Preface

ABOUT THIS BOOK

Before you lies the result of a multi-authored process, a *Handbook of Space Law*, which is meant to provide fundamental guidance to all those interested in studying, in a comprehensive yet still comprehensible fashion, the legal aspects of mankind's main activities in outer space, directed toward outer space or directly benefiting from outer space.

When I started writing this Preface, the combination of my manual clumsiness and the computer's precocious urge to auto-correct first resulted in the heading 'prospect' – which in this case I'd actually like to look upon as a Freudian slip of the pen. A *Handbook of Space Law* can no longer just address the legal state of affairs 'as is'; 'space law' is a body of law perhaps more than any other body of law moving (hopefully) forward. Ongoing developments continuously seem to call for the adaptation or even dismissal of existing parts of space law and/or creating novel parts altogether, and any Handbook worth its salt should not only outline the *lex lata* but also the underlying structures and approaches allowing for a true understanding of the *lex ferenda*, what it should address and how it should address it.

Presuming a considerable knowledge and understanding of law, especially general public international law, the Handbook is first of all aimed at graduate and post-graduate students at faculties and schools of law, including doctoral, JSD and PhD students studying space law as a comprehensive academic discipline. Secondly, however, it also aims to provide fundamental support to those researching space law or a particular area thereof in the context of an academic, governmental, industry or law firm-career – or even merely on their own account. How that is supposed to work in such a new and complex context as that of 'space law' perhaps requires a bit more explanation – notably *why* the project of the Handbook was initiated, *what* it addresses and *how* it then does address that.

WHY

When I was approached more than three years ago by Edward Elgar Publishers to consider editing a (Research) *Handbook of Space Law*, the most fundamental question was of course why such a book might be necessary or even merely desirable. ‘Space law’ is not exactly perceived as a field of law critical to the millions of active lawyers, law students and other law experts around the world on a day-to-day basis. As a consequence, there are not (yet!) hundreds of law schools teaching it or hundreds of other institutions undertaking research in the area. And to the extent that ‘space law’ was perceived to merit its special niche in higher education and research, there were high-quality publications around which would surely allow proper navigation within this niche.

Indeed, there are a few books around that, explicitly or implicitly, were seen to cover all of space law in a coherent scheme. Most of them, however, were written fairly long ago, such as the epochal treatise of Manfred Lachs (which also was fairly succinct), the joint work of Myres McDougal, Harold Lasswell and Ivan Vlasic, and the books of Wilfred Jenks and Carl Christol. Others were, in addition, only available (at least originally) in their own languages, such as Gennadi Zhukov and Yuri Kolosov’s Russian introduction, the multi-author German volume edited by Karl-Heinz Böckstiegel, French books edited by Jacqueline Dutheil de la Rochère respectively written by Pierre-Marie Martin and an Italian one by Elisabeth Back-Impallomeni. Thus, they all pre-dated the most fundamental paradigm change in space law so far: the fundamental shift of focus from largely strategy- and science-dominated state-run space activities to specific almost day-to-day terrestrial applications and the attendant fundamental inroads which the private and commercial sector made into the space arena.

The above was also true for a number of treatises that each tackled space law from a very specific vantage point, such as Nandasiri Jasentuliyana, due to his UN career addressing space law from the UN perspective, Nicholas Matte, who was Director of one of the leading institutes of air and space law addressing space law as a body of law adjacent to air law, Henri Wassenbergh, who wished to address – and reform – space law from his own philosophical angle, and Bin Cheng, very much focusing on the five UN space treaties and a few inter-governmental organizations. The latter also holds true for the Cologne Commentary on Space Law, whereas by contrast the Projects 2001 and 2001-Plus have focused in great depth on commercialization and privatization as such, taking substantial knowledge and understanding of the

corpus juris spatialis internationalis for granted whilst much of the analysis moreover was not officially published and remains difficult to access.

For many years the only book coming close to a handbook and at least updated a few times, was the truly introductory one by Isabella Diederiks-Verschoor, most recently revised by Vladimir Kopal. As with the technology underlying space activities, however, updating an introductory volume or handbook can only go so far, and at some point a more fundamental overhaul or even a total rethinking of the approach to the subject matter would become necessary.

Of course, the moment I had decided to tackle the challenge put before me by Edward Elgar, more books started appearing which addressed, at least in principle, all of space law. Many were by younger authors, offering a fresh look at the substance and structure, although by their very nature often too succinct to serve as proper handbooks. Other recent, more voluminous efforts by contrast either tied space law into the broader fabric of space politics, policies and economics, focused on the Outer Space Treaty as the source also of all future space law, or were modestly but purposefully labelled a 'treatise'.

In short: I still felt it worthwhile to develop a (Research) *Handbook of Space Law* as the publisher proposed, while insisting, however, that it could also serve as a Handbook proper for higher-level students of space law (almost by definition, in view of the nature of the discipline, such students are in the later stages of their university career or even beyond) – hence the title as it now lies before you.

WHAT

This Handbook addressing 'space law', the most important question is then: what *is* 'space law'? In view of the multi-dimensional character of space law, at the outset a broad definition is required, even if it would then be commensurately less likely that the – *any* – Handbook could cover 'space law' comprehensively in any appreciable detail. Yet, 'space law' should be defined as 'every legal or regulatory regime having a significant impact, even if implicitly or indirectly, on at least one type of space activity or major space application', which in principle encompasses both international and national law and regulation, as well as regional and institutional arrangements as appropriate. In conformity with this definition, the multi-faceted approach to the Handbook means it comprises a few main sections, which address their respective subject-matter from a few fundamentally different and cross-cutting angles.

First, following a general introduction to the history and background of space law in Chapter 1, the next four chapters address the various main fields of law and regulation from a ‘formal’ perspective: Chapter 2 international space law properly speaking (with an obvious focus on the UN space treaties, still the most fundamental set of legal documents pertaining to space activities); Chapter 3 national law (mainly as an instrument to implement international law vis-à-vis non-governmental entities); Chapter 4 the specific ‘legal order’ pertinent to European space activities; and Chapter 5 the special context of intergovernmental organizations and their role in international space law.

Secondly, Chapter 6 addresses the main military, defence- and security-related aspects of space activities, implying that the major focus of the legal analyses conducted elsewhere in the book would be on non-military, read civil and commercial uses – even as certain particular aspects of military use also are discussed by some other chapters.

Thirdly, a set of six chapters focuses on substantive categories of space activities and applications currently crucial from a global perspective, and analyses each of those in turn: Chapter 7 launch activities; Chapter 8 satellite communications; Chapter 9 satellite remote sensing; Chapter 10 satellite navigation; and Chapters 11 and 12 manned spaceflight – subdividing it further into public manned spaceflight and private manned spaceflight respectively.

Fourthly, Chapter 13 addresses a major aspect intersecting with all formal and substantive areas tackled before – the growing concerns about environmental effects of space activities and how to address them, which are then juxtaposed with the discussion in Chapter 14 of a major future threat to – *inter alia* – such environmental interests: the possibilities for, parameters for and consequences of the exploitation of celestial resources. Other similarly cross-cutting analyses follow, largely focusing on the commercial and private aspects of space activities: Chapter 15 on the international trade aspects thereof; Chapter 16 on the financing of space ventures; Chapter 17 on insurance aspects; and Chapter 18 on intellectual property rights.

Fifthly and finally, the procedural subject of dispute settlement in the context of space activities and their major applications is addressed by Chapter 19 – as a conceptually logical capstone of the overarching legal analysis also considerably looking into the future: what are the possibilities in the legal realm to address disputes which may arise in any of the above legal and regulatory regimes or sectors?

HOW

Further to the definition of ‘space law’ and all it entails, at least in my view as laid out above, at the same time as subdividing the analyses into five main parts, the Handbook addresses ‘space law’ essentially at three levels at the same time – which in the end also is responsible for its extended size.

The first level constitutes an effort to address, analyse and explain particular fields as fitting within the larger ‘structure’ of ‘space law’ as a multi-faceted discipline, requiring in many respects a multi-angular and multi-dimensional approach. Space law involves several regimes that were developed for space in particular (notably, of course, the five UN-originating space treaties) but even more that were only partly or not at all so targeted, yet in the course of the space era did become relevant for at least one category of space activities or space applications.

The reader should thus obtain an understanding of how such various regimes interact. How the space treaties, the ITU regime, and the developments in the WTO context are all of overriding importance for satellite communications. How launching activities give rise both to application of those space treaties and of general treaties and law on security-sensitive technology, or on military applications – as well as requiring a licence under national law. How undertaking remote sensing requires not only compliance with the space treaties and the UN resolution on remote sensing, but also the appropriate use of intellectual property rights – as do ISS operations, albeit rather differently. How international liability and insurance for space activities are interconnected. How environmental concerns may interfere with exploitation, and vice versa. And so on.

The result of this first-level approach materializes in the introductory paragraphs and conclusions, pointing out the inter-regime relationships at a certain level of abstraction, and even more so in the very frequent cross-referencing to the other chapters relevant for a certain issue, development or sector. It is hoped in particular that this structural level of analysis will allow the reader to easily understand also how future developments that give rise to legal parameters, consequences or considerations and/or future legal regimes that become relevant for space activities and applications would fit into this multi-dimensional discipline of ‘space law’.

The second level refers to the actual substance of the various regimes or sets of regimes (in the case of national space law), where obviously choices had to be made, but by and large the key regimes as of today of

major importance for space activities and applications have been covered – in sufficient depth and detail so as to allow a fairly comprehensive understanding of both the particular regime itself and where to look for further details, if needed. In many respects not all details of a particular regime at issue could actually be addressed (also here, choices had to be made), so instead the most salient, telling or practically important details or examples have been singled out for treatment.

In other words, it is hoped that at this substantial level of analysis the reader will not only obtain a fairly comprehensive high-level overview of the particular regime at issue, but if studying or researching it further, will also be able to properly discern and relate other specific details or examples to this overarching survey.

The third level is of a more prospective character: I have challenged the various contributors as well as myself to also cast a look into the future and dare to make some provisional predictions of future problems and/or future solutions. There is no doubt that within a few years some of those ‘predictions’ will prove wrong, and that others which have hardly been expected will become reality instead, but also in the selection of such ‘forward-looking analyses’ an effort has been made to analyse and explain how they would result from, or otherwise relate to, the existing structure and substance of the various legal regimes comprising ‘space law’ in its broader sense.

Hopefully, therefore, these third-level prospective analyses will above all challenge also the reader to think about future developments in mankind’s space endeavour and what they might or should mean for space law, as well as about future developments in space law and what they might mean for mankind’s space endeavour.

THANK YOU

In view of the broad scope of this undertaking – the epithet ‘*cosmic*’ naturally comes to mind – it is inevitable that this project could not have been (more or less) successfully concluded without the help of a great number of people. At the risk of omitting names also entitled to being mentioned, I want to express my gratitude to all concerned.

Whilst the undersigned remains, as Editor, ultimately responsible for any flaws that the Handbook may show, many of the actual contributions have been provided by specialists in respective special areas within space law as a whole, as long-standing authorities, leading young minds thinking out of the box – or, in most cases, both. It is wonderful how they kept up with my constant bugging and tinkering – and then finding they

had to wait for the final result much longer than anticipated. I sincerely hope they are not disappointed.

Most specifically, in this regard, thanks are due to the Assisting Editor Dr Fabio Tronchetti, who not only himself contributed various chapters, but also double-checked my comments and proposals regarding the various chapters of the others as well as my own chapters, and kept a check on my more fundamental and structural approaches as well. Also my research assistants at UNL have provided invaluable support in collecting all the details I insisted on being included – Robin Scott, Dammy Oluyole and especially Sandra Teichert: thank you for that! More generally, the environment at the University of Nebraska-Lincoln College of Law has been very supportive for this kind of undertaking – which in today's academic world unfortunately is not always a given anymore.

Personally, I take great pride also in the willingness of Rusty Schweickart, as an ultimate representative of 'practitioners' of space activities, to express his views of space law and its relevance for space activities in the Foreword to this book. To me, it confirms once more that in spite of the many lawyer jokes going around – many of which are really great – there is indeed a place under the sun for space law and space lawyers.

Finally, of course, I owe gratitude to Edward Elgar Publishing: by allowing me to live out my idiosyncratic ideas and approaches and ultimately come up with a book almost double the intended size, it is clear that Ben Booth, Megan Ballantyne and David Fairclough, in particular, valued quality over velocity – and I can only hope they are also pleased with the result of the process, seeing this as a major step forward, if perhaps not for all mankind, at least for all (space) lawyers.

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