

International Space Station-enabled Educational Opportunities



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Non-Partner Participation on ISS

In 2002, the ISS partnership developed a non-Partner Participation Policy, which governs how non-ISS Partners can participate in the International Space Station

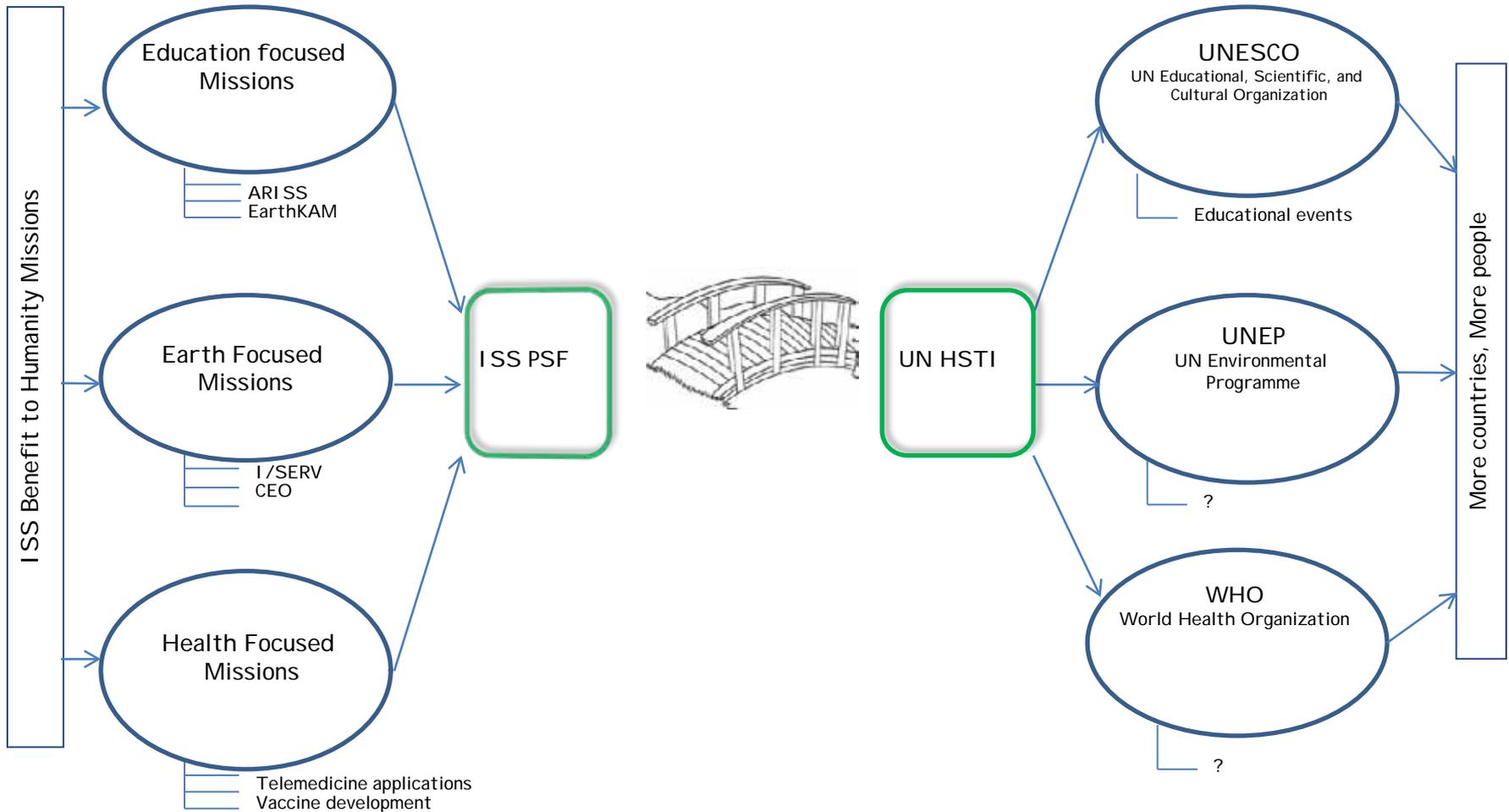
Non-Partners team with one of the 5 ISS Partners (NASA, Roscosmos, the European Space Agency, the Japanese Aerospace Agency, the Canadian Space Agency)

The ISS partnership then reviews the bilateral cooperation for approval

Non-Partners are encouraged to review and contact one of the ISS Partners with their research and education collaboration ideas



ISS Partners propose to use UN HSTI to facilitate cooperation to extend the benefits of ISS research & education to the world



ISS Partnership has Identified

- Three areas where activities on ISS can benefit all humanity
 - Education
 - Disaster Response
 - Human Health
- There are many ways for non-partner countries to benefit from the space station
 - International scientific collaboration (collaboration is essential because the laboratory is fully used)
 - Extending research applications globally
 - Motivating students worldwide to learn science, technology, engineering, and math

Regen ECLSS – Water recycling, oxygen generation, and carbon dioxide removal are critical technologies for reducing the logistics re-supply requirements for human spaceflight. The *International Space Station* demonstration project is applying lessons learned from operational experiences to next generation technologies. The resin used in the ISS water processor assembly have been developed as a commercial water filtration solution for use in disaster and humanitarian relief zones.



Balakot, Pakistan 2005
Source: ISS Program Scientist, NASA



Medical Technology - The development and use of the robotics arm for space missions on the Space Shuttle and the *International Space Station* has led to the world's first MRI (Magnetic Resonance Imaging) compatible image-guided, computer-assisted device specifically designed for neurosurgery. The device now being used to augment surgeons' skills to perform neurosurgeries that are traditionally considered difficult or impossible, thus leading to better patient outcomes.



Telemedicine Advancements - Ultrasound training methods developed for evaluating medical issues on the *International Space* Station have been used by the American College of Surgeons to teach ultrasound techniques to surgeons. Additional applications could include diagnosis of injuries and illnesses in remote locations on Earth, including rural areas, disaster areas and the battlefield.



Naruse River

flood water

Higashi-matsushima

Matsushima Airport

Ichinomaki Bay

Disaster Monitoring and Response – The multiple different Earth remote sensing instruments on ISS offer many dimensions for understanding and rapidly responding to natural disasters. Scientists are coordinating options for collaboration among instruments.



Education – Students from around the world talk to astronauts each week onboard the ISS through the “Amateur Radio on the International Space Station” program- a cooperative venture of NASA, the National Association for Amateur Radio, and AMSAT.

Source: ISS Program Scientist, NASA

Image courtesy of ARISS

