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In loving memory of Prof. Isabella Diederiks-Verschoor

Dear readers,

This edition of ASJ is dedicated to Prof. Isabella Diederiks-Verschoor who passed away on 17 October 2017 at the age of 102. Prof. Diederiks-Verschoor was a pioneer of the air and space Law field and one of its finest and most profound connoisseurs. She started teaching air and space law in 1933 at Utrecht University and in the following decades in all parts of the world.

In addition, she was President of the International Institute of Space Law of the International Astronautical Federation, Member of the Legal Committee in the Netherlands of the International Civil Aviation Organization, National Chairman in the Netherlands of the Peace through Law Center, Member of the Board of Editors of Air Law and Supervisory Member of the Netherlands Institute of Transport.

Prof. Diederiks-Verschoor's contribution to the air and space law field has already been recognised by the granting of the prestigious IISL Diederiks-Verschoor award which is presented by the Board of Directors each year for the best paper written by an author under 30 years old and who has not published more than five papers in IISL proceedings.

Her legacy will live on through her writings and many fond memories.

Anna Masutti

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Registrazione presso il tribunale di Bologna n. 7221 dell'8 maggio 2002

Recent ECJ Ruling on Air Carrier's Liability to Employers (Judgment in Case C-429/14)

Esther Mallach*
Sybille Rexer**
Felix Goebel***

Abstract

The third Chamber of the European Court of Justice (ECJ) recently ruled in C-429/14, 17 February 2016 to extend the circle of protected parties in air carriage under the Montreal Convention (MC)[1]. According to the ruling Articles 19, 22 and 29 MC are interpreted to mean that under a contract for the international carriage of the employer's employees an air carrier is liable to the employer for losses caused by the delay of the employee's flight.

Pursuant to Article 22(1) MC, (Limits of Liability in Relation to Delay, Baggage and Cargo) the limitation of liability 'for each passenger' means that damages must not exceed the cumulative amount of damages awarded to all passengers concerned if they were to bring proceedings individually.

Under Art. 19 MC the carrier is liable for damages occasioned by the delay of carriage by air of passengers but it does not say to whom the carrier is so liable. The ECJ has now extended the interpretation of the meaning of 'damage' as well as clarified the scope of parties affected by the delay to include not just the employee passenger but also the employer, who was not a passenger. Although the ECJ strives to provide a consistent interpretation of Articles 17, 18 and 19 MC, it has not yet ruled whether the scope of protected parties should also be similarly extended under Article 17 MC. (Death and injury of passengers - damage to baggage). It is still unclear, therefore, whether an employer should be entitled to sue the air carrier to compensate for losses such as additional expenditures because of death or personal injury of the passenger employee. This question is particularly significant, as liability under Article 17 MC is generally unlimited. Upon analyses of the ECJ's arguments on this point we conclude that there is, indeed, an additional risk for air carriers to be sued by employers under Article 17 MC, if the ECJ's applies its reasoning in to a claim pursued under Article 17 MC.

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Facts

The ECJ had to decide a dispute between Air Baltic Corporation AS ('AIR BALTIC') and the Special Investigation Service of the Republic of Lithuania ('the Investigation Service') concerning compensation for damage caused to the latter by the delay of flights carrying two of its agents under a contract for the international carriage of passengers concluded with Air Baltic.

The Investigation Service, acting through a travel agency, purchased AIR BALTIC flight tickets for two of its agents to travel on official business between Vilnius (Lithuania) and Baku (Azerbaijan), via Riga (Latvia) and Moscow (Russia). According to the schedule, the agents would leave Vilnius at 9.55 on 16 January 2011 and arrive in Baku at 22.40 the same day. The Investigation Service's agents left Vilnius and arrived in Riga on schedule. However, the following leg Riga-Moscow was delayed and they both missed their connecting flights to Baku. Air Baltic put them on another flight, which arrived in Baku one day later than originally scheduled. Due to this delay, the time of the agents' official business travel was exceeded by over 14 hours, which meant that the Investigation Service had to pay the agents LTL 1168.35 (approximately EUR 338) in travel expenses and State social security contributions as required under Lithuanian law. The payments the Investigation Service sought to recover from AIR BALTIC. which, however, denied any liability. The Investigation Service commenced proceedings against AIR BALTIC in the First District Court of the City of Vilnius By judgment of 30 November 2012, the court allowed the claim. AIR BALTIC appealed before the Regional Court, Vilnius), which dismissed the appeal on 7 November 2013. AIR BALTIC then lodged a cassation appeal with the Supreme Court of Lithuania.

In its appeal, AIR BALTIC argues that a legal person, such as the Investigation Service, may not invoke the liability of an air carrier under Article 19 MC. It states, in essence that it may be held liable only in respect of the passengers themselves and not other persons, in particular, when they cannot be considered consumers.

The Investigation Service argues, in essence, twofold, namely that the liability of an air carrier provided for in Article 19 may be relied on by an entity who, like itself, is party to a contract for the international carriage of passengers and, secondly, suffered losses occasioned by a delay. In those circumstances, the Supreme Court of Lithuania decided to stay the proceedings and to request the ECJ for a preliminary ruling. The ECJ followed the legal opinion of the Investigation Service and ruled as stated above in the abstract.

Annotation

The ECJ extended the circle of protected parties under the MC. The following annotation analyses the ECJ's line of arguments to evaluate the risk of a carrier being sued by an employer for an injury or death of a passenger employee under Article 17 MC. The basis for any claims under the MC is Article 29 MC. It states that in the carriage of passengers, baggage and cargo, any action for damages, however founded, whether under the MC, in contract or in tort or otherwise, can only be brought to subject the conditions and such limits of liability as are set out in the MC.

It is important to note that the MC does not determine the question as to who are the persons who have the right to bring suit and their respective rights. Therefore, the ECJ determined the circle of protected parties on the basis of the Vienna Convention on the Law of Treaties (VCLT) which is binding on the European Union. Article 31 VCLT stipulates that an international treaty must be interpreted by reference to the terms in which it is worded and in the light of its objectives. In particular, the MC is to be interpreted in good faith in accordance with the ordinary meaning to be given to its terms in their context and in the light of its object and purpose. These principles are also to be taken into account when discussing to extent the circle of protected parties under Article 17 MC.

The ECJ predicates its judgment on two arguments: (1) according to Article 1 (1) MC the Convention applies to all international carriage of persons, baggage and cargo. It does not define the parties who might have title to sue the carrier for damages for the service provided. The ECJ took the view that the lack of reference in the wording of Article 1(1) cannot be interpreted in the light of the third recital of the preamble, which emphasizes the importance of ensuring protection of consumers. The circle of protected parties is not limited to consumers. Hence, so the Court '*employees as passengers cannot be construed as excluding persons from the scope of application of the [MC] and, consequently, any damage they may suffer in association therewith*'.

When applying this line of argument to Article 17 MC, the ECJ might also empower employers to sue under Article 17 MC. (2) The ECJ's second argument derives from the following systematic interpretation: Articles 1(2), 25, 33(1) and 3(5) MC establish a link between the air carrier's liability on the one hand and the existence of an international carriage by air contraction the other. It shall not be of relevance for the purposes of the carrier's contractual liability whether the contracting party is a passenger. Pursuant to this approach, there is also no specific requirement of a connection between damage by delay and the passenger. It is conceivable that European courts will apply this argument to other provisions, such as Article 17 MC in order to create a consistent European case law.

It has been occasionally mentioned in legal literature that under German law an employer might claim for compensation if the employer had purchased the ticket for his employee in his own name and on his own account. The passenger then only is the third party beneficiary of the contract between the employer and air carrier[2].

One may, therefore, preliminary by conclude that this ECJ decision can indeed increase the liability risk of air carriers under the jurisdiction of European member states. In relation to Art. 17 MC this is particularly problematic from a carrier's perspective as liability is not capped if the carrier fails to prove that such damage was not due to the negligence or other wrongful act or omission of the carrier or its servants or agents.

Air carrier's may therefore be interested to contractually limit or exclude this (new) liability risk provided this is permitted under Article 21(1) MC.

According to Article 21(1) MC the air carrier's liability for injury and death of passengers can not be generally excluded or limited for damages. Outside the scope of Article 21(1) MC, however, the freedom to contract applies. Article 21(1) MC limits the restrictions on contractual disclaimers to damages that arise under the circumstances described in Article 17(1) MC. According to some decisions, these restrictions do not encompass the exclusion of liability by the carrier for consequential losses suffered because of an incident mentioned in Art. 17 MC.

This may the case under US law where the employer's consequential loss may not be subject to the restrictions of Article 17 MC. Under US law, disclaimers for consequential loss and indirect damage are generally effective. The New York Supreme Court ruled in *Cohen vs. Varig Airlines*[3] that a contractual clause according to which an air carrier is exempted from liability for consequential loss and indirect damage does not violate Article 17 MC. The court argued that the relevant clause in the Warsaw Convention (same wording as Article 17 MC) does not state which damage is covered by the provision.

For this reason, national law governs the content of the claim for damages. Since the Warsaw Convention does not contain any statement as to which damage is to be compensated, the exclusion of consequential damage and indirect damage is admissible. Accordingly, the court dismissed a claim for damages for psychological impairment.

Under German law the difficulty is that liability does not attach to whether the damage is direct or indirect but rather to the degree of fault (intent, negligence) and, where applicable, to the distinction between contractual breaches of the contractor's tortious actions. As a rule, the party in breach or the tortfeasor is liable for damages for all but improbable causal consequences of the act irrespective of whether it is a direct or indirect loss.

There are cases, however, where German courts did make a distinction between the rights directly injured by the breach and other rights which were affected as a consequence of a directly injured right: For example, in a dispute under a contract of carriage, a German court rejected a claim for compensation for loss of holiday enjoyment – the consequential right affected – ruling that the parties had agreed on an effective disclaimer[4].Whether such contractual disclaimers in consumer contracts are valid, though, is another matter and subject to the German law on general terms and conditions.

In summary, the ECJ raised some further questions in respect to the air carrier's liability under the MC. There are some indications that the ECJ might extend the air carrier's liability to include an employer as claimant in the event of the employee passenger suffering bodily harm or death because the MC does not define the term *damage*, respectively the persons who retain the services of the carrier and are, entitled to sue. It remains a matter of domestic law whether the employer's losses are claimable or may be excluded under Article 21 in order to exempt or limit the liability under Article 17 MC.

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[2]*Cf. Kuhn, ZLW 1989, 21,27; Schmid/Giemulla, Frankfurter Kommentar zum Montrealer Übereinkommen, 2014, § 17 MC, Recital 92.*

[3]*New York Supreme Court, Appelate Division, 15 Avi 17, 112 – Cohen v. Varig Airlines.*

[4]*Cf. LG Köln, ZLW 1979, 67; 1980, 349, 350.*

International Cooperative Mechanism in Space Activities in Namibia

Alexander Gairiseb*

Abstract

Space exploration has a crucial role to play in the socio-economic growth in Namibia. Therefore, international cooperation in space activities is a common principle in the majority of the United Nation's legally binding and non-binding instruments related to or regulating the exploration and use of outer space for peaceful purpose. It is common belief that space activities have been and are still taking place in Namibia. There are efforts to develop space science through various initiatives. However, such initiatives are established on the premise of space cooperation. To what extent has Namibia made use of space cooperation principle? And what cooperative mechanism has the country adopted? Thus, this paper discusses the governmental, intergovernmental or interagency modes of cooperation adopted in Namibia. In addition, the bilateral/multilateral or memorandum of understanding for these space collaborations are explained. The extent by which Namibia adheres to with UN space instruments is examined.

The preliminary study indicates that Namibia has indeed ventured into international cooperation through governmental and interagency modes by entering into bilateral agreements or memorandum of understandings. The main areas of cooperation are scientific research, education and personnel training (technical assistance). Most of the conditions of cooperation in the bilateral agreements conform to the UN legal instruments (both binding and non-binding) on the exploration and use of outer space by taking into account the needs of Namibia as a developing country, being equitable and mutually acceptable, and the contractual terms that are fair and reasonable.

Key words

International cooperation, bilateral agreements, cooperative mechanism, outer space.

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Introduction

Before we discuss the international mechanisms on space cooperation, it is imperative to explain what the term international cooperation means. The term international cooperation is not defined in any of the five UN Treaties relating to the exploration and use of outer space including the moon and other celestial bodies. However, the term can simply be defined as the interaction of persons or groups of persons representing various nations in the pursuit of the common goal or interest.[1] In the context of space activities, States cooperate in order to explore and use the outer space for the benefit of mankind and in the interests of maintaining international peace and security. This is evident from the language of the Preamble to the Outer Space Treaty.

International cooperation is a principle that is common in the United Nations legally binding and non-binding agreements in the peaceful exploration and use of outer space. Therefore, the benefit of mankind depends on international cooperation among members states. Thus, the United Nations' Committee on the Peaceful Uses of Outer Space and its Legal Subcommittee adopted an initiative to review international mechanism for cooperation in the peaceful exploration and use of outer space after proposals from various member States such as China, Ecuador, Japan, Peru, Saudi Arabia and the United States. As a result, the Legal Subcommittee established a Working Group in 2014, and the Working Group conducted its work according to a five-year work plan. In terms of this work plan, an exchange of information on the range of existing international space cooperation mechanisms was conducted in the sessions of the Legal Subcommittee. In addition, the Working group endorsed the report of the Chair of the Working Group, which included a set of questions that could be referred to as appropriate and on a voluntary basis in contributions to the work of the Working Group.[2]

As a result, Member States such as the United States of America[3], the Russian Federation[4] and intergovernmental organisations such as the European Space Agency[5] submitted a range of bilateral and multilateral mechanisms they utilise for space cooperation.

At the time of writing this paper, the Republic of Namibia has not submitted any response to the request of the United Nations Office of the Outer Space Affairs and in connections with agendas of the Sessions of the Legal Subcommittee. This is attributed to the fact that Namibia has not acceded to any of the five UN Treaties regulating outer space including the moon and other celestial bodies.[6] However, there have been cooperative mechanisms on space activities taking place in the country. Thus, the purpose of this paper is to discuss the extent of international mechanisms for space cooperation in Namibia. But first, the United Nations regulatory framework on international mechanism for space cooperation is examined. This examination is done by looking at both legally binding and non-binding United Nations instruments relating to the exploration and use of outer space for peaceful purpose, followed by the examination of current international mechanism on cooperation for space activities in Namibia. This will address the areas of cooperation on which Namibia focuses, and the modes of cooperation.

UN regulatory framework on international mechanism for space cooperation

- **Introduction**

The success in the exploration and use of outer space for peaceful purpose is the consequence of international cooperation, which has been a crucial principle from the onset of space era. Consequently, the importance of international cooperation has been clearly stipulated in various United Nations instruments relating to the exploration and use of outer space for peaceful purposes.[7] These instruments will be discussed in the section that follows below.

- **Binding UN Instruments**

a) Outer Space Treaty

The Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies[8] of 1967 (also known as the Outer Space Treaty/OST) is the Magna Charta on the space activities. It is a Magna Charta in the sense that it contains the fundamental principles on the exploration and use of outer space for peaceful purpose and it laid down the foundation for space activities.[9] The principle of international cooperation feature among these fundamental principles found in this treaty, in particular Article I. Therefore, States are obliged to facilitate and encourage international cooperation in scientific investigation in outer space including the Moon and other celestial bodies. Likewise, pursuant to Article III "States are urged to carry on activities in the exploration and use of outer space in the interest of promoting international cooperation". In the exploration and use of outer space including the moon and other celestial bodies, States are guided by the principle of cooperation and mutual assistance. The inference to be drawn is that the principle of international cooperation is the cornerstone for the success of the exploration and use of outer space for peaceful purpose. This is on the premise that the exploration and use of outer space is carried out for the benefit and in the interest of all countries regardless of the level of economic or scientific development, and outer space is the common heritage of all mankind. The concept of common heritage of all mankind is not defined in any of the UN treaties, however, for the purpose of this paper, the concept refers to those parts of the earth and cosmos that can be said to belong to all humanity regardless to geographic location, and that should be protected and administered for its benefit. The term embraces the ocean floor and its subsoil, and outer space.[10] Hence, why can't the States cooperate, if they all have the common goal of the betterment of mankind and maintaining international peace and security?

In addition, States should consider on the basis of equality any requests by other States Parties to the Outer Space Treaty to be afforded an opportunity to observe the flight of space objects launched by those States in order to promote international cooperation in the exploration and use of outer space. But in terms of Article X consideration of requests from other States for the observation and the conditions under which it could be afforded is determined by agreement between the States concerned. This statement directly encourages States to enter into cooperative relations or mutual arrangements. Furthermore, informing the Secretary-General of the United Nations as well as the public and international scientific community, to the extent feasible and practicable about the nature, conduct, locations and results of conducting activities in outer space is one way of promoting international cooperation in the peaceful exploration and use of outer space, including the moon and other celestial bodies.

- **Non-Binding UN Instruments on Outer Space**

The Committee on the Peaceful Uses of Outer Space and its Legal Subcommittee have developed a number of declarations, principles and recommendations on outer space. These legally non-binding instruments support the existing UN Treaties on outer space, and have been adopted or recognised by the General Assembly in its various instruments. Thus, in order 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 practice thereto.[11] The non-binding instruments are the United Nations resolutions, which do not create rights and obligations; however, they serve as guidance to States. But, one cannot turn a blind eye on non-binding instruments because these (UN resolutions) can attain the status of customary international law provided the two elements for a practice to qualify as customary international law are met, namely, (a) a general and consistent State practice, and (b) *opinio iuris* which imply that States consider the practice as obligatory under international law.

What follows in this section is the examination of the nature of non-binding UN instruments on outer space in as far as they incorporate the principle of international cooperation. And at the end of this section an overview of the content of framework agreement is provided.

(a) Principles adopted by the General Assembly

If we look at the historical evolution of international space law, we could deduce that it started first with discussions in the form of declarations. These declarations were later adopted by the General Assembly in its resolutions, in particular, the UN General Assembly Res. 1721 (XVI) of 20 December 1961 and the UN General Assembly Res. 1962 (XVIII) of 13 December 1963. Eventually, the five UN Treaties on outer space were adopted from the resolutions[12].

(i) Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space

The General Assembly declared that the activities of States in the exploration and use of outer space shall be carried on in accordance with international law, including the Charter of the United Nations, in the interest of maintaining international peace and security and promoting international cooperation and understanding. Furthermore, the declaration set out the notion that States shall be guided by the principle of cooperation and mutual assistance in the exploration and use of outer space.[13] This was already discussed above in the preceding section, not to forget the fact that these declarations let to the adoption of the five UN Treaties on outer space, hence there is a repetition of statements and the language used is verbatim in the subsequent resolutions or treaties.

(ii) Principles Governing the Use by States of Artificial Earth Satellites for International Direct Television Broadcasting

The concept of international cooperation has its own paragraph under this declaration, which was adopted by the General Assembly. This principle was adopted with the view that non-natural or man-made operation of international direct broadcasting satellites are orbiting in the outer space, and thus this will have significant political, economic, social and cultural implications. Thus, the activities in the field of international direct television broadcasting by satellite should be based upon and encourage international cooperation. Such cooperation should be the subject of appropriate arrangements. Special consideration should be given to the needs of the developing countries in the use of international direct television broadcasting by satellite for the purpose of accelerating their national development.

The use of artificial satellites for direct television broadcasting can have intellectual property implications such as copyrights or patent rights issues, the same can be said about scientific investigations, research, data gathering and analysis in space activities. Hence, States should cooperate on a bilateral and multilateral basis for protection of copyright and neighbouring rights by means of appropriate agreements between the interested States or the competent legal entities acting under their jurisdiction. The inference to be drawn is that when States enter into bilateral or multilateral agreements as a means of international cooperation on space activities they should mutually agree to incorporate clauses dealing with intellectual property protection.

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

When a State carries out remote sensing activities from outer space it should encourage international cooperation by making available to other States opportunities for participation on the basis of equitable and mutually acceptable terms. Furthermore, States are encouraged, to provide for the establishment and operation of data collecting and storage stations and processing and interpretation facilities through agreements or other arrangements in order to maximize the availability of benefits from remote sensing activities.

In addition, the responsibility for international cooperation does not only lay with the States. The United Nations and the relevant agencies within the United Nations system shall promote international cooperation, including technical assistance and coordination in the area of remote sensing.

(iv) 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

This declaration, also known as the Space Benefits Declaration was adopted by the General Assembly in its Resolution 51/122 of 13 December 1996. It contains the detailed statements in as far as international cooperation is concerned that will be discussed below. But what remains to be answered is what will govern international cooperation? Thus, the general requirement is that international cooperation should be conducted in accordance with the provisions of international law, in particular the Charter of the United Nations and the Outer Space Treaty. There is repetition in this declaration that international cooperation should be carried out for the benefit and in the interest of all States. However, emphasis has been put on the fact that needs of developing countries should be taken into account. But States are at liberty to determine how they are participating in international cooperation i.e. whether it is through multilateral or bilateral modes and/or focus on scientific research or space exploration. Despite the freedom of determining their participation, it must be based on equitable and mutually acceptable means. This denotes that the contractual terms should be fair, reasonable and should be in full compliance with the legitimate rights and interests of the parties concerned.

In addition, the following are considered most effective and appropriate modes for conducting international cooperation, namely, governmental and non-governmental, commercial and non-commercial, global, multilateral, regional or bilateral. International cooperation should be aimed at promoting the development of space science and technology and of its applications; fostering the development of relevant appropriate space capabilities of interested States; facilitating the exchange of expertise and technology among States on a mutually acceptable basis.

(b) Related resolutions adopted by the General Assembly

(i) Resolution 1721 A and B (XVI) of 20 December 1961

The Committee on the Peaceful Uses of Outer Space is urged to maintain close contact with governmental and non-governmental organisations concerned with outer space matters. This in itself is an extension of international cooperation to the body that belongs to the United Nations. The inference, to be drawn is that international cooperation is not only between States (governmental) but it could extend to other actors. Therefore, the United Nations, including the Committee on the Peaceful uses of Outer Space, is often used as a platform of international cooperation and also an independent actor participating in international cooperative programmes.

(c) Overview of the contents of Framework Agreements

In the following paragraph the author will look at the generic clauses contained in most of the Framework Agreements whether bilateral or multilateral. It is called framework agreement because it provides an outline or skeleton of general legal principles as well as terms and conditions for future cooperation in a broader scope of cooperation. Eventually, an implementing agreement to provide for specific mission details is concluded. But a Framework Agreement can in itself contain implementing arrangements. Normally, a Framework Agreement is contracted between governments, however, there are instances where a framework agreement is concluded between two space agencies provided that such agencies are granted a power to make a binding instrument.

Consequently, the contents of Framework Agreement will include, a preamble which contains the history of space cooperation of the two States concerned, a series of independent space cooperative agreements is sometimes referred; the application of the United Nations treaties on outer space, and principles of international law; the purpose of the framework agreement; agencies for cooperation which are specified in either in the Article providing for “Purpose” of the Framework Agreement, in an independent Article; applicable law which includes a clause that confirms that the cooperation shall be conducted in accordance with the national laws and regulations of the Parties; Article on definitions with important terms; scope of cooperation which clearly state the planned areas of cooperation; implementing arrangements/agreements such as working protocols, MOU; financial arrangements which state that the Parties shall be responsible for funding their respective activities subject to no exchange of funds and availability of appropriation funds; customs duties and taxes, exchange of personnel, transfer of goods and technical data, cross-waiver of liability, protection of IP rights, publication of public information, consultation and settlement of dispute, and final clauses[14].

Current international cooperative mechanism on space activities in Namibia

Introduction

The Namibian National Programme on Research, Science, Technology and Innovation (NPRSTI) identifies space science as one of the priority areas for investment in research, science and technology. The programme envisages that space science is one of the research areas addressing enabling technologies. Consequently, space science has links to many fields as across-cutting and interdisciplinary research fields. Clearly, space science is linked to the areas of agriculture and fisheries and water through earth observation and ICT through satellite communication. In addition, strong links exist from basic astronomical research to the areas of energy (shared design of telescopes and solar concentrators), health (highly efficient light sensors for telescopes and for medical imaging), tourism (geographical and meteorological preferred place growing astro-tourism) and ICT (handling and analysis of Big Data).[15]

Consequently, this is an indication that the Republic of Namibia has entered into space cooperative mechanisms with few countries. Thus, the following sections will provide an overview on the modes of space cooperation, the focus areas and the general clauses contained in some of the bilateral/multilateral agreements concluded by Namibia.

Modes of cooperation

(a) Regional Mechanism

To begin with, the African Leadership Conference on Space Science and Technology for Sustainable Development (ALC) is one of the intergovernmental platforms that can be used to initiate specific cooperation and coordination at various levels in the region. The ALC has been in existence since 2005 and is aimed at promoting intra-African cooperation in the uses of space science and technology, however, there is no evidence that Namibia is represented at this platform. Secondly, the African Union presents another platform for Namibia to enter into space cooperative mechanisms. In particular, the President of the Republic of Namibia was part of the African Union Heads of States who adopted the African space policy and strategy in 2016. This reflects the continued role that the African Union is playing in regional cooperation and the fact that Namibia is member to AU presents an opportunity for space cooperative mechanisms. Although the nature of the African space policy and strategy being a policy document that provide an overview of the regional goals in the space arena and how the same can be achieved in practice, Namibia should be commended for taking part in the adoption of the African Space Policy which is a first step toward the realisation of African Space Programme. Consequently, the adoption of the African space policy has been achieved through cooperative mechanism, which is one of the fundamental principles under international space law.

(b) Bilateral

At bilateral level, Namibia has initiated space cooperative mechanism by entering into government-to-government framework agreements. For instance, The Republic of Namibia and the People's Republic of China concluded an agreement on the Establishment of a China Space Tracking, Telemetry and Command Station in Namibia in 2000, which was renewed.[17] Now the areas of cooperation and what the agreements entail will not be addressed at this stage in the paper but in the subsequent sections. Furthermore, the Department of Innovation and Technology within the NCRST initiated the process of developing Namibia Space Science and Astronomy Strategy through a stakeholder's workshop, which was done in collaboration with the Department of Science and Technology in South Africa as the consequence of the signed Namibia South Africa Plan of Action 2015/2016. This is a reflection of agency-to-agency mode of space cooperation, however, it should be noted that neither NCRST is nor the Department of Science and Technology are space agencies per se but both are government agencies that have the mandate of promoting research, science and technology. But in the context of the NCRST it has the power in co-operation with the Minister and Ministers responsible for foreign affairs and finance, to enter into agreements on co-operation and maintenance of relationships with similar foreign institutions in the fields of research, science and technology in accordance with section 5 (e) of the Research, Science and Technology Act No. 23 of 2004. Consequently, nothing prevents the NCRST to enter into space cooperation mechanism for the purpose of promoting space science, research and development as longs as there is consultation with relevant departments of the government of Namibia.

(c) Multilateral

The High Energy Stereoscopic System (H.E.S.S) and the Square Kilometre Array (SKA) represent the multilateral cooperation mechanism, which prove that Namibia is engaged in space related projects. The former is operated by a collaboration of 13 different countries, which include Namibia and South Africa, Germany, France, UK, Ireland, Austria, the Netherlands, Poland, Sweden, Armenia, Japan and Australia.[18] In the context of Namibia, Namibia has signed a Memorandum of Understanding to participate in the HESS.

The latter, is an international effort to build the world's largest radio telescope with a square kilometre (one million square metres) of collecting area. The SKA telescope will be placed in Africa (South Africa) and Australia. Therefore, Namibia is part of the SKA Africa partners for South Africa. But in 2016 the African Ministers took a resolution providing that a governance framework, for radio astronomy initiatives on the continent, in particular for SKA and AVN, and the formal multilateral agreement should be adopted in 2016.[19] At the time of writing this paper, the members of the nine SKA African partners (including Namibia) represented by their respective Ministers and Deputy Minister of Science and Technology signed a Memorandum of Understanding for Institutionalising Cooperation in Radio Astronomy on 24 August 2017, but the formal multilateral agreement was not concluded between the SKA Africa partner countries, however, at the time of writing the paper the MoU MoU was not available for perusal for the purpose of this research.

Consequently, the MoU concluded by various partner countries form part of the multilateral cooperation agreements.

Multilateral cooperation agreements include international agreements such as binding international treaties, implementing agreements, memorandums of understanding and exchanges of letters. Therefore, in order for the MoU to qualify as international agreement in substance, basic elements are to be met, namely, (a) international agreement, (b) between subjects of international law, (c) in written form and governed by international law[20].

However, mechanism of international cooperation cannot always be clearly classified either as strictly bilateral or multilateral, and either legally-binding or legally non-binding. An essentially bilateral cooperative project could be seen also as a multilateral cooperation when, for example, established within multilateral cooperation mechanisms.

- **Focus area**

In this section, a synopsis of the scope of space cooperation in Namibia will be provided. For instance, the bilateral agreement between Namibia and China focus on space exploration, human space exploration because the tracking, telemetry and command station forms an essential element of the TT&C network of the China Manned Space Engineering Programme for providing tracking, telemetry and command support to spacecraft. Secondly, the TT&C station is established with the object of raising the coverage rate of the tracking, telemetry and command network of the China Manned Space Engineering Programme. Furthermore, the Namibia-China bilateral agreement indirectly focuses on rendering assistance to developing countries by constructing ground facilities and providing personnel training.

The collaboration between the NCRST and the DST as per the signed Namibia South Africa Plan of Action 2015/2016 focused on earth observation, capacity building on earth observation and space science and technology.

The scope of application for the HESS is to allow scientists to explore gamma-ray sources with intensities at a level of a few thousandths of the flux of the Crab nebula (the brightest steady source of gamma rays in the sky). Therefore, the area of focus for the HESS project is on space exploration as well as space research.

The SKA focus area is on earth science, space science, basic space research, scientific experiments, in particular, deploying thousands of radio telescopes, in three unique configurations, it will enable astronomers to monitor the sky in unprecedented detail and survey the entire sky thousands of times faster than any system currently in existence.

- **Salient Provisions in Bilateral or Multilateral Agreements concluded by Namibia**

Generally, one of the standout provisions in one of the bilateral agreements concluded by Namibia is the willingness to be guided by the principles governing the "Treaty on Principles Governing the Activities of States in the Exploration and Use of outer Space, including the Moon and Other Celestial Bodies of 1967". This type of provision together with the provision outlining the purpose of the bilateral agreement is found in the Preamble. However, this does not imply that all the agreement that Namibia will conclude on international cooperation for space activities should follow that route, because one may find that the provisions dealing with the purpose of the agreement may be a section, article or chapter on its own.

Furthermore, there is a section expressly mentioning the implementing agencies/ authorities for the purpose of the agreement. Another important provision relates to the clause or provision that expressly discusses customs and excise related issues in Namibia. As well as the facilitation of the entry, temporary residence and exit of personnel engaging in a space cooperative program in Namibia. Not to mention the provision requiring the liability to be borne by the parties to the agreement with the obligation to indemnify Namibia from or against claims that might arise.

Finally, a provision pertaining to the exchange of personnel, which will include the transferring of skills and expertise in Namibia, is crucial for the conclusion of bilateral agreements on space activities.

Conclusion

In conclusion, the principle of international cooperation in relation to space activities is well explored in Namibia. Therefore, even if Namibia has not acceded to the five main international instruments relating to the peaceful exploration in outer space, the principle has acquired the status of customary international law. This is based on the fact that international cooperation has been practiced generally and consistently, and the States like Namibia see international cooperation as obligatory under international law thus the requirement of *opinio iuris* has been met in the context of exploring outer space for peaceful purposes.

Furthermore, the modes of international cooperation on space activities may vary from bilateral, regional to multilateral, therefore, at times it's hard to determine the specific mode of cooperation. As the result the areas of cooperation also vary, this leads to the dynamic international cooperation mechanism. But, we should not dictate to the States on the scope and content of bilateral/multilateral agreements.

[1]Webster's online Dictionary. *Definition of International Cooperation. Available at http://www.webster's- online-dictionary.org/definitions/international+cooperation [02 May 2017].*

[2]*United Nations Committee on the Peaceful Uses of Outer Space (2016) Draft Report of the Working Group on the Review of International Mechanisms for cooperation in the Peaceful Exploration and Use of Outer Space, UN Doc. A/AC/105/C.2/2016/CRP.14, page 1.*

[3]*UN Committee on Peaceful Uses of Outer Space (2013) Review of International Mechanisms for Cooperation in the peaceful exploration and use of outer space: Information received from Member States, UN Doc. A/AC.105/C.2/2013/CRP.17.*

[4]*UN COPUOS (2014) Space Cooperation Mechanisms in the Russian Federation, UN Doc. A/AC.105/C.2/2014/CRP.23.*

[5]*UN COPUOS (2014) The European Space Agency as mechanism and actor of international cooperation, UN Doc. A/AC.105/C.2/2014/CRP.28.*

[6]UN Committee on Peaceful Uses of Outer Space (2017) *Status of International Agreements relating to activities in outer space as at 1 January 2017*, p 9.

[7]UN *COPUOS (2016) Draft Report of the Working Group on the Review of international Mechanisms for cooperation in the Peaceful Exploration and Use of Outer Space*, UN Doc. A/AC/105/C.2/2016/CRP.14, page 4.

[8]*United Nations, Treaty Series, vol. 610, No. 8843.*

[9]*Prof. S. Hobe (2005) Current and future development of international space law, p 3, at United Nations/Brazil Workshop on Space Law, Disseminating and Developing international and national space law: The Latin America and Caribbean Perspective, 2005, united Nations Publication, New York.*

[10]*Black's Law Dictionary 9th ed (2009) Definition of Common Heritage of Mankind, p313.*

[11]Committee on the Peaceful Uses of Outer Space. Legal Subcommittee 55th Session. Compendium: *Mechanisms adopted by States and international organisations in relation to non-legally binding United Nations instruments on outer space.*

[12]*Prof. S. Hobe (2005) Current and future development of international space law, p 2 - 3, at United Nations/Brazil Workshop on Space Law, Disseminating and Developing international and national space law: The Latin America and Caribbean Perspective, 2005, united Nations Publication, New York.*

[13]*Paragraph 4 of the Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space, Adopted by the General Assembly in its Resolution 1962 (XVIII) of 13 December 1963.*

[14]*UN Committee on the Peaceful Uses of Outer Space (2016) Draft Report of the Working Group on the Review of international Mechanisms for Cooperation in the Peaceful Exploration and Use of Outer Space, UN Doc. A/AC/105/C.2/2016/CRP.14.*

[15]*National Programme on Research, Science, Technology and Innovation (NPRSTI) of 2014/2015 to 2016/2017, p 63 - 66.*

[16]*Prof. P.Martinez (2012) The African Leadership Conference on Space Science and Technology for Sustainable Development, Available at www.sciencedirect.com/science/articles/pii/S0265964611001263 [22 March 2017].*

[17]*Namibia Commission on Research, Science and Technology. Natural Science Research: Space Science, Available at www.ncrst.na/abouts--us/natural-science-research-/55/ [22 March 2017]*

[18]*HESS Collaboration (2017) High Energy Stereoscopic System, Available at www.mpi-hd.mpg.de/hfm/HESS/pages/about [23 March 2017].*

[19]*SKA South Africa. AVN - African VLBI Network, Available at www.ska.ac.za/science-engineerin/avn/ [23 March 2017].*

[20]*Article 2 of the Vienna Convention on the Law of Treaties of 1969.*

The difficulties created by Ryanair suggest the revision of some EU regulations on air transport and competition

Alfredo Roma*

Recently, Ryanair has launched another shocking announcement: from October 2017 to March 2018, an unspecified number of flights and several routes will be cancelled. At the same time about 700 pilots of Ryanair stated they wanted to leave the airline, and this sounds weird enough because usually pilots are well paid. Ryanair's excuse that this is just a mistake in planning holidays, because Ireland has changed the fiscal year from April-March in January-December, does not hold. The problem arises from the management of the staff, which the Irish company has always adopted: the use of the flight crew to the limit of service hours provided by civil aviation authorities according to European and international rules; the framing of flight and ground personnel as resident staff in Ireland to enjoy tax advantages; demand for sales results in flight of ancillary products and services; cleaning of the stationary aircraft entrusted to flight attendants; difficulties in granting leave for sickness or holidays.

European civil aviation regulations do not fall into the merits of airline staff contracts, except for the employment limits established for safety reasons for the flight crew. Airlines' staff contracts are therefore based on national provisions and trade union agreements. Considering the big difference between Ryanair's work contracts and that of other European air carriers sooner or later the problem was to break out.

The value chain of the air transport

The air transport value chain includes: airports, which enjoy the so-called "traffic monopoly", that is, a citizen who lives in Bologna first seeks a flight departing from Bologna and not from Milan or Rome; air traffic control which, except for rare cases, is a State monopoly; the large distribution that is an oligopoly; airlines, which are the weak ring of the value chain as they suffer from the most ruthless competition, being air transport transnational by definition and airplanes can move everywhere. Particularly in Europe, following the liberalization of the sector in 1993, competition developed rapidly among all 180 European carriers. This situation has led airlines to implement a far-reaching cost saving policy over the previous 1993, also seeking tax solutions such as Ryanair's, registering, for example, planes in Ireland or Portugal where such registrations enjoy very low tariffs.

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Even in the aviation sector, as in the field of personal and corporate taxation, we would need common rules for EU Member States to offer equal market conditions for everyone. It is unacceptable that there are tax havens in the European Union such as Luxembourg, the Netherlands Antilles for the Netherlands, the Channel Islands for Great Britain, Andorra for Spain, Monaco Montecarlo for France, so it is unacceptable that workplace regulations or aircraft registration may alter competition within the European Union.

The silence of the DG Competition of the European Commission

It is surprising, then, that the European Commission's General Directorate for Competition has not made its voice heard on the airline's situation, created mainly by the advent of low-cost carriers, if not to curb any mergers. France and Germany have defended themselves against the low-cost companies' business assault by relegating them to smaller airports, also because the French government and the German government maintain a kind of golden share in the equity of Air France and Lufthansa (as it should do the Italian government in Alitalia). Other countries such as Italy have opened all airports to low-cost airlines, creating some problems for national carriers. Perhaps the opening had to be done gradually. In 2000 Loyola de Palacio, EU Transport Commissioner, stressed that a consolidation of European carriers was necessary to make them competitive on the world market, but this never really happened. Sometimes national market competition authorities have curbed the merger of small-scale national airlines that would not certainly affected the free competition in Europe. Examining the problem of competition between airlines at national level no longer makes sense after the liberalization of the air transport. It has to be analysed at EU level, that is by the European Commission because the market is that of the EU Member States and not just the national one. This would allow the necessary consolidation advocated by Loyola De Palacio.

A new European policy for the air transport

Now, over 600,000 passengers that until March 2018 cannot fly Ryanair will be given a refund as provided for by Community rules. The procedure is complex and long to have this refund, but direct damage also adds other indirect damages to the economic activities to which cancelled flights and routes are linked.
From this fact, it is evident that a European vision of the air transport problem is needed to homogenize market and competition conditions and to make the whole industry profitable, not just for the actors they enjoy monopoly situations, but also for air carriers. If that had been understood before, we would not have come to the disaster created by Ryanair and others disasters such as the recent bankrupt of Air Berlin and Monarch.

In the meantime, on September 20th the Italian Antitrust Authority has opened an investigation on the Irish air carrier Ryanair for allegedly incorrect commercial practices in violation of the Consumption Code.
In particular, the Antitrust contests that the numerous cancellations of flights made or to be carried out in the coming months, as reported by press, could constitute a breach of the duty of diligence set out in Article 20 of the Consumption

Code, to the extent that they would largely be attributed to organizational and management reasons already known to the airline, and thus not to occasional and exogenous causes outside its control, causing considerable disruption to consumers who had scheduled their flights in advance and already paid for the relevant air-line ticket.
Additionally, there is a second controversial profile concerning the tenor and the modalities of the information with which Ryanair informed passengers of flight cancellations and provided them with possible solutions (refund or modification of the ticket) that might mislead consumers about the existence and therefore the exercise of their right to financial compensation provided for by Regulation EC 261/2004 in the event of cancellation of flights.
This confirms that a decisive intervention of the European Commission Antitrust Authority on this situation is needed.

Brexit and its impact on the European low-cost carrier easyJet

Virginia Ichim*

On 23 June 2016, a referendum was held to decide whether the United Kingdom should leave or remain in the European Union. The historic decision of withdrawal from the European Union led to the next step left for Britain, to trigger Article 50 of the Treaty on the European Union, action that took place on 29 March 2017. Therefore, there is a two-year time limit to complete negotiations. The British vote to leave the EU ultimately results in an attempt to find the most suitable path in pursuing a future relationship with the European Union on different levels of EU law.

One of the outcomes of the Brexit referendum could call into question agreements within EU on open airspace that allow airlines to fly without restrictions. On leaving the European Union, access for the air carrier operators will be restrained. Old bilateral agreements will have to be resurrected by the United Kingdom for the UK -based operators such as EasyJet and for the non-UK airlines as Ryanair or Wizzair to continue to enjoy the right of flying into and out of the UK. For instance, after Brexit, the 7th freedom service will no longer be possible because UK-based operators will not be able to exercise their rights to fly from one point in a foreign territory into a point in another foreign territory and vice versa which carriage is not linked with a third and fourth freedom traffic right respectively.
Therefore, the airlines will lose their status as 'Community air carriers' envisaged in the EU Regulation 1008/2008[1] and will not be able to fly between any two points in the EU.

Moreover, the 9th freedom service regarding the right to carry traffic between two points in a foreign territory would also not be automatically permitted. These two freedom services will affect in particular the low-cost carriers, as for instance EasyJet. The LCC was based and has developed rapidly because of what is called the creation of the liberalised internal aviation market. But, for instance, the withdrawal of the UK from the European Union would restrain its airlines from having automatic access to the liberalised aviation market. Hence, it would be a non-EU Member State expected to negotiate continued access. If we were to take into consideration the example of Norway, a non-EU Member State, but part of the European Common Aviation Area (ECAA), we would come to the conclusion that being a member of ECAA allows a non-EU Member State to enjoy its full access to the

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internal European aviation market. Accordingly, after Brexit, a solution to be taken into consideration for the UK in order to continue to enjoy all nine freedoms would be to carry out its ECAA memberships as a non-EU Member State. However, this would be incompatible with the desire of the UK Government to no longer comply with the decisions of the European Court of Justice (ECJ). To be taken into consideration such an option, UK would have to obtain unanimous support from each Member State. Another option for the UK would be to reach a bilateral agreement following the Switzerland model[2] that envisages the option of not being a member of the ECAA, but at the same time not being required to adopt decisions of the ECJ. These two above-mentioned solutions would not represent the most suitable path for UK since the government does not intend to comply with the EU law and decisions of the ECJ.

A better alternative for the UK would be to reach an open-skies Agreement following the example of the EU-US Open Skies Agreement allowing flights in and out of the EU so long as they start and end in Britain.

Automatically leaving the European Community Aviation Area, all the EU-negotiated horizontal agreements such as the EU-USA Open Skies Agreement and the EU-Canada Air Transport Agreement and British airlines will no longer cover the operation of air services between them and the UK. Another option would be to resort to old agreements set out in the 1944 convention on International Civil Aviation, known as the Chicago Convention. Under these rules, the first five freedoms would be permitted. A further point regarding bilateral agreements which needs to be tackled is the need of renegotiation of bilateral agreements between UK and third countries. Many of these relate to EU law and institutions. However, this aspect would not constitute a major problem since UK will convert all EU-law into English common law under the Great Repeal Bill [4].

Without a strong bilateral agreement, EasyJet would be one of the most disadvantaged air carriers since it has bases and routes all throughout Europe. If EasyJet does not change its current ownership structure, it risks losing their rights to operate intra-EU flights if no comprehensive deal is reached.

Headquartered at London's Luton Airport, it would be extremely difficult for the low-cost carrier EasyJet to continue exercising its traffic rights since its headquarter is in the UK. Therefore, it would have to relocate to an EU Member State to preserve its traffic rights. Moreover, it is also extremely difficult to relocate from the UK to a EU Member State since it must undergo the whole process and requirements of the Regulation in order to obtain an AOC (air operator certificate) and an operating licence from a EU Member State. The provisions of Article 4 of the Regulation enshrine *inter alia* that it has to demonstrate that the airline is owned more than 50% by the Member States and/or nationals of Member States and effectively controlled by them, that its principal place of business is located in that Member State or that it holds a valid AOC.[4] Hence, the rule of owning with majority an airline company by a EU citizen would exclude British citizens.

EasyJet has already made steps in establishing a new headquarter in another EU Member State – Austria in the event that by March 2019 there will be no agreement on aviation. The new base, called EasyJet Europe will be opened in Vienna, will keep its headquarters in the UK and it would be the third airline after the already established airlines in UK and Switzerland.

As a concluding remark, for EasyJet the option of establishing a new headquarter in an EU Member State is a contingency plan in case UK and EU won't succeed in reaching an aviation agreement to prevent the aviation market from not being as open and competitive as it was during the time UK was a EU Member State.

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[1] Article 15 (1) of the Regulation (EC) No 1008/2008 of the European Parliament and of the Council of 24 September 2008 on common rules for the operation of air services in the Community.

[2] Agreement between the European Community and the Swiss Confederation on Air Transport, available from: http://eur-lex.europa.eu/resource.html?uri=cellar:fbbce0d6-c474-436b-a29d-aefd1752bd70.0004.02/DOC_1&format=PDF.

[3] European Union (Withdrawal) Bill [HC], Bill 5, 2017-19, House of Commons bill number 5 parliamentary session 2017-2019, available from: https://publications.parliament.uk/pa/bills/cbill/2017-2019/0005/cbill_2017-20190005_en_1.html.

[4] Art. 15 (1) of the Regulation (EC) No 1008/2008 of the European Parliament and of the Council of 24 September 2008 on common rules for the operation of air services in the Community.

FORTHCOMING EVENT

NCKU Space' - 2017 International Symposium

Toward the International Cooperation for Taiwan's Space Economy & Technology Development

What is NCKU Space?

The NCKU Space is a new research and educational initiative supported by Taiwan's National Cheng Kung University (NCKU) – a university renown as the cradle for Taiwan's aerospace capabilities building and space related industry development. A recent successful story of the NCKU was the achievement of a space Cube Sat launch that was in part of the QB50 international consortium.

The initiative of the NCKU Space naturally occurred after the university's three-decade successful experience in participating Taiwan's indigenous space capabilities development from the 1990s.

Nowadays, in additional to the existing educational and research missions, the NCKU Space looks for exploring other modalities to improve Taiwan's national space capabilities, grow the space related national economic and industrial strengths, explore new space related technological products and services prototypes in order to generate more benefits from the outcomes of the space technological research and the extensive applications. Furthermore, in the particular context that Taiwan is preparing the future 'Third 15-Year National Long Term Space Development Program' (the 3rd NLTSDP, likely to be implmented in 2019-2033), the NCKU Space also aims to study two broadened questions on 1) how to make Taiwan's space capabilities and utilities higher, farther, greater, as well as 2) how to make them safer, smarter, and suitable to people's needs and sustainable to the national long-term interests. Last but not least, the initiative of NCKU Space is taken in accordance with the new situation that global space activities have become ever congested, contested and competitive because of the increasing number of space countries and the popularized utilities of space technologies and their applications. Such new reality compels all nations, including Taiwan, to think beyond their respective national interests so are encouraged to take into account the global issues related to safety, security and sustainable interests for all concerned parties in time.

For this, the NCKU Space tends to bring Taiwanese stakeholders and international partners to be connected with each other by organizing scholarly discussions and dialogues among stakeholders related to the national space technological and commercial development. Such international forums are particularly vital to stimulate the awareness and interests of Taiwanese young generations to not only enjoy the excitement in developing space technological and industrial capabilities but also to learn how to overcome the long-term societal, economic, and generational challenges.

In sum, the NCKU will pursues the objectives to (1) continue the legacy of Taiwan's continuous space capabilities development; to (2) study smart and coordinated national space policies forTaiwan's future space capabilities and utilities development; to (3) promote international cooperation to enhance Taiwan's space economic and technological development among the domestic stakeholders and international partners.

Who attend NCKU Space Symposium

A kick-off event of the NCKU Space will be organized in form of international symposium dedicated to the theme of Toward the International Cooperation for Taiwan's Space Economy and Technology Development'. This kick-off event will be held on November 8-9, 2017 as one of the celebrating activities for the 86th NCKU Foundation Anniversary. The kick-off symposium enjoys the full supports from the space related governmental institutions, namely the National Space Organization (NSPO), Tainan Municipality and local space related business community.
International scholars and experts from different space nations, such as Canada and Japan, and those from the international space cooperation organizations, i.e. the European Union (EU) are invited to present different approaches about their respective space development policies and implementation models, notably focused on the international space cooperation activities. Taiwanese participants will present its successful space stories.

Initiatives regarding potential international collaboration projects will be discussed under the following frameworks. (1) Further endeavors for Taiwan's space capabilities development; (2) Smart space policies for Taiwan's future space capabilities and utilities development; (3) Sustainable mechanisms to enhance Taiwan's international space cooperation among Taiwan's domestic stakeholders and with foreign partners. All participants are invited to join the debate about the future national space capabilities development. In this regard, two discussion panels that involve local and international participants are expected to offer an outlook on the status quo, the technological developing trends, and the future perspectives of Taiwan's space programs in the context of the growing global space activities.

The program of the 2017 NCKU Kick-Off International Symposium is annexed for information.

Enrollment & More Information

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Appendix: 2017 NCKU Kick-Off International Symposium Program

November 8, Wednesday

1. Venue for the morning sessions: Tainan Laboratory of National Center for Research on Earthquake Engineering, Kuei-Ren Campus of National Cheng Kung University

2. Venue of the afternoon sessions: Department of Aeronautics and Astronautics, National ChengKung University

Date/Time	Theme	Speaker(s)
09:00-9:20	Opening Remarks	Prof. Huey-Jen Jenny SU, President NCKU
9:20-10:10	Keynote speech 1 : **The Emerging Global Space Activities, their opportunities, implications and challenges**	Xavier L.W. LIAO, Ghent Institute for International Studies (GIIS), Ghent University, Belgium
10:10-10:30	Coffee Break	
10:30-11:20	Keynote speech 2: (TBD)	H. Y. Yu Deputy Director General, NSPO
11:20-12:10	Keynote speech 3 : **(Regional space capabilities building cooperation : An APRSAF perspective)**	Yu TAKEUCHI, Keio University, Japan

12:10-14:00	Lunch and tour to ASTRC	
14:30-15:20	Keynote speech 4 : **(Belgian Space Capabilities Development: An Economic and Technological Approach)**	Gaele WINTERS, Von Karman Institute for Fluid Dynamics (VKI), Belgium
15:20-15:40	Coffee/Tea Break	
15:40-17:10	**Forum: Toward the Space Clusters Development Model in Taiwan (a series of presentations to be arranged)**	Jiun-Jih MIAU, Dept. of Aeronautics and Astronautics, NCKU, and speakers
18:30-20:30	***NCKU Space*** Kick-Off Networking Dinner at Shangri-La Far Eastern Hotel	Hosted by Dean W. S. Lee, College of Engineering, NCKU

November 9, Thursday

Venue: Department of Aeronautics and Astronautics, National Cheng Kung University

Date/Time	Theme	Speaker(s)
09:00-09:50	Keynote speech 7 : (TBD)	Giuseppe IZZO, Vice-Chairman of the European Chamber of Commerce of Taiwan, ST Microelectronics VP of Asia-Pacific region.
09:50-10:10	Coffee Break	
10:10-11:00	Keynote speech 7 : **Canada's International Space Cooperation : A Legal and Safety Aspect**	David Kuan-Wei CHEN, Institute & Space Law and Centre for Research in Air and Space Law, McGill University, Canada
11:00-12:00	Panel discussion: **Perspectives on Taiwan's Space Capabilities Development: Educational & Research Approach : Toward the *NCKU Space* II and a NCKU Space Education and Research Program**	Chaired by Jiun-Jih MIAU and Xavier L.W. LIAO
12:00-12:30	Concluding of the 2017 *NCKU Space* International Symposium	

*The program remains subject to change.