

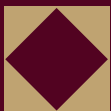
Michael Lysander Fremuth | Jörn Griebel
Robert Heinsch (eds.)

Natural Resources and International Law – Developments and Challenges

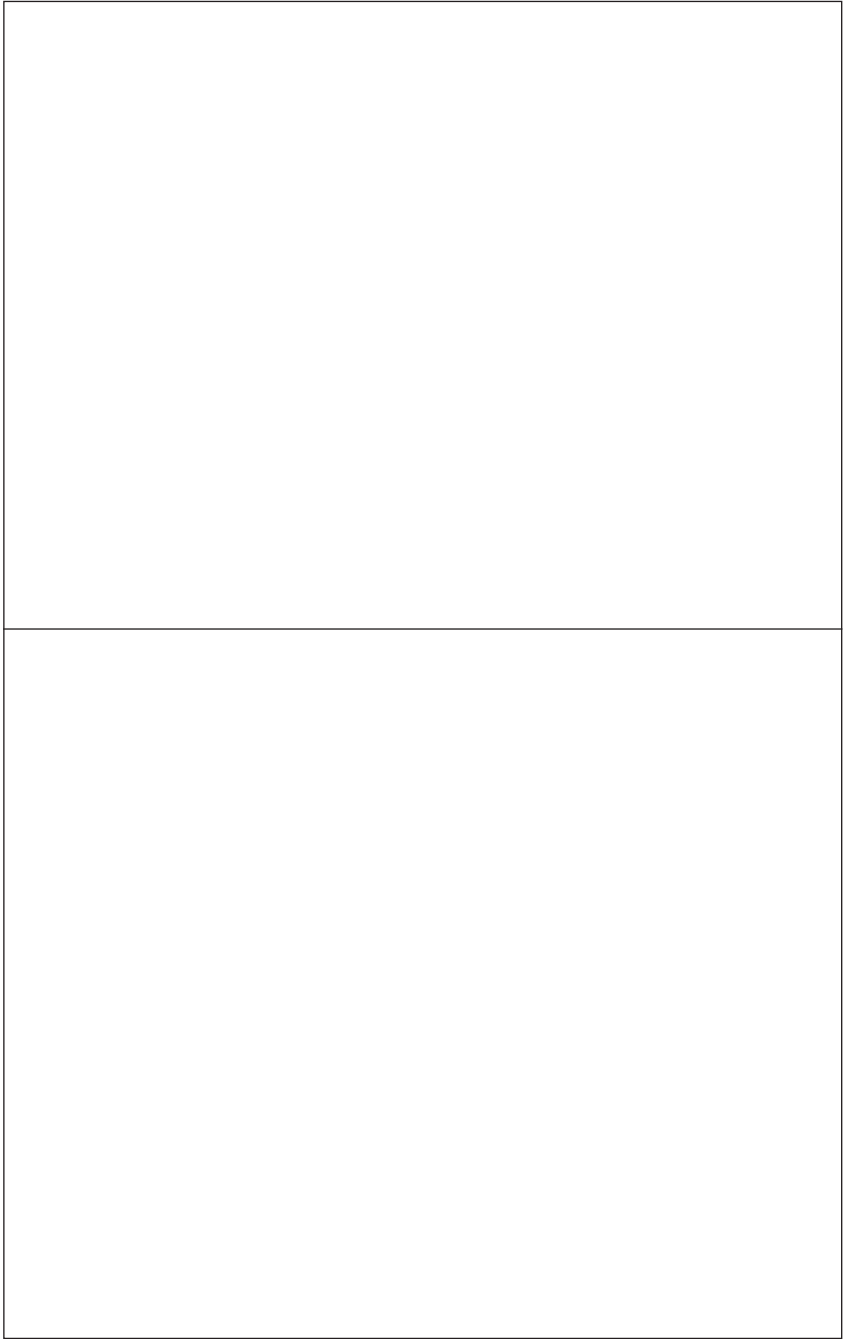
A Liber Amicorum in Honour of
Stephan Hobe



HART



Nomos



Michael Lysander Fremuth | Jörn Griebel
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Foreword

It is always a challenge to summarise a decades-long career of a successful and highly esteemed academic in just a few sentences—this also holds true with regard to what Stephan Hobe has achieved during his long and still ongoing career. In more than 35 years of his academic work, our academic mentor has developed a great expertise in a remarkable variety of fields of law, such as German constitutional law, European Union law and public international law (with its special fields of air law, space law, international economic law and international investment law being amongst the many themes of his life). Bringing all these fields of interest and expertise together under one common topic was a great challenge which we tried to address with this *liber amicorum* and a two-day conference that served as the basis for the content of this collection of contributions.

In summer 2017, when the three of us met with our academic teacher at our *alma mater* in Cologne in order to prepare this conference, Stephan Hobe had already designed a conference programme connecting many of his fields of expertise to a particularly challenging problem of mankind, i.e., how to deal with increasingly rare natural resources or commodities, their exploration and exploitation. The conference took place on the 2nd and 3rd of March 2018 in Ladenburg, Germany, and was hosted and financially supported by the Daimler and Benz Foundation. All participants, amongst them many long-time colleagues and friends, contributed to this *liber amicorum* in honour of Stephan Hobe's 60th birthday.

We are very grateful for their support which also expresses their genuine admiration towards Stephan Hobe.

For us as editors of this book, it is equally a pleasure and an honour to thank our teacher Stephan Hobe for the many years of his support while we were young research assistants—more than two decades ago—and for mentoring us on our path of developing into independent scholars ourselves. Becoming an academic in the area of international law is never an easy endeavour, and so we were lucky to take our first steps towards this ambitious goal in cooperation with such a well-versed and well-connected academic teacher.

It does not come as a surprise that all three of us followed Stephan Hobe's academic approach to research and teaching law in one way or another. We tried to become inspiring and energetic law teachers and dedicated researchers by following his stimulating and enthusiastic way of

Foreword

teaching and his contentious and diligent way of conducting research, i.e., keeping the big picture and the underlying conditions in mind, while not losing the necessary focus on particular research questions.

We would like to thank our collaborators at Leiden University, Siegen University and the University of Vienna for supporting us in the process of editing the *liber amicorum*. We would specifically like to mention in alphabetical order: Alla Ershova, Emma Irving, Sharon Pia Hickey, Sofia Larrivera Santurio (Leiden University), Stefan Schelhaas, Dominik Schmidt, Christian Schäfer (Siegen University), as well as Roman Friedrich and Magdalena Steringer (University of Vienna). We would also like to extend our gratitude to all the authors for the productive cooperation and the high quality of their contributions, as well as to the Daimler and Benz Foundation for laying the basis for this book by supporting the initial conference.

We hope that this *liber amicorum* is only a first step to honour Stephan Hobe for his life-long achievements. Knowing his energy and dedication to the fields of his expertise, we would not be surprised if another 10, 20 or 30 years of productivity will follow. We are eager to celebrate his future achievements.

Therefore, we believe that for science as well as for Stephan Hobe the following is equally valid:
The sky is not the limit!

Michael Lysander Fremuth, Jörn Griebel, Robert Heinsch

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Energy as a Resource for Sustainable Development. The need for good governance in the energy sector

*Charlotte Kreuter-Kirchhof**

Abstract

In 2015, the international community recognized energy access as a key resource for sustainable development. At the United Nations Sustainable Development Summit, states agreed upon the goal to grant access to clean energy for all by 2030. Having access to energy will save and significantly improve lives and will lead to broad social and economic benefits. At the same time, clean energy supply is pivotal to combatting climate change. To monitor progress towards reaching the goal of clean energy for all, the General Assembly agreed upon targets and a set of global indicators. With regard to these indicators, progress has been made in some areas. More people have gained access to electricity and to clean cooking fuels and technologies. The share of renewable energy in total final energy consumption grew, albeit only slightly. However, the international community is not on track to meet its goal, most notably in sub-Saharan Africa where progress lags especially behind. The challenge to provide access to clean energy for all offers the opportunity for Africa to leapfrog towards renewable energy systems that avoid carbon emissions. Decentralised energy generation with diversified ownership systems can contribute to achieving these goals. To enable investments in renewable energy generation in Africa, suitable regulatory and policy frameworks are needed.

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I. Sustainable Development Goals for the energy sector

In 2000, the United Nations agreed upon the Millennium Development Goals (MDG) that set the framework for the international development agenda for the following 15 years. The MDGs ranged from halving extreme poverty to halting the spread of HIV/AIDS and providing universal primary education. By 2015, these targets were not fully achieved, but had galvanized unprecedented efforts and achievements to meet the needs of the world's poorest. For example, the number of people living in extreme poverty has declined by more than half, primary school enrolment reached 91 percent in the developing regions, the global child mortality rate for children under five declined by more than half, maternal mortality declined by 45 percent. New HIV infections fell by approximately 40 percent between 2000 and 2013.¹

However, the MDGs were not comprehensive enough. They encompassed only some areas of sustainable development. For example, the MDGs did not consider access to clean energy or a specific climate change goal. Moreover, while the MDGS did concentrate on the development of developing countries, they did not sufficiently involve industrialised countries nor contribute enough to form a collaborative partnership of all countries and all stakeholders to foster sustainable development.

In order to react to these findings, but also to build on the success of the MDGs and to continue along the chosen path for sustainable development, the world leaders adopted the Sustainable Development Goals

1 See *United Nations*, The Millennium Development Goals Report (2015), p. 6.

(SDGs) at a historic UN summit in 2015.² These SDGs form the Agenda 2030. They go beyond the MDGs and include the goals of ending poverty, protecting the planet and ensuring prosperity for all. These goals – the result of the broadest and most inclusive consultation process in UN history – now address the entire international community and not only the lesser developed states.³ While the SDGs are not legally binding, states are expected to establish national frameworks for the achievement of the 17 goals. The SDGs also aim for the involvement of the private sector as well as civil society in the process towards sustainable development for all.

The SDGs cover 17 goals for sustainable development which are supported by a list of 169 specific targets to be reached by 2030. Goal number seven sets the aim to “ensure access to affordable, reliable, sustainable and modern energy for all” by 2030. This is the first time access to clean energy has been recognized as a central goal in order to achieve sustainable development.⁴ The specific targets associated with goal seven are to increase substantially the share of renewable energy, to improve energy efficiency, to enhance international cooperation to facilitate access to clean energy research and technology and to promote investment in energy infrastructure and clean energy technology. These targets recognize increasing the share of renewable energy as well as energy efficiency as integral to sustainable development for all countries. Furthermore, international cooperation is needed to foster energy research and to transfer new (clean) technologies. The targets also emphasize that investment in energy infrastructure and clean energy technology has to be promoted.

These clear targets for the energy sector are interconnected with other Sustainable Development Goals. Recognizing the interdependency of the different development goals is one of the important achievements of the SDGs. Thus, the aim to grant access to clean energy for all has to be seen especially in the context of the goal to “take urgent action to combat climate change and its impacts”.⁵ Energy supply and combatting climate change are closely interlinked.

2 See *United Nations General Assembly*, Transforming our world: the 2030 Agenda for Sustainable Development, A/RES/70/1 of 25 September 2015.

3 See *United Nations General Assembly*, The future we want, A/Res/66/288 of 27 July 2012; *Europäische Union /Agentur für Grundrechte*, Implementing the Sustainable Development Goals in the European Union, 2019; *Duncan / Kotzé*, Sustainable Development Goals, 2018.

4 See *United Nations Development Programme*, UNDP Support to the Implementation of Sustainable Development Goal 7 (2016), p. 4.

5 See Goal 13 of the Sustainable Development Goals.

II. *Energy as a resource for sustainable development*

Since the establishment of the SDGs, energy access is regarded as one of the key elements for sustainable development. Thus, goal number seven asks the international community to foster access to clean energy for all. Clean energy calls especially for using renewable energy resources. This contributes to sustainable energy supply that serves the needs of the present without compromising the ability of future generations to meet their energy needs.⁶

1. *Importance of energy access for sustainable development*

Access to reliable electricity allows for clean and safe cooking fuels, charging phones, powering computers, refrigerating food and vaccines, and is necessary for the functioning of essential infrastructure. Providing energy for all would save and significantly improve lives. For example, according to the International Energy Agency, ensuring access to clean cooking fuel for all would lower the premature death toll by 1.8 million people per year in 2030.⁷ Having access to energy also leads to broad social and economic benefits. At the same time, clean energy supply is pivotal to saving our earth's atmosphere. In 2015, the international community agreed upon the first universal, legally binding international agreement to combat climate change. The Paris Agreement sets the goal of limiting global warming to well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 to avoid dangerous anthropogenic climate change. In order to reach this goal, we need to decarbonize the economy and energy systems worldwide. Thus, access to *clean* energy is one of the core elements for sustainable development.⁸ It is

6 See the definition of sustainable development in *United Nations World Commission on Environment and Development*, Report of the World Commission on Environment and Development: Our Common Future (1987), No. 27.

7 *International Energy Agency*, Energy Access Outlook 2017 – Executive Summary (2017), p. 6.

8 See also *Power for All/Sustainable Development for All*, Why wait? Seizing the energy access dividend (2017), pp. 27, 76.

the “golden thread” connecting economic growth, social equity and environmental sustainability.⁹

2. Targets to be reached by 2030

The Sustainable Development Goals call for clean energy for all and set specific targets that are to be achieved. These include:

- ensuring universal access to affordable, reliable and modern energy services;
- increasing substantially the share of renewable energy in the global energy mix;
- doubling the global rate of improvement in energy efficiency;
- enhancing international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and to promote investment in energy infrastructure and clean energy technology; and
- expanding infrastructure and upgrading technology for supplying modern and sustainable energy services for all in developing countries, in particular least developed countries, small island developing states and landlocked developing countries, in accordance with their respective programmes of support.

To monitor progress towards reaching the SDGs' goals and targets, a robust review mechanism for the implementation of Agenda 2030 is indispensable. Therefore, the General Assembly agreed upon a set of global indicators developed by the Inter-Agency and Expert Group on Sustainable Development Goal Indicators.¹⁰ Annually, the Secretary-General of the UN prepares a progress report on the Sustainable Development Goals based on this global indicator framework.¹¹ In order to review goal num-

⁹ *International Bank for Reconstruction and Development/World Bank/International Energy Agency*, Global Tracking Framework 2017, Progress toward Sustainable Energy (2017), p. 2.

¹⁰ *United Nations General Assembly*, Work of the Statistical Commission pertaining to the 2030 Agenda for Sustainable Development, A/Res/71/313 of 10 July 2017; see also *United Nations*, Global SDG Indicator Database, available under: <https://unstats.un.org/sdgs/indicators/database/> (last accessed: 1 April 2020).

¹¹ For the latest report see *United Nations*, The Sustainable Development Goals Report 2019, Report of the Secretary-General on SDG Progress 2019, Special Edition, available under:

ber seven, ensuring access to affordable, reliable, sustainable and modern energy for all, the following indicators have been set:

- proportion of population with access to electricity;
- proportion of population with primary reliance on clean fuels and technology;
- renewable energy share in the total final energy consumption;
- energy intensity measured in terms of primary energy and GDP;
- international financial flows to developing countries in support of clean energy research and development and renewable energy production, including in hybrid systems;
- investments in energy efficiency as a proportion of GDP and the amount of foreign direct investment in financial transfer for infrastructure and technology to sustainable development services.

These indicators serve as the basis for measuring progress towards reaching the goal of clean energy for all.

III. Progress towards universal access to clean energy for all

Looking at the first three indicators, which consider the proportion of population with access to electricity and with primary reliance on clean fuels and technology as well as the renewable energy share in the total final energy consumption, an electricity access gap is clearly visible. This gap is particularly evident when comparing Northern America and Europe with sub-Saharan Africa.

1. Access to electricity

In 2018, 789 million people still lived without electricity,¹² most of them in sub-Saharan Africa.¹³ The good news is, that the share of the global population with access to electricity increased from 83 percent in 2010 to 90

<https://unstats.un.org/sdgs/report/2019/The-Sustainable-Development-Goals-Report-2019.pdf> (last accessed: 28 May 2020).

12 *International Bank for Reconstruction and Development/World Bank et al.*, The Energy Progress Report 2020 – Tracking SDG 7 (2020), p. 4.

13 *United Nations*, Sustainable Development Goals Report 2019 (2019), p. 36.

percent in 2018.¹⁴ Since 2000, nearly 1.2 billion people have gained access to electricity, 500 million of whom live in India.¹⁵ While in Europe and Northern America the entire population has access to electricity, in Latin America and the Caribbean as well as in Eastern Asia and in South-eastern Asia access to electricity exceeded 98 percent in 2018. In Central Asia and Southern Asia, 92 percent of the population had gained access to electricity.¹⁶ In contrast to these positive developments, sub-Saharan Africa poses a severe challenge. One-out-of-two people do not have access to electricity in this region.¹⁷ In 2018, only 44 percent of the population had access, and an estimated 573 million people still lacked electricity.¹⁸ Moreover, recent developments are not very encouraging. Between 2016 and 2018, the number of people in the region lacking access remained almost stable.¹⁹ By 2030, it is estimated that 620 million people will still remain without access to electricity, 85 percent of them living in sub-Saharan Africa.²⁰ Besides, electricity demand in the sub-Saharan Africa region without South Africa is set to quadruple by 2040.²¹

2. Reliance on clean fuels and technologies

The proportion of population with primary reliance on clean fuels and technology is calculated as the number of people using clean fuels and technologies for cooking, heating and lighting.²² Lack of access to clean cooking fuels and technologies endangers health due to household air pol-

14 *International Bank for Reconstruction and Development/World Bank et al.*, The Energy Progress Report 2020 – Tracking SDG 7 (2020), p. 4.

15 *International Energy Agency*, Energy Access Outlook 2017 – Executive Summary (2017), p. 5.

16 *International Bank for Reconstruction and Development/World Bank et al.*, The Energy Progress Report 2020 – Tracking SDG 7 (2020), p. 4.

17 *International Energy Agency*, Africa Energy Outlook 2019, p. 113.

18 *United Nations*, Sustainable Development Goals Report 2019 (2019), p. 36.

19 *International Bank for Reconstruction and Development/World Bank et al.*, The Energy Progress Report 2020 – Tracking SDG 7 (2020), p. 4.

20 *International Bank for Reconstruction and Development/World Bank et al.*, The Energy Progress Report 2020 – Tracking SDG 7 (2020), p. 4.

21 *International Energy Agency*, Africa Energy Outlook 2019, p. 113.

22 *United Nations*, Metadata for Goal 7, Ensure access to affordable, reliable, sustainable and modern energy for all, updated on 30 March 2016, p. 5, available under: <https://unstats.un.org/sdgs/files/metadata-compilation/Metadata-Goal-7.pdf> (last accessed: 1 April 2020).

lution. Some 4 million premature deaths are caused each year by inhaling carbon monoxide and particulate matter from traditional biomass cook stoves.²³ Worldwide, about 2.8 billion people still lack access to clean and safe cooking fuels, such as gas and electricity. That number remained largely unchanged over the past two decades due to population growth outpacing the number of people gaining access to clean cooking fuels.²⁴

In Europe and Northern America, over 95 percent of the population rely on clean fuels and technology,²⁵ while only 17 percent of the population in sub-Saharan Africa have access to clean fuels and technology.²⁶ From 2010 to 2018, in Eastern Asia and South-eastern Asia the number of people lacking access to clean fuels decreased from 1.0 billion to 0.8 billion.²⁷ In sub-Saharan Africa, however, due to a stagnating access rate and rapid population growth the number of people without access to clean fuels increased from 750 million people to 890 million.²⁸ Sub-Saharan Africa is the only region where the number of people without access to clean cooking facilities continues to rise significantly.²⁹

From 2000 to 2014, the proportion of the global population with access to clean and safe fuels increased from 50 to 57 percent.³⁰ In 2018, 63 percent of the global population had access to clean cooking fuels and technologies.³¹ However, current progress is far lower than the annual increase required for universal access by 2030.³² The slow progress towards clean cooking is a cause for severe concern. Population growth outpaces the number of those gaining access to clean cooking fuels and technologies.³³

23 *United Nations*, Sustainable Development Goals Report 2019 (2019), p. 36.

24 *International Bank for Reconstruction and Development/World Bank et al.*, The Energy Progress Report 2020 – Tracking SDG 7 (2020), p. 6.

25 *United Nations Economic and Social Council*, Progress towards the Sustainable Development Goals, Report of the Secretary-General, Supplementary Information, E/2017/66, revised on 28 September 2017, p. 64.

26 *International Energy Agency*, Africa Energy Outlook 2019. p. 37.

27 *International Bank for Reconstruction and Development/World Bank et al.*, The Energy Progress Report 2020 – Tracking SDG 7 (2020), p. 43.

28 *International Bank for Reconstruction and Development/World Bank et al.*, The Energy Progress Report 2020 – Tracking SDG 7 (2020), p. 43.

29 *International Energy Agency*, Africa Energy Outlook 2019. p. 37.

30 *United Nations*, Sustainable Development Goals Report 2017 (2017), p. 33.

31 *International Bank for Reconstruction and Development/World Bank et al.*, The Energy Progress Report 2020 – Tracking SDG 7 (2020), p. 43.

32 See *United Nations*, Sustainable Development Goals Report 2019 (2019), p. 36; *United Nations*, Sustainable Development Goals Report 2017 (2017), p. 33.

33 *International Bank for Reconstruction and Development/World Bank et al.*, The Energy Progress Report 2020 – Tracking SDG 7 (2020), p. 43.

Without prompt action, it is estimated that 2.3 billion will still be deprived of access to clean cooking fuels by 2030.³⁴ Universal access will fall short for this SDG goal by almost 30 percent in 2030.³⁵

3. Renewable energy share in total final energy consumption

From 2010 to 2016, the share of renewable energy in total final energy consumption grew modestly from 16.6 percent to 17.5 percent. Since 2011, renewable energy resources increased more rapidly than global energy consumption.³⁶ Most growth in renewable energy has been concentrated in the electricity sector due to the expansion of solar and wind power.³⁷ However, electricity makes up only 20 percent of the final energy use; 80 percent are consumed in the heat and transportation sectors.³⁸

For the indicator “renewable energy share in the total final energy consumption”, the comparison of Europe and Northern America with sub-Saharan Africa paints a picture that is contrary to the one observed for the indicators access to electricity and primary reliance on clean fuels. While in sub-Saharan Africa 69 percent of the total final energy consumption comes from renewables,³⁹ in Europe and Northern America this share is only about 12 percent.⁴⁰ It has to be noted, however, that the particularly high share of renewables in sub-Saharan Africa strongly reflects traditional uses of biomass⁴¹ such as wood, charcoal, dung and agricultural waste.⁴² In

34 *International Bank for Reconstruction and Development/World Bank et. al.*, The Energy Progress Report 2020 – Tracking SDG 7 (2020), p. 7 und p. 48.

35 *International Bank for Reconstruction and Development/World Bank et. al.*, The Energy Progress Report 2020 – Tracking SDG 7 (2020), p. 43.

36 *International Bank for Reconstruction and Development/World Bank et. al.*, The Energy Progress Report 2020 – Tracking SDG 7 (2020), p. 72.

37 *United Nations*, Sustainable Development Goals Report 2019 (2019), p. 37.

38 *United Nations*, Sustainable Development Goals Report 2019 (2019), p. 37.

39 *International Bank for Reconstruction and Development/World Bank et. al.*, The Energy Progress Report 2020 – Tracking SDG 7 (2020), p. 71.

40 *United Nations Economic and Social Council*, Progress towards the Sustainable Development Goals, Report of the Secretary-General, Supplementary Information, E/2017/66, revised on 28 September 2017, p. 65.

41 For a definition of „traditional uses of biomass“ see *International Bank for Reconstruction and Development/World Bank et. al.*, The Energy Progress Report 2020 – Tracking SDG 7 (2020), p. 73.

42 *International Bank for Reconstruction and Development/World Bank/International Energy Agency*, Global Tracking Framework 2017, Progress toward Sustainable Energy, Summary (2017), p. 8. See also *International Bank for Reconstruction and Devel-*

sub-Saharan Africa, bioenergy made up almost 60 percent of primary energy use in 2018.⁴³ The findings clearly show that the current pace of clean energy progress falls short of what is needed to meet the sustainable energy development goal by 2030.⁴⁴ In order to limit global warming to well below 2 degrees Celsius and to pursue efforts to limit the temperature increase even further to 1.5, it is imperative to find a way to increase the share of renewable energy in the electricity, heat and transportation sectors, which together account for 80 percent of global energy consumption. The Secretary General's latest report on the Sustainable Development Goals concludes that "*if Sustainable Development Goals 7, 13 and related Goals are to be met, much higher levels of ambition are required with regard to renewable energy, including transportation and heating*".⁴⁵

IV. Answering the twin challenges of universal access to energy and climate change in Africa

Currently, Africa is the continent with the least access to energy, but – at the same time – it has a very high potential for renewable energy. Its potential of renewable energy power is by far larger than the current and projected power consumption.⁴⁶ Africa emits the least CO₂, but is one of the regions that is the most vulnerable to the adverse effects of climate change. The challenge to provide access to energy for all Africans offers the opportunity for Africa to leapfrog towards renewable energy systems that avoid carbon emissions. Africa has abundant renewable energy resources. These resources, including local geothermal, solar thermal and bioenergy, can be used to grant access to energy also in rural areas.

The African Renewable Energy Initiative (AREI) is committed to accelerating access to renewable energy in Africa. This Africa-owned initiative is

opment/World Bank et. al., The Energy Progress Report 2020 – Tracking SDG 7 (2020), p. 73.

43 *International Energy Agency*, Africa Energy Outlook 2019. p. 74.

44 *International Bank for Reconstruction and Development/World Bank/International Energy Agency*, Global Tracking Framework 2017, Progress toward Sustainable Energy, Summary (2017), p. 10.; *International Bank for Reconstruction and Development/World Bank et. al.*, The Energy Progress Report 2020 – Tracking SDG 7 (2020), p. 71.

45 *United Nations Economic and Social Council*, Report of the Secretary General: Progress towards the Sustainable Development Goals, E/2019/68, 8. Mai 2019, no. 28.

46 *International Energy Agency*, Africa Energy Outlook 2019. p. 72.

led by the African Union's commission, the New Partnership for Africa's Development (NEPAD)'s Agency, the African Group of Negotiators, the African Development Bank, the UN Environment Program (UNEP) and the International Renewable Energy Agency (IRENA). It aims to achieve at least 10 gigawatts of new and additional renewable energy generation capacity by 2020, and to mobilize 300 gigawatts by 2030.⁴⁷ This would considerably contribute to closing the energy access gap in Africa. The African Renewable Energy Initiative has two over-arching goals. The first goal is to help achieve sustainable development, enhance well-being and sound economic development by ensuring universal access to sufficient amounts of clean, appropriate and affordable energy. The AREI's second goal is to help African countries leapfrog towards renewable energy systems that support their low carbon development strategies while enhancing economic and energy security.⁴⁸ The Initiative aims not only to expand electricity access for households, but also to provide sufficient energy to drive development of the productive sector, thus fostering economic development in the different countries. Thereby, AREI intends to answer the twin challenges for Africa of granting energy access for all and combatting climate change at the same time.

In the energy sector, centralized power plants and transmission grids are the traditional way to grant access to energy. It often takes a long time until large-scale centralized energy projects deliver service. In contrast, decentralised energy based on renewables offers a faster path to energy access for the unelectrified.⁴⁹ Solar home systems and mini-grids provide alternatives, particularly for rural areas. Throughout a diversified ownership system, a larger number of households, communities as well as small and medium-sized enterprises can participate in this process towards sustainable development. The people using these alternatives can become prosumers, who consume as well as produce energy. Small and medium-sized enterprises, municipalities and citizens may set up green energy supply systems. Energy cooperatives can foster this process by creating a diversified ownership system. The overall aim must not only be to ensure the bare minimum requirements of electricity access for households and families, but also to allow for a level of energy access that is sufficient to drive the

47 *African Renewable Energy Initiative (AREI)*, Transforming Africa towards a renewable energy powered future with access for all, Summary (August 2016), p. 3.

48 *African Renewable Energy Initiative (AREI)*, Transforming Africa towards a renewable energy powered future with access for all, Summary (August 2016), p. 4.

49 *Power for All*, Decentralised Renewables: The Fast Track to Universal Energy Access (2016), p. 4.

productive sectors including micro-, small- and medium-sized enterprises.⁵⁰ Renewable energy resources offer the opportunity for Africa to jump directly to people-centred, distributed renewable energy supply systems and to avoid CO₂ emissions at the same time. Through this integrated approach, the Sustainable Development Goals as well as the goals of the Paris Agreement can be reached through the same means.⁵¹

Installing renewable energy generation capacity demands specific investments. In 2020, the European Commission and the High Representative for Foreign Affairs and Security Policy proposed a new strategy for Africa to intensify cooperation between the European Union and the African Union. It aims to maximise the benefits of green transition and to increase substantially environmentally, socially and financially sustainable investments that are resilient to the impacts of climate change.⁵²

For renewable energies, the initial investment costs are comparably high, while the operation costs tend to be low. Therefore, decentralised clean energy projects for Africa need funding as well as a sound legal framework that guarantees investment security.⁵³ Suitable regulatory frameworks can accelerate the diffusion of green energy systems in Africa. In order to harness the continent's renewable energy potential, substantial financial resources from private investors, development finance institutions and multilateral development banks are needed. Good investment conditions, including suitable legal frameworks, are a prerequisite for obtaining these financial resources. The African Renewable Energy Initiative aims to strengthen regulatory and policy frameworks in order to enable investments in renewable energy generation in Africa with a vastly expanded and diversified ownership base.⁵⁴

50 *African Renewable Energy Initiative (AREI)*, Transforming Africa towards a renewable energy powered future with access for all, Summary (August 2016), p. 4.

51 See *German Federal Ministry for Economic Cooperation and Development*, Green people's energy for Africa (2017), p. 8.

52 See *European Commission / High Representative of the Union for Foreign Affairs and Security Policy*, Joint Communication to the European Parliament and the Council: Towards a comprehensive Strategy with Africa, 9.3.2020, JOIN(2020) 4 final.

53 See *German Federal Ministry for Economic Cooperation and Development*, Green people's energy for Africa (2017), p. 5.

54 *African Renewable Energy Initiative (AREI)*, Transforming Africa towards a renewable energy powered future with access for all, Summary (August 2016), p. 9.

V. *Regulatory Indicators for Sustainable Energy (RISE)*

The World Bank estimates that more than a trillion dollars of annual investments are needed to achieve the global energy goals.⁵⁵ One of the fundamental questions in implementing the clean energy goal is how to generate investment in renewable energies. Energy investment is affected by many factors including market size, country risk and financial markets. In addition, one of the core elements needed to create an investment friendly climate is a robust regulatory framework. By providing investment security and mechanisms to build, finance and run the generation of renewable energies, the right set of policies and regulations can contribute to attracting private investment in the energy sector.

One instrument that allows governments to assess if they have a policy and regulatory framework in place to drive progress on clean energy is the “Regulatory Indicators for Sustainable Energy” (RISE) developed by the World Bank. With 27 indicators, RISE covers 133 countries representing 97 percent of the world population.⁵⁶ RISE indicators are one of the results of the “Sustainable Energy for All” initiative (SEforALL) and its knowledge hub. Former UN Secretary-General *Ban Ki-moon* launched this global initiative in 2011 to mobilize action in order to ensure universal access to modern energy services, to double the share of renewable energy in the global energy mix and to double the global rate of improvement in energy efficiency.⁵⁷ Thereby, SEforALL contributes to realizing the goal of access to clean energy for all and supports the Paris Agreement.

RISE classifies countries into strong, middling and weaker performers based on their regulatory framework for energy access, energy efficiency and renewable energy. This classification allows policymakers to benchmark and improve their regulatory frameworks.⁵⁸ The 27 RISE indicators include the existence, scope and the monitoring of officially approved electrification plans, a framework for grid electrification, minigrids and for stand-alone systems, the affordability of electricity for consumers and the

55 *International Bank for Reconstruction and Development/World Bank/International Energy Agency*, Global Tracking Framework 2015, Progress toward Sustainable Energy (2015), p. XIV.

56 See *International Bank for Reconstruction and Development*, RISE - Regulatory Indicators for Sustainable Energy, 2018, p. 5.

57 See *Sustainable Energy for All*, About us, available under: <http://www.se4all.org/about-us> (last accessed: 1 April 2020).

58 *International Bank for Reconstruction and Development*, RISE - Regulatory Indicators for Sustainable Energy, 2018, p. II.

transparency of the generation companies. Furthermore, it evaluates the national energy efficiency planning, the information provided to consumers about electricity usage, possible incentives from electricity rate structures, financing mechanisms for energy efficiency, energy labelling systems and carbon pricing. With a view to renewable energy, RISE monitors the legal framework for renewable energy, the planning for renewable energy expansion, incentives and regulatory support for renewable energy as well as financial and regulatory incentives.

According to RISE assessments, the good news is that there has been a substantial increase in the number of countries adopting advanced policy frameworks in support of sustainable energy. 44 percent have implemented advanced policy frameworks, while 19 percent still have undeveloped policy frameworks in place.⁵⁹ However, in Sub-Saharan Africa, around half of the countries have undeveloped policy frameworks.⁶⁰ This result presents a particular challenge as Africa is the least electrified continent and home to about 600 million people without electricity. In 2015, 70 percent of Africa's least electrified nations – those nations with access rates below 20 percent of the population – had barely begun to establish an investment friendly environment for energy access.⁶¹ Some sub-Saharan countries have rather strong policy frameworks in place and are, correspondingly, atop of the list of strong RISE-performers in their region. In 2017, three countries located in sub-Saharan Africa were among the top ten improvers in RISE since 2010.⁶² Cote d'Ivoire, for example, has made the fastest progress on sustainable energy policies according to the 2018 RISE index.⁶³ However, still too many countries especially in sub-Saharan Africa are lagging substantially behind.⁶⁴ Agenda 2030 promises to leave no one behind. In order to provide access to clean energy to all Africans by 2030, efforts have to be intensified.

59 *International Bank for Reconstruction and Development*, RISE - Regulatory Indicators for Sustainable Energy, 2018, p. 13.

60 *International Bank for Reconstruction and Development*, RISE - Regulatory Indicators for Sustainable Energy, 2018, p. 15.

61 *International Bank for Reconstruction and Development*, RISE 2016, Regulatory Indicators for Sustainable Development, A Global Scoreboard for Policy Makers (2017), p. XVIII.

62 *International Bank for Reconstruction and Development*, RISE - Regulatory Indicators for Sustainable Energy, 2018, p. 19.

63 *International Bank for Reconstruction and Development*, RISE - Regulatory Indicators for Sustainable Energy, 2018, p. 20.

64 *International Bank for Reconstruction and Development*, RISE - Regulatory Indicators for Sustainable Energy, 2018, p. 16.

To implement this, renewable energy generation has to play a major role. It offers the opportunity for Africa to setting up clean energy systems that avoid carbon emissions. It can lead to decentralised energy generation with diversified ownership systems. However, investments in renewables depend on suitable regulatory and policy frameworks for clean energy. One focus of the efforts needed to achieve the goal of clean energy for all should therefore be to strengthen regulatory and policy frameworks to enable investments in renewable energy generation especially in Africa.

VI. Conclusion

The international community is not yet on track to reach the Sustainable Development Goal to grant access to clean energy for all. In some regions of the world, vast improvements have to be made in order to achieve the goal. To tackle this pressing issue and realize the Sustainable Development Goals within the next ten years, investments on scales considerably larger than currently seen must be undertaken. However, and this concerns the African nations more than other regions in the world, money alone will not suffice. Instead, a solid legal framework is needed to warrant investment security, thereby attracting potential investors and giving local communities the ability to run decentralised, self-sufficient mini-grids with diverse ownership systems. Clean energy for all is possible, in dimensions not only satisfying basic needs, but also boosting economic drivers in the world's least developed regions. In order to reach this ambitious goal, the world must continue to recognize the significant role of energy as a key resource for sustainable development.

Securing of Resources as a Valid Reason for Using Force? A Pre-Emptive Defence of the Prohibition on the Use of Force¹

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Abstract

A growing demand for natural resources embedded in current changes of the international order will put pressure on states to secure the future availability of these resources. Some political discourses suggest that states might respond by challenging the foundations of international law. Whereas the UN Charter was *inter alia* aimed at eliminating uses of force for economic reasons, one may observe an ongoing trend of securitization of matters of resource supply resulting into the revival of self-preservation doctrines. The chapter will show that those claims lack a normative foundation in the current framework of the prohibition of the use of force. Instead, international law has sufficient instruments to cope with disputes over access to resources by other means than the use of force. The international community, therefore, must oppose claims that may contribute to normative uncertainties and strengthen already existing instruments of pacific settlement of disputes.

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1 Sincere thanks to the members of the Berlin Potsdam Research Group “The International Rule of Law – Rise or Decline?” for their valuable feedback on this chapter.

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I. Introduction

In its 2010 Global Strategic Trends report, the UK Ministry of Defence forecasted that

“[t]he issue of energy security is one in which governments, and defence organizations, will increasingly have to be engaged if states are to maintain their standards of living, and to ensure adequate supplies of natural resources, at reasonable prices. States who perceive that energy security is impacting on national survival are likely to challenge conventional interpretations on the legality of the use of force. However, the cornerstone of the UN Charter, which prohibits the threat, or use, of force in international relations, will remain firmly in place”.²

In an ambivalent language the report suggests that, in view of a changing security environment, the prohibition on the use of force may undergo interpretative shifts which threaten to affect its normative strength. The general expectation that the prohibition of the use of force, as well as its steering function, will be undermined in years to come is formulated more explicitly in the 2018 Global Strategic Trends report where it is stated that

2 *Development, Concepts and Doctrine Centre*, The DCDC Global Strategic Trends Programme (4th edition 2010), p. 107, available under: https://espas.secure.europarl.europa.eu/orbis/sites/default/files/generated/document/en/GST4_v9_Feb10.pdf (last accessed: 8 August 2020).

“[c]hanges to laws governing the use of force in international relations are [...] expected over the coming decades. [...] The general prohibition on the use of force is almost certain to remain in place, but it may be progressively challenged and narrowed in scope. This could in turn lead to increased tensions and a greater tendency to resort to military action to settle disputes”.³

This assessment written for the purposes of strategic government policies reflects current discussions in academic discourse. While most academic observers hold that, despite certain contestations, the prohibition of the use of force remains unchallenged in its legal validity,⁴ there are indications for an erosion of the prohibition: Different strands of challenges intersect, seriously threatening to undermine the prohibition on the use of force. From a legal perspective, such a process of norm erosion consists of various legally relevant phenomena which reduce the legal effects of a prohibition. For example, restrictive readings of the constitutive elements of a prohibition as well as extensive readings of its exceptions may reduce its scope and thereby its legal effects.⁵

Pertinent cases concern efforts to establish a broad interpretation of the right of self-defence against non-state actors as an exception to the prohibition on the use of force which threatens to swallow the rule. The same applies to new threats resulting from modern technologies and growing dependency on the cyber-space that have the potential to fundamentally change the prohibition of the use of force in general as the 2018 UK report predicts.⁶ Also, more expansive readings of Art. 39 UN Charter will at least

3 *Development, Concepts and Doctrine Centre*, Global Strategic Trends – The Future Starts Today (6th edition, 2018), p. 130, available under: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/771309/Global_Strategic_Trends_-_The_Future_Starts_Today.pdf (last accessed: 8 August 2020).

4 See e.g., *Marxsen*, Violation and confirmation of the law: the intricate effects of the invocation of the law in armed conflict, in: *Journal on the Use of Force and International Law* 5 (2018), p. 8; *Gray*, *International Law and the Use of Force* (4th edition 2018), pp. 26 *et seq.*; *Henderson*, *The Use of Force and International Law* (2018), p. 47.

5 Cf. *Krieger/Liese*, A Metamorphosis of International Law?: Value Changes in the International Legal Order From the Perspectives of Legal and Political Science, in: KFG Working Paper Series 27, Berlin Potsdam Research Group “The International Rule of Law – Rise or Decline?” (2019), p. 12; *Aust/Payandeh*, Praxis und Protest im Völkerrecht: Erosionserscheinungen des völkerrechtlichen Gewaltverbots und die Verantwortung der Bundesrepublik im Syrien-Konflikt, in: *JuristenZeitung* 73 (2018), p. 633 (635 *et seq.*).

6 *Development, Concepts and Doctrine Centre* (fn. 3).

have an indirect impact on Art. 2 (4) UN Charter by potentially opening more and more policy areas to military solutions.

Within the context of global resource allocation and scarcity, another process of erosion of the prohibition of the use of force starts to emerge. Whilst interstate conflicts arguably always had been linked to resources and securing trade, the acquisition of resources had mostly neither been the primary purpose nor been advanced as a legal justification for a conflict. However, the effects of climate change and a rise of global demand for certain resources may render securing natural resources to a primary reason for waging war. For example, UN-Water reports point out that around four billion people already experience severe physical water scarcity at least one month a year and it is projected that by 2050, 3.1 billion people will live under severe water stress.⁷ At the same time, water resources are rarely a domestic good but to a large extent shared among two or more states requiring long-term cooperation.⁸ On the demand side, the expected establishment of “new global players” such as China and India with a fast-growing economy as well as a growing population will increase the need for resources. At the same time, for strategic sources, such as oil, the existence of a peak in supply is controversially debated.⁹

While international law has developed frameworks to manage the scarcity of resources through instruments of bi- or multilateral cooperation and peaceful settlement of disputes, where cooperation seems unlikely, violent disputes over territory and investments may rise. According to the 2020 Conflict Barometer of the Heidelberg Institute for International Conflict Research, resources are among the leading causes for conflicts with a total number of 59 conflicts ranging from low-intensity conflicts to fully-

7 *UN-Water*, The United Nations Water Development Report 2021: Valuing Water (2021), pp. 13, 45.

8 International river basins cover 45.3 percent of the earth’s land surface, affect about 40 percent of the world’s population, and account for approximately 80 percent of global river flows, see *FAO*, Transboundary Waters, available under: <http://www.fao.org/land-water/water/water-management/transboundary-water-management/en/> (last accessed: 8 August 2020).

9 The so called “Hubbert's peak” refers to the point at which this production rate is at its highest with demand for the resource rising, and after this it predicts a drop in correlation to the increased demand. Nevertheless, the trend towards such a peak had been called into question: *DNV GL*, Energy Transition Outlook 2019 – Oil and Gas (2019), p. 35: “The world’s energy landscape is now heading for a peak in oil demand rather than supply.”