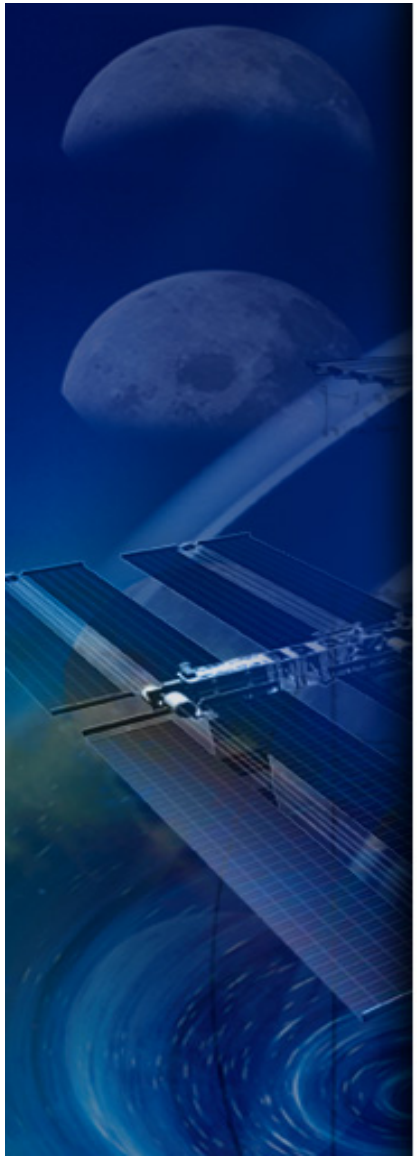

The Legal Framework for the International Space Station

United Nations Committee on the Peaceful Uses of Outer Space Legal Subcommittee
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Legal Framework governing ISS Cooperation

- The central objective of the ISS Partner States was to regulate specific aspects of a **permanently-inhabited, multi-national research-oriented facility in outer space;**

- ISS Cooperation is governed by a three-tier legal framework:
  - 1 **Intergovernmental Agreement** (IGA) signed 29.01.98;
    Stipulates that UN Conventions governing Space activities apply to ISS Cooperation;
  - 4 **Memoranda of Understanding** (MOUs): between NASA and each of the other four Cooperating Agencies, signed 29.01.98 (and 24.02.98 for Japan);
  - Various **Implementing Arrangements** concluded when the need arise between NASA and another Cooperating Agency.

Political dimension of Cooperation: Article 1 of IGA

- IGA establishes a long-term **international cooperative framework** on the basis of **genuine partnership** for the design, development, operation, and utilization of a permanently inhabited civil international Space Station for peaceful purposes, **in accordance with international law**;

  - the United States and Russia will produce elements serving as the **foundation** of the ISS;
  - the European Partner and Japan will produce elements that will significantly **enhance ISS's capabilities**;
  - Canada's contribution will be an **essential part** of the ISS;

- The Partners will join their efforts, under the **lead role** of the United States for **overall management and coordination** to create an integrated ISS.

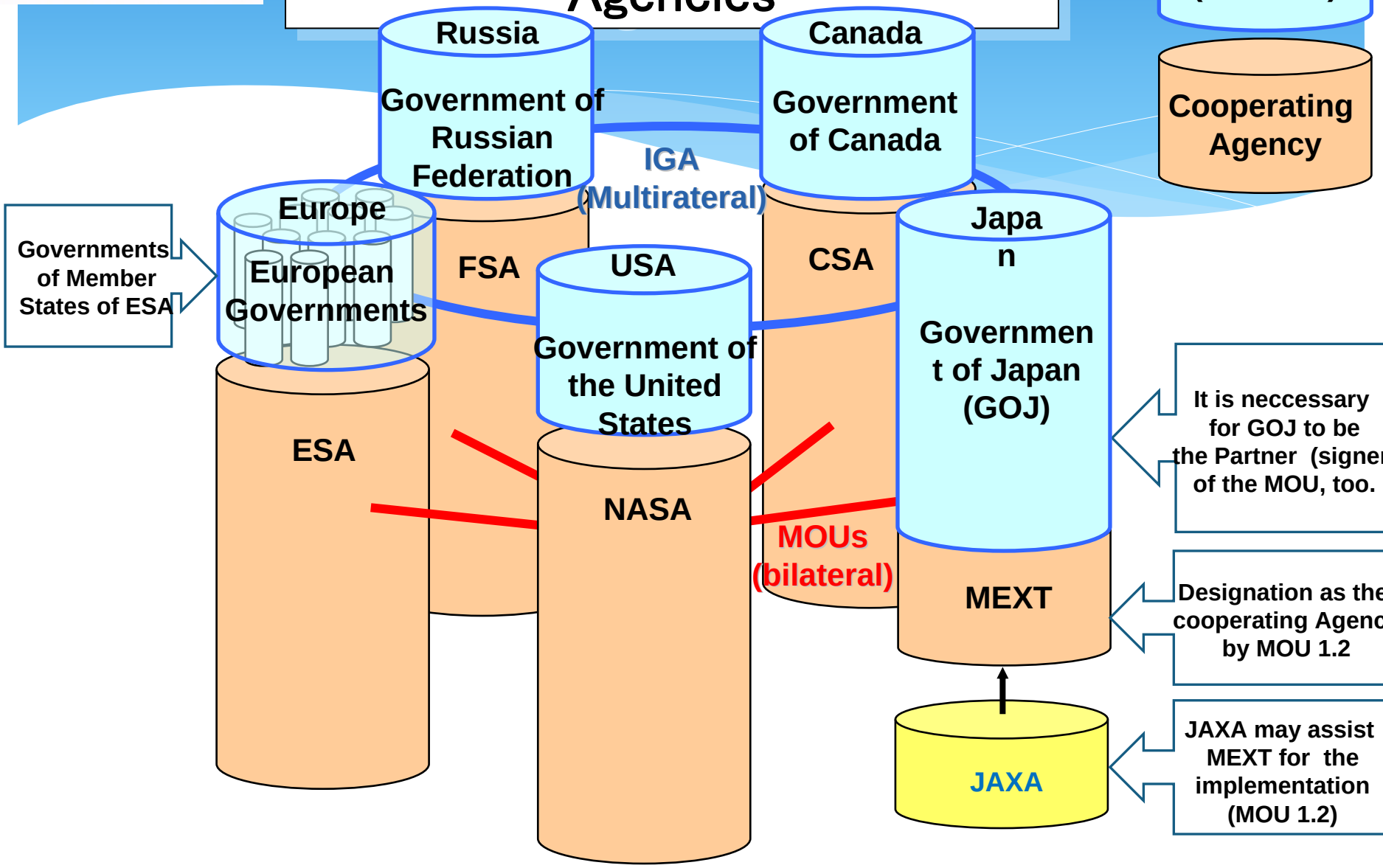
United Nations Outer Space Treaties

- Applicable UN Conventions are recalled in the Preamble of the Intergovernmental Agreement:
  - The 1967 Outer Space Treaty,
  - The 1968 Rescue and Return of Astonauts Agreement,
  - The 1972 Liability Convention,
  - The 1975 Registration Convention.

Additional Arrangements/Instruments

- In addition to several Implementing Arrangements concluded over the years, it is worth mentioning that **different categories of formal arrangements or programme-related instruments** – i.e. either legally binding on the parties or affecting in some way their interests – have been concluded and are relevant for ISS Cooperation.

Article 4 : Cooperating Agencies



IGA Art. 15: Funding

- Each Partner bears cost of fulfilling its respective responsibilities
- Partners shall seek to minimize operations costs of ISS
- Partners shall seek to minimize the exchange of funds in implementation of ISS cooperation
  - To offset responsibilities
  - To compensate for costs
  - MOUs also provide for minimizing use of funds (Art. 16)

Liability: Introduction

- The liability provisions applicable to the International Space Station ("ISS") are found at Articles 16 and 17 of the ISS Intergovernmental Agreement ("IGA")

- Article 16 creates a *cross-waiver of liability* between the Partner and their "related entities" for damages arising out of activities relating to the building and the use of the ISS

Objectives

- The objective is to establish a cross-waiver of liability "(…) in the interest of encouraging participation in the exploration, exploitation, and use of outer space through the Space Station." (Article 16, para. 1)

- The purpose of a cross-waiver of liability is to prevent claims by a Partner against the other Partners and their "related entities" for damages arising out of ISS-related activities

- The cross-waiver of liability is to be construed broadly to achieve the stated objective

Fundamental principles (Article 16 para. 3)

- Each Partner assumes the risks that are inherent to participation in ISS-related activities

- A Partner shall not make any claims against another Partner or against its "related entities" (i.e. contractors and subcontractors at all tiers, users or customers at all tiers, and contractors and subcontractors of the users and of the customers at all tiers) for damages that it may suffer from ISS-related activities, save for a few exceptions

- The Cross-waiver applies if:
  1. The person, entity or property causing the damage is involved in ISS-related activities; and
  2. The person, entity or property that suffered the damage suffered it by virtue of its involvement in ISS-related activities

Covered activities

In principle, all ISS-related activities or “Protected Space Operations” are covered

- Launch vehicle activities
- Space Station activities, including its evolution (Article 14)
- Payload activities on Earth, in outer space, or in transit between Earth and outer space

It includes

- Research, design, development, test, manufacture, assembly, integration, operation, or use of launch or transfer vehicles, of the Space Station, or of a payload
- All activities related to ground support, test, training, simulation, or guidance and control equipment

It excludes

- The activities on Earth which are conducted on return from the ISS to further develop a payload for use that is no longer ISS-related

Cross-waiver flow-down

- The cross-waiver seeks not only to prevent claims by Partners, but also seeks to prevent claims made by their related entities against the other Partners or against the other Partners' related entities

- To achieve this, each Partner must extend or "flow down", "by contract or otherwise", the cross-waiver to its related entities by requiring them to
  1. Waive all claims against the other Partners, against the other Partners' related entities, and against their employees; and
  2. require that their own related entities waive all claims against the other Partners, against the other Partners' related entities, and against their employees

  (Article 16.3)

Exceptions

The cross-waiver does not apply to

- Claims between a Partner and its own “related entities” or between a Partners’ related entities
- Claims made by a natural person, his/her estate, survivors or subrogees (except when a subrogee is a Partner) for bodily injury, impairment of health, or death of such natural person
- Claims for damages caused by willful misconduct
- Intellectual property claims
- Claims for damage resulting from a failure by a Partner to flow down the cross-waiver to its own related entities

Interaction with the Liability Convention

- Partners remain liable under the *Liability Convention*, **save as otherwise provided in Article 16 of the IGA**. (Article 17)

- Partners are *not* liable among themselves under the *Liability Convention* if:
  1. The person, entity or property causing the damage is involved in ISS-related activities; and
  2. The person, entity or property that suffered the damage suffered it by virtue of its involvement in ISS-related activities (Article 16 para. 3(c))

- If a claim is made under the *Liability Convention*, the Partners "shall consult promptly on any potential liability, on any apportionment of such liability, and on the defense of such claim" (Article 17 para.2)

Liability: Conclusion

- The cross-waiver creates a legal wall between a Partner, its Cooperating Agency and their "related entities" on one side, and the other Partners and their Cooperating Agencies and "related entities" on the other side

- The ISS liability regime has been crafted to co-exist with the *Liability Convention*

- Partners, however, can collaborate to further the peaceful exploration and use of outer space through the ISS, without fear of legal claims that could arise out of the risks that are inherently present in such a collaboration

Jurisdiction and Control - General

- Article 5.2 of the IGA provides:

« …each Partner **shall retain jurisdiction and control over the elements it registers … and over personnel** in or on the Space Station who are its nationals »;

- The IGA provides that each of the Cooperating Agencies **shall own the elements** that the Partners respectively provide (i.e. ISS user and resource elements listed in the Annex to the IGA) **and also the equipment** in or on the Space Station;

- The Partner States have each **taken steps**, including at legislative level in certain cases, before they went ahead with their ratification of the IGA **to translate in their domestic legal system their ISS Cooperation-related obligations** (including for the purpose of exercising jurisdiction and control).

Rule for jurisdiction and control over personnel

- Concerning the jurisdiction and control «**who are its nationals** » reference, career astronauts have been always nationals of the IGA signatory States providing them;

Exercising jurisdiction and control through ESA

- Article 4 of the ISS inter-governmental Agreement (IGA) identifies the Cooperating Agencies responsible to conduct ISS Cooperation on behalf of each Partner;

- It provides among other things that: «The Partners agree that … **the European Space Agency** (hereinafter « ESA ») for the European Governments, **… shall be the Cooperating Agencies responsible for implementing Space Station cooperation**»;

- The European Partner States **discharge their obligations, and exercise their rights**, related to their participation in ISS Cooperation **through a ESA optional programme**;

- **ESA notified** on 5 march 2010 **the UN Secretary General** the registration of data for the Columbus module (launched 7 February 2008), i.e. the European Partner's contribution to the ISS programme (following ESA's acceptance of obligations under the Registration Convention).

Jurisdiction and control over ESA astronauts

- Article 4 of the IGA clearly mandate **ESA to act on behalf of the European Partner** for all purposes connected with the implementation of that Partner's rights and obligations under the ISS Cooperation agreements; obviously, matters delegated can only be **within the purview of ESA's mission under its Convention**;

- Conversely, **the European Partner States remain individually competent for matters falling under the States prerogatives**, i.e. criminal jurisdiction, some parts of liability and intellectual property matters etc.;

- The above is particularly relevant when considering the situation of **astronauts provided by the European Partner**, who **are staff members of ESA**.

The ISS Crew Code of Conduct (CCOC)

A central element for the exercise of jurisdiction and control over personnel (astronauts) onboard the ISS is the ISS Crew Code of Conduct, which is a programme instrument governing the behaviour of astronauts:

- Article 11 of IGA provided that the CCOC was to be **developed and approved** by all the Partners (based on the outline of topics contained in Article 11 of the MOUs);
- a truly **"multicultural" exercise** involving career astronauts and lawyers;
- CCOC was approved on 15 September 2000 by the Multilateral Coordination Board (ISS MCB); status of document, and its implementation, are different for each Cooperating Agency/Partner.

Criminal jurisdiction (Article 22 of the IGA)

The IGA envisages the prosecution of an astronaut «in case involving **misconduct on orbit** that (a) affects the life or safety of a national of another Partner State or (b) occurs in or on or causes damage to the flight element of another Partner State».

- Basis for exercising jurisdiction (i.e. prosecution): **nationality** of the alleged perpetrator (constitutes a restriction over general rule);
- As an alternative, the **"Victim" Partner States** may exercise jurisdiction on a non-national if some conditions are met (failure of the national State to examine possibility of laying charges + mandatory consultations – makes that possibility rather remote);
- IGA can constitute a treaty basis to proceed with **extradition**;
- The Partners shall provide **mutual legal assistance** to the others (for example to recover evidence to be submitted to the competent court of a Partner State).

IGA: A Useful Platform to Facilitate International Space Cooperation

IGA Art. 18: Customs and Immigration

- Facilitate the movement of persons and goods.
- Facilitate provision of the appropriate entry and residence documentation.
- Grant permission for duty-free importation and exportation.

- contribute to the smooth and speedy implementation, avoiding "bureaucratic delay"
- save the financial & procedural costs to facilitate international cooperation

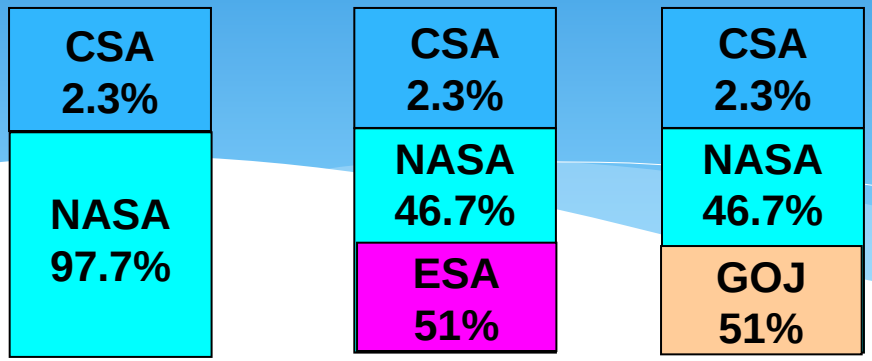
IGA Art. 19: Exchange of Data and Goods
IGA Art. 20: Treatment of Data and Goods

- Facilitate exchange and transit of technical data and goods necessary to implement the ISS cooperation.
- Provide clear mechanism for the treatment of
  - technical data and goods protected for export control purposes
  - technical data protected for proprietary rights purposes
- These protected data and goods should be marked with a notice, or otherwise specifically identified.
- Restriction of the utilization of the protected data and goods
  - used only for fulfilling responsibility under the IGA/MOUs.
  - used only by the receiving Cooperating Agency and its contractors and subcontractors.
- Partner States are not required to transfer any technical data and goods in contravention of its national laws or regulations

- Facilitate smooth and speedy implementation
- Realize exchanging protected data and goods necessary for the cooperation
- Provides necessary protection to promote utilization by providing clear scheme for the users

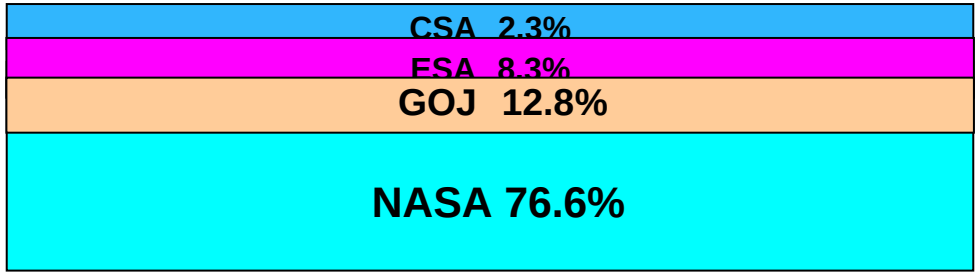
Allocation of Utilization Rights & Resources

- User accommodation rights (MOU8.3.a)



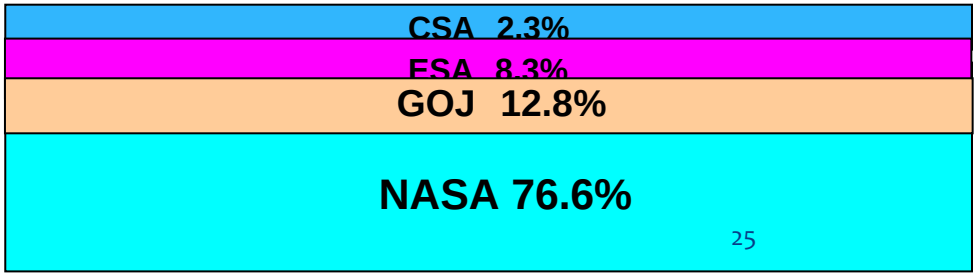
US laboratory and external payloads | European laboratory | Japanese laboratory | Russian laboratory

- Utilization resources & Share of the CSOC (MOU 8.3.b & MOU 9.3)



Provided by NASA and CSA infrastructural elements | Provided by Russia

- Right for crew time & space station crew (MOU 8.3 c & MOU11.1)



US. on-orbit segment | Russian Segment

IGA 9
Utilization rights are derived from Partner provision of user elements & infrastructure elements

Ratio of contribution = Ratio of rights

CSOC= common system operations costs

Japanese Experiment Module, "KIBO"

Pressurized Module

- The largest pressurized module on ISS
- 10 payload racks can be installed
- Various resources provided

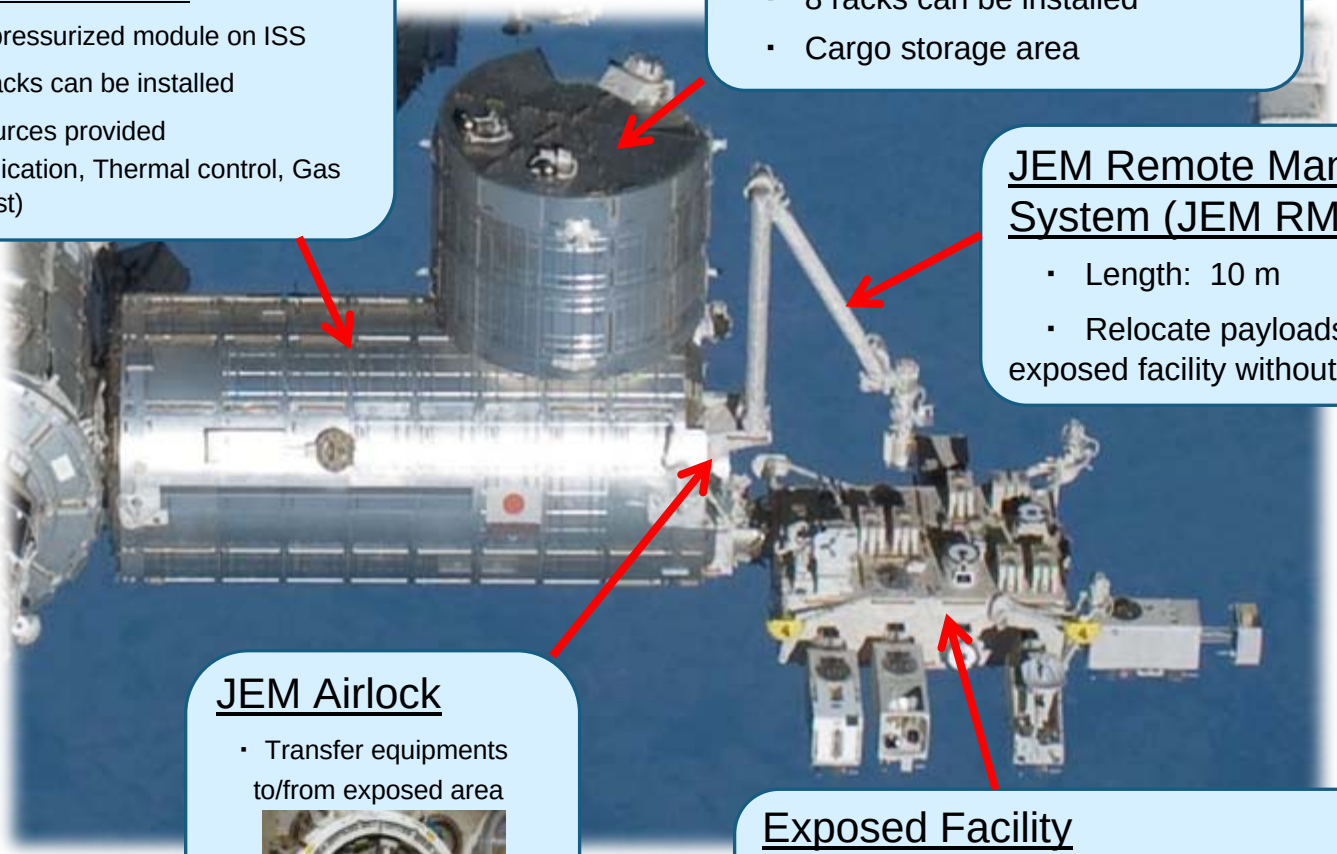
(Power, Communication, Thermal control, Gas supply and exhaust)

Experiment Logistic Module - Pressurized Section

- 8 racks can be installed
- Cargo storage area

JEM Remote Manipulator System (JEM RMS)

- Length: 10 m
- Relocate payloads on the exposed facility without EVA



JEM Airlock

- Transfer equipments to/from exposed area

Exposed Facility

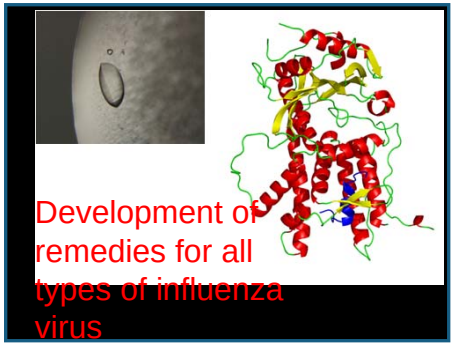
- Only full-scale external experiment area on ISS
- 10 attachment ports for experiment payloads
- Various resources provided

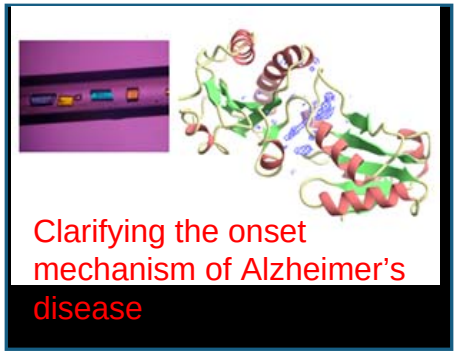
(Power, Communication and Thermal control)

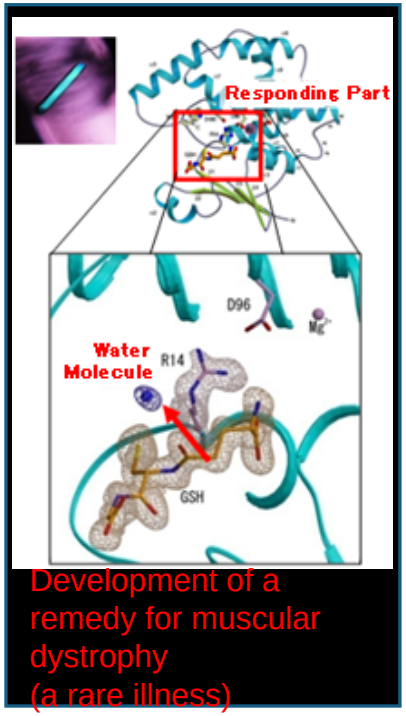
ISS Utilization Outcomes

Example 1
Contribution to New Medicine Development

- A high-quality protein crystal was generated in KIBO, and then minute three-dimensional structure data was acquired on the ground.
- Revealing unknown protein structure which causes illness helps effective selection of appropriate medicine candidate.







Example 2
Commercial film shooting

- JAXA is actively promoting the utilization of JEM including commercial use.
- In collaboration with RSA, commercial film shooting on board the ISS was successfully completed in 2001, which was the first Japanese mission of the ISS commercialization.

Advertisement film Shot on board the ISS
ⓒDENTSU INC. &
Otsuka Pharmaceutical Co.,Ltd.

HDTV Camera on board the ISS
HDCAM HDW-700A ⓒSony

Such utilization by companies can be realized thanks to the clear conditions for the implementation, rights and obligations etc. provided by IGA/MOUs framework.

LEGAL FRAMEWORK FOR COMMERCIAL USE OF ISS (GENERAL)

- One of objectives: International Space Station will enhance the scientific, technological, and **commercial use of outer space** (Article 1 of IGA).

- New fields of commercial activities in space:
  - transportation services for delivery of people and cargo to space
  - space tourism
  - space advertising
  - space commercial experiments

LEGAL FRAMEWORK FOR COMMERCIAL USE OF ISS (2)

- Partners have the right **to barter or sell** any portion of their respective allocations. The terms and conditions of any barter or sale shall be determined by the parties to the transaction (Article 9.2 of IGA).
- Each Partner may use and select users for its allocations for any purpose consistent with the object of IGA and provisions set forth in the MOUs and implementing arrangements (Article 9.3 of IGA).
- Most valuable allocations and services:

power, storage, crew time, EVA capacity, transportation of people and cargo.

PARTICIPATION OF NON-PARTNERS

- Equipment on the ISS shall not be owned by any non-Partner or a private entity under its jurisdiction **without the prior concurrence of other Partners.** Any transfer of ownership of any ISS element to a non-Partner shall require **prior notification of other Partners** (Article 6 (4) of IGA).

- Each Partner may use and select users, except that any proposed use of a user element **by a non-Partner** or private entity under its jurisdiction shall **require the prior notification to and timely consensus** among all Partners through their Cooperating Agencies (Article 9 (3) of IGA).

ROSCOSMOS

SPACE FLIGHT PARTICIPANTS (1)

- Astronauts from countries other than ISS Partners (Brazil, Korea, Malaysia) and space tourists (8 flights)

- Short-term flights to ISS (up to 10 days) onboard Russian Soyuz space vehicles with substantial experimental programs

- Coordination process among ISS Partners through ISS procedures; consent of ISS partners for Non-Partner SFPs

SPACE FLIGHT PARTICIPANTS (2)

- Meet ISS Crew Selection Principles, undergo special training for space flights as a part of ISS crew.

- ISS cross-waiver does not apply to SFPs as natural persons. SFP shall procure a liability insurance from claims that may be asserted towards ISS Partners by SFP, his/her heirs, dependents and insurers.

Use of ISS for Space Exploration Beyond Low Earth Orbit

- A high priority for all of the partner agencies is ISS utilization in support of human and robotic exploration.
  - This utilization falls into four categories: exploration technology demonstrations, demonstrating maturity and readiness of critical exploration systems, human health management for long-duration space travel, and operations simulations and techniques for missions beyond low-earth orbit.

- Of course, each partner agency selects its own priorities for utilization activities

Use of ISS for Space Exploration Beyond Low Earth Orbit (cont'd)

- Utilisation agreements must be consistent with the ISS legal framework agreements (*e.g.* cross-waiver of liability for all Partners)
- Agreement terms are otherwise governed by the laws and policies of the partners to these agreements. For example:
  - Inventions
  - Rights in resulting data
  - Allocation of costs
- Space agencies, research ministries, academic institutions, and private companies have all utilized the station.

2012 NASA-ESA Implementing Arrangement

- Under this Agreement, signed in December 2012, ESA provides NASA with a Service Module (SM) and its design for NASA's Multi-Purpose Crew Vehicle (Orion).
  - This SM will be used for Orion's Exploration Mission-1 in 2017.
  - NASA and ESA may collaborate on a second SM for Exploration Mission-2 in 2021.
- This fulfills ESA's responsibilities for its share of costs to operate the ISS and compensates NASA for additional space station supporting services.
- This agreement builds on the strong cooperative relationship between NASA and ESA to expand the partnership to exploration activities beyond the ISS.

CONCLUSIONS

- The Implementation of ISS Cooperation over the last 15 years has shown that, including from the legal standpoint, the partnership has been able to adapt to the different situations – even when difficult or dramatic circumstances materialised - and respond to the specific needs arising from time to time;
- The IGA and the four MOUs have been flexible enough to provide an adequate legal framework for the functioning of the partnership, without the need for amendment, while the Implementing Arrangements, and other arrangements of programme instruments have been developed as needed;

- **Questions?**

- **Thank you!**

NOTES ON SPEAKERS

- *CSA: Diane St-Arnaud is Senior Counsel, Manager with Industry Canada Legal Services since 2006. She is responsible for telecommunications law and is now also responsible for legal services provided to the Canadian Space Agency. She joined the Government of Canada in 1988 and worked in the area of radiocommunication regulation, international telecommunications and telecommunications law. She holds a Master of Laws from the Institute and Centre of Air and Space Law of McGill University (Canada) and a Diplôme d'Études européennes from Université de Nancy (France).*

- *ESA: Andre Farand is c*urrently Head of the Programme Legal Affairs Division, in the Legal Department of the European Space Agency, collaborating with four other legal administrators to provide support to ESA's programme directorates in setting up and implementing their optional programmes. He has been involved in negotiations on International Space Station (ISS) cooperation since the inception of the project in 1987, both on behalf of the Canadian federal government (Department of External Affairs) and, starting in 1991, on behalf of the European Partners' cooperating agency (ESA). He holds a LL.M. from McGill University's Institute of Air and Space Law in Montreal. His thesis was on Canada's claim against the Soviet Union for damage caused by the Cosmos 954 satellite. He is a member of the Bar of Quebec (Canada). He is the author of many articles, particularly on different aspects of ISS cooperation, and lectures regularly on the same subjects at various European universities.
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NOTES ON SPEAKERS (CONT'D)

- *JAXA: Ms. Uchitomi is the Manager, Legal Affairs Division for JAXA since Oct. 2012. Ms. Uchitomi was part of the Japanese delegation for the IGA negotiations, as a representative from the Japanese space agency. She served for obtaining the Diet's approval of the IGA/MOU at the Ministry of Foreign Affair as a loaned staff member. As JAXA staff, Ms. Uchitomi participated in various international coordination and projects under the IGA/MOUS. She graduated from Legal Department of the University of Tokyo, and holds LLM for International law from Leiden University in the Netherlands. Her thesis for LLM written in 2000 was issues of the international responsibility and liability for commercial space activities, based on the interpretation and implementation of space treaties and comparison of domestic regulations.*

- *NASA: Robin J. Frank has served as Senior Counsel, International Law and Practice Group, at NASA since 2004. Prior to that time, she worked on international and space law issues at the Department of Justice, the Department of Defense, and the Department of State. At NASA she has worked on many cooperation agreements and mechanisms with the ISS partners. She obtained her Juris Doctor at the New York University School of Law.*

NOTES ON SPEAKERS (CONT'D)

- *Roscosmos: I*gor Porokhin is an external legal counsel to Russian Federal Space Agency. As a member of the drafting committee he participated in development of Protocol to Cape Town Convention on International Interests in Mobile Equipment on Matters specific to Space Assets and also was a member of the Russian delegation at the diplomatic conference on adoption of the said Protocol. He served as a legal advisor of Roscosmos in numerous commercial projects relating to ISS and other space missions. Igor Porokhin is a correspondent member of the Russian Academy of Cosmonautics , a member of the Russian Bar Association and honorary member of the Moscow Regional Bar. He graduated with honors from the Faculty of Law at the University of Moscow, and also holds a diploma with honors from the Russian Academy for Foreign Trade.