IAC-05-E.6.4.04

PROJECT 2001 PLUS: GLOBAL AND EUROPEAN CHALLENGES FOR AIR AND SPACE LAW AT THE EDGE OF THE 21ST CENTURY*

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ABSTRACT

In June 2005, "Project 2001 Plus: Global and European Challenges for Air and Space Law at the Edge of the 21st Century", was concluded with a final Symposium in Cologne. At this occasion, the Institute of Air and Space Law celebrated its 80th anniversary. Project 2001 Plus is a joint undertaking by the Institute of Air and Space Law of the University of Cologne and the German Aerospace Center (DLR). Many air and space law experts from all over the world contributed to this project.

It will be reminded that Project 2001 Plus attempted to investigate the effects of globalisation on air and space law. Consequently, the results of international and increasingly regional cooperation as well as the consequences of privatisation and the role of the ever increasing number of private actors were the main focus of the research conducted in the framework of the Project.

The final Symposium tried to draw some conclusions as a résumé of five years of work. According to the previous workshops, this symposium was divided into four sessions: one on national space legislation, a second on perspectives for international aviation, a third on the relationship between

ESA and EU and finally a fourth session on common issues in air and space law that focussed especially on the examples of liability and registration. The speakers, panellists and participants could base their contributions on the results of the previous workshops. These results were introduced by rapporteurs at the beginning of each session.

This paper shall highlight the most important findings and recommendations of Project 2001 Plus and especially of the final Symposium. Emphasis is laid on the description of the contribution of the Project to the development of space law. In this perspective, the findings of the Symposium are intended to serve as a modest contribution to the further development of international (air and) space law.

INTRODUCTION

"Project 2001 Plus: Global and European Challenges for Air and Space Law at the Edge of the 21st Century" investigated the effects of globalisation¹ on air and space law.² The results of international and increasingly regional cooperation as well as the consequences of privatisation and the role of the ever increasing number of private actors were the main focus of the research conducted in the framework of the Project. In June 2005, Project 2001 Plus was concluded with a final Symposium in

Cologne. At this occasion, the Institute of Air and Space Law, the oldest institution of its kind in the world, also celebrated its 80th anniversary. The symposium was attended by almost 130 participants from 20 different countries, including highly distinguished representatives from the International Court of Justice, international organisations, ministries, space agencies and universities as well as space industry.

Project 2001 Plus as the successor project of Project 2001³ is a joint undertaking by the Institute of Air and Space Law of the University of Cologne and the German Aerospace Center (DLR). The organisers felt honoured and proud that so many outstanding experts from all over the world have felt committed to and actively contributed to the Project over a period of five years (2001 - 2005). In order to increase the outcome of the scientific value of the contributions, a scientific advisory board was established. It had the purpose to advise the scientific director of the Project, Prof. Dr. Stephan Hobe, Director of the Institute of Air and Space Law of the of Cologne. The highly University distinguished members of the advisory board were: Judge Gilbert Guillaume, Former President and judge of International Court of Justice; Professor Dr. Peter Haanappel, Director of Studies, International Institute of Air and Space Law, University: Nandasiri Leiden Dr. Jasentuliyana, President of the International Institute of Space Law; Professor Dr. Vladimir Kopal, University of Pilsen; Professor Dr. Herbert Kronke, Secretary General. Unidroit: Dr. Lafferranderie, Legal Advisor, ESA and Chairman of the European Centre for Space (ECSL); Judge Vladlen Vereshchetin, International Court of Justice.

Between 2001 and 2005, four workshops were held within the framework of *Project*

2001 Plus. The proceedings of these workshops were published in a special publication series under the following titles:

- Legal Aspects of the Future Institutional Relationship between the European Union and the European Space Agency, Workshop on 5/6 December 2002, Brussels⁴,
- Consequences of Air Transport Globalization, Workshop on 8/9 May 2003, Cologne⁵,
- Towards a Harmonised Approach for National Space Legislation in Europe, Workshop on 29/30 January 2004, Berlin⁶,
- Current Issues in the Registration of Space Objects, Workshop on 20/21 January 2005, Berlin.⁷

The sessions at the final symposium reflected the issues discussed in the workshops. Each session was opened by an introductory statement of young researchers from the Institute or from DLR that aimed at summarising the results of the workshops and most recent developments. These reports were followed by two presentations experts the specific of in field. Subsequently, the issues were discussed by highly distinguished panellists and the auditorium. The sessions covered following topics:

- Session 1: Perspectives for More National Space Legislation;
- Session 2: The Features of a Framework for Globalised International Aviation -Current problems of "Post-Bilateralism";
- Session 3: The Current and Future Relationship of ESA and EU;
- Session 4: Common Issues in Air and Space Law: Envisaging Future Aerospace Applications - The Examples of Registration and Liability.

In the following, a short description of the space law related results of the respective sessions of the final Symposium (National Space Legislation, ESA/EU Relationship,

Common Issues in Air and Space Law) is given, before some preliminary conclusions are drawn.

NATIONAL SPACE LEGISLATION

The subject of national space legislation belongs to such subjects that were treated already during Project 2001. Here, in a very important workshop the conclusion was drawn that it was possible to identify certain "building-blocks" for national space laws. Such building-blocks would help to identify the general basis for national space legislation. This workshop on national space legislation identified five of such buildingfirst treated blocks. The one the authorisation of space activities, the second one the supervision of space activities, the third one the registration of space objects, the indemnification fourth one regulation, and the fifth one some additional regulation.

In the 2001 Plus special workshop on national space legislation, held in January 2004 in Berlin, the main focus was directed towards a harmonised approach for national space legislation in Europe. Focussing on European legislation and practices in the area of space law, this workshop aimed at shaping basic common structures within the five building-blocks. With authorisation and supervision, harmonisation demanded a certain maximum duration of administration procedure and the required fees had to be examined. It was agreed that an authorisation issued by one state should be acknowledged by other states conditions requirements and comparable. Safety requirements should refer to existing contractual quality standard rules, e.g. the rules already set up by the ECSS. Crucial for harmonisation were insurance compulsory requirements. Compulsory third-party liability insurance should be part of each national space law. In order harmonise national

legislation, modes of state indemnification were also discussed. The right to recourse of the liable launching state against the entity which caused the damage for which the state had been held liable was identified as pivotal by the experts of the workshop. In how far the recourse provision should include a specific limitation to the recourse in order to foster national industry was scrutinised further in the sessions of the workshop. Finally, it was held that on the regional level, for the time being e.g. the European Union had no competence to deal national space legislation. Harmonisation could thus only be reached by way of coordination and discussion among the European states. Still, here and at a worldwide level, harmonisation was required in order to avoid forum shopping of those private actors willing to conduct space activities.8 These interesting details were presented in the introductory paper given by Michael Gerhard from DLR. rapporteur.

Furthermore, in his presentation Prof. Armel Kerrest⁹ pointed to the need of national space legislation that should serve the purpose of controlling and supporting space activities. International agreements between space-faring states should be concluded in order to ease the implementation of national space legislation.

On the other hand, Dr. Steven Freeland¹⁰ pointed, based on the Australian experience with national space legislation, to the problem of implementation: problems of the fee structure, the application of tort law claims, damage outside the liability period, costs of accidents investigation were to be solved. Overall, a lot of political support was among the most important requirements for any national space legislation.

RELATIONSHIP OF ESA AND EU

With the increasing interest of the EU/EC in European space activities, the question of its

relationship with the European Space Agency (ESA) becomes more and more a practical of interest. organisations have their own specific legal regime and institutional framework which may not even be completely compatible. Consequently, the cooperation between these institutions and the goal of avoiding a duplication of efforts have launched a debate the future relationship of organisations. 11 In other words: because of political considerations, the division of tasks between ESA and the EU has become and is an open issue. From 2003 to 2005, the Institute of Air and Space Law of the University of Cologne conducted a research project on the relationship of ESA and EU which will be published in a 700 pages study with the title "Legal Framework for a Coherent Future Structure of European Space Activities" at the end of 2005. 12 A summarising version of this study is currently published in the German Journal of Air and Space Law (Zeitschrift für Luft- und Weltraumrecht).

With respect to the institutional issue, the current cooperation is governed by a Framework Agreement concluded between ESA and the European Community in 2003. This agreement, however, does not aim at clearly establishing responsibilities, especially regarding a single European Space Policy. The newly established "Space Council", for example, cannot take legally binding decisions and cannot therefore be considered to be a sufficient solution.¹³

The three different models which are being discussed generally and at the Symposium in order to provide for a more coherent institutional structure are the accession of the European Union to the ESA-Convention (so-called accession model), the cooperation between the two still independent organisations on the basis of an improved framework agreement (so-called cooperation model) or an integration of ESA into the EU

framework (so-called integration model). The research report investigated these options and came to the conclusion that the cooperation model seemed to provide the most suitable solution.¹⁴

Particularly, the relationship between ESA's principle of geographical distribution on the one hand and the EC's financial provisions as well as its economic and its industrial policy on the other hand have caused much discussion. ESA's industrial policy provides that contracts which a member state's industry receives are linked contributions made by that member state to mandatory ESA's and optional programmes.¹⁵ According to the EC's legal regime, there is no principle of fair return within the EC.

The application of ESA's industrial policy excludes undertakings from certain member states and therefore presents restrictions in the meaning of art. 28 et seq. and art. 49 et seq. of the EC-Treaty. However, the principle of fair return and its application in a more flexible manner can arguably be justified under art. 30 EC and art. 55, 46 EC, while the legality of a strict application of the fair return principle seems to be doubtful¹⁶.

While it can be said that the fair return principle as such is necessary for reaching the pursued aims, there is doubt as to whether the measures are also necessary to attract member states' participation in space activities. An option could be the application of a less strict return principle which would be similar to the one applied within OCCAR¹⁷. Without going too much into detail, it can be said that this approach offers more flexibility since in single programmes the awarding of contracts is more flexible. and the overall return coefficient has only to be met within a longer period of time. It is therefore likely that such a model would hinder less intra-community trade with

goods than the model currently applied within ESA. 18

Further provisions of EC law, especially public procurement law, the provisions governing aids granted by states (art. 87 et seq. EC) and the rules on competition (art. 81, 82 EC), as well as art. 12 EC are not infringed.¹⁹

If the "accession model" was followed, it can be assumed that the participation of the EC/EU in ESA's space programmes would be driven by political considerations. Consequently, the application of the fair return principle on EC/EU contributions would not be necessary for the protection of public security and consequently would not be justified under art. 30 and art. 55, 46 EC respectively. EC law would thus be violated. The application of the "cooperation model" would lead to the consequences already described: States would infringe EC/EU law if the fair return principle was applied too strictly, and with respect to the EC's contributions the situation would be similar to the situation in the "accession model", i.e. there would be no justification.

Finally, a third possible model for a more coherent institutional relationship between ESA and EU provides for the dissolution of ESA as an independent international organisation and the taking-over of its tasks by the European Union. According to Art. XXV of the ESA Convention, dissolution of ESA could be resolved by agreement between the member states. ESA's tasks and functions in the framework of the European Union could be carried out in a number of different organisational structures. ESA's tasks could in particular be conducted by the organs of the European Union, by EU agencies established by primary EU law or by an EU agency established by secondary EU law. In conclusion, one could hold that the integration model provides for a possible institutional set-up for European cooperation

in space. The organs of the European Union could provide for a coherent European space policy while an independent EU agency would be charged with the implementation of specific space programmes. However, within the existing EU framework, it is difficult to establish instruments for a flexible participation of member states, in particular space programmes.

Still, the major question is therefore whether the geographical return principle could be applied to space activities funded by the EC/EU and within its framework without infringing EC law.

After a résumé of these basic problems was given in the introductory remarks of Rapporteur Thomas Reuter from Cologne Institute, the two presentations dealt, on the one hand, with the possibility of harmonising the industrial policies of ESA and the EC/EU (Dr. Frans von der Dunk²⁰) and, on the other hand, the institutional side of the problem in the presentation of Prof. Sergio Marchisio²¹. Two different solutions to the problem were presented. Interestingly enough, Dr. von der Dunk favoured to bridge the inherent tensions of the different industrial policies of ESA and the EC/EU by way of an accession of the EU to the ESA convention. Prof. Marchisio, on the other hand, favoured an improvement of the current cooperation model beyond the results of the not very satisfying Framework Agreement between ESA and the EU.

COMMON ISSUES IN AIR AND SPACE LAW

The session on common issues in air and space law focused on the examples of liability and registration. It was introduced by the report of Stephan Mick from the Cologne Institute, who also highlighted the results of the very interesting Berlin 2005

workshop on issues of the Registration Convention.

The presentation of Prof. Peter Haanappel²² focused on liability issues in future aerospace applications, both, contractual and vis-à-vis third parties. This was followed by an examination of new forms of liability regimes, e.g. for High Altitude Platforms (HAPs), Unmanned Aeronautical Vehicles (UAVs) and Space Transportation Systems (STS).

Moreover, the presentation of Dr. André Farand²³ outlined parallels and differences between air transport and transport of passengers in outer space with regard to e.g. registration, liability, certification and unruly passengers. Legal issues coercively connected to space tourism would comprise e.g. the status of astronauts, the ISS Code of Conduct, selection criteria for space flight participants, astronauts training.

The question was raised whether new legislation was necessary or desirable to address the issues involved. With respect to orbital missions, 24 it was suggested at the Symposium that the current regime of international space law combined with specific contractual solutions seems to offer sufficient legal security, at least as long as the trips are experimental and very expensive. 25 The example of the specific regulations regarding the operation and use of the International Space Station could be used, especially regulations contained in the Crew Code of Conduct which inter alia establishes a clear chain of command.

The regulation of <u>suborbital</u> passenger flights, on the other hand, is more complicated, as the application of both air and space law could be considered²⁶.

Regarding third party liability, the Liability Convention of 1972 only applies to damage caused by space objects in the relationship between states. Its Art. II establishes a regime of absolute liability of the launching state for damage on the surface of the earth

or to aircraft in flight caused by the "space object" of a launching state, while Art. III establishes a fault-based regime which applies to damage caused elsewhere than on the surface of the earth to a "space object" or to persons or property on board. The definition of the term "space object"²⁷. however, is unclear, and the experts at the Symposium agreed that it currently is not certain whether the Liability Convention would apply to suborbital vehicles while there was a tendency towards the application of space law. The answer also depends on whether or not one favours a functional or spatial delimitation of airspace and outer space. The Australian example, establishing a 100 km limit for the purposes of applying national space legislation²⁸, was briefly discussed at the Symposium, and it was mentioned that other draft legislation considers the introduction of similar provisions. State practice might therefore develop which, in combination with a feeling of legal obligation (so-called opnio iuris), could evolve into some customary international law.

In air law, the Rome Convention of 1952, as amended, ²⁹ provides that the operator is liable upon proof that the damage was caused by a civil aircraft in flight without a need to prove fault. There are liability limits per event and per person killed or injured, which also is a significant difference to the Liability Convention. The Convention only applies to "aircraft", and suborbital vehicles de lege lata do not fall under the accepted definition of an "aircraft". ³⁰

It was suggested at the Symposium that third party liability could also be regulated at a national level, as conflict of laws do usually not occur. It was proposed to retain the Liability Convention and supplement it with other specific regulations to adequately deal with liability issues.³¹

With respect to passenger liability, the regime of private international air law is

much more developed, and contractual liability is governed by a number of international instruments: the Warsaw Convention³² system, and the Montreal Convention of 1999.³³

In space law, no dedicated legal instruments of international law exist. The Liability Convention does not apply to damage caused to nationals of the launching state and, as may be submitted, to passengers and crew. If the Liability Convention is inapplicable, liability must be established in accordance with national laws.

While Earth-to-Earth transportation could in the future considered sufficiently similar transport and principles of air law might be applicable de lege ferenda, Earth-to-space transportation is not comparable to the much more mature airline industry and air law should not be applied. The application of air law conventions to issues of contractual liability in suborbital flights is appropriate, as the risks involved in these operations are currently not comparable. The current air law conventions are generally designed to meet the requirements of a mature industry with acceptable risks involved. However, protection of the new aerospace industry, which was one of the intentions of the Warsaw Convention of 1929, could be considered, though industry currently does not seem to seek such protection. As "space tourism" currently does not occur on a larger scale and mostly takes place on a purely national basis, national legislation and contractual solutions seem to be sufficient for the time being. In the long run, however, some new "aerospace convention" could be appropriate.35

CONCLUSIONS

The increasing importance of private actors as a consequence of the globalisation of space activities and the possible development of new applications such as some form of "space tourism" could lead to a clarification of some basic issues of public international space law as well as to the development of some second generation space law.

The first generation of space law was characterised solely by rules of public international law regulating mainly the behaviour of states as the only actors at that time. The second generation of space law subsequently respects the principles of public international space law, but tries to take into account the legitimate interest of private actors by adopting specific solutions. As a consequence of this development, the harmonisation of different legal regimes would become the centre of attention: the harmonisation of national space legislation, a reconciliation of principles of air and space law, the harmonisation of different methodological approaches and, at the European level, the integration of ESA's specific legal regime are trends which have been identified. At a first view, the Symposium ending Project 2001 Plus has made a plea for more rather than less national space law of a harmonised nature. Moreover, it has made a modest plea for a development further of the existing Framework Agreement between ESA and the EU whereby much may depend on the very insecure future of the European Constitution. Finally, a decent plea for a new legal instrument for space tourism combining notions of air and space law has been made. This new legal instrument should be worked on; it should be introduced before this activity becomes a routine activity. Harmonisation as the most important aim can be achieved by either reconciling possibly conflicting conceptions public international law. introducing a certain hierarchy among them, or by coming to a new understanding insofar as according to the principle of subsidiarity any public (international) law can only be

the frame that guarantees that within this frame private actors have the freedom to act, but must respect the minimum order set by the frame.

Thus, in sum, Project 2001 Plus was a very successful research project that has produced four eminent workshops with rather innovative results and an international symposium that has given proof again of the innovative answers as a reaction to the challenges of globalisation. That those answers could be given in the framework of a project initiated by the Cologne Institute of Air and Space Law and by DLR is, of course, a very fulfilling experience.³⁶

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⁹ A. Kerrest, The Status of the Implementation of National Space Legislation and the Results of the Project 2001 Plus Working Group, paper contributed to Project 2001 Plus, to be published in the final proceedings of the Project.

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10 S. Freeland, Difficulties of Implementing National Space Legislation Exemplified by the Australian Approach, paper contributed to Project 2001 Plus, to be published in the final proceedings of the Project.

11 See S. Hobe/K. Kunzmann/J. Neumann/Th. Reuter,

A New Chapter for Europe in Space – Findings of the Research Project "Legal Framework for a Coherent Future Structure of European Space Activities", ZLW 3, 2005, pp. 336 et seq. (Part I) and ZLW 4, 2005, pp. 473 et seq. (Part II).

S. Hobe/K. Kunzmann/J. Neumann/Th. Reuter, Legal Framework for a Coherent Future Structure of European Space Activities, which will appear at the end of 2005.

¹³ See Th. Reuter, The Framework Agreement between the European Space Agency and the European Community: A Significant Step Forward?, ZLW 2004, p. 56 et seq.

¹⁴ S. Hobe/K. Kunzmann/J. Neumann/Th. Reuter, ZLW 3, 2005, supra note 11, p. 336.

15 Art. IV para. 1 Annex V ESA-C; K. Eisermann, The 'fair return' Principle in Programmes of the European Space Agency, in: K.-H. Böckstiegel (ed.), Project 2001 Proceedings, 2002, p. 657, 658; E. Morel de Westgaver/P. Imbert, Le 'juste retour': contrainte ou instrument d'intégration européenne?, esa bulletin 59 (1989), p. 62; P. Imbert/G. Grilli, La politique industrielle de l'ESA – Le concept évolutif du 'juste retour', esa bulletin 78 (1994), p. 16.

¹⁶ For details see S. Hobe/K. Kunzmann/J. Neumann/Th. Reuter, ZLW 3, 2005, pp. 336 et seq.

¹⁷ Organisation Conjointe de Coopération en matière d'Armement (Organization for Joint Armament Cooperation).

18 S. Hobe/K. Kunzmann/J. Neumann/Th. Reuter,
 ZLW 3, 2005, supra note 11, p. 336 et seq.
 19 S. Hobe/K. Kunzmann/J. Neumann/Th. Reuter,
 ZLW 3, 2005, supra note 11, p. 336 et seq.
 20 F.G. von der Dunk, Perspectives of a Harmonised
 Industrial Policy of ESA and EC, paper contributed
 to Project 2001 Plus, to be published in the final

proceedings of the Project.

^{*}This paper is dedicated to Prof. Isabella Diederiks-Verschoor at the occasion of her 90th birthday in acknowledgement of her pioneer work for air and space law and her long-time friendship to the Cologne Institute of Air and Space Law.

¹ On the effects of globalisation, see S. Hobe, Globalization – A Challenge to the Nation State and to International Law, in: M. Likosky (ed.), Transnational Legal Processes, 2002, pp. 378-391 with further references.

² See S. Hobe/J. Hettling, Challenges to Space Law in the 21st Century, IISL Proceedings 2002 (Houston), pp. 51 et seq.

K.-H. Böckstiegel (ed.), "Project 2001" – Legal Framework fort he Commercial Use of Outer Space, Cologne et. al. 2002.

⁴ S. Hobe/ B. Schmidt-Tedd/ K.-U. Schrogl (eds.)/ J. Hettling (ass.ed.), Legal Aspects of the Future Institutional Relationship between the European Union and the European Space Agency, Cologne 2003.

⁵ S. Hobe/ B. Schmidt-Tedd/ K.-U. Schrogl (eds.)/ C. Frie/ C. Giesecke/ K. Moll (ass. eds.), Consequences of Air Transport Globalisation, Cologne 2003.

⁶ S. Hobe/ B. Schmidt-Tedd/ K.-U. Schrogl (eds.)/ M. Gerhard/ K. Moll (ass. eds.), Towards a Harmonised Approach for National Space Legislation in Europe, Cologne 2004.

⁷ S. Hobe/ B. Schmidt-Tedd/ K.-U. Schrogl (eds.)/ S. Mick (ass. ed.), Current Issues in the Registration of Space Objects, Cologne 2005.

⁸ See for a detailed description of the problems involved, M. Gerhard/K. Moll, The Gradual Change

²¹ S. Marchisio, Proposals for an Institutional Realignment of the European Space Sector, paper contributed to Project 2001 Plus, to be published in the final proceedings of the Project.

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 A. Farand, Regulating Space Tourism: Impact on

²³ A. Farand, Regulating Space Tourism: Impact on Registration Requirements and Exposure to Liability, paper contributed to Project 2001 Plus, to be published in the final proceedings of the Project.
²⁴ See for a description, R. Jakhu/R. Bhattacharya, Legal Aspects of Space Tourism, IISL Proceedings 2002 (Houston), p. 112.

P. P. C. Haanappel, Common Issues in Air and Space Law: Envisaging Future Aerospace
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²⁶ See S. Hobe/J. Cloppenburg, Towards a New Aerospace Convention – Selected Legal Issues of Space Tourism -, IISL Proceedings 2004 (Vancouver), pp. 377 et seq.
 ²⁷ K.-U. Schrogl, A New Look at the Concept of the

²⁷ K.-U. Schrogl, A New Look at the Concept of the "Launching State". The Results of the UN COPUOS Legal Subcommittee Working Group 2000-2002, ZLW 2002, p. 359.

²⁸ See S. Freeland, Difficulties of Implementing National Space Legislation Exemplified by the Australian Approach, paper contributed to Project 2001Plus, to be published in the Final Proceedings of the Project.

²⁹ Convention on Damage Caused by Foreign Aircraft to Third Parties on the Surface, signed at Rome on October 7, 1952, ICAO Doc. 7364; Protocol to Amend the Convention on Damage Caused by Foreign Aircraft to Third Parties on the Surface, signed at Rome on October 7, 1952, Signed at Montreal on 23 September 1978, ICAO Doc. 9257. ³⁰ E.g. Art. 1 (1) of the Montreal Convention; see S. Hobe/ J. Cloppenburg, supra note 26, p. 377 et seq. (380); P.P.C. Haanappel, supra note 25. ³¹ P. P. C. Haanappel, supra note 25.

³² Convention for the Unification of Certain Rules Relating to International Carriage by Air, signed at Warsaw on 12 October 1929.

Convention for the Unification of Certain Rules for International Carriage by Air, done at Montreal on May 28, 1999, entry into force on November 4, 2003.
 Art. VII LC, see S. Hobe/ J. Cloppenburg, supra note 26, p. 377 (381); R. Jakhu/ R. Bhattacharya, supra note 24, p. 112 (129); P. Malanczuk, Haftung,

in: K.-H. Böckstiegel (ed.), Handbuch des Weltraumrechts, Cologne et al. 1991, p. 755 (791). ³⁵ See for a proposal S. Hobe/J. Cloppenburg, supra note 26, pp. 377 et seq.

³⁶ The proceedings of the final Symposium will be published as S. Hobe/K.-U. Schrogl/B. Schmidt-Tedd (eds.)/J. Neumann (ass. ed.), Project 2001 Plus: Global and European Challenges for Air and Space Law at the Edge of the 21st Century, Carl Heymanns Verlag, Cologne et al., 2006.

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