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Statement Item 9: Near Earth Objects

Madam Chair, distinguished delegates,

Active contributions to the study and monitoring of Near Earth Objects (NEOs) are crucial, recognizing the high value of global cooperation in planetary defense to safeguard all of humanity. Italian experts participate in international initiatives such as the International Asteroid Warning Network (IAWN) and the Space Mission Planning Advisory Group (SMPAG).

At the European level, participation in the ESA Space Safety Programme includes contributions to the development of both ground-based and space-based instruments. Support for the realization and installation phase of the Flyeye telescope, an innovative system designed for sky surveillance and NEO detection, is ongoing. This telescope is planned to be installed on Mount Mufara in Sicily, with the Italian Space Agency (ASI) making its Space Geodesy Center in Matera available to support the pre-installation and science verification phases.

A key role was played in the recent launch of the Hera mission in October 2024, contributing to the development of the Milani CubeSat onboard. This nanosatellite will conduct detailed post-impact observations of the Didymos-Dimorphos system. The Hera mission follows the success of NASA's DART mission, which previously carried another Italian CubeSat, LICIACube, to capture images of the first-ever asteroid deflection test.

National industries are deeply involved in the preparatory work for ESA's proposed Ramses mission, which will rendezvous with the Apophis asteroid, offering a unique opportunity to study this NEO during its exceptionally close approach to Earth in April 2029. Moreover, within the ALCOR program, ASI finances ANIME, a nano-satellite mission concept aimed at exploring three Near Earth Asteroids belonging to the Potentially Hazardous population, thus of highest interest in terms of both planetary science and planetary protection.

Additionally, national research centers and universities are involved in both the physical and orbital characterization of NEOs. The Italian National Institute for Astrophysics (INAF) is actively engaged in scientific observations and spectro-photometric analysis of NEOs, contributing to improving our understanding of the nature of these objects. The University of Pisa has significantly contributed to the development of theoretical models that refine essential tools for orbital calculations and impact probabilities. These software tools have been recently selected for the establishment of the first NEO Center of the Italian Space Agency, planned to be completed by the end of 2025.

The recent discovery of asteroid 2024 YR4, which currently has an estimated impact probability of over 1% in 2032, highlights the critical need to continue investing in planetary defense efforts. This object serves as a reminder of the potential threats posed by asteroids and underscores the importance of early detection, continuous monitoring, and impact risk assessment.

To mitigate such risks, it is essential to strengthen international collaboration, enhance observational capabilities, and develop advanced mitigation strategies.

Thank you for your attention.