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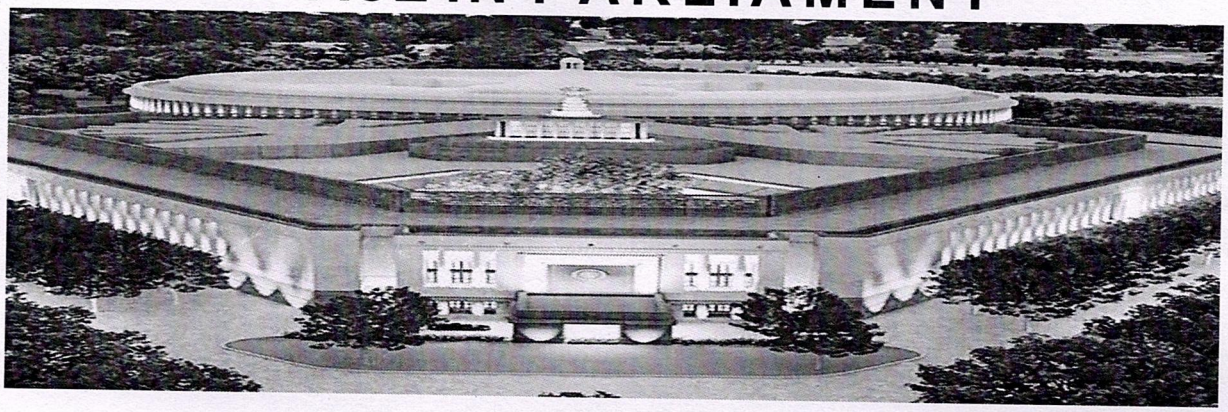
GOVERNMENT OF INDIA
DEPARTMENT OF SPACE

"SPACE IN PARLIAMENT"



BUDGET SESSION OF PARLIAMENT 2024
(JANUARY, 2024)

COMPILATION OF REPLIES

Government of India
Department of Space
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PARLIAMENT QUESTIONS – BUDGET SESSION OF PARLIAMENT 2024
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GOVERNMENT OF INDIA
DEPARTMENT OF SPACE

LOK SABHA

UNSTARRED QUESTION NO. 718
TO BE ANSWERED ON WEDNESDAY, FEBRUARY 07, 2024

DISTRESS ALERT TRANSMITTER

718. PROF. SOUGATA RAY:
SHRIMATI PRATIMA MONDAL:

Will the PRIME MINISTER be pleased to state:

(a) whether ISRO has developed an improvised Distress Alert Transmitter (DAT) with advanced capabilities for fishermen at sea;
(b) if so, the details thereof;
(c) whether it can send messages through a communication satellite;
(d) if so, the details of the advantages of such new devise for the safety and security of lakhs of fishermen who are frequently trapped in sea due to various reasons;
(e) whether the devise is likely to help to locate fishing zones to fishermen; 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):

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(a) & (b)

Yes. ISRO has developed an indigenous technological solution namely Distress Alert Transmitter (DAT) for the fishermen at sea to send emergency messages from fishing boats.

(c) & (d)

Yes. The messages are sent through a communication satellite and received at a central control station (INMCC: Indian Mission Control Centre) where the alert signals are decoded for the identity and location of the fishing boat. The extracted information is forwarded to Maritime Rescue Co-ordination Centres (MRCCs) under Indian Coast Guard (ICG). Using this information, the MRCC co-ordinates to undertake Search and Rescue operations to save the fishermen at distress.

The Second Generation DAT (DAT-SG) has the facility to send back acknowledgement to the fishermen who activate the distress alert from sea. This gives an assurance of rescue coming for them.

DAT-SG also has the capability to receive messages from control center. Using this, advance alert messages can be sent to the fishermen at sea whenever there are events of bad weather, cyclone tsunami or any other emergencies.

(e) & (f)

Yes. The information about Potential Fishing Zones (PFZs) are also transmitted to fishermen using DAT-SG on regular intervals. This helps fishermen to get good yield in the catch and savings in terms of time and fuel. DAT-SG can be connected to mobile phones using Bluetooth interface and the messages can be read in native language using an App in the mobile.

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GOVERNMENT OF INDIA

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LOK SABHA

UNSTARRED QUESTION NO. 808

TO BE ANSWERED ON WEDNESDAY, FEBRUARY 07, 2024

SENDING HUMANS TO SPACE

808. DR. MANOJ RAJORIA:

Will the PRIME MINISTER be pleased to state:

(a) the details of the progress made by the country in its Mission to send humans to space;

(b) the details of the future plans of ISRO including the development of human spaceflight capabilities and exploration of deeper space; and

(c) the details of the measures the Indian government has taken to promote private sector participation in the space sector?

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 progress made for Gaganyaan programme is as follows:

I. The first Test Vehicle mission (TV-D1) for the validation of crew escape system and parachute deployment has been successfully accomplished.

II. Ground testing of propulsion stages, including solid, liquid and cryogenic engine, towards human rating of the launch vehicle have been completed.

III. Design of environmental control and life support system is completed. Sub-system realization is in progress. Sub-system level tests are in progress.

IV. Gaganyaan First uncrewed mission (G-1): Crew Module and Service Module structure realization completed. Mechanical Interface generation and integration activities are in progress.

V. Integrated Air Drop Tests: Crew module structural test and integration activities are in progress for drop tests using IAF Chinook helicopter.

VI. Second semester of crew training is completed. Corresponding Physical Fitness and medical evaluation of crew has been completed.

VII. Crew module Recovery activities carried out successfully for TV-D1 mission as per procedures finalised during trials.

VIII. The human centric systems have been realized through National labs and international collaboration. Qualification is in progress.

(b) The mandate of Gaganyaan programme is to demonstrate the capability to indigenously carry out human spaceflight to Low earth orbit. In continuation of Gaganyaan programme, ISRO has developed a comprehensive road map for human spaceflight activities. As per the roadmap, ISRO is planning to carry out crewed and uncrewed follow-on missions. The objectives of these mission will be to induct various indigenous technologies such as flight suits, crew seat, viewport and advanced avionics systems.

ISRO is also formulating a proposal to develop and deploy Bharatiya Antariksh Station (BAS) in Low earth orbit. Currently, detailed feasibility studies are underway for the same. These programmes shall pave the way for demonstration of Lunar landing of an Indian by 2040.

(c) The Government of India has taken the following measures to promote private sector participation in the space sector:

1. Indian Space Policy 2023 has been released by GoI, where roles and responsibilities of all the stakeholders contributing to the overall Indian space ecosystems defined.
2. Various schemes to encourage and hand hold private sector also announced and implemented by IN-SPACe, i.e. Seed Fund Scheme, Pricing Support Policy, Mentorship support, Design Lab for NGEs, Skill Development in Space Sector,

ISRO facility utilization support, Technology Transfer to NGEs etc..

3. IN-SPACe has signed around 51 MoUs with Non-Government Entities (NGEs) to provide necessary support for realization of space systems and applications envisaged by such NGEs, which is expected to increase the industry participation in manufacturing of launch vehicles and satellites.

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GOVERNMENT OF INDIA

DEPARTMENT OF SPACE

LOK SABHA

UNSTARRED QUESTION NO. 852

TO BE ANSWERED ON WEDNESDAY, FEBRUARY 07, 2024

SPACE STATION OF ISRO

852. SHRI KARTI P. CHIDAMBARAM:

Will the PRIME MINISTER be pleased to state:

(a) the status of the first round of tests that will be conducted for the preliminary version of the space station of the Indian Space Research Organisation (ISRO);

(b) whether the Government is on track in terms of achieving its target of setting up the space station by 2035 and if so, the details thereof;

(c) whether a road map has been developed for India's future moon exploration missions and if so, the details thereof;

(d) whether any funds have been allocated for setting up of the space station; 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):

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(a) The proposed configuration of Bharatiya Antariksh Station (BAS), to be developed by ISRO, is in conceptualization phase, wherein the overall architecture, number and type of modules, docking ports, etc. are being studied.

(b) Towards setting up the space station by 2035, ISRO has been working on the overall configuration of the Bharatiya Antariksh Station (BAS). The station is planned to be assembled in a phased manner. Towards this, a prospective roadmap is being evolved for realization of different modules and their respective launches.

(c) The roadmap for India's future moon exploration missions is under conceptualization, with feasibility studies being undertaken for further robotic exploration of moon through orbiters, landers and rovers, along with lunar sample collection and return, eventually followed by human landing on the Moon.

(d) & (e)

The allocation of funds for setting up of the space station shall be sought once the feasibility studies are completed and the proposal is put up for formal Government approval at an appropriate stage.

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GOVERNMENT OF INDIA

DEPARTMENT OF SPACE

LOK SABHA

UNSTARRED QUESTION NO. 918

TO BE ANSWERED ON WEDNESDAY, FEBRUARY 07, 2024

ADITYA-L1 SATELLITE

918. SHRI VINOD KUMAR SONKAR:
SHRI BHOLA SINGH:
SHRI RAJA AMARESHWARA NAIK:
DR. SUKANTA MAJUMDAR:

Will the PRIME MINISTER be pleased to state:

(a) whether India's Aditya-L1 satellite has reached its designated orbit on January 6th, 2024 where it will stay for the next five years;

(b) if so, the details thereof;

(c) whether the satellite will study the outer atmosphere of the Sun and gather data to understand the dynamics of the Sun and its effects on the Earth; 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):

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(a) & (b)

Yes. On January 6th, 2024, Aditya-L1 satellite reached its designated orbit, which is a halo orbit around first Lagrange point 1 (L1) of the Sun-Earth system, situated approximately 1.5 million kilometer away from Earth along the Earth-Sun line. The nominal mission life is five years.

During the mission phase, the Aditya-L1 spacecraft will study the Sun from the halo orbit around the vantage point of the first Sun-Earth Lagrange point – L1. The data will be archived at the Indian Space Science Data Centre (ISSDC). In this orbit, the Aditya-L1 spacecraft will have continuous visibility of the Sun.

(c) & (d)

Yes. The Aditya-L1 spacecraft will study the outer atmosphere of the Sun (called the solar corona), as one of its scientific objectives. The data gathered from on-board instruments will contribute to the study of the outer atmosphere / layer of the Sun, as well as the solar emissions / eruptions, including the ones directed towards the Earth.

The different instruments on-board Aditya L1 are equipped to study the solar corona both with imaging and spectroscopic techniques; image the solar disc at ultra-violet wavelengths; study the solar wind ions and electrons, as well as the Interplanetary Magnetic Field (IMF) associated with them.

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GOVERNMENT OF INDIA

DEPARTMENT OF SPACE

RAJYA SABHA

UNSTARRED QUESTION NO. 768

TO BE ANSWERED ON THURSDAY, FEBRUARY 08, 2024

INTERNATIONAL COLLABORATIONS IN THE FIELD OF SPACE RESEARCH

768. SHRI SUJEET KUMAR:

Will the PRIME MINISTER be pleased to state:

(a) the current status of ISRO's collaboration with other space agencies and countries;

(b) whether Government plans to partner with foreign space research organisations for any upcoming missions, if so, the details thereof;

(c) whether Government has undertaken any initiatives to encourage private investment and participation in space-related activities, if so, the details thereof and if not, the reasons therefor; and

(d) the vision of ISRO in terms of international collaboration contributing to the advancement of space exploration and technology?

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) Currently, space cooperative documents have been signed with 61 countries and five multilateral bodies. The major areas of cooperation are satellite remote sensing, satellite navigation, satellite communication, space science and planetary exploration and capacity building.

(b) Yes. Indian Space Research Organisation (ISRO) is already working with the space agency of USA (NASA) for realising a joint satellite mission, named 'NISAR (NASA ISRO Synthetic Aperture Radar)' which is in the advanced stages of realisation. ISRO is working with CNES (French National Space Agency) for realising a joint satellite mission named 'TRISHNA (Thermal Infrared Imaging Satellite for High Resolution Natural Resource Assessment)', which is in the initial stages. ISRO and JAXA (Japan Aerospace Exploration Agency) have carried out a feasibility study to realise a joint lunar polar exploration mission.

(c) Yes. Indian Space Policy – 2023 has been released, which provides the freedom of innovation to the private sector to pursue end-to-end activities in the space domain. Further, the India National Space Promotion and Authorisation Centre (IN-SPACe) has been functioning as a single-window agency to promote, authorise and encourage private sector participation in space sector.

(d) ISRO pursues international collaboration with the objectives of enhancing the capacity of the Indian space programme for advancing programmatic priorities, augmenting space science and earth observation data base, widening ground station networks, bettering products and services through joint experiments and creating platforms for inflow of expertise.

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GOVERNMENT OF INDIA

DEPARTMENT OF SPACE

RAJYA SABHA

UNSTARRED QUESTION NO. 769

TO BE ANSWERED ON THURSDAY, FEBRUARY 08, 2024

ENCOURAGING STARTUPS TO BOOST INDIA'S SPACE PROGRAMME

769. SHRI KARTIKEYA SHARMA:

Will the PRIME MINISTER be pleased to state:

(a) the details of steps taken by the Ministry to encourage startups to boost India's space programme;

(b) whether ISRO is under preparation for Deep Space Probes in the next three years, if so, the details thereof; and

(c) the details on the contribution of Make in India campaign on India's space technology in the past five years?

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) Yes, the following steps have been taken by the Government to encourage the startups to boost India's space programme:

1. Indian Space Policy 2023 has been released by Government of India, where roles and responsibilities of all the stakeholders contributing to the overall Indian space ecosystems defined.
2. Various schemes to encourage and hand hold private sector also announced and implemented by IN-SPACe, i.e., Seed Fund Scheme, Pricing Support Policy, Mentorship support, Design Lab for NGEs, Skill Development in Space Sector, ISRO facility utilization support, Technology Transfer to NGEs and Frequent meet/roundtable with the national and international industries for potential business opportunities.

3. IN-SPACe has signed around 51 MoUs with Non-Government Entities (NGEs) to provide necessary support for realization of space systems and applications envisaged by such NGEs, which is expected to increase the industry participation in manufacturing of launch vehicles and satellites.
4. Total number of registered start-ups on Digital Platform are approximately 189.

(b) As of now, ISRO has no plans for Deep Space Probes. However, conceptualization studies are underway for advanced space exploration missions, such as continuation of human spaceflight program, further follow-up missions to moon and the Bhartiya Antariksh Station.

(c) The "Make in India" initiative in space technology is a strategic approach to boost domestic manufacturing, innovation, and self-reliance in the space sector. The self-reliance in the space technology caters both upstream and downstream sector.

Indian space program, with substantial contribution from domestic industries, has touched several new highs over the past 5 years, showcasing indigenous capabilities across all segments of space activities. Key achievements include commercial launches of LVM3 & PSLV, development of SSLV, earth observation satellites, navigation satellite, soft landing & roving on the Moon, mission to study the Sun (Aditya-L1) and major strides towards demonstration of human space flight.

Following are some of the major highlights of Make in India initiative and outcome:

1. Domestic Manufacturing of Space hardware: Critical technologies and industrial ecosystems are being developed at ISRO as well as through IN-SPACe respectively.
2. Space system and satellite manufacturing facilities are being established by Indian NGEs.
3. Launch Vehicles systems realization facilities are being set up by NGEs.

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