

Options for Leveraging the SDGs for Increasing Ambition under the UNFCCC

Discussion paper for the
“Interconnections” Conference, Bonn, 12-13 May 2017

*Wolfgang Obergassel, Florian Mersmann, Hanna Wang-Helmreich
Wuppertal Institute for Climate, Environment, Energy*

Contact: wolfgang.obergassel@wupperinst.org

Work in progress – Comments greatly welcomed
Please cite only after consultation with the authors

Abstract

Climate change and sustainable development have so far been rather siloed issues. Many climate policy practitioners have long regard sustainable development impacts of climate action as “co-benefits” that are maybe nice to have but at the end of the day not really important for climate policy. However, there now is increasing recognition that the positive impacts of decreasing fossil fuel use go far beyond reducing GHG emissions.

The question is whether it is possible to get sustainable development out of its “co-benefit” ghetto within the UNFCCC and leverage the momentum generated by the adoption of the SDGs for enhancing climate ambition.

This discussion paper will explore potential entry points under the UNFCCC to create linkages to the SDGs and ideally thereby increase ambition. Initial points of discussion – which may be expanded on as part of the research – are

- multi-dimensional contributions;
- linking preparation of nationally determined contributions and long-term climate strategies under the Paris Agreement with the SDGs;
- drawing on the SDGs to define eligibility criteria for climate finance and for activities under Art. 6 of the Paris Agreement.

1. Intro

Climate change and sustainable development have so far been rather siloed issues. Many climate policy practitioners regard sustainable development impacts of climate action as “co-benefits” that are maybe nice to have but at the end of the day not really important for climate policy. On the other side, climate change is often not taken into account by sectoral policy makers, as evidenced by ongoing planning on coal-based electricity generation or car-based transport infrastructure.

Lately, however, there seems to be some momentum to break up these silos. The recent climate conference in Marrakech saw a large number of side events and other discussions on the interlinkages between climate policy and sustainable development in a broader sense, particularly the process around the Sustainable Development Goals (SDGs). There is increasing recognition that the positive impacts of decreasing fossil fuel use go far beyond reducing greenhouse gas emissions, such as local value creation, reducing energy import bills, and health impacts. Accordingly, the increasingly progressive climate policy stance by countries such as China is strongly motivated by their air pollution problems – with greenhouse gas reductions as a co-benefit .

The SDG 2030 agenda is meant to be interpreted as a unified set of targets, where all Sustainable Development Goals are equally important and should be achieved in unison. From a climate perspective, SDG 13 on climate impacts all other SDGs to some extent, and is itself impacted by the fulfilment of the other goals (the same is, of course, true for the other SDGs as well).

What seems to be missing is a way forward for better linking the agendas in practice. Under the UNFCCC, the question is whether it is possible to get sustainable development out of its “co-benefit” ghetto and leverage the momentum generated by the adoption of the SDGs for enhancing climate ambition.

This article intends to underpin ongoing discussions on linking and multiple benefits from a climate policy perspective. In a first section, we will unpack impacts of climate mitigation measures that go beyond mere greenhouse gas abatement. This can include both positive and negative impacts¹ - mitigation actions can certainly have effects that are far from beneficial to the achievement of other SDGs. The paper discusses main effects of climate mitigation measures on environmental, social and economic development in two sectors, electricity provision and urban transport.

We recognise that this will not be an exhaustive list, as impacts will always depend on context and specific circumstance. However, we believe that identifying a set of typical effects will greatly aid to shape discussions and ultimately decisions on how to design policies and measures in a way that maximises positive and minimises negative effects of greenhouse gas abatement.

¹ Much has been written on positive and negative impacts, and how to classify them in the literature. A very helpful taxonomy on different effects of an activity can be found in Ürge-Vorsatz et al. (2014)

<http://www.annualreviews.org/doi/abs/10.1146/annurev-environ-031312-125456?journalCode=energy>

That topic will dominate the second part of this article: An integrated agenda for climate change mitigation in the context of achieving the Sustainable Development Goals necessitates more integrated design of policies and strategies at the international, and national levels. We will therefore discuss some options under the UNFCCC to create linkages to the SDGs and ideally thereby increase ambition. Initial points of discussion – which may be expanded on as part of the research – are:

- Multi-dimensional contributions;
- Linking preparation of nationally determined contributions and long-term climate strategies under the Paris Agreement with the SDGs;
- Drawing on the SDGs to define eligibility criteria for climate finance and for activities under Art. 6 of the Paris Agreement.

2. Multiple Impacts of mitigation activities on SDGs

2.1. The SDGs at a glance

In 2015, the 194 countries of the United Nations (UN) General Assembly adopted the Sustainable Development Goals (SDGs) at the UN Sustainable Development Summit in New York under the title “Transforming our world: the 2030 Agenda for Sustainable Development”. The SDGs are to ensure “the promotion of an economically, socially and environmentally sustainable future for our planet and for present and future generations” (UNCSD 2012). They consist of the following 17 “Global Goals” with 169 targets between them:

- **Goal 1:** End **poverty** in all its forms everywhere
- **Goal 2:** End **hunger**, achieve food security and improved nutrition and promote sustainable agriculture
- **Goal 3:** Ensure **healthy lives** and promote well-being for all at all ages
- **Goal 4:** Ensure inclusive and equitable quality **education** and promote lifelong learning opportunities for all
- **Goal 5:** Achieve **gender equality** and empower all women and girls
- **Goal 6:** Ensure availability and sustainable management of **water and sanitation** for all
- **Goal 7:** Ensure access to affordable, reliable, sustainable and modern **energy** for all
- **Goal 8:** Promote sustained, inclusive and sustainable economic growth, full and productive **employment** and decent work for all
- **Goal 9:** Build resilient **infrastructure**, promote inclusive and **sustainable industrialization** and foster **innovation**
- **Goal 10:** Reduce **inequality** within and among countries
- **Goal 11:** Make **cities and human settlements** inclusive, safe, resilient and sustainable
- **Goal 12:** Ensure **sustainable consumption and production** patterns
- **Goal 13:** Take urgent action to combat **climate change** and its impacts
- **Goal 14:** Conserve and sustainable use the **oceans**, sea and marine resources for sustainable development
- **Goal 15:** Protect, restore and promote sustainable use of **terrestrial ecosystems**, sustainable manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss
- **Goal 16:** Promote **peaceful** and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels
- **Goal 17:** Revitalize the **global partnership** for sustainable development between governments, the private sector and civil society. Importantly this includes strengthening all means of implementation (capacities, technologies, finance), and improving development finance flows.

These goals form the basis for the 2030 Agenda for Sustainable Development, which is to address urgent global challenges from 2016 to 2030. The SDG framework calls for 15-year strategies that provide national roadmaps and coordinate stakeholders and activities for collective action specific to each SDG goal. Moreover, the 2030 Agenda calls on each government to

- decide how the SDGs should be incorporated into national planning processes, policies and strategies;
- set their own national targets guided by the global level of ambition, but taking into account national circumstances; and
- in the implementation of the Agenda build on existing commitments and be in accordance with international human rights standards for the full benefit of all.

2.2. Multiple impacts of measures in GHG emitting sectors on SDG fulfilment

One of our main premises is that actions to achieve goals can have both positive and negative impacts on each other. Possibilities of fostering the positive and alleviating negative effects will be a core challenge for policymakers at all levels.

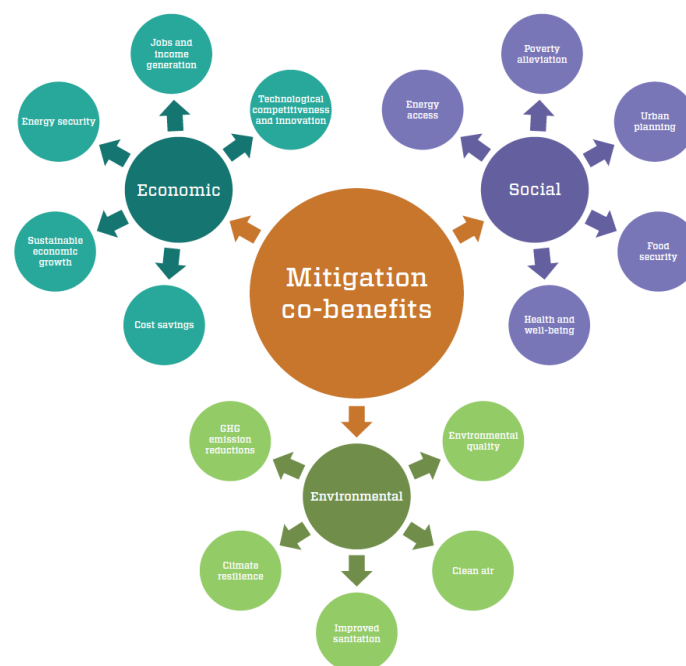


Fig. 1: GHG mitigation actions affects all aspects of sustainable development (Source: United Nations Climate Change Secretariat 2015)

In this chapter, we provide two illustrative examples of how the transition from current, often high-GHG emitting practices towards low-carbon alternatives impacts the fulfilment of the Sustainable Development Goals beyond Goal 13, which itself is concerned with combating climate change. We focus on electricity generation and transport as two of the largest-emitting sectors across the globe.

2.2.1. Electricity Supply

Enshrined in Goal 7 of the SDGs, access to affordable, reliable, sustainable and modern energy for all is a fundamental means for people to a modern lifestyle worldwide. As such, electricity supply directly touches upon many, if not most, aspects of sustainable development, and has at least indirect implications on all SDGs.

Providing sustainable energy for all in the context of mitigating climate change will require energy generation systems that are virtually free of emissions. Nuclear energy has a large set of challenges that make it both undesirable and unlikely as a source of electricity (e.g. unsustainable and dangerous mining for fuel, extremely high build and

maintenance costs, completely unclear waste disposal). Therefore, different sources of renewable energy are the most promising for delivering on the SDGs' energy goal, with differing mixes as appropriate for national and regional circumstances: solar, wind, geothermal, water (both hydro and tidal), and to some extent biomatter energy will have to play primary roles for the generation of the world's electricity.

However, electricity generation through renewable energy does not exist in a developmental vacuum, but does have significant effects, both positive and negative, on the fulfilment of all the SDGs.

Overwhelmingly, research points to positive effects of renewable energies towards making people's lives better in other aspects as well (IPCC 2012; United Nations Climate Change Secretariat 2015; Helgenberger 2015). To illustrate, most renewable energy sources have highly positive effects on human health. Especially respiratory health benefits from renewable energy, as most forms except biomass burning do not emit combustion gases. Perhaps more importantly, deployment of renewable energy, and especially rural electrification, has a number of large benefits to human development: lighting systems create better learning opportunities, electricity is the basis for the provision of modern communication systems that in turn have large economic and social impacts for farmers and local markets, electrical cooking appliances can free up time for women and children that was previously spent on gathering fuel wood while at the same time creating a healthier living environment, just to name a few.

However, implementation of renewable energy projects and programmes can also have detrimental effects on the fulfilment of the SDGs. Time and again, civil society organisations as well as researchers have pointed to violations of human rights of local populations (Oberghassel et al. 2017). Furthermore, especially electricity generation through biomass can come with significant trade-offs, such as displacing agriculture for staple foods such as maize or corn in favour of energy crops for biofuels, leading to dangerous shortages of basic food supplies for the poor. Both biomass-based and geothermal power plants may lead to local water pollution. Some forms of geothermal generation cause chemical pollution as well. And not least, promising spots for geothermal energy generation may be found in protected areas, again creating trade-off situations between biodiversity conservation and electricity generation (IPCC 2012).

The following table takes a more detailed look at a number of positive and/or negative interactions with the other SDGs.

	Positive impacts	Negative impacts
SDG 1: End poverty	job creation (limited) indirect effects: access to modern information services (phone, web) increased productivity through improved lighting and health advantageous energy access for remote rural areas through decentralised, off-grid solutions	Risk that displacement/resettlement due to large-scale projects may deteriorate living conditions
SDG 2: End hunger	Indirect positive effects on nutrition through fulfilment of SDG 1	Potential trade-off with food security: Biomass: competition with food crops for agricultural area

		All large-scale RE solutions require potentially large areas that may compete with agricultural use
SDG 3: Healthy lives	most RE: significant benefits for respiratory health (no combustion)	Biomass: significantly less positive health benefits because of combustion process Less prevalent health detriments Geothermal: hydrogen sulphide emissions (some plants) Hydropower reservoirs: spread of vector-borne diseases Wind turbines: noise pollution, flickering
SDG 4: Education	local specialist training (limited) indirect: potentially strong learning benefits through provision of lighting, enabling children to study in the evenings	
SDG 5: Gender equality	women (and children): increase of time at hand for activities other than gathering fuel for cooking and lighting health benefits (SDG 3) especially significant for women in many cultures	
SDG 6: Water & sanitation	Significantly less water consumption than fossil fuel plants for cooling Therefore also less water pollution Electricity may be used to power water sanitation plants	Large hydro: possibility of negative health effects (vector-borne diseases, SDG 3) Biomass and geothermal: possibilities to locally pollute water off-grid solutions: local and down-stream pollution through "wild" disposal of defective batteries and units
SDG 7: Energy	strong positive effects by enabling rural communities through off/mini-grid solutions	
SDG 8: Employment	specialist training (limited) indirect: access to energy may foster building up local businesses, creating more jobs	loss of employment in local fossil-based industry, e.g. mines, power plants (limited)
SDG 9: Infrastructure, industrialisation, innovation	Potential to "leapfrog" emission-intensive industrialisation processes in developing countries Possibilities for small businesses to make use of local renewable resources instead of relying on (expensive) diesel as fuel	
SDG 10: Reduction of inequality	see SDGs 4, 5, 8	Especially large-scale deployment of RE can lead to displacement of local population and violations of human rights
SDG 11: Cities and	Potential reduction of pollution Potential to switch to carbon-neutral	

human settlements	transportation (see below) Access to information services	
SDG 12 Sustainable consumption and production		Potential trade-offs through competition for area (see also SDG 2) High build-up of RE technologies may lead to scarcities of certain resources (e.g. rare earths)
SDG 13: Combat climate change	Nearly no emissions is a prerequisite for successfully combating climate change	
SDG 14: Protect oceans		
SDG 15: Protect terrestrial ecosystems		Promising areas for RE deployment (e.g. geothermal) can be in protected environments, potentially creating trade-off situations
SDG 16: Promote peace	indirect: RE can help prevent fuel resource conflicts because of their highly localised means of generation independent of globalised economic systems	
SDG 17: Partnerships, means of implementation	RE deployment is a large chance for international cooperation, and can foster learning processes that do not only go North-South, but also South-South, and South-North RE constitute a large field of research that can foster academic cooperation RE can reduce foreign debt in developing countries by alleviating (costly) fossil fuel imports	

Tab. 1: Effects of RE electricity generation on SDGs (Source: own illustration, based on IPCC 2012, Helgenberger 2015, UNFCCC 2015)

2.2.2. Low-Emission Urban Transport

Providing “access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport” by 2030 is one of the targets of goal 11 on making cities and human settlements inclusive, safe, resilient and sustainable. The world's cities keep growing rapidly and will be home to approximately two thirds of the global population by 2050 (UNDESA 2014). Pursuing transport options with the lowest possible emissions therefore has a large bearing on keeping global temperatures below the 1.5°C mark.

Low-emission urban transport strategies commonly follow the "Avoid-Shift-Improve" (A-S-I) approach (c.f. Boehler-Baedeker, Hüging, and Gruber 2011; GIZ 2011, 2012):

- **Avoid** travel or reduce travel-length: Improvements to a transport system's efficiency that minimise the need for and length of travel, e.g. urban planning strategies;

- **Shift** travel to more climate-friendly modes: Heightened trip efficiency through modal shifts towards public and/or non-motorised transport, e.g. bus and rail systems, strategies to foster walking and cycling ("active transport");
- **Improve** the energy efficiency of vehicles and fuels: Improvements to the energy efficiency of vehicles and optimisation of transport infrastructure, e.g. energy efficiency technologies, biofuels, efficient road pavement.

Such strategies for urban transport do not only have positive GHG mitigation effects, but can also support the fulfilment of various other SDGs. These so-called 'co-benefits' may make low-carbon transport options highly attractive for policy-makers. However, they may also affect progress regarding the SDGs negatively.

The following table provides an overview of key positive as well as negative impacts of mitigation options in urban transport on the SDGs. There is a large variety of possibilities in this sector. This reflects in their impacts, i.e. some impacts only result from specific mitigation PAMs in urban transport.

	Positive impacts	Negative impacts
SDG 1: End poverty	Saving consumers money (public transport), improved quality of life, lower energy costs, time savings, public revenue	Land-grabbing (biofuels)
SDG 2: End hunger	Additional / improved income opportunities	Land-grabbing (biofuels), rivalry between food and fuel production and use (biofuels)
SDG 3: Healthy lives	Reduced traffic, increased public health (active transport), less health risks, increased road & public safety, reduced air pollution, reduced noise pollution	
SDG 4: Education		
SDG 5: Gender equality		
SDG 6: Water & sanitation	Reduced traffic (active transport)	Increased water use (biofuels), contamination of waterways with agricultural pollutants (biofuels)
SDG 7: Energy	Improved energy security (e.g. biofuels), less imported fuel (active transport), diversification of energy supply portfolio, lower energy costs, reduced energy use (active transport)	Land-grabbing (biofuels)
SDG 8: Employment	Supporting economic development, additional / improved income opportunities (biofuels), local job value creation, increased private investments, increased job safety	
SDG 9: Infrastructure, industrialisation, innovation	Infrastructure improvements (active transport, public transport), increased private investments	

SDG 10: Reduction of inequality	Saving consumers money (public transport)	
SDG 11: Cities and human settlements	Increased access to mobility, reduced traffic (active transport), reduced parking congestion, creation of more compact communities with shorter travel distances, reduced travel time, improved reliability of travel times, improved network connectivity (public transport)	
SDG 12 Sustainable consumption and production		Monocultures (biofuels)
SDG 13: Combat climate change	Reduced emissions, reduced traffic (active transport)	Increased emissions resulting from increased land use, land use change and deforestation (biofuels)
SDG 14: Conservation of oceans		
SDG 15: Protect terrestrial ecosystems	Reduced traffic, reduced air pollution, less soil degradation (active transport), reduced land use (active transport)	Increased stress on land (biofuels), threat to biodiversity (biofuels)
SDG 16: Promote peace		Increased conflicts over land (biofuels)
SDG 17: Partnerships, means of implementation		

Tab. 2: Effects of low-emission urban transport on SDGs (own illustration)

3. Hooks for Linking the SDGs with the Paris Agreement

3.1. Overview

Sustainable development plays a much stronger role in the Paris Agreement (PA) than it does in the UNFCCC. Whereas the UNFCCC refers to sustainable development only five times, the PA does so fourteen times. In its preamble, the PA emphasises “the intrinsic relationship that climate change actions, responses and impacts have with equitable access to sustainable development and eradication of poverty.” Moreover, according to the Agreement’s Article 2, its objectives are to be achieved “in the context of sustainable development and efforts to eradicate poverty”.

In practice, however, the sustainable development objective has so far usually been treated as a ‘co-benefit’. While “often referred to and argued with, [co-benefits] are rarely measured, quantified, or monetized, and even less frequently do they enter the quantitative decision-making frameworks applied to climate change. They often just remain at the rhetorical or discourse levels, even though their inclusion may substantially influence the outcomes of decision processes” (Ürge-Vorsatz, Herrero, Dubash, and Lecocq, 2014, p. 550).

The following section will discuss three potential hooks for better linking the SDGs with the Paris Agreement:

- Multi-dimensional contributions;
- Preparation of NDCs and Long-term strategies;
- Cooperative mechanisms (Art. 6) and climate finance.

3.2. Multi-Dimensional Contributions

The UNFCCC has so far mostly focused on GHG emission targets. Emission targets are at the core of the Kyoto Protocol, and the Paris Agreement in Article 4.4 encourages developing countries to over time also move towards economy-wide emission targets.

Limiting emissions in such a way creates a scarce resource with the intention to put a price on carbon in order to discourage carbon-intensive and encourage low-carbon investments and practices. However, while this may be a sensible policy, it is not necessarily sensible politics as it inevitably creates distributional conflicts. These conflicts are reflected in policy-makers' frequent statements of concern about overly restricting national access to 'carbon space', which is seen as prerequisite for economic well-being and development. Since historically nearly all economic activity has been associated with GHG emissions, framing commitments/contributions in terms of emission targets triggers a narrative of climate protection as an economic burden and impediment to development. Therefore, political incentives strongly point in the direction of adopting weak rather than strong commitments/contributions, in order to preserve 'development space' (Moomaw and Papa 2012; Hermwille et al. 2017).

The climate regime does need a reference to emissions as it ultimately needs to be measured against the yardstick of whether aggregate global emissions are being reduced. However, the focus on emission targets may limit the ability of policy makers to frame contributions in terms that are compatible with national political discourses. Emission targets should therefore be complemented by other types of contributions that provide better links with national development priorities (Moomaw and Papa 2012; Hermwille et al. 2017).

The SDGs and their sub-targets could provide a blueprint for how to structure climate contributions that address both emission reductions and wider objectives, and could thus mobilise stronger political support. For example, the sub-targets of SDG 7 on affordable and clean energy – to by 2030 increase substantially the share of renewable energy in the global energy mix and to double the global rate of improvement in energy efficiency – could be adopted as part of NDCs.

The nationally determined contributions (NDCs) under the Paris Agreement already indicate some opening in this direction. While the vast majority of NDCs submitted contains only emission targets, 16 of them combine emission targets with other targets, and 18 contain only non-GHG targets and/or actions (WRI 2017). China and India provide two examples that combining several types of contributions may indeed have the potential for enhancing emission reductions. According to the Climate Action Tracker (CAT), the non-fossil energy targets both countries have submitted in their

NDCs imply significantly stronger emission reductions than their emission targets. According to CAT calculations, the emission intensity target would lead to emissions of 14.7–16.5 Gt CO₂-eq. in China's case, and 5.9-6.0 Gt CO₂-eq. in India in 2030, while the non-fossil energy target would lead to only 13.2–13.6 and 5.3-5.5 Gt CO₂-eq. respectively (Climate Action Tracker 2016b, 2016a)

3.3. Preparation of NDCs and Long-Term Strategies

According to PA Article 4.1, Parties aim to achieve net zero GHG emissions by the second half of the century. In addition, Article 4.19 calls on all Parties to formulate “long-term low greenhouse gas emission development strategies”. Steps to achieve the long-term goal are to be taken in the short term: all Parties are to communicate nationally determined contributions (NDCs) every five year.

The PA thus embodies short-term and long-term perspectives for action, which should be integrated with each other. Near-term action is crucial to halt and reverse the growth of global GHG emissions. At the same time, all action should start from the perspective of the end goal: net zero emissions. A long-term perspective is particularly relevant for long-lived infrastructure, such as power plants, buildings and transport infrastructure. Once in place, such infrastructure strongly predetermines emissions for decades. Short-term NDCs should therefore be based on long-term planning for achieving zero emissions.

Under the SDG framework, as noted above, countries are called on to develop 15-year strategies that provide national roadmaps and coordinate stakeholders and activities for collective action. Parties could therefore explore whether there is room to create synergies between the preparation and implementation of NDCs and long-term climate strategies on the one hand and the 15-year strategies to implement the SDGs on the other.

3.4. Cooperative Mechanisms (Paris Article 6) and Climate Finance

The Paris Agreement contains various avenues for cooperation and provision of support from richer to poorer countries. Article 9 commits developed countries to provide financial resources to assist developing countries regarding adaptation and mitigation, re-iterating an obligation already contained in the UNFCCC. In addition, Article 6 establishes three new approaches for cooperation, “cooperative approaches” involving the transfer of mitigation outcomes (Article 6.2), a “mechanism to contribute to the mitigation of greenhouse gas emissions and support sustainable development” (Article 6.4) and a “framework for non-market approaches to sustainable development (Article 6.9). According to Article 6.1, all three approaches have the objectives “to allow for higher ambition in their mitigation and adaptation actions and to promote sustainable development and environmental integrity.”

The new approaches under Article 6 partly build on the Kyoto Protocol's Clean Development Mechanism (CDM), which similarly has the twin goal to promote mitigation and sustainable development. However, operationalizing this twin mandate at the international level has not been possible due to insistence by many developing countries that sustainable development issues are a national prerogative. The assessment of whether CDM activities contribute to sustainable development has therefore completely been left to host countries. Research has concluded that most host countries have rather general lists of non-binding guidelines instead of clear criteria and

do not thoroughly investigate CDM activities. Furthermore, stakeholder consultations are often deficient (e.g. Holm Olsen 2007; Sterk et al. 2009; Phillips and Newell 2013).

The adoption of the Sustainable Development Goals (SDGs) by the United Nations in 2015 may offer better prospects for Art. 6 (Dransfeld et al. 2017). The SDGs may be seen as a universal definition of sustainable development that could be used for assessing activities under Art. 6. In addition, the voluntary carbon market has generated substantial learning on how to best strike a balance between having a meaningful assessment and limiting transaction costs. The CDM Executive Board developed a voluntary tool for assessing SD benefits and the Gold Standard has in the meantime aligned its standard with the SDGs. These and other initiatives would be a useful starting point for developing an SDG assessment approach for Art. 6 (Olsen, Arens, and Mersmann 2017).

In contrast to the new mechanisms under Article 6, the provision of public climate finance does not have an explicit mandate to promote sustainable development. Nonetheless, as noted above, the PA's objectives are to be achieved "in the context of sustainable development and efforts to eradicate poverty". In addition, according to Article 9.4, the provision of financial resources is to take into account "country-driven strategies, and the priorities and needs of developing country Parties".

Public climate finance should therefore strive for a synergistic approach, integrating emission reductions and achievement of other SDGs. Concrete standards could probably be the same as those that could be developed to promote the sustainable development mandate of Art. 6. Essential questions are in any case:

- To what extent does the project contribute positively to the achievement of SDGs?
- Are there risks that the project may have negative impacts on SDGs?
- What preventive measures are being envisaged by the project to avoid, minimise or compensate for such negative impacts?

References

- Boehler-Baedeker, Susanne, Hanna Hüging, and Robert Gruber. 2011. "Navigating towards Efficient Urban Transport: A Compilation of Actor Oriented Policies and Measures for Developing and Emerging Countries." In *ECEEE 2011 SUMMER STUDY. Energy Efficiency First : The Foundation of a Low-Carbon Society .*, 917–25. Stockholm: ECEEE.
- Climate Action Tracker. 2016a. "China - Climate Action Tracker." November 2. <http://climateactiontracker.org/countries/china.html>.
- . 2016b. "India - Climate Action Tracker." November 2. <http://climateactiontracker.org/countries/india.html>.
- Dransfeld, Björn, Stefan Wehner, Tanushree Bagh, Patrick Bürgi, Ingo Puhl, Madlaina Zegg, Valentin Friedmann, Stephan Hoch, Matthias Honegger, and Axel Michaelowa. 2017. "SD-Benefits in Future Market Mechanisms under the UNFCCC." *Climate Change* 04/2017. Dessau-Roßlau: Umweltbundesamt. <http://www.umweltbundesamt.de/en/publikationen/sd-benefits-in-future-market-mechanisms-under-the>.
- GIZ. 2011. "Factsheet: Sustainable Urban Transport: Avoid-Shift-Improve (A-S-I)." Gesellschaft für Internationale Zusammenarbeit. <http://www.sutp.org/index.php/further-downloads/category/125-english-factsheets?download=565:factsheet-sustainable-urban-transport-avoid-shift-improve-a-s-i>.
- . 2012. "Navigating Transport NAMAs - Practical Handbook for the Design and Implementation of Nationally Appropriate Mitigation Actions (NAMAs) in the Transport Sector." Eschborn: Deutsche Gesellschaft für internationale Zusammenarbeit (GIZ). <http://www.transferproject.org/index.php/hb>.
- Helgenberger, Sebastian. 2015. "Mobilizing the Co-Benefits of Renewable Energies Lessons to Be Learned from Germany and China." IASS Potsdam. http://www.iass-potsdam.de/sites/default/files/files/iae-iass_cobenefits_helgenberger_160924.pdf.
- Hermwille, Lukas, Wolfgang Obergassel, Hermann E. Ott, and Christiane Beuermann. 2017. "UNFCCC before and after Paris – What's Necessary for an Effective Climate Regime?" *Climate Policy* 17 (2): 150–70. doi:10.1080/14693062.2015.1115231.
- Holm Olsen, Karen. 2007. "The Clean Development Mechanism's Contribution to Sustainable Development: A Review of the Literature." *Climatic Change*.
- IPCC. 2012. "Renewable Energy in the Context of Sustainable Development." In *Special Report: Renewable Energy Sources and Climate Change Mitigation*, 707–89. Cambridge: Cambridge University Press. <http://www.cro3.org/cgi/doi/10.5860/CHOICE.49-6309>.
- Moomaw, William, and Mihaela Papa. 2012. "Creating a Mutual Gains Climate Regime through Universal Clean Energy Services." *Climate Policy* 12 (4): 505–520.
- Obergassel, Wolfgang, Lauri Peterson, Florian Mersmann, Jeanette Schade, Jane Alice Hofbauer, and Monika Mayrhofer. 2017. "Human Rights and the Clean Development Mechanism: Lessons Learned from Three Case Studies." *Journal of Human Rights and the Environment* 8 (1): 51–71. doi:10.4337/jhre.2017.01.03.
- Olsen, Karen Holm, Christof Arens, and Florian Mersmann. 2017. "Learning from CDM SD Tool Experience for Article 6.4 of the Paris Agreement." *Climate Policy* 0 (0): 1–13. doi:10.1080/14693062.2016.1277686.
- Phillips, Jon, and Peter Newell. 2013. "The Governance of Clean Energy in India: The Clean Development Mechanism (CDM) and Domestic Energy Politics." *Energy Policy* 59 (August): 654–62. doi:10.1016/j.enpol.2013.04.019.
- Sterk, Wolfgang, Frederic Rudolph, Christof Arens, Urda Eichhorst, Dagmar Kiyar, Hanna

Wang-Helmreich, and Magdalene Swiderski. 2009. "Further Development of the Project-Based Mechanisms in a Post-2012 Regime." Final Report. Wuppertal/Berlin: Wuppertal Institute for Climate, Environment and Energy. http://www.jiko-bmu.de/basisinformationen/initiativen_bundesregierung/doc/891.php.

UNCSD. 2012. "The Future We Want. Outcome Document of the United Nations Conference on Sustainable Development, Rio de Janeiro, Brazil, 20-22 June 2012." <https://sustainabledevelopment.un.org/content/documents/733FutureWeWant.pdf>.

United Nations Climate Change Secretariat. 2015. *Climate Action Now: Summary for Policymakers 2015*. <http://climateaction2020.unfccc.int/media/1173/21789-spm-unfccc-lowres.pdf>.

Ürge-Vorsatz, Diana, Sergio Tirado Herrero, Navroz K. Dubash, and Franck Lecocq. 2014. "Measuring the Co-Benefits of Climate Change Mitigation." *Annual Review of Environment and Resources* 39 (1): 549–582. doi:10.1146/annurev-environ-031312-125456.

WRI. 2017. "CAIT Paris Contributions Map – Explore Intended Nationally Determined Contributions (INDCs) Indonesia." *CAIT WRI - World Resources Institute*. <http://cait.wri.org/indc/#/map>.

n.d.