

Formulation of 11th Five Year Plan

Members of the Working Group on "Space"

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| 29. | Chairman & Managing Director, HAL, Bangalore | ... | Member |
| 30. | Shri V Sundararamaiah, Scientific Secretary, ISRO | ... | Member-Sec. |

3. OVERALL VISION AND PROGRAMME DIRECTIONS

1. The guiding vision for the Indian Space Programme, from the very inception of the programme had been to be '*second to none*' in the development and applications of space technology to the solution of the real problems of society. India was among the first few countries to realize the importance of space technology to solve the real problems of man and society and took initiatives to develop the space technology for the benefit of the nation. The emphasis on Self-reliance has been an important component of the vision, with which India undertook development of satellites, launch vehicles and associated ground segment indigenously in a progressive manner. Today, India's core competence in space is its ability to conceive, design, build and operate complex space systems and use them in various frontiers of national development. The space technology institutions / centres created in the country and the overall system /project management practices evolved in the course of implementation have been vital outcomes of the space programme.

2. Space holds immense potential to accelerate the development process in the country and offers enormous opportunities to understand the universe. In the context of rapidly transforming India into an economically prosperous, socially secure and culturally rich nation, Space technology is an inevitable tool. The thrust of the space programme in future will have to be on large scale applications of space technology in the priority areas in the context of national development. The future directions for Space Programme have to take into account needs of the country in the context of emerging international environment and the potential that India holds for human development.

3. Space industry is inherently technology intensive and is dependent on long term R & D for its future viability. Space has vast potential for advancement in technology and applications. Revolutionary advances in space technology are expected to bring a quantum jump in application possibilities. Technology advancement, which is essential to maintain competitive relevance, will thus be an important thrust area for space endeavors of future.

4. The broad direction for the space programme for the next Decade and the 11th five year plan will be driven by (a) development goals of the country in key social and economic sectors, (b) imminent need to achieve higher levels of self-reliance in critical areas of technology, (c) our desire to secure a unique place for

the country by embarking on missions of strategic importance and (d) our thirst for expanding knowledge about the universe, solar system and planet earth. It is well known that space technology is a powerful catalyst for social development in the areas of food security, rural development, education and literacy, health-care and environment. The changing world scenario characterized with rapid growth of technological innovation and its application, faster and cheaper communication, easy access to information, convergence of technologies and further opening up of global markets have thrown up a gamut of challenges and opportunities. The shift in the focus of delivery mechanisms from Communities to Individuals, arising from advances in information and communication technologies, is an emerging trend to be taken note of. It is important to take cognizance of the emerging global competitive environment for space services and adopt innovative strategies to enhance the cost-effectiveness of our space systems.

5. The overall thrust of the space programme will be to sustain and strengthen the already established space based services towards socio-economic development of the country. The programme profile will be based on the emerging requirements in the priority areas of national development and security requirements and will take cognizance of the policy framework and global trends.

6. The Programme Directions and the major thrust areas of the Space Programme during the next Decade 2010-20 are :

(a) Enhanced Capabilities for Space Communications.

- Competitive and state-of-art Space segment capacity augmentation in INSAT / GSAT system for national needs in the area of communications, broadcasting and information infrastructure.
- Establishment of Regional Satellite Navigational System and positioning services.
- Major thrust on societal applications including Tele-education, Tele-medicine and Village Resource Centres.
- Undertake major technology enhancement and applications development for space communications including Mobile Communications.
- Transitioning INSAT system towards self-sustenance and enabling private sector role in Indian Satellite Systems.

(b) Leadership in Earth Observations:

Position Earth Observation Infrastructure to meet national imaging demands and support National Natural Resource Management Systems, Disaster Management Support System, developmental activities, improved Weather and Ocean-state Forecast.

(c) Major thrust for Space Transportation:

Long term goal of realisation of a cost-effective state-of-art Two-Stage-To-Orbit (TSTO) Vehicle by 2025 and support the national launch needs till such time through expendable launch vehicles by upgrading the existing launch capabilities.

(d) Space Science Enterprise:

Undertake advanced space science endeavours including Planetary exploration.

(e) Enhanced Industry Participation

Increased role for Indian industries in realising the Space products and services.

(f) Promoting Spinoffs:

Human resources development, Strengthening the Academia interface and forging International partnerships.

7. Space is next frontier of human kind. With an impressive record of array of achievements in the space technology in the country, in terms of providing operational space services in a self-reliant manner, the next logical step to space research is to undertake manned mission, which hold enormous promise of bringing greater economic benefit to the nation. Material processing, building large space systems like space stations, servicing and refueling of satellites in space and the potential of space to augment our energy resources will be of increasing importance in the day's to come. Therefore, taking initiatives to

develop capability of manned mission is an important objective for the years ahead.

8. The forthcoming Decade 2010-20 unfolds with several challenges and opportunities in the space technology in the context of social, economic and strategic growth of the country. The Space programme, thus, will play a more critical role in the national development in the years to come.

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