

CLIMATE CHANGE

12/2021

Background Paper: Methodology and criteria for assessing multilateral initiatives to close the global 2030 climate ambition and action gap

CLIMATE CHANGE 12/2021

Ressortforschungsplan of the Federal Ministry for the
Environment, Nature Conservation and Nuclear Safety

Project No. (FKZ) 3719 41 109 0

Report No. FB000380/ZW,3,ENG

**Background Paper:
Methodology and criteria for assessing
multilateral initiatives to close the global
2030 climate ambition and action gap**

by

Hannes Böttcher, Martin Cames
Oeko-Institut, Berlin

On behalf of the German Environment Agency

Imprint

Publisher

Umweltbundesamt
Wörlitzer Platz 1
06844 Dessau-Roßlau
Tel: +49 340-2103-0
Fax: +49 340-2103-2285
buergerservice@uba.de
Internet: www.umweltbundesamt.de

■ [/umweltbundesamt.de](http://www.umweltbundesamt.de)

📄 [/umweltbundesamt](http://www.umweltbundesamt.de)

Report performed by:

Oeko-Institut
Borkumstraße 2
13189 Berlin
Germany

Report completed in:

March 2021

Edited by:

Section V 1.1 Climate Protection
Hannah Auerochs

Publication as pdf:

<http://www.umweltbundesamt.de/publikationen>

ISSN 1862-4804

Dessau-Roßlau, April 2021

The responsibility for the content of this publication lies with the author(s).

This method paper is part of the research project “Accelerating global climate action before 2030” (FKZ 3719 41 109 0) that investigates multilateral initiatives by G20 countries and their possible contribution to accelerate climate action before 2030. The project focuses on four policy areas: energy transition, synthetic e-fuels, sustainable food systems and forest protection. This paper provides methodology and criteria description for the selection and analysis of initiatives for multilateral cooperation and the elaboration of options. The project is financed by the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, supervised by the German Environment Agency and carried out by the Ecologic Institute, Oeko-Institut and Climate Analytics.

Abstract: Background Paper: Methodology and criteria for assessing multilateral initiatives to close the global 2030 climate ambition and action gap

A broad range of mitigation options have been identified and assessed in the literature that enable countries to close the existing gap between 2030 emission projections resulting from the aggregate efforts of countries to achieve their Nationally Determined Contributions to the Paris Agreement and the emissions level consistent with the Paris Agreement 1.5°C limit. This report documents the methodology chosen and the criteria applied for selecting and assessing promising options for intergovernmental cooperation in the G20 countries with relevance for closing the ambition gap in four key policy areas: 1) energy transition (from fossil to renewable energy sources), 2) synthetic e-fuels (production, trade, use of fuels from renewable energies), 3) sustainable food systems (reduction of post-harvest losses, food waste, animal products), and 4) forest protection (conservation and restoration of forests). The report presents the overall approach of the analysis by sketching its four working steps: Step 1 describes the status quo and the selection of initiatives to be reviewed. Step 2 constitutes an evaluation of selected initiatives, based on a number of criteria, including chances of success and effectiveness, efficiency and costs, transparency and institutional structures, sustainability and environmental integrity, and scope for improvements and need for additional multilateral cooperation. Step 3 aims at identifying options for closing policy gaps found in step 2. These options are further elaborated, and recommendations are formulated to support the options. Finally, step 4 provides a summary and conclusions regarding the options presented in an evaluation table.

Kurzbeschreibung: Hintergrundpapier: Methodik und Kriterien zur Bewertung multilateraler Initiativen zur Schließung der globalen 2030-Klima-Ambitions- und Handlungslücke

Analysen zufolge besteht eine Lücke zwischen den Emissionsprojektionen für 2030, die sich aus den aggregierten Anstrengungen der Länder zur Erreichung ihrer national festgelegten Beiträge zum Pariser Abkommen ergeben, und dem Emissionsniveau, das mit dem 1,5°C-Limit des Pariser Abkommens vereinbar ist. In der Literatur wurde eine breite Palette von Minderungsoptionen identifiziert und bewertet, die es Ländern ermöglichen, diese Lücke zu schließen. Dieser Bericht dokumentiert die gewählte Methodik und die angewandten Kriterien für die Auswahl und Bewertung vielversprechender Optionen für zwischenstaatliche Kooperationen in den G20-Ländern mit Relevanz für die Schließung der Ambitions- und Handlungslücke in vier zentralen Politikbereichen: 1) Energiewende (von fossilen zu erneuerbaren Energiequellen), 2) synthetische E-Kraftstoffe (Produktion, Handel, Nutzung von Kraftstoffen aus erneuerbaren Energien), 3) nachhaltige Ernährungssysteme (Reduzierung von Nachernteverlusten, Lebensmittelabfällen, tierischen Produkten) und 4) Waldschutz (Erhaltung und Wiederherstellung von Wäldern). Der Bericht stellt den Gesamtansatz der Analyse dar, indem er die vier Arbeitsschritte skizziert: Schritt 1 beschreibt den Status quo und die Auswahl der zu überprüfenden Initiativen. Schritt 2 stellt eine Bewertung der ausgewählten Initiativen dar, basierend auf einer Reihe von Kriterien, einschließlich Erfolgchancen und Effektivität, Effizienz und Kosten, Transparenz und institutionelle Strukturen, Nachhaltigkeit und Umweltintegrität sowie Verbesserungsmöglichkeiten und Bedarf an zusätzlicher multilateraler Zusammenarbeit. Schritt 3 zielt auf die Identifizierung von Optionen zur Schließung der in Schritt 2 gefundenen Politiklücken. Diese Optionen werden ausgearbeitet, und es werden Empfehlungen formuliert, wie die Umsetzung der Optionen unterstützt werden kann. Schritt 4 liefert mithilfe einer übersichtlichen Bewertungstabelle eine abschließende Zusammenfassung und Schlussfolgerungen zu den erarbeiteten Optionen.

Table of content

- List of abbreviations 7
- 1 Introduction..... 8
 - 1.1 Background and aim 8
 - 1.2 Understanding mitigation pathways in line with the Paris Agreement..... 8
 - 1.3 Mitigation measures for key transformational strategies 9
 - 1.4 Considering the role of G20 and multilateral cooperation..... 9
 - 1.5 Definitions 9
- 2 Methodology of selection and evaluation of initiatives for multilateral cooperation..... 11
 - 2.1 Step 1: Status quo and selection of initiatives..... 11
 - 2.2 Step 2: Evaluation of selected initiatives 12
 - 2.2.1 Chances of success and effectiveness 12
 - 2.2.2 Efficiency and costs..... 13
 - 2.2.3 Transparency and institutional structures..... 14
 - 2.2.4 Sustainability and environmental integrity..... 14
 - 2.2.5 Scope for improvements and need for additional multilateral cooperation 14
 - 2.3 Step 3: Identifying options for closing policy gaps..... 15
 - 2.4 Step 4: Summary and conclusions 15
- 3 Conclusion 16
- 4 List of references 17

List of abbreviations

G20	Group of Twenty, International Forum comprising 19 of the largest countries and the EU
G7 / G8	Group of Seven, International Forum comprising Canada, France, Germany, Italy, Japan, the United Kingdom and the United States,
NDC	Nationally Determined Contribution
NGO	Non-Governmental Organisation
SDG	Sustainable Development Goal

1 Introduction

1.1 Background and aim

A broad range of mitigation options have been identified and assessed in the literature that enable countries to close the existing gap between 2030 emission projections resulting from the aggregate efforts of countries to achieve their Nationally Determined Contributions (NDC) to the Paris Agreement and the emissions level consistent with the Paris Agreement 1.5°C limit. The UBA-funded project “Accelerated global climate action by 2030” investigates multilateral initiatives by G20 countries and their possible contribution to accelerate climate action before 2030. A background paper on “Key mitigation options to close the global 2030 ambition and action gap” (Fuentes et al. 2020) provides an overview of mitigation options at the technical level that have been discussed in recent assessments and analyses that, if implemented broadly by countries across all relevant sectors, can close the gap. These mitigation options form the basis for identifying key policy areas and promising initiatives for multilateral cooperation in the G20 and beyond as well as options for improving them.

This report documents the methodology chosen and the criteria applied for selecting and assessing promising options for intergovernmental cooperation in the G20 countries with relevance for closing the ambition gap for achieving the required emission reductions in 2030 in four key policy areas:

- ▶ Energy transition - from fossil to renewable energy sources (Görlach and Fuentes Hutfilter, 2021);
- ▶ Synthetic e-fuels - production, trade, use of fuels from renewable energies (Cames et al., 2021);
- ▶ Sustainable food systems - reduction of post-harvest losses, food waste, animal products (Wunder et al., 2021);
- ▶ Forest protection - conservation and restoration of forests (Böttcher et al. 2021).

The overall aim of the analysis carried out in the policy papers is to identify and assess existing measures and instruments of international climate policy and to derive possible options for intergovernmental cooperation that could potentially lead to accelerated global climate protection activities to help closing the 2030 ambition and action gap (Fuentes et al., 2020).

Transparency of the methods and selection criteria is an important objective as the results of the policy papers ought to be exchanged with decision makers and policy advisors. With the elaboration of four papers focusing on specific policy areas, the authors aim at initiating a well-founded discussion on how the climate protection regime of the G20 group of states can be further developed to achieve additional emission reductions by 2030. This requires a good understanding of mitigation pathways in line with the temperature targets, the basic structure of the G20's international cooperation, but also the conditions and barriers for mitigation measures needed for more ambitious climate protection goals.

1.2 Understanding mitigation pathways in line with the Paris Agreement

Fuentes et al. (2020) provide an overview of key global milestones of Paris Agreement 1.5°C mitigation pathways. They report that several parallel sectoral transformations are required, including the energy system (demand reduction and decarbonization of supply and end use

sectors), electricity generation (decarbonization before 2050 globally), towards zero and negative carbon dioxide emissions from land use, and reducing non-CO₂ emissions from industry, agriculture, and waste. The analysis by Fuentes et al. (2020) makes clear that action is needed across all sectors. This means that also the analysis of potential multilateral initiatives that can be considered promising for increasing the level of ambition should cover a wide range of policy areas, actors and strategies and need to ensure that they lead to additional mitigation.

1.3 Mitigation measures for key transformational strategies

When analyzing sectoral technical mitigation opportunities, a number of options can be identified (Fuentes et al., 2020). The most important options in the policy area of power generation are the need to phase out fossil fuels and transition to renewable energy, building on the increasing competitiveness of wind and solar as well as storage technologies. Together with measures to reduce energy demand and increase efficiency these are the options with the highest benefits for sustainable development. Likewise, options in the transport sector mostly aim at a decarbonization through direct or indirect electrification, in addition to modal shift and reducing transport demand. Also, the housing sector builds on renewable energy (besides efficiency) including through electrification to achieve (near) zero emissions buildings. Thus, there are strong interlinkages between strategies in different sectors that can lead to trade-offs but also synergies. This is especially true for mitigation in the agriculture and land use sectors, where the competition for land is a key challenge for larger scale implementation of measures. Technical measures here need to be accompanied by demand side interventions to address overall consumption and so reduce land competition, to be effective. It can be hypothesized that measures that more directly address drivers of emissions than technical solutions hold more potential for synergies across sectors and therefore for transformational changes. However, also relative costs of measures play an important role for a sufficiently fast transition.

1.4 Considering the role of G20 and multilateral cooperation

Fuentes et al. (2020) highlight the leading role that G20 countries need to play to increase ambition levels of the global community. This is due to their share of global GHG emissions but also economic power and influence on investment flows, technology deployment and financial flows. For the selection of options for multilateral cooperation to be analyzed, a consideration of countries where and with whom opportunities are emerging, is necessary. As Fuentes et al. (2020) point out, transformational forces can also be triggered by multilateral cooperation that might include actors other than national governments. A review of options regarding the actors involved is helpful to get a wider range of initiatives covered in the analysis.

1.5 Definitions

The analyses carried out in the policy papers uses the following definitions:

- ▶ The term **initiative** is used to include all variants of existing multilateral cooperation. Therefore, when referring to initiatives, a range of different collaborative activities leading to GHG reductions at different geographical scope and involving different actors is considered. Initiatives can be rather general and underpinned with less concrete activities, such as alliances and initiatives in an early stage. It also includes specific platforms of actors. The definition of initiatives is kept broad on purpose to be able to address the different characteristics of initiatives in the four policy areas.

- ▶ The term **potential initiative** refers to **options** for future initiatives identified in the analysis. This can be, for example, steps towards intensifying existing initiatives for multilateral cooperation, expanding cooperation to more actors, the reduction of financial barriers, linking of initiatives, or potential starting points at the regional and national level.
- ▶ The focus of the analysis is on national government **actors** but collaboration with subnational or non-state actors (from civil society, industry or others) is also being addressed.

2 Methodology of selection and evaluation of initiatives for multilateral cooperation

In the following the overall approach of the analysis is presented by sketching the **working steps** that were taken. In general, the analysis included four steps.

- ▶ Step 1 describes the status quo and the selection of initiatives to be reviewed;
- ▶ Step 2 constitutes an evaluation of selected initiatives, based on a number of criteria, including chances of success and effectiveness, efficiency and costs, transparency and institutional structures, sustainability and environmental integrity, and scope for improvements and need for additional multilateral cooperation;
- ▶ Step 3 aims at identifying options for closing policy gaps found in step 2. These options are elaborated, and recommendations are formulated to support the options.
- ▶ Step 4 provides a summary and conclusions regarding the options presented in a valuation table.

2.1 Step 1: Status quo and selection of initiatives

A first screening of initiatives based on literature search and targeted expert consultations was carried out to assess the status quo of existing relevant cooperation within each policy field. Due to the rather broad definition of initiatives, this step resulted in a list of different initiatives, alliances, platforms and forms of cooperation. To shorten the list, some initiatives were selected based on the **expected effectiveness** of the initiative, especially regarding closing the ambition gap, the occurrence in NDCs and other policy documents but also the **geographical scope** to balance the representation of countries engaged in or targeted by the analyzed initiatives. The selection of options was also oriented towards **identifying G20 and other important countries that play a special role** in the selected policy areas. Finally, the selection also considered **different policy levels** being addressed by the initiatives, to have a good representation of initiatives targeting technology, innovation, legal issues or the supply and demand side.

The selection was limited to **four to five existing initiatives within each policy area**. This limitation sets a focus on few representative initiatives but still allows a reasonable overview over different angles for improving multilateral cooperation in the further analysis. For the policy field sustainable food systems, the presented initiatives are not just a small selection out of a much broader range of activities but cover the majority of current multilateral initiatives. This is due the fact that this field is considerable “younger” compared to the other three, so that there are fewer existing initiatives that operate at a global and/or multilateral level. Further, the policy paper on sustainable food systems includes specific issues such as diet change, food loss and waste reduction, but also a system perspective on sustainable food policies, that are in many countries not even on the policy agenda yet, which needs to be reflected in the approaches for multilateral agreements. Sustainable food systems are a topic that is so far hardly driven by governments, but more by foundations, NGOs and research organisations and just recently sees a growing momentum in public attention. Within the policy paper on sustainable food systems, therefore, instead of a review of selected initiatives, an overview of the most relevant initiatives in place is given before focussing on options for potential initiatives to close existing gaps in the landscape of initiatives.

2.2 Step 2: Evaluation of selected initiatives

The short-listed initiatives were assessed regarding specific criteria. The success of initiatives and their performance depends on several elements, e.g. to what extent additional emission reductions can be attributed to them, whether they have positive or negative effects on other policy areas, etc. The analysis considered the technological and political framework conditions necessary for the successful implementation of multilateral cooperation. Obstacles to the successful implementation of the instruments were also found to be relevant. These can be internal obstacles such as conflicting positions of the countries in the negotiations or insufficient regulation by the instruments as well as external obstacles such as lack of financial resources or infrastructure. In addition, options can also have positive or negative consequences, e.g. for other sustainability goals.

The following overarching aspects were considered in the evaluation:

- ▶ **Chances of success and effectiveness:** What were the general lessons learned, success stories, failures, as well as internal and external hurdles that the initiative has faced? What were the obstacles to political feasibility?
- ▶ **Efficiency and costs:** How cost-effective is the abatement potential that the initiative expects to mobilize, and how cost-effective is the initiative's approach for doing so? What are the (transaction) costs of the initiative in question? What other costs and/or benefits need to be considered?
- ▶ **Transparency and institutional structures:** Can the initiative be implemented within the existing institutional structures? To what extent does the multilateral framework offer the possibility of ensuring transparency on the cooperation between states and the resulting emission reductions?
- ▶ **Sustainability and environmental integrity:** To what extent does the initiative produce positive or negative ecological effects through the reduction of emissions? Which aspects of the UN Sustainable Development Goals (SDGs) are positively or negatively affected?
- ▶ **Scope for improvements and need for additional multilateral cooperation:** What are gaps in the initiative's scope that need to be addressed? Which opportunities exist for the initiative to be expanded to other actors and/or additional countries? How can coherence between initiatives be increased?

These overarching issues are broken down into individual criteria that form the basis for reviewing the selected initiatives. The extent to which the criteria are applicable to the selected initiatives for multilateral cooperation varies. The criteria are therefore independent from national scopes and do not relate to national policies. When evaluating chances of success of options, also specific national conditions matter that have, however, not been considered.

2.2.1 Chances of success and effectiveness

Criterion of **political feasibility, internationally:** this includes an assessment of feasibility regarding positions of states in international negotiations. Specific indicators are:

- ▶ Compatibility with positions of important actors;
- ▶ Resistance of important actors;

- ▶ Geopolitical interests.

Criterion of **equity and participation**: this includes compensation of negative consequences for individual states or subnational actors; equal opportunity for participation of all relevant actors. Specific indicators are:

- ▶ Financial support for weaker states in implementing the option;
- ▶ Availability of compensation mechanisms for negative consequences of implementing the option;
- ▶ Opportunities for participation by affected national and sub-national actors.

2.2.2 Efficiency and costs

Criterion of **reduction potential and costs**: this includes the mitigation potential and abatement costs of the potential emission reduction that can be achieved by the initiative and assessment of economic co-benefits, as well as the probability of achieving this reduction. Specific indicators are:

- ▶ Clear objective;
- ▶ Amount of potential emission reductions and abatement costs (and co-benefits, if applicable);
- ▶ Incentives for countries to achieve these emission reductions;
- ▶ Extent to which the option contributes to transformatively raising ambition in terms of 1.5°C path consistency and avoids lock-in to carbon-intensive infrastructure;
- ▶ If applicable, previous performance of the addressed initiative.

Criterion of **timing and additionality of mitigation impact**: includes also whether additional reductions can be achieved with the respective option before or until 2030. An important indicator is the potential for additional reductions to close the 2030 gap either through adoption of new measures, enhancing stringency or coverage of existing measures.

Criterion of **additionality**: includes consideration of the extent to which targeted emission reductions are achieved through multilateral cooperation in addition to existing reduction efforts.

Criterion of **scope**: this addresses the geographical scope of the initiative, potential involvement of many states and politically relevant states. Specific indicators are:

- ▶ Number of states involved/participation of important states with high GHG emissions;
- ▶ Transferability to other countries.

Criterion of **continuity**: includes the possibility for longer-term cooperation under the proposed option. Specific indicators are:

- ▶ Resources of the instrument;
- ▶ States' longer-term interest in multilateral cooperation.

Criterion of **transaction costs**: include costs incurred for the implementation of the proposed option, e.g. through the creation of new institutional structures. Specific indicators are:

- ▶ Transaction costs for implementing the option at international level;
- ▶ Transaction costs to implement the option at national level;
- ▶ Need to create new institutional structures to implement the option at national/international level.

2.2.3 Transparency and institutional structures

Criterion of **institutional governance options**: includes possibilities for actors and stakeholders to participate and intervene in the implementation of the option in order to ensure the desired effect. Specific indicators are:

- ▶ Participation procedures for stakeholders;
- ▶ Availability of review mechanisms for the effectiveness of the option.

Criterion of **transparency**: includes consideration of the requirements for transparent monitoring of the results obtained and other safeguards, verifiability, follow-up and allocation of results. Specific indicators are:

- ▶ Transparent monitoring and reporting procedures;
- ▶ Possibility to use existing reporting systems;
- ▶ Verifiability of emission reductions;
- ▶ Possibility of allocating emission reductions to responsible activities and actors.

2.2.4 Sustainability and environmental integrity

Criterion of **compatibility with SDGs**: describes the relationship or impact of the proposed cooperation option on the achievement of further SDGs. Specific indicators are:

- ▶ Conflicting objectives: number of SDGs that can be positively (and negatively) influenced by the proposed option;
- ▶ Extent / robustness of this influence.

2.2.5 Scope for improvements and need for additional multilateral cooperation

This aspect addresses potential gaps in the initiative's scope and coverage and discusses different opportunities for expansion:

- ▶ Opportunities for expansion to other activities and actors;
- ▶ Opportunities for expansion to additional countries;
- ▶ Opportunities for increasing coherence between initiatives.

2.3 Step 3: Identifying options for closing policy gaps

Based on the results of step 2, proposals for closing the identified gaps were developed. These include opportunities for the further development of existing initiatives, e.g. via new forms of cooperation under an existing agreement or the expansion of infrastructures to promote trade or proposals for new initiatives and measures of multilateral cooperation which could be implemented in the respective policy areas. The proposals for the individual policy areas differed due to the number of existing initiatives that can be built on.

All options were elaborated further regarding how they could contribute to closing gaps in the landscape of existing initiatives. Potential lead organizations and important participating countries to be included were identified as well as potential hurdles for their implementation. Where possible, more concrete steps towards implementation were identified.

2.4 Step 4: Summary and conclusions

The criteria presented above in step 2 finally served also as a basis for rating the options for multilateral cooperation. By assigning scores for each aspect (e.g. “high”, “medium”, “low”), the evaluation of options to strengthen multilateral cooperation was summarized (example see Table 1 below).

Table 1: Overview of options for increasing multilateral cooperation

Aspect/options	Option 1	Option 2	Option 3	Option x
Activity	<i>Description</i>	<i>Description</i>	<i>Description</i>	<i>Description</i>
Chances of success and effectiveness	High/medium/low	High/medium/low	High/medium/low	High/medium/low
Efficiency and Costs	High/medium/low	High/medium/low	High/medium/low	High/medium/low
Transparency, institutional structures	High/medium/low	High/medium/low	High/medium/low	High/medium/low
Sustainability, environmental integrity	High/medium/low	High/medium/low	High/medium/low	High/medium/low
Priority	High/medium/low	High/medium/low	High/medium/low	High/medium/low

Source: own compilation.

3 Conclusion

It must be noticed that the four policy fields (energy transition, synthetic e-fuels, sustainable food systems, and forest protection) are very different regarding their complexity, width of the field of existing initiatives and diversity of stakeholders involved. This is also because the policy fields are differently advanced. This report aims at providing some minimum consistency for the analyses carried out in the four policy papers. It documents the methodology chosen and the criteria applied for selecting and assessing promising options for intergovernmental cooperation for closing the ambition gap to achieve the required emission reductions in 2030.

4 List of references

- Fuentes Hutfilter, U., Attard, M.-C., Wilson, R., Ganti, G., Fyson, C., Duwe, M., & Böttcher, H. (2020). *Background Paper: Key mitigation options to close the global 2030 ambition and action gap*. Dessau-Roßlau: Umweltbundesamt. <https://www.umweltbundesamt.de/publikationen/background-paper-key-mitigation-options-to-close>
- Böttcher, H., Liste, V., Fyson, C. (2021). *Options for multilateral initiatives to close the global 2030 climate ambition and action gap – Policy field forest protection*. Dessau-Roßlau: Umweltbundesamt.
- Cames, M., Böttcher, H., Fuentes Hutfilter, U., Wilson, R. (2021). *Options for multilateral initiatives to close the global 2030 climate ambition and action gap – Policy field synthetic e-fuels*. Dessau-Roßlau: Umweltbundesamt. <https://www.umweltbundesamt.de/publikationen/options-multilateral-initiatives-global-2030-climate-ambition-action-gap-synthetic-efuels>
- Görlach, B., Fuentes Hutfilter, U. (2021). *Options for multilateral initiatives to close the global 2030 climate ambition and action gap - Policy field energy transition*. Dessau-Roßlau: Umweltbundesamt. <https://www.umweltbundesamt.de/publikationen/options-multilateral-initiatives-global-2030-climate-ambition-action-gap-energy-transition>
- Wunder, S., Wiegmann, K., Scheffler, M. (2021). *Options for multilateral initiatives to close the global 2030 climate ambition and action gap – Policy field sustainable food systems*. Dessau-Roßlau: Umweltbundesamt.