The Responsibility *to* and *for* Progress in International Law

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Abstract

It is not a new insight that the rapid progress in science and technology poses a great challenge to the (international) law and its rather slow development. Given the risks and benefits of recent scientific developments and emerging technologies, especially in the field of Artificial Intelligence, this paper argues that the complex relationship between law, progress and its consequences is best addressed through the Responsibility *to* and *for* progress. Central sources of international law offer points of reference for understanding scientific-technical progress as a common global interest, which leads to a corresponding responsi-

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bility of states. The ambiguity of progress calls for a consideration of responsibility, not only in terms of its consequences ('for progress'), but also in terms of its conditions ('to progress'). The interaction of these two dimensions makes the Responsibility *to* and *for* progress a decisive key to balancing progress and its far-reaching consequences at the international level.

Keywords

scientific, technical and technological progress – common global interest – responsibility – UN-Charter – positive and negative peace – Human Rights

I. Introduction

Today, in a globalised and in huge parts anthropogenically modified world, scientific-technical progress has reached a level and a speed that put the international order to a test.[1] This is particularly evident in the rapid development of Artificial Intelligence (AI), whose far-reaching and unpredictable consequences have led numerous experts to call for a moratorium on giant AI experiments, in order to allow sufficient time for appropriate regulation.[2] In fact, there is now not only a comprehensive European Union (EU)-regulation,[3] but also an increasing number of initiatives by companies and other private actors who seek to regulate AI.[4] At the same time, there is no

1 Kenneth W. Abbot, 'An International Framework Agreement on Scientific and Technological Innovation and Regulation' in: Gary E. Marchant, Braden R. Allenby and Joseph R. Herkert (eds), *The Growing Gap Between Emerging Technologies and Legal-Ethical Oversight* (Springer 2011), 127-156 (156); Silja Voeneky and Gerald L. Neuman, 'Introduction, Human Rights, Treaties, and International Legitimacy' in: Silja Voeneky and Gerald L. Neuman (eds), *Human Rights, Democracy, and Legitimacy in a World of Disorder* (Cambridge University Press 2018), 1-22 (1).

2 Future of Life Institute (ed.), 'Pause Giant AI Experiments: An Open Letter', 22 March 2023, <https://futureoflife.org/open-letter/pause-giant-ai-experiments/>, last access 3 December 2024.

3 Regulation 2024/1689/EU of 13 June 2024 of the European Parliament and of the Council laying down harmonised rules on artificial intelligence and amending Regulations (EC) no. 300/2008, (EU) no. 167/2013, (EU) no. 168/2013, (EU) 2018/858, (EU) 2018/1139 and (EU) 2019/2144 and Directives 2014/90/EU, (EU) 2016/797 and (EU) 2020/1828 (Artificial Intelligence Act), OJL, 2024/1689.

4 Thomas Burri, 'The New Regulation of the European Union on Artificial Intelligence' in: Silja Voeneky, Philipp Kellmeyer, Oliver Müller and Wolfram Burgard (eds), *The Cambridge Handbook of Responsible Artificial Intelligence: Interdisciplinary Perspectives* (Cambridge University Press 2022), 104-122 (108 et seqq.).

comparable regulation on the international level, at least in terms of one comprehensive treaty-based instrument. This is not only true for AI,[5] but also for the general handling of ground-breaking scientific developments or emerging technologies.[6] Given this lack of regulation, a closer look at the relationship between scientific-technical progress and international law is warranted.

In the following it will be argued that this complex relationship is best addressed through the lens of the Responsibility *to* and *for* progress. Given the ambivalence of progress, especially in terms of its far-reaching benefits and risks, it is necessary to consider responsibility from two equally important perspectives: The Responsibility *to* progress focuses on creating and maintaining the conditions that allow science and technology 'to progress' in the first place. This responsibility to enable progress goes hand in hand with the Responsibility *for* progress, which is about addressing and managing the consequences of progress. Even though progress and its ambivalence are big challenges for international law, states have in the past applied such a balancing approach and successfully *taken* responsibility (II.). Today, central sources of international law offer reference points for an implementation of the Responsibility *to* and *for* progress (III.), which would be crucial for balancing the promises of progress with its far-reaching consequences at the international level (IV.).

II. Progress and (International) Law: A Challenging Relationship

Dealing with scientific-technical progress is a complex task, not only conceptually (1.), but also for (international) law (2.). In the past, however, states have taken up the challenge and have played a crucial role in balancing progress and (international) law (3.).

5 Silja Voeneky, 'Human Rights and Legitimate Governance of Existential and Global Catastrophic Risks' in: Silja Voeneky and Gerald L. Neuman (eds), *Human Rights, Democracy, and Legitimacy in a World of Disorder* (Cambridge University Press 2018), 139-162 (146 et seqq.).

6 Rosemary Rayfuse, 'Public International Law and the Regulation of Emerging Technologies' in: Roger Brownsword, Eloise Scotford and Karen Yeung (eds), *The Oxford Handbook of Law, Regulation and Technology* (Oxford University Press 2016), 500-521 (503); Grant Wilson, 'Minimizing Global Catastrophic and Existential Risks from Emerging Technologies Through International Law', Va. Envtl. L. J. 31 (2013), 307-364 (310 et seqq.).

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1. The Ambivalence of Progress and Its Consequences

Addressing progress in the context of international law is a challenge in several ways. First, the term itself is problematic. The word 'progress' implies a positive evaluation of a past development, which in the case of scientific-technical progress refers to an increase in knowledge.[7] However, the concept-inherent evaluation means that 'progress' is not just a relative or contextual term, but also constructs a narrative.[8] Moreover, this narrative is closely linked to a Western or Eurocentric approach to international law,[9] which calls for a critical[10] or at least cautious use of the term.[11] Especially in the context of scientific-technical progress, the (positive) notion of 'progress' could be challenged due to its negative consequences.[12] However, the term 'progress' remains crucial because it is used in the legal sources central to the issue at hand and thus characterises the debate.[13]

In fact, it is precisely the relative nature of progress, and especially its consequences, that is decisive for its legal handling. While emerging technologies and scientific progress can make a significant contribution to the development of humankind, they also carry considerable risks and may cause

7 Alexander Bird, 'What is Scientific Progress?', NOÛS 41 (2007), 64-89 (83 et seqq. and passim); Ilkka Niiniluoto, *Is Science Progressive?* (Springer 1984), 6, 75 et seqq.; regarding technical progress see John Black, Nigar Hashimzade and Gareth Myles (eds), *A Dictionary of Economics* (5th edn, Oxford University Press 2017), 517 et seq. On the close connection of science and technology see Armin Grunwald, *Technikfolgenabschätzung* (2nd edn, Nomos 2010), 19 et seq.; Joseph W. Dellapenna, 'Law in a Shrinking World, The Interaction of Science and Technology with International Law', Ky. L. J. 88 (2000), 809-883 (822 et seq.).

8 Tilmann Altwicker and Oliver Diggelmann, 'How is Progress Constructed in International Legal Scholarship?', EJIL 25 (2014), 425-444 (428, 431 et seqq.); Thomas Skouteris, 'Progress' in: Jean d'Aspremont and Sahib Singh (eds), *Concepts for International Law* (Edward Elgar 2019), 719-729 (720 et seqq.).

9 Altwicker and Diggelmann (n. 8), 429 et seqq.; Anthony Anghie, *Imperialism, Sovereignty and the Making of International Law* (Cambridge University Press 2005), 35, 62 et seq., 100 et seqq., 316 et seqq.

10 E. g. Leela Gandhi, *Postcolonial Theory, A Critical Introduction* (Edinburgh University Press 1998), 23 et. seqq., 37, 104 et seqq., 114 et seqq.; regarding technology e. g. Fleur Johns and Gregor Noll, 'Introduction to the Symposium on Critical International Law and Technology', AJIL Unbound 117 (2023), 128-133 (128 et seqq.) and the other contributions to the symposium.

11 See Samantha Besson, 'The "Human Right to Science" qua Right to Participate in Science', The International Journal of Human Rights 28 (2024), 497-528 (501); regarding the alternative term 'development' see Niiniluoto (n. 7), 76.

12 E. g. Jacques Ellul, *The Technological Society*, translated from the French by John Wilkinson (Vintage Books 1964), 190 et seqq. and passim; see also Theodore John Rivers, 'Progress and Technology: Their Interdependency', Technology in Society 24 (2000), 503-522 (504, 514 et seqq.).

13 See Besson (n. 11), 497 et seqq.; Yvonne Donders and Monika Plozza, 'Look Before You Leap: States' Prevention and Anticipation Duties Under the Right to Science', The International Journal of Human Rights 28 (2024), 354-379 (355 et seqq.); see also below III. 2.

irreversible damage or even a global catastrophe.[14] In addition to biotechnology and geo-engineering, the field of AI has recently come to the fore.[15] Moreover, other current global challenges as (civil) wars, international terrorism, global refugee movements, famines, pandemics, resource scarcities, or social inequality are closely linked to progress as the latter may be both, a catalyst and an inhibitor for the solution of global problems.[16] Ultimately, whether progress is seen as a benefit or risk depends on how and by whom its consequences are evaluated.

2. Challenges for the Regulation of Progress

The need for evaluation reveals the central challenges of the (legal) treatment of scientific-technical progress. First, the long-term consequences of progress are, by their very nature, unpredictable – even for experts in the specific field. Second, any forecast of future benefits or risks is strongly subjective and can vary enormously between different states and even within the same state.[17] These difficulties of an evaluation become particularly evident in the context of current developments in the fields of AI, genetics, robotics, information technology, nanotechnology, and neuroscience: While the consequences of each individual field are complex and hardly predictable in themselves, the numerous – unpredictable – interactions between the mentioned fields make an evaluation almost impossible and thus jeopardise the common basis for legal regulation.[18] Finally, the challenge is amplified by

14 Wilson (n. 6), 311 et seqq., 326 et seqq., 364; see also Samantha Besson, 'Anticipation Under the Human Right to Science: Concepts, Stakes and Specification', The International Journal of Human Rights 28 (2024), 293-312 (293 et seq., 297); Donders and Plozza (n. 13), 354 et seq.; Len Fisher and Anders Sandberg, 'A Safe Governance Space for Humanity: Necessary Conditions for the Governance of Global Catastrophic Risks', Global Policy 13 (2022), 792-807 (793, 795 et seqq.).

15 Voeneky (n. 5), 140 et seqq.; Silja Voeneky, Philipp Kellmeyer, Oliver Müller and Wolfram Burgard, 'Introduction' in: Silja Voeneky, Philipp Kellmeyer, Oliver Müller and Wolfram Burgard (eds), *The Cambridge Handbook of Responsible Artificial Intelligence: Interdisciplinary Perspectives* (Cambridge University Press 2022), 1-8 (1).

16 Rayfuse (n. 6), 502 et seq.; however, Gerald L. Neuman, 'Human Rights, Treaties, and International Legitimacy' in: Silja Voeneky and Gerald L. Neuman (eds), *Human Rights, Democracy, and Legitimacy in a World of Disorder* (Cambridge University Press 2018), 51-72 (67) emphasises that progress cannot solve global problems alone.

17 Abbot (n. 1), 132 et seqq.; Wilson (n. 6), 352 et seqq. and passim.

18 Braden R. Allenby, 'Governance and Technology Systems: The Challenge of Emerging Technologies' in: Gary E. Marchant, Braden R. Allenby and Joseph R. Herkert (eds), *The Growing Gap Between Emerging Technologies and Legal-Ethical Oversight* (Springer 2011), 3-18 (7 et seqq. and 11 et seqq.); see also references in n. 15.

the global scale of progress-related consequences[19] and the inherent dynamics of progress, which give it a 'speed advantage' in its 'race' with legal regulation.[20] This so-called 'pacing problem' circumscribes the situation of an increasingly rapid pace of progress on the one hand and the rather slow or even stagnant development of the law on the other hand.[21] This situation raises doubts about states' ability to regulate.[22] In addition to the question of whether and how to regulate appropriately, the law is especially faced with the dilemma of not being able to foresee its own consequences, which can lead to under- as well as over-regulation.[23]

Overall, the inherent dynamics of progress make its regulation a difficult or 'wicked'[24] task. Against this background, the question arises as to whether (legal) regulation is possible at all. This is reflected in the debate between instrumental and substantive views of progress and technology: While the former tends to view progress positively, emphasising the role of human agency in shaping it, the latter is more critical, pointing to the inherent dynamic and power of (technological) progress, which eludes human control.[25] Ultimately, a synthesis seems promising, according to which human-agency is not excluded, but must always be viewed critically and contextually.[26] While the asynchrony of law and progress is challenging, progress and its pace should not be viewed unilaterally. In fact, progress remains a social process that affects and is affected by many social actors, such as scientists, companies, social groups, and states.[27] Progress is therefore not detached from other areas of society, but rather embedded in a legal, political, economic, and cultural context. This allows for complex interactions between differ-

19 Besson (n. 14), 297.

20 Lyria Bennett Moses, 'Recurring Dilemmas: The Law's Race to Keep Up with Technological Change', *University of Illinois Journal of Law, Technology & Policy*, 2007, 239-285 (239 et seqq.); Christian Karl, 'Wettlauf von Technik und Recht' (Duncker & Humblot 2018), 17, 30, 76 et seqq.

21 Gary E. Marchant, 'The Growing Gap Between Emerging Technologies and the Law' in: Gary E. Marchant, Braden R. Allenby and Joseph R. Herkert (eds), *The Growing Gap Between Emerging Technologies and Legal-Ethical Oversight* (Springer 2011), 19-33 (22 et seq.); see also the references in n. 20.

22 Gary E. Marchant (n. 21), 20 et seqq., 25 et seqq. with further references.

23 Moses (n. 20), 247 et seqq.; Gregory N. Mandel, 'Legal Evolution in Response to Technological Change' in: Roger Brownsword (ed.), *The Oxford Handbook of Law, Regulation and Technology* (Oxford University Press 2016), 225-245 (225 et seqq.).

24 Gary E. Marchant, 'Governance of Emerging Technologies as a Wicked Problem', Vand. L. Rev. 76 (2020), 1861-1877 (1861 et seqq.).

25 Arthur Cockfield and Jason Pridmore, 'A Synthetic Theory of Law and Technology', Minnesota Journal of Law Science & Technology 8 (2007), 475-513 (477 et seqq.).

26 Cockfield and Pridmore (n. 25), 494 et seqq.

27 Werner Rammert, *Technik aus soziologischer Perspektive,* Vol. 1 (Westdeutscher Verlag 1993), 151 et seqq.

ent actors and their interests, with the law playing a central mediating role.[28] However, this is less about regulating progress per se than it is about adjusting the law to progress-related changes.[29]

3. Balancing (International) Law and Progress-Related Consequences: An Ambivalent Task of the State(s)

In the past, states have demonstrated that they are capable of dealing with progress-related legal questions.[30] This may be illustrated by the invention and spread of railway technology. While from today's perspective railway technology is quite common and legally regulated, its emergence was tantamount to a revolution. The expansion of the railway network and the associated spread of subsequent technologies, such as the telegraph, not only fundamentally changed the military, political, economic, and cultural landscape, but literally led to a new understanding of time and space.[31] Regarding the perspective of those days, progress seemed to have an unprecedented 'speed advantage' in the truest sense of the word. Nevertheless, states played a crucial role in shaping this development.

This applies firstly to the national level, where states on the one hand promoted progress by liberalising the economy. On the other hand, they limited progress by comprehensive regulations for steam engines, including insurance and liability issues.[32] Furthermore, states were well aware of the fact that progress in railway and telegraph connections as well as the associated increase in social exchange also took place across borders. For this reason, the industrialisation made possible by railways and other technologies was accompanied by the establishment or 'invention'[33] of numerous

28 Allenby (n. 18), 7, 16; Andrew Askland, 'Introduction: Why Law and Ethics Need to Keep Pace with Emerging Technologies' in: Gary E. Marchant, Braden R. Allenby and Joseph R. Herkert (eds), *The Growing Gap Between Emerging Technologies and Legal-Ethical Oversight* (Springer 2011), xiii-xxvii (xvii et seq.).

29 See Lyria Bennett Moses, 'Regulating in the Face of Sociotechnical Change' in: Roger Brownsword (ed.), *The Oxford Handbook of Law, Regulation and Technology* (Oxford University Press 2016), 573-596 (574, 576 et seqq.).

30 Rayfuse (n. 6), 501 et seqq.; critical Marchant (n. 21), 27 et seq.

31 Allenby (n. 18), 3 et seqq.

32 In detail e. g. Karl (n. 20), 33 et seqq.; Miloš Vec, 'Kurze Geschichte des Technikrechts' in: Martin Schulte and Rainer Schröder (eds), *Handbuch des Technikrechts* (2nd edn, Springer 2011), 3-92 (24 et seqq.).

33 Oscar Schachter, 'Scientific Advances and International Law Making', Cal. L. Rev. 55 (1967), 423-430 (424); see also in Michael Wallace and J. David Singer, 'Intergovernmental Organization in the Global System, 1815-1964: A Quantitative Description', IO 24 (1970), 239-287 (250).

international organisations for standardisation and cooperation, e. g. the International Union of Railways or the International Telegraph Union. Through the institutionalised exchange of information involving scientists and experts, these and other international organisations not only formed a legal framework for this progress, but at the same time decisively promoted it.[34] Despite all restraint, scientific-technical progress was thus accompanied by progress in international law itself.[35] More generally spoken, scientific-technical progress allowed states to expand their activities beyond national borders and even into previously undeveloped areas, such as the deep sea or outer space.[36] This raised numerous new legal issues in cross-border traffic, which depicts why progress can not only lead to an extension, but also to a modification in exercise of jurisdiction.[37]

Overall, balancing of (international) law and progress-related consequences was and is an ambivalent task of states, which includes limiting as well as promoting elements. In other words, states have taken responsibility in two ways. They assumed responsibility for the consequences ('for progress') as well as for the emergence ('to progress'). The ambivalent and balancing approach becomes evident when one considers the legal regulation of particularly dramatic consequences of progress in the field of international humanitarian law. The development of advanced – and thus usually more lethal – weapons was a major reason for the adoption of international conventions regulating and sometimes banning certain types of weapons.[38] Those conventions regularly contain two main pillars: While prohibiting the production, use or proliferation of certain weapons, they also emphasise the possibility of peaceful uses of the technologies concerned, or at least regulate scientific and technical exchanges on them.[39] Of course, these conventions do

34 Francis S. L. Lyons, *Internationalism in Europe: 1815-1914* (Sythoff 1963), 14 et seqq., 37 et seqq.; Craig N. Murphy, *International Organization and Industrial Change* (Polity Press 1994), 46 et seqq., 119 et seq.; Paul S. Reinsch, *Public International Unions, Their Work and Organization* (Ginn and Company 1911), 12 et seqq.

35 Robert Y. Jennings, 'The Progress of International Law', BYIL 34 (1958), 334-355 (336 et seqq., 346 et seqq.).

36 Charles Rousseau, 'Scientific Progress and the Evolution of International Law', IMPACT of Science on Sciety V (1954), 71-92 (72 et seqq.); see also Dellapenna (n. 7), 831 et seqq.

37 Rousseau (n. 36), 72 et seqq., 80 et seqq.

38 Gary D. Solis, *The Law of Armed Conflict: International Humanitarian Law in War* (3rd edn, Cambridge University Press 2022), 34-105, especially 43 et seqq.; see also Rayfuse (n. 6), 502.

39 See e. g. Art. I et seqq., IV et seq. of the Treaty on the Non-Proliferation of Nuclear Weapons of 1 July 1968, 729 UNTS 161; Arts 1, 2 and 10 of the Biological Weapons Convention of 10 April 1972, 1015 UNTS 163; Arts I, II no. 9, VI and VI of the Chemical Weapons Convention of 3 September 1992, 1975 UNTS 45; Art. 3 and seqq. and Art. 11 of the Protocol on Prohibitions or Restrictions on the Use of Mines, Booby-Traps and Other Devices, Protocol II to the Convention on Certain Conventional Weapons of 3 May 1996, 2048 UNTS 93.

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not represent a comprehensive regulation of progress, especially not regarding advances in the field of AI.[40] Nevertheless, they underline the fact that states could take responsibility *for* as well as *to* progress, even when the potential consequences were particularly severe. It remains to be seen, whether this progress-related responsibility is only a question of legal history or also of legal doctrine.

III. The Responsibility *to* and *for* Progress in International Law

Responsibility is a central institution of international law, especially with regard to common global interests (1.). Central sources of international law provide points of reference for considering scientific-technical progress as an interest that goes hand in hand with responsibility (2.). In accordance with the ambivalence of progress, this can be framed as the Responsibility *to* and *for* progress (3.).

1. Responsibility at the Core of International Law

Responsibility is not only crucial to the binding character of international law, but also to its development. As a consequence, the idea of responsibility is no longer reduced to the question of liability and compensation, but rather covers various legal relationships.[41] Of particular interest here is the understanding of responsibility as an institution, that is, as a set of ideas that the law presupposes but also confirms. In this perspective responsibility is the 'essence' of any legal system, when it comes to the attribution of consequences and their control.[42] This attribution is usually determined by three vectors: Responsibility requires a competent actor, who is assigned responsibility concerning a specific (common) interest towards another actor. So, the

40 Silja Vöneky, 'Key Elements of Responsible Artificial Intelligence, Disruptive Technologies, Dynamic Law', Ordnung der Wissenschaft 2020, 9-22 (9, 15 et seq.); see also Rayfuse (n. 6), 502 et seqq.; Wilson (n. 6), 344 et seqq.

41 André Nollkaemper, 'Change in the Law of International Responsibility' in: Samantha Besson (ed.), *Theories of International Responsibility Law* (Cambridge University Press 2022), 43-69 (44 et seqq.); see also Samantha Besson, 'Theorizing International Responsibility Law, an Introduction' in: Samantha Besson (ed.), *Theories of International Responsibility Law* (Cambridge University Press 2022), 1-24 (3 et seq.) and the other chapters in the book.

42 Volker Roeben, 'Responsibility in International Law', Max Planck UNYB 16 (2012), 99-158 (104 et seqq.).

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question is *who* is responsible for *what* towards *whom*.[43] For example, dealing with climate change or environmental harm ('what') may also be viewed from a perspective of a shared responsibility of states ('who') towards the global community ('to whom').[44] A similar perspective could be considered for scientific-technical progress.

The relevance of responsibility in this regard is already evident in the relative nature of progress. The necessary evaluation of progress and its consequences must inevitably be carried out by someone who is then responsible for possible misjudgements.[45] Moreover, the focus on responsibility or responsible progress stresses the need not only for reactive but also for proactive and future-orientated responses,[46] especially regarding the ambivalence of the consequences.[47] In national law, the regulation of progress is sometimes explicitly understood as a task of the state, leading to a responsibility for maintaining the conditions of progress as well as monitoring its consequences.[48] It is generally possible for a similar responsibility to emerge in international law through a process of concretisation. The actors, scope, and consequences will depend on the sources of law in which the responsibility is presupposed and affirmed.[49] In the following, the focus is primarily on the responsibility of states as primary subjects of international law. As will be shown, this does not exclude, but rather considers the responsibility or involvement of other actors. In line with the three vectors of responsibility, it is therefore necessary to determine whether international law entrusts states ('who') with the ambivalent task of handling scientific-technical progress and its consequences ('what') in the interests of the global community ('to whom').

43 For this and the following Roeben (n. 42), 106 et seqq.

44 Andre Nollkaemper and Dov Jacobs, 'Shared Responsibility in International Law: A Conceptual Framework', Mich. J. Int'l L. 34 (2013), 359-438 (366 et seqq.); Liam Murphy, 'International Responsibility for Global Environmental Harm, Collective and Individual' in: Samantha Besson (ed.), *Theories of International Responsibility Law* (Cambridge University Press 2022),165-186 (165 et seqq.); see also Patricia Birnie, Alan Boyle and Catherine Redgewell, *International Law and the Environment* (4th edn, Oxford University Press 2021), 107 et seqq., 142 et seqq.

45 See Hans Lenk, 'Progress, Values and Responsibility', Philosophy and Technology 2 (1997), 102-119 (103 et seqq.).

46 Jack Stilgoe, Richard Owen and Phil Macnaghten, 'Developing a Framework for Responsible Innovation', Research Policy 42 (2013), 1568-1580 (1569 et seqq.); in general, Roeben (n. 42), 107 et seq.

47 Besson (n. 14), 293 and passim.

48 For German law see Karl (n. 20), 32, 46 et seqq., 311 et seqq.; in general, Wolfgang Hoffmann-Riem, *Innovation und Recht, Recht und Innovation* (Mohr Siebeck 2016), 14 et seqq., 28 et seqq. and passim.

49 See Roeben (n. 42), 107 et seq., 110 et seqq.

2. Balancing (International) Law and Progress-Related Consequences as Common Global Interest

Identifying a responsibility for scientific-technical progress presupposes that it is a recognised common interest of the international community. Indications of such an interpretation can already be found in the concept of sovereignty and other principles of international law (a). The same applies to the United Nations (UN)-Charter at the institutional level (b) and to treaty-based human rights provisions at the substantive level (c).

a) Sovereignty, Progress and Its (Transboundary) Consequences

Taking into account the *Lotus*-principle[50] and the statements of the International Court of Justice (ICJ) in its *Nuclear Weapons Advisory Opinion*,[51] one could argue that sovereign states are basically free to decide whether and how they deal with science and high-risk technologies.[52] The *Nuclear Weapons Advisory Opinion* at least indicates that dealing with progress in international law is not a question of permission, but of limits or conditions.[53] A first important condition is that states, despite their sovereignty, are always part of the global community and therefore bound by the (international) rule of law. Not solely sovereignty, but sovereign equality determines the legal handling of progress: While sovereign states are free to implement or promote progress in general, they may not harm the interests or rights of other – equally sovereign – states.

Thus, the sovereign decision on whether and how to regulate progress finds its limits in those principles addressing the transboundary consequences of state actions.[54] This is particularly evident in the cases *Trail Smelter*[55] and *Gabčíkovo-Nagymaros*[56] which dealt, among other things, with the trans-

50 PCIJ, *S. S. Lotus* (France v. Turkey), judgment of 7 September 1927, (Ser. A) case no. 10 (1927), para. 44.

51 ICJ, *Legality of the Threat or Use of Nuclear Weapons*, advisory opinion of 8 July 1996, ICJ Reports 1996, 226, paras 21, 51 et seqq., 97.

52 See Rayfuse (n. 6), 506 et. seq.

53 See Christopher Greenwood, 'The Advisory Opinion on Nuclear Weapons and the Contribution of the International Court to International Humanitarian Law, Int'l Rev. of the Red Cross 37 (1997), 65-75 (66 et seqq.).

54 Rayfuse (n. 6), 507 et. seqq.

55 Trail Smelter Arbitral Tribunal, *Trail Smelter* Case (U. S. v. Canada), award of 16 April 1938 and 11 March 1941, RIAA III, 1905 (1941).

56 ICJ, *Gabčíkovo-Nagymaros Project* (Hungary v. Slovakia), order of 5 February 1997, ICJ Reports 1997, 3.

boundary (environmental) impacts that regularly accompany technological development. Therefore, the principles of due diligence[57] or precaution and prevention, also expressed in the Rio Declaration,[58] are a crucial cornerstone for identifying and further developing a responsibility concerning progress.[59] Even though those and other general principles of international law could provide a solution of progress related problems on a case-by-case basis, they remain ambivalent and controversial in their binding nature and interpretation.[60] Nevertheless, they are an expression of responsibility for the (transboundary) consequences of progress and thus a first point of reference for understanding the latter as a common global interest.

b) Progress in the Long-Term Strategy of the United Nations

The Charter of the United Nations (UN-Charter) forms a central source of law for the institutionalisation of the international community.[61] Therefore, it can play a crucial role in identifying a progress-related responsibility in international law. Considering the three vectors of responsibility, it is necessary to determine who is entrusted with the task of balancing progress under the UN-Charter and to whom this task is to be performed.

Already the Preamble of the UN-Charter mentions a promotion of 'social progress and better standards of life' as well as employing 'international machinery for the promotion of the economic and social advancement'. This wording was deliberately chosen to emphasise that the central task of the UN, the maintenance of peace and security, requires not only the absence of war, but also economic and social stability as fundamental conditions of

57 See Donders and Plozza (n. 13), 356 et seqq.

58 Report of the UN Conference on Environment and Development, Annex I, Rio Declaration on Environment and Development of 12 August 1992, A/CONF.151/26 (Vol. I), principles 2, 7, 9 and 15.

59 See Roeben (n. 42), 112 et seqq.; Philippe Cullet, 'Principle 7, Common but Differentiated Responsibilities' in: Jorge E. Viñuales (ed.), *The Rio Declaration on Environment and Development, A Commentary* (Oxford University Press 2015), 229-244 (242 et seq. and passim); see also Andy Stirling, 'Precaution in the Governance of Technology' in: Roger Brownsword (ed.), *The Oxford Handbook of Law, Regulation and Technology* (Oxford University Press 2016), 645-669 (645 et seqq.).

60 Gary E. Marchant, 'Addressing the Pacing Problem' in: Gary E. Marchant, Braden R. Allenby and Joseph R. Herkert (eds), *The Growing Gap Between Emerging Technologies and Legal-Ethical Oversight* (Springer 2011), 199-205 (200 et seq.); Rayfuse (n. 6), 507 et. seq., 512 et seqq.; see already Schachter (n. 33), 424 et seq.

61 On this and the general concept see Christian J. Tams, 'International Community' in: Jean D'Aspremont and Sahib Singh (eds), *Concepts for International Law* (Edward Elgar 2019), 505-523 (509, 511 and passim).

peace.[62] Therefore, 'negative peace' and 'positive peace'[63] are equal purposes of the UN under Article 1 of its Charter.[64] In other words, the UN-Charter and its overarching goal rests on two pillars: While 'negative peace' constitutes the UN-Charters' short-term strategy, the long-term strategy aims for 'positive peace', i. e. cooperative promotion of social and economic progress.[65]

Although the UN-Charter does not explicitly mention scientific-technical progress, the latter is closely linked to the UN's long-term strategy. This applies both to the general association of progress and its regulation with increased productivity and economic prosperity,[66] and to the ambivalent assessment of progress and its consequences.[67] In any case, balancing is necessary. It is therefore not surprising that the central role of progress has been explicitly emphasised by the United Nations General Assembly (UNGA).[68] Moreover, the importance of progress is reflected in Articles 13 and 55, which further elaborate the long-term strategy of the UN-Charter.[69] The central idea of Article 13 is the progressive development of international law and the promotion of international cooperation by means of law. This idea is explained against the background of the constant interaction of progress and law which goes hand in hand with the already mentioned extension and modification in exercise of state jurisdiction.[70] Even though Article 13 addresses the General Assembly, it remains up to the member states to accept and implement the

62 Rüdiger Wolfrum, 'Preamble' in: Bruno Simma, Daniel-Erasmus Khan, Georg Nolte and Andreas Paulus (eds), *The Charter of the United Nations* (3rd edn, Oxford University Press 2012, Vol. I), 105 para. 10; see also Christof Heyns, 'The Preamble of the United Nations Charter: The Contribution of Jan Smuts', AJICL 7 (1995), 329-348 (333 et seqq.).

63 Johann Galtung, 'Violence, Peace and Peace Research', Journal of Peace Research 6 (1969), 167-191 (183).

64 Rüdiger Wolfrum, 'Art. 1' in: Bruno Simma, Daniel-Erasmus Khan, Georg Nolte and Andreas Paulus (eds), *The Charter of the United Nations* (3rd edn, Oxford: Oxford University Press 2012, Vol. I), paras 4 et seqq., 109 paras 8 et seqq.

65 Robert Kolb, International Law on the Maintenance of Peace (Edward Elgar Publishing 2019), 90 et seqq.; Ralf Bredel, Long-Term Conflict Prevention and Industrial Development (Martinus Nijhoff 2003), 75 et seqq.

66 See Jonathan B. Wiener, 'The Regulation of Technology, and the Technology of Regulation', Technology in Society 26 (2004), 483-500 (484).

67 See above II. 1.

68 E. g. UNGA, Declaration on the Use of Science and Technological Progress in the Interests of Peace and for the Benefit of Mankind of 10 November 1975, A/RES/3384 (XXX); Declaration on Principles of International Law concerning Friendly Relations and Co-operation among States in accordance with the Charter of the United Nations of 24 October 1970, A/RES/2625 (XXV).

69 Bredel (n. 65), 81 et seqq.; Wolfrum (n. 64), paras 6, 26, 36 and 38.

70 See Carl-August Fleischhauer and Bruno Simma, 'Art. 13' in: Bruno Simma, Daniel-Erasmus Khan, Georg Nolte and Andreas Paulus (eds), *The Charter of the United Nations* (3rd edn, Oxford University Press 2012, Vol. I), 525 paras 1, 59 et seqq.; see also the reference in n. 37.

corresponding proposals as binding.[71] Therefore, Article 13 can be read as referring to a responsibility of states to monitor and develop the relationship between international law and progress. This is in line with those resolutions of the General Assembly, which address progress, such as the Declaration on Social Progress and Development or the Charter of Economic Rights and Duties of States. These and other resolutions do not only refer to the legal handling of the benefits and risks of progress as a *task* of states, but also explicitly speak of a 'responsibility' that each state must fulfil through international cooperation and in accordance with the principles of the UN-Charter.[72] The responsibility of states becomes even clearer when taking Article 55 and the following Articles within Chapter IX as the central norms for the UN's long-term strategy into consideration. The necessary 'promotion' of economic and social progress under Article 55, as well as the further foundations of (positive) peace, also includes the promotion of science and its progress.[73] Even though Article 55 speaks only of 'the United Nations' and is embedded in Chapter IX which creates a cooperative network of special agencies and UN organisations, Article 56 explicitly emphasises that also the Member States themselves are bound by the purposes of Article 55.[74]

So far, the UN-Charter offers some indications that progress can be considered as a common global interest. Balancing and regulating progress should be seen as an important part of the UN's long-term strategy. This includes the promotion of progress as a condition for peace as well as the prevention of progress-related threats to peace. As Member States are obliged to contribute to the long-term strategy, it is their responsibility to balance law, progress, and its consequences.

c) Human Rights as the Basis and Limit of Progress

In addition to the institutional side of a possible responsibility of states regarding progress, the individual side must also be considered. This is

71 Fleischhauer and Simma (n. 70), para. 4.

72 UNGA, Declaration on Social Progress and Development of 11 December 1969, A/RES/2542 (XXIV), Articles 3, 8, 13 and 24; Charter of Economic Rights and Duties of States of 12 December 1974, A/RES/3281 (XXIX), Articles 7, 9 and 11; see also the references in n. 68.

73 Peter Tobias Stoll, 'Art. 55 (a) and (b)' in: Bruno Simma, Daniel-Erasmus Khan, Georg Nolte and Andreas Paulus (eds), *The Charter of the United Nations* (3rd edn, Oxford University Press 2012, Vol. II), 1535 paras 1, 19 et seqq., 26 and 100.

74 Otto Spijkers, 'Global Values in the United Nations Charter', NLIR LIX (2012), 361-397 (385 et seqq.); Peter Tobias Stoll, 'Art. 55 (a) and (b)' and 'Art. 56' in: Bruno Simma, Daniel-Erasmus Khan, Georg Nolte and Andreas Paulus (eds), *The Charter of the United Nations* (3rd edn, Oxford University Press 2012, Vol. II), 1535 paras 8, 12, 17, 19 and 1603 para. 4 et seqq., 27 et seqq.

because it is usually not states who drive progress. Rather, it is individual researchers or technicians who drive progress across borders, with consequences for the environment and the general population. Therefore, it seems consistent and legitimate to take a human-rights-based approach for the international handling of progress.[75] To put it differently, it is necessary to clarify whether a responsibility for progress as global common interest is also reflected in human rights obligations.

In principle, regardless of whether and to what extent they are enforceable, human rights are accompanied by clear state obligations. Although this may be disputed in part with regard to the legal nature of the Universal Declaration of Human Rights (UDHR), there is no doubt that the International Covenant on Economic, Social and Cultural Rights (ICESCR) and the International Covenant on Civil and Political Rights (ICCPR) are binding for ratifying states.[76] While the extent of the obligation depends on the individual case, states must always respect, protec,t and fulfil human rights.[77] The aforementioned Articles 55 and 56 of the UN-Charter also provide a clear link between the UN's long-term strategy, the Member States' responsibility and human rights.[78] Therefore, the question of whether progress secures or endangers 'positive peace' in the long term must also be answered from the perspective of human rights.

The ambivalence of progress and its consequences allows for mutual influences of progress and human rights. While human rights can be both the basis and the limit of progress, conversely, progress can promote or jeopardise the realisation of human rights.[79] In particular, progress is protected by freedom of science, which does not bar state regulation completely, but requires a comprehensive risk assessment and a proportionality test.[80] The

75 Similar Voeneky (n. 5), 139, 149 et seqq., 153; Thorsten Schmidt and Silja Voeneky, 'Fostering the Common Good, An Adaptive Approach Regulating High-Risk AI-Driven Products and Services' in: Silja Voeneky, Philipp Kellmeyer, Oliver Mueller and Wolfram Burgard (eds), *The Cambridge Handbook of Responsible Artificial Intelligence: Interdisciplinary Perspectives* (Cambridge University Press 2022), 123-149.

76 Regarding this and the following Eibe H. Riedel and Jan-Michael Arend, 'Art 55 (c)' in: Bruno Simma, Daniel-Erasmus Khan, Georg Nolte and Andreas Paulus (eds), *The Charter of the United Nations* (3rd edn, Oxford University Press 2012, Vol. II), 1565 paras 24, 30 et seqq., 43 et seq., 46 et seq.

77 Frédéric Mégret, 'Nature of Obligations' in: Daniel Moeckli, Sangeeta Shah and Sandesh Sivakumaran (eds), *International Human Rights Law* (3rd edn, Oxford University Press 2018), 86-109 (97 et seqq.).

78 Stoll (n. 73), paras 2, 15 et seqq.; Riedel and Arend (n. 76), paras 4, 8 et seq., 15 et seq.

79 Hiroko Yamane, 'Impacts of Scientific and Technological Progress on Human Rights: Normative Response of the International Community' in: Christopher G. Weeramantry (ed.), *Human Rights and Scientific Technological Development* (United Nations University 1990), 91-104 (92 et seqq.).

80 Voeneky (n. 5), 153 et seqq.

latter is closely linked to the general principles of prevention and precaution.[81] States must find a balance since they have to protect not only the freedom of science, but also life, health, and ultimately human dignity of all people.[82] States' role in balancing different human rights positions becomes even clearer when one considers those human rights that explicitly deal with the consequences of progress. In fact, progress is not only addressed by the UN-Charter and the resolutions of the UNGA mentioned before, but also and above all by the right to enjoy the benefits of scientific progress and its applications under Article 15(1)(b) of the ICESCR.[83] The latter is closely linked to Articles 9 and 11 of the ICESCR as well as Articles 22, 25 and 27 of the UDHR.[84] A crucial factor is the recognition that prosperity or an adequate standard of living can be linked to scientific-technical progress.[85] Therefore, human rights stress the need for state regulation which ensures that progress does not harm, but benefits people.[86] More specifically, in line with general human rights obligations, Article 15(1)(b) of the ICESCR calls for the respect, protection and fulfilment of the right to science. This means that states have to guarantee the freedom of science and take measures to provide access to progress and its applications for the benefit of all. The latter includes the protection against those consequences of progress that threaten other human rights.[87] This anticipation of benefits and risks is inherent in the right to science.[88]

81 Donders and Plozza (n. 13), 362 et seqq.

82 Voeneky (n. 5), 148 et seq., 155 et seq.

83 Yvonne Donders, 'The Right to Enjoy the Benefits of Scientific Progress: In Search of State Obligations in Relation to Science', Medicine, Health Care and Philosophy 14 (2011), 371-381 (371 et seq., 375, 379); Ben Saul, David Kinley and Jacqueline Mowbray, *The International Covenant on Economic, Social and Cultural Rights* (Oxford University Press 2014), 1175-1232 (1219); see also n. 68.

84 Audrey R. Chapmann, 'Towards an Understanding of the Right to Enjoy the Benefits of Scientific Progress and Its Applications', Journal of Human Rights 8 (2009), 1-36 (1 et seqq.); Besson (n. 11), 498 et seqq.

85 Lea Shaver, 'The Right to Science: Ensuring that Everyone Benefits from Scientific and Technological Progress', European Journal of Human Rights (2014), 411-430 (414 et seq., 429); see also above II. 1 and the references in n. 84.

86 Ragnar Adalsteinsson and *Páll* Thórhallson, 'Art. 27' in: Gudmundur Alfredson and Asbjørn Eide (eds), *The Universal Declaration of Human Rights* (Martinus Nijhoff 1999), 575-596 (582, 593); Asbjørn Eide, 'Adequate Standard of Living' in: Daniel Moeckli, Sangeeta Shah, Sandesh Sivakumaran and David Harris (eds), *International Human Rights Law* (3rd edn, Oxford University Press 2018), 186-207 (186 et seqq., 201); Donders and Plozza (n. 13), 355 et seqq.; Shaver (n. 85), 418, 429.

87 Chapmann (n. 84), 18 et seqq.; Julie Ringelheim, 'Cultural Rights' in: Daniel Moeckli, Sangeeta Shah, Sandesh Sivakumaran and David Harris (eds), *International Human Rights Law* (3rd edn, Oxford University Press 2018), 278-295 (279 et seq., 283, 288 et seqq.); Saul, Kinley and Mowbray (n. 83), 1176, 1213 et seqq.; see also Adalsteinsson and Thórhallson (n. 86), 593.

88 Besson (n. 14), 299.

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Since the 'application' of scientific progress primarily relates to technical innovation,[89] Article 15 ICESCR could also serve as a link to a human right to grow through innovation.[90] This would help to ensure that the interests of entrepreneurs are considered. Finally, Article 15(1)(b) and (4) ICESCR also stress the need for cooperation and exchange of information at the international level, which is particularly relevant for developing countries.[91] It is true that the various facets of Article 15(1)(b) ICESCR will have to be further differentiated in the future.[92] Nevertheless, it is an important legal basis for the task of states to ensure that progress does not simply 'happen' but is to be implemented responsibly.[93] Therefore, human rights may also be interpreted as a reflection of a progress-related responsibility of states under international law.

3. The Responsibility *to* and *for* Progress

International law offers numerous reference points for an interpretation of progress as a common global interest. This would lead to a two-sided Responsibility *to* and *for* progress (a) which entrusts states to address progress and its consequences through national and international regulation (b).

a) Two Sides of the Same Coin

Based on general principles of international law, the UN-Charter and human rights, progress can be seen as a 'public good'[94] or common global

89 Chapmann (n. 84), 9 et seq.

90 Philipp Aerni, *Entrepreneurial Rights as Human Rights* (Banson 2015), 55 et seqq. and passim.

91 Saul, Kinley and Mowbray (n. 83), 1222 et seq.; Donders (n. 83), 376 et seq., 379.

92 See e. g. Besson (n. 11), 516 et seqq. and passim; Besson (n. 14), 294 et seqq.; Andrew Mazibrada, Monika Plozza and Sebastian Porsdam Mann, 'Innovating in Uncharted Terrain: On Interpretation and Normative Legitimacy in the CESCR's General Comment No. 25 on the Right to Science', The International Journal of Human Rights 28 (2024), 148-176 (156 et seqq.); Shaver (n. 85), 418 et seqq.

93 Andrea Boggio, 'The Right to Participate In and Enjoy the Benefits of Scientific Progress and Its Application: A Conceptual Map', New York International Law Review 34 (2021), 43-77 (50 et seqq., 55 et. seqq.); Donders (n. 83), 374 et seqq.

94 See Ringelheim (n. 87), 289 with further references; regarding science Shaver (n. 85), 413, 417 et seqq.; see also Besson (n. 11), 504 et seqq., 516 et seqq.; Besson (n. 14), 300; Farida Shaheed and Andrew Mazibrada, 'On the Right to Science as a Cultural Human Right' in: Helle Porsdam and Sebastian Porsdam Mann (eds), *The Right to Science* (Cambridge University Press 2022), 107-123 (107 et seq.).

interest for which states bear responsibility. In terms of the three vectors of responsibility states ('who') are assigned responsibility concerning the balancing of progress-related consequences ('what'). In line with the roots of this responsibility, states must fulfil it in the common interest of the UN and its Member States as well as in the interest of the people ('to whom').

As dealing with progress is an ambivalent task that includes promoting and limiting elements, this responsibility may be described as Responsibility *to* and *for* progress. The significance of this two-sided responsibility is particularly evident in the context of climate change. On the one hand, human-caused climate change is a direct consequence of historical progress in the field of science and technology, or, more precisely, the largely uncontrolled emissions and environmental changes resulting from it. On the other hand, progress may lead to the development and use of more climate-friendly processes or instruments in the future, which would in turn facilitate the mitigation of climate change.[95] Dealing with the progress-related *consequences* concerns the Responsibility *for* progress. At the same time the Responsibility *to* progress addresses the need to guarantee and maintain the *conditions*, that allow science and technology 'to progress' in the first place. As the enabling of progress again raises the question of how to deal with possible consequences, both dimensions of the Responsibility *to* and *for* progress are interdependent or, in other words, two sides of the same coin. The Responsibility *to* and *for* progress thus reflects the need to balance and shape the ambivalent relationship between law and progress.

b) Responsible Regulation and Mediation

The Responsibility *to* and *for* progress not only addresses the question of whether an (international) regulation of progress is necessary, but also provides guidance on how this should be done. The latter affects the numerous proposals for solving the 'pacing problem', which focus either on slowing down progress by means of precaution or on improving the adaptability of law by using flexible and adaptive legal instruments.[96] It is true that regulating progress remains a 'wicked' problem that can only be solved by combining different perspectives (ex-post and ex-ante) and approaches (governing and governance).[97] The Responsibility *to* and *for* progress is no exception in

95 See German Federal Constitutional Court, order of 24 March 2021 – 1 BvR 2656/18, paras 18 et seqq., 32 et seqq., 121, 183, 186 and 248 et seqq.; see also Voeneky (n. 5), 141 et seqq.

96 Marchant (n. 60), 200 et seqq. with further references.

97 Marchant (n. 24), 1864 et seqq.; see also Abbot (n. 1), 134 et seq., 156.

this respect and is therefore only one – albeit crucial – part of the solution. However, due to its roots in general principles, the UN-Charter and human rights, the Responsibility *to* and *for* progress provides a clear legal framework that has decisive advantages.

First, the Responsibility *to* and *for* progress ensures a strong link to the UN and its universal goals. The exchange of information between states and non-state actors, which is imperative in view of progress-related uncertainty,[98] should not happen within an organisation with only a few member states such as the Organisation for Economic Co-operation and Development (OECD),[99] but within the United Nations Educational, Scientific and Cultural Organization (UNESCO) or another organisation within the UN framework. This does not mean that other initiatives should be rejected. This is so especially because, to a certain extent, domestic measures may also be necessary and sufficient to fulfil the responsibility.[100] However, the UN's involvement ensures a broad exchange among all nations, which is essential when considering the global consequences of progress. The material basis for this international cooperation should be human rights and the general principles which address transboundary consequences of state actions.[101] Article 15 (1)(b) and (4) ICESCR are of particular relevance here. The norm reflects the ambivalent task of promoting and limiting scientific-technical progress, especially through international cooperation and mediation. In the future, Article 15 ICESCR, may also be used as a starting point for considering the responsibility of non-state actors (e. g. scientists and technicians) within this cooperation.[102] Nevertheless, the regulation of progress through the means of (international) law remains first and foremost the responsibility of states as primary subjects of international law. To meet this Responsibility *to* and *for* progress, states must guarantee the conditions of progress and take measures to ensure access to its applications for the benefit of all people. The latter includes the protection against those consequences that threaten other human rights.

For the sake of completeness, it should be noted that this responsibility must be strictly separated from the Responsibility to Protect. In fact, there is a debate whether the latter should also include socioeconomic and long-term

98 Yamane (n. 79), 102 et seq.; Abbot (n. 1), 129 et seq., 134 et seqq., 145 et seqq.

99 Different view Abbot (n. 1), 139 et seqq.

100 In general, Roeben (n. 42), 106, 156; see also II. 3.

101 Regarding AI see Vöneky (n. 40), 12, 16 et seqq., 19 et seq.; Schmidt and Voeneky (n. 75), 123, 133 et seq.; in general Voeneky (n. 5), 139, 149 et seqq.; regarding the principles see above III. 2. a).

102 Katja Achermann and Samantha Besson, 'International Cooperation Under the Human Right to Science: What and Whose Duties and Responsibilities?', Frontiers in Sociology 8 (2023), doi: 10.3389/fsoc.2023.1273984, 1-6 (2 et seqq.); Besson (n. 11), 510 et seqq., 516 et seqq.

development issues.[103] However, regardless of whether one agrees with this and the Responsibility to Protect in general or not,[104] it has no influence on the Responsibility *to* and *for* progress. The latter is not about protecting a state's population from serious human rights violations or similar atrocities. Rather, the Responsibility *to* and *for* progress emphasises the need of balancing (international) law and progress-related consequences.

IV. Conclusion and Outlook

Altogether, central sources of international law offer numerous reference points for an understanding of scientific-technical progress as common global interest. The corresponding Responsibility *to* and *for* progress would be a decisive key for balancing progress-related consequences through means of (international) law. In the future, it will therefore be the task of states to further develop the legal framework in recognition of their own responsibility. As they would perform this task also in cooperation with the UN, but without being dependent on the – often blocked – Security Council, the Responsibility *to* and *for* progress ultimately offers an opportunity to revitalise international cooperation for a peaceful and sustainable future.

103 For this and the following see Adrian Gallagher, 'An International Responsibility to Develop in Order to Protect? A Responsibility Too Far', Journal of International Relations and Development 25 (2020), 1020 (1020 et seqq.).

104 Regarding the general debate see Janina Barkholdt and Ingo Winkelmann, 'Responsibility to Protect' in: Rüdiger Wolfrum (ed.), MPEPIL (online edn, Oxford University Press 2019) paras 5 et seqq.