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**Committee on the Peaceful
Uses of Outer Space
Legal Subcommittee
Fifty-fifth session
Vienna, 4-15 April 2016
Item 12 of the provisional agenda*
General exchange of information on non-legally binding
United Nations instruments on outer space**

Compendium

Mechanisms adopted by States and international organizations in relation to non-legally binding United Nations instruments on outer space

1. The present document contains a Compendium of Mechanisms adopted by States and international organizations in relation to non-legally binding United Nations instruments on outer space.
2. The Compendium has been prepared in accordance with paragraph 191 of the Report of the Legal Subcommittee at its fifty-fourth session, document A/AC.105/1090, where the Subcommittee encouraged States members of the Committee, as well as international intergovernmental organizations having permanent observer status with the Committee, to respond, on a voluntary basis and as appropriate, to the questionnaire contained in A/AC.105/C.2/2015/CRP.24/Rev.1, and to submit their responses to the delegation of Japan, which was invited to prepare a compilation of responses to be submitted to the Subcommittee during its fifty-fifth session.
3. The present document contains responses from the following States members of the Committee: Australia, the Czech Republic, France, Germany, Japan, Switzerland, Thailand, Turkey and the United Kingdom of Great Britain and Northern Ireland.

* A/AC.105/C.2/L.297.



COMPENDIUM

RESPONSES ON

**MECHANISMS ADOPTED BY STATES AND INTERNATIONAL
ORGANIZATIONS IN RELATION TO NON-LEGALLY BINDING
UNITED NATIONS INSTRUMENTS ON OUTER SPACE**

As at 4 April 2016

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INTRODUCTION

A number of declarations, principles and recommendations on outer space have been developed by the Committee on the Peaceful Uses of Outer Space and its Subcommittees. Those non-legally binding instruments support the existing United Nations treaties on outer space, and have been adopted or recognized by the General Assembly in its various resolutions. With the development of space technology and an increase and diversification of space actors, it is a pressing necessity to consider safe and sustainable use of outer space. To address contemporary challenges in the peaceful exploration and use of outer space, it is necessary to gain a better understanding of non-legally binding instruments and related practices thereto. Hence, Japan proposed a new agenda item on general exchange of information on non-legally binding United Nations instruments on outer space and the related practices thereto in 2013.

The objective of this compendium is to share information on specific measures taken by States and international organizations in relation to non-legally binding United Nations instruments on outer space as well as facilitate discussions on the contribution of these instruments to the exploration and use of outer space.

The report outlines: Mechanisms that each State and international organization have adopted and a brief description of them. This report focuses on mechanisms developed and implemented by each State and international organization related to (1) Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the interest of All States, taking into Particular Account the Needs of Developing Countries (Space Benefit Declaration); (2) Principles Relating to Remote Sensing of the Earth from Outer Space; (3) Principles Relevant to the Use of Nuclear Power Sources in Outer Space; (4) Resolution 1721 B (XVI) of 20 December 1961 ((registration of launchings) International Cooperation in the peaceful uses of outer space); (5) Other non-legally binding instruments on outer space.

As this report is a work in progress, it should not be considered as an exhaustive source of information on this topic. Members of UN COPUOS and international organizations are invited to complete their profile in the compendium and to provide information on each mechanism they have adopted

based on the template developed. Ultimately, it is hoped that this document will provide a comprehensive reference to support UN COPUOS Members in their coordinated efforts towards appropriate implementation of these UN instruments.

(1) Declaration on International Cooperation in the Exploration and Use of Outer space for the Benefit and in the Interest of All States, Taking into Particular Account the Needs of Developing Countries (Space Benefit Declaration)

➤ **National mechanism(s)**

Space Activities Act 1998 and Space Activities Regulations 2001.

➤ **Description**

The Space Activities Act 1998 and the Space Activities Regulations 2001 provide a legislative framework for the conduct of space operations. This includes a framework that enables space activities related to overseas participants in Australia and Australian participation overseas, provided the Act's requirements are complied with. The Department of Industry, Innovation and Science administers the provisions of the Government's legislative/administrative framework relating to civilian space activities. The department is responsible for coordinating with other Australian agencies to ensure civil space activities do not jeopardise public safety, property, the environment, Australia's national security, foreign policy or other obligations. It also implements related international obligations that Australia is party to. Australia also participates in bilateral agreements on an as needed basis.

➤ **References**

<http://space.gov.au>

(2) Principles Relating to Remote Sensing of the Earth from Outer Space

➤ **National mechanism(s)**

Several Government organisations and partner agencies authorised by different legislation, work together to give effect to these Principles.

Related legislation includes:

- Meteorology Act 1955
- Science and Industry Research Act 1949

➤ **Description**

The Bureau of Meteorology's ground station network receives data from over 15 satellites, and provides complete coverage of the Australian continent and other regions of relevance. Observations from this network support the Bureau's forecast and warning services, emergency services, aviation services, and are used for products for the public, shipping and defence.

CSIRO is a statutory authority within the Australian Government portfolio of Industry, Innovation and Science. Under the Science and Industry Research Act 1949, CSIRO undertakes a broad range of activities. In space-related areas this includes spacecraft tracking and communications, radio-astronomy, Earth observation, and space applications and technologies, including those related to satellite navigation and satellite communications. It operates the Earth Observation and Informatics (EOI) Future Science Platform (FSP), supporting Earth observation science and applications. It also contributes to national Earth observation research infrastructure, including the Terrestrial Ecosystem Research Network (TERN) AusCover facility and the Integrated Marine Observing System (IMOS) Satellite Remote Sensing Facility. CSIRO is also a member of the consortium which operates the Western Australian Satellite Technology and Applications Consortium (Perth).

The Department of the Environment designs and implements the Australian Government's policies and programmes to protect and conserve the environment, water and heritage and to promote climate action. The Department uses data derived from satellites to support international forest monitoring as part of its participation in the Global Forest Observations Initiative (GFOI). It also uses satellite data to monitor land use changes, such as land clearing and reforestation activities. This feeds into estimates of carbon emissions and sequestration linked to obligations under the UN Framework Convention on Climate Change (UNFCCC) and the Kyoto

Protocol. Australia has also been providing technical support and guidance to developing countries to implement national forest monitoring and reporting capabilities consistent with the UNFCCC accounting rules. Integrating space based remote sensing data with ground based measurements has enabled developing countries to efficiently and cost effectively report on greenhouse gas emissions and removals from the forest sector.

Australia does not operate EOS satellites and is therefore dependent on sharing of data acquired by other nations whose satellites observe Australia. Geoscience Australia (GA) works to access this data and to make it available for the benefit of Australia. GA identifies priority missions, engages with satellite operators to identify valuable contributions that GA can make to their programmes, and undertakes the technical work necessary to ensure that data can be integrated into the national imagery supply chain with minimal disruption. GA also operates satellite ground infrastructure and data centres to enhance access to satellite data within Australia and the region

➤ **References**

<http://space.gov.au>

(3) Principles Relevant to the Use of Nuclear Power Sources in Outer Space

➤ **National mechanism(s)**

Space Activities Act 1998 and Space Activities Regulations 2001.

➤ **Description**

The Space Act 1998 and the Space Activities Regulations 2001 imposes restrictions and conditions on Australian space objects containing nuclear weapons and fissionable material.

➤ **References**

<http://space.gov.au>

(4) Resolution 1721 B (XVI) of 20 December 1961 ((registration of launchings) International Cooperation in the peaceful uses of outer space)

➤ **National mechanism(s)**

Space Activities Act 1998 and Space Activities Regulations 2001.

➤ **Description**

The Space Act 1998 and the Space Activities Regulations 2001 provides for a Register of Space Objects launched under its authorisation. The Register is maintained according to Australia's obligations under the Registration Convention and other relevant international agreements or arrangements relating to the registration of space objects to which Australia is a party.

➤ **References**

<http://space.gov.au>

(5) Other non-legally binding instruments on outer space

➤ **National mechanism(s)**

Australia's Satellite Utilisation Policy 2013

➤ **Description**

Australia's Satellite Utilisation Policy is the Australian Government's current national civil space policy and sets out Australia's priorities and strategies for the use of space and space-related technologies. The overarching aim is to encourage sustained coordination and support of space activities in order to deliver the space capability that Australia relies on. This includes space capabilities relating to satellite imagery and high accuracy positioning, which will deliver information that enhances Australia's economic and social wellbeing as well as enabling effective environmental monitoring across Australia's extensive and often inaccessible land and ocean territory.

➤ **References**

<http://space.gov.au>

(1) Declaration on International Cooperation in the Exploration and Use of Outer space for the Benefit and in the Interest of All States, Taking into Particular Account the Needs of Developing Countries (Space Benefit Declaration)

➤ **National mechanism(s)**

National Space Plan 2014-2019

➤ **Description**

The National Space Plan 2014-2019 (NSP 2014) is a national strategy in space activities of the Czech Republic for period 2014-2019 that was approved by the Government of the Czech Republic on 27 October 2014.

The NSP 2014 represents the strategy of the Czech Republic in further development of capacities and capabilities of its industry and academia in space activities. The NSP 2014 strongly emphasizes the international cooperation as the most efficient way how to support the Czech Republic's space science and space technology development. The NSP 2014 identifies the vision, mid-term objectives and evaluation criteria for their reviewing. In addition, the NSP 2014 includes recommendations regarding the further development of relations (participation/membership) between the Czech Republic and the international organizations dealing with space activities and it also contains the recommendations regarding the funding of space activities, especially the increase of the Czech participation in ESA optional programmes, the establishment of the National Space Programme and the institutional arrangements with its goal to establish the National Space Agency.

On the basis of the membership of the Czech Republic in the EU and other international organizations, for example EUMETSAT, the Czech Republic is involved in the programmes of these organizations that can be beneficial not only to their member states but also to other users worldwide. For instance Copernicus, the European Earth observation programme, is focused, inter alia, on the collection of broad scope of space-based spatial

data in the field of environment and security, and relates to the issues of humanitarian aid, cooperation with third states and civil protection.

It is the Ministry of Transport of the Czech Republic that coordinates the activities of the Czech Republic in Outer Space and supervises the implementation of the National Space Plan. Other Ministries are represented on high level in the Minister of Transport's Coordination Council for Space Activities.

➤ **References**

National Space Plan 2014-2019:

http://www.czechspaceportal.cz/files/files/NSP_2014_2019_ENG.pdf

(2) Principles Relating to Remote Sensing of the Earth from Outer Space

➤ **National mechanism(s)**

None.

➤ **Description**

None.

➤ **References**

None.

(3) Principles Relevant to the Use of Nuclear Power Sources in Outer Space

➤ **National mechanism(s)**

There is no national mechanism because the Czech Republic doesn't use nuclear power sources in outer space.

➤ **Description**

None.

➤ **References**

None.

(4) Resolution 1721 B (XVI) of 20 December 1961 ((registration of launchings) International Cooperation in the peaceful uses of outer space)

➤ **National mechanism(s)**

The Convention on Registration of Objects Launched into Outer Space entered into force for Czechoslovakia (legal predecessor of the Czech Republic) in 1976. On the basis of the Convention, a National Register of Space Objects was created and the following space objects were registered by the Czech Republic or by its legal predecessor:

- MAGION (1978)
- MAGION 2 (1989)
- MAGION 3 (1991)
- MAGION 4 (1995)
- MAGION 5 (1996)
- MIMOSA (2003)

➤ **Description**

The National Register of Space Objects is administered by the Ministry of Transport of the Czech Republic according to the Resolution of the Government of the Czech Republic No. 326 of 5 May 2014.

➤ **References**

Czech National Register of Space Objects:

<http://www.czechspaceportal.cz/en/section-6/czech-national-register-of-space-objects/>

(5) Other non-legally binding instruments on outer space

➤ **National mechanism(s)**

None.

➤ **Description**

None.

➤ **References**

None.

(1) Declaration on International Cooperation in the Exploration and Use of Outer space for the Benefit and in the Interest of All States, Taking into Particular Account the Needs of Developing Countries (Space Benefit Declaration)

➤ **National mechanism(s)**

French Research Code ("[Code de la recherche](#)") – Article [L.331-2](#).

➤ **Description**

According to article L. 331-2 of the French Research Code, the French Space Agency (CNES) is in responsible, in consultation with the Ministry of Foreign Affairs, for handling international cooperation issues in the space area and of monitoring the implementation of the international programs entrusted to France.

In this capacity, CNES contributes to drafting, negotiating, concluding and implementing international cooperation agreements, either in the form of intergovernmental agreements concluded by the French Government or in the form of inter-agency agreements. These agreements are concluded with space-faring nations as well as with developing countries with emerging space capabilities.

In this latter case, cooperation agreements concluded with developing countries typically include the following provisions aimed at fostering the development of relevant and appropriate space capabilities:

- Exchange of information and data, as well as exchange of good practices and experience;
- Training of experts, including scientists and students;
- Exchange of personnel;
- Organization of joint workshops, seminars and symposiums;
- Promotion of space activities towards the youth.

It is also worth noting that, in conformity with paragraph 8 of the Declaration, France and its Space Agency CNES are significantly involved in cooperation initiatives related to climate change and the prevention of natural disasters, for the benefit of affected countries. In the framework of the [International Charter on Space and Major Disasters](#), CNES provides single and stereo images from the Pléiades satellite system to help in situation of crisis management by facilitating damage evaluation and rescue coordination efforts. With similar objectives, France supported the recent launching of the [CREWS](#) ("Climate Risk & Early Warning Systems) initiative. This initiative is the result of a collaborative effort between the World Meteorological Organization (WMO), the United Nations Office for Disaster Risk Reduction and Disaster (UNISDR) and World Bank (GFDRR), with supporting national partners. It aims at increasing significantly the capacity for seamless Multi-Hazard Early Warning System (MHEWS), especially for the benefit of Least Developed Country (LDCs) and Small Island Developing States (SIDS).

➤ **References**

French Research Code:

http://legifrance.gouv.fr/affichCode.do;jsessionid=D52AEF52F86C5F66B3A5BBC9FF3B08A5.tpdila23v_3?idSectionTA=LEGISCTA000019921398&cidTexte=LEGITEXT000006071190&dateTexte=20151207

(2) Principles Relating to Remote Sensing of the Earth from Outer Space

➤ **National mechanism(s)**

1. French Space Operations Act n°2008-518 of 3rd June 2008
2. Decree n°2009-640 of 9th June 2009 on the implementation of the title VII of the French Act no. 2008-518 of 3rd June 2008 relative to space operations
3. Decree n°2013-654 of 19th July 2013 on the surveillance of primary space-based data operator activities

➤ Description

1. French Space Operations Act n°2008-518 of 3rd June 2008

The French Space Operations Act ([FSOA](#)) of 2008 provides a comprehensive legal framework for the conduct of space operations. It encompasses aspects related to authorization, registration and responsibility/liability. It also establishes a legal framework for the monitoring of national remote sensing activities, to ensure in particular that those activities are carried out in accordance with French foreign policy and international law (Title VII of the Act). To that end, the competent authority, the General Secretary for National Defense and Security (SGDSN), placed under the authority of the Prime Minister's Office) can edict measures restraining the activity of primary space-based data operators.

The main provisions of this Act are as follows:

Article 23: obligation of declaration for the realization of remote sensing activities

“Any primary space-based data operator undertaking in France an activity having certain technical characteristics defined in a decree passed at the Council of State must preliminarily declare it to the competent administrative authority”.

Article 24: Remote sensing activities assessments

“The competent administrative authority ascertains that the activity undertaken by the primary operators of space-based data does not harm fundamental interests of the Nation, particularly defense matters, foreign policy and international commitments of France. To this end, it may at any time prescribe measures restraining the activity of the primary space-based data operators, which are necessary to safeguard these interests”

Article 25: Sanction

“Any primary space-based data operator undertaking an activity showing the technical characteristics mentioned in Article 23 shall be fined €200 000 in the case:

1° it fails to proceed with the declaration mentioned in Article 23;

2° it fails to comply with the restriction measures taken pursuant to Article 24”

2. Decree n°2009-640 of 9th June 2009 on the implementation of the title VII of the French Act no. 2008-518 of 3rd June 2008 relative to space operations

Taken as enforcement measure under title VII of the French Law on Space Operation (“*Space-Based Data*”), this decree delineates the conditions of declaration by national operators for remote sensing activities and the competent authority. It defines the modalities according to which control of remote sensing activities may be exercised by the French Government, with a view to ensure that these activities are consistent with international law.

The enforcement of this regulation falls under the responsibility of the SGDSN.

3. Decree n°2013-654 of 19th July 2013 on the surveillance of primary space-based data operator activities

Taken as enforcement measure under title VII of the French Law on Space Operation (“*Space-Based Data*”), this decree defines the composition and prerogatives of the Interministerial Commission on space based-data (“*Commission interministérielle des données d’origine spatiale*”), the role of which is to provide the competent authority with an opinion on every restrictive measure to be applied to a given primary space-based data operator, as well as recommendations on general guidance policies.

➤ References

1. French Space Operations Act n°2008-518 of 3rd June 2008
<http://legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000018931380> (French version) / <http://download.esa.int/docs/ECSL/France.pdf>
(Unofficial English Translation intended for publication in the Journal of Space Law)
2. Decree n°2009-640 of 9th June 2009 on the implementation of the title VII of the French Act no. 2008-518 of 3rd June 2008 relative to space operations
http://www.legifrance.gouv.fr/affichTexte.do;jsessionid=8DC7048D1775A9ABCDEEF6C94C97390C.tpdila21v_3&dateTexte=?cidTexte=JORFTEXT000020719167&categorieLien=cid
3. Decree n°2013-654 of 19th July 2013 on the surveillance of primary space-based data operator activities
http://www.legifrance.gouv.fr/affichTexte.do;jsessionid=4BACFE3CB1D5C303D247404C2ECB2981.tpdjo06v_2?cidTexte=JORFTEXT00027731447&categorieLien=id

(3) Principles Relevant to the Use of Nuclear Power Sources in Outer Space

➤ National mechanism(s)

Technical Regulations of 31 March 2011 pertaining to the authorizing of space operations pursuant to French Space Operations Act

➤ Description

The Technical Regulations adopted pursuant to the French Space Operations Act contain the technical requirements that the national space operators have to comply with in order to get an authorization from the French Government to carry out a space operation. Their provisions are mandatory.

In the absence of a regulation specifically dedicated to the use of nuclear power sources in outer space, any operator intending to carry out a launch operation or a satellite operation that involves the use of nuclear power sources has to comply with the generally applicable regulations and demonstrate such compliance through submitting a comprehensive nuclear safety plan.

Relevant provisions:

Article 25: Nuclear safety (launch operation)

Any launch operator intending to transport radioactive materials on-board the launch vehicle conforms to the applicable regulations in force and demonstrates application thereof in the nuclear safety plan required in II.2°d) of article 1 of the above-mentioned decree of 9th June 2009.

Article 42: Nuclear safety (satellite operation)

Any operator intending to use radioactive materials on-board the space object conforms to the applicable regulations in force and demonstrates application thereof in the nuclear safety plan required in article 1 of the above-mentioned decree of 9th June 2009.

➤ **References**

Technical Regulations of 31 March 2011

<http://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000024095828&fastPos=1&fastReqId=1929398923&categorieLien=cid&oldAction=rechTexte>

(4) Resolution 1721 B (XVI) of 20 December 1961 ((registration of launchings) International Cooperation in the peaceful uses of outer space)

➤ **National mechanism(s)**

1. French Space Operations Act n°2008-518 of 3rd June 2008

2. Decree n°2009-644 of 9th June 2009 amending decree no. 84-510 of 28th June 1984 relating to the *Centre National d'Etudes Spatiales*
3. Ministerial order of August 12th 2011 listing the information necessary to the registration of space objects

➤ **Description**

1. *French Space Operations Act n°2008-518 of 3rd June 2008*

The French Space Operations Act (FSOA) of 2008 provides a comprehensive legal framework for the conduct of space operations. It establishes in particular a national registry for space objects, administered by the French Space Agency (CNES) and placed under its authority.

Relevant provision:

Article 12:

“In the event France has a registration obligation according to Article II of the Convention dated 14 September 1975 relating to Registration of objects launched into outer space, and, if necessary, of other international agreements, the launched space objects are registered in a registry hold by the Centre National d'Etudes Spatiales on behalf of the State, following the prescriptions set out in a decree passed at the Council of State”.

2. *Decree n°2009-644 of 9th June 2009 amending decree no. 84-510 of 28th June 1984 relating to the Centre National d'Etudes Spatiales*

This decree defines the conditions under which the space objects are registered by CNES and the obligations operators, including the obligation to provide CNES, as the registration authority, with all relevant information required to identify the registered space object. This information shall be communicated no later than 60 days after the launch.

Relevant provisions:

Art.14-1:

To fulfil the assignment entrusted to the Centre National d'Etudes Spatiales by Article 12 of Act No. 2008-518 of 3rd June 2008 relating to space operations, any space operator within the meaning of Article 1 of the above-mentioned Act shall furnish the Centre National d'Etudes Spatiales with the information necessary to identify the space object, the list of which is determined by an order made by the Minister responsible for space.

Art.14-2:

The operator shall send this information to the Centre National d'Etudes Spatiales no later than sixty days after the launch.

Art.14-3:

The Centre National d'Etudes Spatiales shall allocate a register number for each earth-orbiting space object or space object launched beyond the Earth, and enter it on the national register.

Art.14-4:

Any change to the information provided for in Article 15 of this decree shall be sent immediately by the relevant operator to the Centre National d'Etudes Spatiales, which shall enter the change on the national register.

Art. 14-15:

The register is public and may be freely consulted upon request sent to the Centre National d'Etudes Spatiales. However, the information concerning the identification of the owner or manufacturer of the space object and any real or personal warrants on the same is only disclosed with the prior consent of the interested parties.

Art. 14-6:

The Centre National d'Etudes Spatiales shall send the Minister of Foreign affairs the information taken from the register required by

the convention of 14th January 1975 on the registration of space objects launched into outer space. It shall inform him of any event affecting the life in orbit of the space object entered on the register, in particular the de-orbiting, the end of the operation or the loss of the space object.

The Minister of Foreign Affairs shall send this information to the Secretary General of the United Nations Organization.

3. Ministerial order of 12 August 2011 establishing the list of necessary information for the registration of space objects

This order provides modalities regarding the implementation of the decree n°2009-644 of 9 June 2009, by listing the information required for the registration to the French registry of space objects.

➤ **References**

1. French Space Operations Act n°2008-518 of 3rd June 2008
<http://legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000018931380> (French version) / <http://download.esa.int/docs/ECSL/France.pdf>
(Unofficial English Translation intended for publication in the Journal of Space Law)
2. Decree n°2009-644 of 9th June 2009 amending decree no. 84-510 of 28th June 1984 relating to the Centre National d'Etudes Spatiales
<http://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000020719559&dateTexte=&categorieLien=id>
3. Ministerial order of 12 August 2011 establishing the list of necessary information for the registration of space objects
<http://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000020719559&dateTexte=&categorieLien=id>

(1) Declaration on International Cooperation in the Exploration and Use of Outer space for the Benefit and in the Interest of All States, Taking into Particular Account the Needs of Developing Countries (Space Benefit Declaration)

➤ **National mechanism(s)**

National Space Programme, DLR

Germany with its National Space Programme, its National Space Administration DLR and its national GEO (Group on Earth Observation) activities, contributes with data and other resources to several relevant international programmes, of which every nation and in particular developing countries can participate in and benefit from.

➤ **Description**

Major activities are listed below:

- Contributions to the “**International Charter Space and Major Disasters**” (Data from national Earth Observation Missions TerraSAR-X, TanDEM-X and RapidEye on request of authorized users for emergency response (several UN programmes among them))
- Contributions to the United Nations Platform for Space-based Information for disaster Management and Emergency Response (**UN-SPIDER**): Secondment of a scientific officer, Provision of premises for UN-SPIDER office in Bonn including additional budget of 150K€/year for programme activities

➤ **References**

http://www.dlr.de/rd/desktopdefault.aspx/tabid-2441/3589_read-36506/
<http://www.zki.dlr.de/de>
<http://www.un-spider.org>

(2) Principles Relating to Remote Sensing of the Earth from Outer Space

➤ **National mechanism(s)**

- National GEO (www.d-geo.de/), national Implementation Plan: see http://www.d-geo.de/docs/dgip_en.pdf
- Remote Sensing Information Products, Scientific Research Results and Capacity Building
- Remote Sensing Data

➤ **Description**

Contributions to the Group on Earth Observations (GEO), mainly through the Committee on Earth Observation Satellites (CEOS), where DLR is a member. Two examples:

- Contributions to the GEO Global Forest Observation Initiative (**GFOI**) in support of the establishment of national forest monitoring systems for REDD+:
 - Data from national Earth Observation Missions TerraSAR-X and TanDEM-X for R&D projects in response to the GFOI R&D Plan
 - Funding of R&D projects in response to the GFOI R&D Plan, with focus on methods for forest degradation monitoring, estimation of above ground biomass, sensor fusion and large scale automated processing methods.
- Contributions to the GEO Global Agricultural Monitoring Initiative (**GEO-GLAM**):
 - Data from national Earth Observation Missions TerraSAR-X and TanDEM-X for R&D projects in response to the GEO-GLAM R&D component (Joint experiment for crop assessment and monitoring, JECAM)

- Funding of R&D projects as contribution to JECAM, e.g. on methods for pasture and rangeland monitoring with Radar data, time series analysis for crop information.

Remote Sensing Information Products, Scientific Research Results and Capacity Building:

Within research projects, remote sensing based information is developed at the German Remote Sensing Data Center (DFD) of the German Aerospace Center (DLR) in cooperation with national partners in developing countries,. Thus national authorities as well as scientists can use the provided products, scientific publications are available on the research outcomes, and capacity is built in the context of the projects.

WASCAL project:

West African Science Service Center on Climate Change and Adapted Land Use (WASCAL) BMBF funded.

WASCAL (West African Science Service Center on Climate Change and Adapted Land Use) is a large-scale research-focused Science Service Center. It is designed to help developing effective adaptation and mitigation measures for climate change by strengthening the research infrastructure and capacity in West Africa related to climate change and by pooling the expertise of ten West African countries (Benin, Burkina Faso, Ivory Coast, Gambia, Ghana, Mali, Niger, Nigeria, Senegal, and Togo).

Remote Sensing is used by DFD of DLR to derive services on a regional level, complementing national data regarding land surface variables as well as their implications e.g. drought warnings. These data will be accessible by national authorities as well as scientists.

Ten WASCAL graduate programs facilitate academic education of young scientists of the ten WASCAL countries at PhD and Master level. The multi-disciplinary, trans-national programs are based at different universities of the West African partner countries.

Reference: www.wascal.org

WISDOM project

The German-Vietnamese WISDOM project was funded by BMBF. The WISDOM project had the goal to design and implement an Information System for the Mekong Delta. The Mekong Delta in Vietnam offers natural resources for several million inhabitants. However, a strong population increase, changing climatic conditions and regulatory measures at the upper reaches of the Mekong lead to severe changes in the Delta. Therefore, decision makers face new challenges, e.g. extreme flood events, decline in drinking water availability, or threats to environmental integrity. For an optimized, integrated resource management, knowledge on the mentioned processes must be available. The integration of applied research results in the form of in-situ measurements, spatial geodata, reports, and further findings in a Mekong Delta Information System enables the end-user to perform analyses on very specific questions, visualize information and thus supports regional planning activities. DFD of DLR coordinated this project and provided information products based on remote sensing e.g. land cover or extent and dynamics of flooded areas. Additionally, capacity building was an important goal of the project - 15 students from Vietnam have received their PhD degree from German universities. Three PhD students have also been supervised at DFD of DLR. Vietnamese PhDs returned into decision making positions in their country. The Mekong Delta Information System is still running in Vietnam and currently has about 220 returning users from over 20 nations – the majority being Vietnamese.

Reference: www.wisdom.caf.dlr.de

Provision of Software tools 'TWOPAC' and 'WaMaPro' to derive land cover information based on remote sensing data

DLR developed the software packages TWOPAC (Twinned Object and Pixel based Classification Chain) and WaMaPro (Water Mask Processor). Both software packages can be used independent of any commercial software licenses, and are freely available for each user, as plugins for open source Geographical Information Systems. While TWOPAC enables its users to derive land cover and land use classifications from any type of satellite data, and covers the complete process of classification, including product

validation, WaMaPro is designed specifically to derive water information (including flood, inundation) from radar data, for sensors such as ENVISAT ASAR, TerraSAR-X, Sentinel-1, or others. The software packages have been already delivered together with explanatory material in Vietnam and China. Furthermore it is planned to use and distribute it also within WASCAL, or to other interested parties.

Remote Sensing Data:

Remote sensing data are freely available to all users via DLR remote sensing access catalogues

WDC-RSAT

The World Data Center for Remote Sensing of the Atmosphere, WDC-RSAT, offers scientists and the general public free access (in the sense of a “one-stop shop”) to a continuously growing collection of atmosphere-related satellite-based data sets (ranging from raw to value added data), information products and services. Focus is on atmospheric trace gases, aerosols, dynamics, radiation, and cloud physical parameters. Complementary information and data on surface parameters (e.g. vegetation indices, surface temperatures) is also provided. This is achieved either by giving access to data stored at the data centre or by acting as a portal containing links to other providers. Since 2003 the DFD of DLR hosts and operates the WDC-RSAT under the nongovernmental auspices of the International Council for Science (ICSU). Data at the WDC/RSAT are available to scientists of all countries.

Reference: wdc.dlr.de

EOWEB

The user interface Earth Observation on the internet EOWEB provides access to the earth observation data archived at the DFD. As registered user you can search for catalogue data, view browse images, order catalogue data, specify and order future acquisitions. Data and products available via EOWEB include TerraSAR-X data, TanDEM-X products, O3M-SAF products, SRTM X-band data. While some data are freely available to

all, others need to be requested via science proposals. However this procedure is also open to all international scientists.

Reference: www.eoweb.de

➤ **References**

www.d-geo.de/

http://www.d-geo.de/docs/dgip_en.pdf

www.wisdom.caf.dlr.de

www.wdc.dlr.de

www.eoweb.de

www.wascal.org

(3) Principles Relevant to the Use of Nuclear Power Sources in Outer Space

Germany is not directly involved in the use of NPS. In its international cooperation and as ESA Member State, Germany is indirectly involved in the Safety Framework for NPS Applications on Outer Space.

(4) Resolution 1721 B (XVI) of 20 December 1961 ((registration of launchings) International Cooperation in the peaceful uses of outer space)

➤ **National mechanism(s)**

In 1979, Germany ratified the UN Convention on Registration of Objects Launched into Outer Space (REG). From then on, Germany has registered its space objects with the UN according to the REG. Between 1975 and 1979, Germany registered its space objects according to Resolution 1721 B (XVI) of December 1961.

➤ **Description**

The Space Objects Symphonie Flying Model No. 1, Symphonie Flying Model No. 2 (UN registration in 1975) and Helios A (UN registration in 1978) were registered with the UN according to Resolution 1721 B (XVI) of December 1961.

➤ **References**

<http://www.unoosa.org/documents/pdf/inf305E.pdf> (Symphonie No.1)

<http://www.unoosa.org/documents/pdf/inf329E.pdf> (Symphonie No.2)

<http://www.unoosa.org/documents/pdf/inf380E.pdf> (Helios A)

(5) Other non-legally binding instruments on outer space

Not relevant. No specific document.

(1) Declaration on International Cooperation in the Exploration and Use of Outer space for the Benefit and in the Interest of All States, Taking into Particular Account the Needs of Developing Countries (Space Benefit Declaration)

➤ **National mechanism(s)**

1. Basic Plan for Space Policy

Legal framework: Basic Space Law

2. Medium-Term Goal for JAXA (Japan Aerospace Exploration Agency)

Legal framework: Act on General Rules for Incorporated Administrative Agency, Law Concerning Japan Aerospace Exploration Agency

➤ **Description**

1. Basic Plan for Space Policy

(1) The type of national mechanism

In Japan, according to Article 24 of the Basic Space Law, the Space Strategic Headquarter comprehensively and systematically formulates a basic plan for promoting space development and utilization policy (Basic Plan for Space Policy).

(2) Description

The plan states the following;

(a) Contribute to the resolution of major global issues, such as energy, climate change, environment and food, by using Japan's space assets, such as navigation satellites, telecommunication and broadcasting satellites and remote sensing satellites, in cooperation with the international community.

(b) Contribute to the resolution of issues facing developing countries, and to strengthening their space ability, by sharing our advanced space technology in cooperation with international agencies.

(c) Construct multilayered cooperative relationships with foreign countries in the area of outer space.

(d) Participate in the discussions of international conferences such as the United Nations Committee on the Peaceful Uses of Outer Space and make positive contributions.

(3) Management and supervision methods of the mechanism

The Cabinet Office plans and coordinates important space development and utilization in the Basic Plan for Space Policy.

(4) Authorities of the mechanism

Space Strategic Headquarter and Cabinet Office

2. Medium-Term Goal for JAXA (Japan Aerospace Exploration Agency)

(1) The type of national mechanism

In Japan, the competent ministers formulate the Medium-Term Goal for JAXA based on Article 29 on Act on General Rules for Incorporated Administrative Agency and Article 19 on the Law concerning Japan Aerospace Exploration Agency, and direct the Agency accordingly.

(2) Description

The goals are stated as follows;

(a) Under the International Space Station (ISS) Agreement, we shall participate in the International Space Station Program to maintain and strengthen international relationships and to contribute to forming humankind intellectual property, to expanding areas of humankind activities and to developing societies and economies, in addition to promoting technological capacity and international cooperation by emitting small satellites from ISS;

(b) Establish cooperative relationships with international agencies to strengthen sustainability of outer space activities, and take necessary measures to faithfully implement treaties regarding space development and utilization and other international agreements in the management of the agency;

(c) Support government discussions regarding utilization and application of satellite remote-sensing. Based on the results of the discussions, develop remote-sensing satellites for international

cooperation such as for the improvement of ASEAN countries' capability in disaster management, human resource development and problem-solving;

(d) Support the expansion of overseas infrastructure as is promoted by the government, including human resource development, technological transfer and support of partner governments to establish their space agencies and to meet their needs by cooperating closely with relevant ministries;

(e) Support the study of outer space and positively contribute to exchange of information at UNCOPUOS.

(3) Management and supervision methods of the mechanism

(a) The competent ministers shall refer to the Basic Plan for Space Policy when formulating the goals. (Article 19, Law Concerning Japan Aerospace Exploration Agency)

(b) JAXA shall prepare a long- and medium-term plan based on a long- and medium-term goal and shall obtain the permission of the competent ministers. (Article 35-6, Act on General Rules for Incorporated Administrative Agency)

(c) JAXA shall formulate an annual plan and shall submit it to the competent ministers. (Article 35-8, Act on General Rules for Incorporated Administrative Agency)

(d) JAXA shall undergo a review by the competent ministers at the end of fiscal year and the expiration of the goal period.(Article 35-6, Act on General Rules for Incorporated Administrative Agency)

(e) JAXA shall carry out its tasks in close cooperation with relevant ministries. (Article 18 (business field) and Article 26 (competent minister), Act on General Rules for Incorporated Administrative Agency)

(4) Authorities of the mechanism

Competent ministries.

3. Implement Examples of above 1 and 2

(1) Implement Examples of above 1(2)(a) (Declaration para.1)

(a) Space Applications For Environment (SAFE):

SAFE, established through the activities of APRSAF, is an initiative that aims to encourage environmental monitoring for climate change mitigation and adaptation studies using space applications.

- For instance, the drought index and web-GIS system were developed in cooperation with local stakeholders through a SAFE prototype in Indonesia, and the results have been utilized in routine operations.

- As another example, the Mekong River Commission (MRC) proposed a new SAFE prototyping project aimed to improve transboundary catchment management using GSMaP. This is the first SAFE project proposed by an international organization.

(b) Rice monitoring projects using SAR techniques:

With regard to food security, rice monitoring projects using SAR techniques are currently being implemented in order to enhance ability to estimate rice cultivated areas and growth situations in Indonesia, Vietnam and in a project of the Asian Development Bank. Moreover, in the framework of the GEOGLAM initiative launched at the 2011 G20-Summit, monthly rice growing outlook information is being produced in collaboration with the ASEAN+3 Food Security Information System (AFSIS) project, two space and agriculture related agencies in Southeast Asian countries. This information has been reported to the Agricultural Market Information System (AMIS) run by FAO through the GEOGLAM Secretariat.

(2) Implement Examples of above 2(2)(a) (Declaration para.1)

Japan launched an initiative called Kibo-ABC (Asian Beneficial Collaboration through “Kibo” Utilization) within the framework of APRSAF activities in 2012. This initiative aims to share the importance and values of ISS/Kibo for the wellbeing of humankind. Through the activities of the initiative, Kibo-ABC is conducting outreach activities in cooperation with nine member organizations

in order to promote the utilization of “Kibo” in the Asia-Pacific region.

(3) Implement Examples of above 1(2)(b), 2(2)(b) and (c) (Declaration para.3 and para.5)

JAXA and JICA, the Japan International Cooperation Agency (JICA), which is Japan's main implementing organization of development cooperation, have been successfully developing and collaborating on many projects, such as the Topographic Mapping Project in Senegal, Togo, Burkina Faso, Ethiopia, the Philippines and Moldova, the project of water resource management in Nigeria and flood management in Thailand, a glacier inventory project in Argentina and wildfire and carbon management in Indonesia. In addition, JAXA is dispatching project experts to JICA and is contributing to the technical development of its activities.

(4) Implement Examples of above 1(2)(c) and 2(2)(e) (Declaration para.8)

(a) Contribution to the United Nations Programme on Space Applications

- Kyushu Institute of Technology has established a scholarship program which accepts overseas students to study nano-satellite technology.

- In 2012, JAXA established the “Human Space Technology Initiative (HSTI)”, to spread advanced human space technology and promote international cooperation. In this case, they provide human development support to developing countries.

(b) Support of Japanese COPUOS Chairs (Dr. Yasushi Horikawa, the ex-chair of COPUOS, Prof. Aoki Setsuko, the chair of WG of LSC, Dr. Chiaki Mukai, post-chair of STSC)

(c) Provision of new agenda item in LSC

(d) Contribution to working plan for Post-2015 Development Agenda

➤ **References**

1. **Basic Plan for Space Policy (In Japanese)**

<http://www8.cao.go.jp/space/plan/plan2/plan2.pdf>

2. **Medium-Term Goal for JAXA (In Japanese)**

http://www.jaxa.jp/about/plan/pdf/goal_03_27.pdf

(3) Principles Relevant to the Use of Nuclear Power Sources in Outer Space

➤ **National mechanism(s)**

There is no national mechanism because Japan doesn't use nuclear power sources in outer space.

➤ **Description**

None

➤ **References**

None

(4) Resolution 1721 B (XVI) of 20 December 1961 ((registration of launchings) International Cooperation in the peaceful uses of outer space)

➤ **National mechanism(s)**

The Convention on Registration of Objects Launched into Outer Space came into force on 6 February 1983 in Japan. There was no national mechanism in Japan before that, but the following satellites were voluntary registered based on Resolution 1721 B (XVI) of 20 December 1961.

Date of Launching	Name of Object
11 February 1970	Osumi
16 February 1971	Tansei
28 September 1971	SHINSEI
19 August 1972	DENPA
16 February 1974	1974-08-A (Tansei2)
24 February 1975	SRATS (TAIYO)
9 September 1975	JETS (KIKU)
29 February 1976	JISS (UME)
19 February 1977	TANSEI-3

14 July 1977	Geostationary Meteorological Satellite(GMS) (Himawari)
15 December 1977	Medium-capacity Communication Satellite for Experimental Purposes(CS) (Sakura)
4 February 1978	KYOKKO
16 February 1978	Ionosphere Sounding Satellite(ISS-b) (UME-2)
7 April 1978	Medium-scale broadcasting satellite for experimental purpose (BSE) (Yuri)
16 September 1978	JIKIKEN
6 February 1979	Experimental Communication Satellite(ECS) (AYAME)
11 February 1981	KIKU 3
10 August 1981	Geostationary meteorological satellite 2 (GMS-2) (Himawari 2)
3 September 1982	ETS-III (KIKU-4)
5 August 1983	CS-2b (SAKURA-2b)

➤ **Description**

None

➤ **References**

None

SWITZERLAND

Switzerland is member of the European Space Agency (ESA) and has no national space agency. Hence, the majority of Swiss space activities are conducted through ESA.

(1) Declaration on International Cooperation in the Exploration and Use of Outer space for the Benefit and in the Interest of All States, Taking into Particular Account the Needs of Developing Countries (Space Benefit Declaration)

➤ **National mechanism(s)**

Swiss Space Policy

➤ **Description**

The Swiss Space Policy, as revised in 2008, includes the participation of Switzerland in UNCOPUOS, and other relevant multilateral fora, in view of promoting international cooperation in the space domain and in support of the peaceful uses of outer space.

➤ **References**

<http://www.sbf.admin.ch/themen/01371/01417/index.html?lang=fr>

(2) Principles Relating to Remote Sensing of the Earth from Outer Space

➤ **National mechanism(s)**

Swiss National Point of Contact for satellite images

➤ **Description**

The Swiss National Point of Contact for satellite images (NPOC) maintains a national satellite image archive to guarantee the sustainable availability of a selection of publicly available satellite scenes. Through outreach and educational activities, the NPOC promotes the use of and the access to data for the largest possible public. Furthermore, it contributes to overcoming the gap between research and end-users in the field of satellite remote sensing sensors, techniques and data applications.

➤ **References**

www.npoc.ch

(3) Principles Relevant to the Use of Nuclear Power Sources in Outer Space

No national mechanism.

(4) Resolution 1721 B (XVI) of 20 December 1961 ((registration of launchings) International Cooperation in the peaceful uses of outer space)

No national mechanism.

(5) Other non-legally binding instruments on outer space

No national mechanism.

(1) Declaration on International Cooperation in the Exploration and Use of Outer space for the Benefit and in the Interest of All States, Taking into Particular Account the Needs of Developing Countries (Space Benefit Declaration)

➤ **National mechanism(s)**

National Space Policy Committee (NSPC)

➤ **Description**

The Royal Thai Government established the National Space Policy Committee (NSPC) in 2009 (Regulations of the Office of the Prime Minister on Space Administration B.E. 2552) with the mandates for setting policy and strategy and to consider plan and budget allocation on Thai space development; in order to promote and aid the utilization of space technology that is congruent with the current situation and useful for the economic, social, science, technology and education development and national security.

➤ **References**

None

➤ **International mechanism(s)**

Geo-Informatics and Space Technology Development Agency (Public Organization) (“GISTDA”) employs various international mechanisms for cooperation in the peaceful exploration and use of outer space as follows.

1. The Committee on the Peaceful Uses of Outer Space (COPUOS)

On 22nd July 2003, The Cabinet of Royal Thai Government had approved of the application from Ministry of Science and Technology of Thailand to apply for the member of UN-COPUOS, and had appointed GISTDA as the national focal point of UN-COPUOS.

2. Sub-Committee on Space Technology and Applications – SCOSA

For this mechanism, the Ministry of Science and Technology, on behalf of Thailand, cooperates through ASEAN framework namely:

- ASEAN Ministerial Meeting on Science and Technology – AMMST
- ASEAN Committee on Science and Technology – ASEAN COST

The SCOSA is a mechanism under ASEAN COST which holds an annual meeting in order to consider different cooperation. The cooperation of SCOSA is driven by resolutions.

3. Asia-Pacific Space Cooperation Organization (APSCO)

The APSCO is an international organization situated in Beijing, China. It was founded in B.E. 2551. Thailand appointed the Ministry of Information and Communication Technology (ICT) as its representative.

4. Asia-Pacific Regional Space Agency Forum (APRSAF).

The APRSAF is a forum of space agencies in the Asia-Pacific region, initiated by the Japanese Space Agency (JAXA). The forum imposes no rules or regulations; participation is based on voluntary basis. Neither the numbers of participants nor the forms are limited. Participants will benefit from having an opportunity to meet and discuss with executives of the space agencies in the Asia-Pacific region.

5. International Astronautical Federation (IAF)

The International Astronautical Federation was founded in A.D. 1951. It was initiated by a group of scientists who were interested in space research in order to build an international forum on space knowledge between the East and the West. GISTDA, on behalf of Thailand, has been a member of IAF since A.D.2010.

6. Committee on Space Research – COSPAR

The COSPAR is set up by the International Council of Scientific Union – ICSU in B.E.2501 of which the purpose is to create scientific community for the utilization of satellites and space exploration as well as exchange of information on the basis of mutual cooperation. Thailand has been a member of COSPAR since B.E. 2502.

7. Group on Earth Observations - GEO

GEO is an ad hoc group consisting of 97 member countries, European Commission and 87 international organizations. Thailand was one of its founding members. GEO focuses mainly on problem solving by using satellite technology, for instance, natural disasters, environmental degradation and the global warming etc.

(2) Principles Relating to Remote Sensing of the Earth from Outer Space

➤ **National mechanism(s)**

Sentinel Asia Project

➤ **Description**

GISTDA has collaborated with Japan Aerospace Exploring Agency (JAXA) under Sentinel Asia Project since 2009. The Sentinel Asia initiative is the collaboration between space and disaster management agencies (76 organizations from 25 countries & regions and 14 international organizations), applying space and geo-informatics technologies to support disaster management (i.e., floods, earthquakes, landslides, tsunamis, etc.) in the Asia-Pacific region, particularly to provide the data for emergency cases.

As a Data Provider Node (DPN), GISTDA has provided 219 satellite images, particularly THAICHOTE imagery for disaster management in 19 countries (Japan, Philippine, Nepal, Indonesia, India, Vietnam, Sri Lanka, Bhutan, Kazakhstan, Pakistan, China, Bangladesh, Taiwan, Brunei, Australia, Kyrgyzstan, Myanmar, Fiji and Malaysia).

Not only GISTDA provided satellite images for disaster management, GISTDA as a member of Sentinel Asia also participated in the Joint Project Team Meeting (JPTM). This meeting provided the opportunity for GISTDA staffs to discuss and present disaster management projects.

In 2013, GISTDA staff participated in Project Manager (PM) training at JAXA Bangkok Office. This training course has prepared the disaster coordinator for this project.

➤ **References**

None

(3) Principles Relevant to the Use of Nuclear Power Sources in Outer Space

➤ **National mechanism(s)**

None

➤ **Description**

None

➤ **References**

None

(4) Resolution 1721 B (XVI) of 20 December 1961 ((registration of launchings) International Cooperation in the peaceful uses of outer space)

➤ **National mechanism(s)**

GISTDA complied with the Resolution 1721 B (XVI).

➤ **Description**

GISTDA has complied with the Resolution 1721 B (XVI) by having voluntarily registered Thailand Earth Observation Satellite (“THEOS”) which is also known as “Thaichote”. The satellite was launched into space on 1 October , 2008. The registration was made in the form of note verbale dated on 27 January, 2009.

Details of the registration data of THEOS are demonstrated hereunder:

Name of space object: Thailand Earth Observation Satellite (“THEOS”)
 (“THAICHOTE”)

Name of launching States: Thailand and Russian Federation

Location of launch: Yasny, Russian Federation

Orbital parameters: Nodal period:101.4 minutes
Inclination: 98.7 degrees
Apogee: 822 kilometres (sun-synchronous orbit)
Perigee: 822 kilometres (sun-synchronous orbit)

General function: Earth observation

Operating agency: Geo-Informatics and Space Technology
Development Agency (Public Organization),
Ministry of Science and Technology, Thailand

➤ **References**

None

(5) Other non-legally binding instruments on outer space

➤ **National mechanism(s)**

Regulates the operation of THAICHOTE satellite (THEOS-33396) adheres to the Space Debris Mitigation Guidelines of the Committee.

➤ **Description**

GISTDA has not adopted yet any national mechanism to fully implement on the IADC Space Debris Mitigation Guidelines into binding legislation. However, GISTDA as the agency who oversees and regulates the operation of THAICHOTE satellite (THEOS-33396) has a system of the risk assessment of the satellite collision avoidance that can operate the avoidance manoeuvres if necessary.

As a member state of the Committee on the Peaceful Uses of Outer Space, GISTDA as the agency who oversees and regulates the operation of THAICHOTE satellite (THEOS-33396) adheres to the Space Debris Mitigation Guidelines of the Committee. Furthermore, GISTDA supports 2 mitigation measures of the IADC Space Debris Mitigation Guidelines hereafter:

1. Post Mission Disposal: A spacecraft or orbital stage should be left in an orbit in which, using an accepted nominal projection for solar activity, atmospheric drag will limit the orbital lifetime after completion of operations.

The IADC and some other studies and a number of existing national guidelines have found 25 years to be a reasonable and appropriate lifetime limit. In this regard, GISTDA has studied the possibility of THAICHOTE satellite re-entry into the atmosphere, and will operate the THAICHOTE satellite de-orbit process in the future.

2. Prevention of On-Orbit Collisions: In developing the design and mission profile of a spacecraft or orbital stage, a program or project should estimate and limit the probability of accidental collision with known objects during the spacecraft or orbital stage's orbital lifetime. In this regard, GISTDA has determined the acceptable risk level of the space object close approaches and readily operate the avoidance manoeuvres if necessary.

➤ **References**

None

(1) Declaration on International Cooperation in the Exploration and Use of Outer space for the Benefit and in the Interest of All States, Taking into Particular Account the Needs of Developing Countries (Space Benefit Declaration)

- **National mechanism(s)**
Legislative Decree on Organization and Duties of the Ministry of Transport, Maritime Affairs and Communication Decision No: KHK/655
- **Description**
 - 655 Legislative Degree Item 2. (b), (g), (ğ) and Item 14.(a),....(h).
 - The authority on behalf of the Turkish Ministry of Transport, Maritime and Communications Directorate General of Aeronautics and Space Technologies
- **References**
 - <http://www.udhb.gov.tr/eng/>
 - Legislative Degree

(2) Principles Relating to Remote Sensing of the Earth from Outer Space

- **National mechanism(s)**
Turksat Satellite Communication and Cable TV Operation Joint Stock Corporation (Türksat Company) is competent authority of Turkey in satellite communications through the satellites of Türksat as well as other satellites. Provide services for voice, data, internet, TV, and radio broadcasting.
- **Description**
Turksat Satellite Communication and Cable TV Operation Joint Stock Corporation established on July 2, 2004 and in accordance with Annex Article 33 of the Law No. 5189 has started its activity on 22 July 2004.

➤ **References**

- APPENDIX Article 33, paragraph 1, APPENDIX Article 33 Paragraph 3
- <https://www.turksat.com.tr/en/corporate/about-us/fields-activity>

(3) Principles Relevant to the Use of Nuclear Power Sources in Outer Space

➤ **National mechanism(s)**

There is no national mechanism. Turkey doesn't use nuclear power sources in outer space.

➤ **Description**

None

➤ **References**

None

(4) Resolution 1721 B (XVI) of 20 December 1961 ((registration of launchings) International Cooperation in the peaceful uses of outer space)

➤ **National mechanism(s)**

There is no national mechanism. Turkey doesn't have a launching system.

➤ **Description**

None

➤ **References**

None

(1) Declaration on International Cooperation in the Exploration and Use of Outer space for the Benefit and in the Interest of All States, Taking into Particular Account the Needs of Developing Countries (Space Benefit Declaration)

➤ **National mechanism(s)**

- UK National Space Policy
- The African Climate Science Research
- Memoranda of Understanding
- Newton Fund
- International Partnership Programme

➤ **Description**

In its National Space Policy, the UK Government has committed to increase its international collaboration on development and participation in space missions and applications, as well as sharing with others best practice that the UK has developed.

Following the UNISPACE III conference held in Vienna, Austria in July 1999, the European and French space agencies (ESA and CNES) initiated the International Charter "Space and Major Disasters", with the Canadian Space Agency (CSA) signing the Charter on 20 October 2000. The International Charter aims at providing a unified system of space data acquisition and delivery to those affected by natural or man-made disasters through Authorized Users. Each member agency has committed resources to support the provisions of the Charter and thus is helping to mitigate the effects of disasters on human life and property. The UK Space Agency joined the Charter in 2005 (as the British National Space Centre as it was at the time) alongside DMCii. The UK Space Agency sits on the Disaster Charter Board.

The UK has a variety of initiatives supporting Climate Change through the use of satellite data. The African Climate Science Research Partnership (CSRPA) between the UK government's Department for International

Development (DFID) and the Met Office Hadley Centre (MOHC) is working, in consultation with African stakeholders, to improve understanding of the drivers of African climate variability and change, improve prediction on monthly-to-decadal timescales, develop climate monitoring and attribution systems and support use of climate science in Africa.

Furthermore, the UK Space Agency forms government -to- government partnerships with a variety of emerging space economies through signing Memoranda of Understanding (MoUs). UKSA currently has 15 MoUs including with Kazakhstan and South Africa.

The UK Government's Newton Fund is part of the UK's official development assistance. Its aim is to develop science and innovation partnerships that promote the economic development and welfare of developing countries. The fund is £75 million each year from 2014 for 5 years. Current projects include remote sensing in support of sustainable agriculture. This initiative is administered by the Department for Business, Innovation and Skills and the delivery partners include the Academy of Medical Sciences, British Academy, British Council, Innovate UK, RCUK, Royal Academy of Engineering (RAEng), Royal Society and the Met Office.

The UK Space Agency's International Partnership Programme supports collaboration between the UK and numerous emerging space economies. Current projects funded by the programme include those focused on reducing illegal fishing, disaster resilience and crop forecasting.

➤ **References**

- <https://www.gov.uk/government/organisations/uk-space-agency>
- <https://www.gov.uk/government/publications/national-space-policy>
- <https://www.gov.uk/government/publications/memoranda-of-understanding-international>
- <http://www.metoffice.gov.uk/csrf/>

(2) Principles Relating to Remote Sensing of the Earth from Outer Space

➤ **National mechanism(s)**

- The Outer Space Act 1986

➤ **Description**

As highlighted above, the UK Space Agency joined the International Charter “Space and Major Disasters” in 2005 and sits on the Disaster Charter Board. The UK also has a variety of initiatives supporting Climate Change through the use of satellite data and has several programmes promoting and supporting the economic development and welfare of developing countries as well as collaboration between the UK and emerging space economies which include the use of remote sensing data / technology.

Furthermore, the United Kingdom’s Outer Space Act 1986 is the legal basis for the regulation of activities in outer space carried out by organisations or individuals established in the UK or in one of its crown dependencies or overseas territories. The aim of the Outer Space Act is to ensure compliance with our international obligations. The Secretary of State for Business, Innovation and Skills is responsible for regulating space activities and the administration is undertaken by the UK Space Agency, which is an executive agency of the Department for Business, Innovation and Skills. The UK Space Agency has responsibility and oversight of the Outer Space Act licensing regime.

The UK’s current licensing regime allows for independent evaluations of safety and technical aspects of a mission and allows the UK Government to record and monitor activity in space. Those UK missions involving remote sensing applications would be subject to the licensing process. The UK Space Agency are also considering developing proposals for an outline regulatory framework for Earth Observation data management and are working with other UK Government departments on this initiative.

➤ **References**

- <http://www.metoffice.gov.uk/csrp/>
- <https://www.gov.uk/guidance/apply-for-a-license-under-the-outer-space-act-1986>

(3) Principles Relevant to the Use of Nuclear Power Sources in Outer Space

➤ **National mechanism(s)**

None

➤ **Description**

The UK has no national mechanisms on the use of nuclear power sources because the UK does not use nuclear power sources in outer space.

However, through its membership of the European Space Agency (ESA), if the UK were to be involved in any missions involving the use of a nuclear power source, this would likely be conducted through the European Space Agency and would follow relevant mechanisms for these types of missions.

➤ **References**

None

(4) Resolution 1721 B (XVI) of 20 December 1961 ((registration of launchings) International Cooperation in the peaceful uses of outer space)

➤ **National mechanism(s)**

- The Outer Space Act 1986

➤ **Description**

The United Kingdom's Outer Space Act 1986 confirms at Section 7(1) that the Secretary of State shall maintain a register of space objects. This registry shall include information on space objects as the Secretary of State considers appropriate to comply with the international obligations of the United Kingdom.

As well as maintaining a register of space objects on behalf of the Secretary of State, the UK Space Agency, as part of the Outer Space Act licensing process, ensures that the UN Office of Outer Space Affairs is notified of any new UK space activity as well as notifications relating to any changes to current UK space activity including changes of ownership, relocations and deorbits.

➤ **References**

- <https://www.gov.uk/guidance/apply-for-a-license-under-the-outer-space-act-1986>
- <https://www.gov.uk/government/publications/uk-registry-outer-space-objects>
- <https://www.gov.uk/government/publications/supplementary-registry-space-objects>