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Government of India  
Department of Space

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Antariksh Bhavan,  
New BEL Road,  
Bengaluru.

February 02, 2021

Subject : "Draft Humans in Space Policy for India, 2021" – Hosting in public domain for comments/suggestions – reg.

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Department of Space being the administrative Ministry/Department in respect of space activities in India as per the allocation of Business Rules of Government of India, shall issue appropriate norms, guidelines and procedures including approval-mechanism from time to time for the services in the areas of secured communication, commercial and societal services under Spacecom-2020.

Accordingly, the draft "Humans in Space Policy for India, 2021" and guidelines, procedures for implementation of "Humans in Space Policy for India – 2021" are published for public consultation.

Comments on the draft policy, if any, shall be forwarded to this Department to the email id :- ***dir.projects@isro.gov.in*** earliest, but not later than **28.02.2021**.

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# **HUMANS IN SPACE POLICY FOR INDIA 2021**

Department of Space  
ISRO Headquarters Bengaluru

## **1. Preamble;**

Space activities are critical to India's socio-economic growth, technological innovation and advancement, scientific discovery, security, Industrial competitiveness, job creation and human resource development. India is committed to maintain its role as a leading space faring nation.

Worldwide human spaceflight programmes have delivered large economic and technological benefits. India has a demonstrated capability in developing and operating end-to-end solutions in space transportation system, space infrastructure, space applications as well as ground segment. Hence, Government of India has announced its intention to undertake human spaceflight mission as an expansion of scope of the national space programme.

This decision comes at a time when space industry both at national and global level is undergoing a period of transformation wherein non-traditional players are striving to play a greater role in the overall space economy. Towards this, Government of India has announced its policy framework for unlocking the space sector by facilitating the participation of non-traditional players in undertaking space activities through a handholding approach and a transparent regulatory framework.

Given the collaborative nature of human spaceflight due to its multi-disciplinary nature, it is essential to have a policy-framework on human spaceflight, which not only fosters collaborations but also addresses proliferation concerns and compliance to existing policies, laws and treaties.

Human-spaceflight programme needs to be sustained over longer periods to deliver tangible benefits. Hence, it is essential that humans in space policy enables sustained presence in low earth orbit and beyond through reliable, robust, safe and affordable means by undertaking appropriate capacity building measures like collaborations, infrastructure development, facilities modernization, technology development and human resource development thereby encouraging new industries, creating high technology jobs, enabling socio-economic growth and further enhancing India's stature and role in space.

## **2. Scope;**

The policy frame work given in this document is applicable to activities presently postulated under Indian human space program (IHSP) and for those activities which shall be defined and carried out in future in conjunction with IHSP.

## **3. Humans in Space policy 2021;**

The Department of Space shall govern and undertake the activities under Indian human space programme under following policy principle:

*“The Humans in Space Policy aims for sustained human presence in space as an instrument for development, innovation and foster collaborations in alignment with national interests.”*

## **4. Authorisation & Execution;**

DoS/ISRO with a mandate to carry out space activities in India is tasked with execution of activities of Indian human space programme.

DoS/ISRO shall issue appropriate guidelines, including approval-mechanism from time-to-time for the activities under Indian human space programme in conformation with extant Space Act of India and policy.

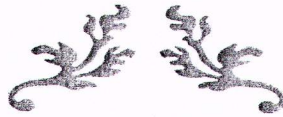
The guidelines and procedures supporting the Humans in Space Policy 2021 will be issued separately as part of policy document.

This “Humans in Space Policy 2021” shall take effect upon approval of the Union Cabinet of India.

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# HUMANS IN SPACE POLICY FOR INDIA 2021

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## Guidelines & Procedures for implementation of Humans in Space Policy for India 2021

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**Department of Space  
ISRO Headquarters Bengaluru**

## GUIDELINES

In pursuance of the Humans in Space Policy 2021, Department of space shall

- 1. Demonstrate human space flight capability leveraging the expertise of ISRO, national research institutions, academia, industry and other organisations.**

Various technological elements such as development of human rated launch vehicle, environmental control and life support system, crew escape system, deceleration system, crew selection and training, crew recovery operations, development of human centric products, and micro gravity experiments shall be undertaken by department utilising expertise of ISRO, national research institutions, academia, industry and other organisations.

As part of demonstration of human space flight capability, department shall undertake developmental unmanned missions prior to manned mission.

A standardised approach towards safety and reliability shall be adopted for mission assurance and success.

- 2. Define long-term road map for sustained human presence in low earth orbit and undertaking exploration missions beyond low earth orbit.**

Indian human space program envisages undertaking the demonstration of human spaceflight to LEO in the short-term and will lay the foundation for a sustained Indian human space exploration programme in the long run. DoS with mandate to carry out space activities in India shall define a roadmap with regard to human space activities.

- 3. Identify and develop necessary technologies for enabling sustained presence of humans in low earth orbit and beyond.**

In order to pursue the objectives as stipulated in Humans in space policy, the necessary technology and gap areas shall be identified. The thrust areas thus identified shall become part of technology roadmap of ISRO. The thrust areas will include key technology elements e.g. Regenerative life support systems, development of Rendezvous and docking systems, Inflatable habitats, extravehicular activity suits etc.

**4. Constitute a suitable mechanism to enable participation of various national stake holders in Indian human space programme.**

Indian human space programme involves various national institutions, organisations and stakeholders. A suitable mechanism shall be constituted to ensure effective coordination and seamless execution among various agencies involved.

Announcement of opportunities shall be floated for encouraging the participation of national research institutes/academia/industries.

**5. Define and develop a comprehensive collaborative framework for scientific research in domains linked to human space activities keeping in mind the national priorities.**

Humans in space activities are primarily science driven. DoS/ISRO shall promote and develop an ecosystem for carrying out research in domains linked to human space activities duly considering the national priorities.

Collaborative research opportunities shall be explored through suitable announcements. The evaluation and acceptance of research proposals shall be carried out utilising the national expertise.

**6. Foster International cooperation and evolve collaborative programs of mutual interest.**

International cooperation shall be utilised as tool for taking up projects of mutual interest with aim to enhance knowledge in diversified scientific and engineering domains. The domain expertise of collaborative partners shall be utilised to add scientific value and accelerate the program.

Participation of national research institutions, academia and industry in International human space programmes is also envisaged with DoS/ISRO acting as focal point in this regard.

**7. Strive for human resource development, and encourage entrepreneurship.**

Human resource development and training initiatives shall be undertaken to develop necessary expertise with regard to Indian human space programme. DoS/ISRO shall encourage start-ups and industries through suitable mechanism. Mechanism shall be established to explore spinoff opportunities and their development for societal benefits.

**8. Enhance public involvement in human space programmes through outreach activities.**

Outreach programme shall be designed ensuring continuity in information dissemination with respect to opportunities and benefits of human space programme. Information for dissemination shall be tailored based on stake holder's interest.

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## PROCEDURES

To meet the goal of successful demonstration of human spaceflight capability and to achieve vision of sustained human presence in space, a national effort is envisaged. The overall human space activities shall be executed by DoS/ISRO in collaboration with various stakeholders i.e. national agencies, industries, and academia etc. The collaborative activities are expected to expand further as Indian human space programme evolves in future.

As part of Indian human space programme, DoS/ISRO has entered into many new domains such as crew selection, human safety and certification, development of science payloads, life sciences etc.

In pursuance of Humans in Space policy 2021, the department shall continue to follow standard norms and procedures as utilised in past and updated from time to time. For activities which are exclusive to human space programme such as evolving collaborative framework, partnership with stakeholders, crew safety & certification, and crew selection DoS/ISRO shall adopt following procedures.

### **1. Collaborative mechanism with National agencies;**

To pursue activities under collaborative mechanism DoS/ISRO shall constitute a national level body comprising of members from various stake holders and participating agencies. The body shall oversee the activities of the programme and issue guidelines for effective coordination among the stakeholders.

### **2. Crew Safety and certification**

Crew safety is of paramount importance for any human space flight mission and it is ensured by human rating and certification of systems involved in human space flight. For human rating and certification, it is essential to have a strong organisational mechanism in place.

DoS/ISRO shall evolve a standardised approach for certification of systems/subsystems associated with Indian human space program with the concurrence of an Apex body established for the purpose.

### **3. Crew selection**

DoS/ISRO shall establish a comprehensive criterion for screening and selection of crew members. For initial missions pilots from Indian Armed forces will be inducted as crew members.

DoS/ISRO shall constitute suitable mechanism for evaluation and selection of crew members for missions planned for Indian human space programme.

### **4. Intellectual property, dispute settlement**

DoS/ISRO shall adopt existing norms and procedures for protection of intellectual property and settlement of dispute as postulated in Space Act of India with regard to activities defined under Indian human space programme.

The above procedures shall take effect upon approval of the Union Cabinet of India.

The procedures shall be updated as and when necessary.

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