### GOVERNMENT OF INDIA DEPARTMENT OF SPACE

## LOK SABHA STARRED QUESTION NO. 57

#### **TO BE ANSWERED ON WEDNESDAY, DECEMBER 02, 2015**

#### INDIGENOUSLY DEVELOPED SATELLITES

#### \*57. SHRI RAOSAHEB DANVE PATIL:

Will the PRIME MINISTER be pleased to state:

- (a) the details of the indigenously manufactured satellites currently placed successfully in the space orbit and the number thereof which got destroyed before being placed in the orbit;
- (b) whether the information from these satellites is being used by other countries for their benefits without the knowledge of the Government of India and if so, the details thereof;
- (c) the number of satellites launched by the Government with the support from other countries so far, the cost incurred thereon and the extant status thereof; and
- (d) whether certain countries have expressed their desire to utilise services of Indian launching stations to place their satellites and if so, the details thereof?

#### ANSWER

## MINISTER OF STATE IN THE MINISTRY OF PERSONNEL, PG & PENSIONS AND IN THE PRIME MINISTER'S OFFICE (DR. JITENDRA SINGH):

(a) to (d) A Statement is laid on the Table of the House.

STATEMENT LAID ON THE TABLE OF THE LOK SABHA IN REPLY TO STARRED QUESTION NO. 57 REGARDING "INDIGENOUSLY DEVELOPED SATELLITES" ASKED BY SHRI RAOSAHEB DANVE PATIL FOR ANSWER ON WEDNESDAY DECEMBER 02, 2015.

- (a) As on date, 63 indigenously built satellites have been successfully placed in the space orbit. In addition, ISRO has successfully placed 4 satellites built by students of Indian Universities. The details are attached in the Annexure-1. Seven Satellites namely Rohini Technology Payload, SROSS-1, SROSS-2, IRS-1E, INSAT-4C, GSAT-4 and GSAT-5P did not reach orbit due to failure of launch vehicle.
- (b) No Madam.
- (c) As on date, 28 satellites have been launched with the support from other countries. The details are attached in Annexure -2.
- (d) Yes Madam. While 51 foreign satellites from 20 countries have been successfully launched into orbit using ISRO's Polar Satellite Launch Vehicle under a commercial arrangement with Antrix Corporation Limited (Antrix), agreements have been signed for launching 25 more foreign satellites from 7 countries viz. Algeria, Canada, Germany, Indonesia, Japan, Singapore and USA. The launches of these foreign satellites are envisaged during 2015-2017 time period. The details are attached in Annexure-3.

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Indigenously built satellites successfully placed in space orbit				
(As on November 2015)				
SN	Satellite	Launch Date	Purpose of Satellite	
1.	Aryabhata	19-04-1975	Experimental Space Science	
2.	Bhaskara-1	07-06-1979	Earth Observations	
3.	Rohini RS-1	18-07-1980	Experimental	
4.	Rohini RS-D1	31-05-1981	Experimental	
5.	APPLE	19-06-1981	Experimental Communication	
6.	Bhaskara-2	20-11-1981	Earth Observations	
7.	Rohini RS-D2	17-04-1983	Earth Observations	
8.	IRS-1A	17-03-1988	Earth Observations	
9.	IRS-1B	29-08-1991	Earth Observations	
10.	SROSS-C	20-05-1992	Scientific Experiments	
11.	INSAT-2A	10-07-1992	Communication	
12.	INSAT-2B	23-07-1993	Communication	
13.	SROSS-C2	04-05-1994	Scientific Experiments	
14.	IRS-P2	15-10-1994	Earth Observations	
15.	INSAT-2C	07-12-1995	Communication	
16.	IRS-1C	28-12-1995	Earth Observations	
17.	IRS-P3	21-03-1996	Earth Observations	
18.	INSAT-2D	04-06-1997	Communication	
19.	IRS-1D	29-09-1997	Earth Observations	
20.	INSAT-2E	03-04-1999	Communication	
21.	OCEANSAT-1	26-05-1999	Ocean Observations	
22.	INSAT-3B	22-03-2000	Communication	
23.	GSAT-1	18-04-2001	Communication	
24.	TES	22-10-2001	Technology Experiments	
25.	INSAT-3C	24-01-2002	Communication	
26.	KALPANA-1	12-09-2002	Weather	

Indigenously built satellites successfully placed in space orbit				
(As on November 2015)				
SN	Satellite	Launch Date	Purpose of Satellite	
27.	INSAT-3A	10-04-2003	Communication and Weather	
28.	GSAT-2	08-05-2003	Communication	
29.	INSAT-3E	28-09-2003	Communication	
30.	Resourcesat-1	17-10-2003	Earth Observations	
31.	GSAT-3 (EDUSAT)	20-09-2004	Communication	
32.	CARTOSAT-1	05-05-2005	Earth Observations	
33.	HAMSAT	05-05-2005	Communication	
34.	INSAT-4A	22-12-2005	Communication	
35.	CARTOSAT-2	10-01-2007	Earth Observations	
36.	SRE-1	10-01-2007	Space Capsule Recovery Experiment	
37.	INSAT-4B	12-03-2007	Communication	
38.	INSAT-4CR	02-09-2007	Communication	
39.	CARTOSAT-2A	28-04-2008	Earth Observations	
40.	IMS-1	28-04-2008	Earth Observations	
41.	Chandrayaan-1	22-10-2008	Space Science	
42.	OCEANSAT-2	23-09-2009	Ocean Observations	
43.	CARTOSAT-2B	12-07-2010	Earth Observations	
44.	RESOURCESAT-2	20-04-2011	Earth Observations	
45.	YOUTHSAT	20-04-2011	Space Science	
46.	GSAT-8	21-05-2011	Communication & Navigation	
47.	GSAT-12	15-07-2011	Communication	
48.	Megha Tropiques	12-10-2011	Weather & Climate	
49.	RISAT-1	26-04-2012	Earth Observations	
50.	GSAT-10	29-09-2012	Communication & Navigation	
51.	SARAL	25-02-2013	Ocean Observations	

Indigenously built satellites successfully placed in space orbit (As on November 2015)			
SN	Satellite	Launch Date	Purpose of Satellite
52.	IRNSS-1A	01-07-2013	Navigation
53.	INSAT-3D	26-07-2013	Weather & Climate
54.	GSAT-7	30-08-2013	Communication
55.	Mars Orbiter Spacecraft	05-11-2013	Planetary Exploration
56.	GSAT-14	05-01-2014	Communication
57.	IRNSS-1B	04-04-2014	Navigation
58.	IRNSS-1C	16-10-2014	Navigation
59.	GSAT-16	07-12-2014	Communication
60.	IRNSS-1D	28-03-2015	Navigation
61.	GSAT-6	27-08-2015	Communication
62.	ASTROSAT	28-09-2015	Space Science
63.	GSAT-15	11-11-2015	Communication

Student Satellites of Indian Universities launched			
Satellite	Institution	Launch Date	Purpose
ANUSAT	Anna University, Tamilnadu	20-04-2009	Experimental
STUDSAT	Consortium of Engineering Colleges	12-07-2010	Experimental
SRMSat	SRM University, Tamilnadu	12-10-2011	Experimental
JUGNU	IIT, Kanpur, UP	12-10-2011	Experimental

## **ANNEXURE-2**

Satellites launched with the support from other countries			
SN	Satellite	Country	Launch Cost (₹ in crores)
1	Aryabhatta	Russia	free
2	Bhaskara-1	Buosia	free
3	Bhaskara-2	Russia	free
4	Apple	France	free
5	INSAT-1A		468.57
6	INSAT-1B	United States of	
7	INSAT-1C	America	
8	INSAT-1D		
9	IRS-1A	Duccio	7.50
10	IRS-1B	Russia	31.80
11	INSAT-2A		
12	INSAT-2B		785.10
13	INSAT-2C	France	
14	INSAT-2D		
15	INSAT-2E		
16	IRS-1C	Russia	60.31
17	INSAT-3A		
18	INSAT-3B		2273.63
19	INSAT-3C	France	
20	INSAT-3D		
21	INSAT-3E		
22	INSAT-4A	France	875.00
23	INSAT-4B		
24	GSAT-7	France	485.29
25	GSAT-8	France	297.00
26	GSAT-10	France	406.82
27	GSAT-15	France	601.19
28	GSAT-16	France	581.00

# ANNEXURE-3

F	OREIGN SATELLIT	ES PROPOSE 2015-	D TO BE LAU 17	JNCHED DURING		
SN	Satellite	Country	Mass (kg)	Tentative Launch schedule		
1.	TeLEOS-1	Singapore	425	2015		
2.	VELOX-C1 (NTU)		135			
3.	Kent Ridge-1 (NUS)		80			
4.	VELOX-II (NTU)		18			
5.	Athenoxat-1 (NTU)		8	-		
6.	Galassia (NUS)		5			
7.	BIROS	Germany	135			
8.	SkySat-Gen2-1	USA	110	_		
9.	LAPAN-A3	Indonesia	120			
10.	МЗМ	Canada	85			
11.	Maxvalier	Germany	20	-		
12.	Venta-1	Germany	20			
13.	GHGSat-D	Canada	28			
14.	NLS-19	Canada	7	0010		
15.	DOVE-6		20	2016		
16.	DOVE-7	USA				
17.	DOVE-8					
18.	Pathfinder-1	USA	50			
19.	ALSAT-2B		120			
20.	ALSAT-1B	Algeria	110			
21.	ALSAT-1N		7			
22.	Planet Iq-1		45			
23.	Planet Iq-2	USA	15			
24.	CE-SAT1	Japan	65			
25.	EnMAP	Germany	950	2017		

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