MAY 2018

NDC UPDATE REPORT

SPECIAL EDITION: Linking NDCs and SDGs

Ambition to Action

ECN

NEW CLIMATE INSTITUTE

May 2018

NDC Update Report

Special Edition:
Linking NDCs and SDGs

AUTHORS:
Xander van Tilburg, James Rawlins, Jonna Luijten, Frauke Roeser, Sofia Gonzales-Zuñiga, Katharina Lütkehermöller and Sacha Minderhout

CONTACT:
Xander van Tilburg
ECN/TNO Policy Studies
Project Director
xander.vantilburg@tno.nl
M +31 6 53149465

Frauke Roeser
NewClimate Institute
Project co-director
f.roeser@newclimate.org
M +49 151 6840 9310
T +49 30 208 492 741

ACKNOWLEDGEMENTS:
We would like to thank Sebastian Wienges, Hannah Reuter, Lisa Herrmann, Steffen Menzel and Edgar Endrukaitis of the GIZ Support Project for the Implementation of the Paris Agreement (SPA) along with Jessie Granadillos and colleagues (Climate Analytics) for their collaboration on the SCAN-tool. Furthermore, we would like to extend special thanks for the input from: Mathilde Bouye (WRI), Charlotte Ellis and Webster Whande (SouthSouthNorth), Michael Comstock and Jennifer Baumwoll (UN Environment) as well as all members of the NDC Cluster Thematic Working Groups. We are also grateful for the input from Vijay Kumar (TERI) and Machiel van Stralen (Dutch Ministry of Foreign Affairs).

PROJECT NUMBER:
16_I_268

Contents

Abbreviations

A2A	Ambition to Action (technical assistance project)
BMU	German Federal Ministry for the Environment, Nature Conservation, and Nuclear Safety
CEIA	Clean Energy Investment Accelerator (finance initiative)
CIMES	County Integrated Monitoring and Evaluation System; Kenya
COP	Conference of the Parties; to the UNFCCC
ECN	Energy research Centre of the Netherlands; part of TNO
GHG	Greenhouse Gas
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GPSDD	Global Partnership for Sustainable Development Data
HLPF	High-Level Political Forum (Agenda 2030)
IKI	International Climate Initiative; support funding
MAPS	Mainstreaming, Acceleration, and Policy Support (technical assistance project)
MDGs	Millennium Development Goals
MPI	Mobilising Private Investments (technical assistance project)
NAPCC	National Action Plan on Climate Change; India
NAZCA	Non-State Actor Zone for Climate Action; related to UNFCCC
NDC	Nationally Determined Contribution
NIMES	National Integrated Monitoring and Evaluation System; Kenya
NITI	National Institution for Transforming India
SAPCC	State Action Plans for Climate Change; India
SCAN	SDG Climate Action Nexus; tool
SDGs	Sustainable Development Goals
SPA	Support project for the implementation of the Paris Agreement (technical assistance project)
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
VNR	Voluntary National Review (Agenda 2030)
WRI	World Resource Institute

Executive Summary

In this special edition of the NDC Update Report, we focus on the relationship between Nationally Determined Contributions (NDCs) and the Sustainable Development Goals (SDGs), and explore how climate and development actions can support each other.

2015 was a breakthrough year for climate action and development, with the signing of the Paris Agreement and a global commitment to the 2030 Agenda for Sustainable Development. These challenging and comprehensive global agendas require fundamental rethinking of the way our economies operate and have led to renewed calls for greater integration and alignment between them. Each agenda acknowledges the importance of the other, and there is a clear consensus that full achievement of development goals will not be possible without successful action on climate change, and vice versa.

The two agendas are not only deeply intertwined at the international level; their interconnectedness extends down to the level of specific actions. Implementation of measures to reduce Greenhouse Gas (GHG) emissions may lead to impacts – both positive and negative – on development goals. This idea is not new: work on better understanding and thus maximising the 'co-benefits' of climate action has been ongoing for several decades, and suggests some very positive relationships between climate goals and social, economic and environmental objectives. Ultimately, successful integration of the two agendas will rest on the coherent design and implementation of actions that maximise synergies between climate and development goals. The adage 'actions speak louder than words' applies here too.

A number of detailed studies have investigated how specific mitigation and adaptation actions can impact the SDGs. However, few tools are available which highlight and point at potential linkages for practical use to help a diverse set of policymakers develop an initial understanding of where to prioritise actions, to maximise synergies, and understand trade-offs between potentially conflicting policy goals.

Chapter 2 presents the *SDG Climate Action Nexus (SCAN)* tool, developed by ECN and NewClimate Institute in partnership with GIZ and Climate Analytics under the umbrella of the NDC Cluster. The SCAN-tool identifies the linkages between (specific) climate actions and the sustainable development goals at the SDG-target level, with separate tools for mitigation and adaptation.

The SCAN-tool details over 500 separate potential linkages between specific mitigation actions and the SDG-targets, of which over 80% represent situations where climate action may positively impact development. One of the strongest messages emerging from analysis of the linkages in the SCAN-tool is that some types of mitigation action lead to almost exclusively positive potential impacts on the SDG targets, and some lead to a mix of positive and negative potential impacts.

Identification of linkages at the action level is important, but not the only piece of the puzzle. Chapter 3 explores the relationship between SDGs and NDCs from four different perspectives, through four contributions from the NDC Cluster working groups. The 'Data and Transparency' group identifies the challenge posed by the significant amount of resources required to monitor progress on the two agendas simultaneously. Various initiatives are emerging to source and streamline the data, and several countries are considering setting up combined systems. The 'Financing' group suggests that when governments focus on mitigation actions with significant development impacts, public money can be used to guide climate investments to where they yield the highest

benefits in terms of development and gives some examples of cases where this is already happening. The 'Political and Institutional Frameworks' group acknowledges that maintaining policy coherence across all climate and development goals is challenging. Specific challenges include the fact that in many countries the SDG and NDC processes have operated separately to date and that institutional structures around the Paris Agreement and Agenda 2030 are still being established. The 'Sector Approaches' group observes that the SDG framework can provide a good starting point for identifying linkages between sector actions and development impacts, and can provide a common language that can aid communication and coordination among sectors and with the national government.

Chapter 4 takes a closer look at how the governments of India and The Netherlands coordinate their policies on climate action and sustainable development. Both governments have raised the prominence of climate change in recent years and express interest in development opportunities arising from climate action. The case studies show that there are different ways to organise coordination across government, with different institutions involved, and varying roles and responsibilities, influenced by existing governance structures, and prevailing political priorities.

In conclusion, the SDG and NDC agendas are closely connected and must be approached coherently. Understanding the linkages at the action level is key, but there are other challenges and opportunities too. Climate compatible development is a worthy goal and a great challenge. Fortunately, the synergies seem to outweigh the trade-offs, but careful and evidence-based decision-making is required to find the win-wins and avoid the wrong turns.

2 AGENDAS

THE PARIS AGREEMENT ON CLIMATE CHANGE

THE 2030 AGENDA FOR SUSTAINABLE DEVELOPMENT

Implementation of the Paris Agreement and the SDGs must be coherent and integrated if both are to be achieved in full. This will require:

PLANNING AND LONG-TERM VISION

JOINING UP CLIMATE AND DEVELOPMENT FINANCE

WHOLE-OF-GOVERNMENT APPROACHES

SUPPORTED BY A BETTER UNDERSTANDING OF

THE POTENTIAL LINKAGES BETWEEN THE TWO AGENDAS

NEGATIVE 17%

POTENTIAL NEGATIVE LINKAGES BY SECTOR

66% are to actions in **2** sectors.

Transport

Electricity

83% POSITIVE

POTENTIAL POSITIVE LINKAGES BY SDGS

67% are to **5** of the 17 SDGs:

- Life on land
- Sustainable cities and communities
- Responsible consumption and production
- Decent work & Economic growth
- Industry, Innovation & Infrastructure

POTENTIAL POSITIVE LINKAGES BY SECTOR

63% are to actions in **3** sectors

Buildings

Transport

Industry

Actions to reduce energy demand show mainly only positive potential linkages, whereas actions to reduce emissions intensity, for example by introducing renewable energy, show both positive and negative potential linkages

High level results from a new screening tool developed by the Ambition to Action project and GIZ

1.Introduction

The United Nations Framework Convention on Climate Change (UNFCCC) focus is currently on the Talanoa Dialogue, a consultation process in preparation of the first update of submitted Nationally Determined Contributions (NDCs). We find ourselves (in 2018) halfway between the ratification of the Paris Agreement in 2016 and the first update round of pledges in 2020. The Dialogue is a precursor to a regular stocktake, which is planned to take place every five years starting in 2023 as part of the Paris Agreement ratcheting mechanism. The Talanoa Dialogue will be guided by three questions: where are we now? where do we want to go? and how do we get there? It is meant as a platform for stakeholders to share experiences, practices, ideas, and stories on the intersection of climate action and development progress "Through honest, respectful and solutions-orientated dialogue, we believe that together we can build trust and inspire more ambitious action in order to meet the objectives of the Paris Agreement and support the Sustainable Development Goals (SDGs)."[1]

This resonates with the observation, e.g. in previous editions of this report, that NDC implementation and ambition raising are as much about achieving national and sectoral development objectives in a climate-compatible manner as they are about reducing emissions and adapting to climate change. It is therefore of crucial importance to policymakers to understand the non-climate related impacts of climate actions, and their net impacts on various development goals, including the SDGs.

In this special edition of the NDC Update Report, we explore how SDGs and NDCs are related, and discuss how the SDG framework can be used in support of implementing and improving the NDCs.

1.1 Aligning development and climate agendas

In September 2015, the UN General Assembly adopted a resolution for a common agenda for development, entitled "Transforming our world: the 2030 Agenda for Sustainable Development" (UN, 2015a). This agenda seeks to "strengthen universal peace in larger freedom" and recognises that "eradicating poverty in all its forms and dimensions, including extreme poverty, is the greatest global challenge and an indispensable requirement for sustainable development." In December of that same year, the 21st Conference of the Parties (COP21) to the UNFCCC adopted the Paris Agreement (UN, 2015b), which subsequently entered into force in November 2016. This climate accord has the aim to keep global temperature rise well below 2 degrees Celsius and strengthen the ability of countries to deal with the impacts of climate change. Many have optimistically hailed 2015 as the historic year in which countries came together to develop trajectories to set the world on a course towards sustainable development.

The 2030 Agenda for Sustainable Development (UN, 2015a) is the result of a 3-year intensive and inclusive stakeholder process, and rests on a **top-down** structure of 17 universal SDGs which in turn are made up of 169 separate targets. Climate change features prominently across Agenda 2030, much more so than in the previous Millennium Development Goals (MDGs) on which the Agenda builds (European Parliament, 2015). The achievement of SDGs is not legally binding but is closely monitored; the annual United Nations High-Level Political Forum on Sustainable Development (HLPF) brings together government officials involved in SDG implementation and facilitates sharing of good practices. The HLPF targets a different

1. Fiji COP 23 Presidency website, available at https://cop23.com.fj/talanoa-dialogue/

theme every year, and countries are invited to submit Voluntary National Reviews (VNRs) focusing on a specific set of SDGs.

The Paris Agreement (UN, 2015c) builds on the **bottom-up** pledges of the NDCs which countries have submitted. While the current sum of pledges is insufficient to reach the temperature goal of well below two degrees, countries are expected to submit increasingly ambitious updates every five years starting in 2020. As with the SDGs, the achievement by a Party of its NDC is not a legally binding obligation, but governments are expected to take ownership and establish national frameworks for their targets.

"Each Party shall prepare, communicate and maintain successive nationally determined contributions that it intends to achieve. Parties shall pursue domestic mitigation measures, with the aim of achieving the objectives of such contributions. […] Each Party's successive nationally determined contribution will represent a progression beyond the Party's then current nationally determined contribution and reflect its highest possible ambition, reflecting its common but differentiated responsibilities and respective capabilities, in the light of different national circumstances." (Paris Agreement, articles 4.2 and 4.3)

The alignment between the climate and sustainable development agendas has been studied extensively in recent years (Lozano *et al.*, 2012; Greenpeace, 2014; Marston, 2014; WWF & CARE, 2015; Von Stechow *et al.*, 2016; WRI, 2016; Pradhan *et al.*, 2017). The need for convergence between climate action and sustainable development is explicitly recognised by both agendas: the Paris Agreement emphasises the need for sustainable development considerations in low-carbon transitions, and avoiding dangerous climate change is one of the 17 Sustainable Development Goals under Agenda 2030. The way that the climate problem is addressed strongly affects the prospects of meeting numerous SDGs and vice versa (Von Stechow *et al.*, 2016). There is increasing recognition among experts and policymakers, that climate and development strategies, policies, and actions should align as much as possible. Coordinated policy processes allow governments to identify high impact actions to be supported, to identify synergies and manage trade-offs, and to anticipate and avoid unintended (adverse) side-effects.

With two landmark UN agendas confirmed in 2015 only months apart, one might be led to believe that international coordination and action on climate and development are finally being pursued in an integrated way. In reality, however, processes for climate and development are separate and run largely in parallel. Despite the fact that SDG goal 13 is specifically about climate change, there is no target for emissions reduction in the SDG framework; a prominent asterisk in Agenda 2030 refers to the UNFCCC as the primary international forum for climate change. Similarly, despite the fact that the development imperative features prominently in the Paris Agreement, there is no explicit reference to Agenda 2030 or the SDGs in the final text[2]. As a consequence, we currently have two separate international processes for climate and development, albeit with a widespread recognition that neither will reach its full potential without sufficient progress in the other.

2. The second draft of the Paris Agreement (UN, 2015b) presented at COP21 two days before the closing session, 'welcomes' the outcomes of Agenda 2030 and in particular goal 13. This explicit reference did not make it to the final text.

1.2. Development impacts of climate actions

The obvious but sometimes uneasy relationship between climate and development policy does not only exist at the level of international agreements and agendas; it extends to the actions that are taken to achieve those agendas. An action designed to reduce GHG emissions is likely to also have an impact on other areas relevant to sustainable development, for example, deployment of a clean technology can lead to reduced pollution, increased economic activity or job creation.

Although these interactions are often mutually reinforcing (i.e. a climate action also supports sustainable development objectives and vice versa), there are instances where an action in one agenda may undermine the achievement of the targets in the other. For example, implementing sustainable waste management systems instead of open landfill sites reduces GHG emissions, but can negatively impact employment opportunities for lower income groups working in the informal waste sector. Similarly, deployment of some renewable technologies requires significant amounts of land which, depending on the context, can conflict with ecosystem conservation objectives. Knowledge about these potential synergies, and especially about the trade-offs, can help prevent or reduce negative impacts if these are taken into account from the start; the way a mitigation action or policy is planned and implemented can significantly influence its impact on broader development objectives.

1.3. About this report

This report is part of a series of biannual NDC Update Reports, published ahead of international climate change negotiations, presenting recent developments, analysis, opinion, and discussion pieces. Drawing on the Ambition to Action (A2A) project and insights from a wide range of climate change experts and practitioners, the reports aim to be a platform for learning, sharing insights, and discussing topics around the implementation of the Paris Agreement. The NDC Update Reports focus on mitigation ambition and action in developing countries and emerging economies (with an occasional look at industrialised countries for contrast or comparison).

The two questions that guide the NDC Update Reports are 1) whether and how the Paris Agreement and the NDCs are leading to increased action on the ground, and 2) which tools and competencies, and support, are needed to help governments in developing countries and emerging economies translate NDC ambition into implementation at the sectoral level. In this special edition of the NDC Update Report, we explore how SDGs and NDCs are related, and discuss how the SDG framework can be used in support of implementing and improving the NDCs.

Chapter 2 starts with the introduction of the SCAN-tool, developed by ECN and NewClimate Institute In collaboration with GIZ and ClimateAnalytics, that helps stakeholders to identify how mitigation actions are linked to SDG-targets, and what this means in terms of positive and negative impacts. Chapter 3 then presents the SDG-NDC link from four perspectives: each of the NDC Cluster working groups (i.e. transparency, financing, institutions, and sector approaches) reflect on the link in terms of opportunities, challenges, and suggestions for international support and collaboration. Chapter 4 takes a closer look at how the Netherlands and India integrate climate and development considerations across their policies.

2. Linking NDCs and SDGs: synergies and trade-offs

A deeper understanding of the points of intersection between the climate and development agendas is needed, as policymakers will likely be faced with strategic choices where insights into climate-development interactions are key for effective policies to serve both. Similarly, national mitigation actions contemplated under the NDCs are more likely to be internationally financed if directly benefiting national development plans and targets. In addition, understanding where mitigation actions can reinforce the achievement of the SDGs may increase countries' confidence and political buy-in to put forward more ambitious NDCs, a process required every five years under the ambition/ratcheting mechanism of the Paris Agreement.

Several studies and initiatives have been undertaken to map the interrelationships, synergies, and trade-offs between Agenda 2030 and the Paris Agreement (or more concretely, countries' NDCs). Most of the studies take the current submitted NDCs as a starting point to identify linkages with the SDGs and identify linkages based on whether the NDC text explicitly mentions specific keywords related to particular co-benefits or the SDGs (SEI, 2017; TERI, 2017; WRI, 2017).

Whilst this approach provides useful insights into the degree to which the NDCs reference the SDGs, and therefore the extent to which the officials and their advisors who were involved in formulating the NDCs were mindful of specific co-benefits and the linkages to broader development goals, it is unlikely to capture all potential linkages between mitigation actions and SDGs. The level of awareness about the linkages is highly likely to vary considerably across the people involved in drafting the NDC; the person responsible for a specific section may have chosen to mention several co-benefits or SDG linkages, whereas his or her colleagues responsible for other sections may not have included such information, either because they were not aware of them or simply because it was not a requirement for NDCs to discuss such linkages. So the absence of references to specific co-benefits or linkages to the SDGs does not mean that such linkages do not exist in reality, and conversely, some linkages may have been identified by NDC authors that are not well documented, or may even be unlikely to materialise (ECN & NcI, forthcoming).

As a result, these studies are generally not well suited to helping policymakers understand whether the climate actions they are considering to achieve their NDC targets are likely to reinforce or undermine the SDGs. This is an important issue, as failure to identify and manage the linkages between climate and development at the action level will likely lead to ineffective and inefficient policymaking. There is thus a need for guidance that helps policymakers understand the linkages between different types of mitigation (and adaptation) activities and the SDGs, to inform selection of actions and policies, and to help with policy design and implementation. Clear evidence on the linkages could help support more ambitious future NDC cycles and contribute to further integration of the climate and development agendas.

The Ambition to Action project has partnered with GIZ and Climate Analytics to develop a tool, the *SDG Climate Action Nexus tool* (SCAN-tool), which can provide policymakers with high-level but comprehensive initial guidance on the linkages between climate actions and the SDGs. Separate tools have been developed for mitigation and adaptation.

The remainder of this chapter describes the SCAN-tool for mitigation actions and presents some of the observations and results, which have emerged from the development of the tool.

2.1. SDG Climate Action Nexus (SCAN) tool for mitigation

The purpose of the SCAN-tool[3] is to provide initial, high-level guidance to policymakers on how specific mitigation actions can impact, either positively or negatively, achievement of the SDGs. Instead of taking countries' NDCs as its starting point, the tool uses a taxonomy of mitigation actions and explores potential linkages between these actions and the SDGs at the target level (each of the 17 SDGs is made up of 3-10 targets; in total there are 169 targets)[4]. It covers mitigation actions across seven sectors (energy supply, transport, buildings, waste, industry, agriculture, forestry), as well as interventions that can be used across sectors.

Given the range of possible mitigation actions and the breadth of the SDG targets, comprehensively identifying linkages between the two is a complex and time-consuming task. The SCAN-tool is intended to provide an initial, high-level indication of which SDGs and targets may be impacted by specific mitigation actions. In reality, the linkages are highly context-specific; national circumstances and other factors will greatly influence the magnitude and direction of any linkage. Policymakers will, therefore, need to undertake further research to understand which linkages apply and are most relevant to their situation. The SCAN-tool can be thought of as an initial step on such a journey. Ultimately, it is intended to help improve policy coherence and integration of the NDCs with national sustainable development goals.

The SCAN-tool is based on existing literature that maps the nexus between climate action and specific development areas (Iacobuta and Höhne, 2017; Fuso Nerini *et al.*, 2017; Pradhan *et al.*, 2017; IPCC, 2014). Much of this prior research was focussed on identifying the co-benefits of mitigation actions: in particular, the Assessment Reports from the IPCC contain syntheses of a large volume of research which summarise the linkages between categories of mitigation action and specific social, environmental and economic co-benefits[5]. The linkages from this body of evidence were attributed to the corresponding sectors and category of mitigation action used in the tool, and to the relevant SDG targets. For example, the linkage between fossil fuel combustion, air pollution, and human health is captured in the tool in linkages between SDG targets that focus on human health (SDG targets 3.4 and 3.9) and in mitigation actions which reduce fossil fuel combustion (such as renewable energy or energy efficiency in various sectors).

The linkages in the SCAN-tool are classified as either positive (the mitigation action may support the achievement of the SDG target) or negative (the action may undermine the achievement of the SDG target). Where an action could lead to both positive and negative impacts on the same SDG, both are separately included. As well as a positive or negative classification, the tool includes for each linkage a brief description which explains the linkage, with reference to the SDG target. The tool does not provide any indication of the strength of a linkage, as this is especially context specific.

A policy maker interested in a specific SDG can thus easily see by using the SCAN-tool which mitigation actions might have an impact on achievement of the targets under that SDG, and where they should focus their efforts to better understand the linkages between their NDC actions and the SDGs.

3. The SCAN-tool and a briefing paper with a more detailed description of the tool and its development can be dowloaded from [link]

4. The SCAN-tool does not cover Goal 17 (Partnerships for the Goals) or the targets ending in letters (e.g. 2.a, 2.b) as these relate to international collaboration and provision of resources necessary to achieve the SDGs and are less relevant to national level mitigation actions

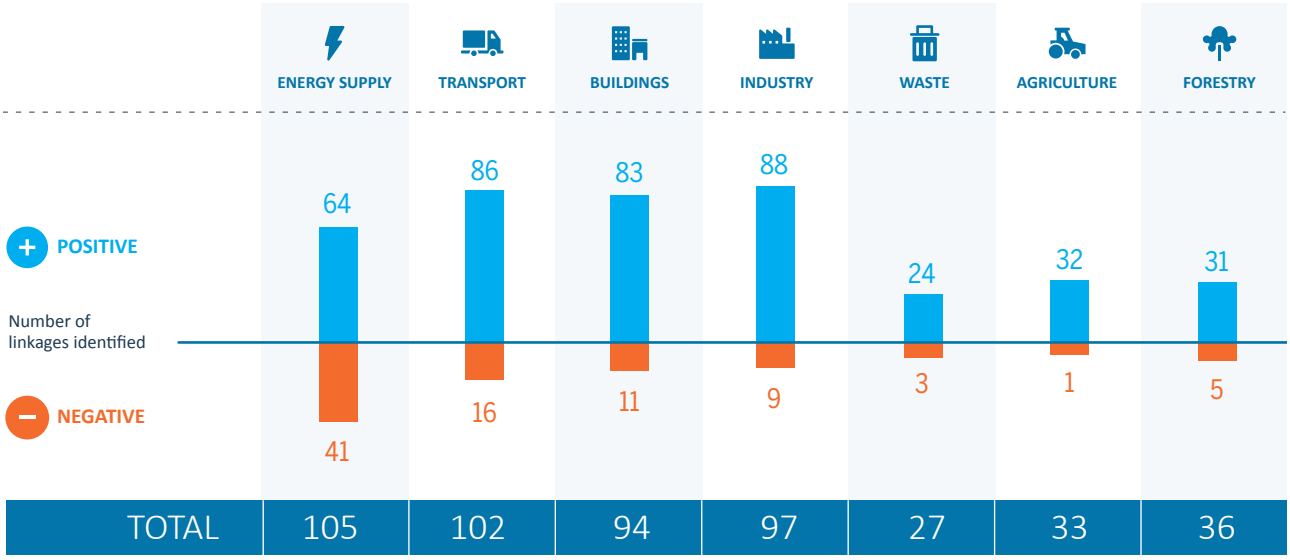
5. See for example table 7.3 on p.545 of the most recent IPCC Assessment Report. [link]

As well as identifying the SDG impacts of sector-specific mitigation actions (such as increasing energy efficiency in buildings, or introducing electric vehicles), the tool also identifies impacts that could occur from the interventions used to stimulate those mitigation actions. For example, if a government decides to use a carbon pricing instrument to stimulate uptake of renewable energy, there may be impacts that result from the change in energy prices, in particular in any SDG targets which focus on the affordability of energy and other basic services (e.g. SDG 7.1), or those which are about poverty (SDG 1). Similarly, an awareness raising or capacity building intervention would likely have a positive impact on SDG targets relating to skills and education. These interventions can typically be used in any sector so are referred to in the tool and the overview chart below as 'general' rather than being specific to a particular sector. The following section contains some findings from developing the first version of the SCAN-tool for mitigation actions.

2.2. Initial results from the SCAN-tool

The SCAN-tool details almost 500 potential linkages between sector-specific actions and SDG targets, and a further 32 linkages between 'general' interventions and the SDG targets. More than 80% of the sector-specific linkages are classified as positive. The identified linkages are not distributed equally across the sectors, as shown in Figure 1 below. The four sectors of energy supply, transport, buildings, and industry account for around 80% of all the linkages, with comparatively fewer linkages identified for the waste, agriculture and forestry sectors. Figure 1 also shows that the negative linkages are not equally dispersed across sectors: almost 40% of potential linkages in the energy supply sector are negative compared to 3-16% in all the other sectors. Overall, the energy supply sector accounts for almost half of all the potential negative linkages identified.

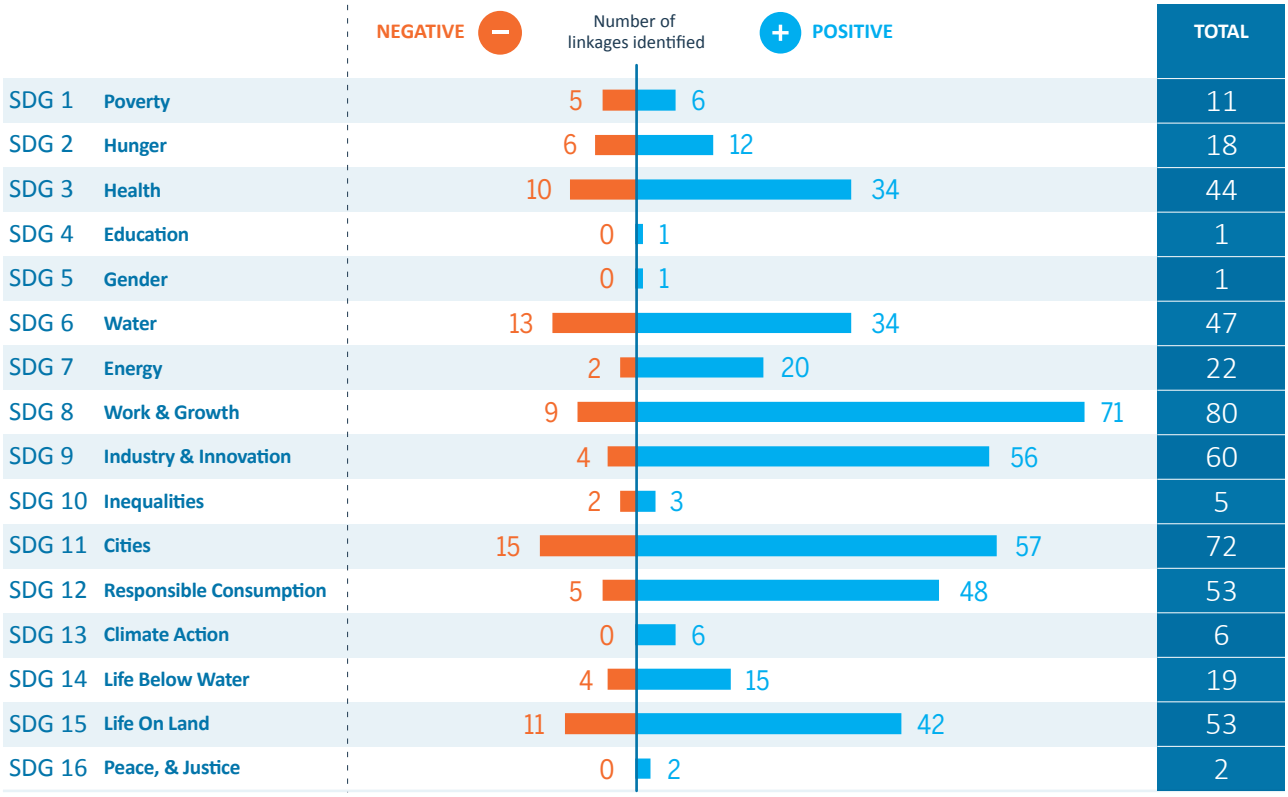
FIGURE 1: Positive and negative potential linkages identified per sector



Distribution of linkages across the SDGs is similarly uneven. While at least some potential linkages were identified between sector actions and all 16 of the SDGs analysed, some SDGs feature far more potential linkages than others. In some cases this may result from the inconsistent structure of the SDGs themselves (some SDGs have less than 5 targets and some have 9 or 10, including several very similarly worded targets that may all be impacted by the same action), but there are clearly some SDGs that are much more likely to be impacted by different kinds of mitigation action than others. Figure 2 below shows the number of potential

linkages per SDG. The 5 SDGs with the most linkages (SDGs 8, 11, 12, 9 and 15) together account for almost two-thirds of the total number of potential linkages identified. As with the sector breakdown, the potential negative linkages are not equally distributed across the SDGs, though there is not the same degree of concentration in one SDG (half of the SDGs show 20% or more negative potential linkages).

FIGURE 2: Positive and negative potential Linkages identified per SDG (goal level)



One of the strongest messages emerging from analysis of the linkages in the SCAN-tool is that for some types of mitigation action almost exclusively positive potential impacts on the SDG targets were identified, with a more mixed picture for other types. In the tool, regardless of the sector, mitigation actions are grouped into one of three categories:

1. REDUCE EMISSIONS INTENSITY: actions which reduce carbon emissions per unit of output, such as switching to renewable energy, electric vehicles, biofuels, etc.,

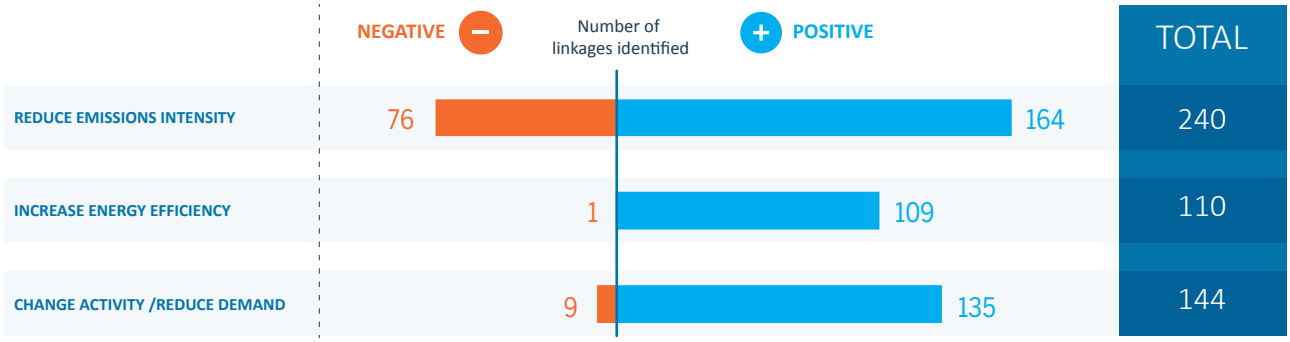
2. INCREASE ENERGY EFFICIENCY: actions which reduce the amount of energy used to produce an output, such as more energy efficient buildings and appliances, more efficient engines, etc., and

3. CHANGE ACTIVITY/REDUCE DEMAND: actions that reduce demand for an input or which substitute one activity for another, such as transport modal shift, improved material efficiency in industrial production, sustainable consumption.

Figure 3 shows the number of positive and negative potential linkages identified for each of these three categories. As can clearly be seen, actions to 'reduce emissions intensity' show far more negative potential linkages (88% of all the negative linkages identified) than the other two categories. This is because many of the specific mitigation actions that reduce emissions intensity – such as CCS, nuclear, renewable electricity, biofuels – may also lead to a range of negative impacts such as land use conflicts (hydro, wind), lock-in to unsustainable fossil fuel use, competition with food

crops (biofuels), risk of accidents (nuclear), to name just a few. Conversely, actions to increase energy efficiency and to substitute one activity for another typically only reduce negative impacts without introducing new challenges (for example energy efficiency reduces energy consumption thus reducing a range of impacts related to fossil fuel consumption).

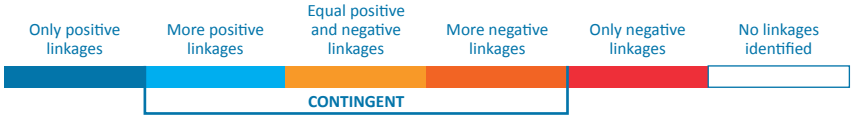
FIGURE 3: Positive and negative potential Linkages identified per category of mitigation action



Looking at the linkages across sectors and SDGs together, some patterns emerge. Figure 4 shows a summary of the potential linkages at the sector and SDG goal level and indicates whether there were more positive or more negative linkages identified. In many cases, only positive potential linkages were identified between the actions relevant to a sector and an SDG's targets (the dark blue cells). In a few cases only one or more negative linkages were identified (the light and dark red cells). These sector-SDG combinations may merit particular attention from policymakers so these trade-offs can be avoided or at least managed. Actions in the waste and forestry sectors, for example, show potential negative impacts on people's livelihoods, as reflected in negative linkages to SDGs 1 (no poverty) and 10 (reduced inequality).

Where few or no linkages to SDGs have been identified, this can generally be attributed to the transversal nature of those SDGs (and their targets). For example, linkages are less clear between sector-specific mitigation actions and the SDGs related to education, gender equality, reducing inequality, and peace and justice, but these are relevant to consider across all sectors when designing or implementing mitigation actions. Some of these SDGs do show potential linkages to the 'general' interventions that may be used by governments to stimulate sector mitigation actions, for example, capacity building activities are likely to positively impact the SDG targets relating to education. The relatively larger amount of negative links identified between the general actions and several of the SDGs (1,2,6,7,10,11) relates to the use of pricing mechanisms and the potential resulting negative impact on the affordability of energy and other basic services, which feature in a number of SDG targets. Such mechanisms can be (and generally are) designed to avoid such negative impacts or to mitigate their consequences.

FIGURE 4: Summary of potential linkages per sector and SDG



		ENERGY SUPPLY	TRANSPORT	BUILDINGS	WASTE	INDUSTRY	AGRICULTURE	FORESTRY	GENERAL
SDG 1	Poverty								
SDG 2	Hunger								
SDG 3	Health								
SDG 4	Education								
SDG 5	Gender								
SDG 6	Water								
SDG 7	Energy								
SDG 8	Work & Growth								
SDG 9	Industry & Innovation								
SDG 10	Inequalities								
SDG 11	Cities								
SDG 12	Responsible Consumption								
SDG 13	Climate Action								
SDG 14	Life Below Water								
SDG 15	Life On Land								
SDG 16	Peace, & Justice								

Looking at specific sectors, some further observations can be made:

In the **energy supply** sector, energy efficiency shows the highest number of positive links. Conversely, and as noted above, the category of actions that aim to 'reduce emissions intensity', which includes power generation using nuclear, CCS technologies, and renewable energy, shows the largest number of trade-offs. For renewable energy the picture varies from technology to technology (i.e. solar leads to different impacts than hydro or wind); these differences will be explored in a deep dive analysis of linkages in the energy supply sector which is currently underway.

In the **transport sector,** the introduction of low carbon vehicles (either electric vehicles or vehicles running on biofuels) leads to a number of potential trade-offs. Electric vehicles may have negative impacts on road safety (e.g. reduced noise levels mean that cars can come very close before getting noticed), and increased battery use also leads to various environmental risks. Biofuel cultivation to produce low carbon fuels can lead to competition with food crops, increased water consumption and also air pollution impacts. Energy efficiency and activity substitution (e.g. switching from cars to rail or other public transport) show predominantly positive linkages, with some potential negative impacts on employment (e.g. job losses in sectors providing maintenance and fuel services for personal vehicles), but as with most employment impacts these may be partially offset by job creation in the deployment and operation of substitute technologies.

In the **building sector,** all SDGs show more positive than negative linkages. Actions to increase energy efficiency, in particular, present numerous potential synergies.

Similarly, mitigation actions in the **industry sector** show mostly potential synergies across all SDGs where linkages were identified. Again, efficiency shows a high number of synergies as also noted in the efficiency related activities in the other sectors. The **waste sector** is less well covered in the consulted literature. Thus, a smaller number of linkages were identified, most of them being synergies.

The **agriculture** and **forestry** sectors both show the greatest number of SDGs where only positive linkages were identified. Across these two sectors, negative linkages were only identified for SDGs 1, 2 and 10 (poverty, hunger, and inequality).
Figure 5 below summarises the number of SDGs that each sector shows potential linkages to and indicates which SDGs showed the most linkages. The energy supply sector and general interventions show the most linkages, and the waste sector shows the fewest linkages to different SDGs.

FIGURE 5: Summary of number of linkages between sectors and SDGs

	MOST LINKAGES WITH:										TOTAL LINKAGES
ENERGY SUPPLY				SDG 8 Work & Growth	SDG 9 Industry & Innovation		SDG 11 Cities				Links to 16 SDGs
GENERAL	SDG 1 Poverty			SDG 8 Work & Growth	SDG 9 Industry & Innovation						Links to 13 SDGs
AGRICULTURE		SDG 2 Hunger	SDG 6 Water							SDG 15 Life On Land	Links to 12 SDGs
FORESTRY		SDG 2 Hunger		SDG 8 Work & Growth			SDG 11 Cities		SDG 14 Life Below Water	SDG 15 Life On Land	Links to 12 SDGs
TRANSPORT				SDG 8 Work & Growth	SDG 9 Industry & Innovation		SDG 11 Cities				Links to 11 SDGs
BUILDINGS				SDG 8 Work & Growth	SDG 9 Industry & Innovation		SDG 11 Cities				Links to 11 SDGs
WASTE				SDG 8 Work & Growth		SDG 10 Inequalities	SDG 11 Cities				Links to 10 SDGs
INDUSTRY				SDG 8 Work & Growth	SDG 9 Industry & Innovation			SDG 12 Responsible Consumption			Links to 9 SDGs

It is also important to note that although, in general, synergies are likely to outweigh trade-offs for most of the SDGs, the way a mitigation action is implemented (for example, the choice of policy instrument and its particular design) has a strong influence on whether the impact on the SDG target may be negative, positive or neutral. To realise the most synergies, and to avoid or manage trade-offs, countries will need to undertake a systematic review of individual mitigation actions under their respective national circumstances to understand potential benefits and trade-offs, conducting targeted research into specific action-SDG linkages where appropriate. The SCAN-tool introduced in this chapter is intended to give countries a comprehensive initial overview of the linkages and a solid foundation on which to base further work.

3. SDG and climate linkages from different perspectives

This chapter explores the connections between NDCs and SDGs from the following four perspectives: data and transparency, financing, political and institutional frameworks, and sector approaches. These four thematic areas together form the foundation of the NDC Support Cluster, and each is represented by a thematic working group made up of organisations within the Cluster. Each working group provided a short piece on the connections between NDCs and SDGs from the perspective of their thematic area and the challenges and opportunities that brings.

3.1. Data and Transparency

Mathilde Bouye (WRI) on behalf of the Data and Transparency working group

Distinct implementation, monitoring, and reporting frameworks have been set up for the NDCs and SDGs at the national level, mirroring the separation between the global processes under the UNFCCC and the High-Level Political Forum on Sustainable Development. However, advancing climate actions and the SDGs raise immense data, transparency and monitoring challenges that overlap to a large extent. A 'true data revolution' was first called for by the report of the High-Level Panel on the post-2015 global development agenda "to fully integrate statistics into decision making, promote open access to, and use of, data and ensure increased support for statistical systems." (HLP Report, 2013:23). The Sustainable Development Solutions Network estimated in 2015 that $1 billion a year was needed to enhance statistical systems evaluating progress towards the SDGs (SDSN, 2015). Such a data revolution and enhanced monitoring systems are also essential for driving development pathways towards carbon neutrality and climate resilience. There is growing recognition of the need for cost-efficient and integrated solutions to those common challenges. Such overall approaches can also enable to address policy interactions between climate change and sustainable development actions, and ensure mutually supportive SDG and NDC implementation. They would help align national 2030 strategies with the long-term goals of the Paris Agreement. Similarly, they could contribute to better embed the principle of leaving no one behind at the core of the 2030 Agenda into NDC implementation by providing greater access to climate information and monitoring disaggregated data on the impact from climate actions on the poorest and most marginalized populations. WRI and GIZ show in an upcoming paper on a joined-up implementation of the 2030 Agenda and the Paris Agreement that several countries have started to seek for synergies and integration in addressing data challenges and building their SDG and NDC monitoring and reporting frameworks (Bouye et al 2018).

Overall data strategies in support of both the SDG and climate agenda make a lot of sense. They can help find a common solution to enhance statistical systems, develop open data, geospatial and crowdsourced data, and use of big data from the private sector. In that regard, the SDG Data Roadmaps proposed by the Global Partnership for Sustainable Development Data (GPSDD) are strongly relevant for the climate agenda and could be designed to also tackle monitoring challenges raised by the NDC. First SDG Data roadmaps developed in Colombia, Kenya, Mexico show this potential for synergies. They typically plan for strengthening national statistics, fostering data interoperability and disaggregation, and building cross-sectoral, multi-stakeholder partnerships mutualizing different data systems. Open data initiatives can also support win-win solutions for the SDGs and NDCs in connecting various data ecosystems.

Open Data Portals from South Korea and Philippines, for instance, disclose data on climate change and a wide range of sustainable development issues (land use, agriculture, industry and employment, environment, forest, health and food security), and enable users to capture policy linkages and positive and negative interactions across those challenges, and policy responses.

Synergies between both agendas are also fostered by online data platforms relevant for both SDG and NDC implementation. For instance, Climate Watch, a portal from the NDC Partnership gathering 12 databases on the content of NDCs, includes a module on SDG-NDC linkages that maps intersections between commitments embedded in NDCs and the 169 SDG targets, per country and sectors. Platforms registering and tracking multi-stakeholder initiatives for the SDG and climate agendas could also be used much more to support and monitor a joined-up implementation. Pacific Islands presented at the HLPF 2016 the development of its automated climate change web portal, which contains a lot of data on climate-related sustainable development challenges and projects (eg: energy, ocean, forestry, disaster risk reduction), as key contribution to its 2030 Agenda implementation. At the global level, there are strong overlaps and synergies between the NAZCA platform for Global Climate Action and the Partnerships for SDGs online platform, but they could better identify and monitor co- and mutual benefits initiatives can and do deliver for the two agendas.

A growing number of countries also try to integrate as much as possible sets of indicators for their nationally-relevant SDG targets and their climate commitments to ensure policy coherence and reduce the burden of data collection. Several approaches have been pursued. Countries, including the Philippines, Finland, and Kenya, have considered global SDG indicators to monitor climate actions, especially for adaptation. Those experiences highlight the need to adjust those SDG indicators that are often too vague and lack of ambition to make them climate-smart and adequate to track specific NDC actions. To take an example, SDG indicator 13.2.1 only require the adoption and operationalization of climate change plans or policies. Alignment with the Paris Agreement would require that those plans and policies adequately address projected climate impacts and support 1.5 and 2°C trajectories. Climate indicators underpinning the NDCs have also been used for many climate-relevant SDGs, including goal 7 on energy, goal 12 on sustainable production and consumption patterns, and goal 15 on sustainable management of natural resources. A third option has been to design new sets of indicators relevant for both agendas to monitor progress towards an overall transition towards carbon-neutral, inclusive sustainable development. Finland, for instance, reviewed the indicators underpinning its Society's Commitment for Sustainable Development, Finland We Want by 2050, through a cross-sectoral process, to align them with the 2030 Agenda and the Paris Agreement. The Ministry of Economy and Energy leading on the NDC coordinated worked on climate indicators tracking progress towards carbon neutrality.

When it comes to reporting, the binding requirements under the Paris Agreement and the guidance for voluntary reviews under HLPF are necessarily distinct, but greater integration between national reporting processes bears strong potential for efficiency in data collection and use. Concurrent annual reporting on the SDGs and the NDC could enable coordination and could better inform planning and budget processes. Collaboration between climate change and SDG focal points who are responsible for following up implementation in sector ministries would help avoid duplication and seek for synergies. Some countries have also started to make national policy monitoring systems relevant for tracking progress on the two agendas. For example, Kenya intends to align with the SDG and climate agendas its national and local result-based monitoring frameworks, the National Integrated Monitoring and Evaluation System (NIMES) and County Integrated Monitoring and Evaluation System (CIMES) (Kenya, 2017).

National efforts at enhancing consistency and integration between SDG and climate data, monitoring and reporting systems need greater support from international development. A more integrated approach to capacity building is needed to tap into the benefits of a joined-up implementation for cost-efficiency and policy coherence. In the past year, an increased number of countries, including Mongolia, Kenya, Uganda, and Mali, have requested support from the NDC Partnership for cost-efficient solutions in building national and local SDG and NDC indicators and monitoring processes. Initiatives from development partners are being taken as of early 2018 to respond to those needs. The upcoming 2018 HLPF that addresses climate-relevant SDGs and the Tala*noa dialogue will be opportunities to discuss further needs for cost-efficient, integrated solutions and capacity building that can help accelerate progress towards both agendas.*

3.2. Financing

Charlotte Ellis and Webster Whande (SouthSouthNorth) on behalf of the Financing working group

In light of the overarching and shared objective of Agenda 2030 and the Paris Agreement to achieve global sustainable development, it is clear that significant co-benefits can arise from both the NDC and SDG implementation processes. Despite the links between the two, the question of finance for both NDCs (as a vehicle to achieve the objectives of the Paris Agreement) and the SDGs (as the vehicle for realising Agenda 2030) remains at a conceptual level. Financing SDGs is often as complex a task as financing NDCs, and both require active participation and coordination between the public sector and private institutions. Investment from both private and public institutions is crucial for the fulfilment of the SDGs and NDCs.

Countries can approach the link between the NDCs and SDGs as an opportunity to optimise access to finance. This provides both a challenge and opportunity where countries can start to think about the financing of their country programs and interventions from a more holistic point of view, targeting a multitude of issues. For example, accessing the Green Climate Fund for a project in the energy or water sector to meet commitments in the NDC may present an opportunity to simultaneously achieve national SDGs targets, thereby optimising access to climate finance. Therefore, identifying which NDC related climate interventions have the greatest potential for co-benefits to meet the SDGs, allows countries to strategically align financing of both their NDCs and SDGs in a holistic and more impactful manner.

The Financing working group of the NDC Cluster seeks to explore and encourage the pursuit of best practice in financing NDCs to stimulate greater ambition under the Paris Agreement. Partner organisations of the working group who are also part of the Mobilising Private Investments (MPI) project facilitate processes across a number of countries, including Kenya, Ethiopia, Vietnam and the Philippines, to explore ways in which private sector investment can be channelled towards climate and development objectives. The experiences across these countries and sectors are varied but nevertheless contribute to some valuable insights into the link between financing NDCs and SDGs, as outlined below.

Financing NDCs and SDGs can be approached through “blending” of public funds with private sector funds to achieve scaled up impacts. One of the projects undertaken by a partner organisation of the working group in the Dominican Republic works with the hospitality industry to leverage public resources to provide early financing to support the uptake of renewable energy options in the hotel industry. Financing renewable energy uptake in the hotel industry not only contributes to meeting the NDC, it also aligns with the targets of SDGs 11 and 12.

Market incentives and technological innovations designed to fulfil NDC commitments can also contribute to meeting SDG targets. In Kenya, an international technology company is exploring the shift and scale-up of households in Nairobi from baseline dirty fuels such as charcoal and kerosene to LPG and

ethanol. The project assesses the impacts of such a transition and offers policy recommendations for ethanol market development, including the use of subsidies to finance the uptake of the cleaner technology. The identification of a workable and inclusive financial model could lead to positive transformational impacts including addressing deforestation, improved indoor air pollution and in turn improvements in household health. All of these outcomes are well aligned with achieving the SDGs, including SDG goals 3,7,11 and 13.

Financing NDCs and SDGs is supported by conducive policy conditions that allow multiple actors to invest in climate change interventions that contribute to SDGs. The Government of Vietnam has stated its goal to increase renewable energy generation up to 7% of the national electricity mix in 2020, and 10% in 2030, in order to meet the overarching climate change goals and objectives of the Paris Agreement. The Clean Energy Investment Accelerator (CEIA) is facilitating the aggregation of clean energy project demand in order to improve economies of scale and access to financing. Investments in clean energy not only support the achievement of NDC commitments but may also bring about positive co-benefits in the form of improved access to affordable and clean energy, opportunities for decent work and economic growth, as well as sustainable cities and communities, in line with SDGs 7, 8 and 11. In the Philippines, contributions to meeting these SDGs are also being made through the use of the NDC Investment Accelerator model to promote Public Private Partnerships (PPPs) in scaling up financial flows towards clean energy investments. This once again emphasises the importance of partnerships in unlocking finance to advance not only the implementation of the NDCs but the SDGs as well.

To conclude, it is clear that a coordinated approach to implementing NDCs and SDGs presents beneficial opportunities to ensure the best use of limited financial resources. Clear efforts toward the exploration of the links between the two in the realm of financing climate action through blending public and private resources; creating conducive policy conditions for investments to happen and providing market incentives and opportunities for technological innovation, can therefore promote and support the achievement of their shared objective, which ultimately encompasses global sustainable development.

3.3. Political and Institutional Frameworks

Michael Comstock and Jennifer Baumwoll (UN Environment) on behalf of the Political and Institutional Frameworks working group

The SDGs and NDCs offer an unprecedented opportunity to address some of the world's most pressing development and environmental challenges. The linkages between the SDG and NDC agendas are clear, given the intrinsic relation between development and climate change. Traditional development pathways threaten to exacerbate climate change, and climate change threatens to derail development progress. While this relationship is most clearly articulated in SDG 13 on Climate Action, climate change directly affects a number of other SDGs as well. For example, in many countries climate change impacts are driving people further into poverty (SDG 1); exacerbating food security and hunger (SDG 2), and affecting water availability (SDG 6). Climate change impacts also affect ecosystems below water (SDG 14) and on land (SDG 15), and have a direct correlation with energy use/access (SDG 7) and consumption and production patterns (SDG 12).

Despite the synergies that were recognised at the global level as Agenda 2030 and the Paris Agreement were being negotiated, national implementation has presented certain challenges. The first is ensuring coherence between the agendas at the national level as countries develop plans and institutional frameworks. While the SDGs and NDCs are relatively new processes, efforts to mainstream climate change into development planning are not. These efforts can be re-energised, capitalising on the opportunity of these two new processes to codify climate change and development into concrete, achievable goals.

Bringing together the two international agendas can strengthen and catalyse implementation progress on both. In practice, countries can prioritise measures that advance both agendas and rule out measures that may undermine one or the other (e.g., avoiding coal-fired power plants that address energy access but lock in significant GHG emissions for decades, thereby exacerbating climate change).

Second, there is a need for countries to further strengthen alignment between SDG and NDC institutional processes, which have evolved separately at the national level, essentially operating in silos. This emerging challenge is largely due to the fact that different national ministries were in charge of the processes (e.g., ministries of planning or development for the SDGs; ministries of environment or climate change for NDCs), often with limited communication between them. Managing the two processes in silos has direct implications for their successful implementation. For example, it results in inefficiencies due to duplication of efforts; increased costs in terms of time, energy, and resources needed to retroactively ensure alignment; lost opportunities for sharing expertise and technical capacity; and potential for undermining one agenda or the other, as demonstrated above. Countries would be well advised to employ institutional coordination mechanisms that merge the two agendas.

A third institutional challenge that countries are facing is the collection and sharing of data and information relevant to each process. Often, ministries work with distinct datasets, are protective of data collected in-house, and do not have mandates for sharing their data with other agencies. Aligning the two agendas at the institutional level may, therefore, require improved data collection and sharing to effectively implement and monitor progress toward the SDGs and NDC goals. Many countries have recognised the need for high-level mandates to do so.

Finally, countries are facing challenges related to institutional capacities for implementing the SDG and NDC agendas. These include technical knowledge and skills in different sectors, as well as capacities for coordinating among relevant ministries and stakeholders; designing concerted implementation plans; and revising regulatory frameworks, among others. For example, ministry officials may lack awareness of opportunities to advance gender equality (SDG 5) in NDC implementation.

International support is being provided to assist countries in addressing these challenges. For example, UNDP's NDC Support Programme is providing financial and technical assistance to countries on integrated governance to maximise synergies between NDCs and the SDGs, as well as on strengthening countries' capacities for NDC implementation planning in line with development priorities. The NDC Support Cluster is providing thought leadership on NDC implementation, including governance frameworks in the context of the SDGs. The "One UN" Mainstreaming, Acceleration, and Policy Support (MAPS) framework is being applied in countries to help develop roadmaps for SDG implementation, including setting up institutional frameworks that incorporate climate change strategies and actions. Other initiatives are offering opportunities for South-South exchange so that countries can learn from their peers about governance approaches and institutional coordination mechanisms that have worked in neighbouring countries.

Although SDG/NDC work is relatively new, lessons from decades of work on mainstreaming climate change into development can be built upon. These include examples of institutional frameworks that successfully coordinate ministries and other actors across sectors. Three general models have emerged: 1) a centralised approach whereby a mandate is given to an office of the president/prime minister or vice president (e.g., Dominican Republic), 2) a horizontal approach that brings together ministries through an inter-ministerial committee or working group (e.g., Mexico), and 3) a hybrid model that has a centralised body and focal points in each ministry (e.g., Thailand). While these examples arose to coordinate on climate change, the same models can be useful in involving SDG actors.

Some countries are adopting interesting approaches to governance/institutional frameworks that will help align the NDC and SDG agendas at the national level. For example, Lebanon intends to establish formal memoranda of understanding between those institutions responsible for implementing NDCs and those responsible for the SDGs. Trinidad and Tobago's NDC implementation plan explicitly maps out institutional arrangements and outlines how they will contribute to SDG 16 in particular. And Mongolia intends to establish a cross-sectoral Technical Working Group that facilitates NDC implementation explicitly aligned with national development plans/policies and the SDGs.

Solutions to institutional and governance challenges for SDG and NDC implementation take time and will depend on specific national contexts (e.g., government structures, legal frameworks). Nonetheless, bringing together institutional frameworks for NDCs and SDGs offers an opportunity to align the two processes and catalyse progress toward both development and climate change goals.

3.4. Sector Approaches

Xander van Tilburg (ECN) and Frauke Roeser (New-Climate Institute) on behalf of the Sector Approaches working group

To move from national climate ambition to actual emission reductions, most of the actions necessary will need to be taken at the sector level. Whereas the other three working groups cover a specific aspect of NDC implementation, the working group on sector approaches does not deal with a single aspect, but rather looks at how different facets of NDC implementation play out at the sector level. In this section, we discuss how SDGs and NDCs are linked from the perspective of sectoral planning and policymaking, and whether the SDG framework can be used in support of sector-level implementation and improvement of NDCs.

SDGs and NDCs are linked through co-benefits, or development impacts, of climate action. Any ambitious NDC will eventually need to show what the development impacts of a low-emission pathway are, and which trade-offs are involved. Achieving deep emission reductions in the energy sector, for example, is likely to require disruptive actions such as phasing out fossil power production, banning inefficient appliances, or restricting the use of high-emission vehicles. Such changes require broad stakeholder support and consistent policies across multiple topic areas. In order to convince stakeholders to support a low-carbon pathway, the impacts need to be presented in terms of sector priorities such as job creation, improved energy security, reduced traffic congestion, or pollution control. Moreover, stakeholders are interested in where business/investment opportunities may arise or disappear as a result of the NDC.

From the perspective of sector NDC planning and implementation, we find that the SDG framework can support efforts to identify how climate actions are linked to impacts across sectors, and it can be used for communicating how sector climate actions affect national level development impacts.

Identification of cross-sector linkages: the SDG framework can be used as a framework to support the identification of impacts between sector actions and development goals. Since the SDGs span a large spectrum of interlinked development goals and targets, they can be used as a comprehensive framework to help identify and communicate how mitigation actions have (multiple) development impacts across different (sub)sectors. Since 2015, an increasing body of analysis and guidance is emerging on the linkages between NDCs (mitigation actions) and SDGs, which strengthens the case for using the SDG framework as a starting point for identifying the impacts of NDC actions on development. But there are limitations: while the SDG framework can be a good starting point to look at broader development impacts of specific sector actions, the SDGs as such do not provide any guidance on where the linkages may occur: they are simply a structure of goals and targets (and indicators). As mentioned in Chapter 2, additional guidance is needed to identify linkages between actions and SDG goals and targets. The SCAN-tool described in Chapter

2 provides this by helping policymakers with an initial identification of the potential SDG impacts of specific mitigation and adaptation actions. For prioritisation of specific actions and policy decisions, more detailed assessments will be needed to quantify the impacts and investigate how they interact; impacts may be positive or negative, and large or small, with the balance depending on the context and circumstances, as well as policy design and implementation.

Communicating development impacts: the SDG framework can be used in support of an NDC engagement strategy. Increasingly, ambitious NDCs will have an impact on sector activities and the SDGs can be used to show how, especially at the national level, climate and development priorities can be balanced. The SDGs provide a common structure to translate evidence about the sector development impacts of the NDC into the language of the SDGs, which can be useful for national and international discussions - think of it as a useful add-on for those national policymakers tasked with the next NDC ambition cycles and the development of long-term decarbonisation strategies. Policies and actions that affect multiple ministries and agencies are often hard to coordinate and the SDGs can be used as a common language to support coordination. Moreover, the SDGs can offer a framework to sector stakeholders, to show how their actions impact topics that are not traditionally part of their sector indicator set and which trade-offs are involved. The potential of the SDGs for providing such a common framework to discuss development goals and targets critically depends on whether their adoption and use across public bodies will continue to increase.

We believe that the SDGs present a great opportunity to establish and strengthen the links between national climate ambition and sectoral climate action, and between sectoral climate action and national development goals and targets. To seize this opportunity, we believe that sector ministries and agencies should be asked to report on all SDG 17 goals (and associated targets), and not just on those closest to their traditional topics.

4. NDC and SDG processes: A closer look at two countries

The purpose of this chapter is to look at how countries can approach implementation of the Paris Agreement and Agenda 2030 in an integrated way at the national level. Integrated approaches or coherent policies - two concepts embedded in both the climate and development agenda itself - are needed to achieve transformation within (and across) the agendas. For example, target 17.14 of SDG 17 (Partnerships for the Goals) represents the objective of governments to "enhance policy coherence for sustainable development". With regards to the climate agenda and the Paris Agreement, Parties, in article 8 recognise "the importance of integrated, holistic and balanced […] approaches […] to assist in the implementation of the nationally determined contributions".

What do these concepts of policy coherence and integrated approaches mean in practical terms of processes, roles, and responsibilities? This Chapter touches on these questions by taking a closer look at how the two agendas are being implemented in India and the Netherlands, and assessing whether and to what extent the concepts of policy coherence and integrated approaches are being pursued.

4.1 India

In India, coherence between climate change mitigation and sustainable development is of high importance considering the fact that roughly 700 million people depend directly on sectors which are sensitive to the effects of climate change (agriculture, forestry, and fishery) and on natural resources for their livelihoods (Shukla and Ravindranath, 2006). Predating both the climate and development agendas, India already set in place policies to reduce poverty and accelerate sustainable development and released a National Action Plan on Climate Change (NAPCC). Climate actions communicated in this plan demonstrate alignment with sustainable development. The NAPCC is guided by the principle that protecting the poor and vulnerable sections of society shall be through "an inclusive and sustainable development strategy, sensitive to climate change" (NAPCC, 2008). For example, NAPCC's mission 'addressing climate impacts on health' demonstrates India's effort to bring climate action and development together in national implementation, as it addresses existing health concerns while applying a climate lens.

Further extending its effort to integrate climate action and development, India's climate actions communicated in its NDC reflect synergies with the SDGs targets (Farhan and Niazi, 2016). Using the NAPCC and State Action Plans for Climate Change (SAPCCs) as its foundation, India's NDC is a reflection of its development priorities. But, to effectively implement the two agendas of sustainable development and climate actions together means India must engage in informed prioritisation; meaning it must resolve conflicts of interests or inconsistencies between priorities and policies. Having spoken to an expert on policy issues related to natural resources and SDGs (in India), this seems to be the biggest challenge the country is facing. Difficulties further arise when trying to figure out how an action in one sector influences another sector. With a competing demand for resources, it is difficult to decide between policies.

India has signed and ratified the Paris Agreement, and is obliged to reach its targets. The processes for implementing the NDCs in India includes amongst other mechanisms, developing a roadmap for implementation (Vardhan, 2017) and setting in place policy and programme interventions along with resource generation and capacity development strategies from local to sub-national levels (Farhan and Niazi, 2016). India is also a signatory among the 192 nations to the 2030 Global Agenda for Sustainable Development. The Na-

tional Institution for Transforming India (known as NITI Aayog), a policy think tank of the Government of India with the Prime Minister as its chairperson, provides the overall coordination and leadership for India's commitment to the SDGs. The institution has carried out a detailed mapping of the 17 Goals and 169 targets to Nodal Central Ministries, Centrally Sponsored Schemes, and major government initiatives (Government of India, 2017). The goals have been assigned to respective ministries.

To support policy-making and prioritisation with clear rationale and evidence, the government of India works together with scientific institutions. Such institutions can, for instance, assess potential policy effects and help identify the development co-benefits related to India's climate mitigations policies and targets. For example, India's target to install 100GW solar capacity and 60GW wind capacity by 2022, as indicated in India's NDC, could lead to economic co-benefits such as new job opportunities. Furthermore, in terms of energy, the country currently has the lowest electricity coverage of its population in the G20 and could, therefore, benefit greatly from the positive impacts of renewables on both energy access and energy security (Lacobuta *et al.*, 2018).

4.2 The Netherlands

As a signatory to the Paris Agreement, the Netherlands has set itself ambitious goals to move away from conventional (fossil) energy sources. As the sixth-largest economy within the European Union and the second largest agricultural exporter, the Netherlands plays an important role as a transportation hub (CIA, 2018). Considering climate change risks, the main vulnerabilities can be found in relation to water: water dependency, and dam capacity, and in relation to food import dependency (ND-GAIN, 2017). Considering these vulnerabilities and the pledges made in Paris, the Netherlands is determined to increasingly use renewables for its total energy consumption (CBS, 2017).

Action on climate change is a responsibility of the Ministry of Economic Affairs, which became the Ministry of Economic Affairs and Climate Policy in 2017 as part of a new coalition agreement, and clearly acknowledges interlinkages between climate policy and development ambitions. With regards to the development agenda, the responsibilities for meeting the SDGs have been dispersed among ministries and are being coordinated through an 'SDG Team', chaired by the Ministry of Foreign Affairs and consisting of members from all relevant ministries. Thus, considering the implementation of the development agenda, the Netherlands links these goals through coordination (Epstein and Theuer, 2017). Where climate policy has been given such a prominent and centralised role within the institutional framework, implementation policies in support of the SDG agenda seems to be rather fragmented.

The SDG Team is tasked to report the progress made on the individual goals. The team consults the focal points within the ministries, which is then taken into account when the Dutch Central Bureau for Statistics (CBS) drafts its annual report on SDGs. After the first edition received many positive responses, from its national and international audience, the second edition included contributions from over thirty ministries, knowledge institutes, and CSOs, leading to an increase of data and indicators being used. This annual report is then discussed in the House of Representatives before it is used as input to draft the Voluntary National Review (VNR) for submission to the UN HLPF. Considering the link with SDGs, the latest VNR describes a significant focus on climate in regard to SDG implementation. Almost all the SDG approaches touch upon climate change action. The report on SDG 3, for example, describes the interlinkage between the goal of good health and well-being with air pollution-related early death. Throughout the report, the interlinkages between climate and development goals are present[6] (MFA, 2017). However, it remains to be seen whether these synergies will materialise as described in the VNR, especially since the input comes eventually from the focal points at the minis-

6. SDGs 2, 3, 4, 6, 7, 9, 11, 12, 13, and 17 all touch upon climate mitigation or adaptation actions.

terial level, where the focus remains subject specific.

Civil society organisations in the Netherlands are broadly treating climate and development as two goals that can only be pursued together. One notable initiative is the 'SDG Charter', a not-for-profit organisation focused on the development of the SDG agenda. It has thus far engaged 80 companies, NGOs, knowledge institutions, and other parties willing to work on SDGs. Among its members are the Ministry of Foreign Affairs and the Association of Netherlands Municipalities; facilitating a dialogue between the national and the local level and engaging others is one of its main activities and can be considered an opportunity to fine-tune the alignment of local and national approaches. Since it remains challenging to create political will and to engage policymakers with SDGs, a platform where civil society, the private and public sector gather to exchange views and action plans, might provide an opportunity to bring the development and climate agendas closer together.

Within the Dutch government, there is significant interest in the learning opportunities around implementing and monitoring SDGs efficiently. Peer learning is perceived as a knowledge sharing opportunity, contributing to the national strategy for SDG coordination. Currently, the Partners for Review network is one of the most prominent peer learning networks in which countries, including the Netherlands, are encouraged to review their SDGs. This network not only brings together different government representatives but also stakeholders from different sectors through organising conferences and fulfils the role of facilitating a dialogue between them. In addition, the Netherlands participates in the annual HLPF, which facilitates good practice sharing and networking for countries across the world; the upcoming forum will entail an in-depth review of SDG 7[7] . These meetings and review communities should be increasingly involved with the question how to create coherent policies, while this remains to be work in progress for the Netherlands and governments around the world.

4.3 Work in progress

Taking a closer look at how the governments of India and The Netherlands approach the links between the climate and development agendas reveals several interesting similarities and differences. Both governments have raised the prominence of climate change in recent years and express interest in development opportunities arising from climate action. Also, both governments have defined a clear coordination role and assigned responsibilities for cross-sector collaboration. In India, Agenda 2030 is coordinated by a policy think tank chaired by the Prime Minister, whereas in the Netherlands, this responsibility is placed with its Ministry of Foreign Affairs.

The differences in approach are not limited to the two cases: From the VNRs submitted in recent years, and from the National Communications to the UNFCCC, we can see that there is a multitude of ways in which climate and development cross-sector policy coordination takes place. For most countries, linking the NDCs with SDGs is (an ongoing) work in progress.

The choice of institutions involved, and their roles and responsibilities, is likely to be different across the world, depending on existing governance structures, and even on prevailing political priorities. As the links between climate action and development impacts become more pronounced, the coordination function will become increasingly important. It is reasonable to expect that coordination structures change and improve over time, to respond to evolving and changing needs. Regular dialogue between countries is proving to be a powerful tool for learning and discussing coordination challenges; without necessarily having to converge to a 'best practice' approach to fit all countries.

7. SDG 7: Ensure acces to affordable, reliable, sustainable and modern energy for all.

References

Bouye M., S. Harmeling, and N. Schulz, (forthcoming) *Connecting the dots: lessons learned and options for a joined-up implementation of the 2030 Agenda and the Paris Agreement.*

CBS (2017) *Hernieuwbare Energy in Nederland 2016*, Centraal Bureau voor de Statistiek, Den Haag, 2017 *[link]*

CIA (2018) *The World Factbook, Europe: Netherlands,* Central Intelligence Agency, *[link]*

ECN and NewClimate Institute, (forthcoming) *SCAN (SDG & Climate Action Nexus) tool: Linking Climate Action and the Sustainable Development.*

Epstein, A. H , and S. Theuer (2017) *Sustainable development and climate action: thoughts on an integrated approach to SDG and climate policy implementation.* Conference: Interconnections 2017, Bonn, Germany, *[link]*

European Parliament (2015) *COP21 and Agenda 2030 – the challenges of complementarity,* Briefing Note, European Parliamentary Research Service, Brussels November 2015, *[link]*

Fuso Nerini, F., J Tomei, L.S. To, I. Bisaga, P. Parikh, M. Black, A. Borrion, C. Spataru, V. Castán Broto, G. Anandarajah, B. Milligan, and Y. Mulugetta (2018) *Mapping Synergies and Trade-offs Between Energy and the Sustainable Development Goals,* Nature Energy 3, 10-15, 2018.

Government of India (2017) *Voluntary National Review Report On the implementation of Sustainable Development Goals,* United Nations High-Level Political Forum 2017, *[link]*

Greenpeace (2014) *Annual Report 2014,* Greenpeace International, *[link]*

HLP Report (2013) *A New Global Partnership: Eradicate Poverty and Transform Economies Through Sustainable Development, The Report of the High-Level Panel of Eminent Persons on the Post-2015 Development Agenda,* United Nations, New York, 2013, *[link]*

Iacobuta, G. and N. Höhne (2017) *Low-carbon Transition under Agenda 2030: Climate-development Trade-offs and Synergies,* NewClimate Institute.

Iacobuta, G., N. Höhne, M. Roelfsema, H. van Soest, and D. van Vuuren (2018) C

IPCC (2014) *Fifth Assessment Report,* Intergovernmental Panel on Climate Change, *[link]*

Iacobuta, G., N. Höhne, M. Roelfsema, H. van Soest, and D. van Vuuren (2018) Climate mitigation policies in the context of sustainable development, published in Linking Climate and Development Policies – Leveraging International Networks and Knowledge Sharing, available at *[link]*

Lozano, R. (2012) *Global and regional mortality from 235 causes of death for 20 age groups in 1990 and 2010: A systematic analysis for the Global Burden of Disease Study 2010*, The Lancet, *[link]*

Marston, A. (2014) *Doubling climate ambition: Discussion paper on how the post-2015 and UNFCCC processes complement each other,* Marston Consulting Discussion Paper, *[link]*

NAPCC (2008) *India's National Action Plan on Climate Change, [link]*

ND-GAIN (2017) *University of Notre Dame Global Adaptation Initiative Country Index, E*nvironmental Change Initiative, *[link]*

Pradhan, P. L. Costa, D. Rybski, W. Lucht, and J. P. Kropp (2017) *A systematic study of Sustainable Development Goal (SDG) interactions, Earth's Future,* 5. doi: 10.1002/eft2.266.

Sathaye, J., P.R. Shukla, and H.N. Ravindranath (2006) *Integrating Climate Change, Sustainable Development and India: Global and National Concerns,* in: Current Science, Special Section: Climate Change and India, Vol. 90, No. 3 (10 February 2006).

SDSN (2015) *Data for Development: A Needs Assessment for SDG Monitoring and Statistical Capacity Development,* Sustainable Development Solution Network.

SEI (2017) *NDC-SDG Connections: Connecting climate action to the Sustainable Development Goals, [link]*

Syed, A.A. and Z. Niazi (2016) *Avenues of Alignment between Sustainable Development Goals and the Paris Agreement in India.*

TERI (2017) *SDG footprint of Asian NDCs: Exploring synergies between domestic policies and international goals, [link]*

UN (2015a) *Transforming our World: The 2030 Agenda for Sustainable Development,* United Nations General Assembly, A/RES/70/1, New York, September 2015, *[link]*

UN (2015b) *DRAFT TEXT on COP21 Agenda item 4(b)*, version 2 of 10 December 2015 at 21:00, *[link]*

UN (2015c) *Paris Agreement,* UNFCCC, Paris, December 2015, *[link]*

Vardhan, H. (2017) *India working on developing a roadmap for NDC implementation,* in: Daily Excelsior, *[link]*

Von Stechow, C., Minx, J., Riahi, K., Jewell, J., McCollum, D., Callaghan, M., Bertram, C., Luderer, G. and Baiocchi, G. (2016) 2°C and SDGs: *United they stand, divided they fall?*, Environmental Research Letters. IOP Publishing, 11(3), p. 34022. doi: 10.1088/1748-9326/11/3/034022.

WRI (2016) *Examining the alignment between the Intended Nationally Determined Contributions and Sustainable Development Goals,* World Resources Institute, *[link]*

WRI (2017) *Six Early Lessons on Long-Term Climate Strategies,* World Resources Institute, https://wri.org/blog/2017/09/6-early-lessons-long-term-climate-strategies.

WWF and CARE (2015) *TWIN TRACKS: Developing sustainably and equitably in a carbon-constrained world,* 2nd edition including the Addis Abeba Action Agenda, *[link]*