	27.11	...	27.11	7.27	...	7.27	7.26	...	7.26	124.53	...	124.53
<i>Total</i>		<i>110.05</i>	...	<i>110.05</i>	<i>72.09</i>	...	<i>72.09</i>	<i>72.10</i>	...	<i>72.10</i>	<i>139.53</i>	...	<i>139.53</i>
3. Cryogenic Upper Stage Project (CUSP)	3402	...	...	...	0.10	...	0.10	0.10	...	0.10	0.10	...	0.10
4. Polar Satellite Launch Vehicle - Continuation (PSLV-C) Project	3402	288.80	...	288.80	347.91	...	347.91	153.85	...	153.85	25.00	...	25.00
	5402	10.94	...	10.94	32.09	...	32.09	16.15	...	16.15	325.00	...	325.00
<i>Total</i>		<i>299.74</i>	...	<i>299.74</i>	<i>380.00</i>	...	<i>380.00</i>	<i>170.00</i>	...	<i>170.00</i>	<i>350.00</i>	...	<i>350.00</i>
5. Vikram Sarabhai Space Centre (VSSC)	3402	243.41	224.39	467.80	239.48	240.98	480.46	249.11	246.00	495.11	167.49	263.49	430.98
	5402	131.18	...	131.18	303.90	...	303.90	157.51	...	157.51	301.89	...	301.89
<i>Total</i>		<i>374.59</i>	<i>224.39</i>	<i>598.98</i>	<i>543.38</i>	<i>240.98</i>	<i>784.36</i>	<i>406.62</i>	<i>246.00</i>	<i>652.62</i>	<i>469.38</i>	<i>263.49</i>	<i>732.87</i>
6. Inertial Systems Unit (IISU)	3402	20.06	...	20.06	22.90	...	22.90	29.03	...	29.03	8.12	...	8.12
	5402	23.85	...	23.85	39.77	...	39.77	27.23	...	27.23	60.89	...	60.89
<i>Total</i>		<i>43.91</i>	...	<i>43.91</i>	<i>62.67</i>	...	<i>62.67</i>	<i>56.26</i>	...	<i>56.26</i>	<i>69.01</i>	...	<i>69.01</i>
7. Liquid Propulsion Systems Centre	3402	143.49	85.11	228.60	172.55	96.69	269.24	162.48	91.14	253.62	90.78	103.97	194.75
	5402	75.12	...	75.12	167.11	...	167.11	90.77	...	90.77	244.34	...	244.34
<i>Total</i>		<i>218.61</i>	<i>85.11</i>	<i>303.72</i>	<i>339.66</i>	<i>96.69</i>	<i>436.35</i>	<i>253.25</i>	<i>91.14</i>	<i>344.39</i>	<i>335.12</i>	<i>103.97</i>	<i>439.09</i>
8. GSLV Operational Project (Including MK-III Operational)	3402	214.42	...	214.42	244.06	...	244.06	236.00	...	236.00	208.90	...	208.90
	5402	8.39	...	8.39	14.90	...	14.90	14.00	...	14.00	7.01	...	7.01
<i>Total</i>		<i>222.81</i>	...	<i>222.81</i>	<i>258.96</i>	...	<i>258.96</i>	<i>250.00</i>	...	<i>250.00</i>	<i>215.91</i>	...	<i>215.91</i>
9. Space Capsule Recovery Experiment (SRE)	3402	1.73	...	1.73	2.20	...	2.20	1.00	...	1.00	0.50	...	0.50

(In crores of Rupees)

	Major Head	Actual 2011-2012			Budget 2012-2013			Revised 2012-2013			Budget 2013-2014		
		Plan	Non-Plan	Total	Plan	Non-Plan	Total	Plan	Non-Plan	Total	Plan	Non-Plan	Total
10. Manned Mission Initiatives/Human Space Flight Programme	3402	9.23	...	9.23	29.74	...	29.74	11.50	...	11.50	26.75	...	26.75
	5402	1.95	...	1.95	30.72	...	30.72	2.50	...	2.50	0.25	...	0.25
	<i>Total</i>	<i>11.18</i>	...	<i>11.18</i>	<i>60.46</i>	...	<i>60.46</i>	<i>14.00</i>	...	<i>14.00</i>	<i>27.00</i>	...	<i>27.00</i>
11. Indian Institute of Space Science & Technology	3402	...	...	...	100.00	...	100.00	50.00	...	50.00	138.50	12.00	150.50
12. Semi Cryogenic Engine Development	3402	18.80	...	18.80	43.41	...	43.41	20.00	...	20.00	68.30	...	68.30
	5402	9.49	...	9.49	106.59	...	106.59	64.96	...	64.96	111.70	...	111.70
	<i>Total</i>	<i>28.29</i>	...	<i>28.29</i>	<i>150.00</i>	...	<i>150.00</i>	<i>84.96</i>	...	<i>84.96</i>	<i>180.00</i>	...	<i>180.00</i>
Total-Launch Vehicle Technology		1310.91	309.50	1620.41	1969.52	337.67	2307.19	1358.29	337.14	1695.43	1925.05	379.46	2304.51
Satellite Technology													
13. Oceansat-2 and 3	3402	...	...	...	2.52	...	2.52	...	...	...	...	...	...
	5402	...	...	...	47.48	...	47.48	...	...	...	...	...	...
	<i>Total</i>	...	...	...	<i>50.00</i>	...	<i>50.00</i>	...	...	...	...	...	...
14. Resourcesat-2 and 3	3402	1.29	...	1.29	1.40	...	1.40	0.40	...	0.40	...	...	...
	5402	12.41	...	12.41	9.10	...	9.10	0.40	...	0.40	...	...	...
	<i>Total</i>	<i>13.70</i>	...	<i>13.70</i>	<i>10.50</i>	...	<i>10.50</i>	<i>0.80</i>	...	<i>0.80</i>	...	...	...
15. ISRO Satellite Centre (ISAC)	3402	111.73	96.84	208.57	125.51	119.61	245.12	119.24	112.59	231.83	128.57	114.67	243.24
	5402	100.11	...	100.11	225.94	...	225.94	89.60	...	89.60	113.56	...	113.56
	<i>Total</i>	<i>211.84</i>	<i>96.84</i>	<i>308.68</i>	<i>351.45</i>	<i>119.61</i>	<i>471.06</i>	<i>208.84</i>	<i>112.59</i>	<i>321.43</i>	<i>242.13</i>	<i>114.67</i>	<i>356.80</i>
16. Laboratory for Electro-Optics System (LEOS)	3402	25.00	...	25.00	26.65	...	26.65	25.92	...	25.92	21.80	...	21.80
	5402	8.13	...	8.13	28.13	...	28.13	9.20	...	9.20	16.80	...	16.80
	<i>Total</i>	<i>33.13</i>	...	<i>33.13</i>	<i>54.78</i>	...	<i>54.78</i>	<i>35.12</i>	...	<i>35.12</i>	<i>38.60</i>	...	<i>38.60</i>
17. Radar Imaging Satellite-1 (RISAT-1)	3402	0.30	...	0.30	0.12	...	0.12	0.55	...	0.55	...	...	...
	5402	2.54	...	2.54	0.13	...	0.13	0.35	...	0.35	...	...	...
	<i>Total</i>	<i>2.84</i>	...	<i>2.84</i>	<i>0.25</i>	...	<i>0.25</i>	<i>0.90</i>	...	<i>0.90</i>	...	...	...
18. Navigational Satellite System (NSS)	3402	22.73	...	22.73	31.60	...	31.60	25.00	...	25.00	30.75	...	30.75
	5402	97.49	...	97.49	138.40	...	138.40	109.15	...	109.15	104.25	...	104.25
	<i>Total</i>	<i>120.22</i>	...	<i>120.22</i>	<i>170.00</i>	...	<i>170.00</i>	<i>134.15</i>	...	<i>134.15</i>	<i>135.00</i>	...	<i>135.00</i>
19. Semi-Conductor Laboratory (SCL)	3402	15.12	34.66	49.78	36.58	38.89	75.47	36.58	38.89	75.47	60.94	44.70	105.64
20. Advanced Communication Satellite (GSAT-11 including Launch Services)	3402	6.70	...	6.70	6.75	...	6.75	5.27	...	5.27	6.72	...	6.72
	5402	37.71	...	37.71	243.25	...	243.25	114.23	...	114.23	196.28	...	196.28
	<i>Total</i>	<i>44.41</i>	...	<i>44.41</i>	<i>250.00</i>	...	<i>250.00</i>	<i>119.50</i>	...	<i>119.50</i>	<i>203.00</i>	...	<i>203.00</i>
21. Earth Observation - New Missions, (Future EO Missions including RISAT-3)	3402	0.21	...	0.21	2.52	...	2.52	1.75	...	1.75
	5402	9.69	...	9.69	47.48	...	47.48	0.45	...	0.45	0.01	...	0.01

(In crores of Rupees)

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		Plan	Non-Plan	Total	Plan	Non-Plan	Total	Plan	Non-Plan	Total	Plan	Non-Plan	Total
	Total	9.90	...	9.90	50.00	...	50.00	2.20	...	2.20	0.01	...	0.01
22.	SARAL												
	3402	1.20	...	1.20	1.60	...	1.60	1.94	...	1.94	1.44	...	1.44
	5402	20.29	...	20.29	13.40	...	13.40	17.06	...	17.06	8.56	...	8.56
	Total	21.49	...	21.49	15.00	...	15.00	19.00	...	19.00	10.00	...	10.00
23.	Geo-Imaging Satellite (GISAT)												
	3402	...	...	...	2.55	...	2.55	2.15	...	2.15	2.30	...	2.30
	5402	...	...	...	47.45	...	47.45	21.35	...	21.35	77.70	...	77.70
	Total	...	...	...	50.00	...	50.00	23.50	...	23.50	80.00	...	80.00
24.	Resourcesat-2A												
	3402	...	...	...	...	...	...	...	...	...	2.28	...	2.28
	5402	...	...	...	...	...	...	...	...	...	25.72	...	25.72
	Total	...	...	...	...	...	...	...	...	...	28.00	...	28.00
25.	Cartosat-3												
	3402	...	...	...	...	...	...	...	...	...	2.85	...	2.85
	5402	...	...	...	...	...	...	...	...	...	7.15	...	7.15
	Total	...	...	...	...	...	...	...	...	...	10.00	...	10.00
26.	Scattsat												
	3402	...	...	...	...	...	...	...	...	...	1.00	...	1.00
	5402	...	...	...	...	...	...	...	...	...	4.00	...	4.00
	Total	...	...	...	...	...	...	...	...	...	5.00	...	5.00
27.	Risat-1A												
	3402	...	...	...	...	...	...	...	...	...	0.25	...	0.25
	5402	...	...	...	...	...	...	...	...	...	0.75	...	0.75
	Total	...	...	...	...	...	...	...	...	...	1.00	...	1.00
28.	Oceansat-3												
	3402	...	...	...	...	...	...	...	...	...	1.00	...	1.00
	5402	...	...	...	...	...	...	...	...	...	4.00	...	4.00
	Total	...	...	...	...	...	...	...	...	...	5.00	...	5.00
Total-Satellite Technology		472.65	131.50	604.15	1038.56	158.50	1197.06	580.59	151.48	732.07	818.68	159.37	978.05
Launch Support, Tracking Network & Range Facility													
29.	Satish Dhawan Space Centre - SHAR (SDSC-SHAR)												
	3402	111.92	125.91	237.83	58.06	151.84	209.90	93.53	166.24	259.77	50.66	162.17	212.83
	5402	83.20	...	83.20	227.94	...	227.94	94.09	...	94.09	245.00	...	245.00
	Total	195.12	125.91	321.03	286.00	151.84	437.84	187.62	166.24	353.86	295.66	162.17	457.83
30.	ISRO Telemetry, Tracking & Command Network (ISTRAC)												
	3402	28.50	78.58	107.08	29.30	61.50	90.80	28.04	60.08	88.12	39.74	61.72	101.46
	5402	14.07	...	14.07	35.22	...	35.22	15.90	...	15.90	27.80	...	27.80
	Total	42.57	78.58	121.15	64.52	61.50	126.02	43.94	60.08	104.02	67.54	61.72	129.26
Total-Launch Support, Tracking Network & Range Facility		237.69	204.49	442.18	350.52	213.34	563.86	231.56	226.32	457.88	363.20	223.89	587.09
Total-Space Technology		2021.25	645.49	2666.74	3358.60	709.51	4068.11	2170.44	714.94	2885.38	3106.93	762.72	3869.65
Space Applications													
31.	Space Applications Centre (SAC)												
	3402	97.91	123.68	221.59	109.98	132.56	242.54	108.74	131.26	240.00	117.53	143.51	261.04
	5402	61.78	...	61.78	64.01	...	64.01	64.57	...	64.57	75.04	...	75.04

(In crores of Rupees)

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		Plan	Non-Plan	Total	Plan	Non-Plan	Total	Plan	Non-Plan	Total	Plan	Non-Plan	Total
	Total	159.69	123.68	283.37	173.99	132.56	306.55	173.31	131.26	304.57	192.57	143.51	336.08
32. Development and Education Communication Unit(DECU)	3402	7.81	9.12	16.93	40.20	10.11	50.31	6.64	8.16	14.80	30.27	14.61	44.88
	5402	0.86	...	0.86	0.81	...	0.81	0.26	...	0.26	1.87	...	1.87
	Total	8.67	9.12	17.79	41.01	10.11	51.12	6.90	8.16	15.06	32.14	14.61	46.75
33. National Natural Resources Management System(NNRMS)	3402	23.60	...	23.60	53.74	...	53.74	22.50	...	22.50	31.50	...	31.50
34. Earth Observation Application Mission(EOAM)	3402	1.40	...	1.40	2.80	...	2.80	1.49	...	1.49	4.37	...	4.37
35. National Remote Sensing Centre (NRSC)	3402	57.23	81.57	138.80	69.03	82.22	151.25	61.38	81.59	142.97	37.47	89.39	126.86
	5402	52.17	...	52.17	122.27	...	122.27	71.90	...	71.90	72.14	...	72.14
	Total	109.40	81.57	190.97	191.30	82.22	273.52	133.28	81.59	214.87	109.61	89.39	199.00
36. Indian Institute of Remote Sensing	3402	...	...	...	19.30	10.00	29.30	15.46	5.56	21.02	16.36	5.77	22.13
	5402	...	...	...	3.18	...	3.18	3.01	...	3.01	8.22	...	8.22
	Total	...	...	...	22.48	10.00	32.48	18.47	5.56	24.03	24.58	5.77	30.35
37. Disaster Management Support (DMS)	3402	12.17	...	12.17	21.48	...	21.48	7.00	...	7.00	20.08	...	20.08
	5402	0.60	...	0.60	8.90	...	8.90	5.00	...	5.00	10.34	...	10.34
	Total	12.77	...	12.77	30.38	...	30.38	12.00	...	12.00	30.42	...	30.42
38. North Eastern Space Applications Centre (NE-SAC)	3402	...	...	...	5.90	2.10	8.00	5.90	2.10	8.00	5.80	2.20	8.00
Total-Space Applications		315.53	214.37	529.90	521.60	236.99	758.59	373.85	228.67	602.52	430.99	255.48	686.47
Space Sciences													
39. Physical Research Laboratory (PRL)	3402	28.82	35.63	64.45	71.97	39.93	111.90	43.73	21.75	65.48	101.63	39.83	141.46
40. National Atmospheric Research Laboratory (NARL)	3402	10.18	3.25	13.43	13.70	3.50	17.20	10.53	3.50	14.03	16.77	3.80	20.57
41. National Institute of Climate change and Environmental Studies	3402	...	...	...	1.00	...	1.00	...	...	...	...	...	...
42. RESPOND	3402	14.40	...	14.40	21.80	...	21.80	21.20	...	21.20	22.80	...	22.80
43. Sensor Payload Development / Planetary Science Programme	3402	1.51	...	1.51	20.00	...	20.00	1.50	...	1.50	3.53	...	3.53
44. Megha-tropiques Project	3402	0.85	...	0.85	0.31	...	0.31	0.07	...	0.07	...	...	...
	5402	4.49	...	4.49	0.09	...	0.09	0.16	...	0.16	...	...	...
	Total	5.34	...	5.34	0.40	...	0.40	0.23	...	0.23	...	...	...
45. ADITYA	3402	0.70	...	0.70	0.75	...	0.75	0.74	...	0.74	0.71	...	0.71
	5402	1.79	...	1.79	19.25	...	19.25	2.66	...	2.66	19.29	...	19.29
	Total	2.49	...	2.49	20.00	...	20.00	3.40	...	3.40	20.00	...	20.00
46. Astrosat 1 & 2	3402	0.77	...	0.77	0.80	...	0.80	0.40	...	0.40	0.74	...	0.74
	5402	5.72	...	5.72	5.20	...	5.20	2.15	...	2.15	4.26	...	4.26
	Total	6.49	...	6.49	6.00	...	6.00	2.55	...	2.55	5.00	...	5.00

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47. Indian Lunar Mission - Chandrayan - 1 & 2	3402	5.01	...	5.01	5.83	...	5.83	3.50	...	3.50	2.34	...	2.34
	5402	52.33	...	52.33	76.67	...	76.67	52.51	...	52.51	75.66	...	75.66
	<i>Total</i>	<i>57.34</i>	...	<i>57.34</i>	<i>82.50</i>	...	<i>82.50</i>	<i>56.01</i>	...	<i>56.01</i>	<i>78.00</i>	...	<i>78.00</i>
48. Mars Orbiter Mission	3402	...	...	...	4.10	...	4.10	4.10	...	4.10	4.71	...	4.71
	5402	...	...	...	120.90	...	120.90	120.90	...	120.90	162.79	...	162.79
	<i>Total</i>	...	...	...	<i>125.00</i>	...	<i>125.00</i>	<i>125.00</i>	...	<i>125.00</i>	<i>167.50</i>	...	<i>167.50</i>
49. ISRO Geosphere Biosphere Programme (ISRO GBP)	3402	16.44	...	16.44	27.69	...	27.69	22.50	...	22.50	26.73	...	26.73
50. Atmospheric Science Programmes	3402	4.85	...	4.85	18.70	...	18.70	7.92	...	7.92	15.80	...	15.80
	5402	...	...	...	...	...	...	...	...	...	6.00	...	6.00
	<i>Total</i>	<i>4.85</i>	...	<i>4.85</i>	<i>18.70</i>	...	<i>18.70</i>	<i>7.92</i>	...	<i>7.92</i>	<i>21.80</i>	...	<i>21.80</i>
51. Small Satellites for Atmospheric Studies and Astronomy	3402	4.37	...	4.37	1.10	...	1.10	0.64	...	0.64	...	...	...
	5402	...	...	...	1.36	...	1.36	1.36	...	1.36	5.00	...	5.00
	<i>Total</i>	<i>4.37</i>	...	<i>4.37</i>	<i>2.46</i>	...	<i>2.46</i>	<i>2.00</i>	...	<i>2.00</i>	<i>5.00</i>	...	<i>5.00</i>
52. Other Schemes	3402	7.68	1.50	9.18	14.10	3.00	17.10	5.31	3.00	8.31	8.90	...	8.90
Total-Space Sciences		159.91	40.38	200.29	425.32	46.43	471.75	301.88	28.25	330.13	477.66	43.63	521.29
Direction & Administration/Other Programmes													
53. Special Indigenisation/Advance Ordering	3402	8.98	...	8.98	10.74	...	10.74	5.00	...	5.00	...	...	...
	5402	...	...	...	94.25	...	94.25	5.65	...	5.65	...	...	...
	<i>Total</i>	<i>8.98</i>	...	<i>8.98</i>	<i>104.99</i>	...	<i>104.99</i>	<i>10.65</i>	...	<i>10.65</i>	...	...	...
54. Development of Space Materials and Components	3402	...	...	...	...	...	...	...	...	...	17.51	...	17.51
55. Advance Ordering	5402	...	...	...	...	...	...	...	...	...	10.00	...	10.00
56. Others	3402	2.70	60.45	63.15	2.80	66.38	69.18	2.70	65.44	68.14	4.30	68.75	73.05
	5402	7.57	...	7.57	12.39	...	12.39	12.38	...	12.38	23.34	...	23.34
	<i>Total</i>	<i>10.27</i>	<i>60.45</i>	<i>70.72</i>	<i>15.19</i>	<i>66.38</i>	<i>81.57</i>	<i>15.08</i>	<i>65.44</i>	<i>80.52</i>	<i>27.64</i>	<i>68.75</i>	<i>96.39</i>
Total-Direction & Administration/Other Programmes		19.25	60.45	79.70	120.18	66.38	186.56	25.73	65.44	91.17	55.15	68.75	123.90
INSAT Operational													
57. Master Control Facility (MCF)	3252	8.08	29.64	37.72	8.02	31.57	39.59	8.24	32.60	40.84	7.06	35.94	43.00
	5252	5.75	...	5.75	30.93	...	30.93	8.07	...	8.07	30.91	...	30.91
	<i>Total</i>	<i>13.83</i>	<i>29.64</i>	<i>43.47</i>	<i>38.95</i>	<i>31.57</i>	<i>70.52</i>	<i>16.31</i>	<i>32.60</i>	<i>48.91</i>	<i>37.97</i>	<i>35.94</i>	<i>73.91</i>
58. INSAT-3 Satellites (Including Launch Services)	3252	4.14	...	4.14	39.00	...	39.00	2.40	...	2.40	6.29	...	6.29
	5252	25.84	...	25.84	261.75	...	261.75	240.46	...	240.46	19.01	...	19.01
	<i>Total</i>	<i>29.98</i>	...	<i>29.98</i>	<i>300.75</i>	...	<i>300.75</i>	<i>242.86</i>	...	<i>242.86</i>	<i>25.30</i>	...	<i>25.30</i>

(In crores of Rupees)

	Major Head	Actual 2011-2012			Budget 2012-2013			Revised 2012-2013			Budget 2013-2014		
		Plan	Non-Plan	Total	Plan	Non-Plan	Total	Plan	Non-Plan	Total	Plan	Non-Plan	Total
59. INSAT-4 Satellites (Including Launch Services and Leasing of Transponders)	3252	94.26	...	94.26	246.56	...	246.56	60.10	...	60.10	8.71	...	8.71
	5252	137.59	...	137.59	395.34	...	395.34	160.32	...	160.32	88.29	...	88.29
	<i>Total</i>	<i>231.85</i>	...	<i>231.85</i>	<i>641.90</i>	...	<i>641.90</i>	<i>220.42</i>	...	<i>220.42</i>	<i>97.00</i>	...	<i>97.00</i>
60. Service Charges for Leasing INSAT/GSAT Transponders	3252	...	...	...	...	...	...	...	...	...	200.00	...	200.00
61. INSAT-3D Launch Services	3252	...	...	...	...	...	...	...	...	...	10.00	...	10.00
	5252	...	...	...	...	...	...	...	...	...	260.00	...	260.00
	<i>Total</i>	...	...	...	...	...	...	...	...	...	<i>270.00</i>	...	<i>270.00</i>
62. GSAT-7 Launch Services	3252	...	...	...	52.70	...	52.70	...	...	...	10.00	...	10.00
	5252	...	...	...	155.00	...	155.00	448.51	...	448.51	4.00	...	4.00
	<i>Total</i>	...	...	...	<i>207.70</i>	...	<i>207.70</i>	<i>448.51</i>	...	<i>448.51</i>	<i>14.00</i>	...	<i>14.00</i>
63. GSAT-15 Satellite	3252	...	...	...	...	...	...	...	...	...	9.02	...	9.02
	5252	...	...	...	...	...	...	...	...	...	90.98	...	90.98
	<i>Total</i>	...	...	...	...	...	...	...	...	...	<i>100.00</i>	...	<i>100.00</i>
64. GSAT-15 Satellite - Launch Services	3252	...	...	...	...	...	...	...	...	...	10.00	...	10.00
	5252	...	...	...	...	...	...	...	...	...	290.00	...	290.00
	<i>Total</i>	...	...	...	...	...	...	...	...	...	<i>300.00</i>	...	<i>300.00</i>
65. GSAT-16 Satellite	3252	...	...	...	...	...	...	...	...	...	8.02	...	8.02
	5252	...	...	...	...	...	...	...	...	...	86.98	...	86.98
	<i>Total</i>	...	...	...	...	...	...	...	...	...	<i>95.00</i>	...	<i>95.00</i>
66. GSAT-16 Satellite - Launch Services	3252	...	...	...	...	...	...	...	...	...	10.00	...	10.00
	5252	...	...	...	...	...	...	...	...	...	295.00	...	295.00
	<i>Total</i>	...	...	...	...	...	...	...	...	...	<i>305.00</i>	...	<i>305.00</i>
67. GSAT-17 Satellite and follow-on missions	3252	...	...	...	...	...	...	...	...	...	5.00	...	5.00
	5252	...	...	...	...	...	...	...	...	...	85.00	...	85.00
	<i>Total</i>	...	...	...	...	...	...	...	...	...	<i>90.00</i>	...	<i>90.00</i>
68. GSAT-17 Satellite and follow-on missions - Launch Services	3252	...	...	...	...	...	...	...	...	...	2.00	...	2.00
	5252	...	...	...	...	...	...	...	...	...	8.00	...	8.00
	<i>Total</i>	...	...	...	...	...	...	...	...	...	<i>10.00</i>	...	<i>10.00</i>
Total-INSAT Operational		275.66	29.64	305.30	1189.30	31.57	1220.87	928.10	32.60	960.70	1544.27	35.94	1580.21
Total-Space Research		2791.60	990.33	3781.93	5615.00	1090.88	6705.88	3800.00	1069.90	4869.90	5615.00	1166.52	6781.52
69. Actual Recoveries	3402	-0.14	...	-0.14	...	...	...	...	...	...	...	...	...
	5402	-6.38	...	-6.38	...	...	...	...	...	...	...	...	...
	<i>Total</i>	<i>-6.52</i>	...	<i>-6.52</i>	...	...	...	...	...	...	...	...	...

(In crores of Rupees)

	Major Head	Actual 2011-2012			Budget 2012-2013			Revised 2012-2013			Budget 2013-2014		
		Plan	Non-Plan	Total	Plan	Non-Plan	Total	Plan	Non-Plan	Total	Plan	Non-Plan	Total
Grand Total		2785.08	999.19	3784.27	5615.00	1100.00	6715.00	3800.00	1080.00	4880.00	5615.00	1177.00	6792.00
	Head of Dev	Budget Support	IEBR	Total	Budget Support	IEBR	Total	Budget Support	IEBR	Total	Budget Support	IEBR	Total
C. Plan Outlay													
1. Space Research	13402	2785.08	...	2785.08	5615.00	...	5615.00	3800.00	...	3800.00	5615.00	...	5615.00

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

2. **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 to Geo-synchronous Transfer Orbit (GTO).

3. **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.

4. **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.

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

6. **Inertial Systems Unit (IISU):** IISU is responsible for research & development in the area of inertial sensors, inertial systems, navigation software, actuators and mechanisms and to realise the flight units of these system for the launch vehicle and satellite programmes.

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

8. **GSLV-Operational Project (including GSLV Mk-III Operational):** The GSLV-Operational Project has been conceived to meet the launch requirement of 2 tonne class of operational INSAT/GSAT satellites.

9. **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-I was successfully launched on-board PSLV-C7 on January 10, 2007 and was also successfully recovered from Bay of Bengal on January 22, 2007. SRE-II is a follow-on mission to SRE-I to further validate the re-entry technologies.

10. **Manned Mission Initiatives/Human Space Flight Programme:** The programme envisages development of a fully autonomous orbital vehicle carrying two or three crew-members to about 275 km low earth orbit and their safe return. Currently, the critical technologies required for human spaceflight programme are being developed as pre-project activities.

11. **Indian Institute of Space Science & Technology:** Indian Institute of Space Science & Technology is an autonomous body under DOS with the primary objective of creating world class Institution in the area of advanced Space Science & Technology education and generating high quality human resources requirement of DOS/ISRO. The Institute has undergraduate, post-graduate and doctoral programme in the area of space science, technology and applications.

12. **Semi Cryogenic Engine Development:** The objective of this project is to develop and qualify a high thrust Semi-Cryogenic engine and stage (employing kerosene of required grade/spar as fuel and Liquid Oxygen as oxidizer) for the future advanced launch vehicle.

15. **ISRO Satellite Centre (ISAC):** ISAC is the lead Center for the design, fabrication, testing and management of satellite systems for scientific, technological and application missions.

16. **Laboratory for Electro-Optics Systems (LEOS):** LEOS is responsible for research & development and production of electro-optics sensors.

18. **Navigation Satellite System (NSS):** The Indian Regional Navigation Satellite System (IRNSS), is planned to be a constellation of 7 satellites aimed at providing position accuracies similar to Global Positioning System (GPS) in a region centered around India with a coverage extending upto 1500 km from India. The first IRNSS satellite (IRNSS-R1A) is targeted for launch during 2013.

19. **Semi-conductor Laboratory:** SCL is engaged in the Design, Development and Manufacture of Very Large Scale Integrated (VLSIs) devices and Board Level Products to meet the stringent quality requirement of strategic sectors. SCL is to undertake radiation hardened devices and about more than 60 types of ASICs have been identified for development by SCL for Space Programme.

20. **Advanced Communication Satellite (GSAT-11 - including Launch Services):** The main objective is to develop a 4 Ton class of communication satellite incorporating advanced technologies of relevance for future.

21. **Earth Observation - New Missions (Future EO Missions including RISAT-3):** Indian Earth Observation program is directed towards providing continuity of EO data for resource

management applications and enhancing the imaging capability. Towards this, it is planned to undertake development of future EO missions and RISAT-3 satellite.

22. **SARAL:** SARAL (Satellite with Argos and AltiKa) is an Indo-French joint mission for oceanographic applications. Two payloads namely AltiKa and ARGOS are planned in this mission. AltiKa is a Ka band altimeter for ocean applications and ARGOS is a data collection platform for collecting variety of data from ocean buoys.

23. **Geo-Imaging Satellite (GISAT):** Geo-Imaging satellite (GISAT) is conceived as a multi-spectral, multi-resolution advanced remote sensing satellite capable of imaging from geo-stationary orbit.

24. **Resourcesat-2A:** Resourcesat-2A is planned as a follow-on mission to Resourcesat-2 satellite. Apart from providing continuity of already established services, it will also provide opportunity to explore newer application areas in Land and Water resources management.

25. **Cartosat-3:** Cartosat-3 is an advanced remote sensing satellite with enhanced resolution of 0.25m for cartographic applications and high resolution mapping.

26. **Scattsat:** Scattsat is a remote sensing satellite which will carry a pencil beam Ku-band scatterometer to provide measurement of wind vector and a millimeter wave sounder to provide data on vertical temperature profile of the atmosphere. This will be mainly used for atmospheric and oceanographic studies.

27. **RISAT-1A:** RISAT-1A is a follow-on mission to RISAT-1 with C-band multi-polarised Synthetic Aperture Radar having capability of imaging under all weather conditions.

28. **Oceansat-3:** Oceansat-3 is an advanced remote sensing satellite with for oceanographic applications. This will carry an Ocean Color Monitor (OCM-3) with 13 bands and a Ku-band pencil beam scatterometer.

29. **Satish Dhawan Space Centre-SHAR (SDSC-SHAR):** SDSC-SHAR is the spaceport of India and provides the launch infrastructure as well as solid propellant processing.

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

31. **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.

32. **Development and Educational Communication Unit (DECU):** DECU is involved in the conceptualisation, definition, planning, implementation and socio-economic evaluation of developmental space applications.

33. **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.

34. **Earth Observation Applications Mission (EOAM):** The main goal of the Earth Observation Application Mission (EOAM) are to (i) evolve newer application/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 remote sensing applications with value-added services to the users.

35. **National Remote Sensing Centre (NRSC):** NRSC is responsible for acquisition, processing, distribution and archiving of data from remote sensing satellites and is continuously exploring the practical uses of remote sensing technology for multilevel (global to local applications).

36. **Indian Institute of Remote Sensing (IIRS):** Indian Institute of Remote Sensing (IIRS), located at Dehradun, is a premier training and educational institute set up for developing trained professional in the field of Remote Sensing, Geoinformatics and GPS Technology for Natural Resources, Environmental and Disaster Management.

37. **Disaster Management Support (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.

38. **North Eastern-Space Applications Centres (NE-SAC):** NE-SAC 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, infrastructure developmental planning and interactive training using space technology inputs of remote sensing and satellite communication.

39. **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 and earth sciences. PRL is also responsible for the administration of Udaipur Solar observatory.

40. **National Atmospheric Research Laboratory (NARL):** NARL, a registered Society, is responsible for carrying out advanced research in atmospheric and space sciences and related disciplines.

42. **RESPOND:** The (RESPOND) Programme of ISRO supports sponsored research activity in Space Science, Space Applications and Space Technology in various national academic/research institutions and Space Technology Cells in premier technological institutes of the country through grants-in-aid.

43. **Sensor Payload Development/Planetary Science Programme:** It 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.

45. **ADITYA:** The ADITYA-1 Project will be the first Indian Space based solar coronagraph, which will be available for solar coronal observation to all the Indian researchers in the field of Solar Astronomy. The major scientific objective of the ADITYA-1 is to achieve a fundamental understanding of the physical processes that heat the solar corona (base to the extended), accelerate the solar wind and produce Coronal Mass Ejections (CMEs).

46. **Astrosat 1 & 2:** 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.

47. **Indian Lunar Chandrayaan-1 & 2:** The Chandrayaan-1 was successfully launched on October 22, 2008 on-board PSLV-C11. The follow-on mission Chandrayaan-2 is planned to further expand the scientific knowledge about the moon, upgrading the technological capability and providing the challenging opportunity for planetary research for a large number of growing young people of the country benefiting the human society at large.

48. **Mars Orbiter Mission:** Mars Orbiter Mission envisages launching an Orbiter around Mars using Polar Satellite Launch Vehicle (PSLV-XL) during the November 2013 launch opportunity. MARS orbiter will be placed in an orbit of 500 x 80,000 km around MARS and will have a provision for carrying nearly 25 kg of scientific payloads on-board.

49. **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.

50. **Atmospheric Science Programmes:** Atmospheric Science Programmes is intended to develop advanced observation tools & techniques of atmospheric modeling, leading to operational end user products in different domains of atmospheric science.

51. **Small Satellite for Atmospheric Studies & Astronomy:** The project envisages development of small satellites for study of Earth's near-space environment, magnetometer studies, study of aerosol and gases, tropical weather and climate studies.

52. **Other Schemes:** These includes Microgravity Research, Space Science promotion, Multi-institutional research programs, Space Station experiment, setting up of Digital workflow systems, support for conferences, symposia, etc.

54. **Development of Space Materials and Components:** Development of Space materials and components is an effort to indigenously develop space grade materials and components with the help of Indian Industry for Indian Space Programme in order to reduce dependency on foreign sources.

55. **Advance Ordering:** Advance Ordering aims at procurement of certain long lead and critical items for futuristic missions.

56. **Others:** Under this, provision has been included for ISRO Headquarters, International Co-operation and Central Management.

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

58. **INSAT-3 Satellites (including Launch Services):** The objective of INSAT-3 Spacecraft Project are to (i) build five INSAT-3 satellites (INSAT-3A to INSAT-3E) keeping the 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.

59. **INSAT-4/GSAT Satellites (including Launch Services and Leasing of Transponders):** The fourth generation INSAT-4/GSAT Satellite series has been planned to meet the capacity and service requirements projected by various users and development needs of the country.

60. **Service Charges for Leasing INSAT/GSAT Transponders:** This is envisaged for payment of services charges for Leasing of INSAT/GSAT Transponders.

61. **INSAT-3D Launch Services:** INSAT-3D Launch services is towards ensuring procured launch services for INSAT-3D satellite.

62. **GSAT-7 Launch Services:** GSAT-7 is a user funded communication satellite. GSAT-7 was initially planned for launch on-board GSLV. Due to the schedule criticality of GSAT-7 satellite, provision is made for the launch of GSAT-7 satellite through procured launch services.

63. **GSAT-15 Satellite:** GSAT-15 is a communication satellite which will carry 24 Ku-band transponders and a GAGAN payload.

64. **GSAT-15 Satellite - Launch Services:** GSAT-15 satellite - launch services is envisaged for securing procured launch services for GSAT-15 satellite.

65. **GSAT-16 Satellite:** GSAT-16 is a communication satellite which will carry 24 C-band, 12 Upper Ext-C band and 12 Ku-band transponders.

66. **GSAT-16 Satellite - Launch Services:** GSAT-16 satellite - launch services is envisaged for securing procured launch services for GSAT-16 satellite.

67. **GSAT-17 Satellite and follow-on missions:** GSAT-17 and follow-on missions are the future communication satellites planned during the 12th Plan period.

68. **GSAT-17 Satellite and follow-on missions - Launch Services:** GSAT-17 Satellite and follow-on missions - Launch Services is envisaged for securing procured launch services for future communication satellites.