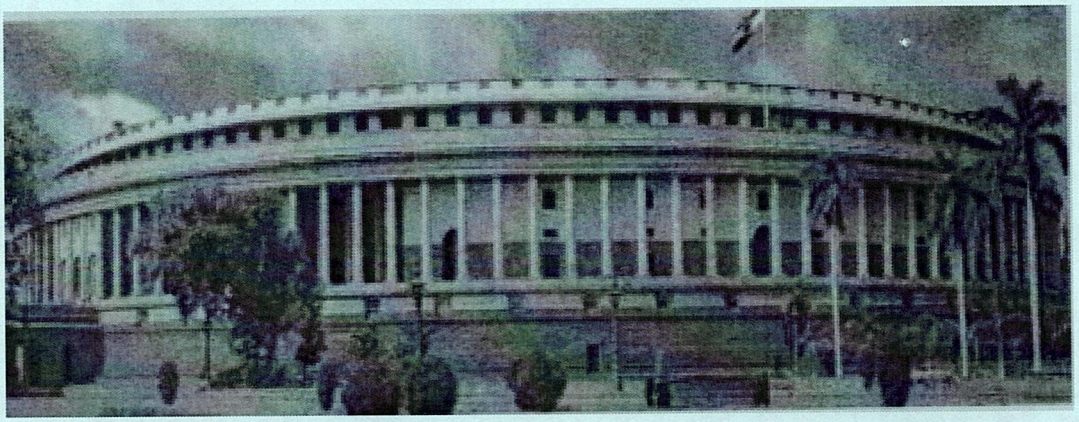
सत्यमेव जयते

GOVERNMENT OF INDIA
DEPARTMENT OF SPACE

"SPACE IN PARLIAMENT"



MONSOON SESSION OF PARLIAMENT 2022
(JULY - AUGUST 2022)

COMPILATION OF REPLIES GIVEN IN PARLIAMENT DURING 2022

Government of India
Department of Space
****

PARLIAMENT QUESTIONS – MONSOON SESSION OF PARLIAMENT 2022
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INDEX

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O.I.H.

GOVERNMENT OF INDIA

DEPARTMENT OF SPACE

LOK SABHA

STARRED QUESTION NO. 42

TO BE ANSWERED ON WEDNESDAY, JULY 20, 2022

PROGRAMMES OF DEPARTMENT OF SPACE

***42. SHRI GUMAN SINGH DAMOR:**

Will the PRIME MINISTER be pleased to state:

(a) the details of the major programmes of the Department of Space along with its role in the Defence and Agricultural sector;

(b) the number of Satellites/Gaganyaan launched under the Space Mission during the last three years and the number of such launches which have been successful/failed.

(c) The reasons for the failed launches.

(d) The number of foreign satellites launched under the Space Mission alongwith the details of foreign exchange earned through these launches;

(e) Whether the Department of Space is likely to provide its space-related services to international customers on commercial basis in the future; and

(f) If so, the details thereof ?

ANSWER

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

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

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(2)

STATEMENT LAID ON THE TABLE OF THE LOK SABHA IN REPLY TO STARRED QUESTION NO. 42 REGARDING "PROGRAMMES OF DEPARTMENT OF SPACE" ASKED BY SHRI GUMAN SINGH DAMOR FOR ANSWERING ON WEDNESDAY, JULY 20, 2022.

(a) The major programmes of the Department of Space include:

1. Space Applications Programme comprising of design and development of tools to address the needs of national imperative and priorities of Government in the areas of socio-economic security, sustainable development, disaster management and citizen-centric governance. Once operationalized, these application-based tools are transferred to the user departments/ministries for institutionalization therein.
2. Satellite Programme in order to enable the above downstream applications, comprising of (i)Earth Observation Satellites for natural resources monitoring, cartographic applications, Oceanography, meteorology, disaster management support etc., (ii) Communication Satellites for telecommunication, television broadcasting, tele-education, tele-medicine etc., (iii) Navigation with Indian Constellation (NavIC) for providing Position, Navigation and Timing services over India and its neighborhood, and (iv) Space science and planetary exploration Satellites for studying outer space and interplanetary exploration.
3. Launch Vehicle Programme in order to place the above satellites in outer space, comprising of Polar Satellite Launch Vehicle (PSLV), Geosynchronous Satellite Launch Vehicle (GSLV) and Geosynchronous Satellite Launch Vehicle MkIII (GSLV Mk-III) for launching satellites of national, commercial and special users.

4. Gaganyaan Programme to demonstrate capability to send humans to space and bring them back to Earth safely.

The design, development and launch of satellites by DOS with required payloads is intended for peaceful use of outer space. With regards to agricultural sector, the applications of space technology include monitoring and inventory of agricultural crops, mapping & assessing soil conditions and land degradation, appraisal of irrigation infrastructure and assessment of crop damage due to disasters events such as drought, flood, cyclone & hail storm. The meteorological satellites in geostationary orbits provide frequent state of weather parameters for enabling weather forecasting and helps in agricultural operations in the country.

(b) During the period (01/01/2019 – till date), ISRO has launched 13 Indian satellites for various applications such as Communication, Earth Observation, Experimental Disaster Management, Planetary Observation etc., the details of which are attached as Annexure - 1.

No Gaganyaan launches have taken place in the past 3 years.

Out of the above launches, launch of 1 satellite (EOS-03) was unsuccessful.

(c) GSLV-F10 launch carrying the Earth Observation Satellite [EOS-03] took place on August 12, 2021. However, the mission couldn't be accomplished as intended due to the failure of the launch vehicle GSLV-F10. The reason for the failure was found to be an anomaly in the Cryogenic Upper Stage, that caused the onboard computer to abort the mission at 307 seconds into the flight, leading to mission failure.

(d) Starting from 1999 till date, Indian Space Research Organization (ISRO), through its commercial arm, has successfully launched 345 foreign satellites from 34 countries on-board Polar Satellite Launch

(4)

Vehicle (PSLV). Total Foreign Exchange revenue earned through launching of these foreign satellites amounts to approx. 56 Million USD and 220 Million Euros.

(e) Yes, Sir. NewSpace India Limited (NSIL), a CPSE under Department of Space (DOS), will be commercially providing space related services to international customers.

(f) The Space-related services that NSIL provides to International customers are in the areas of (i) Launch Services for international customer satellites on-board ISRO's launch vehicles viz. PSLV and GSLV-MKIII; (ii) Building Earth Observation/ Communication satellites for International customers, and (iii) Providing Mission Support Services for tracking customer launch vehicle/ satellites using ISRO/ other international ground stations.

Annexure -1

Sl. No.	Satellite	Launch Date	Mission	Application	Launch Status
1	INS-2TD	Feb 14, 2022	PSLV-C52/EOS-04 Mission	Experimental	Launch Successful
2	EOS-04	Feb 14, 2022	PSLV-C52/EOS-04 Mission	Earth Observation	Launch Successful
3	EOS-03	Aug 12, 2021	GSLV-F10 / EOS-03	Earth Observation	Launch unsuccessful
4	CMS-01	Dec 17, 2020	PSLV-C50/CMS-01	Communication	Launch Successful
5	EOS-01	Nov 07, 2020	PSLV-C49/EOS-01	Disaster Management System, Earth Observation	Launch Successful
6	GSAT-30	Jan 17, 2020	Ariane-5 VA-251 (Procured)	Communication	Launch Successful
7	RISAT-2BR1	Dec 11, 2019	PSLV-C48/RISAT-2BR1	Disaster Management System, Earth Observation	Launch Successful
8	Cartosat-3	Nov 27, 2019	PSLV-C47 / Cartosat-3 Mission	Earth Observation	Launch Successful
9	Chandrayaan2	Jul 22, 2019	GSLV-Mk III - M1 / Chandrayaan-2 Mission	Planetary Observation	Launch Successful
10	RISAT-2B	May 22, 2019	PSLV-C46 Mission	Disaster Management	Launch Successful

Sl. No.	Satellite	Launch Date	Mission	Application	Launch Status
				System, Earth Observation	
11	EMISAT	Apr 01, 2019	PSLV-C45/EMISAT MISSION		Launch Successful
12	GSAT-31	Feb 06, 2019	Ariane-5 VA-247(Procured)	Communication	Launch Successful
13	Microsat-R	Jan 24, 2019	PSLV-C44		Launch Successful

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GOVERNMENT OF INDIA

DEPARTMENT OF SPACE

LOK SABHA

UNSTARRED QUESTION NO. 556

TO BE ANSWERED ON WEDNESDAY, JULY 20, 2022

PRIVATE PARTICIPATION IN SPACE

556. SHRI T.N. PRATHAPAN:

Will the PRIME MINISTER be pleased to state:

(a) whether the GOI has any plans to bring private partnership into SPACE explorations of the country and if so, the details thereof;

(b) the five upcoming important SPACE expedition projects in the country;

(c) the details with proposed date of launch and cost of the project; and

(d) whether the Government has decided to build a new ISRO centre in the country and if so, the details thereof?

ANSWER

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

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(a) Government of India announced reforms in June, 2020, in the space sector towards enabling the private players to provide

end to end services. A national level autonomous nodal agency namely Indian National Space Promotion and Authorization Centre (IN-SPACe) under DOS has been created for promoting, handholding, authorising and licensing private players to carry out Space Activities.

In order to facilitate private partnership in the space sector, the following steps are being taken:

- Access to ISRO facilities and expertise are extended to private entities to support their space activities. Apart from this, ISRO will also nurture Indian space industries by sharing its experiences on quality and reliability protocols, documentation, testing procedures etc.
- Announcement of Opportunities are being offered in new domains of space technology.
- NewSpace India Ltd (NSIL), the CPSE under DOS is mandated to transfer the matured technologies developed by ISRO to Indian industries.
- A new space policy addressing various domains of space activities is being worked out by the Department.

(b) & (c)

The details of the upcoming Space science projects are as follows:

Sl. No.	Name of Mission	Sanctioned Cost (Rs. in Cr)	Proposed date of Launch
1.	Aditya-L1	378.53	Q1 2023

Sl. No.	Name of Mission	Sanctioned Cost (Rs. in Cr)	Proposed date of Launch
2.	Chandrayaan-3	250.00	Q1 2023
3.	XPoSAT	60.00	Q2 2023
4.	Space Docking Experiment	124.47	Q3 2024
5.	Gaganyaan	9023.00	
	1st Milestone Mission: First Abort Demonstration Mission		Q4 2022

(d) Presently, there are no plans to establish a new ISRO Centre in the country.

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GOVERNMENT OF INDIA

DEPARTMENT OF SPACE

LOK SABHA

UNSTARRED QUESTION NO. 622

TO BE ANSWERED ON WEDNESDAY, JULY 20, 2022

EARTH OBSERVATION SATELLITE

622. SHRI G.M. SIDDESHWAR:

Will the PRIME MINISTER be pleased to state:

(a) whether the Government has plans to launch an Earth Observation Satellite to have real-time images of the borders and to quickly monitor natural disasters;

(b) if so, the details of other important observations the satellite is capable to record;

(c) whether Earth Observation Satellite is proposed to be followed by Small Satellite Launch Vehicle shortly;

(d) whether the technology of SSLV is different from PSLV and comparatively cost effective; and

(e) if so, the details thereof?

ANSWER

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

****

(a) & (b)

(11)

Indian Space Research Organisation (ISRO)/ Department of Space (DOS) has drawn plans to launch Earth Observation Satellites for providing data for Natural Resources management, Weather advisories, Ocean surface parameter retrieval and Disaster Management support. These satellites will have global observational capability.

(c) The first developmental flight of Small Satellite Launch Vehicle or SSLV is scheduled in third quarter of 2022 from Satish Dhawan Space Centre, Sriharikota.

(d) & (e)

ISRO's vast experience in Solid propulsion and heritage of proven design practice has enabled SSLV to be developed as a cost-effective, three stage, all-solid launch vehicle with a payload capability of 55 kg to 500 km planar orbit or 300 kg to Sun Synchronous Polar Orbit.

SSLV is ideal for on-demand, quick turn-around launch of small satellites. The major technologies developed as part of realization of SSLV are flexible nozzle control with electro-mechanical actuators for all stages, miniaturized avionics and a velocity trimming module in the upper stage for premise satellite injection.

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GOVERNMENT OF INDIA

DEPARTMENT OF SPACE

LOK SABHA

UNSTARRED QUESTION NO. 683

TO BE ANSWERED ON WEDNESDAY, JULY 20, 2022

INDIA'S SHARE IN GLOBAL SPACE MARKET

683. SHRI RAMESH BIDHURI:

Will the PRIME MINISTER be pleased to state:

(a) whether the Government proposes to transfer 10 in orbit communication satellites to New Space India Ltd. (NSIL) which is the commercial arm of Indian Space Research Organisation (ISRO);

(b) if so, the details thereof and the reasons therefor;

(c) whether the Government has taken any steps for increasing India's Share in Global Space Market; and

(d) if so, the details thereof?

ANSWER

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

****

(a) Yes, Sir.

(b) 10 (Ten) in-orbit operational communication satellites viz. GSAT-8, GSAT-10, GSAT-12R (CMS-01), GSAT-14, GSAT-15, GSAT-16, GSAT-17, GSAT-18, GSAT-30 and GSAT-31 have been transferred from Government of India to M/s. New Space India Ltd (NSIL), a CPSE under Department of Space, at a written down value of ₹4697.60 crores against issue of equity to Government of India, with 01.04.2021 as the effective date of transfer.

The Board of NSIL is authorized to price the transponder capacity as per the global trends. NSIL shall carry out the activities related to offering and allocation of capacity, as per the guidelines to be adopted by its Board. The transfer of operational satellites is part of the Space Sector reforms, aimed at strengthening the role of NSIL in order to enhance the nation's share in global space economy.

(c) & (d)

Yes, Sir. Government has taken several steps to increase India's share in global space market, through the reforms undertaken in 2020, which seek to augment the space sector in the country with greater participation of Non-Governmental Entities [NGEs].

The Indian National Space Promotion & Authorization Centre [IN-SPACe] has been created as a single window agency to promote, handhold and authorize the activities of NGEs in the sector, thus providing them with a level playing field.

As a part of these reforms, NSIL has been mandated to task the building of launch vehicle through Indian Industry and launch as per satellite customer requirements.

With the operationalization of IN-SPACe, the progressively evolving regulatory environment, a greater private sector participation in end-to-end space activities is expected, which may result in increased share of India in the global space economy.

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GOVERNMENT OF INDIA

DEPARTMENT OF SPACE

LOK SABHA

UNSTARRED QUESTION NO. 1646

TO BE ANSWERED ON WEDNESDAY, JULY 27, 2022

LAUNCH OF PSLV-C53

1646. SHRI ANURAG SHARMA:

Will the PRIME MINISTER be pleased to state:

(a) whether Indian Space Research Organisation (ISRO) has launched Polar Satellite Launch Vehicle (PSLV)-C53 from Sriharikota recently;

(b) if so, the details thereof and the total expenditure incurred on the development of such satellite;

(c) the details of various fields in which country is likely to be benefitted by the above said launch;

(d) whether India has also launched satellites of some other nation along with PSLV-C53 and if so, the details thereof, Country-wise; and

(e) the amount of revenue generated by the Government/ISRO by launching satellites of the other nations?

ANSWER

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

(DR. JITENDRA SINGH):

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(16)

(a) Yes, Sir.

(b) On June 30th 2022, PSLV-C53 realized by Indian Space Research Organization (ISRO), successfully launched three Singapore customer satellites namely DS-EO, NeuSAR and SCOOB-1. PSLV-C53 was the 2nd dedicated commercial mission for NewSpace India Limited (NSIL), a Central Public Sector Enterprise under administrative control of the Department of Space (DOS). All the three satellites in this mission belonged to the customers from Singapore. The same were not built by ISRO and therefore, ISRO is not aware of the expenditure incurred in the development of these satellites.

(c) PSLV-C53 mission, in addition to enabling NSIL to earn Foreign Exchange for providing Launch Services to international customers, also provided an opportunity to Indian space start-ups to host their technology payloads as part of PS4 upper stage orbiting platform. Further, the competitiveness of Indian made launch vehicles in the international market continues to increase with each successful launch.

(d) PSLV-C53 launch was the dedicated international customer mission wherein 3 Singaporean satellites were launched.

(e) ISRO, through its commercial arms, has successfully launched 345 foreign satellites from 34 countries on-board Polar Satellite Launch Vehicle (PSLV). Total foreign exchange revenue earned through launching of foreign satellites amounts to 56 Million USD and 220 Million Euros approximately.

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GOVERNMENT OF INDIA

DEPARTMENT OF SPACE

LOK SABHA

UNSTARRED QUESTION NO. 2920

TO BE ANSWERED ON WEDNESDAY, AUGUST 03, 2022

ATMANIRBHAR BHARAT

2920. SHRI SUNIL KUMAR MONDAL:

Will the PRIME MINISTER be pleased to state:

(a) the details of the success achieved in the space sector under the programme Aatmanirbhar Bharat ARISE-ANIC along with the fund allocation in this regard; and

(b) if so, the details of futuristic action plan envisaged by the Government in this sector, State/UT-wise?

ANSWER

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

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(a) The ANIC-ARISE program aims to seek, select, support and nurture technology-based innovations that solve sectoral challenges of national importance.

- **ISRO along with Atal Innovation Mission (AIM), NITI Aayog launched ANIC-ARISE-1.0 with following three space sector challenges to get project proposals from start-ups:**

  (i) geo spatial information

(18)

(ii) propulsion

(iii) Robotics/ AR/VR

- Twenty-Four start-ups submitted their proposals, out of which six start-ups were selected and supported with a grant-in-aid of maximum of INR 50 lakhs each.
- The total grant-in-aid approved for the 6 start-ups is INR 2.70 crores and same will be disbursed in milestone based 3 tranches. Grant-in-aid disbursed as on date is INR 1.09 crores.

(b) ANIC-ARISE-2.0 has been launched with four space sector challenges: (i) GIS solutions, (ii) Propulsion, (iii) Navigation & (iv) AI/ML modelling for space applications, seeking project proposals from start-ups in these areas.

Selected start-ups will be supported with a grant-in-aid of maximum of INR 50 lakhs each.

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GOVERNMENT OF INDIA

DEPARTMENT OF SPACE

LOK SABHA

UNSTARRED QUESTION NO. 2988

TO BE ANSWERED ON WEDNESDAY, AUGUST 03, 2022

GLOBAL SPACE ECONOMY

2988. SHRI RAVIKUMAR D.:

Will the PRIME MINISTER be pleased to state:

(a) the share of the country in Global Space Economy;

(b) the reasons for the country's poor performance in space technology; and

(c) whether the delay in getting approval plays any negative role in the development of Space technology and if so, the details thereof?

ANSWER

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

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(a) **The exact sizing of Global Space Economy is a complex exercise and matter of much debate. A 2019 estimate pegs the global space economy at 360 Billion USD, with India's share at approximately 2%.**

(b) **India has made significant progress in space technology and its applications. Led by the Indian Space Research Organization (ISRO), the nation has acquired indigenous capabilities in the space sector across all domains - space transportation systems; space assets comprising of fleet of satellites catering to the needs of earth observation, satellite communication, meteorology, space science & navigation; ground infrastructure, and a host of operational programs related to the applications of space technology to address national imperatives and the common problems of man and society.**

(c) **No, Sir. There is no delay in getting approval for projects related to development of space technology.**

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GOVERNMENT OF INDIA

DEPARTMENT OF SPACE

RAJYA SABHA

UNSTARRED QUESTION NO. 612

TO BE ANSWERED ON THURSDAY, JULY 21, 2022

STATUS OF SPACEPORT AT KULASEKHARAPATTINAM, TAMIL NADU

612. SHRI P. WILSON:

Will the PRIME MINISTER be pleased to state:

(a) the current status of establishment of the spaceport at Kulasekharapattinam in the State of Tamil Nadu.

(b) whether Government has collected data on the number of jobs that would be created when the second spaceport becomes operational;

(c) whether Government has data on the status of ongoing RESPOND (Research Sponsored) projects in Tamil Nadu; and

(d) if so, the details thereof, and if not, the reasons therefor?

ANSWER

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

(a) At present, the acquisition of land through Government of Tamil Nadu is in progress. As on date, 1950 acres of land has been acquired out of the 2350 acres of land identified for the spaceport at Kulasekharapattinam.

(b) The existing manpower is planned to be re-deployed initially to oversee the establishment of the essential facilities at the spaceport and also to carry out the critical launch-related

activities. Once the spaceport is nearing completion, the manpower requirement for the operation and maintenance of the facilities will be assessed.

(c) Yes, Sir. In the state of Tamil Nadu there are 49 ongoing projects under RESPOND Scheme, 21 projects under Space Technology Cell (STC) at IIT Madras and 9 projects under the Space Technology Incubation Centre (STIC) at National Institute of Technology (NIT), Tiruchirappalli.

(d) Out of the above, 63 projects have been taken up in the area of Space Technology, 13 projects under Space Applications and 3 projects under Space Sciences. A total of 23 institutions are involved in sponsored research in Tamil Nadu including IIT Madras and NIT Tiruchirappalli

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O.I.H.

GOVERNMENT OF INDIA
DEPARTMENT OF SPACE

RAJYA SABHA
UNSTARRED QUESTION NO. 613

TO BE ANSWERED ON THURSDAY, JULY 21, 2022

SCHEME FOR YOUNG ENTREPRENEURS IN SPACE SECTOR

613. SHRI BRIJLAL:
Will the PRIME MINISTER be pleased to state:

(a) whether Government has any proposal to open the space centres of ISRO to the private sector, keeping in view the young entrepreneurs and students interests in the field of space science, if so, the details thereof;

(b) the kind of facilities proposed to be provided to the youth under this scheme; and

(c) the details of other steps Government is taking or propose to take in order to promote space tourism and to implement space diplomacy in the country?

ANSWER

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

(a) & (b)

Yes, Sir. The Indian National Space Promotion and Authorization Centre [IN-SPACe] has been created as a single window agency, under Department of Space, to promote, handhold and authorize the activities of private sector in space domain, including those by young entrepreneurs and students interested in the field of Space Science. IN-SPACe

shall come up with mechanisms to enable sharing of technical facilities and expertise available across ISRO Centres with private entities.

(c) ISRO is in the process of developing indigenous capabilities towards space tourism through the demonstration of human space flight capability to Low Earth Orbit (LEO). Besides, IN-SPACe also seeks to promote active participation of private sector in carrying out end-to-end space activities, which includes space tourism as well. With regards to space diplomacy, ISRO pursues international cooperation and relations with 61 countries in varied domains of space activities.

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GOVERNMENT OF INDIA

DEPARTMENT OF SPACE

RAJYA SABHA

UNSTARRED QUESTION NO. 614

TO BE ANSWERED ON THURSDAY, JULY 21, 2022

DIRECTIVES FOR PRIVATE INDIAN SPACE INDUSTRY

614. SHRI S. SELVAGANABATHY:

Will the PRIME MINISTER be pleased to state:

(a) whether Government is aware that the private Indian space industry, which includes space tech startups, is expecting directives from Government on their specific roles in manned missions; and

(b) if so, the initiatives that have been taken/being taken by Government in this regard?

ANSWER

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

(a) & (b)

Yes, Sir. Government has created the Indian National Space Promotion and Authorisation Centre (IN-SPACe) as a single window agency to promote, handhold and authorize the activities of Non-Governmental entities (NGEs). Also Department of Space (DOS) is in the process of drafting a comprehensive, integrated Space Policy, which shall provide direction to the activities of private Indian space industry.

The policy shall enable private sector to carry out end-to-end activities in space domain.

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GOVERNMENT OF INDIA

DEPARTMENT OF SPACE

RAJYA SABHA

UNSTARRED QUESTION NO. 1415

TO BE ANSWERED ON THURSDAY, JULY 28, 2022

PRIVATE START-UPS IN SPACE TECHNOLOGY

1415. PROF. MANOJ KUMAR JHA:

Will the PRIME MINISTER be pleased to state:

(a) the number of private start-ups offering satellite services to global customers;

(b) whether Government will accept Public Private Partnership (PPP) for the advancement of space technology and whether there is any proposal under consideration; and

(c) if so, the details thereof?

ANSWER

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

(a) Indian National Space Promotion and Authorization Centre [IN-SPACe] is conducting a survey to build the capability matrix of Indian start-ups, which shall serve as the definite database for private activities in space sector. Preliminary data indicates that about 15 startups are working in the domain of offering satellite services i.e. value-added services through satellite data.

(b) & (c)

In light of the space reforms announced by the Government in 2020, greater participation of Non-Government Entities [NGEs] is envisaged in carrying out end-to-end activities in space sector. Under these reforms, Government may consider Public Private Partnership (PPP) for advancement of space technology.

However, at present, no such proposal is under consideration.

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GOVERNMENT OF INDIA

DEPARTMENT OF SPACE

RAJYA SABHA

UNSTARRED QUESTION NO. 1416

TO BE ANSWERED ON THURSDAY, JULY 28, 2022

SPACE TOURISM IN THE COUNTRY

1416. SHRI S. SELVAGANABATHY:

Will the PRIME MINISTER be pleased to state:

(a) whether at present there are no laws governing space tourism in the country and the Government is considering to make a law on space tourism, if so, the details thereof;

(b) whether Government in collaboration with other countries has evolved a strategic plan to explore possibilities in space tourism, 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 be accrue as a result thereof?

ANSWER

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

(a) Yes, Sir. At present, there are no laws governing space tourism in the country. Also, there are no plans to make a law specific to space tourism. However, as part of 'Gaganyaan' mission, India is developing technologies and crew safety protocols required for human space flight missions.

(b) No, Sir.

(c) & (d)

ISRO is currently developing technologies for Human Rated Launch Vehicle, Orbital Module, Life Support System, Crew Escape System, Human Centric Products and Crew Recovery for Gaganyaan mission. All these technologies will act as building blocks for pursuing space tourism in future.

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GOVERNMENT OF INDIA

DEPARTMENT OF SPACE

RAJYA SABHA

STARRED QUESTION NO. 206

TO BE ANSWERED ON THURSDAY, AUGUST 04, 2022

SPACE APPLICATIONS CENTRE IN ISRO

*206. DR. SASMIT PATRA:

Will the PRIME MINISTER be pleased to state:

(a) the details regarding the development of Space Applications Centre in Indian Space Research Organisation (ISRO);

(b) developments undertaken in the past five years; and

(c) future plan for further development?

ANSWER

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

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

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(29)

STATEMENT LAID ON THE TABLE OF THE RAJYA SABHA IN REPLY TO STARRED QUESTION NO. 206 REGARDING "SPACE APPLICATIONS CENTRE IN ISRO" ASKED BY DR. SASMIT PATRA FOR ANSWER ON THURSDAY, AUGUST 04, 2022.

(a) There are TWO Space Applications Centre in ISRO/DOS:

1. Space Applications Centre (SAC), Ahmedabad: Established in 1972, SAC is a major research and development Centre of the Indian Space Research Organization (ISRO). SAC has expertise in the design and development of space-borne and air-borne payloads as well as development of applications as solutions in the areas of Communication, Navigation, Earth Observation, Planetary and Space Science for civilian, strategic and scientific users

2. North Eastern Space Applications Centre (NESAC), Shillong: Established in 2000, jointly with North Eastern Council (NEC), NESAC is as an autonomous institution under Dept. of Space (DOS) to provide space technology inputs and services for the development of the North Eastern Region. NESAC is engaged in executing remote sensing application projects for natural resources management & infrastructure development, satellite communication based applications in education; health & disaster management support, and training & capacity building in space technology & applications

(b) The various developments undertaken in the past five years:

1. SAC has developed and achieved following major milestones:

   I. 46 payloads for various ISRO Missions in the areas of Communication, Navigation, Earth Observation, Planetary and Space Sciences

   II. 34 Remote Sensing and Meteorological projects were completed and developed applications for land, ocean, atmosphere and planetary science including Solar calculator, Wetland Mapping, Snow & Glacier Monitoring, Desertification & land degradation assessment, Potential Fishing Zones,

FASAL & CHAMAN for Pre-harvest crop acreage estimation and production forecasting.

III. 29 ongoing projects/programs in the areas of agriculture, hydrology, cryosphere, atmosphere and geosciences.

IV. Design and Development of MOSDAC & VEDAS web portals for archival & dissemination of products & services.

V. SATCOM & SATNAV Applications for location based services, vehicle tracking and societal applications.

VI. Futuristic Technologies including Satellite Based Quantum Communication (SBQC) and Quantum Key Distribution (QKD), Quantum Radar (QR), Tera-Hertz sensor development, Hyperspectral and Ultraspectral Imagers, P-band SAR and AI/ML techniques

VII. Indigenization of space technologies including Travelling Wave Tube Amplifiers (TWTAs) of different varieties for Space & Ground Applications, Rubidium (Rb) Atomic Clocks for Navigation and Remote Sensing Detectors.

2. NESAC has developed and achieved following major milestones for the North Eastern Region including:

I. Implementation of North Eastern Spatial Data Repository (NeSDR)

II. Identification of potential areas for development of sericulture & horticulture,

III. Remote Sensing based forest working plans & river atlas,

IV. Geospatial system for monitoring MoDONER sponsored projects & survey of Record of Forest Rights (RoFR),

V. Flood Early Warning System (FLEWS) for Assam, and

VI. Training & capacity building, including for professionals from BIMSTEC region

VII. Satellite imaging based inputs to support settling of border disputes between North Eastern States undertaken as per suggestion of MHA.

(c) With regards to future plans:

1. SAC has various well-defined short-term, medium-term and long-term plans in the areas of Earth Observation, Planetary Science and Space Science Applications, Satellite based Communication & Navigation Applications, Space Frontier technologies such as quantum communication, Quantum sensors & Quantum Cryptography, Hyperspectral & SAR sensors & TeraHz telescope.

2. NESAC has coordinated preparation of Plan of Actions (PoA) by the Nodal Departments of the eight States in the North Eastern region. 110 projects have been finalized under this initiative for time-bound execution by 2024, by the respective State Remote Sensing Centres & line departments, under the technical guidance from NESAC. These projects are in the domains of Agriculture, Water Resources, Forestry & Ecology, Planning & Development, UAV Remote Sensing and Disaster Management Support, with joint funding from MoDONER, DoS and State Governments.

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GOVERNMENT OF INDIA

DEPARTMENT OF SPACE

RAJYA SABHA

UNSTARRED QUESTION NO. 2210

TO BE ANSWERED ON THURSDAY, AUGUST 04, 2022

INDIAN REGIONAL NAVIGATION SATELLITE SYSTEM

2210. SHRI PRABHAKAR REDDY VEMIREDDY:

Will the PRIME MINISTER be pleased to state:

(a) whether it is not a fact that India's satellite-based navigation system, NavIC, is as good as GPS of the United States;

(b) whether it is also not a fact that India's NavIC can help in navigation on land, air, sea and also in disaster management and is placed at a higher orbit than the US's GPS;

(c) whether it is also a fact that NavIC uses dual frequency bands which makes our NavIC more reliable and accurate;

(d) if so, reasons for NavIC covering only Indian territory and surrounding 1500 kms of Indian borders; and

(e) efforts that are being made to increase its coverage?

ANSWER

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

(a) Yes, Sir. India's satellite-based navigation system, NavIC, is as good as GPS of the United States in terms of position accuracy and availability in its service region.

(b) Yes, Sir. NavIC can help in navigation on land, air, sea and also in disaster management. NavIC satellites are placed at a higher orbit than the US's GPS. NavIC satellites are placed in geostationary orbit (GEO) & geosynchronous orbit (GSO) with an altitude of

about 36,000 km; GPS satellites are placed in medium earth orbit (MEO) with an altitude of about 20,000 km.

(c) Yes, Sir. NavIC uses dual frequency bands. This improves accuracy of dual frequency receivers by enabling them to correct atmospheric errors through simultaneous use of two frequencies. It also helps in better reliability and availability because the signal from either frequency can serve the positioning requirement equally well.

(d) At the time of inception, an indigenously developed satellite navigation system was conceptualised to cater to requirements of critical national applications, including those of defence and commercial establishments. Hence the coverage area was designed to cover Indian Territory and surrounding 1500 km of Indian borders.

(e) The needs of critical national applications do evolve with time. Efforts are continuously made to meet these requirements, including from the point of view of coverage.

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GOVERNMENT OF INDIA

DEPARTMENT OF SPACE

RAJYA SABHA

UNSTARRED QUESTION NO. 2211

TO BE ANSWERED ON THURSDAY, AUGUST 04, 2022

PROJECT POSTS IN ISRO

2211. SHRI A. A. RAHIM:

Will the PRIME MINISTER be pleased to state:

(a) whether project posts which were sanctioned on 1st Cadre Review in 2003 and subsequent years with the approval of Space Commission for Administrative-Auxiliary cadre in ISRO are put on hold from 1.7.2022, if so, the reasons therefor; and

(b) whether Government is planning to retain promotional avenues for admin-auxiliary staff?

ANSWER

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

(a) The creation of project posts was not part of the 1st Cadre Review. They were created under project funding of the deposit works. Due to the closure of User Funded Projects, promotion to these posts are kept on hold.

(b) The Department, in its 2nd Cadre Review proposal has suitably planned its promotional avenues for administrative categories and the proposal is under consideration.

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