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How can the new climate agreement support robust national mitigation targets? - Opportunities up to Paris and beyond

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How can the new climate agreement support robust national mitigation targets? – Opportunities up to Paris and beyond

by

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Executive Summary

The international community is negotiating a new global climate agreement to be applicable from 2020 onwards. Parties aim at signing the agreement in December 2015, at the Conference of Parties (COP) in Paris. Until then, countries are already preparing proposals for their individual contributions, their Intended Nationally Determined Contributions (INDCs). The INDCs will, besides other elements, include mitigation contributions as central elements.

Negotiations under the ADP have advanced and more concrete discussions are taking place, with the objective to finalise the new climate agreement in December 2015. Many Parties and other stakeholders have expressed additional ideas and concrete suggestions on how to design mitigation commitments under the 2015 agreement. Further research has emerged on design options and priorities of individual countries.

This report is a synthesis of the research and re-evaluates the options previously considered in this project (Vieweg et al (2014)) in the light of the negotiation process up to today. The mitigation-related design elements considered are:

- ▶ Participation and differentiation of countries;
- ▶ Types of commitments, including also the compulsory character of the commitments and time aspects;
- ▶ Guidance on ambition of the commitments to assure adequacy of global and individual countries' efforts;
- ▶ Transparency of commitments.

For each of these elements, this report illustrates the current status of the negotiations and explains the implications of the options on the table. It further gives some recommendations on how the elements could be designed in an effective and equitable way.

1.1 Participation

While it is clear that the new agreement will be applicable to all, and that the actions agreed should be guided by the principle of Common But Differentiated Responsibilities and Respective Capabilities (CBDRRC), there are numerous options on the table on how to differentiate between countries. Those options range from complete self-differentiation up to clearly defined country lists, similar to the current Annex I under the UNFCCC. Further, the group affiliation of individual countries can change over time.

Current negotiations under the Ad-hoc Working Group on the Durban Platform (ADP) point towards a system of self-differentiation, with little explicit guidance. We identify two crucial points which should be considered in the discussions:

- ▶ Considering each country's specific circumstances and opportunities when designing the individual elements of the INDC is at least equally relevant as a globally applied top-down approach to differentiation of country groups. Current developments on INDCs show that this is possible and can increase ambition: For example the Dominican Republic aims at contributing with a significant mitigation target in its post-2020 contribution in spite of its status as a developing country (Alvarez, 2014). Other countries focus on sectoral targets, building upon already existing activities on the way.
- ▶ A common end point (level and year) provides guidance on the direction in which the actions should develop. A survey amongst 81 countries shows that more than 60% of countries are considering a long-term mitigation target as a part of their INDC. Assuring that the common end

point is sufficiently ambitious and all countries are given the resources to achieve it can significantly increase the environmental integrity and effectiveness of the agreement.

1.2 Types of mitigation commitments

Mitigation commitment types can be grouped into two main categories: “obligations of result” or “obligations of conduct” (Bodansky 2012). Within these two basic types different sub-types exist. In the climate negotiations under the UNFCCC, there is no consensus regarding which types are preferable, and which country should take on which commitment type.

Developing countries have demanded that industrialised countries should adopt legally binding economy-wide emission reduction targets along the lines of the Kyoto Protocol. Industrialised countries stick to the view that all major economies should be required to adopt economy-wide targets. They have conceded that in case of non-Annex I countries these might initially be intensity-based rather than absolute targets, but over time all countries should aspire to adopting economy-wide absolute targets. The Alliance of Small Islands States (AOSIS) has also stressed the importance of mandatory mitigation contributions for all major economies. By contrast, in particular the Group of Like-Minded Developing Countries (LMDCs) has strongly opposed to include any language on “major economies” or similar categories and also strongly rejected any kind of prescription for the contributions by developing countries. Brazil has tried to strike a balance by submitting a proposal for “concentric differentiation” for the type of commitments.

Further, opinions vary what an adequate time horizon would be for mitigation commitments. The EU, China and others have argued that contributions should have 2030 as the target date, highlighting the need to give long-term certainty to investors and the effort required to prepare contributions. By contrast, AILAC, AOSIS, the LDCs, and the USA have called for five-year cycles in order to prevent a lock-in of low ambition.

This report finds that approaches that combine various options may be the most promising way forward, especially if these balance clarity of the committed outcome and clarity over the intended way of implementation. Real-life examples are provided by some of the Cancún pledges for 2020 from non-Annex I countries such as those of Brazil and China, which combine country-wide emission targets with some sectoral targets, and the EU’s 20-20-20 targets on greenhouse gases, energy efficiency and renewables. Economy-wide emission targets could be set as the floor for ambition and commitments on the implementation of policies could support them, possibly even help in overachieving them. Combining emission targets with other commitment types could also help overcome the deficit of non-emission based approaches regarding environmental clarity: measuring, reporting and verification of these non-emission based commitments could focus on whether they are indeed implemented while the environmental outcome could be assessed in aggregate at the level of the national emission inventory and national projections of emissions.

A multi-dimensional approach combining various types of commitments could also be more failsafe than focusing only on one single approach. A downside of this approach is the increasing complexity to negotiate and evaluate such targets. Nonetheless, countries should at least be encouraged to think about the future climate regime more multi-dimensionally than only in terms of GHG reduction targets. Many of the Cancún pledges from non-Annex I countries are multi-dimensional and the same may be the case for their 2015 contributions. Multi-dimensional contributions can also better link countries’ development and climate objectives than it has been done so far.

Regarding timing aspects, a combined approach seems appropriate to serve the need for short-term action and measurability with the need for a long-term perspective. Such a combined approach could be based on a commitment period approach, with a number of short commitment periods with more and more ambitious targets over time and long-term targets being point in time, for example 2050.

1.3 Guidance on ambition

While countries will come forward with country-driven INDCs, the sum of all commitments may not be sufficient to reach a pathway that is in line with to holder temperature increase the below 2°C. Countries' level of ambition may lag behind what is needed and it will become a crucial task for the international community to find ways to induce countries to increase their ambition so the below 2°C limit can be met.

This challenge can be approached from two sides: Top-down, implying a reference framework on countries prescribing the shares of reduction required of each country, or bottom-up, leaving it up to the country to consider whether it should and could increase its mitigation efforts. Neither of these two approaches alone, however, is appropriate: While a top-down framework is unlikely to be agreed upon by parties, self-differentiation will likely not be appropriate to ensure that a 2°C compatible pathway will be reached.

A compromise could take the form of country-specific (non-binding) recommendations by an independent expert panel on the basis of an agreed reference framework. The framework would be developed over time and endorsed by all countries. It would consist of different elements including an overview of global pathways in line with holding temperature increase below 2°C above preindustrial levels, a breakdown of global ambition levels to national levels, approaches to identify the need for financial transfer for mitigation, and – separately to maintain a manageable level of complexity - for adaptation.

Independently of the question *who* needs to further increase ambition, a question is *how* national ambition can be increased. Two starting points exist: First, an attempt could be made to increase national governmental efforts directly. This could be done by showing ways to implement new climate relevant policies and giving good practice examples. Second, the ambition of commitments on the trans-national level could be increased by strengthening existing or creating new initiatives independent from national government action but that still influence national emissions. Criteria for effective initiatives will need to be developed, to assure they go beyond already existing efforts of the national government. Given the scope of these initiatives, there are potential overlaps with areas targeted by national level policies. Further, the initiatives should go beyond what the participants are doing under a business as usual scenario, and should result in actual emission reductions and not serve merely as a marketing instrument.

Independent of whether increasing ambition will be done on a national or cross/ international level, a number of tools exist that can help increase the ambition level. Those include policy menus illustrating good practice policies (compare (Höhne et al. 2014)), good practice technology benchmarks/menus, and assessments of costs and co-benefits. These elements can help countries and stakeholders to identify adequate mitigation actions and increase ambition.

1.4 Transparency of commitments

Transparency is a crucial principle for the post-2015 agreement. In order to be able to measure progress towards achieving a target in a common, transparent, effective and methodologically comparable way and to assess the adequacy of the overall effort to keep the global temperature increase below 2°C, common definitions, methods, MRV systems and accounting rules for all Parties are essential. Ideally, common accounting rules should be set before countries determine their national contributions. However, this is not achievable in the current negotiations, as countries are to submit their proposed contributions over the course of 2015, while negotiations on specific accounting rules have not started yet. In the absence of such rules, the countries' proposed contributions would need to be defined in a transparent way and be accompanied by sufficient information in order to understand the efforts and to quantify the implied emission reductions.

Transparency is first necessary in the submission of information on the INDC up-front. Sufficient information should be made available to guarantee an unambiguous assessment of the emission level resulting from the target. This may be more or less complex depending on the target type and scope. Second, transparency in the implementation of the commitment is important. Tracking and clearly communicating progress increases trust and makes good practice examples visible.

In addition, accounting rules become necessary: First, rules will be necessary related to the definition of commitments and the assessment of progress towards targets (such as inventory methodologies, the use of metrics to account for the effects of individual GHGs, coverage of gases and sectors, definition target period and definition of the reference which a commitment is accounted against). Second, rules are needed for the accounting of emissions and removals from forests and land use as the inclusion of this sector significantly affects the ambition level of targets. Third, accounting rules will be needed related to carbon markets in order to establish market mechanisms, to keep track of units being traded, and to avoid double-counting and double-claiming of emission reductions.

While the submitted information should grant the understanding and enable Parties to track progress towards targets, it is also clear that the requirements should not become a burden which would prevent Parties from participation. Due to different types of contributions under a future agreement, also accounting rules and MRV requirements will to some extent depend on the type of contributions. Thus, differentiation will depend more on the INDCs chosen than on the Parties submitting them. It will be a considerable challenge to design a MRV framework under the new agreement that provides clear, transparent and comparable information on the individual and global progress when the contribution types can be elected individually.

1.5 Conclusions

While the Paris conference is approaching quickly and countries are already putting forward their INDCs, opportunities for the process to strengthen the robustness of mitigation commitments continue to exist – inside and outside the UNFCCC negotiation process.

Some examples for opportunities found in this report are:

- ▶ Allow for self-differentiation in the type of commitment and level of ambition, but provide independent methodological guidance so that countries better understand mitigation options and how their capability and responsibility relates to that of other countries. Self-differentiation should further be limited through the rule of no backsliding.
- ▶ Establish a common end-point to guarantee long-term adequacy of the commitments, independently of current country circumstances. Gradual convergence to a common level can also be an element of the accounting framework.
- ▶ Create a framework to integrate actions by non-government actors. International Cooperative Initiatives can contribute significantly to mitigation, but should present an effect beyond already on-going national activities to increase ambition.

For all elements considered in this analysis, we find that the balance between self-differentiation and provision of guidance or prescriptiveness is important. On the one hand, countries should identify their nationally appropriate and feasible level of mitigation ambition. The process shows that the examination of national circumstances often reveals opportunities, synergies and co-benefits of mitigation, which can drive ambition and integrate targets in national processes. On the other hand, the goal of holding temperature increase below 2°C above pre-industrial levels needs to be evaluated on a global scale. An assessment of the adequacy of the global effort and of the individual national commitments is thus essential for the environmental integrity of the new climate agreement.

2 Introduction

The international community is negotiating a new global climate agreement to be applicable from 2020. Parties aim at signing the agreement in December 2015, at the Conference of Parties (COP) in Paris. Until then, countries are already preparing proposals for their individual contributions, their Intended Nationally Determined Contributions (INDCs). The INDCs will, besides other elements, include mitigation contributions as central elements.

Negotiations under the ADP have advanced and more concrete discussions are taking place, with the objective to finalise the new climate agreement in December 2015. Many Parties and other stakeholders have expressed additional ideas and concrete suggestions on how to design mitigation commitments under the 2015 agreement. Further research has emerged on design options and priorities of individual countries. On the other hand, negotiations on other areas have stagnated or made options such as an assessment of ambition of individual countries obsolete.

This report is a synthesis of the existing research and re-evaluates the options previously considered in Vieweg et al (2014) in the light of the negotiation process up to today. The mitigation-related design elements considered are:

- ▶ Participation and differentiation of countries: How should countries' circumstances be reflected in the discussions around mitigation responsibilities?
- ▶ Types of commitments: What type of commitments could countries take on? How prescriptive should the international community be in predefining types? How should or could these commitments evolve over time?
- ▶ Guidance on ambition: What processes could be envisioned to assess the ambition of country commitments? What mechanisms could be envisioned to support countries in increasing their ambition to assure adequacy of global and individual countries' efforts?
- ▶ Transparency of commitments: How do commitments need to be presented to ensure they can be fully understood by other parties? What information needs to be included by countries in their submission?

For each of these elements, this report illustrates the current status of the negotiations and explains the implications of the options on the table. It further gives some recommendations of how the elements could be designed in an effective and equitable way.

3 Participation

One of the most fundamental questions of a stable future international agreement on climate change will be on which countries will contribute how and how much to the global effort to combat climate change. While it is clear that the new agreement aims to include commitments from all Parties¹, and that the actions agreed should be guided by the principle of Common But Differentiated Responsibilities and Respective Capabilities (CBDRRC), there are still numerous options on the table on how to differentiate mitigation commitments of countries. This chapter describes options and implications of differentiating between country groups. Other chapters pick up the question on how this differentiation can be reflected in different elements of the countries' INDCs.

A major breakthrough was to agree to embark on a new agreement including commitments for all countries in Durban in 2011, moving away from the former rigid categorisation in Annex I and non-Annex I countries for the period after 2020. While there is a common understanding that responsi-

¹ The commitments can include mitigation and/or adaptation elements.

bilities and capabilities still vary and that this should be reflected in the new agreement, opinions drift apart when speaking about how to operationalise this.

3.1 Options for differentiating efforts

The following paragraphs describe the options currently included in negotiation texts for the new agreement or in submissions of countries. It further explains some potential implications of these options for the overall agreement.

3.1.1 Self-differentiation

One option could be to leave the differentiation up to the countries themselves, where they simply propose self-determined actions. This element is already partially represented in the process to submit “intended nationally determined contributions”, where “countries in a position to do so” are invited to submit their INDCs by March 2015 (UNFCCC 2013), without further guidance of what would put a country in such a position and the content of what countries should submit.

The risk of this approach is that the country-driven proposals might be regarded as unfair by other parties, and that the perception that some are doing too little would introduce a certain instability in the overall agreement. Also, countries may be concerned that they invest more than others. As a result, countries may be cautious with their offers and the risk is high that the common target to hold temperature increase below 2°C would be missed by far. On the other hand, countries are asked to propose INDCs in line with their national circumstances and capabilities. Considering other benefits on the national level may actually lead to more ambitious efforts of less developed countries than implying certain top down standard effort sharing proposals would imply, as for under many traditional approaches that share the mitigation effort in an equitable way, those other benefits are not considered.

Self-differentiation could be complemented by agreeing on minimum general rules for all, e.g. “no-backsliding”, meaning that countries should not reduce the ambition of their efforts in the new agreement compared to current efforts. Switzerland’s submission for example suggests a combination of self-differentiation and guiding elements (Switzerland 2015).

3.1.2 Loosely defined country groups “developing/developed countries” and “least developed countries & small island states”

The draft texts resulting from the COP in Lima in December 2014 mostly differentiated between “developed” and “developing countries” without further explanation or definition of these groups. Further, additional leeway was granted to “Least Developed Countries and Small Island States” (UNFCCC 2015).

Under this option the distinction between developed and developing countries is left ambiguous on purpose. Countries at the border between groups could decide themselves which group they want to belong to – potentially limited by the general idea of avoiding back-sliding. Potentially, this could decrease the ambition of the overall agreement as countries could grade themselves down to avoid stringent actions, on the other hand it puts less emphasis on differentiation, and is thus less of an excuse to lean back for countries which are currently not included in Annex I.

3.1.3 Clearly defined country groupings (e.g. annexes)

Lists of countries have the disadvantage of building a rigid divide between the country groups, which for pre-2020 mitigation commitments has led to continuous conflicts and eventually a very limited scope of the Kyoto Protocol. To prevent such a lock-in, regular or continuous revisions or inclusion by a formula would be essential (compare (Morgan et al. 2014)). A formulaic approach would not define

a list of countries, but a quantitative threshold (e.g. emissions per capita or GDP per capita) that if passed leads to the automatic inclusion in a certain group. The Montreal Protocol uses this approach.

The critical element with lists is to decide who is on which lists. For example, Ethiopia raised the option of differentiating between “Annex I” and “Annex II” countries considering per capita emissions and income. The United States proposed to include a placeholder for an Annex X, determined through emissions and economic trends, and an Annex Y, to be determined through capabilities and evolving economic circumstances. St. Lucia picked up this discussion by suggesting an additional placeholder for an Annex Z including countries which are not part of Annex X nor Y.

3.1.4 Differentiation in the long run

While countries are starting from very different starting points in terms of emission intensity, they will eventually all have to be at a similar level – close to zero net emissions. The recent IPCC report made clear that global emissions CO₂ have to reach zero to stabilize the climate. A global phase out of GHG emissions will be necessary as soon as possible within the second half of this century in order to hold temperature increase below 2° with a likely chance (IPCC 2014). While the path towards this goal and thus the carbon budget can be differentiated by country, the endpoint is similar to all².

In the long term, learning on sustainable technology and practices will have advanced even further than today, so that there will likely be no economic benefits of continuing a high-emission pathway for most countries. Developed countries still have the responsibility to lead the process, by ensuring sufficient finance to developing countries to enable them to reach a low-carbon economy as early as possible, and leading in the support of low carbon technologies to speed up learning processes.

The question is thus if and how countries would progress from a relatively high degree of differentiation to this common end point at some point in the future. One option is to agree on a converging level of ambition from the start (e.g. phase out/100% RE or x t per capita in the long term), which all countries could consider including in their initial INDC submission (see also 5.1.2). Another option would be to increase ambition automatically with increasing development of a country. Chapter 6.2 describes options regarding this aspect in more detail.

3.2 Recommendations

Two recommendations result from the observations above:

1. Considering each country’s specific circumstances and opportunities when designing the individual elements of the INDC is important. A bottom-up view can reveal more mitigation options than a globally applied approach to differentiation might imply for countries with lower capability and responsibility. Detailed analysis can consider country-specific opportunities and other benefits such as air quality, economic development or energy security. Current developments on INDCs show that this is possible and can increase ambition: For example the Dominican Republic is aiming at contributing with a significant mitigation target in its post 2020 contribution in spite of its status as a developing country (Alvarez 2014). Other countries focus on sectoral targets, building upon already existing activities on the way.
2. A common end point (level and year) provides guidance on the direction in which the actions should develop. A survey amongst 81 countries shows that more than 60% of countries are considering a long term mitigation target as a part of their INDC. The share remains the same when only look-

² Some scenarios include “negative emissions”, through e.g. biomass carbon capture and storage that could potentially also in the long-term serve as a carbon sink. With such negative emissions, other regions will still be able to emit GHGs. But these levels are a fraction of today’s emissions.

ing at African countries, including a number of least developed countries (NewClimate Institute 2015). Assuring that the common end point is sufficiently ambitious and all countries are given the resources to achieve it, can significantly increase the environmental integrity and effectiveness of the agreement.

4 Types of commitment, time aspects and prescriptiveness

4.1 Options and implications

4.1.1 Types of commitments and prescriptiveness

Commitment types can be grouped into two main categories: “obligations of result” or “obligations of conduct” (Bodansky 2012). Within these two basic types there are different sub-types:

Result-based Commitments

- ▶ Economy-wide GHG emission limitation/reduction targets (absolute/relative)
- ▶ Sectoral emission limitation/reduction targets (absolute/relative)
- ▶ Targets for intermediate results (e.g. energy intensity of the economy, emission intensity of energy supply, specific technologies)

Conduct-Based Commitments

- ▶ Emission price commitments
- ▶ Technology-oriented agreement(s)
- ▶ Packages of policies and measures
- ▶ Individual actions and projects

In the negotiations, the 2013 Warsaw conference decided that countries should submit their intended nationally determined contributions (INDCs) to the Paris agreement early in 2015, but failed to provide further guidance. The 2014 Lima conference was therefore inter alia tasked with providing guidance on the scope of INDCs. A related issue was whether particular groups of countries should be required to adopt particular types of contributions. Developing countries demanded that industrialised countries should adopt legally binding economy-wide emission reduction targets along the lines of the Kyoto Protocol. Industrialised countries in turn maintained that all major economies should be required to adopt economy-wide targets. They conceded that in case of non-Annex I countries these might initially be intensity-based rather than absolute targets, but over time all countries should aspire to adopting economy-wide absolute targets. The Alliance of Small Islands States (AOSIS) also stressed the importance of mandatory mitigation contributions for all major economies. By contrast, in particular the Group of Like-Minded Developing Countries (LMDCs) strongly opposed including any language on major economies or similar categories and also strongly rejected any kind of prescription for the contributions by developing countries. Brazil tried to find a middle ground by submitting a proposal for “concentric differentiation” for the type of commitments. Brazil envisaged a system of concentric circles, with Annex I countries placed in the middle adopting economy-wide absolute emission targets, and other countries placed in outer circles depending on their respective responsibilities and national capabilities and adopting intensity-based targets, targets defined as a deviation from business as usual, per capita targets, or individual actions (Ott et al. 2015).

In the end no agreement on the scope of mitigation contributions was possible in Lima. In the final decision, the scope is left to the discretion of countries. The only limitation is that a Party’s contribution is supposed to “represent a progression beyond the current undertaking of that Party” (United Nations Framework Convention on Climate Change 2015).

In principle, there is no silver bullet, each approach has its strengths and weaknesses. While emission-based approaches provide environmental clarity, the potential to maximise cost-effectiveness and political flexibility, they are not inherently politically attractive. To the contrary, emission targets are frequently associated with constraining “development space” and posing risks to economic development and employment (Moomaw and Papa 2012). Comparable country-wide emission targets also do not automatically constitute a “level playing field” for internationally competing industries as governments are free to largely or fully exempt these industries from emission reduction obligations (Verbruggen 2011).

The other approaches may be politically more attractive since they might generate less fear of constituting a “cap on development” and many countries have an inherent interest to promote energy efficiency or certain technologies. They may also be more meaningful to domestic audiences because they link more directly to domestic policy debates. Non-emission-based commitment types therefore arguably have better potential to marry development and climate objectives. They would allow a country to develop mitigation contributions within the broader context of national development, energy and environment planning. This would help ensure that development objectives are not jeopardised and at the same time facilitate the mainstreaming of climate objectives, increasing the chances of actual implementation (Dubash and Khosla 2014).

While sustainable development benefits are usually referred to as “co-benefits” in the climate regime, for developing countries they are clearly the main benefits. However, the same arguably holds for the traditional industrialised countries. When looking at climate-related legislation such as the German Renewable Energy Act, it lists four objectives that are to be achieved. And only one of these relates to climate and the environment, the other three are immediate benefits the German legislator hopes to achieve: Reducing the long-term macro-economic cost of energy supply, preserving fossil energy resources and promoting technology development.³

Non-emission based approaches may also have the advantage of disaggregating the task of reducing national emissions into smaller parts that may appear more manageable. However, they would be more difficult to judge in terms of their environmental impact and thus make it more complicated to assess the UNFCCC’s overall progress towards reducing emissions. The difficulty in quantifying the GHG impact of non-GHG-based commitments may also open a venue to countries for weakening their level of ambition.

4.1.2 Time aspects: The need for both short- and long-term perspectives

The timeframe of contributions was another point of contention in Lima. The EU, China and others argued that contributions should have 2030 as the target date, highlighting the need to give long-term certainty to investors and the effort required to prepare contributions. By contrast, AILAC, AOSIS, the LDCs, and the USA called for five-year cycles in order to prevent a lock-in of low ambition. No resolution was possible in Lima and countries are now free to use whatever timeframe they prefer.

Another discussion revolves around whether to adopt a global long-term target or targets. Given the physical processes underlying climate change, the important variable in mitigation is aggregate GHG emissions. Therefore the real long-term global emission trajectory is what finally determines the impact on our climate. However, the Ad-hoc Working Group on Long-term Cooperative Action under the Convention (AWG-LCA) from 2007 to 2012 was unable to agree on a long-term global emission goal.

³ Renewable Energy Law from 25 October 2008 (BGBl. I S. 2074), last changed by Article 5 of the law from 20 December 2012 (BGBl. I S. 2730), online at http://www.gesetze-im-internet.de/eeg_2014/, last accessed 20 January 2015.

In the current discussions, a number of proposals have been made for long-term targets with different metrics, such as:

- ▶ A global phase-out of anthropogenic GHG emissions with net zero emissions by 2050 (Haïtes, Yamin, and Höhne 2013);
- ▶ Phasing out GHG emissions in the second half of the 21st century (Oberthür and Wyns 2014);
- ▶ Reducing CO₂ emissions from fossil fuels to zero worldwide by 2070 at the latest (WBGU 2014);
- ▶ Applying key quantified conclusions of the IPCC regarding the global 2°C trajectory as a directional reference point (GHG emissions reduction of 40%-70% in 2050 relative to 2010) (Spencer et al. 2014);
- ▶ A cumulative emission goal, for example, a limit of one trillion tons, as referenced in the IPCC's Fifth Assessment Report (Bodansky and Diringer 2014).

Long-term and short-term goals serve quite different roles and would need to be structured differently within an ADP agreement. Longer-term goals are essentially aspirational and give a longer-term outlook to both parties and stakeholders about where policy needs to go. Without a long-term perspective there is a risk to focus on short-term activities only, neglecting the need for action in sectors where planning and implementation take a long time, like transport systems and urban structures. Also many activities that are connected to high short-term cost may ultimately become the most cost-effective option in the long-term, which we can see for example in the rapid cost decrease of renewables. Short-term goals provide stricter policy and legal guidance about the scope for national action and flexibility over the defined period of these goals. A further design question is whether targets should relate to an individual point in time as in many Copenhagen pledges or to a period as in the Kyoto Protocol. From the environmental, institutional and cost-effective perspective, a commitment period has several advantages. It allows a relatively clear prediction of aggregate emissions (assuming compliance and adequate accounting) while providing flexibility for countries to compensate individual events that drive emissions up or down. If sufficiently ambitious in scale, it will require policies and measures to be implemented on a permanent or at least multi-year time frame to enable compliance. A point in time target, set for an individual year, could be reached by chance (e.g. economic crises) or through targeted short-term activities. Had for example 2009 been the target year for Kyoto commitments, most countries would have met their target, based on the reduced emissions following the economic crisis.

Regarding the time horizon of commitments, longer time horizons facilitate private sector planning and investment decisions because they provide more long-term investment certainty. However, ambitious long-term targets usually require immediate short-term actions. With a long time horizon for commitments, concrete measures may be postponed and achievements hard to measure. In addition, unexpected events (such as economic turbulence or breakthroughs in science or technology) could render targets with a long time horizon outdated long before the target year (Höhne, Li, and Larkin 2014). One also needs to take into account that studies of the emission pathways consistent with limiting warming to below 2°C or even 1.5°C above pre-industrial levels, taking into account technical and economic feasibility, show clear constraints on emission pathways.

The level of ambition needed for the 2030s is directly related to the national and international action that is undertaken in the decade of the 2020s. If the ADP agreement in 2015 were to lock in insufficient emission commitments until 2030, there is a considerable risk that it could be politically impossible, or at least extremely difficult, to change this outcome. An example of this risk can be seen with the present eight-year European ETS cap, which was set in 2009 at a level for 2020 that today's proves to be overachieved by far due to the unforeseen financial crisis and faster uptake of renewable energy. Still, the target could not be changed, or modified, despite the substantial price drop this created for the European ETS itself (extreme drop in prices).

Short periods, such as five years, would allow subsequent political leaders to increase political ambition in the aftermath and open for the opportunity to modify inadequate agreements adopted in 2015, improve those by the mid-2020s, and hence register for these improvements by the early 2030s. They would also offer the ability to quickly respond to new scientific and technological developments.

Proponents of longer commitment periods suggest that these functions could be fulfilled by complementing a longer-term timeframe such as 2030 with interim reviews in order to strengthen the level of ambition along the way. However, as noted above the experience has so far been that targets are unmoveable once they have been set internationally or nationally.

4.2 Recommendations

Regarding commitment types, approaches that combine the strengths of the various options may be the most promising way forward, especially if these balance clarity of the committed outcome and clarity over the intended way of implementation. Real-life examples are provided by some of the Cancún pledges from non-Annex I countries such as those of Brazil and China, which combine country-wide emission targets with some sectoral targets, and the EU's 20-20-20 targets on greenhouse gases, energy efficiency and renewables. Emission targets could be set as the floor for ambition and commitments on technologies or policies could support them, possibly even overachieving them. Combining emission targets with other commitment types could also help overcome the deficit of non-emission based approaches regarding environmental clarity: measuring, reporting and verification of these non-emission based commitments could focus on whether they are indeed implemented while the environmental outcome could be assessed in aggregate at the level of the national emission inventory.

A multi-dimensional approach combining various types of commitments could also be more failsafe than focusing only on one single approach. Former EU Climate Commissioner Hedegaard opined that, "During the economic crisis we had more than one target and that has helped us a lot. Imagine if we had only had a CO₂ target and the ETS (Emissions Trading System) during this crisis. Would Europe have continued to have such a strong focus on energy efficiency and renewables? I don't believe it." (EurActiv 2013)

However, if all these various dimensions were to be negotiated internationally, negotiation complexity would increase substantially. The ADP process has also shown that it is currently not possible for countries to come to any agreement on the scope of their contributions.

Nonetheless, countries should at least be encouraged to think about the future climate regime more multi-dimensionally than only in terms of GHGs. Many of the Cancún pledges from non-Annex I countries are multi-dimensional and the same may be the case for their 2015 contributions. The climate regime may thus incrementally expand its scope to better marry countries' development and climate objectives than it has done so far.

Regarding timing aspects, a combined approach seems appropriate to serve the need for short-term action and measurability with the need for a long-term perspective. Such a combined approach could be based on a commitment period approach, with a number of short commitment periods with more and more ambitious targets over time and long-term targets being point in time, such as 2050.

5 Guidance on ambition

While countries will come forward with country-driven INDCs, the sum of all commitments will likely not be sufficient to reach a pathway that is in line with holding temperature increase below 2°C. Countries' level of ambition will lag behind what is needed and it will become a crucial task for the international community to find ways to induce countries to increase their ambition so that tempera-

ture increase can be held below 2°C. Below we will discuss in two steps how this could be approached. First, we will discuss how an international framework for ambition could look like. Second, we will discuss what needs to be done to ensure that the level of ambition is continuously updated. The focus of the text is the international framework under the UNFCCC, not on what countries can and should do to assess and enhanced their ambition.

5.1 International framework for ambition

There are two principally different approaches to an ambition framework that form the extremes of what we discuss here. First, a top-down framework could be envisioned that is set a priori (ex-ante) and that is used to compare the commitment levels of countries against. For instance the international community could agree on an effort sharing framework or a combination thereof that clearly provides ranges within which country emission pathways would be considered compatible with a below 2°C pathways. These ranges do not necessarily have to be informed entirely by technical analysis but could also be politically agreed, as long as they ensure that a below 2°C pathway is reached. Within the EU, the Triptych framework was used *as the basis* for the discussion around sharing the targets for the first commitment period of the Kyoto Protocol among EU member states. The targets were agreed in the end entirely politically, though.

The other extreme is to allow complete self-differentiation. Under this approach each country would provide their own reference framework in their submission of the INDC. For instance a country could develop its own effort sharing approach and use it to reason why its commitment is ambitious. This is what can be observed in the development process of some countries: South Africa has started to develop its own reference framework (Kekana 2015). These frameworks would need to be comprehensive in the sense that they do not only need to state what is in line with 2°C for the country itself but also what the corresponding levels of other countries look like. Further, countries would need to explicitly reason why they consider their frameworks appropriate, allowing others to scrutinize it.

Table 1: Comparison of approaches to assessing ambition

Aspect	Top down	Self- differentiation
Integrity of reaching 2°C target	High - as framework can be designed to ensure this	Low – each country may pick and choose their frameworks and the overall ambition level is possibly not be sufficient
Level of agreeability among countries	Low - countries will unlikely be able to agree one single top-down approach	High – each country is able to present own approach

As Table 1 shows, neither of these two approaches alone however is appropriate for the task at hand. While a top-down framework is unlikely to be agreed upon by parties, self-differentiation will likely not be appropriate to ensure that a below 2°C compatible pathway will be reached. Hence a compromise is needed that both ensures that the below 2°C limit can be kept and that it is something that countries can agree to. Below we describe what such a compromise could look like and what aspects need to be considered.

The compromise could take the form of a reference framework in combination with an expert panel. The reference framework would consist of different elements that could be defined by the expert panel. These elements together would ensure that an assessment of 2°C compatibility is possible. Elements that should be included in such a reference framework include:

- ▶ Global 2°C pathways to set overall ambition levels. These should be informed by centrally organized processes, such as the IPCC or the UNEP emissions gap reports. It would bring together the results of all relevant modelling efforts to reach the below 2°C target.
- ▶ Approaches/ frameworks to break down global ambition levels to the national / regional level. These frameworks can be divided into those using “moral obligation” as the basis for determining national emission efforts and those using “technical necessity” (Höhne et al., under review). As a result, one could present ranges of “fair” emission levels per country. Given the large number of approaches existing to identify appropriate national levels, a contribution could be fair but not necessarily compatible with the target of holding temperature increase below 2°C. This is the case if all countries cherry pick those approaches that require the least effort from them. It might therefore make sense to also provide a range for the emission level that is “fair” and “2°C compatible”⁴.
- ▶ Approaches to identify the need for financial transfer for mitigation. This could either be achieved using the approaches for identifying national contributions mentioned above or through separate analysis. Regarding the former approach, frameworks based on “moral obligation” tend to identify emission allowances, whereas frameworks on “technical necessity” tend to identify what needs to be done nationally. The difference between the results of these frameworks for a particular country could indicate how much financial transfer is needed. Furthermore, potential financing channels could be identified, such as carbon markets or bilateral or multilateral grants or loans.
- ▶ Adaptation “burden” each country has to carry and the associated needed financial transfer for adaptation. The degree to which a country has to undertake adaptation actions is largely decoupled from mitigation requirements of the individual country. Given the global nature of the challenge, many countries that have contributed little to climate change will likely have to take on a significant adaptation burden. The difference between the “burden” a country has to carry vs. its relative contribution to the problem and economic capability should be identified to understand what financial transfer is needed for adaptation. The support required for adaptation should be kept separate from the question on how much a country should mitigate, or how much support it should receive for its mitigation actions.

All of the elements mentioned above depend on each other and should be updated as new (scientific) information becomes available.

Currently it is open how contributions could be assessed. A reference framework as proposed here would shed light on this situation and provide for transparency and clarity as it would lay out the full spectrum of possible interpretations for the assessment.

The level of detail of such a framework depends on its use. A first option could be that a centralized assessment of country commitments is regularly undertaken by a group of appointed experts. Such an assessment would then transparently lay out how countries’ commitments relate to the elements described above and how and whether all INDCs add up to 2°C. The independent panel could also make suggestions on how the overall ambition level could be increased, either by inducing individual countries to do more or by suggesting cross-country, regional or subnational actions (see also Section 6.2.).

⁴ For example the Climate Action Tracker differentiates the “fair” range further in “medium” and “sufficient”, where if all countries chose the emission level at the border of the two ratings, we would be on a 2°C compatible scenario (www.climateactiontracker.org)

A second option could be a decentralized assessment undertaken by countries themselves based on a set of principles / rules defined centrally. In this case the reference framework needs to be of a higher degree of robustness. Otherwise there is a great danger that countries interpret the results in a way that is favourable to them but not towards the overall target of holding warming below 2°C. Especially the fact that there are so many ways to define a fair contribution on the country level can cause a major problem if all countries pick and choose. Illustrating fair and 2°C compatible pathways as outlined above can play a major role in ensuring that warming is held below 2°C.

5.2 Spiralling up ambition

Initial commitments put forward by countries in Paris may be insufficient to hold global warming below 2°C. While a reference framework will allow to judge whether countries' INDCs are ambitious or not, it still does not show how ambition can be increased if necessary. In principle there are two levers that could be used to increase the global ambition level: First, an attempt could be made to increase national contributions directly. This could be done by showing ways to implement new climate relevant policies and giving good practice examples. Second, the ambition on an international level could be increased through strengthening existing or new initiatives independent of national government action. Criteria for effective initiatives will need to be developed, to assure they go beyond the original national contribution. On the one hand, given the scope of these initiatives, there are potential overlaps with areas targeted by national level policies. Further, the initiatives should go beyond what the participants are doing under a business as usual scenario, and should result in actual emission reductions and not serve merely as a marketing instrument.

Independent of whether increasing ambition will be done on a national or cross/ international level a number of tools exist that can help increase the ambition level:

- ▶ Policy menus - These present a set or menu of policies that could be implemented by countries. Policies included in such menus could include a fossil fuel tax reforms or the phase out of coal fired power plants (Höhne et al. 2014). Such policy menus have been discussed in Workstream 2 of the ADP. These policy could also be oriented and aligned with a 2 degree pathway (Höhne et al. 2011).
- ▶ Best / good practice benchmarks/ technology menus – These could represent a set of criteria for particular technologies such as quantitative performance benchmarks. For instance one could imagine a set of best practice criteria for the cement industry that provides descriptions of technologies that are especially energy efficient, e.g. in tonnes of CO₂ per tonne of cement.
- ▶ Assessments of cost and co-benefit - Such assessment allows to identify mitigation options that have low mitigation costs and/ or high co-benefits. Such options are often framed as no-regret or co-benefits options and could provide a net economic gain to the country or entity targeted.

With regards to the implementation of these tools, similar to the reference framework, two principal options exist. First of all these tools could be implemented by an expert panel as described above. Technical experts could use tools to provide specific recommendations to countries. With regards to initiatives, such a technical panel could make recommendations on where those could be strengthened or identify areas where new initiatives could be founded. The second option would be that the tools are used by countries or other actors themselves, to identify how they could increase their ambition.

6 Transparency of commitments

Transparency is a crucial principle for the post-2015 agreement. In order to be able to measure progress towards achieving a target in a common transparent, effective and methodologically comparable way and to assess the adequacy of the overall effort to keep the global temperature increase below

2°C, common definitions, methods, MRV systems and accounting rules for all Parties are essential. Ideally, common accounting rules should be set before countries determine their national contributions. However, this is not achievable in the current negotiations, as countries are to submit their proposed contributions over the course of 2015, while negotiations on specific accounting rules have not started yet. In the absence of such rules, the countries' proposed contributions would need to be defined in a transparent way and be accompanied by sufficient information in order to understand the efforts and to quantify the implied emission reductions.

This chapter gives an overview of the discussion around such “up-front information” and of discussions on accounting rules as the main elements of transparency that are important for the post-2015 agreement.⁵

6.1 Up-front information

At the last COP in Lima, Parties had the mandate to identify “the information that Parties will provide when putting forward their contributions”. This information is referred to as up-front or ex-ante information. It is intended to explain the assumptions and methodologies underlying a proposed mitigation contribution to fully understand the commitments in terms of implied emission reductions. Such information is necessary because the contributions are determined nationally by each Party without internationally agreed guidance on what they should look like. Furthermore, the expected variety of different types of contributions generates the need for up-front information in order to make the contributions comparable and to be able to assess global progress with regard to the necessary mitigation effort for holding temperature increase below 2°C. Additionally, up-front information shall enable an assessment of the ambition of a commitment, and whether it is fair when compared against effort-sharing principles as outlined in chapter 6. As no consensus exists with regard to equity and fairness principles in the international negotiations, countries should explain how they regard their commitment to be equitable and fair and which considerations are underlying their national assessments (Dagnet et al. 2014; Herold et al. 2014; Morgan et al. 2013).

Yet, in Lima, Parties were unable to agree on a list of mandatory information requirements that countries have to provide together with their proposed contributions. Thus, the decision agreed in Lima only states that

“the information to be provided by Parties communicating their intended nationally determined contributions, in order to facilitate clarity, transparency and understanding, may include, as appropriate, inter alia, quantifiable information on the reference point (including, as appropriate, a base year), time frames and/or periods for implementation, scope and coverage, planning processes, assumptions and methodological approaches including those for estimating and accounting for anthropogenic greenhouse gas emissions and, as appropriate, removals, and how the Party considers that its intended nationally determined contribution is fair and ambitious, in light of its national circumstances, and how it contributes towards achieving the objective of the Convention as set out in its Article 2”
(paragraph 14, decision 1/CP.20).

This paragraph is very vague and does not oblige Parties to provide the information necessary in order to ensure that their proposed commitments are transparent and quantifiable in terms of implied emission reductions. It thus remains to be seen whether countries will voluntarily define their com-

⁵ Further analyses on transparency requirements and accounting options for the future agreement have been undertaken in the context of the partner research project of UBA “analysis of options for accounting rules of a 2015 climate regime” which is carried out by Öko-Institut, NewClimate Institute and Ecofys (FKZ 3713 42 103).

mitments in a transparent and quantifiable way or whether the concretization of commitments will only happen after the UNFCCC summit in Paris, if at all.

Nevertheless, it is highly recommendable to Parties to provide certain information together with their proposed mitigation commitments as it is not only useful for the international community but also for the country proposing the commitment to fully understand the intended emission reductions and methodological assumptions implied by the intended contribution, and convert the intended contribution into concrete action in the most efficient way. Thus, countries should be encouraged to provide information on several categories: (1) general information to describe the mitigation contribution; (2) additional information relevant for the contribution type chosen; (3) approach to account for emissions and removals from forests and land use; (4) expected use of international market-based mechanisms; (5) background information to understand the ambition of the proposed contribution; (6) background information related to equity and fairness; (7) background information related to finance and support needed (more specific guidance can be found in (Herold et al. 2014)).

Additionally, information should be provided on the intended approach to account for emissions and removals from forest and land use. Emissions and removals from the land use sector can have a considerable impact on total net emissions of countries and accounting modalities have been a subject of continuous debate.

Similarly, a central question for the transparency of commitments is related to the expected use of international market-based mechanism in order to meet the target.

Additionally, background information to understand national circumstances and thus give an indication of the implied ambition of the commitments would be useful to enhance transparency (e.g. information on past trends of GHG emissions and removals, results of sensitivity analyses, trends and projections for population and GDP etc.).

Beyond these general information requirements, individual commitment types should be accompanied by additional information specifically required by the way they are defined. Hence, for commitments relative to a business-as-usual (BAU) scenario, information should be provided that explains the individual elements of the methodology for establishing the scenario (such as starting year, past and projected emission trends consistent with BAU scenario, clarification of whether the projection is fixed or can be adapted, key assumptions used in the projection and information on the methodology etc.). For intensity targets, past and future emission trends as well as past and future trends of the specific index which emissions are compared against (e.g. GDP, population) would be useful as well. For commitments comprising a set of policies and measures, these measures should be explained in detail with regard to e.g. their legal status, the expected emission reductions, and indicators used to measure progress in achieving the intended effects of the measures (Herold et al. 2014).

Certainly, not all Parties may be able to provide all of the above-mentioned information elements if such information has not been relevant in the national process that generated the contribution. Thus, in order to not impose an additional burden on countries, the information should be provided if it has been prepared in the process of defining the commitment on the national level.

6.2 Transparency during the implementation of commitments

Besides the submission of up-front information aiming at transparent contributions, the new agreement needs to establish transparency related to implementation. Regular information from Parties is necessary to track progress towards achieving individual contributions as well as for the assessment of the adequacy of the overall effort. In both areas related information requirements need to be defined.

Given the potential variation of types of INDCs, it will be complex to define the necessary information requirements to be reported and additional information requirements will depend on the choices of

Parties for their INDCs. While the agreement should specify that regular information on the progress with contributions has to be provided, it will not be possible to define these information requirements already in Paris.

For the assessment of the adequacy of the overall effort across all Parties, it is important to have GHG inventories with consistent time series from all Parties based on comparable methods. This information is currently not yet available from all Parties and it is therefore another area in which the new agreement should define requirements to enable the global periodic assessment of progress.

These two areas should be covered by an MRV framework that defines methodologies, metrics, reporting requirements and the way the reported information is considered and reviewed.

Whether the MRV system should be the same or common across all Parties with built-in flexibility or whether there should be clearly different requirements and procedures for monitoring, reporting and review for developing and developed countries, is the most important difference in the current debate on transparency under the ADP.

6.3 Accounting rules

Accounting rules comprise internationally agreed rules to correctly count the achievement of a contribution and to ensure a comparable assessment of emission reductions or accountable mitigation actions of the Parties involved. They specify rules that clearly determine how emission reductions, the contribution of removals or the use of flexible mechanisms are counted towards achieving a specific contribution in an agreed MRV system (e.g. how/to what extent/at what point in time/etc. units from market mechanisms will be used to reach the target). Therefore, they are closely interlinked with the types of mitigation contributions in the new agreement. Assumed accounting rules that define the individual contributions can be specified in the up-front information by countries on an individual basis (e.g. intended accounting for LULUCF to reach the target). Yet, such assumptions should not replace the establishment of common rules for accounting at international level in those areas where such rules are necessary, e.g. for the use of international credits.

In the negotiations under the UNFCCC, current Annex I Parties have argued for common accounting rules for all Parties with inbuilt flexibility to reflect different capacities. Non-Annex I Parties have supported a differentiated system of rules for Annex I and non-Annex I countries. As different commitment types will necessitate different accounting rules, it will be necessary to differentiate the application of accounting rules according to the commitment type chosen.

Accounting rules will be needed for several issues under debate. Firstly, rules will be necessary related to the definition of commitments and the assessment of progress towards targets (such as inventory methodologies, inventory adjustments, the use of metrics to account for the effects of individual GHGs, coverage of gases and sectors, definition of target year(s), target period and target value, definition of the reference which a commitment is accounted against). Secondly, accounting rules are needed for the accounting of emissions and removals from forest and land use as the inclusion of this sector significantly affects the ambition level of targets. Thirdly, accounting rules will be needed related to carbon markets in order to establish market mechanisms, to keep track of units being traded, and to avoid double-counting and double-claiming of emission reductions.

It is essential to make a difference between accounting rules that have substantial impact on the definition of the contribution and the level of efforts implied and other accounting and MRV rules that mainly impact the implementation of commitments but do not change the quantitative commitments as such (e.g. reporting system, rules on how to account for natural disturbances in the land sector). The latter category can be agreed at a later stage between 2015 and 2020. Accounting rules that would substantially change an INDC (e.g. rules related to reference levels or baselines may have such

implications) may not be applied to the first round of targets, but only in subsequent cycles because Parties may not accept that international rules redefine their nationally determined contributions.

For each of the elements of accounting rules listed above, a preferred option for their design has been elaborated in the UBA partner project (FKZ 3713 42 103, see above).

In the current negotiation text which has been agreed at the ADP session in February, various options for different elements of accounting rules are included. Furthermore, proposals for accounting rules are scattered between the mitigation section and the transparency section of the text. Even though it will be challenging to find common ground on the rules to be included in the 2015 agreement, most Parties seem to agree that mitigation accounting rules or overarching accounting principles should be included in the agreement and that mandates to elaborate more detailed accounting rules after Paris should be defined.

7 Conclusions

While the Paris conference is approaching quickly and countries are already putting forward their INDCs, opportunities for the process to strengthen the robustness of mitigation commitments continue to exist – inside and outside the UNFCCC negotiation process.

Some examples for opportunities found in this report are:

- ▶ Allow for self-differentiation in the type of commitment and level of ambition, but provide independent methodological guidance so that countries better understand mitigation options and how their capability and responsibility relates to that of other countries. Self-differentiation should further be limited through the rule of no backsliding.
- ▶ Establish a common end-point to guarantee long-term adequacy of the commitments, independently of current country circumstances. Gradual convergence to a common level can also be an element of the accounting framework.
- ▶ Create a framework to integrate actions by non-government actors. International Cooperative Initiatives can contribute significantly to mitigation, but should present an effect beyond already on-going national activities to increase ambition.

For all elements considered in this analysis, we find that the balance between self-differentiation and provision of guidance or prescriptiveness is important. On the one hand, countries should identify their nationally appropriate and feasible level of mitigation ambition. The process shows that the examination of national circumstances often reveals opportunities, synergies and co-benefits of mitigation, which can drive ambition and integrate targets in national processes. On the other hand, the goal of holding temperature increase below 2°C above pre-industrial levels needs to be evaluated on a global scale. An assessment of the adequacy of the global effort and of the individual national commitments is thus essential for the environmental integrity of the new climate agreement.

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