67th United Nations Committee on the Peaceful Uses of Outer Space

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Statement of Italy

Agenda Item 16 "Space2030" Agenda

Mr. Chair, Distinguished Delegates,

Human exploration missions are increasingly frequent and long-lasting, and for this reason they require a different approach in supplying food and vital resources for the astronauts.

The possibility of accomplishing long-term manned missions - on board orbiting space platforms or colonising the Moon and Mars - depend, in fact, on the possibility of creating artificial ecosystems or "Bio-regenerative Life Support Systems"-BLSS, in which plants will play a central biological role for regenerating air - thanks to photosynthetic processes; for the purification of water - through transpiration; and for the production of food - by partially reusing the crew's organic waste.

Additionally, the search for possible solutions to support human life in space exploration produces knowledge and technologies that can be used for the cultivation of plants in extreme environments on Earth, such as deserts, the Poles or our modern megacities, and even in order to develop sustainable solutions for terrestrial agriculture.

To this regard, the Italian Space Agency coordinates a variety of research projects in the Bioregenerative Life Support Systems-BLSS domain, aimed at understanding the influence of space environmental factors on plant growth and for the identification of the best growing conditions and crops for space applications.

The expertise of the Italian scientific and industrial community in this research area is also focused on the design of BLSSs with the integration of different organisms, the optimization of the In Situ Resources Utilization approach, the further development of remote monitoring and control of environmental parameters and the automatization of all related processes.

Madame Chair, Distinguished Delegates,

the sophisticated agro-technologies we are developing for space applications are expected to result in important impacts benefitting the Earth, too, thereby contributing to achieve a number of Sustainable Development Goals, as for instance: - precision agriculture, with the development of tools for the improvement of crop monitoring, which, in turn, will provide more valuable data to farmers, helping them to enhance yield and avoid food shortages - as per SDG 2 "Zero Hunger" and 6 "Clean Water & Sanitation".

- Advancements in water purification and resource regeneration processes will promote a more responsible management of natural resources, in particular in remote/extreme environments - as per SDG 11 "Sustainable Cities and Communities" and 12 "Responsible Consumption & Production".

- And, finally, in order to address the still numerous challenges in this research area, joint efforts are also needed in order to invest in the coming generations of young talented researchers by expanding awareness of STEM education opportunities - as per SDG 4 "Quality Education".

Thank you for your kind attention.