Abstract

Finalized in 2015, the Paris Agreement and the United Nations 2030 Agenda for Sustainable Development both represent universally approved policy visions that signal a paradigm shift: from a "top-down" approach of set, international mandates to a "bottom-up", country-driven implementation process. Limited interaction between the processes of the two agendas at both global and national levels, however, threatens to impede effective implementation. Furthermore, aggregate analyses are lacking to enhance understanding of potential overlaps, gaps and conflicts between the two agreement's key implementation instruments: the Nationally Determined Contributions (NDCs) and the Sustainable Development Goals (SDGs). Such analyses are essential to increase policy coherence of plans and strategies, and to improve effectiveness of implementation of the two agendas. This paper aims to fill this gap. It provides a global analysis that explores how the climate actions contained in countries' NDCs connect to the 17 SDGs. The paper, which builds on the findings of the NDC-SDG Connections tool, demonstrates that NDC actions to various extents foster synergies with national development priorities that reflect the 2030 Agenda. The research further reveals those sustainable development-related issues that are directly addressed through climate action, and those issues that are currently absent from NDC activities. The paper demonstrates that the actions outlined in the NDCs to various extents foster synergies with national development priorities that reflect the 2030 Agenda. We find that a large number of climate activities support, for example, SDG 7 (affordable and clean energy), SDG 15 (life on land) and SDG 2 (zero hunger), but that significant gaps exist in relation to SDGs such as SDG 5 (gender equality), SDG 1 (no poverty) and SDG 16 (peace and justice). Increasing the transparency and understanding of these possible connections, gaps and conflicts can facilitate policy coherence and leverage buy-in for ambitious implementation of the two agendas.

1. Introduction

In light of the multiple overlaps, the assessed NDCs can be regarded not only as climate plans but also as de facto sustainable development plans because they include many priorities that reflect the 2030 Agenda.

The Paris Agreement and 2030 Agenda both represent internationally agreed, universal visions. Their implementation is based on a "bottom-up" process, meaning that countries identify and subsequently act and report on their own priorities, needs and ambitions (Mbeva and Pauw 2016; Carraro 2016). This paradigm shift towards governance by goals, targets and contributions set by individual countries, as opposed to a "top-down" approach of set international mandates has created a debate in academia as well as in policy-making circles about how to coherently implement both agendas (Biermann et al. 2017, Bouyé et al. 2018, Janteschek et al. 2019; Roy et al. 2018). Horizontal policy coherence thus represents a key challenge. How can national climate policy be truly ambitious over the medium and long terms while also cohering with other important policy targets and objectives adopted by a government? At present, two processes are taking place in parallel with limited, if any, communication on the interfaces between them (UNDP 2017). Policy agendas are being set through two distinct channels: 1) National Sustainable Development Strategies (NSDS's) intended to achieve the Sustainable Development Goals (SDGs) of the 2030 Agenda, and 2) the Nationally Determined Contributions (NDCs) intended to achieve the aims of the Paris Agreement

This situation raises issues related to the crafting and implementing of policies that can achieve the ambitious objectives of sustainability and climate change missions. These aims require knowledge about thematic alignments and potential goal conflicts, not only within but also between the two agendas (Lyer et al. 2018; Von Stechow et al. 2015). For example, can energy access for all be secured without relying on fossil fuels? Can climate adaptation be pursued in an inclusive way in unequal societies? Research on both the conceptual and empirical connections between the two agendas is emerging (see e.g. Pahuja and Raj 2017; UNFCCC 2017; Iacobuta et al. 2018; Huang 2018; GIZ 2018; Nguyen et al. 2018; Janteschek et al. 2019; Northrop et al. 2016). However, aggregate analysis is lacking to enhance understanding of overlaps and gaps between NDCs and SDGs that can increase policy coherence of plans and strategies, and to improve effectiveness of the implementation of both the Paris Agreement and the Agenda 2030. This paper aims to fill this gap.

It provides a global analysis of countries' NDCs, and explores how climate actions connect with the broader sustainable development agenda. The paper uses NDC-SDG Connections,[1] an interactive online tool that highlights thematic contributions of NDCs to the 2030 Agenda (Brandi et al. 2017), and reveals areas related to sustainable development that are not included in countries' climate action plans.

Section 2 of this study explores the two historical processes that led to the Paris Agreement and the 2030 Agenda. Section 3 discusses our methodology. Section 4 presents the results of the analysis of possible NDC-SDG connections, and differentiates SDGs according to whether they have high, medium or low levels of connections with climate action. This section shows which climate actions are most relevant to the broader sustainability agenda, and it identifies themes that should be made more complementary to climate action through more adequately designed NSDS's. Section 5 then discusses the ways forward to meaningfully align the thematic implementation of both agendas (the 2030 Agenda and the Paris Agreement). Section 6 concludes by setting out next steps for research and analysis.

2. Connecting two separate global processes through coherent national implementation

2.1 The Paris Agreement and the Agenda 2030

In 2013, the Parties to the UN Framework Convention on Climate Change (UNFCCC) decided that each member state would submit a national climate plan, so called Intended Nationally Determined Contributions (INDCs), as the core mechanism for increasing climate ambition. This decision, representing a shift from the Kyoto Protocol process, created a bottom-up approach for the Paris Agreement. Countries are free to determine their own climate targets and instruments, expressed in nationally determined contributions (NDCs). Once a country ratifies the Paris Agreement, its INDC converts into an NDC. Many countries have already formally joined the Paris Agreement and converted their INDCs to NDCs, while a few countries have chosen to revise their INDC in the conversion process.[2] Under the provisions of the Paris Agreement, each country submits an updated every five years, with the aim of ratcheting up ambition compared with the previous NDC.[3] The success of the Paris Agreement can be attributed to – and will depend on – these strategic documents. While initially intended to be documents outlining commitments to greenhouse gas reduction, the 165 submitted NDCs representing 192 Parties go far beyond the proposal to reduce emissions to mitigate climate change; they also mention numerous adaptation measures as well as other activities that promote sustainable development (Pauw et al. 2016).

The 2030 Agenda encompasses 17 SDGs (Figure 1), 169 targets and a declaration text articulating the principles of integration, universality, transformation and a global partnership. The agenda came into being through a unique global process of an open working group, which jointly developed the 17 SDGs that were subsequently agreed on by all UN member states (Beisheim 2015). The SDGs include the social, environmental and economic dimensions of development. They aim to provide a social foundation for humanity while ensuring that human development takes place within earth's biophysical boundaries (Rockström 2009). At national levels, implementation of the 2030 Agenda varies from country to country, and is based on national needs and ambitions. At the international level, the High-Level Political Forum (HLPF) meets annually under the auspices of the UN Economic and Social Council (ECOSOC) to discuss Voluntary National Reviews (VNRs) as part of the official follow-up and review mechanism of the 2030 Agenda (Beisheim 2018). However, individual countries are left to set-up an institutional architecture for implementing the SDGs at national and subnational levels through National Sustainable Development Strategies (NSDS's)[4]. Countries can also work in partnership with other countries to learn from each other's experiences on challenges in implementation.

1 http://ndc-sdg.info/
2 http://unfccc.int/focus/ndc_registry/items/9433.php
3 From here on, for consistency, we only use the term "NDC".
4 Subsequently, we use the abbreviation "NSDS's" to encompass all types of national and subnational strategies to implement the SDGs.

Figure 1: The 17 Sustainable Development Goals

Source: United Nations

The Paris Agreement and the 2030 Agenda rest on an architecture which can be described as "hybrid multilateralism" as it splices together state and non-state actions both in the state-defined contributions to the agreements as well as in the efforts initiated by UN organizations to orchestrate actions to reach the goals of the agreements (Bäckstrand et al. 2017). Their implementation is based on countries identifying, and subsequently acting and reporting on their own priorities, while non-state actors are formally expected to participate in overseeing and facilitating the implementation (Bäckstrand et al. 2017). However, different institutional, policy and administrative processes, different actors, and different datasets have been utilized to translate the global commitments of the 2030 Agenda and the Paris Agreement into national frameworks, institutions and actions (UNDP 2017). There is institutional fragmentation (Biermann et al. 2017) in the governance of climate change and sustainable development (Gupta and van der Grijp 2010), both at the global and the national level that impose an extra obstacle to coherent implementation processes.

To increase coherence in the implementation of these two agendas, more knowledge is needed, both at the global level and in national contexts. One approach to this end is to investigate the links between the NDCs and the SDGs. While NDCs are primarily a mechanism for climate action, many countries have used them to indicate other priorities and ambitions for sustainable development (Pauw et al. 2016). Individual NDCs are very different in scope and content to SDGs, and the SDGs were still being negotiated when countries were developing their NDCs; thus, the thematic areas through which NDCs address various SDGs are not clearly indicated, and further analysis is needed.

2.2 Connecting the two agendas through policy coherence

Understanding the connections between climate change and sustainable development is a first step needed to foster coherency of implementation of both agendas. The concept of policy coherence is commonly defined as matching of policies, processes and institutions at all government and governance levels to avoid contradictions and goal conflicts in policy making. Policy coherence in sustainable development addresses the systematic integration of policies, processes and institutions towards coherent implementation of sustainable development (OECD, 2018: 83; OECD 2001; ICSU 2017). Its importance is reflected in SDG 17.14 (enhance policy coherence for sustainable development), making it a key objective of the 2030 Agenda.

Policy coherence means that the combined policies addressing an area are compatible, mutually reinforcing or even synergistic, while incoherence means that they are conflicting or contradictory (May et al. 2006). For example, in the case of energy, policy coherence is a useful concept for understanding to what extent energy policy goals and other policy goals (economic, environmental, social) mutually support or undermine one another (Meuleman 2019; Tosun et al. 2017). Policies promoting electrification in rural areas (as one type of energy policy) can also help to improve rural infrastructure and therefore help to further SDG 4 that calls for inclusive and equitable education. On the other hand, if electrification is achieved through scaling-up of fossil fuels, trade-offs can arise with other goals or targets. Thus, evaluation of policy measures related to energy systems would need to consider their effects both on SDG 7 (affordable and clean energy) as well as on sustainable development more broadly (McCollum et al. 2018).

There have been calls to expose and mediate goal conflicts at an early stage for coherent implementation within political and socio-economic contexts in the short and long terms, at all levels of implementation, and across regions (OECD 2016; Kanter et al. 2016). For example, the use of biofuels for energy production would likely reduce greenhouse gas emissions, but could also negatively affect food prices through competition over land resources used for food production. Biofuels could harm ecosystems and biodiversity through increased expansion of monocultures. Biofuels would also likely affect soil and water through use of fertilizers and pesticides if these risks are not adequately addressed in the policy design (see e.g. Hasegawa et al. 2018; Bonsch et al. 2016). Thus, in this case, progress towards achieving SDG 7 could negatively harm progress towards achieving SDGs 2 (end hunger/promote sustainable agriculture), 6 (clean water and sanitation) and 15 (life on land/restore and protect ecosystems).

Analysing the potential impact of NDCs on SDGs allows insights into overlaps and gaps between the implementation of the Paris Agreement and the 2030 Agenda. This relationship is difficult to trace, however, because trade-offs are most often not mentioned in policy documents, and they are not formulated as direct actions. For a coherent implementation of the two agendas, adequate methods to identify trade-offs need to be developed, and an improved understanding of such interactions is required to manage potential goal conflicts and inconsistencies among economic, social and environmental policy objectives.

3. Methodology

At present, two processes are taking place in parallel with limited, if any, communication on the interfaces between them.

The analysis in this paper focuses on understanding how NDCs address various SDGs beyond climate action. To do so, we use the NDC-SDG Connections tool (Brandi et al. 2017) to identify how NDC activities and targets relate to SDGs. The analysis behind the NDC-SDG connections presented here is based on a textual analysis of all NDCs or INDCs that were available in 2016.[5] To create the database, the textual content of each NDC was examined to identify concrete "activities" – statements presenting a strand of future activity, conditional or unconditional, under the NDC. These disaggregated activities served as data points for the analysis. These activities were subsequently matched with one of the 17 SDGs. An activity description usually ranges between a minimum of one sentence and a maximum of three sentences. Where a statement applies to multiple SDG targets (as was the case for only a very limited number of activities, it was added to the database multiple times. In cases, where SDG targets overlap in their definition, we assigned an activity to only one of them (e.g. education in SDG 4.7 and SDG 13.3). We started by counting the frequency of key words as well as the volume of committed activities of a country in a certain policy sector. Coding stuck very much to the exact wording of the activity, but hand coding also was used to define close synonyms of certain activities (e.g. "water storage capacities" were coded as "infrastructure"). We coded the data points (NDC activities) for all 17 SDGs and their 169 targets in four broad categories:

5 The lone exception is the Iraqi NDC, which was published in Arabic only. The 27 member states of the European Union all share one NDC, despite being individual parties to the Paris Agreement. This means that the same data will be presented for these countries.

1. Interpretation: Assessment of NDC activities according to their radius of influence (national, regional, local); type of climate action (adaptation, mitigation, both, or none); whether the activities imply capacity-building measures; whether the activities imply technological improvements (and if so, the type of technology); whether the activity mentions a quantifiable target to be reached; and whether the activity relates to a policy plan or strategy (and if so at what level).

2. SDG targets: Here we assessed whether a climate activity can be linked to specific SDG targets in their wording. For this purpose, we created a codebook that includes the wording of each SDG and its targets and also includes the official global indicators that follow each target.

3. Climate actions: We derived, inductively from the NDC activities, a set of the most frequently mentioned categories of action that could be attributed to the SDGs and SDG targets. This set of so-called climate actions varies for each SDG.

4. SDG themes/Cross-cutting themes: We also looked for broader socio-economic sectoral categories. Some themes closely relate to a particular SDG, but they can also be broader than one SDG, and may encompass two or even more SDGs (e.g. agriculture as a theme encompasses SDG 2 [zero hunger] and SDG 15 [life on land]). This approach helped reveal co-benefits indicated in the climate activities that go beyond a specific SDG. For example, if an activity targeted improvement in the agricultural sector it was coded as relevant for SDG 2.4 (maintain diversity of seeds, plants, animals], but if it also mentioned co-benefits for water efficiency (SDG 6.4) and forest management (SDG 15.2) it was coded as providing co-benefits on these respective SDG targets. In total, we identified 42 cross-sectoral categories, which we analysed across all 17 SDGs.

Overall, from 164 NDCs, we derived more than 7,100 activities. These activities were then used as data inputs for constructing the tool. To guarantee the reliability of our analysis we applied inter-coder reliability, meaning that always at least two independent coders went through the data material while a third final approval of the decisions taken was guaranteed for all the activities in the analysis.

One limitation of our analysis is that it does not address co-benefits and trade-offs that cannot be directly linked to the wording of the NDC climate activity alone. In that sense, a single climate activity would likely have a multitude of direct and indirect co-impacts on other SDGs, but we indicate only the SDG most directly addressed. Hence, we analyse only direct links, not indirect co-impacts. While this approach is powerful in identifying the strongest links and highlighting the sustainable development dimension of the NDCs and overlaps and gaps between the two agendas, it has the limitation of showing only positive interlinkages. More analysis is required to tackle this dimension to complement the focus and capacity of the tool. Moreover, there is a need to complement the current analysis of countries' NDCs through the SDG-lens with an analysis of their Voluntary National Reviews (VNRs), in which they report on their progress regarding the 2030 Agenda for Sustainable Development, and their links to the NDCs.