GOVERNMENT OF INDIA

DEPARTMENT OF SPACE

LOK SABHA

UNSTARRED QUESTION NO. 4664

TO BE ANSWERED ON WEDNESDAY, MARCH 29, 2023

SHARE IN GLOBAL SPACE MARKET

4664. COL. RAJYAVARDHAN RATHORE:

Will the PRIME MINISTER be pleased to state:

(a) whether India's share in Global Space Market has increased since 2014, if so, the details thereof;

(b) the data on exports and imports carried out in the space technology industry, since 2014, year-wise;

(c) the achievements made to boost 'ISRO' through 'Atmanirbhar Bharat';

(d) the achievements in indigenization of space technology business and startups in India since 2014;

(e) the details of the achievements made by the Government in the field of space since 2014, along with upcoming missions; and

(f) the details of foreign satellites launched by India since 2014 and the year-wise data on revenue generated through it?

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) Several steps have been taken 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].

As a part of these reforms, NSIL role has been enhanced to bring a commerce-oriented approach to space activities, with the agency to act as an aggregator of user requirements and undertake space activities in a demand-driven mode. Also, 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.

These steps are expected to increase India's share in the global space market, which as per an estimate undertaken in 2019, stood at 2-3%.

(b) The data on exports and imports carried out in the space technology industry, since 2014, year-wise is given below:

(Rs. in crores)

Financial Year	Imports	Exports
2014-15	2211.37	308.45
2015-16	2255.03	258.73
2016-17	2708.70	230.81
2017-18	2201.60	236.54
2018-19	3376.38	330.08
2019-20	3213.37	287.53
2020-21	2261.02	271.46
2021-22	2310.42	188.40

(c) The Indian Space Research Organization (ISRO) has over the years made significant contributions to 'Atmanirbhar Bharat' by placing India as one of the leading spacefaring nations having end-to-end capabilities in space research and development, including the capability to launch from our own land and operate programs of earth observation, satellite communication, meteorology, space science & navigation and ground infrastructure. Further, now NewSpace industries are also emerging at fast pace after space sector reforms.

(d) Through continuous efforts, including involvement of Indian industries, the national space programme has resulted in the indigenous development of various materials & alloys and chemicals/propellants. The number of indigenous space technology business and start-ups has seen a tremendous growth, since 2014, with the latest figures indicating 167 Start-ups registered under "Space technology" category.

(e) Following are the major achievements made by the Government in space domain since 2014:

- **Altogether 45 spacecraft missions, 44 launch vehicle missions and 5 technology demonstrators, have been successfully realized, since 2014 till date.**
- **In January 2014, the first successful flight with indigenous Cryogenic Upper Stage, in the GSLV-D5 launch vehicle was achieved and GSAT-14 was placed into GTO.**
- **In September 2014, India's Mars Orbiter Spacecraft successfully entered into an orbit around planet Mars, putting India into a league of select nations which had sent a spacecraft to the Red Planet.**
- **In December 2014, the country witnessed the experimental flight of the next generation launch vehicle – the GSLV MKIII. The LVM3-**

X/CARE Mission, the first experimental suborbital flight of the vehicle, launched the Crew Module Atmospheric Re-entry experiment (CARE).

- **AstroSat launched by PSLV in September 2015, is the first dedicated Indian astronomy mission aimed at studying celestial sources in X-ray, optical and UV spectral bands simultaneously. AstroSat has made major breakthroughs by discovering five new galaxies.**
- **ISRO has established and operationalised Navigation with Indian Constellation (NavIC) which provides highly accurate Position, Navigation and Time information to users in India and its surroundings. A total of 7 satellites form the Indian Regional Navigation Satellite System [IRNSS] – all launched by PSLV, with IRNSS-1G completing the constellation in 2016.**
- **Various NavIC based services have been rolled out in many key sectors like - integration of NavIC-enabled devices with the enrolment architecture of UIDAI Aadhar enrolment, incorporation of NavIC in the Continuously Operating Reference Stations (CORS) network, in agricultural drones and Radio Technical Commission for Maritime Services (RTCM) etc.**
- **Successful flight testing of Reusable Launch Vehicle-Technology Demonstrator (RLV-TD) was done on May 23, 2016 from Satish Dhawan Space Centre (SDSC) SHAR, Sriharikota.**
- **The first experimental mission of ISRO's Scramjet Engine towards the realisation of Air Breathing Propulsion System was also successfully conducted in 2016 from SDSC SHAR, Sriharikota.**
- **In 2017, PSLV C-37 created a world record by successfully placing 104 satellites in orbit during a single launch.**

- **In response to an idea mooted by the Hon'ble Prime Minister in 18th SAARC summit, ISRO launched the 2.2 Ton communication satellite in 2017 to support neighbouring countries.**
- **The first developmental mission of GSLV Mk-III D1 was successfully accomplished in June-2017 and boosted GSAT-19 satellite into geosynchronous transfer orbit.**
- **ISRO demonstrated a crucial technology element of Human spaceflight in July 2018- The Pad Abort Test (PAT) to qualify the Crew Escape System (CES). The Pad Abort Test flight was a demonstration of the capability of CES to evacuate the Crew in case of a contingency at launch Pad.**
- **In the Independence Day address – 2018, the Hon'ble Prime Minister announced the "Gaganyaan Programme", marking India's foray into the new age of human space exploration.**
- **GSAT-29 high throughput communication satellite was successfully launched on November 14, 2018, on-board GSLV Mk III-D2. It is providing satellite based connectivity to Jammu & Kashmir and North Eastern regions of India.**
- **In 2018, ISRO's next generation high throughput communication satellite, GSAT-11 was successfully launched on December 05, 2018 from Kourou, French Guiana by Ariane-5 VA-246. Weighing about 5854 kg, GSAT-11 is the heaviest satellite built by ISRO.**
- **India's second mission to Moon, Chandrayaan-2 was successfully launched on July 22, 2019 on-board GSLV Mk III-M1, first operational flight of this new launch vehicle. Chandrayaan-2 Orbiter is providing valuable science data for the research community.**
- **The launch of PSLV-C48/ RISAT-2BR1 in December 2019 marked the 50th launch of PSLV, the workhorse launch vehicle.**

- **Quantum entanglement based real time Quantum Key Distribution (QKD) over 300m atmospheric channel along with quantum-secure text, image transmission and quantum-assisted two-way video calling was demonstrated on 27 January 2022.**
- **A dedicated ISRO System of Safe and Sustainable Space Operations Management (IS^{4}OM) has been established in July, 2022 to collate all Space Situational Awareness efforts in India and to act as a hub for the relevant data exchanges and collaborations.**
- **LVM3 (GSLV MkIII) M2/OneWeb India-1 Mission was successfully accomplished on 23rd October 2022. With this launch, LVM3 exemplifies Atmanirbharata and enhances India's competitive edge in the global commercial launch service market.**
- **As part of Gaganyaan programme, new Test Vehicle for testing critical systems is developed. 'Integrated Main Parachute Airdrop Test (IMAT)' of crew module deceleration system was successfully carried out at Babina Field Fire Range (BFFR), Jhansi, Uttar Pradesh on 18th November 2022.**
- **Launch of Vikram-S (Prarambh mission), a suborbital launch vehicle from M/s Skyroot Aerospace Pvt. Ltd., Hyderabad, was accomplished successfully on 18th November 2022.**
- **First private launchpad & mission control center established by M/s Agnikul Cosmos Pvt. Ltd., Chennai in ISRO campus at SDSC, SHAR on 25th November 2022. Agnilet Semi-cryogenic rocket engine developed by Agnikul was successfully hot tested at ISRO facility on 04th November 2022.**
- **Recently, PSLV-C54 successfully launched EOS-06 satellite on 26th November 2022 along with Eight Nano-satellites including INDIA-BHUTAN SAT (INS-2B).**

- **On Feb 10th, 2023, the successful flight of Small Satellite Launch Vehicle (SSLV – D2) took place, launching three satellites – EOS-07, Janus-1 and AzaadiSAT-2 – into their intended orbits.**
- **Two nano-satellites from Indian space start-up M/s DhruvaSpace were launched as a rideshare passenger in PSLV-C54 mission. Gen-1 satellites from M/s OneWeb was launched using LVM3 (GSLV Mk-III). AzaadiSAT-2 – an 8.7 kg satellite built as a combined effort of about 750 girl students across India guided by Space Kidz India, Chennai, was launched aboard SSLV-D2.**
- **On March 7th, 2023, controlled re-entry experiment for the decommissioned Megha-Tropiques-1 (MT-1) satellite was carried out successfully, with final impact in the Pacific Ocean, demonstrating the nation's continued efforts towards ensuring the long-term sustainability of outer space activities.**
- **Further in 2023, a range of missions including commercial launches from NSIL and scientific missions such as Aaditya – L1 and Chandrayaan -3 are planned to be realized, besides the recent launch of 36 OneWeb satellites aboard LVM3-M3.**

(f) During last 8 years from 2014-2022, a total of 388 foreign satellites have been launched on commercial basis on-board ISRO's launch vehicle. Year wise details of satellites launched are as indicated below:

Year	No. of Foreign Satellites Launched
2014	5
2015	17
2016	22
2017	130

Year	No. of Foreign Satellites Launched
2018	60
2019	50
2020	9
2021	14
2022	44
2023 (as on March)	37
Grand Total	388

Net Revenue earned in Foreign Exchange by launching these 388 foreign satellites amounts to approx. 157 Million USD and 188 Million Euros

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