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INTERNATIONAL SPACE LAW IN ITS FIRST HALF CENTURY

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ABSTRACT

This paper will highlight three different phases of the past 50 years of the development of international space law. This development is characterised by a first hard law phase (1956-1979), a second UNGA Resolution soft law phase (1980-1992), and a third, current phase of reinterpretation of space law (1992 up to now). Furthermore, the paper will come to conclusions with regard to the method of law-making, the effectiveness of law-making, and the question of the existence of a tendency from hard to soft law.

With regard to the development of international space law, major conclusions will be that (a) public international law in the future will only be a frame for space activities filled in by more flexible special legal regimes, (b) a growing normative vagueness with regard to the major legal framework for outer space activities exists, (c) the legal regime for commercial activities on the Moon and other celestial bodies is still unclear, (d) the legal regime for touristic space activities is still growing, and could arguably combine air and space law approaches.

In conclusion, the paper will underline that in the second half century of development of international space law, a reorientation of international space law back to hard law would be very welcome. In view of the various challenges, only such strengthening of the international legal framework for space activities can preserve the authority of this international legal order. Public international law will remain the necessary frame for space activities also in the future. But, most likely, there will be more distinct legal rules for specific space activities. Furthermore, there could be a growing body of national space legislation. In sum, in view of the growing private space activities, the authority of the frame of public international law must be preserved.

INTRODUCTION

During the last half century, space legislation has achieved remarkable successes. Starting immediately after the launch of the first artificial satellite Sputnik I, within 20 years five international conventions have been adopted. But after this time and around the adoption of the fifth international agreement, the Moon Agreement in 1979, new developments took place in outer space legislation. The different phases of these developments shall be discussed in the perspective that it seems that in an increasing way the idea of concluding binding international agreements gets to be abandoned.

In the following paper, therefore, the attempt will be made to investigate reasons for the reluctance of the international community to adopt more binding international agreements. Moreover, the question for the prospects and the perspective of this development will be posed. It shall be asked whether we are heading towards relative normativity[1] with regard to the uses and

the exploration of outer space. Furthermore, the consequences and the possible reasons of such possible relative normativity shall be earmarked. Finally, examples shall be given for a possible normative break-through that could enable the international community to come back to stronger normative standards characterised by hard law and clear definitions of key notions of outer space legislation.

I. THE ORIGINS OF SPACE FLIGHT AND EARLY WRITINGS ON SPACE LAW

Space flight belongs, of course, to the original dreams of mankind. Just take the example of Jules Verne[2] and you will discover how much inspiration mankind got by the pure idea of flying to the Moon or other celestial bodies. It was relatively early that the pioneers of space flight like the German Wernher von Braun and the Russian Konstantin Ziolkovsky[3] discovered the use of outer space as being necessary for defence purposes.[4] The German defence system during the Second World War was dependent on the concept of the V2 rocket that needed to use outer space. Interesting early writings on space law included such important authors like Dr. Vladimir Mandl, attorney-at-law in Pilsen, who published a short treatise of 48 pages in German entitled "Space law, a problem of space flight?"[5]. In this short treatise, Mandl described in a first part the public law and the public international law aspects of space flight. Mandl terminates this part with the Treaty of Paris of 13 October 1919 in which the states parties recognise the sovereignty over the airspace. He very foresightedly observes that the respect for the national sovereignty of the airspace would have a far-reaching consequence even for space flight. He, therefore, pleads for a transit right of space objects through the airspace. Mandl explicitly asks for an outer space law.[6] Moreover, he precisely asks the question how far the airspace would go[7]. He foresightedly thinks of the establishment of stations in outer space[8]. Finally, Mandl strongly pleads for international legal rules established in a space that does not, in his opinion, belong to any state[9]. This is again an observation that anticipates developments that later have been laid down in the Outer Space Treaty of 1967.

II. THE CRUCIAL FEATURES OF SPACE LAW-MAKING

Although, as we have seen, Vladimir Mandl foresaw many developments of the shape of international space law, space law making started only 20 years later.

1. The First Phase: Two Decades from1956 to 1979 of Space Law Making

And - viewed in a nutshell - space law-making at its initial phase was a tremendous success.[10] After the launch of the first artificial space satellite, the satellite Sputnik 1 on 4 October 1957, the United Nations started immediately to get concerned with these new activities all with a view to eventually implement legislation. Already in 1959, the Committee on the Peaceful Uses of Outer Space was established as an ad hoc Committee to the UN General Assembly.[11] This Committee concerned itself immediately with proposals for legislation. In 1963, the UN General Assembly passed Resolution 1962[12] which basically included all the important features of international space legislation. This was the starting point for the eventual making of the "Magna Charta" of outer space, the Outer Space Treaty of 1967.[13] In this Treaty, we have the non-appropriation principle in Art. II, the demilitarisation principle in Art. IV, the registration principle as embodied in Art. VIII, the principle of the preservation of jurisdiction and control in the same Article VIII, the general possibility of space activities being carried out by non-governmental entities in Art. VI, and the principle of liability in Art. VII as well as the non-contamination principle in Art. IX. These are the main principles of outer space legislation, somewhat overarched by the important principle that outer space and the celestial bodies are the common province of all mankind, as

embodied in Art. I para. 1 of the Outer Space Treaty.[14]

Later on, the international community drafted more specific legislation on some principles for the exploration and use of outer space as contained in the Outer Space Treaty. First, in 1968, the Rescue Agreement was adopted which highlighted the importance of the rather non-contested duty of all states to support (help) astronauts in distress as contained in Art. V of the Outer Space Treaty.[15] A little more contested was the Convention on International Liability for Damage Caused by Space Objects[16] a more specific example of the general principle as contained in Art. VII of the Outer Space Treaty. Important refinements have taken place in that, for example, the differentiation in a strict liability provision as far as damage occurs to space objects and a fault-based liability if the damage occurs to other objects was only highlighted in the Liability Convention of 1972.[17] Moreover, this Convention contains several details, but, interestingly enough, does not very closely define such important notions as "launching state" or "space object".[18] The definition of "launching state" in Art. 1 c) of the Liability Convention contains of course elements of a definition. It provides for four different possibilities of a state being a launching state. This can be a state that launches itself, or procures the launch (for a private subject), or from whose territory a launch is made, or from whose facility a space object is launched. This has proven almost sufficient so far. However, with a view to registration, this is not sufficient any longer. On the other hand, the term "space object", although being of key importance for international space legislation, contains a virtual non-definition in Art. I d) of the Liability Convention. According to this provision, the term "space object" includes "component parts of a space object as well as its launch vehicle and parts thereof". It was clear that this "definition", which is contained as well in the Registration Convention, did not suffice as a definition.[19] It is interesting enough that so far, relatively few difficulties arose in spite of the non-definition.

As already mentioned, the registration principle of Art. VIII of the Outer Space Treaty that is further refined in the Registration Convention of 1975, contains a variety of different and interesting notions. The twofold obligation to provide for a national register as well as to provide information to the United Nations Secretary-General who, in an international register, includes also the information, is one of the key international obligations of this Convention.[20]

Finally, in 1979, the Agreement Governing the Activities of States on the Moon and other Celestial Bodies was adopted.[21] This Convention was a total failure. Although only five ratifications sufficed to bring it into force and these five ratifications were reached after a while (1984), this agreement received until now only 12 ratifications and is - one must clearly say this - although being ratified inter alia by Belgium and the Netherlands still a dead international agreement.[22] This is mostly so because of the rather unclear language as contained in Art. 11 of the Moon Agreement where the Moon and its resources as well as the resources of other celestial bodies are declared to be the common heritage of mankind.[23]

It is very interesting to observe that all of the five international agreements contain clauses that allow for the making of specific amendments after a certain period of time; this is e.g. the case in Art. XV of the Outer Space Treaty, Art. 8 of the Rescue Agreement and Art. XXV of the Liability Convention as well as Art. 9 of the Registration Convention. No such amendments have been made so far. Moreover, the Convention on the Registration of Objects Launched into Outer Space contains a review clause in its Art. XXVI that allows for such a review ten years after its entry into force; this would have been in 1985. Also the Moon Agreement contains in its Art. 18 such a review clause which would have become effective in 1989. It is thus indicative that

of the five international agreements only the Outer Space Treaty with its almost 100 ratifications has found wide-spread support of the international community, the others being in the range of between 60 and only 12 ratifications. Interestingly enough, no amendments to international agreements and no request for a review of such agreements have been made so far.

2. A New Second Phase (1980 – 1992): UNGA Resolutions for a Softening of Legal Commitments?

Rather, in a next phase that started around 1980, a new method of international law-making for outer space activities was applied: the adoption of United Nations General Assembly resolutions. This was the case with regard to guidelines for the use of direct broadcasting satellites.[24] Here, the rather contested question of a signal overlap as well as the possibility of hindering incoming signals of other broadcasting entities from abroad was discussed by the international community. "Free flow of information" versus "prior consent" was the ideologically inspired question of these days[25] that, as one must clearly admit, in times of the globalised world of national telecommunications of today, does not play a vital role any longer. However, certain quota for national products still play a role if it comes, for example, to certain European states, e.g. France.

Moreover, in 1986, the United Nations General Assembly adopted a next resolution on the use of remote sensing satellites.[26] Here again, a similar question was at stake, namely that and in how far the sensed state could either deny the permission to the sensing state, or at least profit from the giving of a permission in that products of the sensing activities should be given to the sensed state. The principles do in fact signal a compromise. Some authors consider this greater part to be still valid customary international law, others contest such value.[27]

Finally, in 1992, the UN General Assembly adopted Guideline Principles on the Use of Nuclear Power Sources on Board of Space Objects.[28] Here, for safety reasons, certain requirements for the use of such sources were made and the resolution eventually adopted.

What is the effect of UN General Assembly resolutions? It is well known that these resolutions do not have a legally binding character. Rather, they are an indication of a certain state practice supported by *opinio juris*, but are, because of a lack of legislative power of the UN General Assembly, short of being hard public international law.[29] At least initially, the non-binding character of a resolution was deliberately chosen in order to soften the hardcore applications of the space-faring nations and of others. In other words: in order not to destroy the harmony, one could agree on something of legally non-binding character.[30]

3. After the End of the Cold War (after 1992 – 2005): A Phase of Reinterpretation of International Space Law?

Such developments went on through the1980ies until 1992. 1992, obviously, is indicative of a fundamental change of paradigm in international politics as well as in international (space) law. The end of the Cold War between the East and the West had of course important repercussions on the making of space law as well.[31] Moreover, very importantly, the one remaining super power felt more and more attempted to lose an interest in concerted UN space law-making.

a) What is characteristic for the new phase of space law-making that started a few years after the end of the Cold War around 1992? Interestingly enough, this new and third phase that lasts until today, for the last fifteen years or so is characterised by a re-definition of major notions of international space law in the form of UN General Assembly resolutions. So it is kind of a mix of the methods chosen in the first and in the second phase. This can be first

exemplified by the 1996 Declaration on Space Benefits.[32] Since 1988, an almost rephrasing of Art. I para 1 of the Outer Space Treaty was on the agenda of the UN Committee on the Peaceful Uses of Outer Space. The Committee, at the request of developing countries, had given itself the task of making concrete recommendations of how states should fulfil their obligation to international cooperation in the sense of Art. I para. 1 of the Outer Space Treaty.[33] The Space Benefits Declaration is far from concretising such obligations.[34] It is more of the opposite: It highlights almost total freedom of states to choose the means and ways of implementing the cooperation obligation.[35] So, basically, nothing was specified in the Space Benefits Declaration.

b) Next, the rather unclear notion of "launching state" was subject to reconsideration by the Legal Subcommittee.[36] Here, a working group started with its work and come up with the interesting and new proposal declaring that with a view to the current difficulties of making progress in international space legislation, it was up to the member states to implement respective national space legislation where the problems of space objects should be dealt with.[37] This was insofar interesting and important as with this the new phenomenon of private space activities as a result of the growing commercialisation of space activities was taken into account. And indeed, after the year 2000, a number of important national space laws came into existence.[38] This all has to do with the important obligation as contained in the Outer Space Treaty that member states must authorise and continuously supervise private space activities (Art. VI OST). Up to now, 13 states have enacted national space legislation and another 8 are preparing it.[39] In other words: states started to discover that if one wanted to foster commercialisation and privatisation of space activities for the purpose of self-protection, some national space legislation was needed that e.g. allowed for the recourse against private actors. Thus, the more and more unclear international law is still accompanied by a growing body of national space law.

c) Finally, since 2005, the Outer Space Committee of the United Nations is concerned with the practice of states with regard to the registration of space objects.[40] Again, a key notion of international treaty law for outer space activities is going to be reconsidered, cautiously though as only an overview of current state practice is on the agenda of the Committee. But this overview shall be given also with a view to making more concrete and more effective the existing international legal obligations. Again, the final aim shall be the adoption of a UN General Assembly resolution that calls for an authoritative interpretation of key notions for international space legislation.

III. KEY ASPECTS OF INTERNATIONAL SPACE LEGISLATION RECONSIDERED

Besides other factors, two aspects of this new development deserve particular mentioning:

1. The consensus method as the basis of law-making

Relatively early after its coming into existence, the United Nations Committee on the Peaceful Uses of Outer Space agreed at adopting a consensus method to its decision-making.[41] Consensus is based on the fact that no formal vote is ever taken, but that informally, the search for consensus governs the entire negotiating process.[42] The chair person of the fora concerned with law-making must look for such consensus and basically any negotiating partner has the right to disagree with such statement of an achieved consensus. Therefore, basically each of the negotiating partners has a veto right. This, obviously, considerably prolongs the process for international law-making. It ensures on the other hand, that all the parties concerned can live with the result because they have consented to it. However, after some 40 years of applying this method, some critical remarks may be allowed.

In the opinion of the present author the consensus principle first of all leads basically to a considerable prolongation of the negotiating process. This is obvious, because instead of a vote always a search for consensus must take place. Moreover and maybe even more importantly, the search for consensus is in danger of causing a fatal dilution of the preciseness of the wording of international space legislation. The wording of "space object" or "launching state" or the timing for registration in terms of "as soon as practicable" are typical examples for the smallest denominator which can be a typical result as a consequence of a method that must always look for consensus in order to guarantee progress. It shall, however, not be negated that at least during the first twenty years, the consensus method was quite successful. But, as we have seen, there are also dark sides of this method in terms of the preciseness of key notions, especially in so-called package deals, that in the opinion of the present author might today overshadow the arguable merits of this method.

2. The importance of redefinitions

The more recent time has shown moreover, as demonstrated in the previous section, a tendency towards redefining international treaty law for outer space activities. This development started around the end of phase two. With regard to "space benefits" as a notion contained in Art. I para 1 of the Outer Space Treaty and later on "space object" as contained in the Registration and in the Liability Convention and now "registration" as contained in the Registration Convention by way of the UN General Assembly resolutions, new attempts to (re-)define key notions of outer space legislation are directly under way. Seen in a methodological perspective this is a doubtful undertaking. It very clearly pays tribute to the fact that the international space law community does not feel in a position to go ahead with space legislation by redrafting a treaty. Rather, the non-binding form of a UN General Assembly resolution is chosen in order to highlight the importance of certain key notions of international space legislation. From the point of view of the observance of the rule of law, this development can only be regretted. It may, of course, be that an interpretative note in the form of a UN General Assembly resolution is more than nothing, but the question is allowed why the method of amendments (or even of review) to the international agreements has not been taken so long. One of the reasons may be that some states feel more comfortable in having less binding agreements which means also less of an observance of the rule of law.[43]

IV. NEXT STEPS FOR GOING BACK TO STRONGER LEGAL COMMITMENTS

These rather sceptical observations do not lead to some kind of progress if they are not transformed into positive action. Therefore, four proposals in this regard shall be made:

1. Registration as a crucial principle

The international community has currently an opportunity to come back to the observance of strict international space law. The current process of reconsidering certain notions of the law as contained in the Registration Convention provides for such an opportunity. It is clear that some of the current problems with the Registration Convention are posed because there are a lot of private space activities. Take the example of transfer in orbit[44], or countries that negate their international legal obligation to register in cases of the launching by private companies from their territory or by international organisations.[45] Moreover, the information provided for by the Registration Convention is by far not sufficient in order to allow for a precise overview on the space object.[46] It is therefore in the interest of all mankind if important precisions to the Registration Convention are being identified through the working group currently under way and that the Committee makes a courageous step forward and comes up with some amendments to the

Registration Convention. The ILA Space Law Committee will provide concrete proposals for such amendments.[47] Obviously, the adoption of a UN General Assembly resolution on guidelines for the interpretation of the main principles of the Registration Convention are more than nothing and therefore would also be a first step into this direction with a view to a later development of such interpretative guidelines into an amendment to the Registration Convention.

2. Space Tourists as Astronauts?

The next step could be the Astronauts Convention of 1968. This Convention that will soon (in 2008) celebrate its 40th anniversary is still up to date as far as the traditional uses of outer space by astronauts are concerned. But it is rather doubtful whether it will suffice for modern undertakings like space tourism ventures. In that respect, it should urgently be reconsidered whether specific conditions for the flight of so-called "flight participants" – these are the non-professional astronauts that fly primarily for touristic purposes – should be worked out and added to the Astronauts Convention.[48] This would perhaps help a growing industry to grow further and would also shed some light upon the sometimes not undisputed question of the delimitation of airspace and outer space.[49] Again, either a UN General Assembly resolution in the form of interpretative guidelines to the Astronauts Convention or an explicit amendment to that Convention should be the order of the day.

3. Model Law for National Space Legislation

Moreover, the examples just given have clearly shown that national space legislation in times of a growing privatisation and commercialisation of space activities becomes more and more important.[50] And we have seen that the number of national space laws has grown, from just a few to already 13 of such laws, 8 more such laws being currently in preparation. It could therefore be worthwhile if the international community through the UN Committee on the Peaceful Uses of Outer Space would adopt a model law for national space legislation. Such model law would provide guidelines for domestic space law-drafting and thus stimulate the respective national processes and strengthen the rule of law.

4. Moon Agreement

The International Moon Agreement foresees a review 10 years after its coming into force (Art. 18). Such was the case in 1984 so that in 1994, the time limit was reached. Nothing has happened so far. But there is no clear understanding with regard to the limits of commercial exploitation of the Moon and other celestial bodies.[51] Such exploitation could become more and more feasible and it is rather unclear what apart from the rare provisions of the Outer Space Treaty its legal basis would be. The more recent debate on the selling of land on the Moon is an interesting demonstration of new developments.[52] Therefore, the UN Committee on the Peaceful Uses of Outer Space should take the initiative and look into the examples of the Law of the Sea Convention of 1982 and the Implementing Agreement of 1994.[53] It should start to creatively reconsider what the common heritage of mankind concept means in today's international legal environment with regard to the commercial exploitation of outer space and its resources as well as of the resources of celestial bodies. Here, the 2002 Resolution 1 of the International Law Association of the ILA Conference in New Delhi could be of some guidance.[54]

PERSPECTIVES

Without any doubt, the sharpening of key notions of international space law is needed. In times of the growing likelihood of future commercial exploitation of the Moon and other celestial bodies, a concrete and precise understanding of these key notions as anticipated already by Vladimir Mandl in 1932 is of great importance. What is also important in this

respect is therefore that the international legal obligations of states and private entities are precisely phrased and have binding character. Therefore, a strong plea is made for the UN Committee on the Peaceful Uses of Outer Space and the UN General Assembly to come back to the first phase of international space law-making and to enrich such existing international agreements that are somewhat out of date by specific amendments accompanied by national space legislation. Such additions would bring the corpus iuris spatialis up to today's international needs and requirements.

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[1] Expression from P. Weil, Towards Relative Normativity in International Law, AJIL 77 (1983), p. 413.
[2] J. Verne, De la terre à la lune, Paris 1865.
[3] K. Ziolkovsky, Investigations by means of propulsion space ships, Kaluga 1914.
[4] See also H. Oberth, Die Rakete zu den Planetenräumen, München 1923.
[5] V. Mandl, Das Weltraum-Recht – Ein Problem der Raumfahrt?, Pilsen 1932.
[6] Ibid. p. 22.
[7] Ibid. p. 31 seq.
[8] Ibid. p. 33.
[9] Ibid. p. 48.
[10] Examples of early writings on space law A. Meyer, Rechtliche Probleme des Weltraumfluges, in: ZL 1953, p. 37; N. Smirnov, La réglementation internationale des vols dans l'espace supra-atmosphérique, in: RGA 1957, 351; K.-H. Böhme, Lufthoheit und Weltraumflug, in: UL 1956, p. 184; W. Jenks, The common law of mankind, New York 1958, p. 394; Ph.C. Jessup/H.J.Taubenfeld, Controls for space and the Antarctic analogy, New York 1959, p. 193 et seq.; W.H. Prinz von Hannover, Luftrecht und Weltraum, Hannover 1953.
[11] UNGA Res. 1472 (XIV), 12 December 1959; see also K.-H. Böckstiegel, Grundlagen des Weltraumrechts, in: K.-H. Böckstiegel (ed.), Handbuch des Weltraumrechts, Köln et al. 1991, p. 1 et seq., p. 10 et. seq.
[12] UNGA Res, 1962 (XVIII), Definition of legal principles governing the activities of states in the exploration and use of outer space.
[13] U.N.T.S. Vol. 610, p. 205.
[14] See N. Jasentuliyana, Art. I of the Outer Space Treaty Revisited, in: Journal of Space Law 1989, p. 129-144.
[15] U.N.T.S. Vol. 672, p. 119.
[16] UNGA Res. 2777 (XXVI), Annex of 29 November 1991.
[17] UNGA Res. 3285 of 12 November 1974.
[18] See Art. 2 and 3 of the Liability Convention.
[19] Art. I lit (d) of the Liability Convention: The term "space object" includes component parts of a space object as well as its launch vehicle and parts thereof.
[20] See Art. II and IV para. 2 of the Registration Convention.
[21] UNGA Res. 34/38 Annex of 5 December 1979.
[22] Status: 1 January 2006; four states have signed; see for a comprehensive criticism on the Moon Agreement F. von der Dunk, Report on the Moon Agreement to the 70th Biannual Conference of the International Law Association in New Delhi 2002, London 2002, p. 201 et seq..
[23] See S. Hobe, Was bleibt vom gemeinsamen Erbe der Menschheit?, in: Liber Amicorum Jost Delbrück, Berlin 2005, p. 329, 338 et seq.
[24] UNGA Res. 37/92 Principles concerning the use by states of artificial earth satellites for direct television broadcasting of 10 December 1982.
[25] See on that problem J.A. Frowein, Das Problem des grenzüberschreitenden Informationsflusses und der „domaine réservé", in: Berichte der Deutschen Gesellschaft für Völkerrecht (BDVR) 1979, p. 1 et seq.; B. Simma, Grenzüberschreitender Informationsfluss und „domaine réservé", in: BDVR 1979, p. 39 et seq.
[26] UNGA Res. 41/65 of 3 December 1986.
[27] See Report of the ILA Space Law Committee of the Toronto Biannual Conference 2006, to be published in 2007.
[28] UNGA Res. 47/68 Principles relevant to the use of nuclear power sources in outer space of 14 December 1992.
[29] See S. Hobe/O. Kimminich, Einführung in das Völkerrecht, 8th ed., Tübingen et al. 2004, p. 196.
[30] Examples are the direct broadcasting satellite or the remote sensing principles where the prior consent / free flow of information policies were strictly opposed to one another.
[31] N. Matte, Space Policy and Programs Today and Tomorrow. The Vanishing Duopole, Montreal 1980.
[32] UNGA Res. 34/121 of 13 December 1996.
[33] The title of the Agenda Item was: „Consideration of the legal aspects related to the application of the principle that the exploration and utilisation of outer space should be carried out for the benefit and in the

interest of all states, taking into particular account the needs of the developing countries", of 1988.

[34] See for a critical appraisal M. Benkö/K.-U. Schrogl, The UN Committee on the Peaceful Uses of Outer Space: Adoption of a Declaration on "Space Benefits" and Other Recent Developments, in: ZLW 1997, p. 223.

[35] See id.

[36] See on this development K.-U. Schrogl/Ch. Davis, A new look at the concept of the „launching state", in: ZLW 2002, p. 358.; see also UNGA Res. 59/115, Application of the legal concept of the „launching state", of 10 December 2004.

[37] See the conclusion of the Working Group, in: Doc. A/AC.105/187 of 19 April 2002.

[38] See e.g. Belgium 2005, Korea 2006.

[39] See Norway, Sweden, United Kingdom, South Africa, Argentina, Russia, Ukraine, Australia, Hong Kong, Brazil, United States of America, Korea, Belgium; among the countries preparing national space legislation are The Netherlands, Germany and France.

[40] See Report of the Chairman of the Working Group on the Practice of States in International Organisations in Registering Space Objects, Doc. A/AC.105/871, p. 33.

[41] See inter alia E. Galloway, Consensus Decision-Making in U.N. COPUOS, in: Journal of Space Law 1979, p. 3 et seq.: N.M. Matte (ed.), Space Activities and Emerging International Law, Montreal 1984, p. 197 et seq.

[42] See for an analysis C. Christol, The modern international law of outer space, New York 1982, p. 18, 19.

[43] See the ILA Space Law Resolution of New Delhi 2002 that indicates that any international space law agreement has a need to be amended, Res. 1/2002, London 2002, p. 13 et seq.

[44] See on this problem M. Gerhard, Transfer of operation and control with respect to space objects – Problems of responsibility and liability of states, in: ZLW 2002, p. 571 et seq.; J. Hermida, Transfer of satellites in orbit – An international law approach, in: IISL Proceedings of the 46th Colloquium on the Law of Outer Space (2003), p. 189 et seq.

[45] See A. Kerrest, Remarks on the notion of launching state, in: IISL Proceedings of the 42nd Colloquium on the Law of Outer Space (1999), p. 308.

[46] These shortcomings are apparently mentioned in the Report of the Chairman of the Working Group on the State Practice of the Registration Convention, Doc. A/AC.105/871, p. 36.

[47] Considerations of the ILA Space Law Committee at its 72nd Biannual Conference in Toronto 2006, to be published.

[48] Concrete proposals will be made by S. Hobe, Challenge to the Astronaut Concept in the Era of Space Tourism, in: G. Lafferranderie (ed.), Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space 1968 – 2008. Lessons learned? Which Directions Now?, (shall be published in 2008).

[49] See on the delimitation discussion inter alia S. Hobe, Definition and Delimitation of Outer Space, in: ECSL 6th Summer Course on Space Law and Policy, Paris 1997, p. 49, 53 et seq.; see also S. Hobe/J. Cloppenburg, Towards a New Aerospace Convention? – Selected Legal Issues of "Space Tourism", in: IISL Colloquium on the Law of Outer Space, Vancouver 2004, p. 377, 378, 383.

[50] See S. Hobe/K.-U. Schrogl/B. Schmidt-Tedd (eds.), Project 2001 Plus, Workshop 2004 in Berlin, Köln et al. 2004.

[51] See for an attempt in this direction, S. Hobe, Adequacy of the Current Legal and Regulatory Framework Relating to the Extraction and Appropriation of Natural Resources, in: Proceedings of a Workshop held on 28-29 June 2006 in Montreal (to be published in Annals of Air and Space Law 2007).

[52] See in this particular direction, the Declaration of the Board of Directors of the International Institute of Space Law on claims to property rights regarding the Moon and other celectial bodies, http://www.iafastro-iisl.com/editional/20pages/statement_moon.htm (date of access: 15 August 2006).

[53] See J. Charney, Entry into Force of the 1982 Convention on the Law of the Sea, in: 35 Va.J.Int'l.L.1995, p. 381 et seq.; S. Hobe, Was bleibt vom gemeinsamen Erbe der Menschheit?, in: K. Dicke et al. (ed.) Weltinnenrecht, Liber Amicorum Jost Delbrück, Berlin 2005, p. 329, 338.

[54] The respective paragraph reads as follows: „Regarding the 1979 Moon Agreement: Considering further that the common heritage of mankind concept has developed today as also allowing the commercial uses of outer space for the benefit of mankind, and that certain adjustments are suggested to Art. 11 of this Agreement concerning the international regime to be set up for the exploitation of Moon resources, which will make it more realistic in today's international scenario."