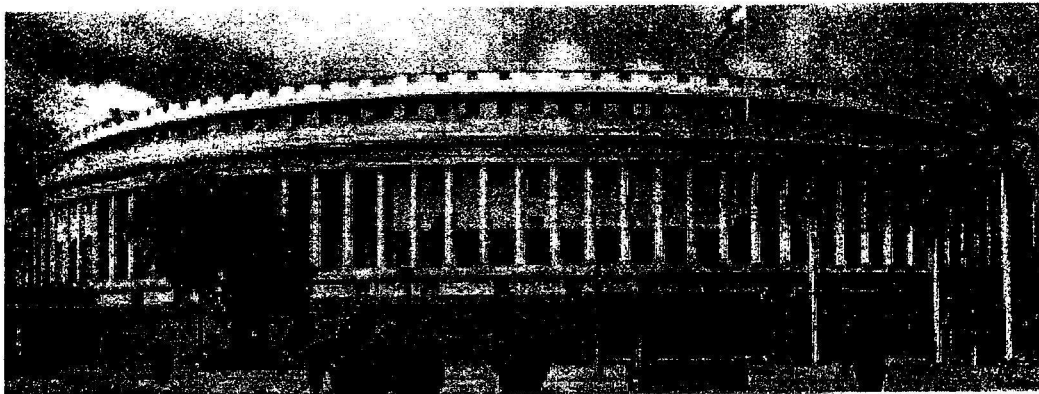




सत्यमेव जयते

**GOVERNMENT OF INDIA
DEPARTMENT OF SPACE**

"SPACE IN PARLIAMENT"



**BUDGET SESSION OF PARLIAMENT 2019
(JUNE – JULY 2019)**

**COMPILATION OF REPLIES GIVEN
IN PARLIAMENT DURING 2019**

**Government of India
Department of Space**

PARLIAMENT QUESTIONS – BUDGET SESSION OF PARLIAMENT 2019

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**GOVERNMENT OF INDIA
DEPARTMENT OF SPACE**

**LOK SABHA
UNSTARRED QUESTION NO.675**

TO BE ANSWERED ON WEDNESDAY, JUNE 26, 2019

INDIGENOUS GPS

675. SHRI RAJAN VICHARE:

Will the PRIME MINISTER be pleased to state:

- (a) whether the country is likely to get its own GPS soon and if so, the details thereof;**
- (b) whether ISRO has completed all the necessary preparation in this direction and if so, the details thereof; and**
- (c) whether ISRO has launched seven satellites for this indigenous GPS, the existence of which will obviate India's dependence of navigation on America 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) India's own regional navigation satellite system named as "Navigation with Indian Constellation (NavIC)" is already established by ISRO and is functional from April 2018 onwards.**

(b) & (c)

ISRO has completed all the necessary preparations with regard to establishment of Space Segment (currently Eight IRNSS satellites are in orbit) and Ground Segment (spread across India). The Seven satellites in the system are providing

Positioning, Navigation and Timing (PNT) services and one satellite (IRNSS-1A) is providing messaging services.

The potential of this indigenous system is being demonstrated in various application sectors viz. vehicle tracking system, mobiles, timing & power synchronization, fisheries, surveying etc. For example, all commercial vehicles registered from 1st April 2019 onwards are mandated to have vehicle trackers, which are also NavIC-enabled. More than 30 companies are manufacturing Automotive Research Association of India (ARAI) or International Centre for Automotive Technology (ICAT) approved NavIC-enabled vehicle trackers in India. Through the provision of these services, the dependence on the American-owned GPS could be obviated.

**GOVERNMENT OF INDIA
DEPARTMENT OF SPACE**

**LOK SABHA
UNSTARRED QUESTION NO.818**

TO BE ANSWERED ON WEDNESDAY, JUNE 26, 2019

ASIA PACIFIC REGIONAL SPACE AGENCY

818. SHRI HEMANT TUKARAM GODSE:

Will the PRIME MINISTER be pleased to state:

- (a) whether the Asia Pacific Regional Space Agency Forum has recommended that the established space agencies in the region should promote space applications, including rice crop monitoring, global rainfall monitoring, fire hotspot, haze monitoring and disaster management;**
- (b) if so, the details thereof; and**
- (c) the areas ISRO has been concentrating as far as the above said areas mentioned by Asia Pacific Regional Space Agency are concerned?**

ANSWER

**MINISTER OF STATE IN THE MINISTRY OF PERSONNEL, PG &
PENSIONS AND IN THE PRIME MINISTER'S OFFICE**

(DR. JITENDRA SINGH):

(a) & (b)

Yes Sir. Space Applications Working Group, one of the four Working Groups of Asia Pacific Regional Space Agency Forum (APRSAF), has recommended to further promote space applications in the region, including rice crop monitoring,

global rainfall monitoring, fire hotspot, haze monitoring and disaster management, at the 24th session of APRSAF held at Bengaluru in November 2017.

- (c) Indian Space Reseach Organisation (ISRO) carries out space applications in the above said areas primarily in the Indian region, while also supporting the Asia Pacific region with Indian satellite data and products.**

**GOVERNMENT OF INDIA
DEPARTMENT OF SPACE**

**LOK SABHA
UNSTARRED QUESTION NO.840**

TO BE ANSWERED ON WEDNESDAY, JUNE 26, 2019

SPACE POLICY

675. DR. SHASHI THAROOR:

Will the PRIME MINISTER be pleased to state:

- (a) whether the Ministry is contemplating a Space Policy for India to help resolve evolving issues of fixing liability in cases of damage caused by space equipment of a nation;**
- (b) if so, the details thereof;**
- (c) whether the absence of a concrete policy towards fixing liability complicates the matter of calculating the quantum of damages owed;**
- (d) if not, whether the Ministry has contemplated any other method to resolve such issues; and**
- (e) 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) Yes Sir.**
- (b) Currently a 'Space Activities Bill' is being processed, which is under pre-legislative consultations. India is a State Party to UN Treaties on Outer Space activities. The obligations under these**

treaties, such as international responsibility for national activities in outer space and liability for damages caused by its space activities and space objects are to be implemented through national/domestic legislations. The current Bill will enable the formulation of necessary Rules under the Space Activities Act, to deal with damages under the liability provisions and mode of securing financial guarantee for compensating the damages.

- (c) Yes Sir.**
- (d) Does not arise.**
- (e) Consequent to enactment of Space Activities Act, space activities of non-governmental sector in India would be authorized through a licence issued by the Government on certain terms and conditions. It would address the liability issues arising from their space activities, in a suitable/ rational manner, at par with international practices.**

**GOVERNMENT OF INDIA
DEPARTMENT OF SPACE**

**LOK SABHA
UNSTARRED QUESTION NO.858**

TO BE ANSWERED ON WEDNESDAY, JUNE 26, 2019

COMMUNICATION GADGETS TO FISHING VESSELS

858. SHRI BENNY BEHANAN:

Will the PRIME MINISTER be pleased to state:

- (a) whether the Government has provided communication gadgets to fishing vessels, specially in Kerala;**
- (b) if so, the details thereof;**
- (c) whether the Government has decided to distribute NavIC, a satellite-enabled communication gadget developed by ISRO;**
- (d) if so, whether it has been implemented; and**
- (e) if not, the reasons therefor?**

ANSWER

**MINISTER OF STATE IN THE MINISTRY OF PERSONNEL, PG &
PENSIONS AND IN THE PRIME MINISTER'S OFFICE**

(DR. JITENDRA SINGH):

(a) & (b)

ISRO has provided 250 NavIC Messaging Receivers (NMR) to fishermen of Kerala respectively on a trial basis. This device provides Emergency Warning Alerts like cyclone, high waves and Tsunami and also provides information on Potential Fishing Zone and International boundary crossing based on the position information from NavIC.

(c), (d) & (e)

ISRO/Antrix have taken up the responsibility of providing NavIC devices on trial basis. Around 200 devices for Tamil Nadu and 250 devices for Kerala are distributed. A few numbers, viz. 8 and 10 respectively are provided to fishermen of Andhra Pradesh and Karnataka States for trial exercises.

**GOVERNMENT OF INDIA
DEPARTMENT OF SPACE**

**LOK SABHA
UNSTARRED QUESTION NO.865**

TO BE ANSWERED ON WEDNESDAY, JUNE 26, 2019

SPACE RESEARCH AND TECHNOLOGY

865. SHRIMATI RAMYA HARIDAS:

Will the PRIME MINISTER be pleased to state:

- (a) whether the Government has evolved and laid down any policy about linking space research related Government establishments to the contemporary development needs of the lives of the people in general and if so, the details thereof and if not, the reasons therefor;**
- (b) whether there is any practice of appealing Government departments for promoting use of space technology for governance and public administration; and**
- (c) if so, the details thereof and if not, the reasons therefor?**

ANSWER

MINISTER OF STATE IN THE MINISTRY OF PERSONNEL, PG & PENSIONS AND IN THE PRIME MINISTER'S OFFICE

(DR. JITENDRA SINGH):

- (a) Indian Space Research Organisation (ISRO), since its inception, has been driven by the objective of harnessing the benefits of space technology for national development and improving the lives of the people. The satellite enabled data and services are being used to improve the living standards of people. These include Television broadcasting, Direct-to-Home, ATM, Mobile communication, tele-education, tele-medicine and advisories on**

weather, pest infestation, agro-meteorology and potential fishing zones. Satellite data is also used for crop production estimation, crop intensification, agricultural drought assessment, wasteland inventory, identifying ground water prospect zones, inland aquaculture suitability and disaster risk reduction, which indirectly benefits the people.

(b) & (c)

Yes, Sir. In order to promote use of space technology for governance and public administration, Department of Space had formed expert working groups in ISRO for proactive interaction with the Government departments and prepared the joint action plan on "Effective use of Space Technology in Governance & Development". These action plans were deliberated in One Day National Meet held in New Delhi in September 2015, with the participation of all the Central Government Ministries/ Departments. The projects that emerged out of this Meet in the areas of Natural Resources Management, Planning, Monitoring & Decision Making and Disaster Risk Reduction have been executed. Further, to promote utilization of space technology in State Government Departments, State level workshops have also been conducted in 18 states.

Several training programmes have been conducted at Lal Bahadur Shastri National Academy of Administration (LBSNAA), DoPT and Institute of Secretariat Training & Management (ISTM), DoPT on space technology based applications for sensitization of officials at different levels of public administration. More than 1150 officials have been benefitted so far.

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**GOVERNMENT OF INDIA
DEPARTMENT OF SPACE**

**LOK SABHA
UNSTARRED QUESTION NO.1810**

TO BE ANSWERED ON WEDNESDAY, JULY 03, 2019

SPACE TOURISM

1810. SHRI SHIVAKUMAR C. UDASI:

Will the PRIME MINISTER be pleased to state:

- (a) whether at present there are no laws governing space tourism in India and the Government is considering to make a law on space tourism and if so, the details thereof;**
- (b) whether the Government in collaboration with other countries has evolved a strategic plan to explore possibilities in space tourism and if so, the details thereof;**
- (c) whether Indian Space Research Organisation (ISRO) is planning for development of technology regarding space tourism; and**
- (d) if so, the details thereof and the benefits likely to accrue as a result thereof?**

ANSWER

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

- (a) Yes Sir. There are no laws governing space tourism in India. Government is not considering to make a law specifically on space tourism.**
- (b) No Sir.**
- (c) No Sir.**
- (d) Does not arise.**

**GOVERNMENT OF INDIA
DEPARTMENT OF SPACE**

**LOK SABHA
UNSTARRED QUESTION NO.1967**

TO BE ANSWERED ON WEDNESDAY, JULY 03, 2019

SEARCH FOR LIFE ON OTHER PLANETS

1967. SHRI KUNWAR PUSHPENDRA SINGH CHANDEL:

Will the PRIME MINISTER be pleased to state:

- (a) whether the Government has made any proposal regarding search for life on new space objects and other planets ;**
- (b) if so, the details thereof;**
- (c) whether the Government has any scheme to promote new research works in space science;**
- (d) if so, the details thereof; and**
- (e) the details of the funds spent on space sector along with the new techniques patented during the last three years and the current year?**

ANSWER

**MINISTER OF STATE IN THE MINISTRY OF PERSONNEL, PG &
PENSIONS AND IN THE PRIME MINISTER'S OFFICE**

(DR. JITENDRA SINGH):

(a) & (b)

At present, ISRO's planetary missions are exploring the composition of the surface and atmosphere of planetary bodies with remote sensing tools in addition to high-resolution visible imaging to understand the terrain and topography. Our future missions to solar system may explore evidences for organics and future landing missions may include experiments to search for evidence of life.

(c) & (d)

Department of Space has established one Regional Academic Centre for Space (RAC-S) at MNIT Jaipur. Department of Space has also signed an MoU with Central University of Jammu for establishment of a Centre for Space Science.

(e) **A seed funding of ₹ 2 Crores is offered to RAC-S to start with, which can be enhanced as the project progresses. All the above initiatives are in the initial phase of getting established; therefore no patents are filed as of now.**

**GOVERNMENT OF INDIA
DEPARTMENT OF SPACE**

**LOK SABHA
UNSTARRED QUESTION NO.1972**

TO BE ANSWERED ON WEDNESDAY, JULY 03, 2019

SPACE MISSIONS

1972. SHRI GAJANAN KIRTIKAR:

SHRI BIDYUT BARAN MAHATO:

Will the PRIME MINISTER be pleased to state:

- (a) the details of space missions/programmes launched in the country during the last three years and the current year;**
- (b) whether the Government has proposed any space programme for launch during the coming years;**
- (c) if so, the details thereof;**
- (d) whether the Government has also proposed any inter-planetary mission during the coming years; and**
- (e) if so, the details thereof indicating the amount sanctioned for the purpose?**

ANSWER

**MINISTER OF STATE IN THE MINISTRY OF PERSONNEL, PG &
PENSIONS AND IN THE PRIME MINISTER'S OFFICE**

(DR. JITENDRA SINGH):

- (a) The details of the space missions during the last three years and the current year are as follows:**

Sl. No.	Launch Date	Launch Vehicle	Satellite Name
1.	28/04/2016	PSLV-C33	IRNSS-1G
2.	23/05/2016	RLV-Technology Demonstrator	
3.	22/06/2016	PSLV-C34	Cartosat-2C + 2 Student Satellites + 6 Foreign Satellites
4.	28/08/2016	SCRAMJET- Technology Demonstrator	
5.	08/09/2016	GSLV-F05	INSAT-3DR
6.	26/09/2016	PSLV-C35	SCATSAT-1 + 2 Student Satellites + 5 Foreign Satellites
7.	06/10/2016	Foreign Launcher	GSAT-18
8.	07/12/2016	PSLV-C36	Resourcesat-2A
9.	15/02/2017	PSLV-C37	Cartosat-2D+ 2 Nano Satellites + 7 Foreign Satellites
10.	05/05/2017	GSLV-F09	GSAT-9
11.	05/06/2017	GSLV-MkIII-D1	GSAT-19
12.	23/06/2017	PSLV-C38	Cartosat-2E + 1 Student Satellite + 20 Foreign Satellites
13.	29/06/2017	Foreign Launcher	GSAT-17
14.	31/08/2017	PSLV-C39	IRNSS-1H
15.	12/01/2018	PSLV-C40	CartoSat-2 Series + 1 Micro Satellite + 1 Nano Satellite + 19 Foreign Satellites
16.	29/03/2018	GSLV-F08	GSAT-6A

17.	12/04/2018	PSLV-C41	IRNSS-1I
18.	14/11/2018	GSLV-MkIII-D2	GSAT-29
19.	29/11/2018	PSLV-C43	HysIS
20.	05/12/2018	Foreign Launcher	GSAT-11
21.	19/12/2018	GSLV-F11	GSAT-7A
22.	24/01/2019	PSLV-C44	Microsat-R + Kalamsat-V2
23.	06/02/2019	Foreign Launcher	GSAT-31
24.	01/04/2019	PSLV-C45	EMISAT
25.	22/05/2019	PSLV-C46	RISAT-2B

(b) Yes, Sir.

(c) The details of the upcoming space missions are as follows:

Sl. No.	Mission	2019-20	2020-21
1.	Earth Observation Satellites	9	10
2.	Communication Satellites	3	4
3.	Navigation Satellites	0	2
4.	Space Science Satellites	2	1
5.	Technology Demonstrator	1	1
6.	PSLV	9	10
7.	GSLV Mk II	2	3
8.	GSLV Mk III	3	4

9.	Small Satellite Launch Vehicle	3	2
10.	Gaganyaan	0	1 (Unmanned)
	TOTAL	32	38

(d) **Yes, Sir.**

(e) **The details are as follows:**

Sl. No.	Satellite	Sanctioned amount
1.	Chandrayaan-2	₹ 603.00 Crores
2.	Aditya-L1	₹ 378.53 Crores

O.I.H.

**GOVERNMENT OF INDIA
DEPARTMENT OF SPACE**

**LOK SABHA
UNSTARRED QUESTION NO.2005**

TO BE ANSWERED ON WEDNESDAY, JULY 03, 2019

SPACE TECHNOLOGY

2005. SHRI JANARDAN MISHRA:

Will the PRIME MINISTER be pleased to state:

- (a) whether there is a need for imparting training to the young persons in space technology;**
- (b) if so, the steps taken/being taken by the Government in this regard; and**
- (c) the details of other plans of the Government in this regard?**

ANSWER

**MINISTER OF STATE IN THE MINISTRY OF PERSONNEL, PG &
PENSIONS AND IN THE PRIME MINISTER'S OFFICE**

(DR. JITENDRA SINGH):

- (a) Yes Sir.**
- (b) ISRO has started an annual program called "Young Scientist Programme (Yuvika-2019), on May 13, 2019. A total of 111 students representing each State and Union Territory of India were brought for fifteen days to four ISRO Centers. The programme was primarily aimed at imparting basic knowledge on Space Technology, Space Science and Space Applications. A special session was also arranged for interaction with eminent space scientists.**

- (c) **Indian Space Research Organisation has developed a capacity building program “UNNATI” for development of nano satellites for the participants from other countries. First batch of this programme was successfully concluded on March 15, 2019 benefiting 29 participants from 17 countries.**

**GOVERNMENT OF INDIA
DEPARTMENT OF SPACE**

**LOK SABHA
UNSTARRED QUESTION NO.2013**

TO BE ANSWERED ON WEDNESDAY, JULY 03, 2019

SPACE STATION

2013. SHRI SYED IMTIAZ JALEEL:

SHRIMATI POONAMBEN MAADAM:

SHRI ASADUDDIN OWAISI:

Will the PRIME MINISTER be pleased to state:

- (a) the details of countries which have their own space station at present;**
- (b) whether the Government proposes to set up its own space station within next seven years and if so, the details thereof;**
- (c) the budget estimates for this purpose and whether the same has been approved by the Government;**
- (d) whether any collaboration with foreign countries is proposed for this purpose and if so, the details thereof;**
- (e) the details of benefits likely to be derived from the said space station;**
- (f) whether this project will be an extension of the 'Gaganyaan' programme and if so, the details thereof; and**
- (g) the extent to which 'Make in India' initiative is likely to contribute to this project?**

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

- (a) **Currently, the operational Space station is International Space Station (ISS) orbiting at an altitude of 400 km. ISS is operated by five space agencies and they are NASA (United States), Roscosmos (Russia), CSA (Canada), JAXA (Japan) and ESA (Belgium, Denmark, France, Germany, Italy, Netherlands, Norway, Spain, Sweden, Switzerland and United Kingdom).**
- (b) **Space station is an integral element of human spaceflight programme as they allow sustained human presence in space to carry out meaningful research. India's plan of space station is a long term plan after successful operationalization of Gaganyaan.**
- (c) **The program is at a very nascent stage.**
- (d) **Foreign collaborations are not yet finalised.**
- (e) **The space station will provide a research platform that cannot be matched on earth. The expected benefits are likely in the areas of human health, telemedicine, vaccine development, material development, disaster relief, efficient farming techniques, food and water conservation, waste management techniques, environmental research and education programmes that inspire the youth.**

- (f) **Yes Sir, Space Station is an extension of Gaganyaan program. Technologies like Human rated version of GSLV Mk-III, orbital module to ferry crew, life support system etc, developed for Gaganyaan will be used for space station program. The space station design will be modular with initial modules weighing approximately 20 tons and will have provision for extended stay for 3 crew members.**
- (g) **As in Gaganyaan programme where more than 650 industries are participating to realize the flight and ground systems, “Make in India” initiative will be a major driver for the success of space station programme in realization of materials, avionics, fabrication, testing as well as integration of flight systems.**

**GOVERNMENT OF INDIA
DEPARTMENT OF SPACE**

**LOK SABHA
UNSTARRED QUESTION NO.2019**

TO BE ANSWERED ON WEDNESDAY, JULY 03, 2019

PRIVATE PARTICIPATION IN SPACE SECTOR

2019. DR. SANJAY JAISWAL:

Will the PRIME MINISTER be pleased to state:

- (a) whether the Government is aware of the growing contribution of private sector and startups in space industry worldwide;**
- (b) if so, the details thereof along with the steps taken by the Government to encourage private sector participation in India's space programme during the last five years; and**
- (c) if not, the reasons therefor along with the other steps being taken by the Government for the growth of space industry?**

ANSWER

**MINISTER OF STATE IN THE MINISTRY OF PERSONNEL, PG &
PENSIONS AND IN THE PRIME MINISTER'S OFFICE**

(DR. JITENDRA SINGH):

- (a) Yes Sir.**
- (b) A large number of big, medium and small private companies are contributing to India's Space Programme for over three decades. There is a well established supply chain system from the private sector industries across the country that produces and delivers majority of the hardware and sub-systems for our Nation's Space Programme. In addition, Government has also taken steps to support start-ups who are willing to contribute**

to space technology through Department of Space. Towards this, Space Technology Incubation Centres (S-TIC) are getting established across the country where start-ups can take up Space Projects with the support of academia and ISRO guidance along with funding, on a limited basis, for the projects taken up.

(c) Does not arise.

**GOVERNMENT OF INDIA
DEPARTMENT OF SPACE**

**LOK SABHA
UNSTARRED QUESTION NO.2765**

TO BE ANSWERED ON WEDNESDAY, JULY 10, 2019

SETTING OF SPACE STATION

**2765. SHRI D.K.SURESH:
PROF. SAUGATA RAY:
SHRI NALIN KUMAR KATEEL:**

Will the PRIME MINISTER be pleased to state:

- (a) whether the Government proposes to have its own space station;**
- (b) if so, the details thereof;**
- (c) whether the Government has taken steps to work out the modalities for it and if so, the details thereof;**
- (d) whether the Government has set any time frame for the setting up of space station;**
- (e) if so, the time by which it is likely to be materialized;**
- (f) whether the proposed space station is a habitable artificial satellite in low earth orbit; and**
- (g) 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) & (b) Yes Sir. The activities associated with Space station will be an extension of Gaganyaan Programme.**

(c) & (d) No Sir.

(e) Does not arise.

(f) & (g) Yes Sir. The proposed space station will be a habitable artificial satellite in low earth orbit. It will be a platform for conducting scientific research, simulating sustainable microgravity environment. The key target areas for research are crystal growth, space agriculture, cell and tissue growth and pharmaceutical research, human physiology, space medicine, etc.

**GOVERNMENT OF INDIA
DEPARTMENT OF SPACE**

**LOK SABHA
UNSTARRED QUESTION NO.2796**

TO BE ANSWERED ON WEDNESDAY, JULY 10, 2019

SPACE STATION AND MANNED SPACE MISSION

2796. SHRI GAJANAN KIRTIKAR:

SHRI SANJAY SADASHIV RAO MANDLIK:

SHRI SUDHEER GUPTA:

Will the PRIME MINISTER be pleased to state:

- (a) whether India proposes to establish its own space station and if so, the details thereof along with the present status of India's first manned space mission, Gaganyaan;**
- (b) whether the modalities regarding space stations have been worked out by the Government and if so, the details thereof;**
- (c) whether India also proposes to send first human mission to space by 2022 and if so, the details thereof and the steps taken in this direction; and**
- (d) whether ISRO has signed an MoU with Indian Air Force to select and train astronauts 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) Yes Sir. The activities associated with Space station will be an extension of Gaganyaan Programme.**

Gaganyaan Programme status: The design and configuration of major subsystems are finalised. The qualification tests pertaining to human rating of flight systems has commenced and Cryogenic Engine tests are in progress. The crew training plan is finalised and the crew selection process has commenced.

- (b) **No Sir.**
- (c) **Yes Sir. The Gaganyaan Programme has been approved by the Government of India and a new centre in ISRO, namely Human Space Flight Centre (HSFC) is created to carry out the activities related to human spaceflight. The Gaganyaan project team has been identified.**
- (d) **Yes, Sir. ISRO has signed a MoU with Indian Air Force for Crew Management Activities for Indian Human Spaceflight Programme. The scope of MoU includes co-operation in Crew screening and selection, crew health management, post travel rehabilitation etc.**

**GOVERNMENT OF INDIA
DEPARTMENT OF SPACE**

**LOK SABHA
UNSTARRED QUESTION NO.3921**

TO BE ANSWERED ON WEDNESDAY, JULY 17, 2019

HELP OF ISRO IN OIL EXPLORATION

3921. SHRI A. GANESHAMURTHI:

Will the PRIME MINISTER be pleased to state:

- (a) whether the ISRO has received any request from any private companies in India and sought the assistance of ISRO scientists for their oil and gas exploration;**
- (b) if so, the details thereof;**
- (c) the total number of such requests received from private companies in the past; and**
- (d) the action taken by the Government on these requests?**

ANSWER

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

(a) No Sir.

(b) to (d)

Do not arise.

**GOVERNMENT OF INDIA
DEPARTMENT OF SPACE**

**LOK SABHA
UNSTARRED QUESTION NO.3925**

TO BE ANSWERED ON WEDNESDAY, JULY 17, 2019

INDIAN SATELLITES IN SPACE

3925. SHRI T.N. PRATHAPAN:

Will the PRIME MINISTER be pleased to state:

- (a) whether many satellites of India are there in the international space centre and if so, the details thereof;**
- (b) whether the Government has plans to launch more satellites in the near future and if so, the details of the projects;**
- (c) whether there is any non-working satellite of India in the international space centre;**
- (d) if so, the details thereof;**
- (e) whether the Government has taken any action to overcome the challenge of recent crisis that some other nations faced due to the collapse and collision of old non-working satellites in the international space centre; and**
- (f) 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) No Sir.**
- (b) No Sir.**

(c) & (d)

Do not arise.

(e) Yes Sir.

(f) ISRO is a member of Inter Agency Space Debris Co-ordination Committee involving all major space agencies. ISRO has been actively working in this area to reduce the risks related to accidental satellite collisions and space debris.

**GOVERNMENT OF INDIA
DEPARTMENT OF SPACE**

**LOK SABHA
UNSTARRED QUESTION NO.3969**

TO BE ANSWERED ON WEDNESDAY, JULY 17, 2019

CHANDRAYAAN-II

3969. DR. M.K. VISHNU PRASAD:

SHRI KIRTI VARDHAN SINGH:

Will the PRIME MINISTER be pleased to state:

- (a) the details of Chandrayaan-II mission;**
- (b) the time by which this mission would take-off for the journey;**
- (c) the manoeuvres worked out for the soft landing of spacecraft on Moon; and**
- (d) the communication and photo images planned during the sojourn?**

ANSWER

**MINISTER OF STATE IN THE MINISTRY OF PERSONNEL, PG &
PENSIONS AND IN THE PRIME MINISTER'S OFFICE**

(DR. JITENDRA SINGH):

- (a) Chandrayaan-2 Mission is the second lunar mission from ISRO. The prime objective is the demonstration of soft landing on moon. The mission consists of Orbiter, Lander (named Vikram) and Rover (named Pragyan).**
- (b) Chandrayaan-2 Mission was planned to be launched on 15th July 2019. However, due to technical snag observed in launch vehicle system, Chandrayaan-II launch was postponed. The revised launch date will be announced later once decided.**

- (c) **All the required manoeuvres and mission management strategy has been worked out for the soft landing of the spacecraft on Moon. The same have been reviewed and finalized.**
- (d) **The communication links and networks have been planned for the sojourn. The photo images are planned to be taken after reaching the Moon orbit and after landing.**

**GOVERNMENT OF INDIA
DEPARTMENT OF SPACE**

**LOK SABHA
UNSTARRED QUESTION NO.5042**

TO BE ANSWERED ON WEDNESDAY, JULY 24, 2019

LOCATION OF OIL AND GAS RESERVES

5042. SHRI M. SELVARAJ:

Will the PRIME MINISTER be pleased to state:

- (a) whether some private companies in India are using the satellites launched by ISRO to identify the locations of oil and gas stockpiles and if so, the details thereof;**
- (b) whether the private companies are paying any service charges to ISRO for utilisation of these satellites and if so, the details thereof;**
- (c) whether these private companies have made any agreements with ISRO for utilising these satellites; and**
- (d) 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) Department of Space/ISRO has not sold any satellite data to any private company in India to identify the locations of oil and gas stockpiles.**
- (b), (c) Do not arise.**
- & (d)**

**GOVERNMENT OF INDIA
DEPARTMENT OF SPACE**

**LOK SABHA
UNSTARRED QUESTION NO.5242**

TO BE ANSWERED ON WEDNESDAY, JULY 24, 2019

NEW SPACE INDIA LIMITED

5242. SHRI A.K.P. CHINRAJ:

SHRI A. GANESHAMURTHI:

Will the PRIME MINISTER be pleased to state:

- (a) whether the Union Government has any plans to set up a public sector enterprise 'New Space India Limited' (NSIL) similar to that of the existing Antrix Corporation to tap the benefits of research and development carried out by the ISRO;**
- (b) if so, the details thereof along with the role and functions of the proposed NSIL;**
- (c) the circumstances which has led to the setting up of the new NSIL at this juncture;**
- (d) the total number of satellites commercially launched by Antrix Corporation during the last three years; and**
- (e) the total income/revenue earned by Antrix Corporation during the said period?**

ANSWER

**MINISTER OF STATE IN THE MINISTRY OF PERSONNEL, PG &
PENSIONS AND IN THE PRIME MINISTER'S OFFICE**

(DR. JITENDRA SINGH):

- (a) The Union Government has already set up NewSpace India Limited (NSIL), a wholly owned Government of India Undertaking/ Central Public Sector Enterprise (CPSE), under the administrative control of Department of Space (DOS) on**

06th March 2019 to commercially exploit the research and development work of Indian Space Research Organisation (ISRO) Centres and constituent units of DOS.

- (b) NSIL has been incorporated to carry out the following roles and functions as part of its mandate viz. (i) Small Satellite technology transfer to industry, wherein NSIL will obtain license from DOS/ISRO and sub-license it to industries; (ii) Manufacture of Small Satellite Launch Vehicle (SSLV) in collaboration with Private Sector; (iii) Productionisation of Polar Satellite Launch Vehicle (PSLV) through Indian Industry; (iv) Productionisation and marketing of Space based products and services, including launch and application; (v) Transfer of technology developed by ISRO Centres and constituent units of DOS; (vi) Marketing spin-off technologies and products/services, both in India and abroad; and (vii) any other subject which Government of India deems fit.
- (c) NSIL was set up to meet the ever-increasing demands of Indian space programme and to commercially exploit the emerging global space market. The emergence of NSIL would spur the growth of Indian industries in the space sector and enable Indian industries to scale up manufacturing and production base.
- (d) A total of 239 satellites were commercially launched by Antrix Corporation Limited during the last three years.
- (e) The total revenue from operations during the last three years is ₹ 6289.05 Crores.

GOVERNMENT OF INDIA
DEPARTMENT OF SPACE

**RAJYA SABHA
STARRED QUESTION NO. 64**

TO BE ANSWERED ON THURSDAY, JUNE 27, 2019

PROGRESS OF CHANDRAYAAN-2 MISSION

*64. DR. T. SUBBARAMI REDDY:

Will the PRIME MINISTER be pleased to state:

- (a) the details of progress of Chandrayaan-2 mission;
- (b) when the mission would take-off for the journey;
- (c) the manoeuvres worked out for soft landing of the spacecraft on the moon; and
- (d) the communication and photo images planned during the sojourn?

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 RAJYA SABHA IN REPLY TO STARRED QUESTION NO.64 REGARDING "PROGRESS OF CHANDRAYAAN-2 MISSION" ASKED BY DR. T. SUBBARAMI REDDY FOR ANSWER ON THURSDAY, JUNE 27, 2019.

- (a) Chandrayaan-2 mission consists of indigenous Orbiter, Lander and Rover. All the three modules are ready and have been transported to Sriharikota for launch preparations.
- (b) Chandrayaan-2 mission is scheduled for launch during third week of July 2019 on-board GSLV Mk-III from Sriharikota.
- (c) The spacecraft carries the Orbiter and Lander as a combined module till reaching 100 km lunar orbit. The Lander will be separated from the Orbiter and a manoeuver is performed to attain 100 x 30 km orbit. After four days of validating the performance of all the sub-systems, powered descent manoeuver will be initiated to achieve soft landing on the pre-determined landing site. Subsequently, Rover will be deployed from the Lander.
- (d) Direct communication between Orbiter - Indian Deep Space Network (IDSN) and between Lander - IDSN is planned. Rover communication is through the Lander. It is ensured that communication is possible between IDSN and Chandrayaan-2 during all phases of the mission. The Orbiter has two cameras, Terrain Mapping Camera-2 (TMC-2) and Orbiter High Resolution Camera (OHRC) for imaging the lunar surface. Post landing, lander and Rover images will be used for imaging the Lander, Rover and landing site region

GOVERNMENT OF INDIA
DEPARTMENT OF SPACE

**RAJYA SABHA
UNSTARRED QUESTION NO. 737**

TO BE ANSWERED ON THURSDAY, JUNE 27, 2019

**NEW COMPANY FOR COMMERCIAL EXPLOITATION OF
RESEARCH AND DEVELOPMENT**

737. DR. K.V.P. RAMACHANDRA RAO:

Will the PRIME MINISTER be pleased to state:

- (a) whether Government is setting up a new company under the Department of Space to commercially exploit the research and development works;
- (b) if so, the details thereof; and
- (c) what would be the functions of this company and how this would bring additional benefits to Government in comparison to the existing set up?

ANSWER

MINISTER OF STATE IN THE MINISTRY OF PERSONNEL, PG &
PENSIONS AND IN THE PRIME MINISTER'S OFFICE

(DR. JITENDRA SINGH):

- (a) Yes, Sir.
- (b) NewSpace India Limited (NSIL), has been incorporated on 06th March 2019, as a wholly owned Government of India Undertaking/Central Public Sector Enterprise (CPSE), under the administrative control of Department of Space (DOS) to commercially exploit the research and development work of Indian Space Research Organisation (ISRO) Centres and constituent units of DOS.
- (c) NSIL functions involve viz. (i) Small Satellite technology transfer to industry, wherein NSIL will obtain license from DOS/ISRO and sub-license it to industries; (ii) Manufacture of Small Satellite Launch Vehicle (SSLV) in collaboration with Private Sector; (iii) Productionisation of Polar Satellite Launch Vehicle (PSLV) through Indian Industry; (iv) Productionisation and marketing of Space based products and services, including launch and application; (v) Transfer of technology developed by ISRO Centres and constituent units of DOS; (vi) Marketing spin-off technologies and products/services, both in India and abroad; and (vii) any other subject which Government of India deems fit.

The above mentioned mandate for NSIL would enable Indian Industries to scale up high-technology manufacturing and production base for meeting the growing needs of Indian space programme and would further spur the growth of Indian Industries in the space sector.

GOVERNMENT OF INDIA
DEPARTMENT OF SPACE

OIH

**RAJYA SABHA
UNSTARRED QUESTION NO. 738**

TO BE ANSWERED ON THURSDAY, JUNE 27, 2019

STATUS OF GAGANYAAN PROJECT

738. SHRI REWATI RAMAN SINGH:

Will the PRIME MINISTER be pleased to state:

- (a) the present status of Gaganyaan project previously carried out by Government;
- (b) whether it is a fact that India is taking help from Russia and France for this project; and
- (c) 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) Gaganyaan project is approved by Government of India and is operating under a newly formed Centre, Human Space Flight Centre (HSFC). Gaganyaan Project team is identified and appropriate management system is in place. The design activities are progressing for the targeted manned flight in December 2021.
- (b) Yes, Sir. In order to meet the stringent schedule, help is being sought from Russia and France for human centric systems, where ISRO would gain experience.
- (c) The specific areas for collaboration have been identified wherein Russia and France could help in meeting the Gaganyaan schedule. Discussions are in advanced stage with Russia in the areas of environmental control and life support system and part of the crew selection & training. With France, discussions are proceeding with respect to training of Flight surgeons and long term activities on bioastronautics, combined development and experiments in space medicine area.

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GOVERNMENT OF INDIA
DEPARTMENT OF SPACE

**RAJYA SABHA
UNSTARRED QUESTION NO. 1530**

TO BE ANSWERED ON THURSDAY, JULY 04, 2019

SPACE STATION TO CONDUCT MICROGRAVITY EXPERIMENTS

1530. SHRIMATI AMBIKA SONI:

DR. T. SUBBARAMI REDDY:

Will the PRIME MINISTER be pleased to state:

- (a) whether Indian Space Research Organisation (ISRO) has proposed to build its own space station to conduct microgravity experiments;
- (b) if so, the details thereof and by when it would be built;
- (c) the cost of building the space station; and
- (d) whether it would also be made available for collaborative research purpose with other countries?

ANSWER

MINISTER OF STATE IN THE MINISTRY OF PERSONNEL, PG &
PENSIONS AND IN THE PRIME MINISTER'S OFFICE

(DR. JITENDRA SINGH):

(a) & (b)

Yes Sir, the activities associated with Space station will be an extension of Gaganyaan Programme. The schedule is not worked out yet.

(c) & (d)

The cost and international collaborations are not yet finalised.

**RAJYA SABHA
UNSTARRED QUESTION NO. 1531**

TO BE ANSWERED ON THURSDAY, JULY 04, 2019

EARTH OBSERVATION SATELLITE RISAT-2B

1531. DR. T. SUBBARAMI REDDY:

SHRIMATI AMBIKA SONI:

Will the PRIME MINISTER be pleased to state:

- (a) whether Government has successfully put into orbit earth observation satellite RISAT-2B, that can penetrate clouds and enhance surveillance capabilities;
- (b) if so, the details thereof;
- (c) whether it could take images of earth during night also;
- (d) the areas of applications of the satellite and whether it includes agriculture and disaster management support; and
- (e) 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) Yes Sir.

(b) & (c)

RISAT-2B is an indigenously developed Synthetic Aperture Radar (SAR) Imaging Satellite operating in the X-band. The highly agile satellite is capable of operating in different modes including Very High Resolution RADAR imaging modes of 1m x 0.5m resolution and 0.5m x 0.3m resolution. In order to increase the number of imaging opportunities, the satellite is placed in an inclined orbit. As, RISAT-2B is a Radar Imaging satellite; it can be operated effectively during day / night / all weather conditions.

(d) The Satellite will be used for high resolution spot imaging of locations of interest. Apart from this, data from RISAT-2B will also be utilized for agriculture applications and disaster management support.

(e) Applications of X-Band SAR imagery include Hydrology, Crops, Forestry, Geosciences and Cryosphere. During the time of exigencies, very high resolution, day/night/all-weather imaging capabilities of RISAT-2B could be utilized for Disaster Management Support.

GOVERNMENT OF INDIA
DEPARTMENT OF SPACE

RAJYA SABHA
UNSTARRED QUESTION NO. 1532

TO BE ANSWERED ON THURSDAY, JULY 04, 2019

LAUNCHING OF SPACE STATION

1532. SHRI DEREK O'BRIEN:

Will the PRIME MINISTER be pleased to state:

- (a) whether Government has developed an action plan to launch a space station by 2030 and if so, the details thereof; and
- (b) whether Government is collaborating with any other country for this project?

ANSWER

MINISTER OF STATE IN THE MINISTRY OF PERSONNEL, PG &
PENSIONS AND IN THE PRIME MINISTER'S OFFICE

(DR. JITENDRA SINGH):

- (a) No Sir. The activities associated with Space station being an extension of Gaganyaan Programme, will be taken up after the demonstration of Human space flight.
- (b) Not yet finalised.

GOVERNMENT OF INDIA
DEPARTMENT OF SPACE

RAJYA SABHA
UNSTARRED QUESTION NO. 2170

TO BE ANSWERED ON THURSDAY, JULY 11, 2019

CREATION OF GAGANYAAN NATIONAL ADVISORY COUNCIL

2170. SHRI R. VAITHILINGAM:

Will the PRIME MINISTER be pleased to state:

- (a) whether it is a fact that the Gaganyaan project is on track to be realized by the 75th Independence day or earlier;
- (b) if so, the details thereof;
- (c) whether it is also a fact that a Gaganyaan National Advisory Council has been created with members from different institutions and industries; and
- (d) 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) Yes Sir.
- (b) The design and configuration of major subsystems are finalised. The qualification tests pertaining to human rating of flight systems has commenced and Cryogenic Engine tests are in progress. The crew training plan is finalised and the crew selection process has commenced.
- (c) Yes Sir.
- (d) The Gaganyaan Advisory Council comprises of Secretaries of Department of Space, Department of Science and Technology, Department of Defence Research and Development, Department of Scientific and Industrial Research, Principal Scientific Advisor to PM, Senior Officials from Armed Forces, Indian Coast Guard, Former Chairman of ISRO, Member of Space Commission, Former Director of Aeronautical Development Agency, Former Indian Astronaut, Directors of Premier Academic and Research Institutions and Heads of various Indian Industries.

GOVERNMENT OF INDIA
DEPARTMENT OF SPACE

**RAJYA SABHA
UNSTARRED QUESTION NO. 2954**

TO BE ANSWERED ON THURSDAY, JULY 18, 2019

LAUNCHING OF STUDENT SATELLITES

2954. SHRI T. RATHINAVEL:

Will the PRIME MINISTER be pleased to state:

- (a) whether India lags behind in launching of satellites developed by students;
- (b) whether it is a fact that during the last three to five years, other countries have launched about 3,500 such satellites that demonstrated innovative technologies;
- (c) whether it is also a fact that another 2,500 such satellites would be launched in the near future; and
- (d) if so, the steps taken by Government to catch up with international counterparts?

ANSWER

MINISTER OF STATE IN THE MINISTRY OF PERSONNEL, PG &
PENSIONS AND IN THE PRIME MINISTER'S OFFICE

(DR. JITENDRA SINGH):

(a) No, Sir.

(b) & (c)

In the recent past, a large number of student satellites have been launched and there is a huge demand for student satellites in the near future.

(d) ISRO has already launched several student satellites and is aggressively encouraging universities and colleges to build student satellites.

GOVERNMENT OF INDIA
DEPARTMENT OF SPACE

RAJYA SABHA
UNSTARRED QUESTION NO. 2955

TO BE ANSWERED ON THURSDAY, JULY 18, 2019

ACHIEVEMENTS IN RESEARCH AND SPACE EXPEDITIONS

2955. DR. SATYANARAYAN JATIYA:

Will the PRIME MINISTER be pleased to state:

- (a) the details of achievements in various areas of research and space expedition, during the last three years in the field of space science, year-wise; and
- (b) the upcoming time-bound special action plan proposed in the area of upgradation of space science?

ANSWER

MINISTER OF STATE IN THE MINISTRY OF PERSONNEL, PG &
PENSIONS AND IN THE PRIME MINISTER'S OFFICE

(DR. JITENDRA SINGH):

- (a) The year-wise achievements in the field of space science are as follows:

Sl. No.	Year	Achievement
1.	2016	<ul style="list-style-type: none"> • First year of MOM data is released to public. • ASTROSAT yielded new science from observations of cosmic sources which have translated into important scientific publications.
2.	2017	<ul style="list-style-type: none"> • Finalisation of landing site for Chandrayaan-2 • MoU signed between Raman Research Institute (RRI) and U. R. Rao Satellite Centre (URSC) – ISRO for the Polarimeter Instrument in X-rays (POLIX) development.
3.	2018	<ul style="list-style-type: none"> • Realization of payloads, extensive special tests for Chandrayaan-2 Vikram lander
4.	2019	<ul style="list-style-type: none"> • Indigeneous development of Chandrayaan-2 Orbiter, Lander and Rover. • Venus Mission: 17 Indian proposals and 7 international proposals recommended.

- (b) The upcoming science missions along with their schedule are as follows:
- (i) Chandrayaan-II originally planned for launch on 15th July 2019 has been postponed. Exact dates to be announced later once decided.
 - (ii) Aditya L1 mission to study the Sun in 2020
 - (iii) X-ray Polarisation Satellite (Xposat) mission to study X-ray polarisation in 2020
 - (iv) Venus mission is planned during 2023
 - (v) Second mission to Mars (MOM-2) is planned during 2024
 - (vi) Disturbed and quiet-type Ionosphere System at **H**igh **A**ltitude (DISHA) satellites are planned during 2024-25
 - (vii) Astronomy mission in 2025

GOVERNMENT OF INDIA
DEPARTMENT OF SPACE

RAJYA SABHA
UNSTARRED QUESTION NO. 3763

TO BE ANSWERED ON THURSDAY, JULY 25, 2019

STARTUPS PROCESSING TECHNICAL CAPABILITIES

3763. SHRI SAMBHAJI CHHATRAPATI:

Will the PRIME MINISTER be pleased to state:

- (a) whether a number of startups in the country have developed required technology to launch satellites and build rockets and related support systems using electric or cleaner fuel;
- (b) if so, the details thereof including the total number of such startups possessing technical capabilities;
- (c) whether ISRO has any plan to involve these startups in its own programme to give a push to its space programme planned for future; and
- (d) 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) No, Sir. As on date, there are no start-ups in the country who have developed required technology to launch satellites and build rockets and related support systems using electric or cleaner fuel
- (b) Does not arise.
- (c) ISRO has plans to involve start-ups in its own space programme in future.
- (d) ISRO has plans to involve and engage start-ups for its space programme through nation's ARISE programme under the ATAL INNOVATION MISSION. In addition, ISRO is also establishing its own Space Technology Incubation Centres at various locations at academic institutes to promote start-ups and young entrepreneurs to contribute to the space programme.

GOVERNMENT OF INDIA
DEPARTMENT OF SPACE

**RAJYA SABHA
UNSTARRED QUESTION NO. 3764**

TO BE ANSWERED ON THURSDAY, JULY 25, 2019

LAUNCH OF SATELLITE MADE BY STUDENTS

3764. SHRI SAMBHAJI CHHATRAPATI:

Will the PRIME MINISTER be pleased to state:

- (a) whether the Indian Technology Congress Association (ITCA) has planned to launch 75 satellites built by students marking 75th Anniversary of Independence of the country;
- (b) if so, the details of the project and the extent of ISRO's association with the venture;
- (c) whether Indian students are far behind many countries in launching of satellites since only nine satellites have so far been launched whereas the number of satellites launched in other countries exceeds 3,500; and
- (d) the approximate cost of satellites proposed to be launched and from where the funds are likely to be generated?

ANSWER

MINISTER OF STATE IN THE MINISTRY OF PERSONNEL, PG &
PENSIONS AND IN THE PRIME MINISTER'S OFFICE

(DR. JITENDRA SINGH):

- (a) Department of Space/ISRO does not have any information on the subject.
- (b) Does not arise.
- (c) & (d) ISRO has already launched ten student satellites till date. ISRO is aggressively encouraging universities and colleges to build student satellites.

GOVERNMENT OF INDIA
DEPARTMENT OF SPACE

RAJYA SABHA
UNSTARRED QUESTION NO. 3682

TO BE ANSWERED ON THURSDAY, JULY 25, 2019

DESIGN, MANUFACTURE AND DEPLOYMENT OF NAVIC SYSTEMS

3682. DR. VINAY P. SAHASRABUDDHE:

Will the PRIME MINISTER be pleased to state:

- (a) the number and details of NavIC SPS (Commercial application) receivers deployed during the last three years under the initiative of development of NavIC chip for commercial/civilian purpose;
- (b) the details of recent developments under the Ministry for the design, manufacture and deployment of the system; and
- (c) the estimated amount spent under the above initiatives?

ANSWER

MINISTER OF STATE IN THE MINISTRY OF PERSONNEL, PG &
PENSIONS AND IN THE PRIME MINISTER'S OFFICE

(DR. JITENDRA SINGH):

- (a) About 8,900 NavIC SPS receivers were deployed for use by fishermen, Academic Institutes, R&D Organisations, vehicle trackers etc.
- (b) The recent developments in connection with NavIC Systems is as follows:
 - (i) ISRO has developed core technologies required for Standard Positioning Services (SPS) and Restricted Services (RS) services of IRNSS/NavIC.
 - (ii) In order to miniaturize and provide cost-effective NavIC solution, ISRO is developing various Application Specific Integrated Circuit (ASIC) based modules through industries and in-house projects.
- (c) The estimated amount spent towards above mentioned initiatives is approx. `32.50 Cr.
