TEMPLATE C

TOOLS: "Space2030" Agenda Mid-term Review

1. Have you benefitted from any of the "Tools", listed in paragraph 24?

Yes ■ No ☐

If YES, please indicate those mechanisms, and please summarize the impact [max 200 words]

Tools	Remarks
United Nationals Platform for Space-based Information for Disaster Management and Emergency Response (UN-SPIDER)	Pakistan ranks high in list of countries affected by climate change and is prone to natural calamities and disasters such as floods, earthquakes and droughts. Since 2010, Pakistan has faced numerous natural disasters, including major floods in 2010, 2013, 2014, and 2022. SUPARCO has been hosting a Regional Support Office (RSO) for UN-SPIDER since 2010. UN-SPIDER, through its Regional Support Office in Pakistan (Pak-RSO), has played a crucial role in disaster preparedness and response by facilitating the use of space-based information for disaster management: • **Disaster Preparedness**. UN-SPIDER, through its Regional Support Office in Pakistan (Pak-RSO), helps Pakistan improve its disaster preparedness by providing access to space-based information and technologies. • **Disaster Response**. UN-SPIDER facilitates the use of satellite data for rapid disaster assessment, mapping, and monitoring, aiding in effective rescue and relief efforts. • **Capacity Building.** UN-SPIDER supports capacity building in Pakistan by organizing workshops and training programs for disaster management professionals, enhancing their ability to use space-based technologies. • **Knowledge Sharing.** UN-SPIDER promotes the sharing of best practices and lessons learned in disaster management, connecting Pakistan with the global community of experts. • **Developing Geospatial Database.** Pakistan is developing a geo-referenced database for National Disaster Risk Management, with UN-SPIDER playing a role in this initiative.

	• **Sentinel Asia Framework.** Pakistan is actively engaging with UN-SPIDER and the Sentinel Asia Framework, contributing to the Sentinel Asia Joint Project Team Meeting (JPTM)
Committee on Earth Observation Satellite (CEOS) and Recovery Observatory & International Space Climate Observatory	SUPARCO collaborates with CEOS to improve environmental monitoring and disaster resilience in Pakistan. Earth observation data supports long-term recovery planning post-disasters. Furthermore, it supports environmental monitoring, particularly for air pollution, deforestation, and urban heat islands in Pakistan.
International Committee on Global Navigation Satellite Systems (ICG)	Pakistan recognizes the International Committee on Global Navigation Satellite Systems (ICG) as an important forum for advancing sustainable development through the promotion of GNSS compatibility and cooperation. Having actively participated in ICG meetings as an observer for several years, Pakistan applied for full membership in 2021. At the 18th ICG meeting held in Wellington, New Zealand, Pakistan's membership application was once again discussed. While the application received broad support based on its technical merits, consensus was unfortunately not reached. Pakistan's membership case was once again discussed during first planning and organization meeting of ICG-19. However, despite its pending membership status, Pakistan will continue GNSS related activities.
The International Asteroid Warning Network (IAWN) and Space Mission Planning Advisory Group (SMPAG)	Soon after creation of SMPAG, SUPARCO confirmed its membership of SMPAG in May 2014 and has regularly participated in its meetings. In Jan 2025, SUPARCO participated in SMPAG meeting and discussions when asteroid 2024 YR4 exceeded 1% impact probability threshold. Currently, draft TORs forwarded for a proposed Working Group on Apophis flight missions are under review.
Regional Centre For Space Science And Technology Education in Asia and the Pacific (RCSSTEAP)	SUPARCO has sent scientists and engineers on scholarships for 'Master Program on Space Technology Applications (MASTA)' and 'Doctoral Program on Space Technology Applications (DOCSTA)' offered by RCSSTEAP with the support of Chinese Government in fol areas of space technology applications: • Remote Sensing and Geographic Information System • Satellite Communications • Micro-satellite Technology • Space Law and Policy

2. In addition, several tools and initiatives have been and are being developed by the United Nations Office for Outer Space Affairs (UNOOSA), as part of its capacity-building for the twenty-first century, and in cooperation with its partners (A/RES/76/3, para. 25), as listed in paragraph 25, subsections (a)-(i) of the "Space2030" Agenda;

2.1 Have you benefitted from any of the "Tools", developed by UNOOSA, listed in para 25?

Yes ■ No ☐

If YES, please indicate those mechanisms, and please summarize the impact [max 200 words]

Tools	Remarks
Access to Space for All Initiative	Under the UNOOSA's Access to Space for All Initiative, SUPARCO participated in the First Expert Meeting held in May 2023. SUPARCO engineers have participated in webinars conducted under the Initiative such as *KiboCUBE Regulatory Webinar* in Sep 2023 and *System Engineering Webinar Series* held in 2023 and 2024. The initiative has helped in developing technical know-how and engineering processes related to satellite development.
Space Law for new Space Actors	SUPARCO officers actively participated in online courses offered by UNOOSA under the '*Space Law for New Space Actors*' aimed at capacity building of individuals in government and regulatory authorities. In this regard, five SUPARCO officers attained certificates from UNOOSA upon completion of basic and advanced courses on Space Law.
Space4Water Portal	SUPARCO officers participated in the 3rd and 4th Space4Water stakeholder meetings in 2023 and 2024 respectively. Meetings enabled participants to have meaningful exchange on the use of space technology for water security, water resource management, water quality and ecosystem preservation, as well as on data, systems and tools for those activities. Space4Water Portal is a recognized as a useful platform for interdisciplinary knowledge exchange on space technologies and water-related topics.

3. As the lists contained in paragraphs 24 and 25 of the "Space2030" Agenda and implementation plan are not exhaustive, and new initiatives could be developed, including by UNOOSA, with a view to assisting Member States in implementing the "Space2030" Agenda, please indicate additional relevant Tools and any proposed enhancements to the ones listed. [max 200 words]

Tools (new or enhanced existing ones)	How they could benefit your country
Space-based Air Quality Monitoring Initiative	Given the Air pollution challenges that plague Pakistan, an international space-based Aerosol Monitoring Program could enhance real time monitoring. It is quite critical for cities like Karachi and Lahore facing sever air quality challenges from smog. Such a system will enhance environmental sustainability, by improving access to space-based solutions for air quality.
Space-based Crop Monitoring and Food Security Program	A specialized platform under CEOS or UNOOSA may enhance crop yield prediction and early warning systems for food security. It would help farmer optimize resource use and mitigate climate-induced agricultural losses.Additionally, it would enhance agricultural productivity through precision farming and climate adaptation strategies
Regional Space Cooperation for Smart Infrastructure Development	It may support Pakistan's CPEC infrastructure planning through precise geospatial analysis. National transportation and smart city development through GIS-based urban planning would also be improved.