

Agenda Item-9: *Spin-off benefits of space technology: review of current status***Mr. Chairman and Distinguished delegates**

Right since its inception in late 1960s, the Indian Space Research Organization [ISRO] has strived to and largely met its objectives of ensuring the usage of space technologies to solve the real problems of common man and society. In this regard, ISRO has been consciously nurturing the Indian industries for utilizing their expertise through a vibrant technology transfer program, wherein technical know-how is transferred to competent industries.

The program has contributed towards technological self-reliance, industrial growth and national development through spin-off benefits. Many of the technologies developed for space applications have been transferred to the industries for extending the benefits to other fields such as health, medicine, environment, safety, communication and transport.

Indian delegation has briefed this committee earlier on some such spin-offs including NavIC messaging receiver developed for fishermen community and Li-ion cell for automotive industry, besides automatic weather station, two-way MSS terminal for vessel tracking, polyurethane technology for artificial foot, aerosol measurement in high altitude remote areas, etc.

The delegation would like to highlight some of the recent spin-offs that are being adopted in other areas benefiting the society.

Mr. Chairman

During last two years, despite the setbacks caused by the global pandemic, many technologies were licensed by ISRO to Indian industries for societal application, commercialization and regular production.

A noteworthy example is the Medical Oxygen Concentrator (SHWAAS) developed by ISRO scientists, capable of supplying enriched oxygen continuously @10LPM parallelly for two patients. This was quite timely, given the extraordinary circumstances caused by the COVID pandemic. This was followed up by technology transfer of three different medical ventilator designs – SVASTA, PRANA and VaU – which shall be of immense use for the indigenous medical equipment makers during these troubled times. These technologies were offered at free of cost to the industries – considering their potentially widespread societal applications.

Besides this, ISRO continued with other important ones such as IRNSS receiver, Burst Demodulator and Distress Alert Transmitter using messaging system for fishermen community, which has created significant impact. Chemicals such as

Fire Retardant Coating and Pedcoat liner were transferred to interested Indian industries. Besides, know-how transfer of processes such as anodising and chromating were also transferred to a bunch of industries from the MSME sector.

Mr Chairman,

For easing in the commercial participation of industries in space sector, it was decided to engage the NewSpace India Limited, the public sector unit under Department of Space to directly interact with industry and academia on single window basis. NSIL shall act as a vital catalyst to bring forth a synergetic approach to technology transfer across country.

Some of the notable technologies transferred through NSIL include Silica aerogel powder & composite sheet, which is highly effective for making clothing in tough extreme cold conditions. Further, know-how transfer of process of realization of Carbon composites through Film boiling chemical vapour infiltration technology, which shall be of immense use in aerospace and biomedical industry. The revised mechanism of technology transfer through NSIL has created immense interest across industrial sectors with close to 52 technologies in pipeline, including but not limited to Super-capacitors, specific coatings and chemicals, know-how transfer of specialized processes, shape memory alloys, etc.

Mr Chairman,

Efforts are being made for development of technologies in human health and medical areas such as microprocessor controlled prosthetic knee and foot, left ventricle assist device for human heart, etc. Another technology on anvil is TRISP - an innovative power module which utilises solar, AC and DC power with in-built UPS function to power Desktop PCs and other electronic gadgets.

Mr Chairman,

The Indian delegation would like to reiterate that the contribution of the Indian Space Programme extends to several other areas and the technologies originally developed for space applications, now find wide-spread use in diverse fields across the nation.

Thank you Mr. Chairman and distinguished delegates.