

CLIMATE CHANGE

22/2018

What Makes an Ideal Global Stocktake? A Functional Analysis

Discussion Paper

CLIMATE CHANGE 22/2018

Environmental Research of the
Federal Ministry for the
Environment, Nature Conservation
and Nuclear Safety

Project No. (FKZ) 3717181030
first results of an ongoing research project

What Makes an Ideal Global Stocktake? A Functional Analysis

Discussion Paper

by

Lukas Hermwille
Wuppertal Institut für Klima, Umwelt, Energie

Anne Siemons
Öko-Institut, Darmstadt

On behalf of the German Environment Agency

Imprint

Publisher:

Umweltbundesamt
Wörlitzer Platz 1
06844 Dessau-Roßlau
Tel: +49 340-2103-0
Fax: +49 340-2103-2285
info@umweltbundesamt.de
Internet: www.umweltbundesamt.de
 /umweltbundesamt.de
 /umweltbundesamt

Study performed by:

Potsdam Institut für Klimafolgenforschung (PIK) e.V.
Telegraphenberg A 31
14473 Potsdam

Wuppertal Institut für Klima, Umwelt, Energie gGmbH
Döppersberg 19
42103 Wuppertal

Öko-Institut e.V.
Rheinstraße 95
64295 Darmstadt

Study completed in:

August 2018

Edited by:

Section I 2.1 Climate Protection
Juliane Berger

Publication as pdf:

<http://www.umweltbundesamt.de/publikationen>

ISSN 1862-4359

Dessau-Roßlau, September 2018

DISCLAIMER: This Policy Paper is based on the first results of an ongoing research project (project number FKZ 3717181030) financed by the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety and supervised by the German Environment Agency. Subsequent work will further elaborate on the informational and process-related preconditions of the Global Stocktake and develop a methodological toolbox to aggregate the input information in a manner that both aligns with the mandate of the Global Stocktake to assess “collective progress” and meaningfully inform national (and subnational) discourses with a view of enhancing the ambition of the subsequent iteration of NDCs. The responsibility for the content of this publication lies with the authors. Please contact the authors for additional information.

Introduction

The Global Stocktake established in Art. 14 of the Paris Agreement is a key feature of the new international climate governance architecture. The Global Stocktake is a process that establishes a feedback mechanism connecting the short-term, contemporary climate action with the overall long-term targets of the Paris Agreement (Northrop et al. 2018). The purpose of the Global Stocktake is to review the implementation of the Paris Agreement and to “assess the collective progress” towards the collectively agreed goals (UNFCCC 2016b, Art. 14).

The Global Stocktake is particularly important because many hope and believe that the Global Stocktake is THE catalyst that will spur dynamic increase of the level of ambition over time. Still, a huge discrepancy exists between the high ambition expressed in the long-term temperature goal and the current level of ambition of NDCs (UNFCCC 2016a). It is therefore necessary that the level of ambition of NDCs is ramped up considerably in subsequent iterations of the NDC cycle. The Paris Agreement has an in-built “ambition mechanism” or “ratchet mechanism” (Müller and Ngwadla 2016; van Asselt 2016). A key provision of this mechanism is outlined in Art. 4.3 of the Paris Agreement which postulates that “each Party’s successive nationally determined contribution will represent a progression beyond the Party’s then current nationally determined contribution and reflect its highest possible ambition” (UNFCCC 2016b, Art. 4.3).

There are, however, various theories of change for how the Global Stocktake can contribute to this provision, how it could help to foster a virtuous cycle of climate action that leads current insufficient levels of ambition onto a self-reinforcing transformation pathway towards a sustainable and carbon emission free future. While the Global Stocktake is supposed to cover mitigation and adaptation as well as support, the subsequent analysis focuses on the mitigation perspective. A targeted approach is required for each of the elements addressed by the GST.

This Policy Paper sketches out four key functions that the Global Stocktake needs to maximize its catalytic effect and describes the conditions necessary to implement those functions.

The Functions of the Global Stocktake

Pacemaker Function

The first function highlights the role of the Global Stocktake from an institutionalist perspective. The underlying theory of change is that human behaviour is fundamentally structured by institutions that “facilitate the diffusion of new ideas and shape processes of technological innovation” (Schneidewind and Augenstein 2016, 89). In that sense, the Global Stocktake could help to align climate policy-making across various governance levels in order to improve coherence and thereby increase ambition.

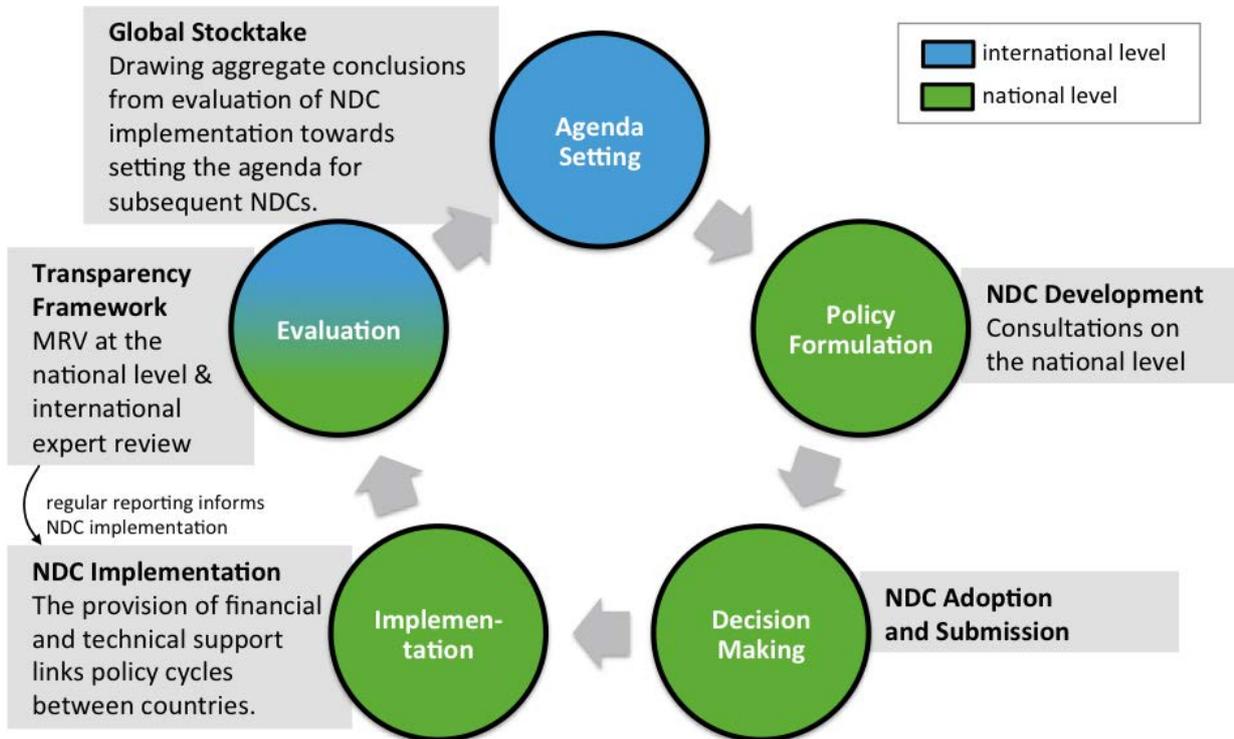
While the Paris Agreement contains relatively few mandatory legal requirements on nation states in terms of “obligations of results”, there are a range of “obligations of conduct”: procedural obligations, particularly with respect to the preparation and communication of Nationally Determined Contributions (NDCs) every five years.

The procedural rules of the Paris Agreement – the 5-yearly cycle of NDC updates, assessment and review of national action and support, as well as the aggregate assessment of implementation in the form of periodical Global Stocktakes – create a “pacemaker” that help to stimulate and synchronize climate policy processes on the national and international level. Essentially, the NDC cycle resembles a prototypical policy cycle (Jann et al. 2007)(see Figure 1 below). But what is the specific role of the Global Stocktake within this policy cycle? A first and obvious contribution is that the Global Stocktake reinforces the periodic 5-yearly rhythm of the Paris Agreement.

While the agenda setting stage of the policy cycle for the initial NDC cycle was essentially accomplished with the COP decision to invite Parties to submit their (intended) NDCs before COP21;

the Global Stocktake bridges the evaluation stage and the agenda setting stage for subsequent NDC cycles. It aggregates the individual country-level evaluations in order to formulate conclusions at the global level. These conclusions in turn will inform and in possibly even co-determine (together with many other factors at the national and international level) the respective national climate policy agendas for the next round of NDCs.

Figure 1 The NDC Cycle as a policy cycle.



Source: own illustration, Wuppertal Institut

So, what is required to enable the Global Stocktake to effectively function as an agenda setting mechanism? First and foremost, this is a question of sequencing. The Global Stocktake is already scheduled and so are some of the other elements, such as the next round of NDCs. However, many elements of the Enhanced Transparency Framework under the Paris Agreement, including the technical expert reviews, are not. The Global Stocktake can only effectively aggregate and conclude on the individual country evaluations if they are available as an input in time!

The second important point relates to the output of the Global Stocktake. If the Global Stocktake is to have a remarkable impact on the national climate policy agendas, the outputs should be formulated in a way that resonates with the national discourse of as many countries as possible. Very general statements and mere calls for urgency will most likely not have a strong impact. It may be necessary to differentiate and formulate specific challenges that, for example, correspond to different stages of development. Whether, and in what form, such a refinement will be possible will be decided at the political level, but as a precondition, data and analyses need to be supplied that actually enable formulation of nuanced policy narratives at the technical level.¹

¹ We would like to highlight that climate change is intricately linked to other global challenges such as sustainable development and rapid urbanization, for which dedicated international bodies and processes exist. To maximize political relevance, it would be beneficial to align as much as possible the Global Stocktake with the review processes of other agendas such as the Sustainable Development Goals and the New Urban Agenda.

Ensuring Accountability

The second function of the Global Stocktake follows from a rationalist perspective that emphasizes climate change as a collective action problem. Change is incremental and market-driven. Prices (whether they are monetary, political, or any other kind) are the drivers of change. Viewed from this perspective, the Global Stocktake is a key tool to hold countries accountable and discipline them to implement their pledged contributions.

As discussed above, the Paris Agreement does not impose any legally binding obligations on its members to achieve their pledged contributions. Instead, Parties are supposed to be disciplined through a mechanism of political accountability: a high degree of transparency paired with the 5-yearly cycle of global stocktakes that creates periodic moments of concentrated public attention is intended to create a political liability for policy makers to actually implement the NDCs (see Obergassel et al. 2015; Obergassel et al. 2016). In other words, “naming and shaming” shall discipline policy makers to adequately implement their NDCs. But what is required in order to make naming and shaming effective and what can the Global Stocktake contribute in this regard?

For the “naming” part a key requirement is actual transparency. Without accurate and sufficiently granular data it is simply impossible to determine whether or not, and to what extent, countries have attained their NDCs. For the “shaming” part, a critical level of public attention is required. The Enhanced Transparency Framework will most likely not be sufficient in this regard. It is unlikely that the mandated technical expert reviews (Art. 13.11 and 13.12) will receive a lot of public attention unless they are somehow highlighted in an international event. Also, the review reports may not be written in a format that is easily accessible for media and the wider public. What is more, Art. 13 is mandated to assess the implementation of NDCs, but it is beyond its mandate to evaluate their respective level of ambition.

This is where the Global Stocktake could make a contribution. By publicly receiving, reviewing and appraising individual country reports, the Global Stocktake could create an echo chamber for the Enhanced Transparency Framework that helps to attract the necessary public attention. Synthesizing the country reports in an accessible manner could further facilitate this.

Unfortunately, the Global Stocktake has a rather narrow mandate in this regard. Art. 14.1 postulates that the Global Stocktake is supposed to assess *collective* progress only. Yet, when one conceptualizes the Global Stocktake as a process, the initial phase of that process would require the receipt and review of the input (country-level information from the Enhanced Transparency Framework as well as other “best available science”).

Enhancing Ambition

Even if accountability is ensured and Parties effectively implement their current NDCs, the next challenge is to provide a leg-up for ambition for the subsequent NDC. This is the third function of the Global Stocktake, which combines aspects of the aforementioned rationalist perspective and a technology-optimist perspective that highlights the role of technological innovation and diffusion.

There are two ways in which the Global Stocktake could support raising ambition in the next round of NDCs. The first follows the logic of climate change as a collective action problem (rationalist perspective). This logic requires the identification and denunciation of free riders. But with the limited mandate of the Global Stocktake to assess “collective” progress only, this may prove challenging to do. What is more, according to Art. 4.3 Parties subsequent NDCs need to “represent a progression beyond the Party’s then current NDC” and reflect its “highest possible ambition”. But, after all, who is going to define what constitutes a progression beyond the current NDC and, even more importantly, how can we determine the highest possible ambition? This is where the Global Stocktake could come in. The

Global Stocktake could implicitly or explicitly determine benchmarks for such ambition.² One benchmark would be to determine what kind of level of ambition is required in the upcoming NDC period, taking into account the achievements and shortfalls of the current NDC period. There is not only a need for a collective benchmark, but also for individual ones. While the latter may prove difficult politically, a middle ground could be a differentiated benchmark. Possible approaches could be to provide benchmarks for regional groups of countries, country groupings based on parameters such as the level of emissions and/or state of development, or sectoral benchmarks (Holz and Ngwadla 2016). These benchmarks could then serve as a yardstick against which to assess the new proposed NDCs. It is not within the mandate of the Global Stocktake to do this assessment, but it could provide the means for others, including national policymakers and civil society organizations, to carry out the work.³

The second aspect corresponds to a techno-optimist perspective. The Global Stocktake could and should facilitate learning and diffusion of good practices – whether this is in terms of the deployment of technological hardware or other forms of (social) innovation (Northrop et al. 2018). This could be achieved by identifying and showcasing particularly ambitious NDCs or aspects of NDCs. This would arguably help to raise the bar of what is commonly perceived as “the highest level of ambition”.

This kind of benchmark leads us to the second important contribution the Global Stocktake could make in order to enhance the ambition of NDCs. The Global Stocktake could become a learning platform that helps to identify synergies and transformative potentials to facilitate sustainable development in broader terms than just focussing on mitigation potentials (Milkoreit and Haapala 2017). Parties may be motivated much more by positive development potentials and synergetic opportunities than by “yet another call for urgency”. In this sense, enhancing ambition could be achieved by creating a mechanism that relies on “pride and fame” over “fear and shame” to motivate Parties to implement their NDCs (Milkoreit & Haapala, 2017, p. 9). To this end, Parties could be invited to voluntarily subject themselves to international review, mirroring the modalities of the voluntary review of the UN High-Level Political Forum (HLPF) for Sustainable Development that assesses progress towards the Sustainable Development Goals.

The ongoing Talanoa Dialogue is set up to spur enhanced ambition in a facilitative manner. Lessons from this process are therefore particularly valuable for this function of the Global Stocktake.

Guidance and Signal

Finally, the Global Stocktake can also play a facilitating role in an idealist theory of change that focuses on ideas and meaning as drivers of change. Ideas and values shape the way we see the future and therefore transformational change requires a fundamental “mindshift” (Göpel 2016). From this perspective, the Global Stocktake serves as a key reference point and as a platform for transformational learning that empowers and enables all kinds of stakeholders.

The international relations literature increasingly recognizes that many international institutions, including the Paris Agreement, assume a guidance and signal function that extends beyond the international level (Falkner 2016; Bodansky 2017; Hermwille et al. 2017; Morseletto et al. 2016). The adoption of strong collective goals and pathways to achieve those goals signals the commitment of governments and can provide orientation to business, investors and other actors operating at all levels of governance. By indicating likely policy trajectories, the signal and direction provided could help align developments across levels of governance and geographical borders towards greater sustainability (Oberthür et al. 2017, 16).

² While an explicit benchmark setting may exceed the mandate of the Global Stocktake, one could imagine the Global Stocktake to recommend that the COP take up a corresponding agenda item or mandate the SBSTA/SBI to prepare it.

³ The research project on which this report is based will at a later stage develop a proposal for such a differentiated benchmark.

The guidance and signal function of the Paris Agreement mainly derives from the purpose of the Paris Agreement (Art. 2) and in particular the long-term temperature goal (Art. 2.1a)⁴, which is further operationalized in the goal to achieve climate neutrality in the second half of the century (Art. 4.1). Together, they provide a clear signal: the age of fossil fuels has to come to an end! This signal can offer strong legitimation for growing civil society movements, for example those against coal power plants, mines, pipelines and other carbon-intensive infrastructure. Yet, for some sectors the signal provided is much clearer than for others. For many sectors, a great deal of ambiguity remains as to what the 2°C limit / 1.5°C goal actually means.

In the light of this discussion, what is the role of the Global Stocktake? First of all, the Global Stocktake is an opportunity to reiterate and reinforce the signal already provided in Paris. The Global Stocktake is an occasion to provide testament whether or not Parties are still committed to the purposes of the Paris Agreement. More importantly, though, the Global Stocktake could further develop and refine the existing signal. First, it needs to assess whether the long-term vision is still adequate and/or feasible in the light of available science.

It would also be helpful if the Global Stocktake considered, collated and institutionalized sectoral visions that spell out sector-specific transformation challenges more clearly. It could assess and/or endorse sectoral visions (e.g. developed by sectoral transnational governance initiatives) and assess barriers and facilitators (e.g. financial and technological support) towards the realization of these visions. Refining the signal provided from the Paris Agreement would not only help guide the next round of NDCs, but could also serve as an updated reference point for all kinds of governance initiatives (incl. non-state and subnational actors). It would provide legitimation and orientation for transnational governance initiatives and thus help "orchestrate" the groundswell of climate action (also see Northrop et al. 2018).

An Ideal Global Stocktake: What is Needed to Exercise the Functions?

The design of the Global Stocktake will crucially impact the extent to which the new process under the UNFCCC negotiations will be able to fulfil the functions outlined above. In the following, the functions are "translated" into assessment criteria that can be used to evaluate different design options for the Global Stocktake. These criteria shall make it possible to assess the extent to which the functions can be considered to be successfully fulfilled when looking at different options for the organisation and implementation of the Global Stocktake. The results are summarized in Table 1 below. For each of the four functions, we ascribe assessment criteria (second column) and define process-related (third column) as well as informational (fourth column) conditions as prerequisites for an ideal Global Stocktake.

⁴ Art. 2.1b and 2.1c add important perspectives to the overall signal of the Paris Agreement. Due to the mitigation focus of this policy paper we have concentrated our treatment on the long-term temperature goal.

Table 1: Assessment criteria and conditions for an ideal Global Stocktake

Function of the Global Stocktake	Assessment Criteria	Conditions for an ideal Global Stocktake	
		Process	Information
Pacemaker function	Availability of inputs to Global Stocktake	▶ Timing of transparency reports and other inputs to the process	▶ Meaningful information needs to be included in transparency reports
	Outputs useful to serve national discourses/planning purposes	▶ Timing of Global Stocktake: needs to happen with sufficient time ahead of setting the next NDCs	Outputs need to <ul style="list-style-type: none"> ▶ Align with national discourses ▶ Contain concrete recommendations ▶ Be public ▶ Be differentiated/detailed
	Authority/legitimacy of outputs	<ul style="list-style-type: none"> ▶ Involvement of national experts and policy makers in preparatory/technical phase ▶ Need high-level endorsement as well as public attention during the political phase of the Global Stocktake 	▶ Outputs should contain a concise summary by/for/of policymakers
Ensuring accountability	Availability of accurate and sufficiently granular data to track progress towards NDCs	▶ Public appraisal of (national) inputs, e.g. in form of synthesis report of national technical reports under Art. 13 by Secretariat	▶ TACC principles: transparency, accuracy, completeness, consistency, comparability of data and information submitted by countries
	Public attention on progress towards meeting NDCs	▶ Inputs to Global Stocktake are publicly considered and discussed in a high-level public event	Summary of national inputs, e.g. in form of synthesis report, including: <ul style="list-style-type: none"> ▶ summary of implementation progress for each country in context of available means of implementation ▶ summary of recommendations for closing potential gaps towards reaching NDCs per Art. 13.12
Enhancing ambition	Definition of benchmarks for ambition	▶ Benchmarks need to be commonly accepted	<ul style="list-style-type: none"> ▶ Benchmarks set by “best available science”/IPCC (e.g. defining emission budgets for individual countries according to equity considerations) ▶ Transparency of NDCs ▶ Benchmarks enabling comparability of ambition between subsequent NDCs
	Promotion of peer-learning among Parties and highlighting positive developments and synergetic opportunities	<ul style="list-style-type: none"> ▶ “Workstream” that enables information sharing at sectoral level ▶ Decision on thematic focus areas for sharing lessons learnt ▶ Voluntary in-depth review for countries that have made good progress 	<ul style="list-style-type: none"> ▶ Best available science on decarbonisation pathways, transformation strategies, etc. ▶ Information on best practice regarding implementation ▶ Solution-oriented outcomes instead of focus on insufficiency of action
Guidance and signal	Reinforcement of the collective goals agreed in Paris	▶ Political endorsement of IPCC reports, restatement of commitment (“creed”) to collective targets	▶ Best available science defining and adapting collective goals and pathways to reach them
	Further development and refinement of existing signal	<ul style="list-style-type: none"> ▶ Processing and endorsement of sectoral transformation pathways ▶ Relating to other international Agendas (SDGs, New Urban Agenda) ▶ Providing a forum for exchange including stakeholders such as transnational governance initiatives (e.g. GCA) 	▶ More clearly spell out sector-specific transformation challenges (input through best available science, TEPs...)

Conclusions and Recommendations

What makes an ideal Global Stocktake? An ideal Global Stocktake is one that facilitates transformational change. There are many theories of change as to how the Global Stocktake can achieve that. In this Policy Paper we have outlined four distinct functions of the Global Stocktake that align with different theories of change. Which of these functions should be prioritised is ultimately a political question. We believe that they are all at play and that the ideal Global Stocktake should serve them equally.

As the negotiations on the modalities and procedures for the Global Stocktake are only slowly evolving, we hope that this Policy Paper can serve to see the Global Stocktake in a new light. It is intended to help policy makers to ask the right questions and start picturing a purposeful design of the Global Stocktake. The analytical framework provided can also serve as a benchmark against which one can assess the emerging modalities and procedures, and which can help to identify gaps and blind spots.

We have also identified a number of key conditions for the Global Stocktake to fully exploit its potential as a motor of transformation (the details are summarized in Table 1 above). An effective Global Stocktake is a process, not an isolated event, and this process needs to meet certain conditions:

- ▶ it needs to be scheduled in a timely manner, so that the informational input is ready when needed and the political output comes in time to be most effective;
- ▶ it needs to publicly appraise the input, particularly the national reports from the Transparency Framework in order to maximise a disciplining effect on Parties;
- ▶ complementarily, it requires a facilitative format in which good practice can be shared, highlighted and processed into relevant country-specific recommendations;
- ▶ and it needs to feature a choreographed high-level political event in order to amplify the messages towards influencing national policy agendas and as a renewed “creed” that Parties are still committed to the Agreement and its goals.

To fulfil these conditions, specific information requirements need to be complied with in order to successfully implement the Global Stocktake process. Essentially, relevant information inputs used in the Global Stocktake need to fulfil three criteria: they need to

- ▶ set benchmarks for collective mitigation action based on best available science;
- ▶ provide transparent information on the state of emissions and the progress of transformation towards a low-carbon economy achieved at country as well as global level;
- ▶ be politically relevant and concrete enough to trigger national enhancement of ambition.

Further research needs to be undertaken to spell out what these information requirements mean in practice and to what extent the required information can be made available in reality. Experience with countries’ provision of information under the current MRV framework under the UNFCCC has shown that not all country reports adhere to the necessary transparency standards and thus, additional information and data sources would be needed in order to implement the Global Stocktake in a successful way.

Indeed, the Global Stocktake can become a motor of transformation. And this is necessary in order for the Paris Agreement to realize its full potential. Yet, it is by no means certain. In the worst case, the Global Stocktake will die away as yet another unheard call for urgency. If negotiators find a way to reconcile the four functions, and effective means to implement them, the Global Stocktake can become the ambition booster that the Paris Agreement requires.”

References

- van Asselt, H., (2016) "International climate change law in a bottom-up world" *Questions of International Law* 26(2016), 5–15.
- Bodansky, D., (2016) "The Legal Character of the Paris Agreement" *Review of European, Comparative & International Environmental Law* 25(2), 142–150.
- Bodansky, D., (2017) "The Paris Climate Change Agreement: A New Hope?" *The American Journal of International Law* 110(2), 288–319.
- Falkner, R., (2016) "The Paris Agreement and the new logic of international climate politics" *International Affairs* 92(5), 1107–1125.
- Göpel, M., (2016) *The Great Mindshift*, Springer International Publishing, Cham.
- Hermwille, L. et al., (2017) "UNFCCC before and after Paris – What's Necessary for an Effective Climate Regime?" *Climate Policy* 17(2), 150–170.
- Holz, C. & Ngwadla, X., (2016) *The Global Stocktake under the Paris Agreement – Opportunities and Challenges*, European Capacity Building Initiative (ecbi). ([http://www.eurocapacity.org/downloads/GST_2016\[1\].pdf](http://www.eurocapacity.org/downloads/GST_2016[1].pdf)) Accessed 15 August 2017.
- Jann, W. et al., (2007) "Theories of the Policy Cycle" in *Handbook of Public Policy Analysis: Theory, Politics, and Methods*. Public Policy and Public Administration. CRC Press | Taylor & Francis, Boca Raton, FL, 43–62.
- Milkoreit, M. & Haapala, K., (2017) *Designing the Global Stocktake: A Global Governance Innovation*, C2ES – Center for Climate and Energy Solutions, Arlington, VA. (<https://www.c2es.org/site/assets/uploads/2017/11/designing-the-global-stocktake-a-global-governance-innovation.pdf>) Accessed 23 January 2018.
- Morseletto, P., Biermann, F. & Pattberg, P., (2016) "Governing by targets: reductio ad unum and evolution of the two-degree climate target" *International Environmental Agreements: Politics, Law and Economics* 17(5), 655–676.
- Müller, B. & Ngwadla, X., (2016) *The Paris Ambition Mechanism – Review and Communication Cycles*, Oxford Climate Policy, European Capacity Building Initiative, Oxford. (http://www.eurocapacity.org/downloads/Ambition_Mechanism_Options_Final.pdf).
- Northrop, E. et al., (2018) *Achieving the Ambition of Paris: Designing the Global Stocktake*, World Resources Institute (WRI), Washington, DC. (<http://www.wri.org/sites/default/files/achieving-ambition-paris-designing-global-stocktake.pdf>).
- Obergassel, W. et al., (2015) "Phoenix from the ashes: an analysis of the Paris Agreement to the United Nations Framework Convention on Climate Change – Part I" *Environmental Law and Management* 27, 243–262.
- Obergassel, W. et al., (2016) "Phoenix from the ashes: an analysis of the Paris Agreement to the United Nations Framework Convention on Climate Change – Part II" *Environmental Law and Management* 28, 3–12.
- Oberthür, S. et al., (2017) *Key concepts, core challenges and governance functions of international climate governance*, COP21 RIPPLES Project (Horizon2020), Brussels. (<https://www.cop21ripples.eu/wp-content/uploads/2017/02/Deliverable-4.1-Ripples-Final2.pdf>) Accessed 23 October 2017.
- Schneidewind, U. & Augenstein, K., (2016) "Three Schools of Transformation Thinking: The Impact of Ideas, Institutions, and Technological Innovation on Transformation Processes" *GAIA - Ecological Perspectives for Science and Society* 25(2), 88–93.
- UNFCCC, (2016a) *Aggregate effect of the intended nationally determined contributions: an update*, United Nations Framework Convention on Climate Change, Bonn. (http://unfccc.int/focus/indc_portal/items/9240.php) Accessed 29 February 2016.
- UNFCCC, (2016b) *Paris Agreement*, United Nations Convention on Climate Change (UNFCCC), Bonn. (http://unfccc.int/files/meetings/paris_nov_2015/application/pdf/paris_agreement_english_.pdf) Accessed 3 March 2016.