

Good Afternoon to one and all!

- ✓ We are here as a team of Parliamentary Standing Committee for reviewing ISRO activities. As the chairman of the committee let me welcome you all for this briefing.
- ✓ As we know, over the past five decades ISRO's space program has significantly contributed towards societal applications in the country by building 110 missions including 41 launch vehicles and 69 spacecraft missions. The self reliance achieved in building launch vehicles & satellites systems has put India in the elite league of space faring nations.
- ✓ It gives me immense pleasure to congratulate the ISRO team for the successful launch of GSLV-D5 carrying GSAT-14 spacecraft on Sunday, the 5th of January 2014. I understand this is an outcome of 20 years of ISRO's hard work and team commitment towards the development of the complex indigenous cryogenic technology. Mastering the cryogenic technology which involves managing fuel for rocket- liquid hydrogen and liquid oxygen at very low temperatures has been a major achievement. With this, India is the sixth nation to develop and demonstrate this technology successfully after US, Russia, Europe, China and Japan. This grand success will pave way for sizeable savings in Indian launch costs including the launch of manned missions and Chandrayaan-2. Country is proud of you ISROites.
- ✓ The launch of Mars Orbiter Mission onboard PSLV-C25 on November 5, 2013 is yet another landmark for the Indian space programme that has ignited the young minds in the country. I believe the Satellite has to travel 6.8 crore km and it takes 310 days at an approximate speed of 30Km per second. The spacecraft is now at a distance of 1 crore km away. Satellite will be injected in to Mars orbit on September 24, 2014. Just to give a comparison with this speed of satellite can reach to US from India in a matter of 6-7 minutes can you imagine? Can you also imagine the complexity in communication and Maneuvering of such an interplanetary object? It is mind boggling. Kudos to ISRO staff for having achieved this feat. ISRO has done it! ... under many constraints, Embargo, denial of technical help in realizing high technology space missions. I'm amazed to learn that the entire project was accomplished in a record time of 15 months!
- ✓ To our pride, PSLV has rightfully earned the status of workhorse launch vehicle of ISRO. With 24 Successive PSLV launches it has established its versatility & reliability internationally. With its variant configurations, PSLV has proved its

multi-payload, multi-mission capability in a single launch and its geosynchronous launch capability as well.

- ✓ ISRO has been reaching out to almost every individual and the issues of the society at large in areas of communication, remote sensing applications and navigation. Today, 386 hospitals and more than 56000 classrooms are reaping the benefits of the telemedicine and teleeducation programmes respectively. Remote sensing data has been used in identifying the potential ground water sources and the success rate is reported to be around 90%. Additionally, 490 village resource centres have been actively providing valuable services to the user community. Communication satellites have been instrumental in providing services like Direct-to-Home, Broadcasting services, VSAT connectivity, Mobile satellite services, Tele-medicine & Tele-education etc. Agriculture, Ocean applications, Weather forecasting, Urban planning, Land & water resource management, environment and atmospheric studies, Disaster management etc are the crucial services that are continuously being supported by the remote sensing satellites. I appreciate the data provided by remote sensing satellites that greatly assisted rescue operations during the Uttarkhand disaster and Phailin cyclone.
- ✓ I understand, India is on its way to have its indigenously built Indian Regional Navigation Satellite System to cater to the navigation applications of various users like railways, other transportation systems, agriculture and many others. It is designed to provide accurate position information services to users in India as well as the region extending few km from its boundary.
- ✓ Apart from these, challenging space science and interplanetary exploratory missions are being pursued that will contribute to research by scientific community.
- ✓ GAGAN, a Satellite Based Augmentation System (SBAS) for civil aviation applications to provide better air traffic management over Indian airspace was implemented jointly with Airport Authority of India (AAI). GAGAN system has been certified by DGCA (Director General of Civil Aviation) for en-route /non precision approach service operations over Indian region and is now the fourth SBAS to be certified in the world.
- ✓ Since January 2013, ISRO has successfully accomplished 10 missions till date. This includes six satellites and four indigenous launchers. This has augmented transponder capacity to 218 and host of remote sensing applications. Achieving

10 missions - six satellites and four launches demonstrates the technological capability of the country in space domain.

- ✓ In my opinion, the future is more demanding and challenging w.r.t realizing advanced satellites and launch vehicles capable of launching heavier satellites. ISRO must build heavy satellites weighing more than 6 tonnes, complete its navigation constellation and realize satellites to meet all the needs of the country including Strategic requirements.
- ✓ Similarly, operationalisation of GSLV-Mk II and development of advanced GSLV-Mk III will make ISRO fully self reliant in launching heavier communication satellites weighing upto 5000 kg. It would also enhance the capability of the country to be a competitive player in the multimillion dollar commercial launch market.
- ✓ In summary, India started her pursuit of space science and technology with the humble objectives of taking the benefits of cutting edge technology to the common man. Today, Space is an important dimension for the country's development. Satellite based navigation system will have to play a much bigger role in the society. In-orbit transponders should meet the growing demands of user communities in voice, video and data transmission, bandwidth-on-demand services etc. Advanced spacecraft for accurate weather prediction, high resolution imaging capability with high repeatability and revisit capability and geo-imaging will be in high demand. Space systems will play a strategic role in ensuring national safety & security. It is also essential to draw up a roadmap for manned missions.
- ✓ ISRO should also plan to capture a sizeable market in the international space segment. Capacity building and knowledge management must be strengthened with the aim to become the best amongst the space faring nations.
- ✓ On behalf of the Parliament Standing Committee for S&T and on my personal behalf let me once again compliment all the ISRO staff for the success and their contribution. I expect they continue to do their good work and also meet some of the recommendations made by this committee and scale greater heights.

Thanks again. Questions from you now.