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Committee on the Peaceful Uses of Outer Space
Sixty-Fourth Session, 25 August – 3 September, 2021

Agenda Item 14 – Space Exploration and Innovation
Statement delivered by: Elle Agnew, Canadian Space Agency

Mister Chair and colleagues,

Space exploration is important for all of humanity – very few get to actually venture into the heavens but we all benefit from our continual drive to reach always further into the stars. Space exploration inspires - it encourages the next generation to pursue careers in, not only traditional Science, Technology, engineering and Mathematics or "STEM" but also legal, policy or communications. Space exploration also helps us understand more about our own planet and provides technological advances to improve life here on Earth. Air purifiers, enriched baby formula and advanced water filtration are just a few of the life-changing innovations that are a direct result of space exploration.

I would like to take this opportunity to highlight some of Canada's current and future space exploration missions. Canada continues to be an active partner on the International Space Station with our Mobile Servicing System, comprised of Canadarm2, Dextre, and the Mobile Base System, performing resupply, maintenance, and service tasks essential to ISS operations.

Human health science remains the Canadian priority for the utilization of the ISS. Canada is developing new multipurpose medical and research platforms to address risks associated with human space flight, such as the Life Science Research System (LSRS), which was deployed on the ISS in 2019. The LSRS is designed to support the identification, characterization and mitigation of the risks associated with the space environment for astronauts. Canada also initiated the development of a novel and breakthrough biological sample preparation technology for the ISS, MicroPrep and pursued seven scientific studies related to health on the ISS.

Canada also provided the OSIRIS-REx Laser Altimeter (or OLA) on NASA's asteroid-sampling mission OSIRIS-REx. OLA is a sophisticated laser-based mapping system; it was the source of data that has made Bennu the most precisely mapped body in the entire solar system, including the Earth. Now on its way back, we look forward to learning what secrets it holds when it returns.

Chair,

Canada's space exploration plans are laid out in the 2019 Space Strategy and include key elements such as partnering with NASA and other International Space Station partners on the Lunar Gateway as well as preparing Canada's space sector for missions to the lunar surface through Canada's Lunar Exploration Accelerator Program or "LEAP".

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As we move beyond the ISS to the Moon, Canada is in the planning phase for the development of the Canadarm3. This highly autonomous robotic system will use cutting-edge software to perform tasks around the Moon without human intervention. In the meantime, the Gateway External Robotic Interfaces (GERI) project has been initiated. The aim of the project is to deliver two types of interfaces to International Partners, setting the stage for the Canadarm3 system. These Interfaces will be the standardized connection points between the Canadian external robotics and the Gateway: larger "basepoints" on the various modules and visiting vehicles allowing the Canadarm3 to walk to different locations on the Gateway, along with smaller interfaces to support handling both scientific payloads and the replacement units for maintenance and repair of the Gateway.

Complimentary to the Gateway initiatives, LEAP will be delivered under two parallel streams: 1) a digital healthcare stream that will focus on developing innovative astronaut healthcare technologies and assessing how to leverage them to help improve healthcare delivery in Canada, particularly in remote and Northern regions; and 2) a science and technology stream that will focus on the development and demonstration of cutting edge science instruments and AI-enabled robotics.

Chair, Colleagues,

Equally important to the science is our commitment to conducting our space activities safely, sustainably and in accordance with the principles of the outer space treaty to ensure that the exploration and use of space is carried out for the benefit and in the interest of all countries, regardless of their degree of economic or scientific development. Canada joined with 7 other countries in October 2020 in signing the Artemis Accords in order to ensure that the deep-space activities we undertake will uphold these important principles. However, we know that the Accords were not the destination but rather a foundation for our activities. It is with that in mind that the Canadian Space Agency conducted public consultations on a framework for space exploration activities earlier this year – the results of that consultation are available on the Canadian Space Agency's website. This report will help inform Canada's national and international efforts to develop and strengthen frameworks for space exploration activities.

With this in mind, we are pleased to see the tremendous progress on establishing a working group under the Legal Subcommittee agenda item 14: General exchange of views on potential legal models for activities in exploration, exploitation and utilization of space resources. However, we must keep in mind, that space resource utilization is not the only activity or challenge we will face as we conduct operations further into space. We must always be attentive to our commitments, in the Outer Space Treaty, to conduct operations safely, sustainably and in the interest of all. We look forward to seeing where this work takes us over the 5-year mandate of this working group and are committed to working diligently towards the success of this effort.

Thank you for your kind attention.