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International Climate Initiatives – A way forward to close the emissions gap?

Initiatives' potential and role under the Paris Agreement

Final Report

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International Climate Initiatives – A way forward to close the emissions gap?

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Final Report

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Abstract

Current commitments under the Paris Agreement are not sufficient to limit global warming to well below 2°C above pre-industrial levels; the UNEP Emissions Gap Report 2015 showed that a mitigation gap of 14 GtCO₂e exists for 2030. Against this background international climate initiatives can play an important role for reducing global emissions. This study is a first attempt to quantify the potential impact of international initiatives in comparison to the INDCs. For Brazil, China, the European Union (EU), India, Indonesia, Japan, Russia, United States of America (USA) and the “Rest of World”, we compare the ambition level of 19 initiatives with those of the INDCs. The initiatives were selected based on their expected contributions, sectoral scope and other criteria. In total we sampled 174 initiatives but most did not publish sufficient information, have unclear goals or do not propose concrete actions and were therefore excluded.

Under the assumption that the 19 assessed initiatives will meet their targets we find that they could reduce global emissions by 5 - 11 GtCO₂e in 2030 beyond the national targets by countries. In addition, these initiatives help governments in meeting their nationally determined contributions. The comparison of stringency shows that many initiatives have targets that are more ambitious than those of national governments. If the national governments would take all of the actions into account, they could be more ambitious in their national contributions. Out of the sampled initiatives those with active involvement of NGOs either as leader or member tend to lead to higher reductions and more co-benefits. Another common element of many successful initiatives is a permanent secretariat.

Kurzbeschreibung

Die unter dem Übereinkommen von Paris eingereichten nationalen Klimaschutz-Zusagen der Länder reichen nicht, um das Ziel einer Begrenzung der Erderwärmung auf deutlich unter 2 °C zu erreichen. Der UNEP Emissions Gap Report 2015 geht von einer Minderungslücke von 14 GtCO₂e zwischen den Zusagen und einem 2 °C kompatiblen Zielpfad in 2030 aus. Vor diesem Hintergrund können internationale Klimaschutzinitiativen eine wichtige Rolle haben, um die Minderungslücke zu schließen. Diese Studie ist ein erster Versuch, den möglichen Minderungsbeitrag den Initiativen im Vergleich zu den NDCs zu quantifizieren. Dazu wurden 19 relevante Initiativen und ihre Wechselwirkung mit den Zielen von Brasilien, China, die EU, Indien, Indonesien, Japan, Russland und den USA analysiert. Die Initiativen wurden auf Basis ihrer erwarteten Minderungsbeiträge, ihrer Themengebiete und anderer Faktoren ausgewählt. Insgesamt haben wir 174 Initiativen geprüft und die meisten wegen fehlender Informationen, unklaren Zielen oder fehlender Minderungsaktionen von der weiteren Analyse ausgeschlossen.

Sollten die 19 Initiativen ihre Ziele erreichen, könnten sie nach unseren Berechnungen die globalen THG-Emissionen in 2030 um 5-11 GtCO₂e zusätzlich zu den NDC reduzieren. Zusätzlich unterstützen sie die Länder dabei, ihre nationalen Ziele zu erreichen. Ein Vergleich der Ambitionsniveaus zeigt, dass viele Initiativen deutlich über die Ziele der Regierungen hinausgehen wollen. Entsprechend könnten die Länder ambitioniertere Ziele übernehmen, wenn sie die Beiträge der Initiativen berücksichtigen würden. Eine aktive Beteiligung der Zivilgesellschaft entweder als Initiator oder als Mitglied einer Initiative führt i.d.R. zu höheren Minderungszielen und mehr Zusatznutzen. Ein ständiges Sekretariat ist anderes gemeinsames Element vieler erfolgreicher Initiativen.

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List of Abbreviations

ABAOCP	Caring for Climate, the American Business Acts on Climate Pledge
C40	Cities Climate Leadership Group
CAT	Climate Action Tracker
CCAC	Climate and Clean Air Coalition
CP	Current Policies Scenario from the IEA World Energy Outlook 2015
EU	European Union
EWI	European Wind Initiative
GBPN	Global Buildings Performance Network
GCFTF	Governors' Climate and Forests Task Force
GFEI	Global Fuel Economy Initiative
GHG	Greenhouse gas
GMI	Global Methane Initiative
ICI	International Climate Initiative
INDC	Intended Nationally Determined Contributions
LULUCF	Land-use, land-use change and forestry
MRV	Monitoring, Reporting and Verification
MtCO₂e	Megatons of CO ₂ equivalent
NAZCA	Non-State Actor Zone for Climate Action
NGO	Non-governmental organisation
NPS	New Policy Scenario from the IEA World Energy Outlook 2015
NYD	New York Declaration on Forests
RE	Renewable Energies
SEAD	Super-efficient Equipment and Appliance Deployment Initiative
SEII	Solar Europe Industry Initiative
UIC	Low-Carbon Sustainable Rail Transport Challenge
ULCOS	Ultra-Low CO ₂ Steelmaking Initiative
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
WEO	World Energy Outlook

Summary

In December 2015, Parties adopted the Paris Agreement at the 21st session of the United Nations Framework Convention on Climate Change (UNFCCC). In Article 2 governments agreed to limit global warming to “well below 2°C above pre-industrial levels” and to pursue to limit it to 1.5°C (UNFCCC 2015). The United Nations Environment Programme (UNEP) Emissions Gap Report 2015 showed that a gap of 14 gigatons of CO₂ equivalent (GtCO₂e) exists for 2030 between the mitigation proposals submitted by Parties as part of their Intended Nationally Determined Contributions (INDCs) and a pathway compatible with holding temperature increase below 2°C (UNEP 2016). Against this background international climate initiatives can play an important role for reducing global emissions. Based on an analysis of 174 initiatives we analysed the potential impact of these initiatives on GHG emissions, shared elements of initiatives which have a high impact and the relationship between such initiatives and the UNFCCC.

This study is a first attempt to quantify the potential impact of international initiatives in comparison to the INDCs. For Brazil, China, the European Union (EU), India, Indonesia, Japan, Russia, United States of America (USA) and the “Rest of World”, we compare the ambition level of 19 initiatives with those of the INDCs. The study involved the following key steps:

- 1) In a first step we screened 174 initiatives examining their topic area, scope, expected impact, participants and setup. Based on this screening we defined a set of nine criteria to identify those initiatives suitable for further quantitative and qualitative analysis.
- 2) As a second step we did a quantitative analysis. We first assessed the mitigation impact of the selected initiatives in a Paris Agreement World, i.e. assuming that the world at large will follow an emission pathway based on the implementation of all INDCs. Secondly we broke the impact down on a national level taking into account national INDCs and the overlap between different initiatives addressing the same sector. Thirdly, we added all remaining impact of the initiatives to estimate how much they can help reduce emissions beyond current pledges.
- 3) In a third step we then identified good practice elements shared by initiatives with high impact through a correlation analysis.
- 4) Finally, we discuss the relationship between these initiatives and the UNFCCC.

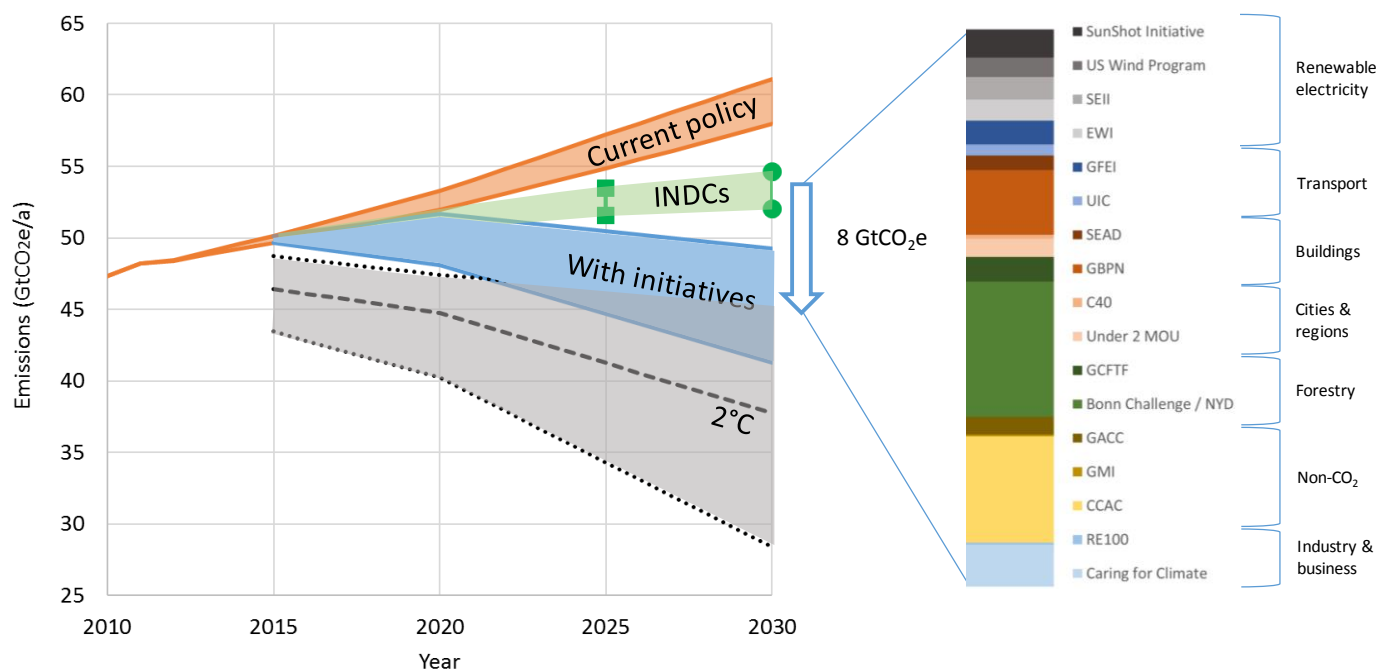
For all of the key steps of our analysis we assumed that all initiatives will achieve their goals. Additionally, we assumed that all countries will achieve their INDC and not reduce their own efforts due to any additional mitigation coming from such initiatives.

The main results of our analysis are:

- ▶ Initiatives can play an important role in the transition to a low carbon economy. We estimate that the 19 quantified initiatives have the potential to reduce emissions by approx. 5 - 11 GtCO₂e/year (average 8 GtCO₂e/year) compared to an INDC background in 2030. Corresponding global emissions would peak by 2020 and bring the world much closer to a 2°C compatible pathway (Figure 1.1).
- ▶ Climate initiatives contribute towards achieving INDCs by helping governments in achieving their targets. National governments could be more ambitious with their national contributions to the Paris Agreement, if they would take into account the various actions by cities, regions, businesses and sectors that have been pledged and go beyond their INDCs.
- ▶ Non-state action and national action reinforce each other. Both pull in the same direction. The comparison of stringency shows that many initiatives have targets that are more ambitious

- than those of national governments. If the national governments would take all of the actions into account, they could be more ambitious in their national contributions.
- ▶ Out of the sampled initiatives those with active involvement of NGOs either as leader or member tend to lead to higher reductions and more co-benefits. Another common element of many successful initiatives is a permanent secretariat. Voluntary agreements are more suitable for short-term reductions but have a less important role for 2030 targets.
 - ▶ Most international initiatives are not quantifiable. For some this is due to their inherent nature (e.g. focus on information exchange or MRV) but for many there is a lack of a clearly defined target, information on actions planned/taken and their impact or follow-up on initial announcements. Adequate reporting from initiatives would greatly enhance transparency, help replicate impacts, inform national governments and the UNFCCC process and facilitate access to funding for the initiatives themselves. A standardised reporting format could greatly enhance transparency.
 - ▶ Large uncertainties remain and further work is needed. Firstly, we did not analyse whether the initiatives are likely to achieve their targets. Such an assessment would most likely lead to reduced impacts by 2030. On the other hand, we were only able to quantify about one tenth of all the screened initiatives. Adequate reporting would increase the overall impact of climate initiatives.

Figure 1.1 Global emission (incl. LULUCF) and emissions reduction from initiatives



Note: Global emission levels incl. land-use, land-use change and forestry (LULUCF) (historic, future under current policies, and future under INDC levels) along with the potential overachievement of INDC levels by the analysed initiatives scaled up to the global level. The dashed (dotted) lines indicate the median (10th/90th percentile values) of global 2°C compatible pathways (CAT, 2015). Right: Disaggregation of the contribution of initiatives overachieving INDCs by initiative in 2030 (average number shown). The two CCAC sub-initiatives we analysed (on HFC and CH₄ reduction, respectively) have been grouped together under “CCAC”. Initiatives with less than 10 MtCO₂ expected contribution (ABAOCP and ULCOS) are not in the legend as they are not visible in the graph.

Source: Author’s own calculations (initiatives), Climate Action Tracker (2015) (current policies, INDCs)

Zusammenfassung

Im Dezember 2015 haben die Vertragsstaaten das Übereinkommen von Paris (ÜvPris) während der 21. Sitzung der Klimarahmenkonferenz beschlossen. In Artikel 2 haben sich die Regierungen darauf geeinigt, die Erderwärmung auf "deutlich unter 2 °C" und idealerweise auf 1,5 °C zu begrenzen (UNFCCC 2015). Nach einem Bericht des Umweltprogramms der Vereinten Nationen (UNEP) besteht im Jahr 2030 eine Minderungslücke von 14 GtCO_{2e} zwischen den in den Klimaschutz-Zusagen der Länder (Nationally Determined Contributions, NDC) und 2°C kompatiblen Emissionspfaden (UNEP 2016). Vor diesem Hintergrund können internationale Klimaschutzinitiativen eine wichtige Rolle haben, um die Minderungslücke zu schließen. Für diese Studie wurde auf Basis von 174 Initiativen ein möglicher Minderungsbeitrag abgeschätzt, Gemeinsamkeiten erfolgreicher Initiativen identifiziert und eine effektivere Kooperation mit dem UNFCCC-Prozess skizziert. Die Studie ist Teil eines Forschungsvorhabens im Auftrag des Umweltbundesamtes.

Diese Studie ist ein erster Versuch, den möglichen Minderungsbeitrag der Initiativen im Vergleich zu den NDCs zu quantifizieren. Dazu wurden 19 relevante Initiativen und ihre Wechselwirkung mit den Zielen von Brasilien, China, die EU, Indien, Indonesien, Japan, Russland und den USA analysiert. Dazu wurde als erstes die öffentlich verfügbare Information von 174 Initiativen untersucht und Kriterien entwickelt, auf deren Basis die Initiativen für eine vertiefte quantitative und qualitative Analyse ausgewählt wurden. In der quantitativen Analyse wurde vor dem Hintergrund des Übereinkommens von Paris der mögliche Beitrag zur globalen Emissionsminderung abgeschätzt. Dabei wurde angenommen, dass die Länder ihre selbstgesteckten Ziele in den NDCs erreichen werden. Auf nationaler Ebene wurden dabei auch Überlagerungen zwischen Initiativen berücksichtigt, um eine Doppelzählung zu vermeiden. Im qualitativen Teil wurden über eine Korrelationsanalyse Gemeinsamkeiten erfolgreicher Initiativen identifiziert. In einem letzten Schritt diskutieren wir das Verhältnis zwischen den internationalen Klimaschutzinitiativen, den nationalen Zielen und dem UNFCCC-Prozess. Für alle Schritte dieser Studie wurde dabei angenommen, dass die Initiativen ihre Ziele erreichen werden. Zusätzlich wurde angenommen, dass alle Länder ihre NDC ohne den Beitrag der Initiativen erreichen werden, d.h. ihre eigenen Anstrengungen trotz der Beiträge der Initiativen nicht zurückfahren.

Die wichtigsten Ergebnisse der Studie sind:

- ▶ Initiativen können eine wichtige Rolle bei dem Übergang in eine Niedrigemissionswelt spielen. Nach unseren Berechnungen können die 19 quantifizierten Initiativen die globalen THG-Emissionen in 2030 um 5-11 GtCO_{2e}/Jahr mit einem Mittelwert von 8 GtCO_{2e}/Jahr zusätzlich zu den NDC reduzieren. Die globalen Emissionen würden schon in 2020 ihr Maximum erreichen und nah an einem 2°C kompatiblen Emissionspfad liegen (Abbildung).
- ▶ Klimaschutzinitiativen unterstützen die nationalen Regierungen dabei, ihre NDC-Ziele zu erreichen. Gleichzeitig können die Länder ambitioniertere Ziele übernehmen, wenn sie die Minderungsbeiträge der Städte, Regionen, des Privatsektors und der Zivilgesellschaft berücksichtigen.
- ▶ Nicht-staatliche Akteure und Regierungsprogramme können sich gegenseitig unterstützen. Ein Vergleich der Ambitionsniveaus zeigt, dass viele Initiativen deutlich über die Ziele der Regierungen hinausgehen wollen.
- ▶ Eine aktive Beteiligung der Zivilgesellschaft entweder als Initiator oder als Mitglied einer Initiative führt i.d.R. zu höheren Minderungszielen und mehr Zusatznutzen. Ein ständiges Sekretariat ist anderes gemeinsames Element vieler erfolgreicher Initiativen. Freiwillige Vereinbarungen können für kurzfristige Emissionsreduktionen am effektivsten sein, vor dem mittelfristigen Zeithorizont bis 2030 spielen sie nur eine untergeordnete Rolle.

- ▶ Die meisten der untersuchten Initiativen konnten nicht quantifiziert werden. Teilweise lag dies daran, dass einige Initiativen keine eigenen direkten Minderungen verfolgen sondern eine breite Informationsplattform zur Verfügung stellen. Der weitaus größere Teil der Initiativen hat aber entweder kein klares und quantifizierbares Ziel, stellt keine Informationen zu den geplanten Maßnahmen zur Umsetzung zur Verfügung oder ist im Stadium der Ankündigung verharret. Transparente und konsistente Berichterstattung durch die Initiativen würde dazu beitragen, dass die Minderungen wahrgenommen und aufgenommen würden, dass Erfolge repliziert werden könnten und würden den Zugang zu Klimaschutzfonds erleichtern. Ein gemeinsames Berichterstattungsformat könnte dazu beitragen, dass die Informationen transparent zur Verfügung gestellt würden.
- ▶ Die hier durchgeführten quantitativen Abschätzungen haben große Unsicherheiten und können nur einen ersten Schritt darstellen. Zum einen wurde nicht untersucht, ob die Initiativen überhaupt in der Lage sind ihre Ziele zu erreichen. Dies würde vermutlich zu einem deutlich niedrigeren Minderungspotential in 2030 führen. Gleichzeitig konnte nur ca. ein Zehntel der untersuchten Initiativen überhaupt quantifiziert werden.

Idealerweise führt dies dann dazu, dass die Länder im Rahmen des *global stocktake* auch ihr Ambitionsniveau steigern. Neben dem direkten Beitrag zur Reduktion von THG-Emissionen können Initiativen auch aufzeigen, wie Barrieren abgebaut und Politiken effektiver gestaltet werden können. Insbesondere in Sektoren, die von Regierungen in der Vergangenheit nicht erfolgreich in ihre nationalen Klimaschutzprogramme aufgenommen wurden, können Initiativen helfen dieses Minderungspotential zu realisieren. Eine Herausforderung dabei ist, wie die Minderungen aber auch die (Miss-)Erfolge von Initiativen in die internationalen Verhandlungen zurückgespielt werden können und in welcher Form der UNFCCC-Prozess die Initiativen unterstützen kann.

Eine wesentliche Voraussetzung ist, dass die Initiativen transparent, regelmäßig und nachvollziehbar berichten. Dies könnte durch den UNFCCC-Prozess oder eine andere Institution durch ein einheitliches Berichtsformat erleichtert werden. Für eine konsistente Berichterstattung sollten u.a. folgende Punkte enthalten sein:

- ▶ Themenbereich, Treibhausgase, Zielgruppen
- ▶ Geplante und durchgeführte Aktionen und Maßnahmen
- ▶ Wirkungen (Annahmen, Datenbasis, Minderungspotential, methodische Informationen)
- ▶ Aktueller Status: Regelmäßige Aktualisieren. Zusätzlich alle fünf Jahre vor dem *global stocktake* ein ausführlicherer Bericht mit detaillierteren Informationen.

Finanzielle Unterstützung: Das Übereinkommen von Paris sieht vor, dass auch internationale Initiativen Zugang zu den UNFCCC-Fonds wie z.B. dem Green Climate Fund und der Global Environmental Facility haben können (UNFCCC 2015, para. 58). Mögliche Kriterien bei der Auswahl der unterstützten Initiativen könnten dabei eine transparente Berichterstattung sowie ein Minderungsbeitrag jenseits der NDC sein. Auch die identifizierten Punkte zur guten Praxis wie z.B. ein permanentes Sekretariat könnten eine Rolle spielen.

Diese Empfehlungen sollen dazu beitragen, zwei mögliche Schwächen von und Kritikpunkte an internationalen Klimainitiativen abzumildern: Zum einen wird bezweifelt, dass Initiativen ihre teilweise sehr ambitionierten Ziele überhaupt erreichen können. Zum anderen gehen die Erfahrungen und Erfolge nicht in den UNFCCC-Prozess ein, weil die Initiativen keine exponierte Rolle spielen. Eine verbesserte und transparente Berichterstattung von Initiativen mit gleichzeitigen finanziellen Anreizen kann zu Synergien zwischen dem zwischenstaatlichen Prozess und den nicht-staatlichen Akteuren und idealerweise ambitionierteren NDCs alle fünf Jahre führen.

Abbildung Globales Emissionsszenario (inklusive des LULUCF-Sektors) sowie Emissionsminderungspotentiale durch die Initiativen

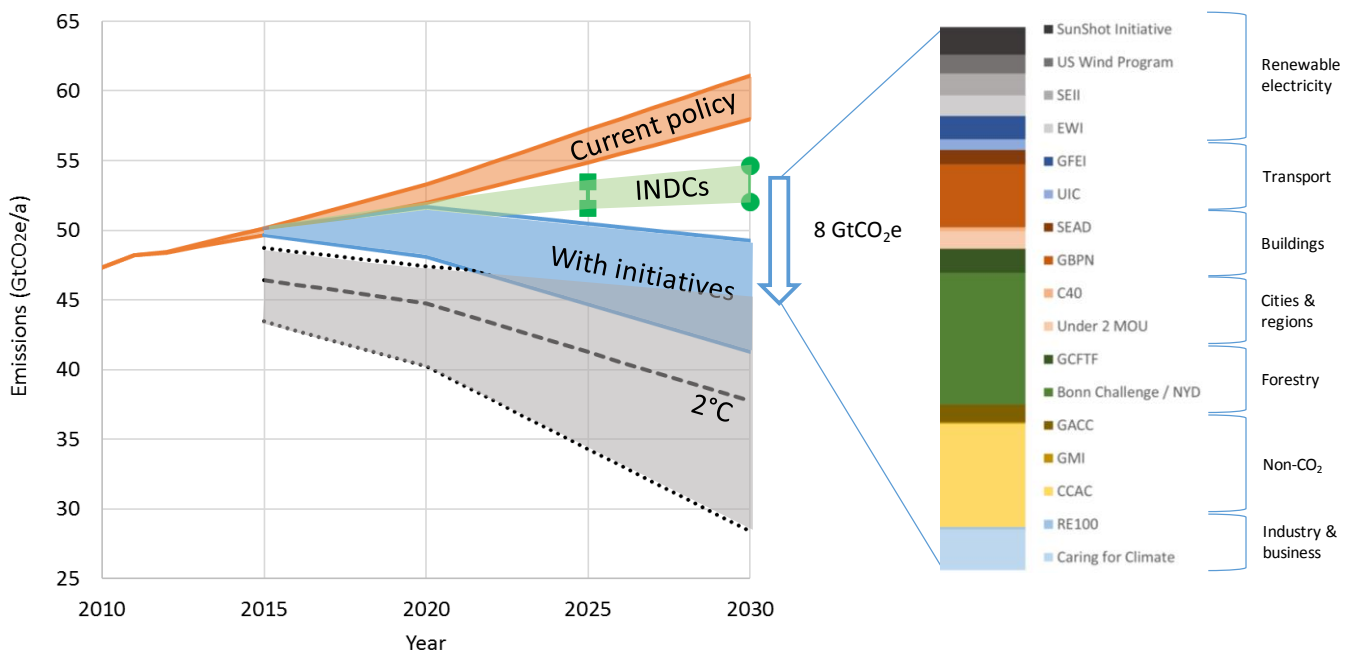


Abbildung: Globale Emissionsentwicklungen inklusive des LULUCF-Sektors (historisch, zukünftig unter Berücksichtigung der aktuellen Politikmaßnahmen, und zukünftig unter Berücksichtigung der NDCs) zusammen mit dem aggregierten Potential zur Emissionsminderung der Initiativen auf globaler Ebene, welches über die Zielsetzung in den NDCs hinausgeht. Die gestrichelte (gepunktete) Linie zeigt den Median (die Werte des 10. bzw. 90. Perzentils) des globalen Emissionspfades im Einklang mit einer maximalen globalen Erderwärmung von 2°C an (CAT, 2015). Rechts: Aufteilung der Potentiale zur Emissionsminderung je Initiative, welches über die NDCs hinausgehen (Durchschnittswerte angegeben). Die zwei analysierten emissionspezifischen Initiativen des CCAC (zur Reduktion von HFC- und CH₄-Emissionen) wurden unter „CCAC“ zusammengefasst. Initiativen mit einem erwarteten Beitrag von weniger als 10 MtCO₂ (ABAOCP und ULCOS) sind nicht in der Erklärung der Tabelle aufgeführt, da diese im Graph nicht sichtbar sind.

Quelle: Eigene Abbildung der Autoren (Initiativen), Climate Action Tracker (2015) (aktuelle Politikmaßnahmen, NDCs)

1 Introduction

In December 2015, Parties adopted the Paris Agreement at the 21st session of the UNFCCC. In Article 2 governments agreed to limit global warming to “well below 2°C above pre-industrial levels” and to pursue to limit it to 1.5°C (UNFCCC 2015). According to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC), global greenhouse gas (GHG) emissions need to decrease by at least 40% to 70% below current levels by 2050, in order to hold temperature increase below 2°C. During the preparation of the Paris Agreement the Work Stream II of the Ad-hoc Working Group on the Durban Platform for Enhanced Action focused on enhancing mitigation actions up to 2020, with the objective to increase efforts in the near future already. This is necessary as the existing mitigation proposals for the year 2020 are insufficient to hold the temperature increase below 2°C compared to pre-industrial levels. The UNEP Emissions Gap Report 2015 showed that a gap of 14 GtCO_{2e} exists for 2030 between the mitigation proposals submitted by Parties as part of their INDCs and a pathway compatible with holding temperature increase below 2°C (UNEP 2016). The report also stresses the importance of pre-2020 action for achieving the overall mitigation target.

Besides discussions about increasing the ambition of national mitigation targets of individual countries under the UNFCCC, Work Stream II also discussed which role other international initiatives which are not part of the UNFCCC could play in the climate negotiations. It is currently unclear how the process will integrate and account for these activities. The negotiations so far have provided a platform for sharing information on climate initiatives outside the UNFCCC; however, they have not yet led to an increase in ambition in specific sectors. Further, large uncertainty about the potential mitigation impact of these initiatives exists. It is for example unclear, how the ambition level of national actions and targets overlaps with that of international initiatives.

Within the literature attempts have been made to estimate the impact of international initiatives. For example, PBL estimates reductions of 2.5 GtCO_{2e} in 2020 and 5.5 GtCO_{2e} in 2030 resulting from the most relevant initiatives, of which 1.8 GtCO_{2e} in 2020 and 3.8 GtCO_{2e} in 2030 overlap with the impact of national pledges and policies (Roelfsema et al. 2015). The overlap goes back to the assumption that emission reductions are only additional, if the country whose emissions are affected does not have a pledge or does not include the targeted sector in their pledge. Further, the report estimates an overlap between the initiatives of 0.2 GtCO_{2e} in 2020 and 0.3 GtCO_{2e} in 2030. UNEP estimates that 15 major initiatives could reduce emissions by 2.5 to 3.3 GtCO_{2e} in 2020 (UNEP 2015). The authors of the report assume an overlap of these initiatives with national pledges of one third or less. This is based on a comparison of the existing pledges and the overall mitigation potential.¹ Another study analyses the impact of initiatives communicated during the New York Climate Summit in 2014 (Hsu et al. 2015). The authors estimate that the initiatives could reduce 2.5 GtCO_{2e} in 2020. The study does not quantify the overlap with national pledges in detail but notes that the “Summit’s pledges amount to roughly the same magnitude of emissions reductions as national pledges”.

¹ Both the UNEP and PBL studies include potential LULUCF emission reductions from initiatives in the forestry sector in their assessment.

This study aims at further contributing to increasing the clarity on the role of international initiatives by quantifying their emission reductions and comparing this to the emission levels currently assumed under INDCs.² After the selection of a number of initiatives to analyse (refer to section 2 and 3) the following research questions were set:

- ▶ What is the potential impact of the initiatives on GHG emissions? To answer this question, first a quantitative analysis of the technical potential of the initiatives is required. Additionally, one needs to check how the initiatives relate to other already ongoing actions, such as national climate policy making, INDCs and other initiatives (see section 4).
- ▶ What classifies a good initiative? To answer this question, the report will evaluate which elements make an initiative successful and improve its capacity to effectively reduce emissions (see section 5).
- ▶ How do initiatives relate to the climate negotiations under the UNFCCC? This part of the project analyses options to integrate initiatives in the UNFCCC process and provides recommendations for the negotiations (see section 6).

Concluding remarks on the outcome of the project are summarised in section 7 along with recommendations on how the analysis could be further improved in the future.

² In this report we refer only to INDCs, however the term also includes NDCs from countries that have already ratified the Paris Agreement.

2 Overview of climate initiatives outside UNFCCC

2.1 General overview

Many different terms surround international initiatives for climate change mitigation. Examples are “non-state action”, “initiatives outside UNFCCC”, and “international cooperative initiatives”. Initiatives are a flexible concept, meaning that governance structures and possible areas activities are open. For the sake of this study we use the term International Cooperative Initiatives (ICIs) and define this as follows:

- ▶ ICIs involve stakeholders from different national or subnational governments and/or companies, academia and/or civil society.
- ▶ ICIs have the aim of reducing GHG emissions directly (e.g. through implementation of mitigation actions) or indirectly (e.g. through knowledge sharing).
- ▶ ICIs can be dialogues, processes for implementation of mitigation activities or official multi-lateral negotiations outside of the UNFCCC (e.g. Montreal Protocol). For this report, we exclude climate financing initiatives which are driven exclusively by one country (e.g. the International Climate Initiative of the German government).
- ▶ The geographic scope of ICIs is either international or covers a number of actors in one country and its activities have the potential to be replicated elsewhere.

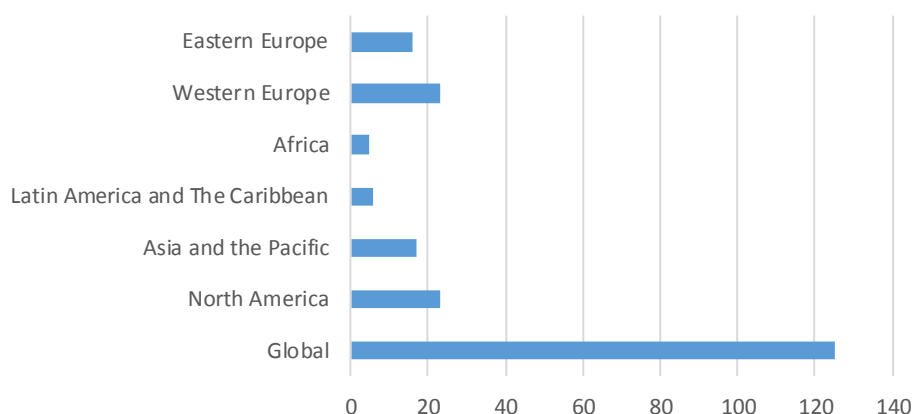
Initiatives listed in the Climate Initiatives Platform³ and the UNFCCC’s „Non-State Actor Zone for Climate Action“ (NAZCA) were assessed using these definitions. In total 174 initiatives were identified for further analysis. This is a smaller number in comparison to the NAZCA platform, where any kind of non-national government action is currently registered, resulting in about 4400 registered commitments. The reason for the difference is the narrower definition of initiatives for this report, and also, that we draw together individual targets under one initiative to one initiative in total. In addition, we exclude initiatives which have ended already.

2.2 Distribution of initiatives across sectors, regions and participants

This section illustrates the distribution of initiatives to topics, regions and types as well as their functions. Figure 2.1 illustrates the distribution of initiatives to regions. It shows that by far the largest share of initiatives has global coverage. Of those initiatives that are limited to specific regions, most cover North America, followed by Europe and Asia and the Pacific. There are few initiatives with a focus on Africa or Latin America and the Caribbean. These numbers provide support to the general perception that initiatives are an instrument that mainly involves actors of the global North (compare Chan & Thomas Hale (2015)).

³ www.climateinitiativesplatform.org

Figure 2.1 Number of initiatives covering geographic regions



Source: Authors

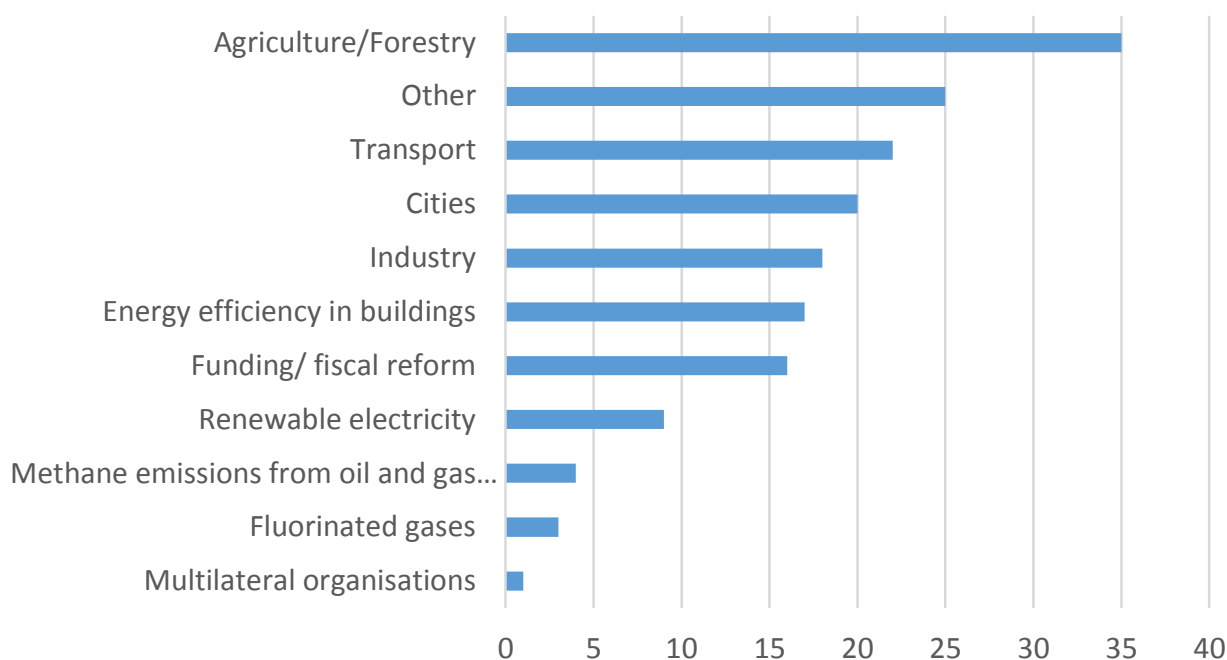
Note: Global initiatives are not counted for individual regions. One initiative may cover various regions.

Figure 2.2 gives an overview of the distribution to focus areas. Themes which are well covered by initiatives are renewable energy and energy efficiency, as well as cities and subnational governments and businesses. In terms of sectors, agriculture and forestry as well as transport are a main focus of initiatives. Other sectors (energy supply, industry, buildings) are all of similar importance. Areas which are less covered are the multilateral organisations, fluorinated gases and methane emissions from oil and gas production. Reasons for this could be that those issues are well covered in other mechanisms (e.g. F-gases under the Clean Development Mechanism, short term pollutants heavily regulated by legislation already).

Figure 2.3 illustrates the distribution of types of initiatives in terms of their main activity. The figure shows that most (70%) of the initiatives focus on the implementation of activities to reduce GHG emissions. Examples are companies or cities agreeing to reduce their emissions. Further, many activities take place as technical dialogues, where participants generate and/or share information on mitigation actions, with the objective to incentivise emission reductions among their members or even the complete sector. Less common are political dialogues and intergovernmental processes.

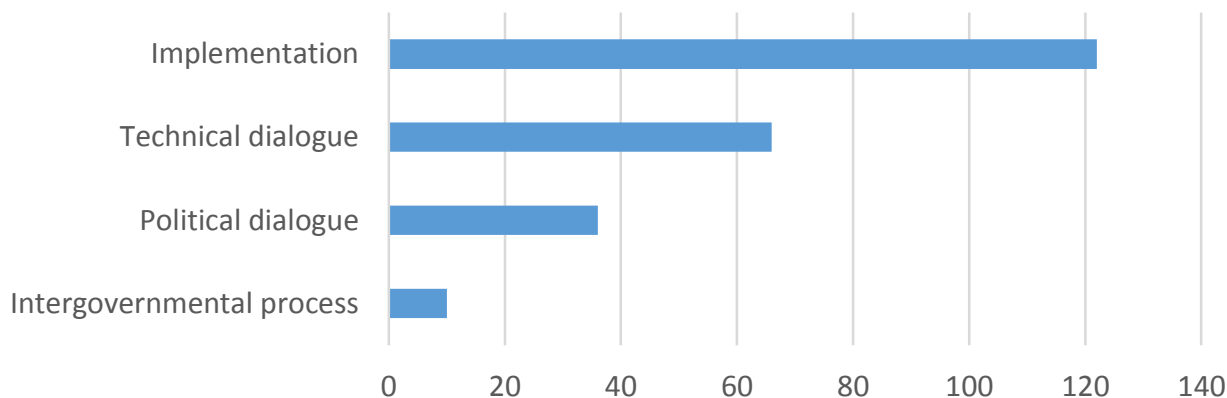
The distribution of the type of initiatives reflects the tendency of initiatives to be close to the activities on the ground, where activities are happening. In many cases, the initiatives originate from actors in the sector, with concrete ideas on how to address activities there.

Figure 2.2 Coverage of focus areas of initiatives



Source: Authors

Figure 2.3 Distribution of types of initiatives

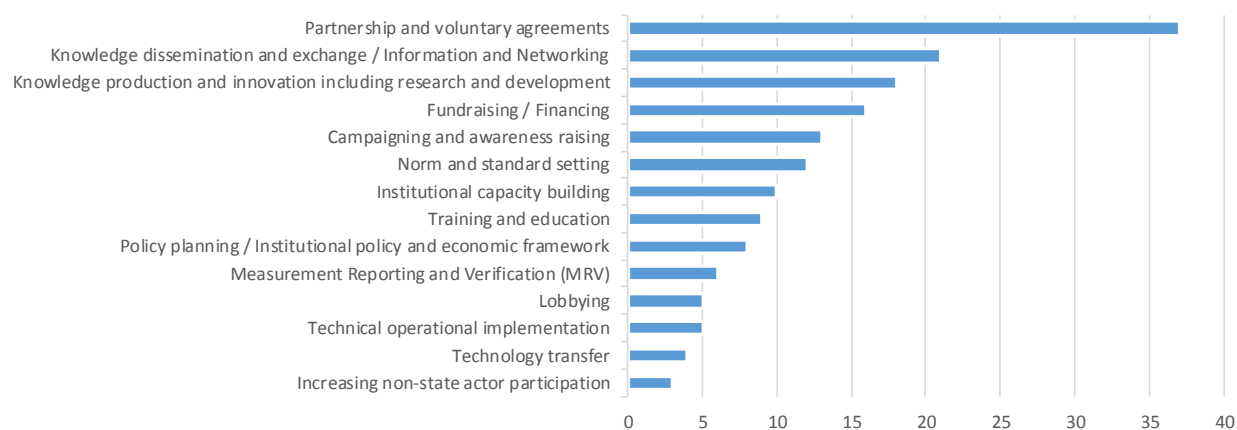


Source: Authors

Note: One initiative may be assigned to various types.

Figure 2.4 shows the distribution of initiatives to “functions”, which could also be seen as the means of achieving the initiatives’ objectives. The predominant function among the initiatives are by far “partnerships and voluntary agreements”. Other important functions are “knowledge production”, “knowledge dissemination” and “campaigning and awareness raising”. This indicates a focus on the cooperation aspect of initiatives, however also shows that actual implementation of measures is often less of a priority. Interesting to note is the function “fundraising/financing” as the fourth important function.

Figure 2.4 Distribution of primary function of initiatives



Source: Authors

2.3 Characteristics of initiatives and topic areas

This section describes to what extent existing initiatives comply with certain characteristics that are important for their operations, such as whether they have a clear commitment, a reporting and monitoring framework or a permanent secretariat. Where relevant, this section also indicates difference for certain topic areas.

A further relevant indicator would be whether and for how many years the initiatives have secure funding available. However this data is available only for a very limited number of initiatives, so that we could not analyse this point in this report.

2.3.1 Formulation of commitments

Of the 174 initiatives, 46, or about 25%, have a clear commitment. In some cases this commitment is of a qualitative nature, or there is no overarching commitment for the total initiative, but the commitments are fixed on a member level. Most initiatives with clear commitments are in the transport sector, followed by cities, agriculture and forestry and industry. Further, renewable electricity and energy efficiency in buildings have a relatively high number of initiatives with a commitment.

These numbers approximately reflect the distribution of topic areas, nevertheless, some topic areas with a large number of initiatives overall tend to have less clearly formulated commitments. The largest deviation is evident in the sector “agriculture and forestry”, where there are more than 35 initiatives in total, but only 7 (19%) have a clear quantified commitment. This ratio is much more promising for initiatives for energy efficiency in buildings (38%) and renewable electricity (44%). However the total number of initiatives in these sectors is lower.

2.3.2 Reporting and monitoring

The availability of information on monitoring and reporting frameworks of the initiatives is unfortunately limited. From the description of the initiatives on their websites it is often not clear, whether they regularly monitor and report their activities or progress towards their targets. Thus, our data shows significant gaps here and the conclusions are limited.

Of the 174 initiatives included in this overview, 54 have implemented a framework for regular reporting. This may for example be annual reports of activities and progress of the overall initiative, or reporting of greenhouse gases emissions and/or reductions, other performance indicators or actions of individual members.

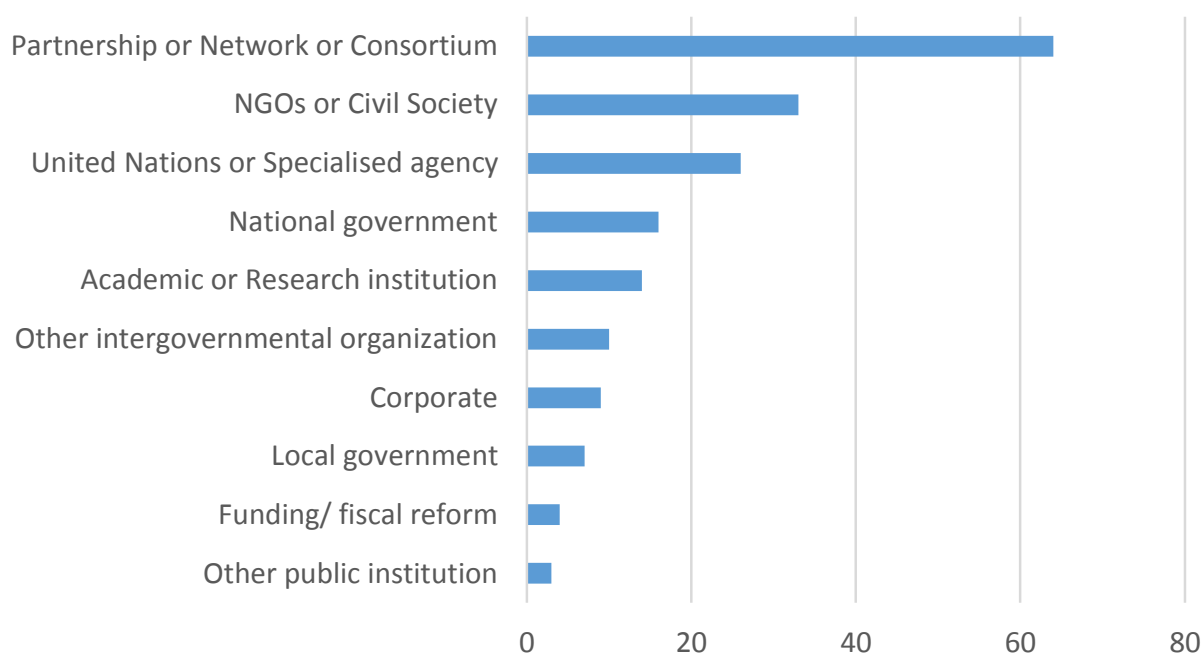
For 93 initiatives, no information could be found within the scope of this project phase. The remaining 27 either have in place conditions which would allow them to regularly report, although they do not yet do so, or do not have any monitoring and reporting system.

2.3.3 Distribution of responsibilities

Of all the initiatives considered here only 38 (22%) have established a permanent secretariat. This is of relevance as it provides the organisations with a stable structure and helps to assure continuance of the activities. Particularly in the transport sector, a high share of initiatives has a permanent secretariat (41%). This share is also high in the topic area “Methane emissions from oil and gas production”, however only four initiatives in this area are included in our analysis.

Figure 2.5 illustrates the distribution of initiatives to types of lead organisations. It shows that, for most of the initiatives, partnerships, networks or other consortia are involved in the lead. This result emphasises further the cooperative character of these initiatives. Other common types of lead organisations are NGOs and organisations under the United Nations. There is little variation of this pattern by topic area, except for financial institutions, which are exclusively involved in initiatives in their own sector, and the topic area “Cities”, where local governments are involved in the lead of many initiatives.

Figure 2.5 Types of lead organisation of initiatives

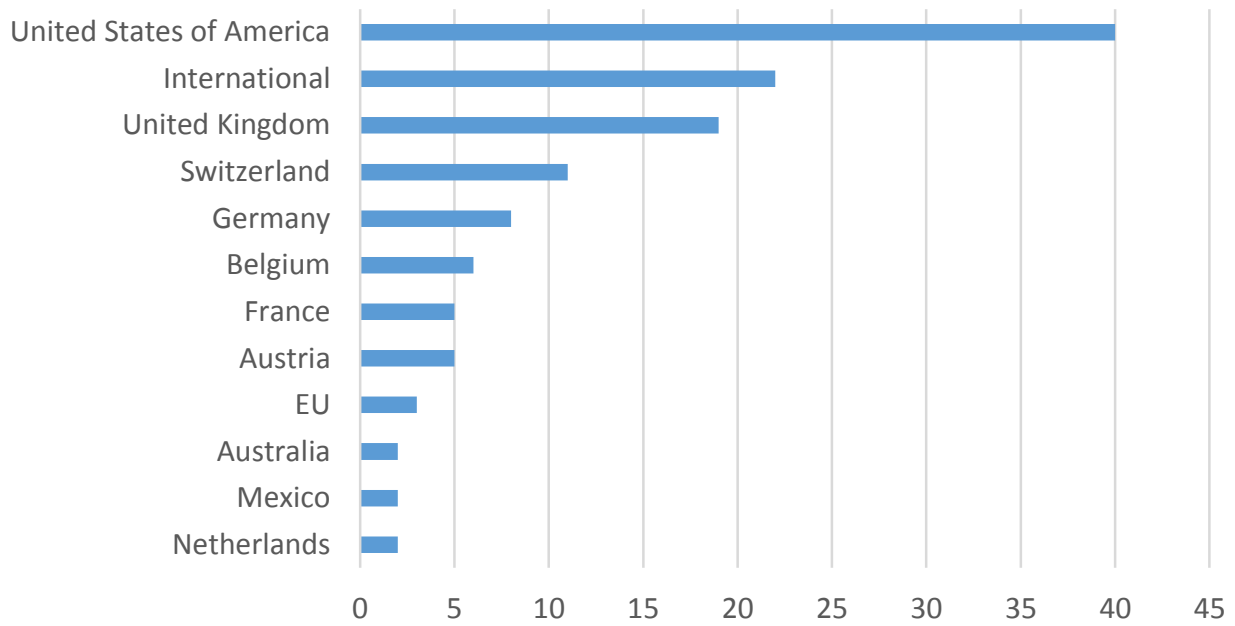


Note: One initiative may be led by various organisations, thus can be assigned to various types.

Another question, also related to the question of geographic coverage of initiatives (section 2.2), is in which part of the world the lead organisations are based. We find that the majority of initiatives are led by organisations based in the United States, followed by international organisations and institutions in the UK and Switzerland (see Figure 2.6). There does not seem to be any specific trend per topic area and nationality of the lead organisation that would hint to a distribution of specific topics to certain countries.

Mexico is the only developing country that hosts the lead institution of more than one initiative. This provides further evidence to the fact that currently initiatives are mostly driven by institutions based in the global north.

Figure 2.6 Nationality of lead organisation (shows countries with more than 1 initiative)



Note: "EU" means that the lead organisation is active EU wide (not focused on one EU member state)

3 Choice of initiatives and topic areas for further analysis

3.1 Criteria for choice of initiatives and topic areas

In order to select a number of initiatives which shall be analysed in greater depth over the course of this project, criteria need to be defined to choose certain initiatives and topic areas from the overall list of initiatives. In the next section, the mitigation contribution of the selected initiatives and their effectiveness in spurring change will be analysed and overlaps to national mitigation pledges will be identified. Due to their weight in the debate, it will be particularly interesting to analyse those initiatives that have a high mitigation potential. Thus, selection criteria need to be defined which make it possible to identify such potentially influential initiatives. On the basis of these considerations we propose the following selection criteria for identifying initiatives for the ensuing quantitative and qualitative analysis:

- ▶ **Concrete definition of aims and activities:** This does not per se exclude activities without a quantified target but requires that the goal of the initiatives and strategies to reach this goal are clearly defined in order to ensure that the initiative has good prospects to succeed in reaching its aims.
- ▶ **High mitigation impact in the envisaged topic area:** A high mitigation potential in the tackled area should have been identified by another source (e.g. UNEP gap report) to ensure that the initiative is able to make a meaningful contribution.
- ▶ **Direct mitigation impact expected:** It needs to be clearly stated how the initiative aims to contribute to mitigation so that a quantified impact can be expected or any other approach to contribute to mitigation is defined.
- ▶ **Meaningful geographical scope:** The initiative needs to have a scope that is sufficiently large to contribute to mitigation in a meaningful way.
- ▶ **Innovativeness of approach:** The initiative needs to be interesting and its approach needs to be able to trigger support for its cause as well as public attention.
- ▶ **Relevance of the issue:** The initiative needs to tackle an issue that is of interest for a sufficiently large group of stakeholders. Co-benefits such as improving air quality, reducing poverty or adaptation to climate change can dramatically increase the relevance for stakeholders and the likelihood for implementation.
- ▶ **Reputation of the initiative:** The initiative shall involve well-known and influential members in order to be able to reach its envisaged targets and raise public attention for the issue tackled.
- ▶ **Timeframe:** The initiative should aim to achieve relevant results by 2020.
- ▶ **Non-UNFCCC:** The initiative should contribute to emission reductions outside of the UNFCCC process.

When applying these criteria to the overall list of initiatives, not all of them need to be fulfilled in order to select an initiative for further analysis. Rather, they serve as guidelines for filtering the database in order to get to a selection of initiatives which is representative of the overall landscape of initiatives in terms of topic areas, actors and global distribution (see section 2). Table 3.1 shows the initiatives by topic area that meet the criteria above based on a first analysis of their descriptions. The qualitative and quantitative assessment is based on this list but individual initiatives were still excluded in that step after a more detailed revision of the initiatives. Reasons for exclusion included lack of detailed information or too much overlap with other initiatives on the list.

3.2 List of chosen initiatives

Table 3.1 Choice of initiatives

Name of initiative	Description	Region
Agriculture and Forestry		
BioCarbon Fund	The BioCarbon Fund aims to incentivise better land management, mitigating climate change and helping communities adapt by providing revenues through the carbon markets or other forms of results-based payments.	global
Bonn Challenge	Designed as an implementation platform for several existing international commitments, the Bonn Challenge is a global aspiration to restore 150 million hectares of degraded and deforested lands by 2020.	global
CCAC Agriculture Initiative	The CCAC Agriculture Initiative is the first action-oriented global effort to reduce methane and black carbon emissions from key agricultural sectors by sharing and implementing best practices, in order to enhance food security and livelihoods in accordance with broader climate change objectives.	global
Forest Carbon Partnership Facility (FCPF)	The objectives of the FCPF are to assist countries in their REDD+ efforts by providing them with financial and technical assistance, to pilot a performance-based payment system for REDD+ activities, to test ways to sustain or improve livelihoods of local communities and to conserve biodiversity within the approach to REDD+, and to disseminate the knowledge gained in the process.	global
Governors' Climate and Forests Task Force (GCFTF)	GCFTF signatories committed to reduce deforestation by 80% by 2020, provided that adequate, sufficient, and long-term performance-based funding is available, whether through market or non-market sources.	global
New Vision for Agriculture	The New Vision for Agriculture is an initiative led by 29 global partner companies that addresses the major challenges of global food and agricultural sustainability. The initiative serves as a platform to build collaboration among stakeholders to achieve a vision of agriculture as a driver of food security, environmental sustainability and economic opportunity.	global
Rainforest Alliance	The Rainforest Alliance works to conserve biodiversity and ensure sustainable livelihoods by transforming land-use practices, business practices and consumer behaviour. Key goals include: keeping forests standing; curbing climate change; protecting biodiversity; alleviating poverty and transforming business practices.	global
The New York Declaration on Forests (NYD)	The New York Declaration on Forests is a non-legally binding political declaration that grew out of dialogue among governments, companies and civil society, spurred by the Secretary-General's Climate Summit. Goal to at least halve the rate of loss of natural forests globally by 2020 and strive to end natural forest loss by 2030.	global

Name of initiative	Description	Region
Cities		
C40 Cities Climate Leadership Group (C40)	C40 is a network of the world's megacities taking action to addressing climate change. C40 supports cities to collaborate effectively, share knowledge and drive meaningful, measurable and sustainable action on climate change. Uses knowledge-sharing and metrics-driven implementation to achieve measurable and meaningful reductions in both greenhouse gas emissions and risks associated with climate change.	global
Carbomm Cities Climate Registry (cCCR)	The cCCR is a global mechanism developed for local governments by local governments. It enables them to publicly and regularly report their local climate action developments.	global
Clean Air Initiative	Clean Air Asia is an international non-governmental organization that leads the regional mission for better air quality and healthier, more liveable cities in Asia.	Asia and the Pacific
Climate Alliance	The "Climate Alliance of European Cities with Indigenous Rainforest Peoples" is a broad alliance of more than 1700 European cities, municipalities and districts. The primary aim is to decrease their GHG emissions by developing and implementing climate strategies, particularly in the energy and transport sectors. They also develop public measures to raise public awareness for rainforest protection and tackle destructive logging.	global
Climate Group States and Regions Alliance	The States and Regions Alliance under the umbrella of the Climate Group, aims to promote sub-national activities by bringing heads of sub-national governments together. The members are phasing out coal, committing to 100% renewables, investing in clean tech infrastructure and start-ups, linking emissions trading systems, developing new financing mechanisms and making ambitious emissions reductions commitments.	global
Covenant of Mayors	The Covenant of Mayors is the mainstream European movement involving local and regional authorities, voluntarily committing to increasing energy efficiency and use of renewable energy sources on their territories. By their commitment, Covenant signatories aim to meet and exceed the European Union 20% CO ₂ reduction objective by 2020.	Western Europe/ Eastern Europe
ICLEI - Local Governments for Sustainability	ICLEI Local Governments for Sustainability is an international association of local and metropolitan governments dedicated to sustainable development. Its main goal is to build and serve a worldwide movement of local governments to achieve tangible improvements in global sustainability with specific focus on environmental conditions through cumulative local actions.	global
Mexico City Pact	The Mexican City Pact is an agreement signed between city majors in the framework of the World Mayors Summit on Climate on 21 November 2010 in Mexico City. The purpose was to take sound actions in climate change mitigation and adaptation, which would enable to build a platform of cities and subnational governments to access directly to the international finance of regional, national and multilateral character.	global

Name of initiative	Description	Region
Under 2 MOU	Subnational governments are partnering to advance a Memorandum of Understanding (MOU) on Subnational Global Climate Leadership. This agreement identifies action being taken by jurisdictions around the world. Central to the agreement is that all signatories agree to reduce their greenhouse gas emissions 80 to 95%, or limit to 2 metric tons CO ₂ -equivalent per capita, by 2050.	global
District Energy Accelerator	The new Global Initiative on District Energy Systems aims to support cities and sub-national/national governments to develop, retrofit or scale up district energy systems, with support from international and financial partners, and the private sector.	global
Efficiency in buildings		
Global Buildings Performance Network (GBPN)	The GBPN, by the Climate Works Foundation, GBPN carries out research and distributes the knowledge to diverse key stakeholders in energy performance in buildings to capture the economic, technical potential of energy performance in buildings	global
Renovate Europe	The Renovate Europe Campaign is calling for an ambitious roadmap to be drawn up on how to triple the annual renovation rate of the EU building stock from the current rate of 1% to 3% by 2020 and to ensure that the aggregate result of those renovations leads to an 80% reduction of the energy demand of the building stock by 2050 as compared to 2005.	Western Europe/ Eastern Europe
Super-efficient Equipment and Appliance Deployment (SEAD) Initiative	Operating agent for SEAD which is a government-led international market transformation effort for highly efficient appliances and equipment. The SEAD initiative seeks to transform the global market for efficient equipment and appliances. Through its activities and projects, SEAD is engaging governments and the private sector to measure the potential of appliance and equipment efficiency.	global
Transport		
Fleets for Change	Fleets for Change is a CGI "commitment to action". Fleets for Change assists companies to determine baseline fleet emissions and to reduce emissions by increasing fuel efficiency, reducing miles travelled, utilizing low-carbon fuels and deploying technologically advanced vehicles. Member fleets provide emissions data and track progress towards overall reduction targets.	global
Global Fuel Economy Initiative (GFEI)	GFEI is a partnership between 6 organisations that promote further research, discussion and action to improve fuel economy worldwide. In the longer term they want to see real improvements in the fuel economy capacity of the global car fleet. GFEI's core activities are data development and analysis of fuel economy potentials, support for national and regional policy-making efforts and outreach and awareness raising to stakeholders (e.g. vehicle manufacturers).	global
Low-Carbon Sustainable Rail Transport Challenge (UIC)	This challenge sets out ambitious but achievable targets for improvement of rail sector energy efficiency, reductions in GHG emissions and a more sustainable balance between transport modes. Targets include to reduce specific final energy consumption from train operations by: 50% reduction by 2030 and 60% reduction by 2050 (relative to a 1990 baseline).	global

Name of initiative	Description	Region
SmartWay	SmartWay is a voluntary partnership between the EPA and the freight industry aiming to improve fuel efficiency and reduce GHG emissions and air pollution from transport. The SmartWay program is comprised of five components. SmartWay Transport Partnership is a partnership between EPA and the freight sector aiming to address GHG emissions, fuel consumption, air emissions and operating costs. SmartWay Finance Program supports fuel-saving equipment.	North America
Urban Electric Mobility Initiative (UEMI)	With commitments from industry and government, UEMI will function as an open forum for knowledge transfer and support for the take-up of e-mobility solutions around the world. It will initiate a process of dialogue and continue to gather commitments from local and national governments as well as businesses on e-mobility targets.	global
Industry and business		
American Business Act on Climate Pledge (ABAOCP)	13 large companies have joined under the American Business Act on Climate Pledge to reduce their impact on emissions. They have individual company targets. The initiative is supported by the White House.	North America
Caring for Climate	Caring for Climate was launched by UN Secretary-General Ban Ki-moon in July 2007. The initiative is jointly convened by the United Nations Global Compact, the secretariat of the UNFCCC and UNEP.	global
Haga Initiative	The Haga Initiative is a network of companies with the aim of reducing carbon emissions from the business sector and highlighting the climate issue by showing that ambitious climate strategies lead to business advantages and improve profitability. Member companies have committed to a 40% reduction of GHG emissions by 2020.	Western Europe
Ultra-Low CO ₂ Steelmaking (ULCOS)	ULCOS is a consortium of 48 European companies and organisations from 15 European countries that have launched a cooperative research & development initiative to enable strong reduction in CO ₂ emissions from steel production. The aim of the ULCOS programme is to reduce the carbon dioxide (CO ₂) emissions of today's best routes by at least 50%.	Western Europe/ Eastern Europe
Others		
Climate and Clean Air Coalition To Reduce Short-Lived Climate Pollutants	Recognising that mitigating the impacts of short-lived climate pollutants is critical for addressing near-term climate change and that there are many cost-effective options available, the governments of Bangladesh, Canada, Ghana, Mexico, Sweden and the United States, along with UNEP, came together to initiate the first effort to treat these pollutants as a collective challenge.	global
Global Methane Initiative (GMI)	GMI is a multilateral initiative that unites public- and private-sector interests to advance the recovery and use of methane as a clean energy source. GMI builds on the existing structure and success of the Methane to Markets Partnership.	global
Greenhouse Gas Protocol	The Greenhouse Gas Protocol (GHG Protocol) is the most widely used international accounting tool for government and business leaders to understand, quantify, and manage GHG emissions.	global

Name of initiative	Description	Region
Renewable Energy and Energy Efficiency Partnership (REEEP)	REEEP is a non-profit organisation that has a primary focus on scaling up of clean energy business models. It helps to fund small-to-medium scale projects that address barriers to market development, provides internet based information resources and is connecting countries and stakeholder that have developed best practice policies.	global
The Global Alliance for Clean Cook stoves	Public-private partnership hosted by UN Foundation of government, IO, NGO and private sector organisations aiming to help overcome the market barriers that currently impede the production, deployment, and use of clean cook stoves in the developing world. The Alliance relies on grants and investments from governments, corporations, foundations, civil society, investors, and individuals to support its work to spur the adoption of clean cookstoves and fuels during Phase II (2015-2017).	global
The Roundtable on Sustainable Biofuels (RSB Standard)	The Roundtable on Sustainable Biomaterials (RSB) is an international multi-stakeholder initiative that brings together farmers, companies, non-governmental organisations, experts, governments, and inter-governmental agencies concerned with ensuring the sustainability of biomass and biomaterial production and processing.	global
UITP Declaration on Climate Leadership	In supporting this Declaration, a signatory commits to demonstrating climate leadership through actions that embrace clean energy, boost efficiency, and limit GHG emissions of business operations and in our through a modal shift to public transport. To double the market share of public transport worldwide by 2025.	global
Phasing Down Climate Potent HFCs	The supporters of this initiative support an amendment to phase down the production and consumption of hydrofluorocarbons (HFC) under the Montreal Protocol, while emissions accounting and reporting remains under the UNFCCC.	global
Finance/Fiscal		
Portfolio Decarbonisation Coalition (PDC)	The PDC is a multi-stakeholder initiative that will drive GHG emissions reductions by mobilising a critical mass of institutional investors committed to gradually decarbonising their portfolios.	global
Global Subsidies Initiative (GSI)	Established in 2005, the Global Subsidies Initiative (GSI) is dedicated to analysing subsidies and transfers of public money to private interests and how they support or undermine efforts to achieve sustainable development.	global
G20 Subsidy Reform	In its 2009 Communication from Pittsburgh, the G20 nations committed to rationalise and phase out over the medium term inefficient fossil fuel subsidies that encourage wasteful consumption.	global
Fossil Free - Divest from Fossil Fuels	International network of campaigns and campaigners working toward fossil fuel divestment in our communities.	global
Renewable Energy		
European Wind Initiative (EWI)	The EWI is a R&D programme launched by the European wind industry together with the European Commission and Member States. The EWI is a roadmap to reduce the cost of wind energy, which will pave the way for the large-scale deployment of wind energy worldwide and secure long-term European technological and market leadership.	Western Europe/ Eastern Europe

Name of initiative	Description	Region
Solar Europe Industry Initiative (SEII)	The SEII is an industry-led initiative which has developed a Research, Development and Demonstration roadmap for PV in Europe. It has three strategic objectives: to bring PV to cost competitiveness in all market segments by 2020, to establish the conditions allowing high penetration of distributed PV electricity within the European electricity system and to facilitate the implementation of large scale demonstration and deployment projects.	Western Europe/ Eastern Europe
SunShot Initiative	By driving research and development in PV, concentrated solar power, systems integration and balance of systems SunShot wants to make the solar energy resources in the United States affordable and accessible for all Americans. The Initiative aims to make solar energy cost-competitive with other forms of electricity by 2020, leading the way for rapid, large-scale adoption of solar electricity.	North America
Wind Program	The Wind Program is led by the U.S. Department of Energy (DOE) (working with industry, federal and international partners and national laboratories) and it is committed to developing and deploying a portfolio of innovative technologies for clean, domestic power generation to support an ever-growing industry, targeted at producing 20% of the nation's electricity by 2030.	North America

Source: Climate Initiatives Platform, authors.

4 Quantitative assessment

The quantitative analysis of the initiatives assessed has been performed in three distinct steps (Figure 4.1).

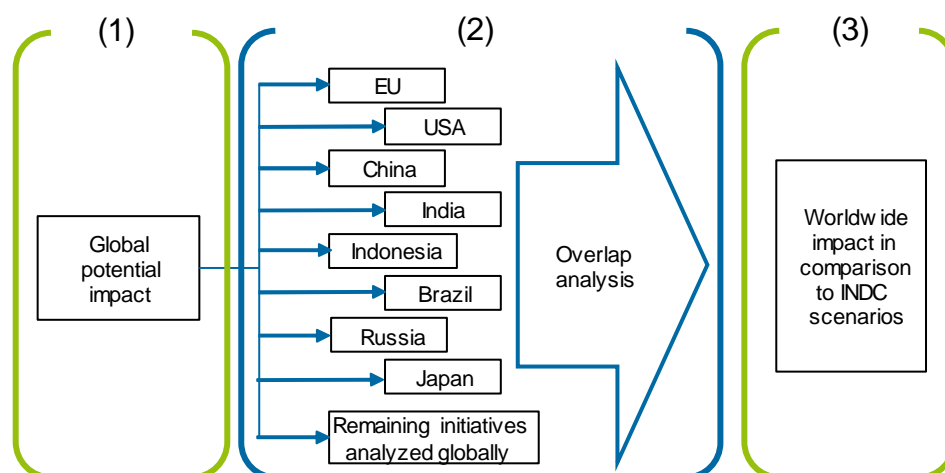
- ▶ In principle, all initiatives can contribute towards countries reaching their INDC ambitions, but some may also have an impact that is likely to go beyond quantified INDC targets. In the first step, the global potential impact of the selected initiatives has been estimated against global scenarios of current policies *including* INDCs, or (if such a scenario was not directly available) our own approximation of what a realistic baseline scenario under INDCs would look like.⁴ The estimations are based on converting the quantified/quantifiable goal of an initiative into an energy- or emissions-related metric that can be compared to the outcome of the INDC scenarios. This first step serves to assess the overall emission reductions that an initiative theoretically covers, and thus get an idea of the “scale” of the initiative. This step does not include any assessment of possible overlaps between initiatives within and across sectors or with potential double-counting between initiatives.
- ▶ In the second step, the impact of the initiatives – wherever possible – was broken down to the level of eight countries: Brazil, China, the EU, India, Indonesia, Japan, Russia and the USA. The impact in each of these countries was assessed by taking into account the overlaps of the initiatives with other initiatives in the same sector, initiatives in other sectors, and any particular specific policy or INDC elements in the country not considered in the global INDC scenarios in the first step. Types of overlaps considered include (for more detailed information, please see the Annex that accompanies this report):
 - ▶ One commitment counted twice, i.e. when the same company/city/etc. is subscribed to two different initiatives with a similar target;
 - ▶ Initiatives quantification of whose target is expressed in the same metric and which therefore could be complementary or overlapping;
 - ▶ Initiatives that replace the same emissions, i.e. the targets of solar and wind energy initiatives both striving for a certain share of electricity generation could together account for a higher share of generation than there are non-renewables to replace;
 - ▶ Initiatives with targets formulated at an aggregate level, i.e. city/region initiatives, or business initiatives, striving to reduce total emissions below a certain baseline, which could be partly achieved by (for instance) renewable energy, buildings, transport, and waste sector initiatives.

The aggregate of initiatives on a country-by-country basis thus represents in how far the impact of the initiatives goes beyond the country’s own INDC. If an initiative could not be analysed on a country-by-country basis, the overlap analysis was done on the global level.

- ▶ In the third step, the country specific impacts of initiatives – now with overlaps among initiatives taken into account – were aggregated back to a worldwide level, thus resulting in an overall potential impact including overlaps that could be compared to projections resulting from INDCs on the global level.

⁴ For the energy sector we used as baseline the “New Policies Scenario” of the IEA World Energy Outlook 2015, which takes into account the energy-related components of all INDCs submitted by 1st of October 2015.

Figure 4.1 Schematic representation of the three steps outlined above



Note: (1) The calculation of the potential impact of each initiative in absolute terms; (2) the disaggregation of these impacts to a country-level and the analysis of their contribution relative to countries' INDCs and the overlaps between initiatives; (3) the re-aggregation of these results to the global level, resulting in the impact of initiatives relative to worldwide INDC trajectories.

Source: Authors

Below, we shortly explain the two main caveats of the methodology for quantification used here. This is intended to provide thought for discussion, as various research efforts into quantifying initiatives have used different approaches and so are not always directly comparable. We hope that a detailed look into the arguments in favour and against several approaches can help to streamline methodologies better.

Baseline selection

One of the most important issues in quantifying was deciding which baseline to choose. As the intention of our study was to quantify the potential for overachievement of INDCs by initiatives, the baselines had to be chosen to represent INDCs as well as possible. The approach for this differed per sector, which brought along its own set of challenges.

For all energy-related initiatives, we used the World Energy Outlook 2015 New Policies Scenario as baseline (OECD & IEA 2015). This scenario contains the IEA's own assumptions as to the timing and extent of implementation of policies to reach INDC targets. For non-energy initiatives, we had to resort to historic developments as baselines (such as for the forestry initiatives unless specific information in INDCs was available for certain countries), and/or independent scenarios (such as for non-CO₂ initiatives). The fact that these represent different sources and include some own judgement on which are the most suitable pathways to use as baselines introduces uncertainties in our calculations.

Implementation rate

In this study, we have quantified initiatives based on the assumption that they reach their stated targets to 100%. We have not included an estimate on how realistic this is on an initiative-by-initiative-basis. Assuming different rates of implementation based on such assessments would lead to a large possible range of potential emission reductions. In other words, the outcomes of our study are very sensitive to the assumed implementation rate. Our estimate defines the high end of the range; values would be lower if the implementation rate is lower.

This approach is useful to identify those initiatives that have very ambitious targets and then possibly support them so that the likelihood is increased that they reach their targets.

Future work should focus on determining the likelihood of different initiatives in reaching their stated (aspirational) targets, which would set the stage for a more thorough assessment of the true “potential contribution” of initiatives in reaching INDCs or overachieving them.

4.1 Global potential impact

The assessment of the individual potential impact going beyond INDCs of the selected initiatives has led to the estimated reduction levels plotted in Figure 4.2. The shown impact of initiatives overlap, so values are not additive (see global analysis).⁵

By 2030, a high global impact beyond INDCs could be attained by the Climate and Clean Air Coalition’s (CCAC) sub-sectoral initiatives striving to reduce black carbon⁶, methane and HFC⁷ emissions. This is due to its high level of ambition in reducing non-CO₂ climate pollutants in combination with the comparatively low number of quantified goals in INDCs addressing methane and HFC emissions reductions. The Bonn Challenge / New York Declaration on Forests could have a similarly high impact due to its high ambition in afforestation (although our estimation is subject to a comparatively high uncertainty, owing to the nature of estimating emissions from forestry), another area where there is a general lack of quantified targets in INDCs (Climate and Clean Air Coalition 2016; Petersen, K. & Varela, J. 2015).

Most initiatives in the power, buildings and transport sector have been estimated to have the potential to reduce emissions by numbers in the order of hundreds of MtCO₂e/year by 2020 and 2030. These initiatives focus on diverse issues such as renewable energy generation, energy efficiency appliances, reduction of thermal energy demand and increased fuel efficiency. Some of these initiatives apply only in certain regions whereas others are estimated to have potential impact across all investigated countries/regions.

The potential impacts of the industry and business initiatives are quite diverse in size. It must be mentioned here that business initiatives have been assessed based on the current pledges of their signatories, and they are generally expected to grow by getting higher numbers of endorsers and signatories over the next years, which could lead to potentially much higher reductions than found here. For the Ultra-Low CO₂ Steelmaking (ULCOS), the most ambitious initiative to reduce emissions in steelmaking, the reason for the comparatively low reductions until 2020 and 2030 is that most of the technologies under development, as per the initiative’s targets, are only expected to be ready for roll-out by the end of the 2020s.

The initiatives categorised under “business”, as well as the Global Alliance for Clean Cookstoves, have not been disaggregated to the country-level. For the company initiatives, emissions of each company would have to be broken down to countries (information, which is often undisclosed) which is beyond the scope of this analysis. The Global Alliance for Clean Cookstoves, on the other hand, would have an impact on the global level but very little in most of the countries/regions (USA, EU, etc.) investigated here, and has thus only been quantified globally (as has its overlap with other initiatives).

⁵ The study did not analyse the likelihood of initiatives achieving their targets. For the quantitative analysis it was assumed that all initiatives will be implemented successfully and that countries will achieve their INDC.

⁶ As black carbon is not included in most projections of GHG emissions, the figures below do not include reductions of black carbon emissions.

⁷ Note that the CCAC aims to reduce HFCs via an amendment of the Montreal Protocol. As it is ambiguous whether to treat such reductions as a contribution of the CCAC, the uncertainty range in Figure 4.2 reflects the potential impact of the targeted HFC emission reductions in active CCAC members (US, Canada, EU).

Full details on the estimations of the global potential impacts are available in the Annex to this report. The general methodology was to translate an initiative’s targets/goals into an energy- or emissions-related metric (depending on the nature of the initiative, i.e. additional renewable energy generation by 2020/2030 for an RE initiative, or potential for reducing emissions from deforestation by 2020/2030 for a forestry initiative), which were then compared to baseline INDC trajectories of the same metric up to 2020/2030.

The differences between the 2020 and 2030 potential impact stems mainly from two factors. Firstly, initiatives’ ambition generally is estimated to be higher for 2030 than for 2020 (some initiatives set intermediate targets for 2020 and 2030; for others, we have estimated the intermediate potentials based on the overall ambition of the initiative). Secondly, the baseline values for 2020 are lower than those in 2030, as global emissions are projected to keep rising under INDC implementation in the time horizon 2020-2030.

Figure 4.2 Global potential individual impact of the quantified initiatives in 2020 and 2030



Note: The estimated individual (global) potential impact of the initiatives selected for quantification until 2020 (a) and 2030 (b). These numbers have been calculated against a baseline scenario on a global level that assumes implementation of the INDCs. Error bars indicate uncertainties in the translation of the initiative’s quantified goals to emission reductions. Impact of initiatives overlap, so values are not additive.

Source: Author’s own calculations

4.2 Country-level assessment

4.2.1 Introduction

In this section, we describe the main results from each of the country-level analyses. This includes a description of which of the initiatives are the main contributors to the potential emission reductions in the country in question and a comparison of the country's historical (overall) emission profile to the potential pathway if all initiatives are implemented to optimal extent.

The EU has been treated as a “country” in this context because the European Commission submitted one INDC to the UNFCCC on behalf of all its member states.

Unless mentioned otherwise, emission trajectories (historic, current policies and INDC levels) shown in this section are from the Climate Action Tracker, which in turn takes its data from various authoritative sources. Historic data are from the UNFCCC emissions inventories, unless otherwise mentioned.

Table 4.1 Overview of initiatives' breakdown on a country-level, where a tick mark indicates the initiative has potential for emission reduction (by 2020, 2030, or both) *beyond INDC scenarios* in the country in question.

Area	Initiative	EU	US	China	India	Indonesia	Brazil	Russia	Japan
Agriculture / Forestry	Bonn Challenge / NYD	x	x	x	x	x		x	x
	GCFTF					x	x		
Cities & regions	Under2MOU	x	x				x		x
	C40	x	x						x
Energy efficiency in buildings	GBPN	x	x	x		x		x	x
	SEAD Initiative	x	x		x	x	x	x	x
Transport	GFEI	x	x	x	x	x	x	x	x
	UIC	x	x	x	x	x	x	x	x
Industry & business	ULCOS	x							x
Renewable electricity	EWI	x							x
	SEII	x							x
	US Wind Program		x						x
	SunShot Initiative		x						x
Non-CO ₂	GMI	x	x	x	x	x	x	x	x
	CCAC (HFCs and CH ₄)	x	x	x	x	x	x	x	x

In Table 4.1, we illustrate which initiatives had quantifiable impacts in which countries according to our analysis (whether by 2020, 2030, or both). This shows clearly that some countries had a much

higher coverage by initiatives than others, and that some sectors are represented by initiatives only in a select number of countries. Importantly, large-scale initiatives in the power sector only appear in the EU and the US in our analysis, where their potential impact is significant. We note here that this reflects a lack of comparable initiatives in the other countries, not necessarily an unambitious INDC in the EU and US or that other countries have more ambitious INDCs. It is merely a manifestation of the fact that we are not aware of similar initiatives in other countries that fall outside of what is covered in INDCs, and of the fact that these power sector initiatives themselves have set very ambitious targets for the EU and US.

4.2.2 EU

The largest contributors to potential emission reductions beyond INDC levels in the EU are given by the European Wind Initiative and the Solar Europe Industry Initiative. Both are EU-only initiatives; the former aims to increase the share of wind power in EU's total electricity generation to 33% (20%) by 2030 (2020), compared to 19% (12%) under the IEA's New Policies Scenario (NPS); the latter aims for a share of solar power in total electricity generation up to 20% (12%), compared to 12% (4%) under the NPS. This translates to a large potential for further decarbonisation of the power sector, with impacts of in the order of hundreds of Mt CO₂ per year. Similar impacts could be attained by energy efficiency measures in the buildings sector under the GBPN.

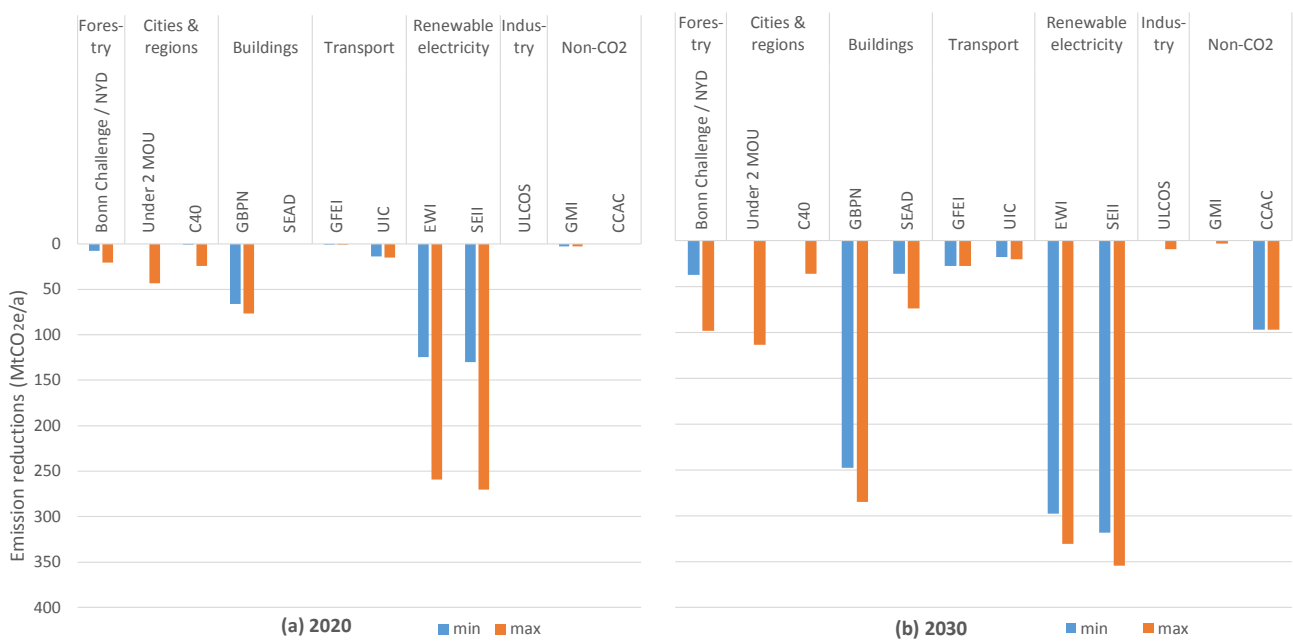
Other initiatives that contribute to GHG emissions reductions are C40 and Under2MOU, under which many European cities have set emission reduction targets below a base year that are more ambitious than the EU's overall target of achieving 40% by 2030 below 1990 levels, under the assumption that the implementation of all such targets would follow a linear trajectory between base year and target year.⁸ Further mitigation impact by 2030 could potentially be delivered by SEAD (thermal energy in buildings), UIC (modal shift to public transport), ULCOS (low-carbon steelmaking technologies) and CCAC (reduction of short-lived climate pollutants). Notably, the full impact of CCAC in the EU is achieved by the reduction of CH₄ emissions, as targets for HFC reduction do not go beyond current EU regulation on fluorinated gases.

The total impact of the initiatives by 2020 and 2030 compared to INDC levels, with minimum values indicating maximum overlaps and maximum values indicating the highest possible additionality of all initiatives, is given in Figure 4.3.⁹ These emission reductions can be aggregated into overall economy-wide emission reductions and compared to historical and future projection trends of emissions in the EU from all sectors. In Figure 4.4, we present the emission trends excl. LULUCF from the Climate Action Tracker (CAT). This includes (a) historical emissions, as well as (b) projections under current policies (CP) without the EU INDC, (c) the projected 2030 INDC level (whose energy-related components is comparable to the NPS projections), and (d) the emission levels if the anticipated emission reductions under the initiatives would indeed be reached. The latter (d) has been calculated by subtracting the range of emission reductions from the emissions under (c). The same principle applies to all countries. The graph indicates that EU emissions excluding forestry could roughly halve by 2030 compared to current levels. The inset similarly shows reduction potential in the LULUCF sector.

⁸ These initiatives could be achieved partly by the energy-related initiatives in the power, buildings and transport sector, which has been taken into account – see the separate Annex document on overlap quantification.

⁹ In this and the following similar figures, if a “minimum” bar is zero but the “maximum” bar is not, this means that the initiative goals would impact emissions beyond the INDC but the potential overlap with other initiatives is 100%.

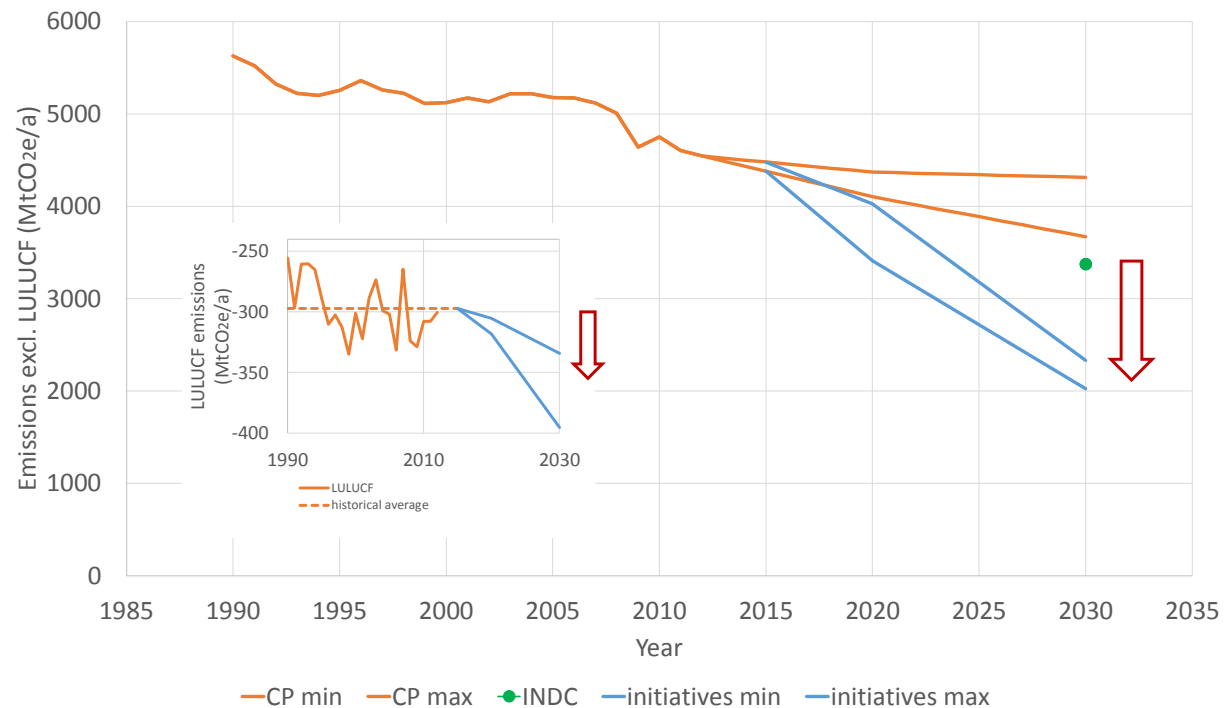
Figure 4.3 Potential of initiatives in the EU



Note: Potential impact (compared to INDC levels) of initiatives in the EU up to 2020 (a) and 2030 (b), with minimum numbers assuming maximum overlap with other initiatives.

Source: Author's own calculations

Figure 4.4 Emissions in the EU under scenarios without INDC, with INDC, and with initiatives



Note: Emission levels excl. LULUCF in the EU historically, under current policies (CP, excluding INDCs), INDC levels, and under the initiatives' reduction potential. Inset: Possible emission reductions in the LULUCF sector in the EU until 2030. The baseline is the historical average.

Source: Impact of initiatives: author's own calculations; trend, current policy and INDC: Climate Action Tracker (2015).

4.2.3 USA

The largest contributors to potential emission reductions beyond INDC levels in the USA up to 2020 come from the forestry sector as well as from regional targets set under the Under2MOU which go beyond the USA’s overall target of achieving 26-28% reduction by 2025 below 2005 levels, under the assumption that the implementation of all such targets would follow a linear trajectory between base year and target year.

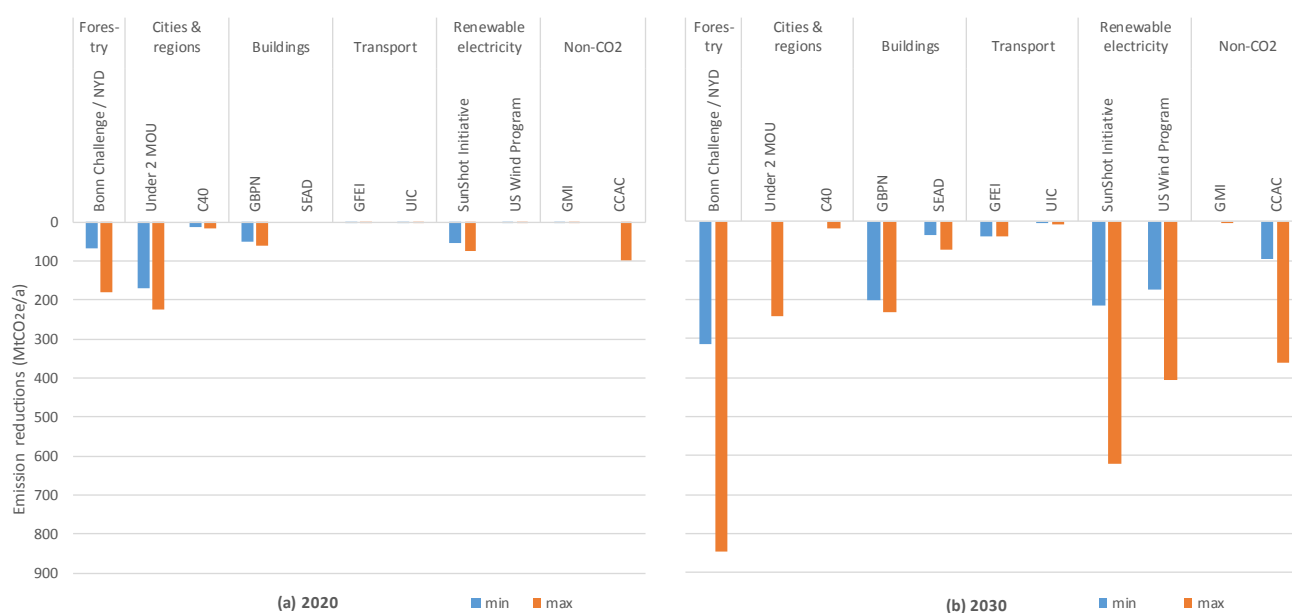
By 2030, similar to the EU, the largest impact could be attained by two initiatives for the power sector, one focusing on wind energy and the other on solar energy. Both are in fact government-led initiatives in collaboration with industry and other partners; however, they are more ambitious than INDC levels and are therefore included here. The US Wind Program aims for a share of wind energy of 20% by 2030 of the USA’s total electricity generation, compared to a projected 10% under the IEA’s WEO 2015 NPS. The SunShot Initiative aims for 15-18% of electricity generation from solar power by 2030 (the rate only reaches 3% in the NPS). As in the EU, this could have impacts of in the order of hundreds of MtCO₂ per year. Similar impacts could be attained by energy efficiency measures in the buildings sector.

The total impact of the initiatives by 2020 and 2030 compared to INDC levels, with minimum values indicating maximum overlaps and maximum values indicating complete additionality of all initiatives, is given in Figure 4.5.

The comparison between historical emission levels and projected future levels under INDCs and current policies without INDCs is given in

Figure 4.6 for emissions excluding LULUCF and in the inset for the LULUCF sector. Results are generally similar to those for the EU; emissions could be reduced by roughly 50% compared to current levels by 2030 if the initiatives were fully implemented, and this would correspond to a substantial strengthening of the reductions attained under INDC-based projections. By 2030, total emissions could reach between roughly 2.5 – 3.9 GtCO₂e per year, compared to 4.2 – 4.6 GtCO₂ under INDC projections.

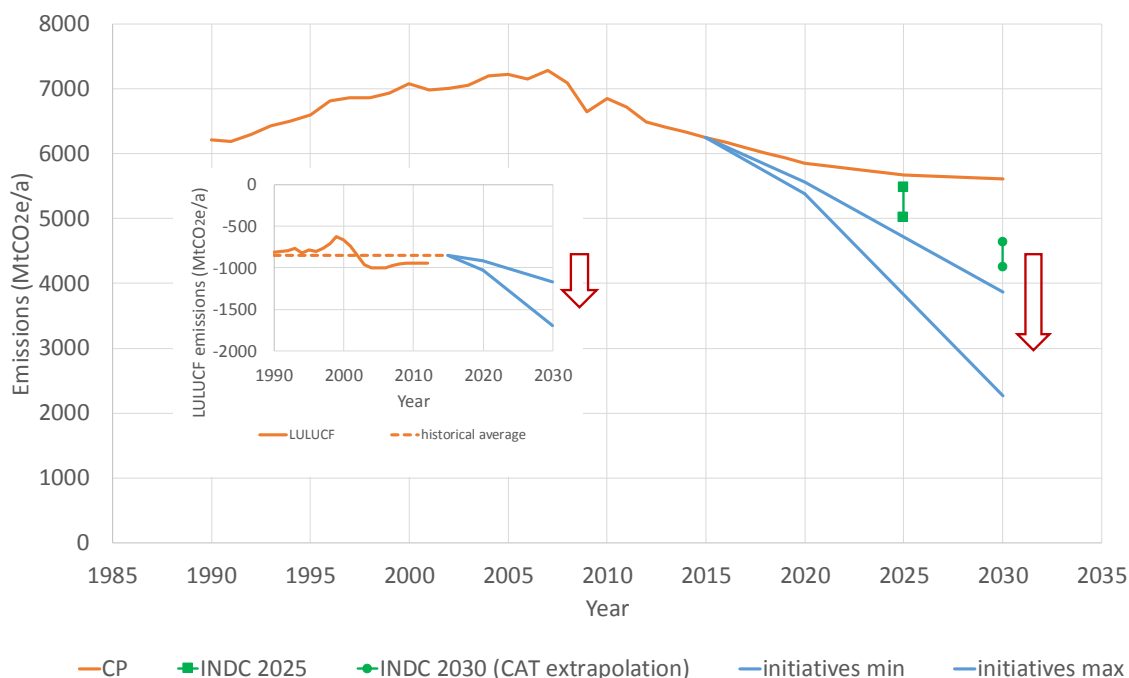
Figure 4.5 Potential of initiatives in the USA



Note: Potential impact (compared to INDC levels) of initiatives in the USA up to 2020 (a) and 2030 (b), with minimum numbers assuming maximum overlap with other initiatives.

Source: Author’s own calculations

Figure 4.6 Emissions in the USA under scenarios without INDC, with INDC, and with initiatives



Note: Emission levels excl. LULUCF in the USA historically, under current policies (CP, excluding INDCs), INDC levels, and under the initiatives' reduction potential. Inset: Possible emission reductions in the LULUCF sector in the USA until 2030. The baseline is the historical average.

Source: Impact of initiatives: author's own calculations; trend, current policy and INDC: Climate Action Tracker (2015).

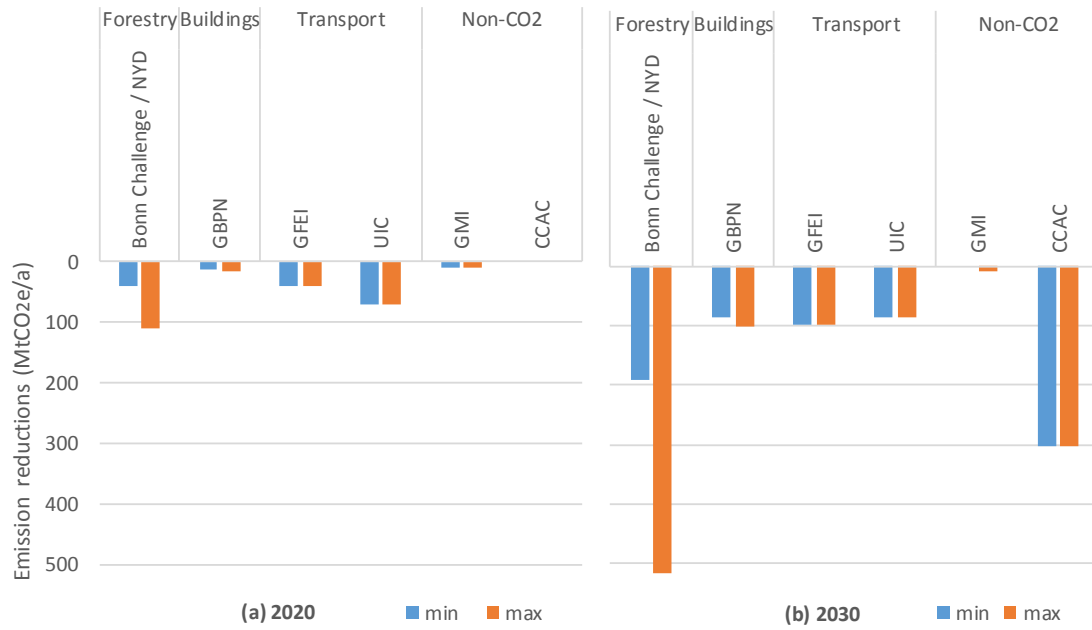
4.2.4 China

Compared to the EU and the USA, the impact of the initiatives investigated in this study for China is limited, mainly because there are no nationwide initiatives for increased usage of renewable energy that go beyond the INDC ambitions which follow renewable targets set in the Five-Year Plans. As can be seen in Figure 4.7, there is reasonable scope for emission reductions from methane (CCAC) as well as scope for improvements in energy efficiency in buildings, vehicle fuel standards (GFEI) and modal shift towards train traffic (UIC initiative).

While China has a reforestation target in its INDC, this target implies a yearly reforestation level that is lower than the current baseline, to which the Bonn Challenge / NYD impact has been compared (and found to be additional). Thus, this INDC element is less ambitious than the Bonn Challenge / NYD, explaining the significant potential for reduction in the forestry sector.

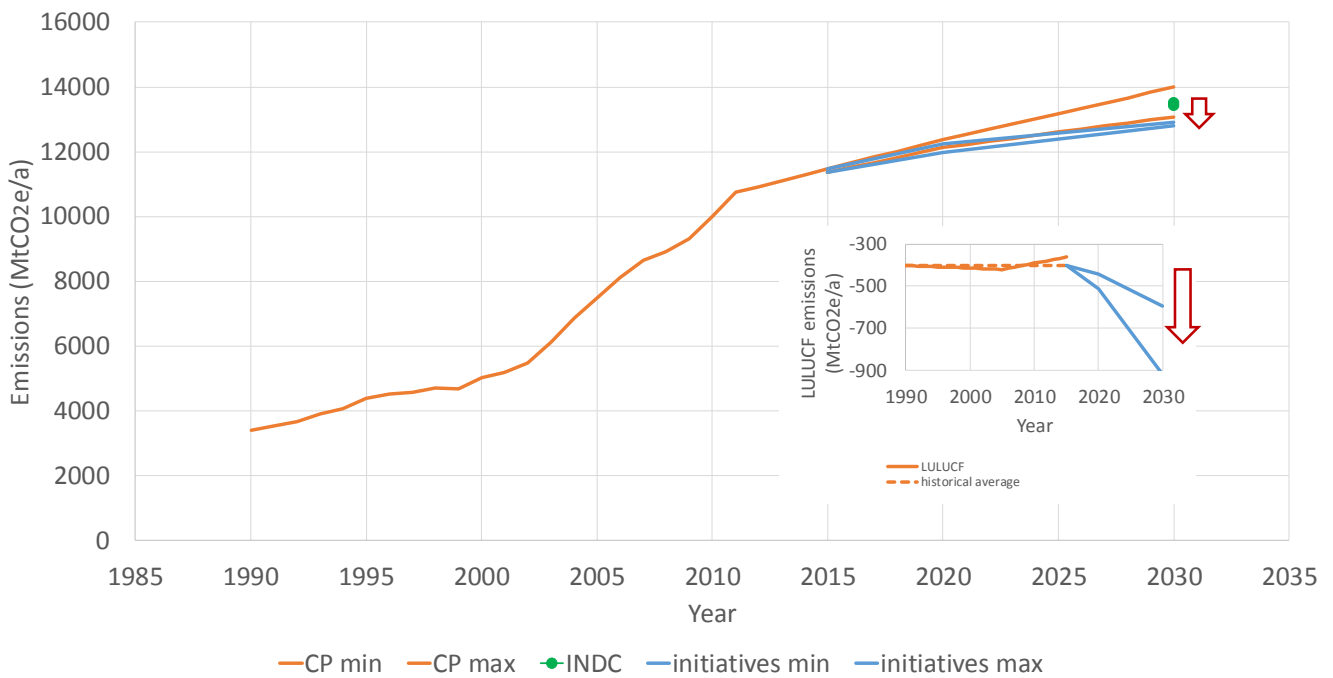
Compared to projected overall emission levels, the potential reductions from these initiatives in China compared to the INDC are relatively modest, as can be seen in Figure 4.8. Emissions in China would keep rising until 2030, albeit at a slightly lower rate than currently, 0.7 – 1.0%-points per year compared to 1.0 to 1.5%-points per year under the current policies/INDC scenario. Even when including the potential in the LULUCF sector (see inset), this does not change the picture as China's emissions from forestry are very small compared to overall emissions.

Figure 4.7 Potential of initiatives in China



Note: Potential impact (compared to INDC levels) of initiatives in China up to 2020 (a) and 2030 (b), with minimum numbers assuming maximum overlap with other initiatives and/or INDC targets.
 Source: Author's own calculations

Figure 4.8 Emissions in China under scenarios without INDC, with INDC, and with initiatives



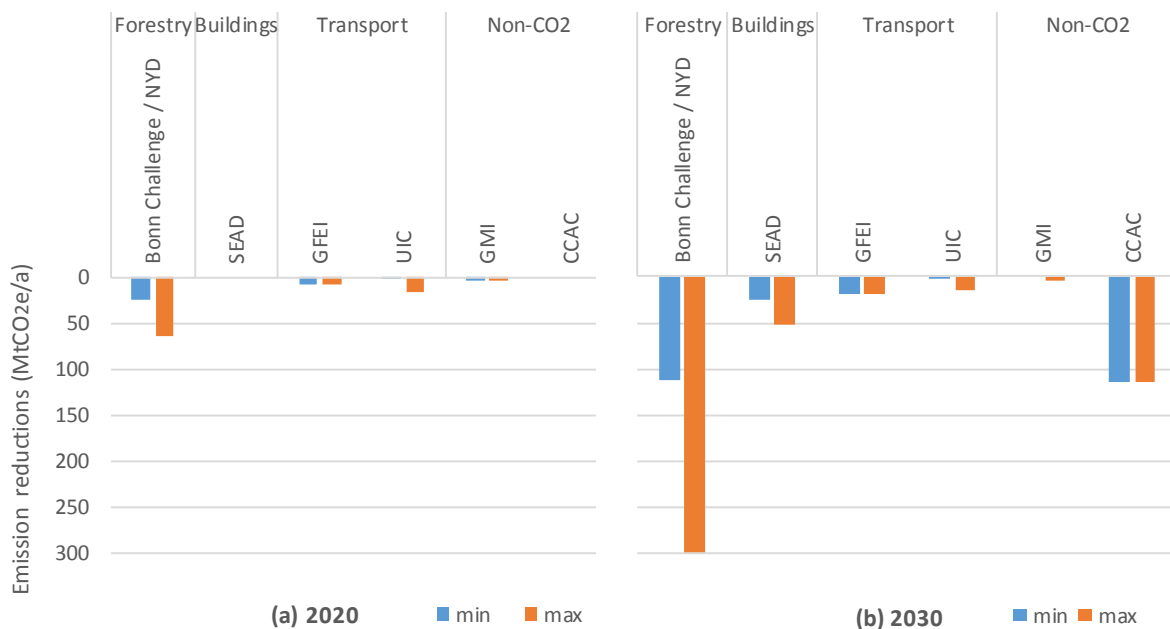
Note: Emission levels excl. LULUCF in China historically, under current policies (CP, excluding INDCs), INDC levels, and under the initiatives' reduction potential. Inset: Possible emission reductions in the LULUCF sector in China until 2030. The baseline is the historical average.
 Source: Impact of initiatives: author's own calculations; trend, current policy and INDC: Climate Action Tracker (2015).

4.2.5 India

In India, the potential reductions from the investigated initiatives are found to be quite modest compared to INDC projections of emissions in the non-LULUCF sectors. This is due to the fact that only a small number of these initiatives are estimated to have a potentially significant impact on India’s GHG emissions. As seen in Figure 4.9, there are potential contributions from both the GFEI, aiming for enhanced LDV fuel standards, and the UIC’s target to reduce emissions and increase modal split of train traffic. However, the latter’s target is overlapped to a large extent by the Indian INDC’s ambition of increasing the modal share of trains in freight and passenger transport. Another small contribution could be attributed to the SEAD initiative.

According to the Climate Action Tracker’s assessment, India’s emission projections under an INDC scenario are roughly in line with its current policies. Potential reductions from the investigated initiatives would reduce the annual growth rate of emissions in the period 2015-2030 from 5.2% - 5.4% to 4.6% - 5.1%, as seen also in Figure 4.10

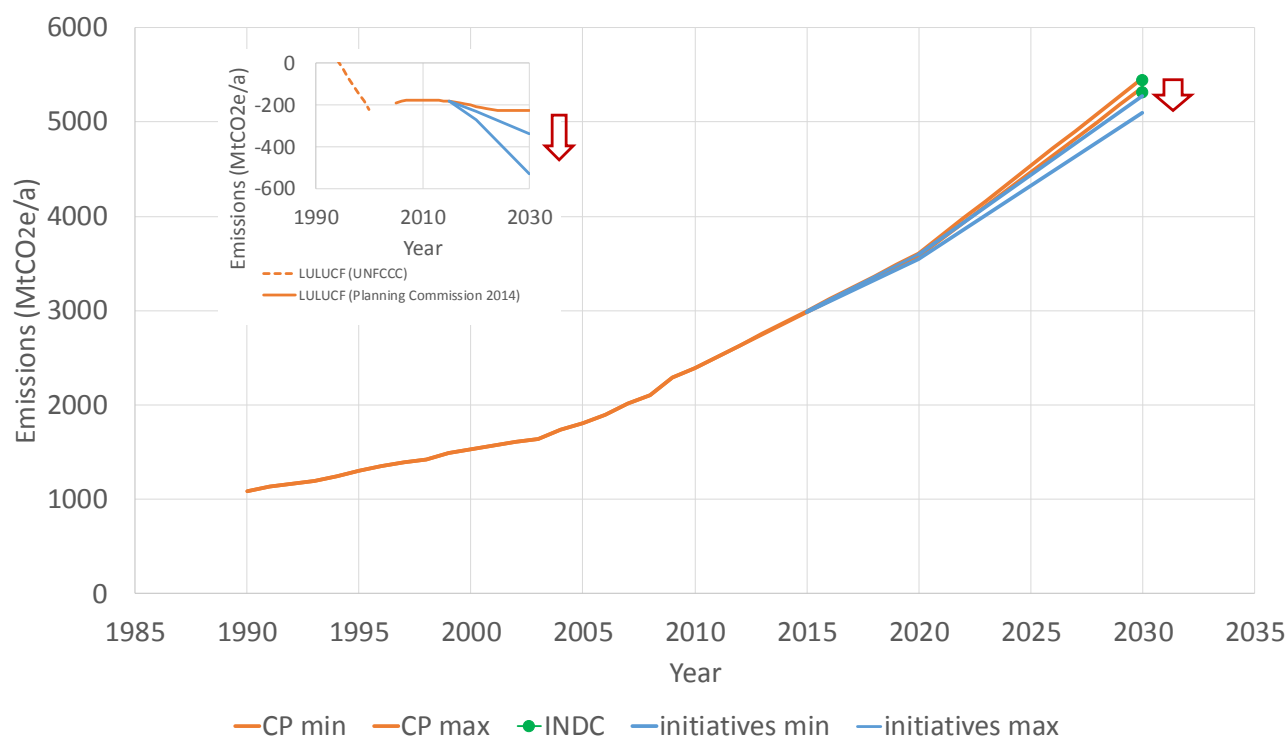
Figure 4.9 Potential of initiatives in India



Note: Potential impact (compared to INDC levels) of initiatives in India up to 2020 (a) and 2030 (b), with minimum numbers assuming maximum overlap with other initiatives and/or INDC targets.

Source: Author’s own calculations

Figure 4.10 Emissions in India under scenarios without INDC, with INDC, and with initiatives



Note: Emission levels excl. LULUCF in India historically, under current policies (CP, excluding INDCs), INDC levels, and under the initiatives' reduction potential. Inset: Possible emission reductions in the LULUCF sector in China until 2030.

Source: Impact of initiatives: Author's own calculations; trend, current policy and INDC: Climate Action Tracker (2015); LULUCF baseline from Planning Commission Government of India (2014).

4.2.6 Indonesia

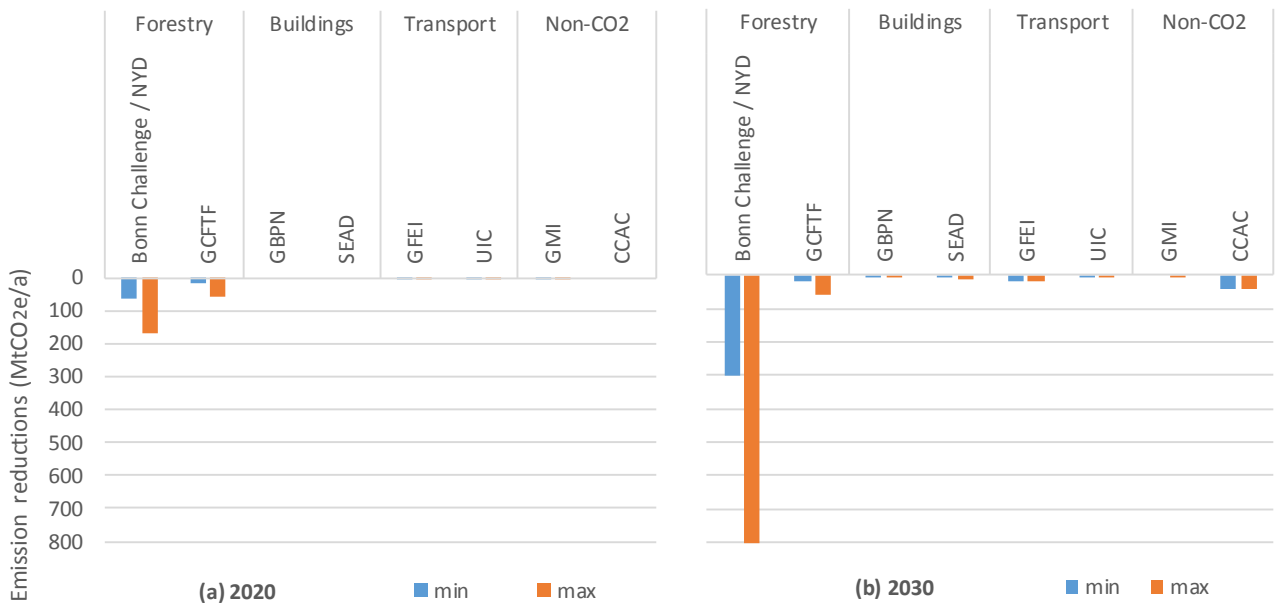
As the GHG emission profile of Indonesia is rather untypical owing to the very large share of deforestation emissions in its economy-wide inventory, this is reflected also in the potential impact of the initiatives analysed in this study. Due to the large potential for reforestation activities and the large additionality that the drive for reforestation under the Bonn Challenge would provide over current (baseline) levels of reforestation, this initiative constitutes by far the largest potential of all initiatives, as seen in Figure 4.11.

The Governors' Climate and Forest Task Force, which is an international regional initiative aiming for reducing deforestation levels by 80% by 2020, also has relatively large potential in Indonesia due to six Indonesian provinces (Aceh, Central/East/West Kalimantan, Papua, and West Papua) – being a part of it.

There is a potential impact from the initiatives in thermal energy in buildings (GBPN) and appliance efficiency (SEAD) as well as from improved fuel standards (GFEI) and increased railway usage (UIC); however, together, these initiatives' contributions do not add up to more than tens of megatons.

In the Climate Action Tracker's assessment of Indonesia, the INDC targets are deemed less ambitious than current policy projections. As current policies have been included in the baseline scenarios to which we have compared the initiatives, the reductions shown in Figure 4.11 represent additionality compared to this "current policies scenario". This is shown along with historic time series and future projections of non-LULUCF emissions in Figure 4.12 (top). Furthermore, Figure 4.12 (bottom) presents the potential contributions of the Bonn Challenge and the GCFTF to Indonesia's emissions from the LULUCF sector. These have the potential (in the most optimistic scenario) to reduce these emissions to zero, and (in the most pessimistic one) to roughly halve them.

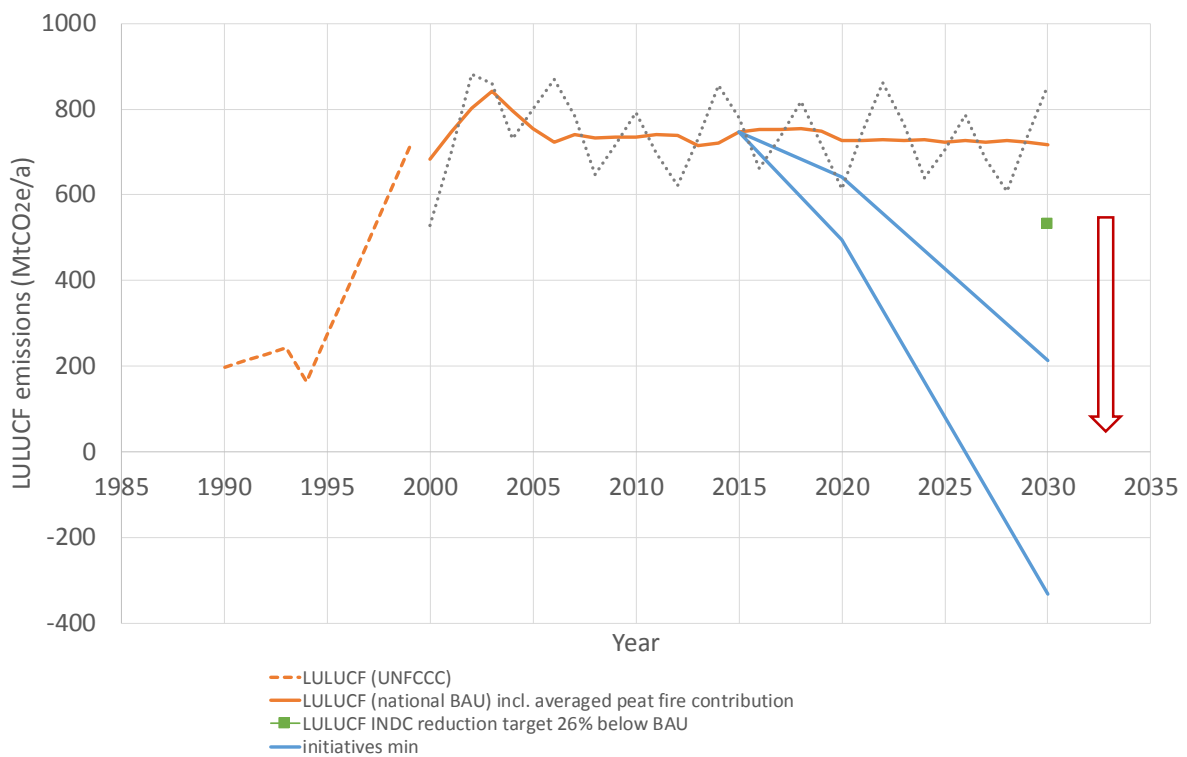
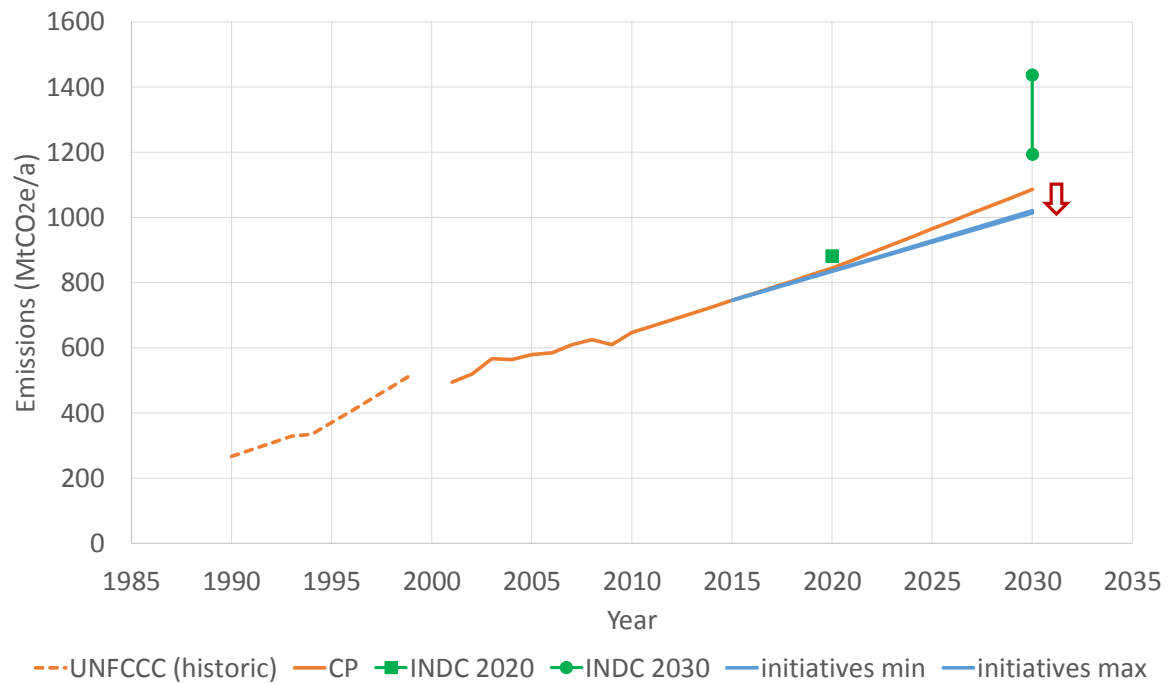
Figure 4.11 Potential of initiatives in Indonesia



Note: Potential impact (compared to INDC levels) of initiatives in Indonesia up to 2020 (a) and 2030 (b), with minimum numbers assuming maximum overlap with other initiatives and/or INDC targets.

Source: Author's own calculations

Figure 4.12 Emissions in Indonesia under scenarios without INDC, with INDC, and with initiatives



Note: (top) Emission levels excl. LULUCF in Indonesia historically, under current policies (CP, excluding INDCs), INDC levels, and under the initiatives' reduction potential.
 (bottom) Possible emission reductions in the LULUCF sector in Indonesia until 2030. In the baseline, the peat fire emissions in Indonesia fluctuate due to El Niño influences, which we have averaged out in the shown baseline.

Source: Impact of initiatives: Author's own calculations; trend, current policies and INDC: Climate Action Tracker (2015); LULUCF baseline from Sekretariat RAN-GRK (2015).

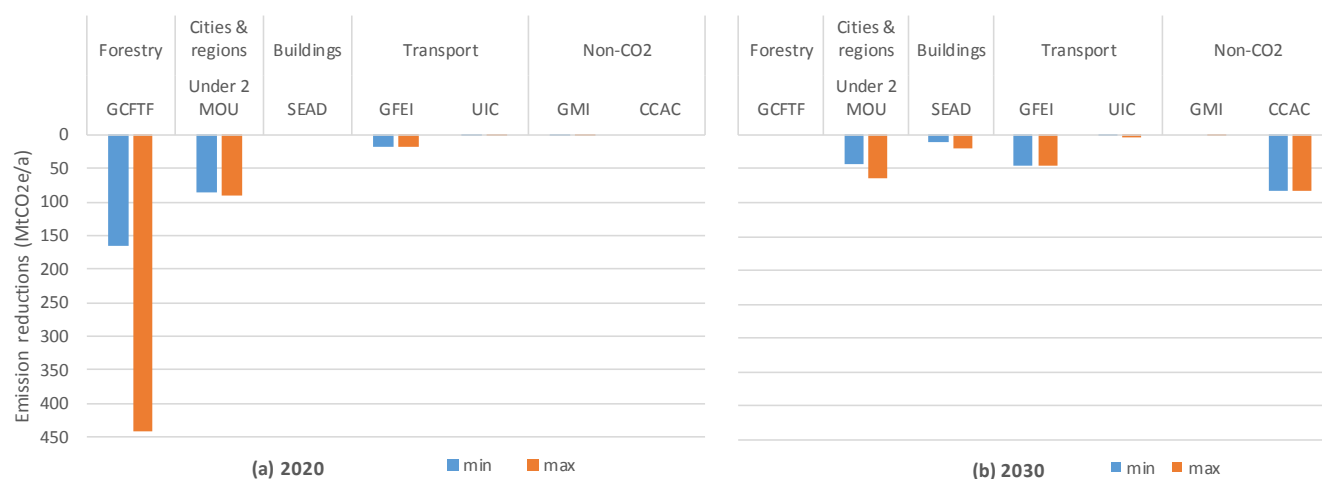
4.2.7 Brazil

In Figure 4.13, we present the estimated potential impact of initiatives in Brazil. When scaled down to the Brazilian context, the Bonn Challenge’s objective of restoring “150 million hectares of deforested and degraded lands by 2020 and a further 200 million by 2030” is very close to the Brazilian INDC’s targets, leading to the conclusion that the Challenge would likely not overachieve the INDC targets.

The Governor’s Climate and Forest Task Force, which aims to reduce deforestation by 80% by 2020 in several Brazilian provinces, has high ambition in the short term that is in line with recent trends in Brazil’s LULUCF emissions. We note that Brazil’s INDC pledges to “strengthen policies and measures with a view to achieving zero illegal deforestation in the Amazonia region” by 2030 (Federative Republic of Brazil 2015), which covers the GCFTF signatory states and thus can be taken to mean that the GCFTF would not be additional to INDC actions anymore by 2030. Thus by 2030 we deem these LU-LUCF initiatives to have no additional impact in Brazil. This is indicated in Figure 4.14 (bottom), where we show a simplified assumed “INDC scenario” of LULUCF emissions under zero illegal deforestation by 2030, with equal impact as the GCFTF, as up to 80% of deforestation in the Amazon is deemed to be illegal (Greenpeace 2016).

Apart from the LULUCF sector, there are potential reductions from regional targets that have a higher ambition than Brazil’s INDC scaled down to the same regions, as well as from transport initiatives and the non-CO₂ initiatives, whose aggregate potential reduction is substantial (Figure 4.14 (top)).

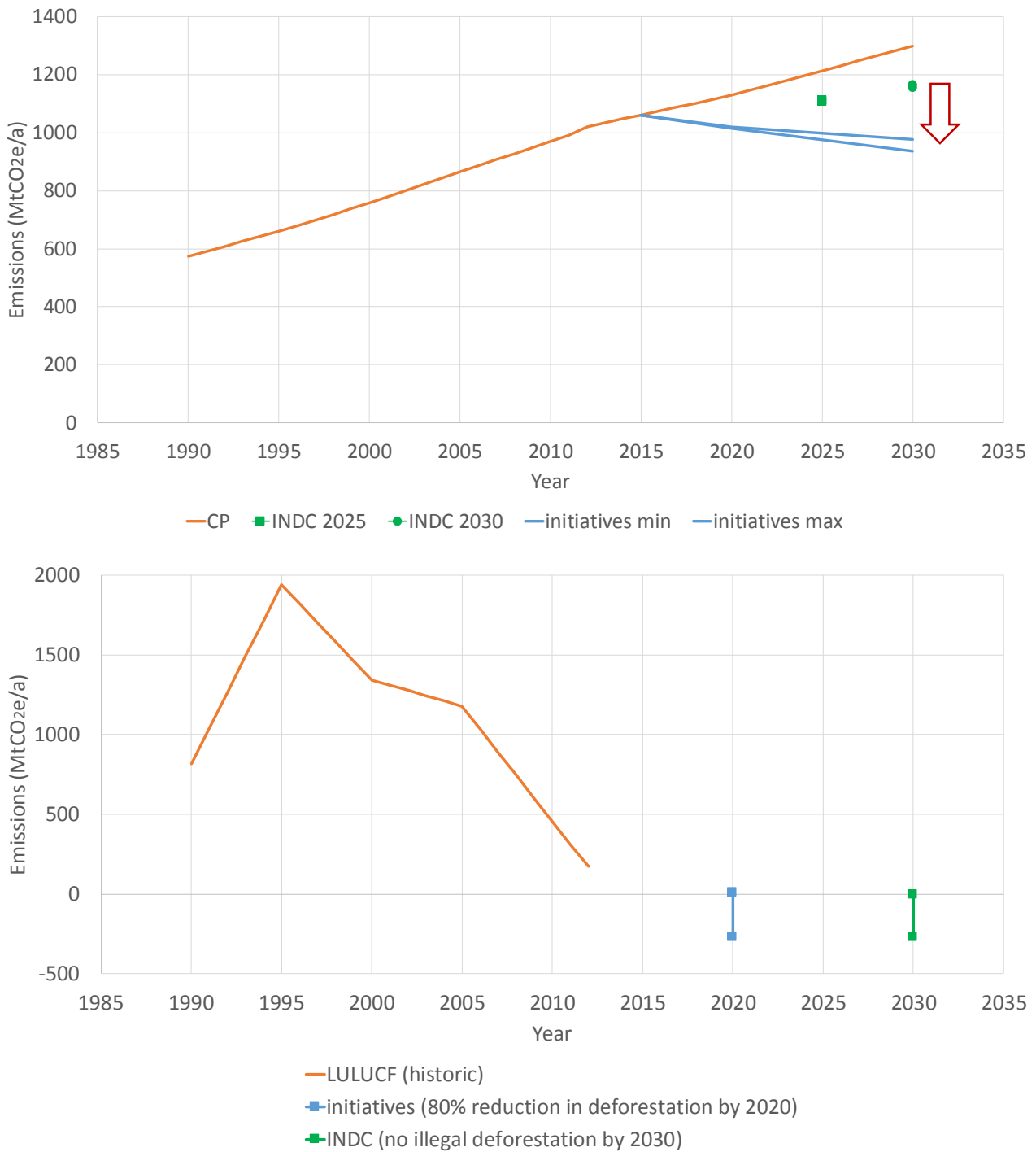
Figure 4.13 Potential of initiatives in Brazil



Note: Potential impact (compared to INDC levels) of initiatives in Brazil up to 2020 (a) and 2030 (b), with minimum numbers assuming maximum overlap with other initiatives and/or INDC targets.

Source: Author’s own calculations

Figure 4.14 Emissions in Brazil under scenarios without INDC, with INDC, and with initiatives



Note: (Top) Emission levels excl. LULUCF in Brazil historically, under current policies (CP, excluding INDCs), INDC levels, and under the initiatives’ reduction potential.
 (Bottom) Possible emission reductions in the LULUCF sector in Brazil until 2030. Should the target of zero illegal deforestation in Brazil’s INDC be reached by 2030, then the additional impact of reduced deforestation initiatives would become zero. The GCFTF, however, which aims for 80% reduction in deforestation by 2020, could contribute towards reaching this goal faster as its target year is nearer in the future than that of the INDC.

Source: Impact of initiatives: Author’s own calculations; trend, current policies and INDC: Climate Action Tracker (2015).

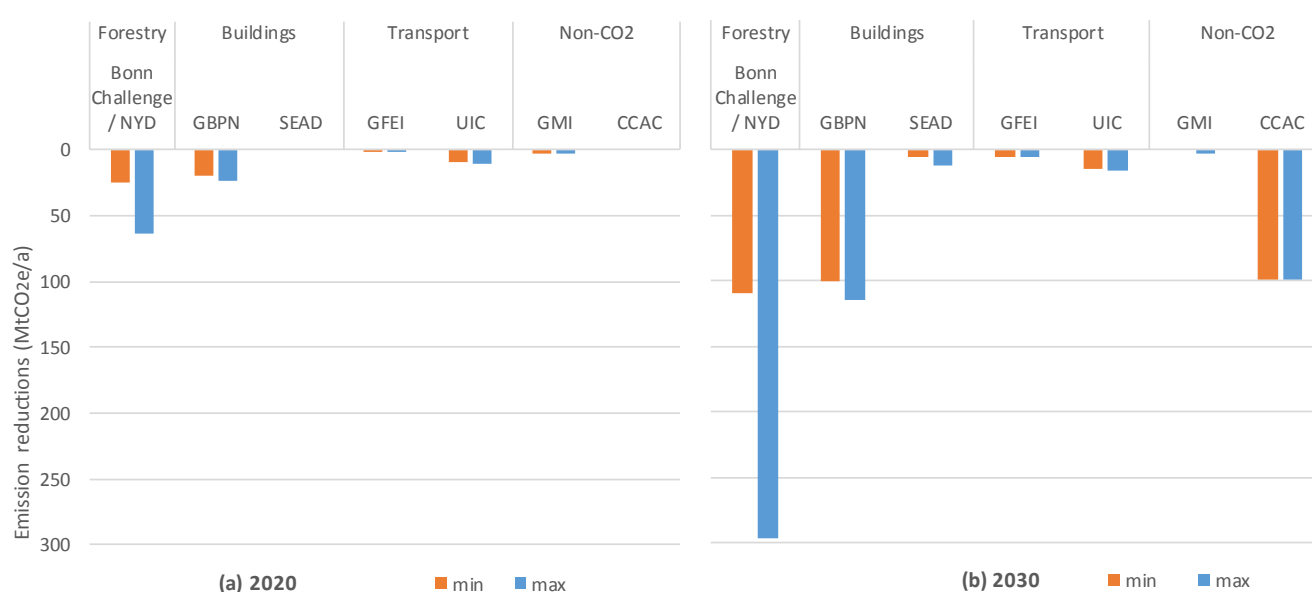
4.2.8 Russia

The contribution of initiatives to Russia’s GHG emissions is modest. In the absence of large-scale renewable energy programs such as the wind and solar initiatives in the EU and the US, there are only a handful of initiatives with a substantial potential to contribute to reducing Russia’s emissions, as shown in Figure 4.15. As in most countries, there is quite some scope in the forestry sector and for methane emissions; outside of that the largest potential for Russia is found in the buildings sector by the GBPN initiative, aiming for reduced thermal energy demand. Potential contributions from transport initiatives, though present, are found to be relatively small compared to expected developments.

The aggregate contribution of these initiatives could reduce the growth rate (2015-2030) of Russia’s emissions from an expected 0.8% per year under current policies to roughly 0.0% to 0.5%, i.e. nearly constant yearly emissions, as shown in Figure 4.16. The baseline is the current policies scenario, as the Climate Action Tracker deems Russia’s current policies to be already more ambitious than its INDC targets taken separately.

In the LULUCF sector, already a sink over the last two decades, the impact of the Bonn Challenge would be to ensure further negative emissions instead of the trend of slightly less negative emissions expected as per Russia’s 6th National Communication, as shown in the inset.

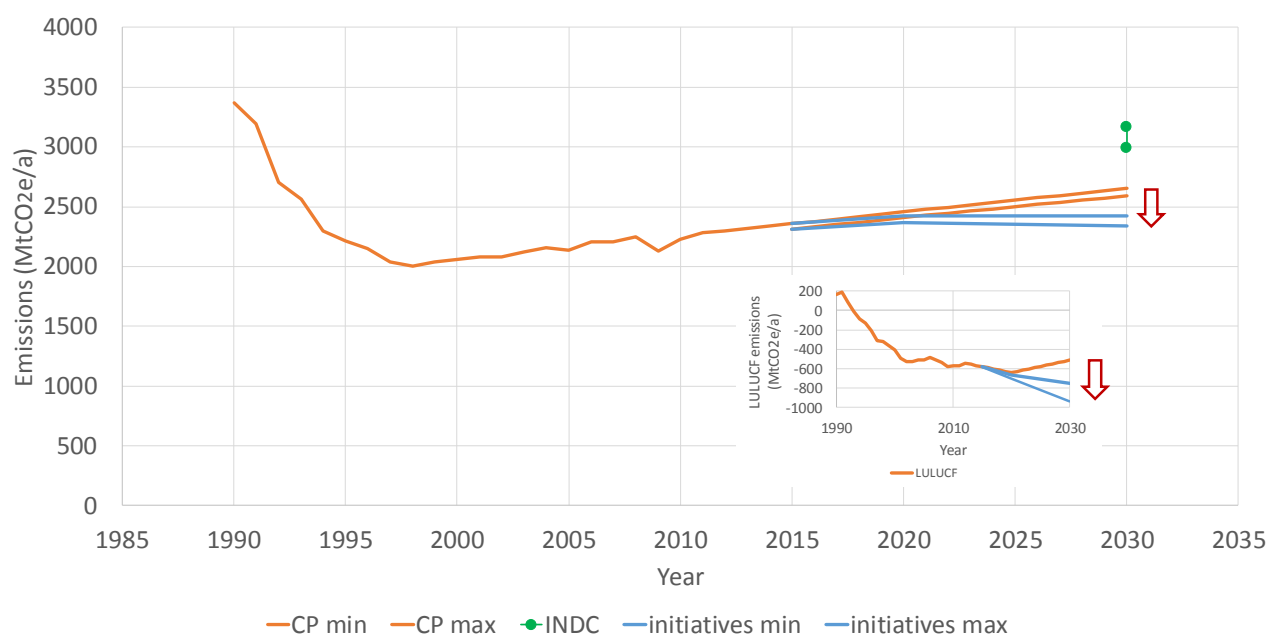
Figure 4.15 Potential of initiatives in Russia



Note: Potential impact (compared to INDC levels) of initiatives in Russia up to 2020 (a) and 2030 (b), with minimum numbers assuming maximum overlap with other initiatives.

Source: Author’s own calculations

Figure 4.16 Emissions in Russia under scenarios without INDC, with INDC, and with initiatives



Note: Emission levels excl. LULUCF in Russia historically, under current policies (CP, excluding INDCs), INDC levels, and under the initiatives' reduction potential. Inset: Possible emission reductions by initiatives in the LULUCF sector in Russia until 2030. The baseline has been constructed by combining Russia's 6th National Communication data (2020-2030) (Russia's Ministry of Natural Resources and Environment, 2013) with historic UNFCCC data (1990 – 2012).

Source: Impact of initiatives: Author's own calculations; trend, current policies and INDC: Climate Action Tracker (2015).

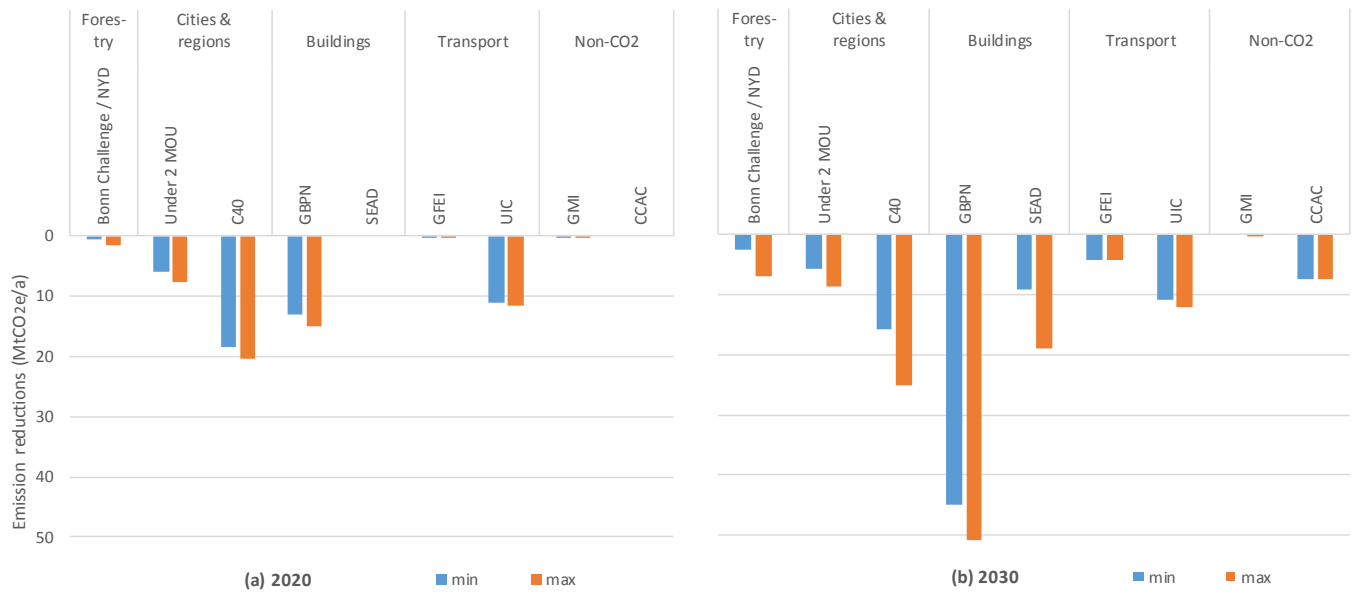
4.2.9 Japan

Within Japan, the (relatively) largest potential impact by 2020 of the analysed initiatives is estimated to be due to actions undertaken by Tokyo and Yokohama in the C40 group and by Gifu Prefecture in the Under2MOU, as shown in Figure 4.17. A number of cities with significant shares of Japan's population have pledged to emission reduction targets that are estimated as more ambitious than Japan's INDC target.

Further contributions are from buildings initiatives in thermal energy efficiency and appliance efficiency (GBPN and SEAD respectively) with lesser contributions in the transport sector. Overall, the impact of initiatives in Japan is low, at the most in the order of tens of MtCO₂e by 2030 according to our estimations; see Figure 4.17.

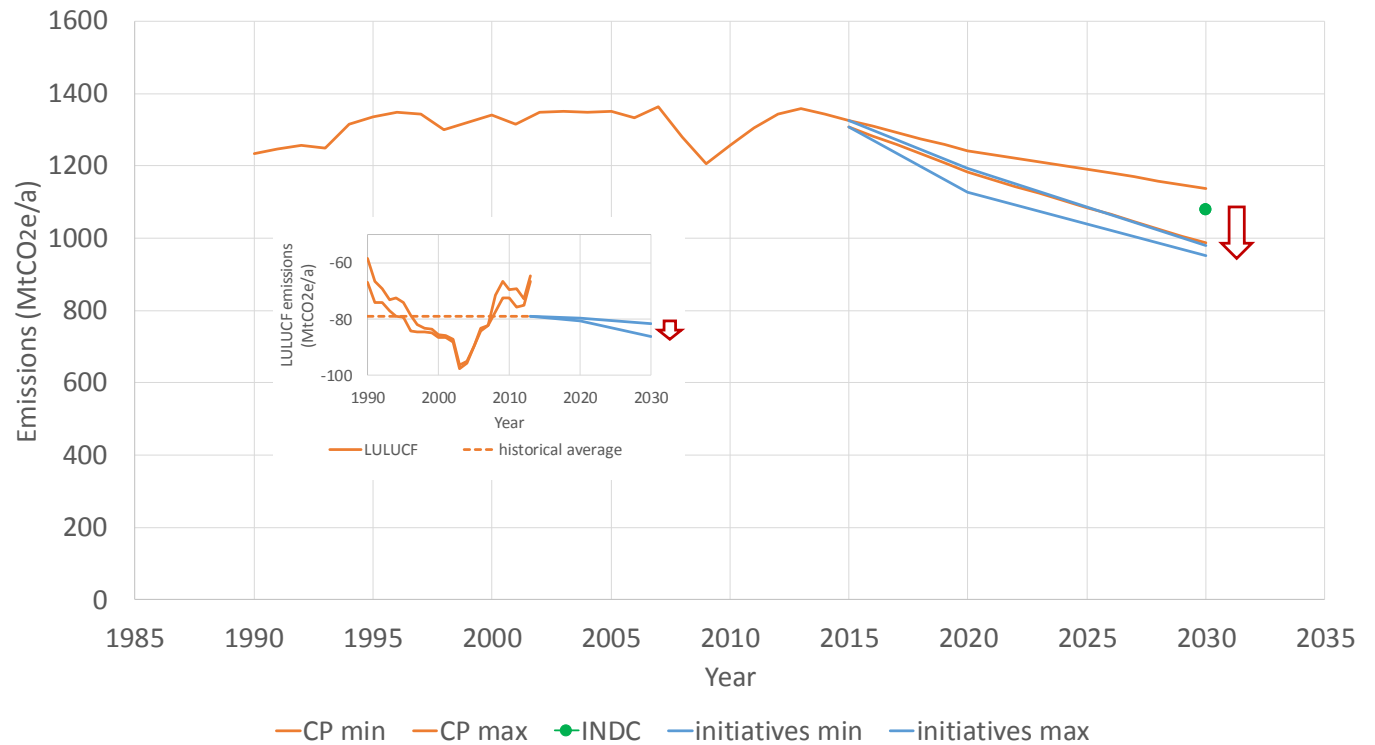
The aggregate impact of the initiatives on Japan's projected GHG emissions is therefore on the low side, as shown in Figure 4.18. Together, the initiatives could ramp up the expected decline in Japan's emissions from 0.9%-1.6% under current policies (in line with INDC targets) to 1.6%-1.9% over the period 2015-2030. Impacts in the forestry and land-use sector are expected to be almost negligible (inset).

Figure 4.17 Potential of initiatives in Japan



Note: Potential impact (compared to INDC levels) of initiatives in Japan up to 2020 (a) and 2030 (b), with minimum numbers assuming maximum overlap with other initiatives.
 Source: Author's own calculations

Figure 4.18 Emissions in Japan under scenarios without INDC, with INDC, and with initiatives



Note: Emission levels excl. LULUCF in Japan historically, under current policies (CP, excluding INDCs), INDC levels, and under the initiatives' reduction potential. Inset: Possible emission reductions in the LULUCF sector in Japan until 2030. The baseline is the historical average.
 Source: Impact of initiatives: author's own calculations; trend, current policy and INDC: Climate Action Tracker (2015).

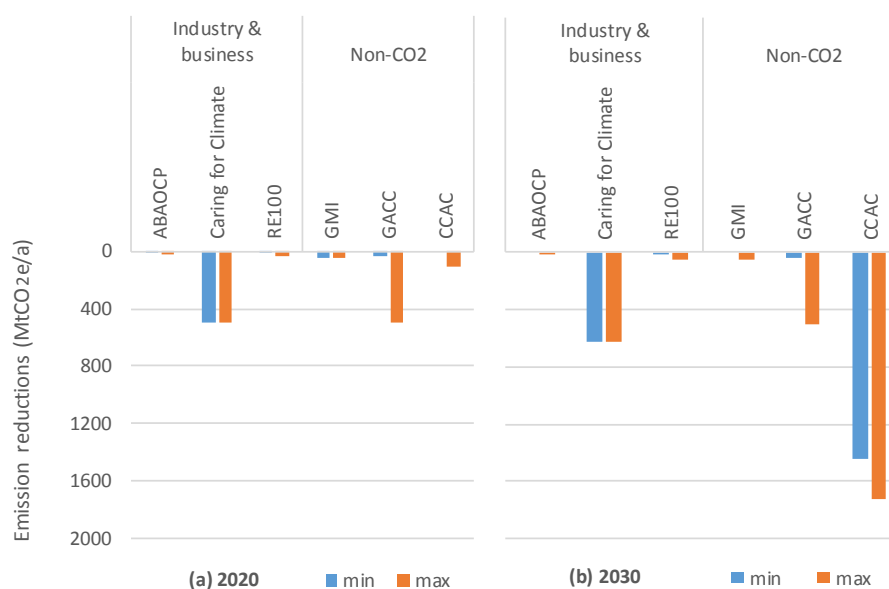
4.2.10 Worldwide initiatives

As mentioned in the introduction, some of the initiatives were not quantified on the country-level for various reasons, ranging from data unavailability to impacts being mostly outside of the eight investigated countries. This section deals with the analysis of initiatives that were analysed on a global level.

The initiatives not scaled down to a country level include three business initiatives (Caring for Climate, the American Business Acts on Climate Pledge (ABAOCPP), and RE100) and the Global Alliance for Clean Cookstoves (GACC). The former have not been scaled down due to a lack of data to know which emissions from which countries should be counted in which country. The latter has not been taken along due to the fact that its impacts are assumed to be highest in countries outside of the analysed sample of eight. Furthermore, due to the fact that non-CO₂ gases account for a large share of the emission reductions of improved cookstoves (Lee, C. M., Chandler, C., Lazarus, M., Johnson, F. X 2013), the overlap between reductions from CCAC and the Global Alliance for Clean Cookstoves is best calculated on the worldwide level.¹⁰

We show the estimated reductions of initiatives analysed on the worldwide scale by 2020 (a) and 2030 (b) in Figure 4.19.

Figure 4.19 Impact of initiatives not scaled down to country-level



Note: Potential impact (compared to INDC levels) of initiatives assessed on the worldwide scale up to 2020 (a) and 2030 (b), with minimum numbers assuming maximum overlap with other initiatives and/or INDC levels.

Source: Author's own calculations

¹⁰ This is consistent with the country-level calculations, as a worldwide baseline (as proxy INDC scenario) was applied before the country-level breakdown. We note, however, that in the case of the USA, strong reductions in methane emissions are likely necessary in order for their INDC targets to be achieved. It is likely that such reductions are not part of our baseline scenarios of methane emissions (even though we use it as "proxy" worldwide INDC scenario), leading to a potential overestimation of the CCAC impact beyond INDC levels in the USA. On the worldwide scale, however, this has an impact of at most a few hundred MtCO₂. For more information, see the Appendix section on CCAC quantification.

4.3 Aggregation to global level

In the last step of this analysis, we have aggregated the country-level impacts with all overlaps taken into account back to a worldwide level, thus resulting in an overall potential impact including overlaps that could be compared to INDC projections on the global level.

In order to re-aggregate an initiative back to a global level, we had to make an estimation of the contribution of the initiative to the “rest of the world” (i.e. outside of the eight countries analysed in detail). Thus, the global numbers calculated here are:

- ▶ Higher than the sum of the initiatives’ contributions in each of the eight countries plus the worldwide-only initiatives, as it involves an estimation of the contribution to the rest of the world that has not been explicitly used anywhere else;
- ▶ Lower than the sum of the initiatives’ contributions to the potential overall impact, since no overlaps were taken into account in that analysis.

These globally aggregated numbers together represent the contribution of these initiatives, if fully implemented, to global emission projections in addition to what would be expected under successful implementation of INDCs. The country-level analyses include not only an assessment of the overlaps between initiatives within and across sectors, but also of the overlap with INDCs – either by comparison to INDC scenarios (OECD & IEA 2015, New Policies Scenario) or by explicit comparison to quantified goals stated in a country’s INDC.

In Figure 4.20, we plot these aggregated contributions in 2020 and 2030 along with historic data of worldwide impact and future projections under current policies (i.e. without INDC levels) and under projections assuming full implementation of INDCs (Climate Action Tracker 2015). We have also compared these potential reduction levels with those required for a pathway consistent with limiting temperature rise to a maximum of 2°C above pre-industrial levels.

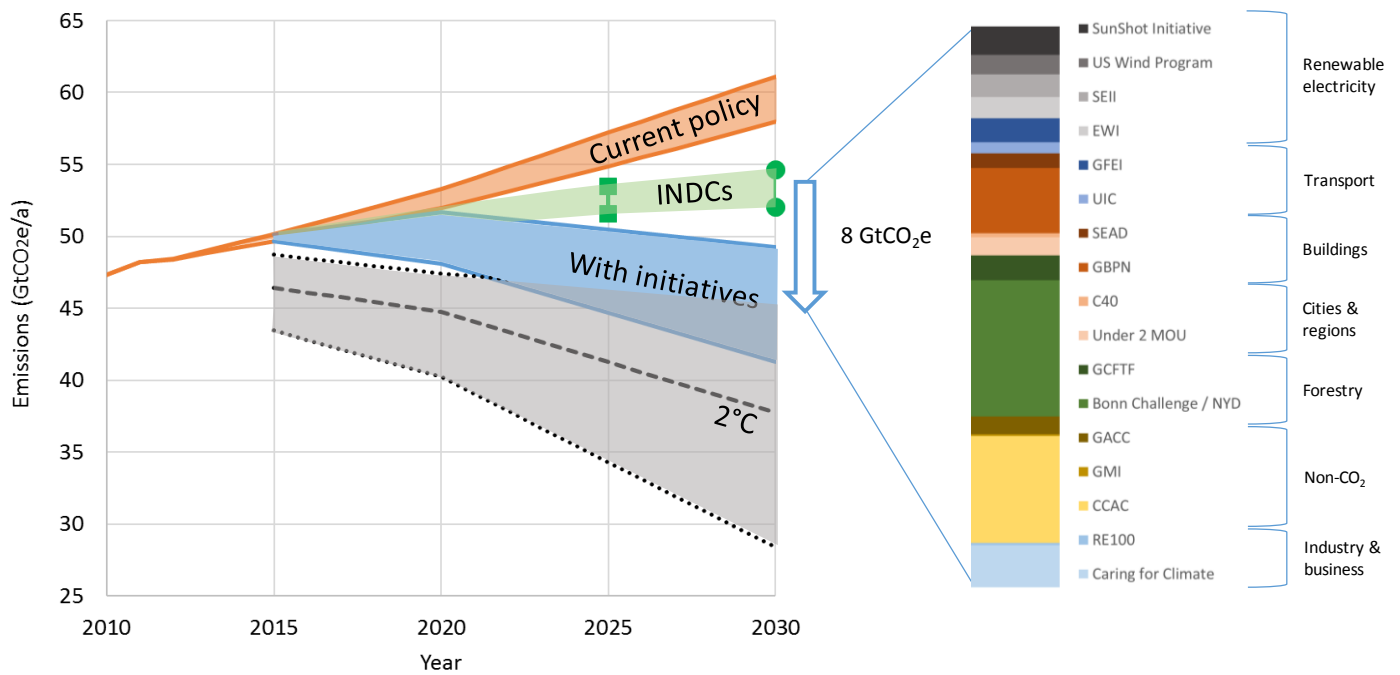
The initiatives taken together can reduce global emissions by 5 to 11 GtCO₂e/year (8 GtCO₂e on average) beyond INDCs. The minimum contribution of these initiatives closes roughly one-third of the gap between current projections of emissions under INDC implementation by 2030 and the median of the 2°C pathways. The maximum contribution of these initiatives (i.e. under the most optimistic assumptions of emission reductions and assuming the initiatives are maximally additional to each other) would just fall short of reaching the median of the 2°C pathways.

Figure 4.20 also shows how the individual initiatives are expected to contribute by 2030. Particularly large contributions come from the forestry (28%) and non-CO₂ (23%) initiatives, followed by power-sector (16%) and buildings (14%) initiatives.

To clarify the flow of calculations by which we arrive at this worldwide impact, in Figure 4.21, we show a Sankey diagram to explain this. It details how the calculation flow goes from the “potential impact” numbers (on the left, here divided by thematic area for ease of reading) to the country-level disaggregation, where overlaps are calculated between initiatives and with INDCs (middle, showing how the “outflow” – representing reductions after overlaps – are smaller than “inflow”), and finally to the global-level impact aggregated back from a country-level. Numbers presented in this graph refer to the 2030 impact.

Figure 4.21 shows clearly the different potential impacts in the different countries (i.e. nearly all potential impact in Indonesia comes from forestry initiatives; a large contribution of the high potential impact in the USA and EU comes from renewable power initiatives), as well as the differences in absolute reduction potential (i.e. low overall potential in Japan and Russia compared to the USA and EU).

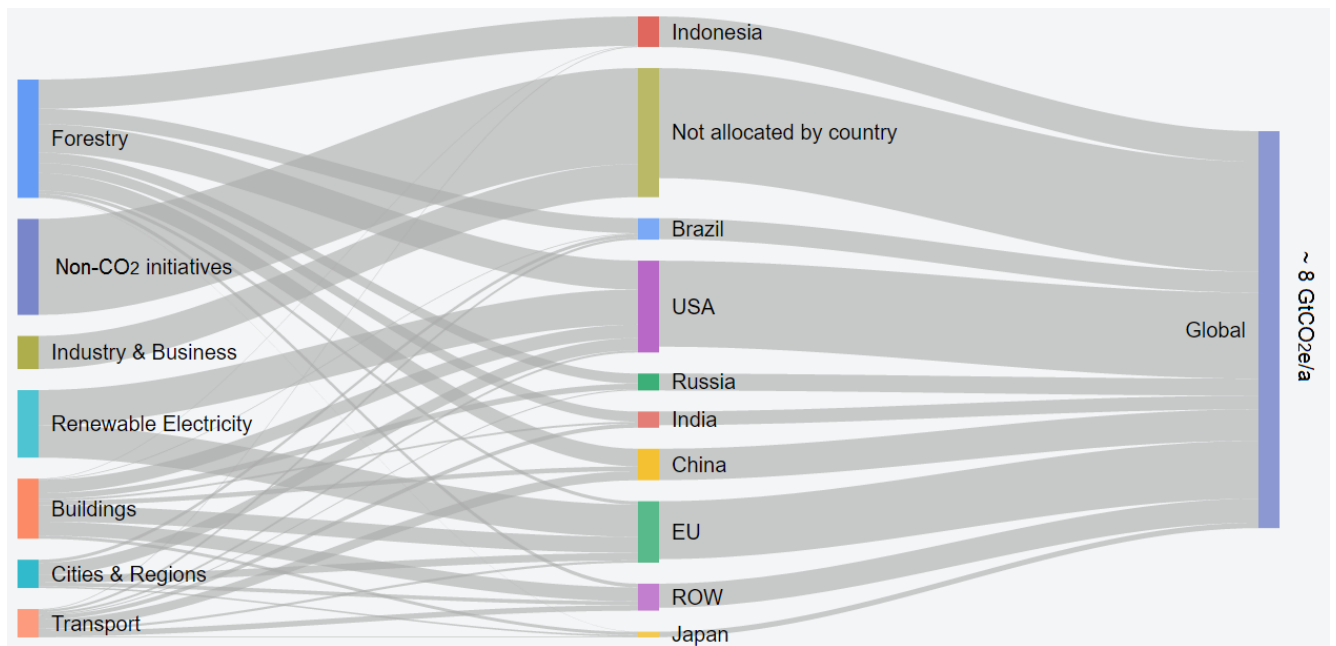
Figure 4.20 Global emission (incl. LULUCF) and emissions reduction from initiatives



Note: Global emission levels incl. LULUCF (historic, future under current policies, and future under INDC levels) along with the potential overachievement of INDC levels by the analysed initiatives scaled up to the global level. The dashed (dotted) lines indicate the median (10th/90th percentile values) of global 2°C compatible pathways (CAT, 2015). Right: Disaggregation of the contribution of initiatives overachieving INDCs by initiative in 2030 (average number shown). The two CCAC sub-initiatives we analysed (on HFC and CH₄ reduction, respectively) have been grouped together under “CCAC”. Initiatives with less than 10 MtCO₂ expected contribution (ABAOCP and ULCOS) are not in the legend as they are not visible in the graph.

Source: Author’s own calculations (initiatives), Climate Action Tracker (2015) (current policies, INDCs)

Figure 4.21 Flow of emissions reduction from initiatives per sector and per country



Note: Sankey diagram showing the calculation flow from global potential impact per sector (left) to country-level disaggregation (right) to global calculations. “ROW” = Rest of World; “Not allocated by country” refers to the initiatives analysed solely on the global level, or for which the overlap calculations were only done on the global level (CCAC and GMI). The numbers that flow “into” a country represent the average potential impact (i.e. without overlap between initiatives) compared to INDC levels. The numbers that flow “out” of a country represent what would be left over if the average level of overlapping is assumed. In this graph, all information refers to 2030 impacts.

Source: Author’s own calculations

5 Good practice analysis

In addition to the quantitative assessment, we also analyse potential qualitative contributions of initiatives. These are grouped into indirect impacts on GHG emissions (e.g. informational diffusion, political effects, technology development), co-benefits (e.g. air pollution, health impacts, energy security, economic development) and whether an initiative directly causes emission reductions through projects on the ground.

Both the quantitative and the qualitative assessment then provide the basis for a good practice analysis. The goal of the good practice analysis is to find overarching success factors, i.e. characteristics of initiatives that tend to lead to large emission reductions and/or high qualitative contributions. The characteristics assessed are topic area, geographical coverage, type of initiative, functions, type of member organizations and the existence of a permanent secretariat.

For each characteristic, we then calculate the correlation (correlation coefficients r) with quantitative and qualitative impact indicators, as well as the means of the impact indicators under different characteristics. As quantitative impact indicators, we use the global potential impact in 2020 and 2030, both absolute and relative to the total emissions covered by an initiative, as well as the achieved emission reductions to date. As qualitative impact indicators, we use the number of indirect impacts by an initiative, the number of co-benefits, and whether an initiative directly causes emission reductions. Based on this analysis, we derive success factors and good practice initiatives.

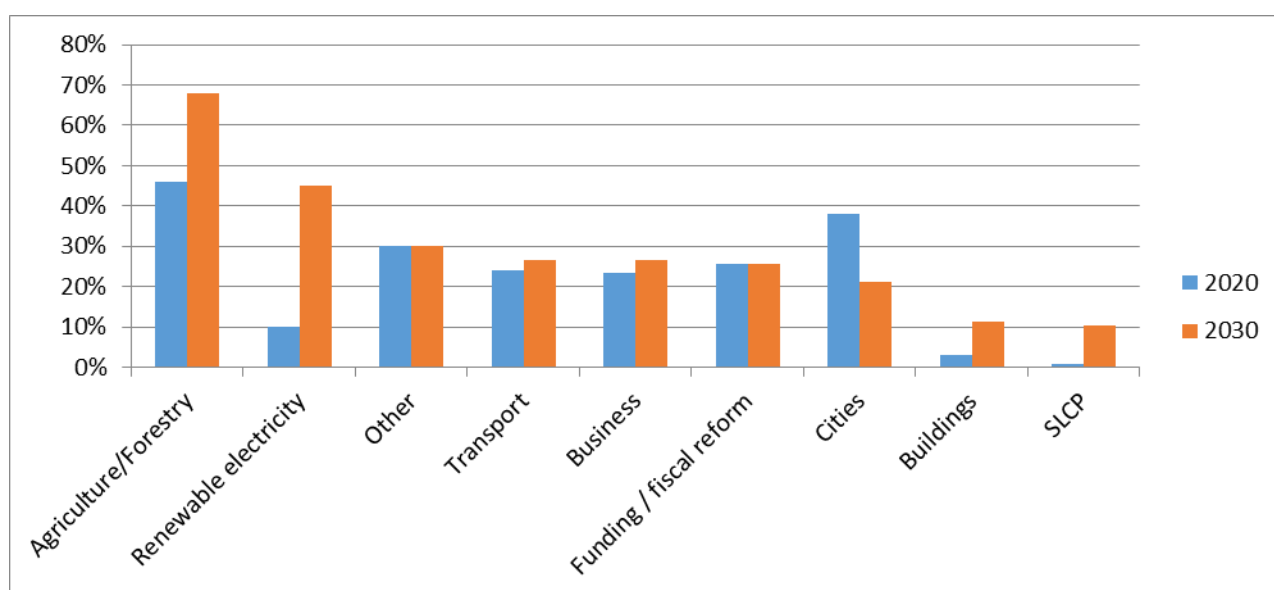
It is important to note that the number of initiatives with a target allowing for quantification in section 4 is too low for a solid statistical analysis. Therefore, while the results presented in this section are descriptive of this set of initiatives, they do not apply to climate initiatives in general.

Finally, we also assess the transparency performance of initiatives. As we did not determine whether an initiative is actually likely to meet its issued target, the publication of measures taken and GHG reductions achieved by an initiative is needed for a transparent assessment. It is therefore also part of good practice by climate initiatives.

5.1 Results

We start the analysis by comparing the quantitative impact by topic area. Figure 5.1 shows the mean of the relative global potential impact of all initiatives in a certain topic area.

Figure 5.1 Mean of relative global potential impact by topic area



Source: Author's own calculation

We find that forestry initiatives have the highest impact in 2030. Forestry is not comprehensively included as a mitigation option in INDCs (Zeleeke et al. 2016) and existing targets suffer from a lack of clarity (Petersen, K. & Varela, J. 2015). Therefore, initiatives play an important role in this topic area and their targets easily surpass national policies and INDCs. Further, we see that city initiatives have a large impact in 2020, but the impact in 2030 is much smaller. This indicates that most cities set rather ambitious short-term targets, but are more hesitant with long-term commitments.

Another interesting finding concerns the role of business members. Figure 5.2 shows the quantitative impact in 2030 in relation to the share of business members for each initiative. The left figure shows the absolute impact in MtCO_{2e} and the right figure shows the relative impact as a share of the covered emissions of the initiative in percent. Each point represents one initiative. Furthermore, the figures show a linear fit to the data points and the corresponding correlation coefficient r .

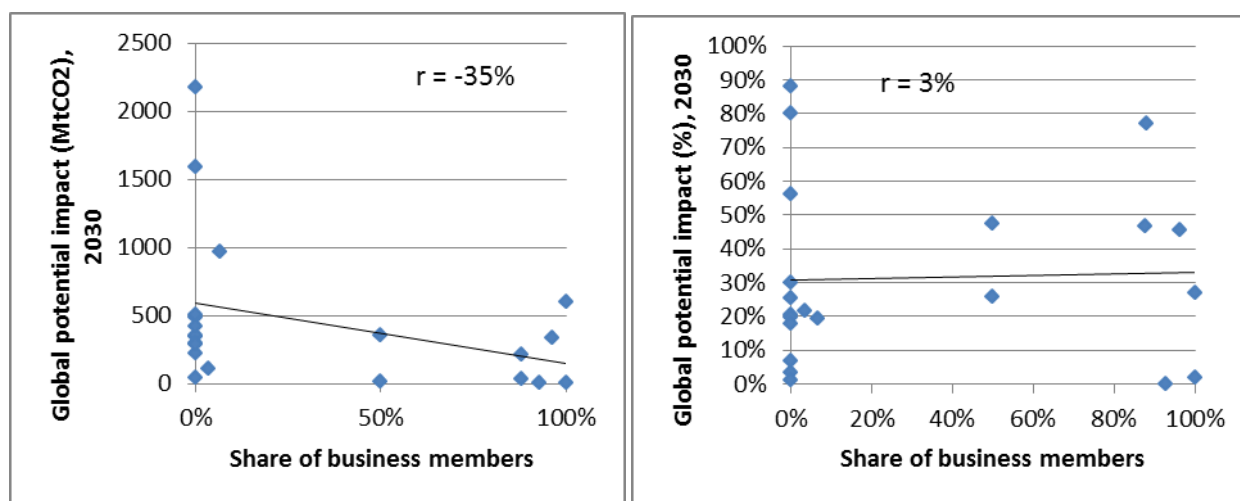
We find that initiatives with a high share of business members tend to be smaller, in terms of total emissions covered, than other initiatives, but have a similar relative impact. Further, analogous analyses reveal that those initiatives tend to more directly cause emission reductions than other initiatives, and that those initiatives are also associated with indirect impacts on emissions, mainly through technology development.

We have performed similar analyses for all characteristics mentioned at the beginning of this section. This allows us to derive further success factors:

The first success factor is the presence of NGOs. We find that NGO-led initiatives¹¹ tend to have a high relative impact both in 2020 and 2030 ($r = 50\%$ (2020), 37% (2030)). Further, initiatives with a high share of NGO members tend to have large co-benefits ($r = 21\%$, highest correlation among member organization types), mainly health impacts and biodiversity.

¹¹ This includes initiatives led by the private sector (e.g. business associations or companies).

Figure 5.2 Absolute and relative impact of initiatives in 2030 and their share of business members



Source: Author's own calculation

Additionally, we find that voluntary agreements tend to have a high relative impact in 2020 ($r = 58\%$, highest correlation of all initiative functions). However, the connection is less strong, but still positive, for 2030 ($r = 22\%$). Of course, voluntary agreements are particularly susceptible to the issue of target compliance. Therefore, we again highlight that this project did not assess whether the targets will actually be achieved. While the potential impact of voluntary agreements is high, the odds of target achievement from voluntary agreements might also be lower than from other initiatives, if compliance is as voluntary as target setting.

Further, we find that a permanent secretariat may support a high impact of an initiative. The existence of a secretariat comes with above-average absolute and relative impact in 2020 and 2030, and with already achieved emission reductions. It also indicates more indirect impacts and more co-benefits. However, the disclaimer is especially important for this characteristic: only four of the initiatives in our quantified sample have a permanent secretariat.

However, we also find several characteristics that show no or few apparent connections to the quantitative and/or qualitative impact of an initiative. For geographical coverage, only global and non-global initiatives could be differentiated, due to the relatively low number of initiatives. We find that, while global initiatives are larger in terms of total emissions covered and absolute emission reductions, the relative impact of global and non-global initiatives is quite similar. While most qualitative impacts also do not vary much between global and non-global initiatives, we find that slightly more non-global initiatives directly cause emission reductions, as they tend to be more project and implementation focused than global initiatives.

For the type of initiative, we see a large variation in the emission reduction impact of implementation initiatives. While the majority of such initiatives have a below-average impact, a few initiatives have very high impact. Overall, the quantitative impact of implementation initiatives is about as high as for other initiatives. We also do not find a meaningful connection between any initiative type and qualitative impacts.

5.2 Good Practice Initiatives

In this section, we describe three good practice initiatives, which we have derived from the set of quantified initiatives. These three initiatives combine high impact with several of the success factors developed in the previous section.

The first good practice initiative is the combination of the Bonn Challenge and the New York Declaration on Forests, calling for the restoration of 150 million hectares of deforested and degraded lands by 2020, and an additional 200 million hectares by 2030. We estimated the potential impact of the initiative to be between 250 MtCO_{2e} and 680 MtCO_{2e} in 2020 and between 1.2 GtCO_{2e} and 3.2 GtCO_{2e} in 2030. The initiative covers an area, forestry, which is underrepresented in INDCs (Zeheke et al. 2016). It further covers a wide range of countries and is therefore a truly global initiative. In addition, it has a permanent secretariat and is based on voluntary agreements. Finally, the website of the Bonn Challenge¹² provides detailed descriptions of their activities, an own estimation of their impact, and provides guidance for potential new members.

Second, the Global Fuel Economy Initiative (GFEI) aims to halve the fuel consumption of the light-duty vehicle fleet in 2050 compared to 2005 (in litres of gasoline equivalent per 100 km). In the short-term, the initiative targets a halving of fuel consumption for new cars by 2030. The potential impact was estimated as roughly 160 MtCO_{2e} in 2020 and 360 MtCO_{2e} in 2030. As a transport initiative, the GFEI has considerable co-benefits, mainly in the reduction of air pollution and the associated health impacts. Further, the initiative also has a permanent secretariat and substantial NGO involvement. Finally, as a research and awareness raising initiative it nicely targets the long-term shift needed in the transport sector.

Third, the member companies of the RE100 initiative commit to 100% renewable electricity by a certain target year. We estimated the potential impact at between 17 MtCO_{2e} and 34 MtCO_{2e} in 2020 and between 24 MtCO_{2e} and 50 MtCO_{2e} in 2030. The RE100 initiative is a collection of voluntary agreements by businesses and led by an NGO, The Climate Group. As a renewable electricity initiative, it also causes large co-benefits in air pollution and energy security. The relative impact of the initiative is quite high, estimated at 77% in 2030.

5.3 Transparency

This section briefly summarises the performance of initiatives regarding transparency, data availability and reporting. We start by pointing out the requirements for good reporting, which allows for a transparent third-party assessment of an initiative's impact.

Each initiative should clearly communicate the indicator it intends to improve (e.g. GHG emissions, share of renewable electricity) and a quantified target value for this indicator. The target should ideally be in absolute numbers, although a relative target in relation to a base year or a baseline is acceptable, if the base year or baseline is also communicated. Further, the year or time period during which the target is intended to be achieved should be pointed out.

Beyond these basic requirements, initiatives can provide further information to improve its transparency. In particular, these could be regular reports on activities and the current status of target achievement. In addition, transparent initiatives could provide a baseline scenario without action by the initiative, a geographical differentiation of its target, and information on the connection of its target to national targets or INDCs.

¹² <http://www.bonnchallenge.org/>

The initiatives quantified for this project vary considerably in their reporting performance. Several initiatives provide all or most of the necessary information to assess their impact, in particular those in the areas of agriculture and forestry, cities and regions, efficiency in buildings and renewable energy. However, the targets of a lot of initiatives miss some important details, such as the baseline for relative targets and current progress towards the target. Some initiatives, particularly in the business and non-CO₂ topic areas, also miss the specific year a target is to be achieved. Finally, a few initiatives provide only very vague targets that require significant assumptions in order to be translated into potential GHG emission reductions.

A more detailed transparency assessment of all quantified initiatives by topic area is provided in the Annex accompanying this report.

Overall, the lack of transparency of some initiatives produces substantial uncertainty for the impact assessment in this report. First, vague target formulations and missing reference data necessitate the use of assumptions for key values, which increases the uncertainty range of the potential GHG impact. Second, due to missing information on the current progress and concrete measures taken by the initiatives, it was not reasonably possible for this project to assess whether a particular initiative will actually achieve its target. This question poses the largest obstacle to realising the potential of climate initiatives.

6 International initiatives and the UNFCCC

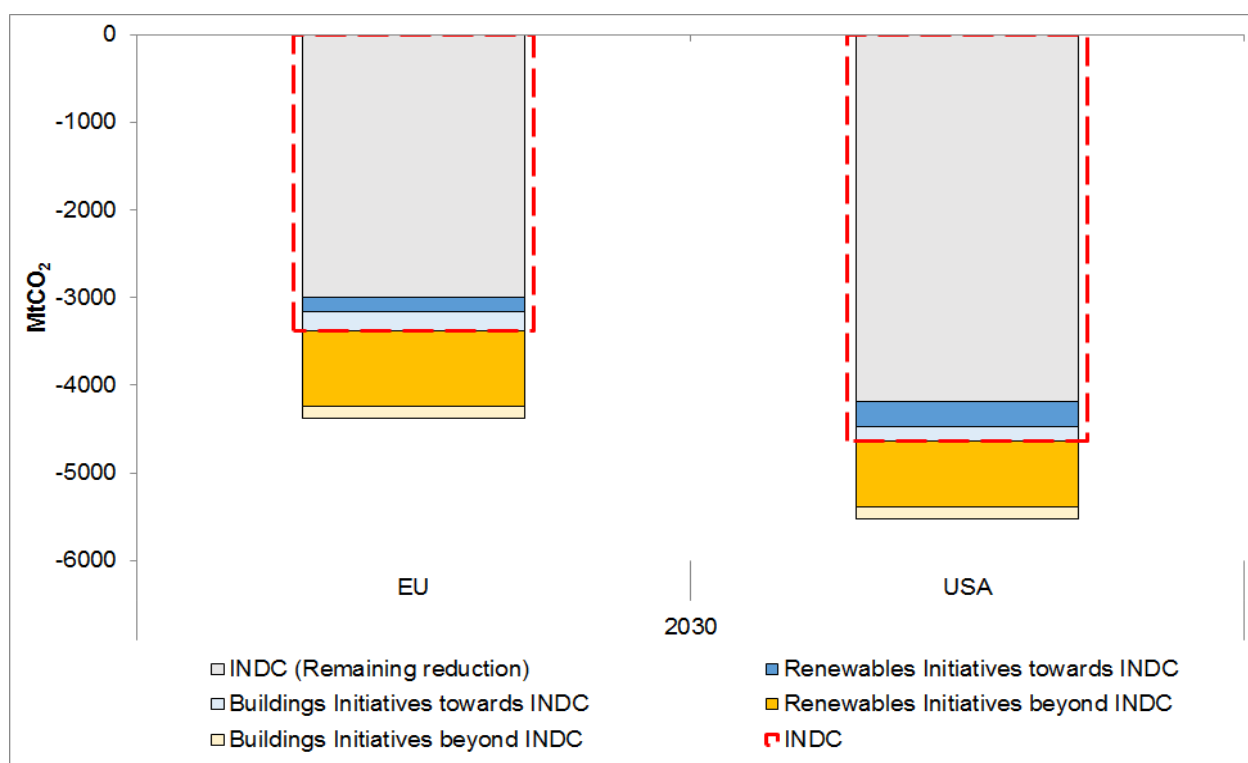
In December 2015, Parties adopted the Paris Agreement at the 21st session of the UNFCCC. In its Article 2 governments agreed to limit global warming to “well below 2°C above pre-industrial levels” and to pursue to limit it to 1.5°C (UNFCCC 2015). The UNEP Emissions Gap Report 2015 showed that a gap of 14 GtCO₂e exists for 2030 between the mitigation proposals submitted by Parties as part of their INDCs and a pathway compatible with holding temperature increase below 2°C (UNEP 2016). Based upon the outcome of the quantitative assessment undertaken in section 4, it is clear that international initiatives have the potential to help support the mitigation efforts of national governments.

Given the potential of international initiatives to support and enhance the mitigation efforts of national governments, the Paris Agreement specifically refers to their role within the UNFCCC framework. Decision 1/CP.21 which adopts the Paris Agreement includes a section on non-party stakeholders (refer to paragraphs 118-120 and 134-137), ‘welcoming’ their efforts to address and respond to climate change (UNFCCC 2015). The Paris Agreement ‘invites’ non-party stakeholders to scale up their abatement efforts and demonstrate their activities via the Non-State Actor Zone for Climate Action Platform (UNFCCC 2015).

The emission reductions associated with the international initiatives reviewed in this study could, if achieved, contribute considerably to the existing INDCs in 2030 pledged by Parties to the Paris Agreement. For example, the European Wind Initiative and the Solar Europe Industry Initiative could collectively contribute up to 165 MtCO₂ towards the EU’s renewable energy target in 2030 (included within the EU’s INDC). While this by itself does not lead to additional reductions it is by no means guaranteed that all governments will be able to achieve their INDCs on their own. For the process as a whole it is important that the INDCs are credible and will be achieved; if not, there is a high danger of losing the momentum generated through the Paris Agreement.

Figure 6.1 illustrates the potential GHG impact of a selection of initiatives (from the energy and building sectors) towards the achievement of the INDCs in the EU and the USA by 2030. A key assumption underlying the analysis is that the new policy scenario from the WEO is sufficiently ambitious in order to meet the INDCs set for both countries in 2030. The contribution of the selected initiatives (from the energy and building sectors) towards the INDCs is the difference between the GHG reductions calculated for each initiative relative to the WEO current policy scenario baseline and the GHG reductions calculated for each initiative relative to the WEO new policy scenario baseline. The contribution of these initiatives to the INDC of both the EU and the USA in 2030 are represented by the dark blue (energy) and light blue (building) bars in Figure 6.1. The dark orange (energy) and light orange (building) bars represent the contribution of a selection of initiatives to GHG reductions beyond the 2030 INDCs, which are calculated as GHG reductions that exceed the WEO new policy scenario baseline. The relatively large contribution from renewable initiatives demonstrates the greater level of ambition of these policies compared to current expectations, if achieved.

Figure 6.1 Potential contribution of initiatives towards the achievement of the 2030 INDC for the EU and the USA and their contribution on GHG reductions beyond the INDCs.



Note: Initiatives include the EWI, SEII for renewables and the GBPN and SEAD for buildings

Source: OECD & IEA (2015), Own calculation

Figure 6.1 shows that in addition to supporting national governments with the achievement of their existing INDCs, international initiatives may also provide encouragement for increasing INDC targets as part of the global stock-take every five years based on their mitigation impacts. Especially mitigation targets of international initiatives, which go beyond current government planning may provide additional evidence to inform national governments on whether or not to increase their INDC target. By engaging more closely with key stakeholders, national governments may learn from the experiences of international initiatives and develop better policies to overcome common barriers and realise the abatement potential that exists in many sectors of the economy. Indeed, international initiatives may have great levels of expertise in certain sectors that are not well understood or influenced by government policies.

The previous quantitative analysis (see section 4) provided an illustration of how international initiatives could raise INDC ambition levels by assuming that the associated mitigation effort is entirely additional to state action. In the case of the EU the additional mitigation effort from international initiatives could raise ambition levels from at least 40% below 1990 levels in 2030 (European Union (EU) 2015) to over 60%. The United States' 2030 emissions could reach 55% below 2005 compared to their INDC target of 26-28% below 2005 levels in 2025.

The challenge is now how best to integrate these efforts into the UNFCCC process, with the adequate support and incentives necessary in order to ensure that international initiatives play an important role in mitigation actions. Two possible means by which the UNFCCC could support the efforts of international initiatives include:

Increase the transparency of reporting: The mitigation efforts achieved by international initiatives will only be credible if they can be transparently accounted for (refer to section 5.3). The UNFCCC or an-

other international body could encourage consistent reporting, e.g. by developing a reporting template, that includes the following key information:

- ▶ Scope, gases, sectors, stakeholders, updates;
- ▶ Actions done/planned by initiative;
- ▶ Impacts (assumptions, data, projections, CO₂ reduction potential, methodology);
- ▶ Current status, regular updates. Update should be in-depth every five years in time for stock take/INDC review (i.e. 2018 and every 5 years from then on).

Financial support linked to criteria: International initiatives may be supported in their mitigation efforts by the use of UNFCCC funds, which is specifically referred to in the decision to give effect to the Paris Agreement (UNFCCC 2015, para. 58). Access to financing from the Green Climate Fund and the Global Environment Facility by international initiatives should be linked to certain criteria such as:

- ▶ Transparent reporting based on a future reporting template for initiatives;
- ▶ Initiatives can prove that they have an impact beyond INDC levels of ambition;
- ▶ Initiatives are considered to be following good practice.

The recommendations above address two potential limitations associated with international initiatives, namely (a) that initiatives do not deliver on their mitigation objectives and (b) that initiatives are not sufficiently incentivised to engage in the UNFCCC framework and contribute to new solutions in order to address and respond to climate change. By improving the transparency of reporting and providing financial incentives for good practice, it is envisaged that the UNFCCC can play an important role in supporting the mitigation efforts of non-party stakeholders. Furthermore, the UNFCCC can establish platforms to facilitate exchanges of information between party and non-party stakeholders to collaborate together to raise levels of ambition. Indeed, if the efforts of international initiatives were considered within the five yearly reviews of INDCs this would provide an excellent way for non-party stakeholders to demonstrate their mitigation impacts in order to influence greater ambition from national governments in the setting of future INDCs targets.

7 Conclusions

Based upon the outcomes of this study, it is clear that international initiatives have the potential to help support the mitigation efforts of national governments, however further work is required to improve the transparency of reporting in order to successfully integrate such mitigation efforts into the UNFCCC process to raise levels of ambition.

The main results of our analysis include:

- ▶ Initiatives can play an important role in the transition to a low carbon economy. We estimate that the 19 quantified initiatives have the potential to reduce emissions by approx. 5 - 11 GtCO_{2e}/year (average 8 GtCO_{2e}/year) compared to an INDC background in 2030. Corresponding global emissions would peak by 2020 and bring the world much closer to a 2°C compatible pathway (Figure 1.1).
- ▶ Climate initiatives contribute towards achieving INDCs by helping governments in achieving their targets. National governments could be more ambitious with their national contributions to the Paris Agreement, if they would take into account the various actions by cities, regions, businesses and sectors that have been pledged and go beyond their INDCs.
- ▶ Non-state action and national action reinforce each other. Both pull in the same direction. The comparison of stringency shows that many initiatives have targets that are more ambitious than those of national governments. If the national governments would take all of the actions into account, they could be more ambitious in their national contributions.
- ▶ Out of the sampled initiatives those with active involvement of NGOs either as leader or member tend to lead to higher reductions and more co-benefits. Another common element of many successful initiatives is a permanent secretariat. Voluntary agreements are more suitable for short-term reductions but have a less important role for 2030 targets.
- ▶ Most international initiatives are not quantifiable. For some this is due to their inherent nature (e.g. focus on information exchange or MRV) but for many there is a lack of a clearly defined target, information on actions planned/taken and their impact or follow-up on initial announcements. Adequate reporting from initiatives would greatly enhance transparency, help replicate impacts, inform national governments and the UNFCCC process and facilitate access to funding for the initiatives themselves. A standardised reporting format could greatly enhance transparency.
- ▶ Large uncertainties remain and further work is needed. Firstly, we did not analyse whether the initiatives are likely to achieve their targets. Such an assessment would most likely lead to reduced impacts by 2030. On the other hand, we were only able to quantify about one tenth of all the screened initiatives. Adequate reporting would increase the overall impact of climate initiatives.

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