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Aligning Climate Change Mitigation and Sustainable Development Under the UNFCCC: A Critical Assessment of the Clean Development Mechanism, the Green Climate Fund and REDD+

Britta Horstmann
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Bonn, July 2017 Britta Horstmann and Jonas Hein

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Abbreviations

AE	Accredited Entity
AMAs	Accreditation Master Agreements
APR	Annual Performance Report
A/R	afforestation/reforestation
CCBA	Climate, Community and Biodiversity Alliance
CCBS	Climate Change Community and Biodiversity Standard
CCS	carbon capture and storage
CDM	Clean Development Mechanism
CER	certified emission reduction
CME	Coordinating and Managing Entity
CMP	Conference of the Parties serving as the Meeting of the Parties (to the Kyoto Protocol)
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
COP	Conference of the Parties (to the UNFCCC)
CPA	component project activity
CSO	civil society organisation
DNA	Designated National Authority
DOE	Designated Operational Entity
ESIA	Environmental and Social Impact Assessment
ESMS	Environmental and Social Management System
ESS	environmental and social safeguards
FCPF	Forest Carbon Partnership Facility
FREL	forest reference emission level
FRL	forest reference level
GCF	Green Climate Fund

GDP	gross domestic product
GEF	Global Environment Facility
GHG	greenhouse gas
IEA	International Energy Agency
IFC	International Finance Corporation
INDC	Intended Nationally Determined Contribution
IPCC	Intergovernmental Panel on Climate Change
IRENA	International Renewable Energy Agency
IRM	independent redress mechanism
iTAP	independent Technical Advisory Panel
LoA	Letter of Approval
NDA	national designated authority
NDC	nationally determined contribution
NGO	non-governmental organisation
PCP	project cycle procedure
PDD	project design document
PMF	Performance Measurement Framework
PoA	programme of activity
PP	project participant
RBP	results-based payment
REDD+	Reducing Emissions from Deforestation and Degradation
RMF	results management framework
SD	sustainable development
SDG	Sustainable Development Goal (United Nations)
SESA	strategic environmental and social assessment
t	metrical tons
UN	United Nations
UNEP	United Nations Environment Programme

UNFCCC	United Nations Framework Convention on Climate Change
USD	US dollar
VVS	Validation and Verification Standard

Executive summary

Rising levels of investment in climate change mitigation activities can reduce the impacts of climate change. Yet, they also increase the risk that these investments will adversely affect development opportunities and adaptive capacities (see Section 2.1). Those who have contributed the least to climate change, but are most vulnerable to its impacts, could thus face a double-equity gap.

In order to limit global warming to 1.5°C and well below 2°C, mitigation investments will have to increase massively (Section 2.2). In the Paris Agreement, Parties have strengthened the legal basis to pursue sustainable development along with mitigation action (Section 2.4). They disagree, however, on how to support this through the global governance framework and how to deal with potential trade-offs (Section 2.3).

This study analyses to what extent the United Nations Framework Convention on Climate Change (UNFCCC) regime aligns climate change mitigation with sustainable development. For this purpose, we have developed an analytical and methodological approach (Section 3) that we use for our analysis.

First, we analyse sustainable development effects of past mitigation action under the Clean Development Mechanism (CDM). The CDM has an explicit mandate to pursue mitigation and sustainable development and the related experiences, and perspectives on these have been analysed in many studies. We review related findings in the CDM literature and analyse the correlation between findings and the methods and data used (Section 4).

Second, we analyse to what extent the governance of key UNFCCC mitigation approaches – the CDM, Reducing Emissions from Deforestation and Degradation (REDD+) and the Green Climate Fund (GCF) – support the generation of positive effects, or the prevention of negative effects, on sustainable development. Based on an analysis and delineation of their respective global governance framework (as of January 2017), our study points to actual or potential weaknesses as well as to proposals for improvement (Section 5). Finally, we compare the status of governance approaches and highlight current characteristics, main goals and action corridors as well as main weaknesses and challenges (Section 6).

Results: sustainable development effects of the CDM

The available literature on the positive and negative effects of CDM activities shows that the risk of adverse effects and a "race to the bottom" that focusses only on quantitative emission reductions is real. Some CDM activities have affected human rights and led to the erosion of development opportunities or adaptive capacities. Examples illustrate that negative effects can also occur in the renewable energy and forestry sectors, which – because of their potential to generate multiple benefits with low trade-offs – belong to the five priority investment areas of the GCF. At the same time, examples of positive effects of mitigation activities illustrate that increasing mitigation investments raises the number of opportunities to support sustainable development, including for the poor and vulnerable.

Our analysis shows that the CDM literature does not give a clear answer on the extent to which CDM activities have contributed to positive or negative effects. The findings indicate that both are possible. Costs and benefits are often unevenly distributed among actors and – despite intensive research in the past – we have limited empirical knowledge about the effects of past CDM activities on sustainable development.

Our analysis indicates that the applied method and data have most likely influenced the results of past assessments on the CDM's effects on sustainable development. Many CDM studies that conclude that the CDM overall has had a positive impact on sustainable development are based on Project Design Documents (PDDs) as a main source of information. The assumptions in these documents, however, are not verified after implementation of CDM activities, even though they can differ substantially from the effects realised. Furthermore, the distributional effects of CDM activities at the subnational level have rarely been assessed so far (see also Box 1 for an overview on the main results of our CDM analysis).

Results: alignment of climate change mitigation and sustainable development through governance approaches

Overall, the current status of governance approaches under the CDM, REDD+ and the GCF (see Sections 5 and 6) does not sufficiently address the increased risk of negative effects related to rising levels of mitigation investment. Furthermore, it does not sufficiently address the increased

legal status in the Paris Agreement for aligning the two agendas. There is a lack of coherence between political goals and their translation into institutional structures and administrative processes. Whereas all mitigation approaches have the explicit mandate to support sustainable development and generate non-carbon benefits, there are few related global regulations or requirements, and many of these are voluntary. Under all three mitigation approaches, national-level actors have a decisive role in aligning climate change mitigation and sustainable development. This refers to the design of policies, related definitions and priorities of sustainable development, as well as to related institutional structures and administrative processes. Determining whether a project contributes to sustainable development is a prerogative of host countries; all three mitigation approaches, to a large extent, rely on self-assessments for example by project participant (PPs) or Accredited Entities (AEs).

The legal and practical scope of the global governance approaches varies – in part enormously – between the three mitigation approaches. The degree of regulating the alignment of the two agendas and its bindingness is highest under the GCF. The analysed governance approaches to different degrees support five general political targets or action corridors, which can be – or are currently – seen as important in aligning climate change mitigation with sustainable development:

1. Explicitly target the positive and negative effects of mitigation action in the policy framework and implementation structure.
2. Incentivise or support the alignment of climate change mitigation and sustainable development policies at the national level.
3. Create transparency and participation opportunities for stakeholders. The creation of transparency is based on reporting, monitoring, evaluation and stakeholder participation. Stakeholder participation requires transparency on, and access to, information, and furthermore includes feedback and complaints mechanisms.
4. Manage risks, avoid or mitigate negative effects.
5. Compensate for negative effects.

Weaknesses and challenges in the respective UNFCCC governance approaches exist, in particular in relation to transparency requirements

on sustainable development effects of mitigation action, the promotion of social inclusion of mitigation investments, and finally in relation to risk management and legal protection against negative environmental – and in particular social – effects. Related to the last aspect, Parties should in addition address the questions of how to enhance and deal with risks related to poor national-level performance and how the global governance framework can address residual damages of mitigation action.

With respect to the CDM, criticism and proposals on how to improve CDM governance outweigh positive views on CDM governance in the literature (see Section 5.1.3). Criticism and related proposals centred on: insufficient reporting, monitoring and verification of sustainable development effects; insufficient safeguards against negative effects; limited possibilities and roles for stakeholders to comment and assess sustainable development effects; the lack of appeals and redress mechanisms and legal protection; the lack of economic value for sustainable development benefits; and challenges related to weak national governance of sustainable development effects. The analysis of existing research on CDM governance furthermore indicates that we have limited knowledge about national-level governance approaches to the CDM and the extent to which these national approaches integrate mitigation and sustainable development.

The REDD+ framework (see Section 5.2.3) does not sufficiently consider effects on sustainable development, in particular because the application of the "Cancún Safeguards" against negative effects are voluntary. The generation of positive effects or non-carbon benefits is mainly limited to the formulation of political goals and references to national sustainable development policies. As under the CDM, claimed effects on sustainable development are not independently assessed or verified at a later stage after implementation.

The GCF has laid important foundations for the alignment of the two agendas; some policies, such as the evaluation policy, have yet to be finalised (see Section 5.3.3). With respect to existing governance approaches, the GCF Board should, in particular, enhance its risk management on potential negative effects of mitigation investments. Potential adverse effects of mitigation financing have so far not been explicitly highlighted as a risk for the GCF and have not been included as a risk category of the GCF's risk dashboard and risk register. In addition, the Board should prioritise the

development of clear guidelines for the risk categorisation or projects or programmes through AEs and consider the independent assessment of these categorisations.

The GCF Board should furthermore fully align its Initial Investment Framework and mitigation Performance Measurement Framework (PMF), including their relation to the country ownership policy, and clarify how it will handle possible diverging interests between the Fund and countries in considering sustainable development in project activities and reporting. In cases where countries would not address the investment criterion *sustainable development potential* as well as related activity-specific sub-criteria, the Secretariat would lack data for the generation of the co-benefit indicator or index that shall be defined and generated to monitor portfolio-level impacts. As the GCF has started to fund activities, the Board should soon regulate who beyond the Accredited Entities' self-assessment will assess and verify project/programme results of mitigation investments. For its central role in identifying and reporting effects of mitigation investments, Annual Performance Reports (APRs) should be mandatory from the outset.

Given the evidence of negative effects of past climate change mitigation action on sustainable development and adaptive capacities, and an increasing risk of negative effects related to rising levels of mitigation investment, Parties should address the outlined weaknesses and challenges of the global governance framework. They should establish stronger incentives for maximising positive effects and preventing negative effects of mitigation action on sustainable development, including in outstanding decisions on national and private-actor contributions to mitigation.

With a view to the shifts in investment patterns that are necessary for limiting global warming to well below 2°C, Parties should furthermore consider consequences for climate change mitigation financing under the UNFCCC, which might require a prioritisation, limitation or exclusion for certain climate change mitigation technologies or options. Ultimately, limiting the global temperature increase to 1.5°C and well below 2°C is essential for sustainable development.

1 Introduction

Speaking at a United Nations (UN) High-Level Dialogue on Financing for Development in March 2016, former Executive Director of the Green Climate Fund, Héla Cheikhrouhou, called climate change action an "enabler of the SDGs", the Sustainable Development Goals (SDGs) of the United Nations (GCF [Green Climate Fund], 2016b). In order to keep global warming below 1.5°C and reduce the risks of adverse impacts, investments in adaptation – and in particular mitigation action – will have to increase massively in the coming years.

Empirical research shows, however, that climate change mitigation action could both foster and adversely affect sustainable development. Increasing investments in climate change mitigation can reduce the impacts of climate change, generate income or support environmental protection. However, investments can also lead to adverse impacts, such as the erosion of livelihoods or ecosystem productivity. Rising levels of mitigation investment thus also increase the risk that development opportunities and adaptive capacities are negatively affected. This can lead to a double-equity gap for those who have contributed the least to climate change and are already the most vulnerable to the impacts of climate change. They would have to face both the impacts of climate change and climate change politics.

It is therefore important to prevent UNFCCC mitigation approaches from undermining adaptation or sustainable development politics. Parties should aim to maximise positive effects and minimise negative effects, and they should, in particular, consider the social dimensions of mitigation action. In the Paris Agreement, Parties have strengthened the legal basis to pursue sustainable development along with mitigation action, yet there is disagreement on how to support this alignment through the global governance framework.

This study analyses, to what extent key UNFCCC mitigation approaches – the CDM, REDD+ and the GCF – "enable" the alignment of climate change mitigation and sustainable development and minimise trade-offs. It assesses how their governance approaches support the generation of positive effects (or prevent negative effects) on sustainable development and points to the main characteristics of the global governance framework, weaknesses, proposals for improvement as well as challenges.

1.1 Report structure

Section 2 provides an overview of the political context of this analysis and highlights key challenges in aligning the two agendas.

In **Section 3**, we outline the scope and methodological approach of our analysis and how we respond to our research questions.

On this basis, we analyse the status of alignment of the climate and Sustainable Development Agenda under the UNFCCC in Sections 4 and 5.

In **Section 4** we analyse the status of knowledge on the extent to which the CDM had been successful in promoting positive effects and preventing negative effects of climate protection on sustainable development. We do this by a) reviewing the findings in the CDM literature on this question, and b) evaluating the empirical basis and validity of current analysis on the positive and negative effects of CDM activities.

In **Section 5**, we assess current governance approaches that aim to support the alignment of the two agendas under the CDM, the REDD+ framework and the GCF. We conclude each delineation of governance approaches with an analysis on the status of alignment and highlight actual or potential weaknesses as well proposals and options on how current governance approaches could be improved with a view to strengthening the alignment of the two agendas. We furthermore, summarise all CDM-related findings of this study (see Sections 2, 4 and 5) in Box 1 in Section 5.1.3.

Finally, in **Section 6**, we discuss and compare the status of current governance approaches under the CDM, REDD+ and the GCF and highlight main common characteristics; common goals and established action corridors; as well as main challenges in aligning the two agendas under the UNFCCC.

2 The challenge: aligning mitigation and sustainable development in practice

Parties under the climate regime generally agree that aligning climate change mitigation action and sustainable development is necessary, yet finding a common and targeted approach in practice is challenging. Whereas most rightly consider climate change mitigation as a prerequisite for sustainable development, past experience shows that mitigation action has not automatically led to sustainable development (Section 2.1). The current

status of mitigation action, on the one hand, still signals that we have a severe emissions gap and that mitigation investments will have to rise massively in order to keep the global temperature increase to well below 2°C, and thus allow for sustainable development (Section 2.2). The investment gap, on the other hand, signals that the volume of mitigation finance will rise with the implementation of the Paris Agreement, and with it the opportunities to create positive effects for sustainable development and adaptive capacities, but also the risks of adverse effects thereon. To have an adequate global governance framework that promotes these opportunities and prevents the risks is therefore paramount. Experience with past negotiations shows that Parties had often disagreed in the design of concrete global governance approaches and that this alignment faces general political and technical challenges (Section 2.3). However, with the Paris Agreement, Parties have strengthened the legal basis to regulate the alignment of mitigation action or finance and sustainable development (Section 2.4). Implementing this ambition should serve as a benchmark in the design of current and future governance approaches under the climate regime.

2.1 Climate change mitigation does not automatically foster sustainable development

The United Nations 2030 Agenda for Sustainable Development states that "climate change is one of the greatest challenges of our time and its adverse impacts undermine the ability of all countries to achieve sustainable development" (UN [United Nations], 2015, paragraph 14). Given the far-reaching impacts of climate change on natural ecosystems and human well-being, climate science recommends keeping global warming to 1.5°C over the 21st century relative to pre-industrial levels.

At the same time, persisting levels of extreme poverty and inequality in many regions of the world require further development, as reflected in the universal Sustainable Development Agenda. Today, around 1.1 billion people, for example, still lack access to electricity (SE4All, 2015). In the past, general development and economic growth has often correlated with an increase of greenhouse gas (GHG) emissions (Michaelowa & Michaelowa, 2009). The decarbonisation of development and economic growth in this "carbon-constrained world" (Paluoso, 2009) is therefore key. Moreover, some countries also pursue economic growth as a strategy to adapt to the impacts of climate change because vulnerability to climate-related impacts

and limited adaptive capacities are often rooted in poverty and limited access to resources.

Decarbonising economic growth is a prerequisite for sustainable development, yet, there can also be trade-offs. Climate protection does not equal sustainable development, and it does not automatically lead to sustainable development (see also Section 4.1).

On the one hand, climate change mitigation measures can have co-benefits and improve livelihoods. Forestry projects under the CDM and other offsetting programmes, for example, have provided alternative income for farmers (Corbera & Friedli, 2012, p. 226; Anderson & Zerriffi, 2012, p. 743), facilitated the provision of agricultural extension services for farmers (Corbera & Friedli, 2012, p. 228; Hein, 2016, p. 176; Hein, 2013, p. 18) and have contributed to biodiversity conservation (Anderson & Zerriffi, 2012, p. 743; Busch, Godoy, Turner, & Harvey, 2010).[1]

A recent macro-economic study by the International Renewable Energy Agency (IRENA) calculates that doubling the global share of renewable energy in the global energy mix by 2030 would increase global gross domestic product (GDP) by up to 1.1 per cent, roughly USD 1.3 trillion. The agency estimates that the impact of renewable energy deployment on welfare is three to four times larger than its impact on GDP, with global welfare increasing as much as 3.7 per cent.[2] Employment in the renewable energy sector would also increase from 9.2 million global jobs today, to more than 24 million by 2030 (IRENA [International Renewable Energy Agency], 2016, p. 10; see also IRENA, 2014).

On the other hand, climate change mitigation activities have led to negative impacts and are even associated with human rights violations (Schade

1 For analysis of Project Design Documents and listed co-benefits, see for example Spalding-Fecher et al. (2012), Sirohi (2007), Sutter and Parreño (2007). See also UNFCCC (2011a and 2012) and the website of the UNFCCC Secretariat that is gathering information on CDM projects to highlight their contribution to improving people's lives and achieving sustainable development more broadly. Such co-benefits include contributions to local employment, freeing up financial resources for households and making other essential services available (see https://cdm.unfccc.int/about/ccb/index.html).

2 IRENA defines the following dimensions and indicators (in parentheses) as proxies for each welfare dimension: the economic dimension (sum of household consumption and economy-wide investment), social dimension (total employment; spending on health and education, corrected by negative health effects from air pollution), and the environmental dimension (greenhouse gas emissions; material consumption) (IRENA, 2016, pp. 62-63).

& Obergassel, 2014; Spalding-Fecher et al., 2012, p. 48; CDM [Clean Development Mechanism] Policy Dialogue, 2012, p. 56; Finley-Brook & Thomas, 2011; Roht-Arriaza, 2009). It has been known for a long time that larger-scale infrastructure developments in particular, such as hydropower plants, can have negative impacts on ecosystems, social systems or livelihoods, for example.[3] They can adversely affect ecosystem productivity and fisheries (e.g. Dugan et al., 2010; see also Räsänen, Koponen, Lauri, & Kummu, 2012), or agro-production systems (e.g. Cernea, 1997), which in turn adversely affect food production and food security (see also Pearse-Smith, 2012). Also large-scale wind farms have been criticised, in particular for their environmental impacts, the absence of local consultations and for the limited economic benefits for the local populations.[4] In forestry-related projects, the expansion of protected areas and investments in large-scale forest restoration and reforestation activities have led to forced resettlements and evictions of local communities (Hein & Faust, 2014; Hein et al., 2016; Lyons & Westoby, 2014). Some mitigation actions, such as removing subsidies on fossil fuel-based goods that poor people consume, could favour the better-off disproportionately, or even harm poor people directly (Granoff et al., 2014, pp. 35-36 and Table 6 for examples of impacts on the poor). Such negative impacts of mitigation actions can also adversely affect, or even erode, the capacities of affected people and ecosystems to adapt to the impacts of climate change.

Therefore, in order to contribute to sustainable development in all its dimensions and avoid negative impacts on adaptive capacities of affected people and ecosystems to the extent possible, climate change mitigation and finance must support the reduction of GHG emissions *while* securing sustainable development solutions. Reconciling trade-offs between the promotion of climate protection and sustainable development as well as

3 For examples and concerns related to negative impacts on sustainable development due to hydropower projects proposed for registration under the CDM see, for example, Center for International Environment Law (CIEL) or Carbon Market Watch on the Barro Blanco Hydroelectric Dam in Panama (CIEL, s.a.), or see International Rivers on hydropower investments in various countries, including Nam Ngum 5, Laos; Se San 4A, Vietnam; Stung Tatay, Cambodia; Panan, India; Santo Antõnio, Brazil; Jirau, Brazil; Teles Pires, Brazil; Kamchay, Cambodia; Marañon, Peru; Nam Ngum 5, Lao PDR; Yunnan Gongguoqiao, China; Barro Blanco, Panama; Bonyic, Panama (International Rivers, s.a.).

4 See, for example, critiques on wind projects in Mexico, Isthmus of Tehuantepec region (Castillo Jara, 2011). For a brief overview, see Juárez-Hernández and León (2014).

adaptive capacities to the impacts of climate change needs to be seen as one of the key challenges at the interface of climate and development policies.

2.2 There is an urgent need to close the climate change mitigation and investment gap

Whereas the goal to limit global warming to 1.5°C or to well below 2°C in the Paris Agreement can be seen as a political success, there remains an urgent need to close the climate change mitigation and investment gap in practice. Analyses of ongoing mitigation policies in the form of intended nationally determined contributions (INDCs)[5] by Parties to the UNFCCC in October 2015 identify a severe "emissions gap" between the current level of ambition and of what climate science deems to be necessary to achieve a 2°C pathway. Assuming full implementation of the INDCs, this gap is in the order of between 7-13 Gt CO_2e in 2025, and 14–17 Gt CO_2e in 2030 (Gütschow et al., 2015; UNEP [United Nations Environment Programme], 2015, xiii; UNFCCC [United Nations Framework Convention on Climate Change], 2015c).[6] Or put differently, the implementation of these intended nationally determined contributions (INDCs) would result in a temperature increase of around 2.7°C by 2100 (Gütschow et al., 2015). The longer the closing of the gap is delayed, the more rapidly mitigation needs to be achieved at a later stage. Recent calculations based on NDC

5 Before the adoption of the Paris Agreement in December 2015, still called *intended* nationally determined contributions (INDCs).

6 Gütschow et al. (2015) calculate an emissions gap of 11-13 $GtCO_2e$ in 2025 based on 108 INDCs, representing 135 countries. UNEP's emissions gap report (2015, xviii) is based on an analysis of 119 INDCs submitted by 1 October 2015, covering 146 countries and 85 to 88 per cent of global emissions in 2012. It states: "The emissions gap between what the full implementation of the unconditional INDCs contribute and the least-cost emission level for a pathway to stay below 2°C, is estimated to be 14 $GtCO_2e$ (range: 12-17) in 2030 and 7 $GtCO_2e$ (range: 5-10) in 2025. When conditional INDCs are included as fully implemented, the emissions gap in 2030 is estimated to be 12 $GtCO_2e$ (range: 10-15) and 5 $GtCO_2e$ (range: 4-8) in 2025." The UNFCCC Secretariat analysis is based on 119 INDCs, covering 147 Parties to the Convention, including one regional economic integration organisation, and representing 75 per cent of Parties and 86 per cent of global emissions in 2010 (UNFCCC, 2015c, p. 4). It states: "Compared with the emission levels consistent with the least-cost 2°C scenarios, […] aggregate GHG emission levels resulting from the INDCs are expected to be higher by 8.7 (4.7-13.0) Gt CO_2 eq (19 per cent, range 10-29 per cent) in 2025 and by 15.1 (11.1-21.7) Gt CO_2 eq (35 per cent, range 26-59 per cent) in 2030" (UNFCCC, 2015c, p. 10).

data as of 1 November 2016 conclude that the "emissions pledge pathway that includes […] NDCs has an over 90 per cent probability of exceeding 2°C, and only a 'likely' (>66 per cent) chance of remaining below 3°C this century" (Climate Action Tracker s.a).

To close the mitigation gap and put the Paris Agreement into practice, investments in climate protection have to be scaled-up massively and rapidly in order to avoid dangerous interference with the climate system. According to a recent study by the International Energy Agency (IEA) and IRENA, achieving a 66 per cent probability of limiting the rise of global GHG emissions to below 2°C requires a doubling of annual average energy-related investments in the energy sector from current levels until 2050 (IEA/IRENA [International Energy Agency/International Renewable Energy Agency], 2017). For example, nearly 95 per cent of electricity needs to be low-carbon by 2050 (compared with about one-third today); 70 per cent of new cars need to be electric (compared with 1 in 100 today); the entire existing building stock needs to be retrofitted, and the CO_2 intensity of the industrial sector needs to drop by 80 per cent below today's levels (IEA/IRENA, 2017, p. 8; see also IEA, 2017). Next to closing the overall investment gap, putting the Paris Agreement into practice requires a significant shift in investment patterns in the energy, land use, transport and infrastructure sectors (IPCC [Intergovernmental Panel on Climate Change] WG III, 2014, p. 1217).[7]

Up to 2014, only a limited number of studies had examined the investment needs to transform the economy to limit warming to below 2°C (IPCC WG III, 2014, p. 1210), and there was limited information on sector-by-sector long-term investment needs. The IEA estimated that USD 53 trillion in cumulative investment in energy supply and energy efficiency were required over the period up to 2035 in order to achieve the 2°C emissions pathway (IEA, 2014, p. 14). The recent IEA/IRENA study calculates that,

7 With respect to energy use until 2100, the Fifth IPCC Assessment Report summarises that "annual investment for example in fossil-fired power plants without carbon dioxide capture and storage (CCS) would have to decline by around 30 billion USD during the period 2010-2029 (median: -20 per cent compared to 2010). During the same period, investments in low-emissions generation technologies (renewable, nuclear, and electricity generation with CCS) would have to increase by 147 billion USD per year (median: +100 per cent compared to 2010), in combination with an increase by 336 billion USD in energy-efficiency investments in the building, transport, and industry sector, frequently involving modernization of existing equipment" (IPCC WG III, 2014, p. 1210).

on average, USD 3.5 trillion annually will be necessary between 2016 and 2050 (IEA/IRENA, 2017, p. 51). The non-profit organisation CERES estimated that, in order to limit global warming to 2°C, the world needed to invest an additional USD 1 trillion per year between 2010 and 2015 (Fulton & Capalino, 2014, p. 61). The UN's Sustainable Energy for All (SE4All) initiative came to similar results and estimated that, in order to achieve their three main goals – universal energy access, doubling the share of renewable energy in the global energy mix, and doubling the rate of improvement in energy efficiency – public and private investments of more than USD 1 trillion annually were needed (SE4All, 2015, p. 3).

Current climate finance flows are still below these requirements. Investments in the energy sector amounted to USD 1.8 trillion in 2015, in comparison to the USD 3.5 trillion needed (IEA/IRENA, 2017, p. 51). A report by the Organisation for Economic Co-operation and Development and the Climate Policy Initiative estimates[8] that the aggregate volume of public and private sources mobilised by bilateral and multilateral channels had reached around USD 52 billion in 2013 and USD 62 billion in 2014, out of which 77 per cent on average has been allocated to mitigation (excluding coal projects; Organisation for Economic Co-operation and Development, 2015, pp. 10 and 21).

Closing this climate change mitigation and investment gap requires commitments by public and private actors. In 2013, public financial institutions roughly accounted for only one-third of global climate finance (Buchner et al., 2014, p. VII). Yet, national actors and the public sector are increasingly important with respect to the significant necessary shifts in investment patterns in the energy, land use, transport and infrastructure sectors (IEA, 2014, p. 14).[9] Some studies suggest that most climate finance in aggregate is mobilised and deployed domestically, both in developed

8 The overall, underlying accounting methodologies of climate finance are controversial. The overall magnitude of private climate finance flowing to developing countries, for example, is highly uncertain, as these are not systematically tracked (SCF, 2014, p. 49).

9 For the energy sector, which is central to achieve the 1.5°C/2°C target, the IEA in 2014 highlighted that: "Decisions to commit capital to the energy sector are increasingly shaped by government policy measures and incentives, rather than by signals coming from competitive markets. In many countries, governments have direct influence over energy sector investment, for example through retained ownership of more than 70 per cent of global oil and gas reserves or control of nearly half of the world's power generation capacity, via state-owned companies" (IEA, 2014, p. 12).

and developing countries. In those developing countries where data on domestic public finance exists, the data suggests that "domestic public finance significantly exceeds the inflows of international public climate finance from bilateral and multilateral sources" (UNFCCC SCF [Standing Committee on Finance], 2016, p. 57).

Closing the mitigation and investment gap encompasses the responsibility of public and private actors to also consider the opportunities as well as risks for sustainable development. The challenge will be to close the mitigation and investment gap while avoiding a "race to the bottom" (Sutter & Parreño, 2007) for cheap tons of emission reductions at the expense of sustainable development opportunities. In this context, the history in the form of the CDM experience provides arguments for a pessimistic as well as an optimistic outlook. The pessimistic perspective is that many CDM activities have focussed on cheap emission reductions, despite the explicit goal to achieve sustainable development. The optimistic perspective is that, despite the limited share of CDM investments in the overall climate finance flows, and despite the limited scope of public UNFCCC regulations with respect to private financial flows, the CDM can set impulses to consider sustainable development along with mitigation investments (compare Section 5.1.3).

In this respect, Sections 4 and 5.1 explore in further detail related experiences with the CDM. Section 2.3 outlines some of the general political challenges in aligning climate protection and sustainable development in past UNFCCC mitigation approaches.

2.3 There is no consensus on how to align climate protection and sustainable development in global governance

Whereas Parties to the UNFCCC generally agree on the necessity to pursue both mitigation and sustainable development, there is no consensus on how to align the two agendas in the global governance framework and the degree of global regulation that is necessary to do so. Parties generally agree, for example, on the necessity to measure and verify GHG reductions, such as through results-based management and finance schemes under the CDM. However, there has been – and still is – significant disagreement with respect to sustainable development. This not only applies to the question of

how to define and "measure" sustainable development, but also to questions related to institutional approaches and governance structures, for example who should be responsible for ensuring co-benefits or avoiding negative impacts, or even whether to consider co-benefits or adverse effects for sustainable development at all.

For a long time, co-benefits of climate change mitigation policies and investments had been strongly denied, in particular by oil-producing countries, arguing that climate protection would have adverse effects on their national economies and social welfare. Promoters of climate protection instead denied these effects and highlighted the socio-economic benefits of climate protection (see the example of IRENA above), which is a perspective that is nowadays generally shared by most Parties and is reflected in the consensus on the necessity of NDCs.

Yet, the controversy over economic growth and promoting social and environmental development still prevails and shapes international discourses, leading to diverging views on the need for the public regulation of trade-offs and benefits, both at the global and national levels. For example, whereas some Parties argue for stronger global social and environmental standards for climate change mitigation investments, others argue that these would increase investment or transaction (i.e. "unnecessary") costs and therewith hinder investments by the state as well as by private actors in climate change mitigation at the scale and speed necessary to achieve the 1.5/2°C goal.

The question to what extent the three dimensions of sustainable development overlap or generate trade-offs for the respective other dimension can be seen as a struggle about the priorities of policy goals – a struggle that has shaped UNFCCC negotiations from the beginning. Throughout the 1990s up to the mid 2010s, mitigation targets have dominated policy goals, but sustainable development, adaptation, food security and/or human rights have often been subordinated. In the past 10 years, the balance between these goals has changed, and the status of the named formerly subsequent goals has increased – at least on paper.

Further reasons for the disagreement on how to align climate and development in global governance are the questions of how to define sustainable development, and whether it should be better defined and regulated at the global or national level. As is the case under the CDM, where sustainable development is defined at the national level (see Section 4.1), there is a tendency that many countries oppose (strong) international regulation, such

as standards and safeguards, in favour of national approaches. This view is supported by the argument of national sovereignty and that it requires country ownership based on policies and regulations, which are embedded into institutional contexts and adapted to national needs, including the possibilities for locals to influence these. International standards and regulations are seen as additional bureaucratic burdens, which could even hinder any national commitment.

Others instead argue for stricter global rules and standards in aligning the two agendas. Arguments that support this position range from the necessity to incentivise sustainable development or establish comparable market conditions, up to the need to safeguard the rights of adversely affected people in case of governance failure at the national level.

Related to this controversy is the challenge to establish a global governance framework that is ambitious in the alignment of the two agendas and manageable at the same time when it comes to its implementation, in particular at the national level but also in relation to private-sector engagement. This challenge is illustrated by the UNFCCC national reporting requirements for non-Annex I countries, in particular the guidelines for biennial update reports of national GHG inventories, which imply that developing countries need to rebuild or set up new institutions and/or structures for collecting and processing the data for complying with these guidelines. The challenge is furthermore illustrated by the negotiation process and the compilation of data and views on the implementation of SDG indicators by the Inter-Agency Expert Group on SDG Indicators.[10] The group had been mandated to develop an indicator framework for the goals and targets of the SDG agenda at the global level and to support its implementation. The variety of indicators and dimensions that these capture are enormous (United Nations Statistics Division, 2016). Collecting and processing the respective data at the national level is a challenge for many countries. Experience with the design of the CDM or GCF governance structures illustrates in further detail political and technical challenges on how best to align the two agendas.

10 See United Nations Statistics Division (s.a.) for an overview of suggestions.

2.4 Paris Agreement: climate finance needs to align climate change mitigation needs with sustainable development

Responses to the Paris Agreement in the media and business community on issues such as fossil fuel divestments have shown that the UNFCCC can and has set important impulses on the direction of future investments (e.g. Messner, 2016). However, the policy and market signals still fall short of what is needed to limit maximum warming to 2°C (IEA, 2014, p. 40), and past UNFCCC approaches have not only been positive with respect to the alignment of mitigation and sustainable development, as the CDM experience shows (compare Sections 2.2, 3.3 and 4.1.3). Therefore, Parties to the UNFCCC should consider the experience of implementing the Kyoto Protocol and ensure – to the extent possible – that the new Paris Agreement's incentives and implementation structure meet the requirements of a 1.5°C emissions pathway as well as sustainable development. Any signals that UNFCCC Parties send not only concern the direct implementation structure of the UNFCCC, but also the incentives and political rules set for public financial institutions in national contexts as well as for private actors.

In comparison to previous agreements, Parties have strengthened the legal basis for the alignment of mitigation and sustainable development in the Paris Agreement by highlighting that any mitigation efforts take place "on the basis of equity, and in the context of sustainable development and efforts to eradicate poverty" (UNFCCC, 2015e, decision 1/CP.21, Article 2; see also Preamble, Article 4). Sustainable development is seen as a solution in reducing the risk of loss and damage due to climate change impacts (Paris Agreement, Article 8). The promotion of sustainable development and environmental integrity is also an explicit aim for voluntary cooperation in the implementation of NDCs under Article 6, including market- and non-market-based approaches (Paris Agreement, Articles 6.1, 6.8, 6.9). Mechanisms implemented by Parties under Article 6.2 shall promote sustainable development. The Article 6.4 mechanism, which is under the authority of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement (CMA), also has sustainable development as one of its objectives, similar to the CDM.

Furthermore, the Paris Agreement explicitly refers to human rights and goals related to adaptation to climate change, and therewith to rights interrelated to sustainable development. In the Preamble of the Agreement, Parties acknowledge that they should "respect, promote and consider their

respective obligations on human rights" when addressing climate change, as well as the right to health and development, including gender equality, empowerment of women and intergenerational equity. Furthermore, Parties recognise that not only climate change but also responses to climate change can affect Parties. They emphasise "the intrinsic relationship that climate change actions, responses and impacts have with equitable access to sustainable development and eradication of poverty" and recognise "the fundamental priority of safeguarding food security and ending hunger" (Paris Agreement, Preamble).

For incentivising the alignment of the two agendas, important pillars of the Paris Agreement's implementation structure are regulations that shape and influence the design and implementation of the NDCs by Parties. These include outstanding regulations under the accountability mechanisms or accounting regulations of emission reductions, including for future emissions trading schemes, the design of the transparency framework, or monitoring and reporting guidelines.

3 Analytical and methodological approach

The assessment of the question to what extent current UNFCCC governance approaches of climate change mitigation and finance strengthen the alignment of climate protection and sustainable development and minimise trade-offs is analysed in two main steps.

First, we analyse the effects of past UNFCCC climate change mitigation activities on sustainable development. For this analysis, we look at the CDM only. In contrast to other mitigation approaches such as REDD+ and the GCF, which will also be considered in the governance analysis, a CDM analysis is based on more than 10 years of implementation experience and a huge body of literature. The CDM is one of the three market-based mechanisms under the Kyoto Protocol and has been explicitly designed with the dual objective of generating both benefits for sustainable development and GHG emission reductions in CDM host countries (i.e. developing

countries/non-Annex I countries; see Warnecke, Day, & Tewari, 2015, p. 1; see also Fuessler et al., 2015, p. 37).[11]

Since the first project registration in 2004, the CDM has developed into the largest GHG-emission offsetting scheme in the world: 8,000 CDM projects in 107 countries have been registered (CDM Executive Board, 2016). Between 2004 and 2012 the total investment in registered CDM projects is estimated at more than USD 215 billion (UNFCCC, 2012, p. 8). CDM projects have mainly been implemented by private actors, with renewable energy projects accounting for more than 70 per cent of the total investment (IPCC WG III, 2014, p. 1215, based on UNEP Risø, 2013, and Kirkman, Seres, & Haites, 2013). The activities have so far generated 1.6 billion certified emission reductions (CERs), each equivalent to one ton of carbon dioxide (CDM Executive Board, 2016).

The CDM has been criticised for neglecting its objective to generate sustainable development benefits in the host country and for not generating credible mitigation impacts (e.g Olsen, 2007; Paulsson, 2009; Torvanger, Shrivastava, Pandey, & Tørnblad, 2013, p. 473; Olsen et al., 2015, p. 7).[12] In 2012, the CDM High-Level Panel had called for reforms and further action "to achieve or enhance co-benefits" (CDM Policy Dialogue, 2012, p. 48).

Harmful side-effects of CDM projects are politically critical, to the extent that these might adversely affect the opportunities for the sustainable development of vulnerable communities, in particular their adaptive capacities (see Section 2.1). This would counteract objectives of UNFCCC decisions in general, and those of the Kyoto Protocol's Adaptation Fund in particular, which is supported by a 2 per cent share of proceeds from CDM activities.

Thus, despite the unclear future of the CDM, looking at the CDM experience is also important with respect to the implementation of the Paris Agreement in order to avoid past mistakes. Some countries intend to use the CDM or a

11 See also decision 3/CMP.1 stating that, "in accordance with Article 12, the purpose of the clean development mechanism is to assist Parties not included in annex I to the Convention in achieving sustainable development and in contributing to the ultimate objective of the Convention, and to assist Parties included in annex I in achieving compliance with their quantified emission limitation and reduction commitments under Article 3 of the Kyoto Protocol."

12 For a list of authors who question the credibility of CDM offsets, see also Torvanger et al. (2013, p. 476).

new mechanism under Article 6.4 of the Paris Agreement to implement their NDCs under the Paris Agreement.[13]

The methodological approach to the analysis of past CDM effects on sustainable development is detailed in Section 3.2.1.

Second, we analyse and compare current governance approaches of climate change mitigation and finance under the UNFCCC that aim at incentivising positive effects and preventing negative effects on sustainable development. For that purpose, we selected – next to the CDM – the REDD+ framework and the Green Climate Fund.

The REDD+ framework is an incentive-based conservation framework for reducing GHG emissions caused by deforestation and forest degradation. The basic idea is to provide financial incentives for expanding and enhancing forest conservation in developing countries with tropical forest cover, and therewith support mitigation outcomes. At the same time, REDD+ activities shall promote non-carbon benefits (Paris Agreement, Article 5.2) and help support sustainable development, environmental integrity and adaptation needs, that is, the general goals of the UNFCCC.

Whether REDD+ activities will be eligible for financing through internationally and voluntarily transferred mitigation outcomes under the UNFCCC is still unclear. So far, REDD+ cannot be used as an offsetting mechanism like the CDM, and it has no operational function with respect to the financial mechanism of the Convention. This might change, since REDD+ is an integral part of the Paris Agreement. However, it is controversial among Parties whether forest conversation should be eligible for international transfers under Article 6 of the Paris Agreement (Lang, 2015, Articles 5 and 6) and whether REDD+ activities can be conducted under the Article 6.4 mechanism.

Despite this lack of clarity, REDD+ builds the main reference framework for forest-related financing of the GCF and shall guide the implementation of national, bi- and multilateral initiatives. As such, the REDD+ framework is an important global reference framework for forest-based climate change

13 For example Columbia, Mexico, Costa Rica (see Deutsche Gesellschaft für Internationale Zusammenarbeit, 2016) or Switzerland (see Fuessler et al., 2015, p. 35). Towards this respect, the CDM Executive Board at its 88th Board meeting in March 2016 asked the UNFCCC Secretariat to provide an analysis "related to options for using the CDM as a tool for other uses" (see CDM Executive Board, 2016).

mitigation activities. As forest-based activities usually strongly intersect with peoples' livelihoods and environmental conservation, the alignment of the REDD+ framework with sustainable development is particularly important. Many GCF Board members share this perspective (e.g. GCF/B.14/18, paragraphs 140, 144).

The idea of incentivising REDD+ activities under the UNFCCC has been strongly contested in the past, foremost for potential adverse effects on local development opportunities and sustainable development (see Section 4.2). In particular, indigenous groups, peasant movements and environmental justice groups have accused REDD+ for reducing the complexity of forest ecosystems to carbon sinks, for limiting access to forests, and for not including legally binding acknowledgements of indigenous rights (Griffiths, 2007; Hein & Garrelts, 2014; Hein, 2016).

For its important role in climate finance under the UNFCCC, we furthermore analyse current GCF governance approaches in aligning the two agendas. The GCF was established in 2010 as a new global financing institution to support the goals of the Convention. It shall support a paradigm shift and, in the context of sustainable development, help keep global warming below 2°C. The Fund is accountable to – and functions under – the guidance of the COP (Cancún Agreements, paragraph 102). Besides its political importance and model function, it is currently the largest dedicated multilateral climate fund with pledges amounting to USD 10.3 billion for the 2015-2018 programming period. Whereas the GCF Board already approved the first projects in 2015, some decisions on the alignment of climate protection and sustainable development have yet to be taken.

The methodological approach to the governance analysis of the CDM, REDD+ and the GCF is detailed in Section 3.2.2.

3.1 Analysis of the positive and negative effects of CDM activities

For analysing the extent to which the CDM has been successful in generating positive – or preventing negative – sustainable development effects, we:

a) briefly review the findings of the literature on the effects of the CDM on sustainable development (Section 4.1); and

b) investigate the validity of this literature by looking at its applied methods and data basis (Section 4.2).

Looking at the CDM literature, it is notable that there are numerous evaluations of sustainable development benefits of the CDM, yet there are only a few studies that assess the potential negative effects of CDM projects (Spalding-Fecher et al., 2012, p. 48).[14] This might partly owe to the focus of the CDM policy framework and mandate that provides for the support of positive effects on sustainable development only, but not the prevention of negative ones. Yet, it also raises questions about the validity and generalisability of available findings on the effects that past CDM activities have had on sustainable development.

We therefore additionally investigate the applied methods and data basis of the existing CDM literature. For that purpose, we selected a literature sample that we analysed for its findings on the positive and negative effects on sustainable development (see Section 4.1) and whether authors used only secondary data (e.g. PDDs and other project documents), or whether they have conducted original field research in areas affected by CDM projects (see Section 4.2).

Altogether, 33 articles[15] were selected using the following approach:

- We first searched for articles on the topic using Google Scholar and the Web of Science from the Institute for Scientific Information. We identified all articles that appeared through a combination of specific key words. This resulted in 214 identified publications. We then assessed which of the identified publications met all of the following criteria:
    - the publication contains an empirical assessment of sustainable development (SD) effects of CDM activities. This assessment can be based on secondary data and information found in PDDs, or primary data collected through qualitative and/or quantitative methods;
    - peer-reviewed publications or publications published by an international organisation such as the United Nations or the World Bank have been prioritized;
    - the publication focusses on renewable energy and/or afforestation/reforestation CDM projects.

14 For an assessment of negative impacts see Spalding-Fecher et al. (2012, pp. 47-49).

15 All articles are listed in the bibliography.

We focussed on renewable energy and forestry CDM projects as one selection criterion (IPCC, 2014), since energy production and land use contribute to 59 per cent of global GHG emissions, and therefore take an important role in climate protection. Renewable energy financing represented the major share (almost 80 per cent) of the estimated total global mitigation finance flows in 2013 (Buchner et al., 2013, quoted in GCF, 2015, p. 17). Of all mitigation funding to date from climate funds, 70 per cent has been spent on renewable energy (GCF, 2015, p. 23). The promotion of renewable energies and forestry projects furthermore belongs to the five priority investment areas of the GCF. The GCF regards the investment priority areas as "entry points for investment that can have an impact in multiple results areas, targeting both mitigation and adaptation in an integrated and holistic manner" (GCF, 2015, p. 8, see also pp. 51ff). This argumentation is in line with scholars such as Granoff et al. (2014, p. 34), who argue that investments in the transformation of land-use and energy production systems involve no fundamental trade-offs between economic growth and emission reductions. They argue that "most of the potentially positive-cost actions required for a zero net emission, 450 ppm scenario are either in land-use […] or energy-supply systems" (Granoff et al., 2014, p. 34).

With the term "effects on sustainable development" or "sustainable development effects" (SD effects), we refer to non-GHG-related effects. Non-GHG-related effects are also denoted as "non-carbon effects" and – in case of positive effects – as "co-benefits" and "non-carbon benefits" (e.g. Paris Agreement, Article 5.2; decision 1/CP.21, paragraph 54).

Our analysis of the SD effects of mitigation investments is confined to *direct effects* of the project activity on sustainable development (Lecocq & Ambrosi, 2007) and does not comprise indirect effects. Direct effects include, for example, income generated through the sales of CERs for actors *in* the host country, but it would not include effects from using the revenues from the sales of CERs.[16] This approach is also taken by host countries that define CER generation as a criterion for economic benefits (Spalding-Fecher, 2012, p. 45).

As there is neither a common definition of sustainable development nor a methodology of how to assess sustainable development impacts under the Convention, we follow the most common definition of the Brundtland

16 Examples of "indirect effects" are listed in Boyd et al. (2009, p. 822).

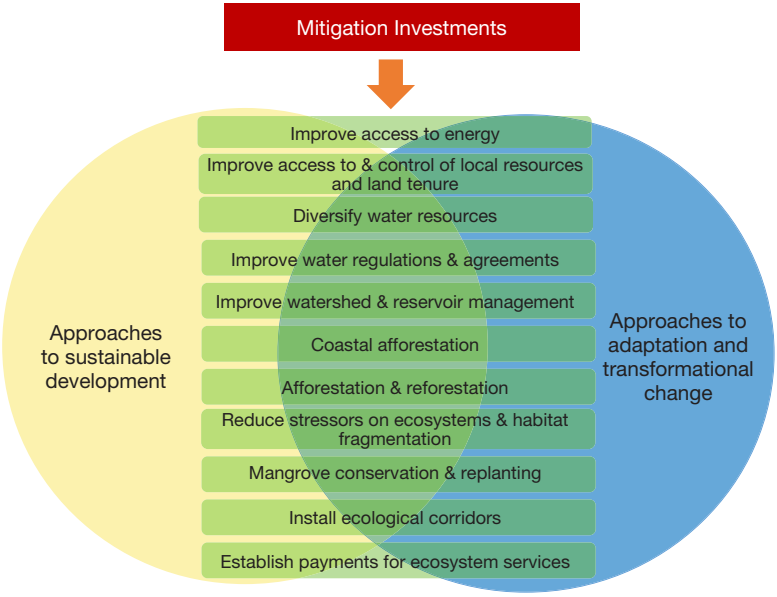
Report (World Commission on Environment and Development, 1987) and differentiate between the environmental, social and economic dimensions. This represents a consensus in the CDM literature (Spalding-Fecher, 2012, pp. 35, 40) and is also used by the CDM sustainable development tool (SD tool), which was introduced in April 2014 (UNFCCC, 2014a). The tool allows project developers to voluntarily report on sustainable development benefits of CDM activities in host countries by responding to a predefined checklist.[17] Among the direct effects, we differentiate between positive effects (also called "co-benefits") and negative (or adverse) effects on sustainable development, whereby our analysis reflects the perspective of the reviewed literature on what positive or negative impacts are.

We assume that the effects of climate change mitigation investments on sustainable development also give a broad, or first, indication of possible effects on the adaptive capacities of affected people and ecosystems. This assumption is supported by a broad agreement among scientists and politicians who, *first*, regard the reduction of vulnerability and exposure to present climate variability-related risks as a first step towards adaptation (IPCC, 2014, p. 25, WG II SMP) and, *second*, who regard related approaches of vulnerability and exposure reduction through development planning and practice as overlapping with adaptation and transformational processes (IPCC, 2014, p. 27, WG II SMP). These approaches of vulnerability and risk reduction, *third*, have strong linkages to aspects of sustainable development.

Examples of the linkage between approaches to sustainable development, risk reduction as part of development planning, and risk reduction as part of adaptation or transformational processes are provided in the 2014 Intergovernmental Panel on Climate Change (IPCC) Assessment Report. One such approach is to improve access to – and control of – local resources as well as land tenure (see IPCC, 2014, table SPM1 for further examples). Some of these risk-reduction approaches can be affected by mitigation activities. Based on the examples given in the IPCC report, Figure 1 provides examples of potential risk-reduction approaches that can be affected by mitigation activities.

17 This list includes 12 environmental, economic and social criteria and for each of these sub-indicators or questions, resulting in 62 indicators altogether. Here, we use the three dimensions of sustainability in order to capture impacts on sustainable development.

Figure 1: Examples of approaches to sustainable development and risk reduction that can be positively or negatively affected by mitigation activities



Source: Authors based on IPCC, 2014, Table SPM1

3.2 Governance analysis

The analysis of governance approaches under the CDM, REDD+ and the GCF follows – and is restricted to – an input-based approach by looking at the legal framework only. The linkage between the legal frameworks of the CDM, REDD+ and the GCF under the UNFCCC and the envisaged effect on sustainable development in this analysis is based on the expectations – or theoretical attributions – of the respective decision makers and actors and not on the empirical research that aims at proving the linkage between input and output. Those actors are, in particular, the CDM Executive Board, the Conference of the Parties of the UNFCCC, the COP of the Kyoto Protocol (COP/MOP),[18] and the GCF Board, but also non-governmental actors. Our

18 The Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol.

analysis reflects the expected or attributed effect of the respective governance approaches on sustainable development without aiming to verify them.

An output-based approach (see Torvanger et al., 2013, p. 478 for a brief overview) and the measurement of SDG-related performance of CDM activities are beyond the scope of this paper. Access to related primary and secondary data for an output-based approach is limited. In case of the CDM, the independent auditors accredited by the CDM Executive Board (called Designated Operating Entities, DOEs) are required to review the documentation of CDM activities to ensure compliance with CDM standards. This implies that the auditors (DOEs) validate that the designated national authority (DNA) has considered whether the proposed CDM activity assists the host country in achieving sustainable development. However, they have no mandate to verify compliance with a host country's environmental or sustainability criteria, with the effect that claims of sustainable development benefits are never evaluated as part of the CDM cycle (compare Monceau & Brohé, 2011, p. 10).

Furthermore, our selection of governance approaches is based on an explorative, not a normative approach. We delineate and analyse all governance approaches that the respective actors (see above) think have an effect on sustainable development. Accordingly, the categories in Table 1 help to summarise and give an overview on the governance approaches taken, but they have not determined the selection of governance approaches. Any additional approaches taken beyond these categories are listed in the category "other governance approaches".

We define the term "governance approaches" in a broad sense, comprising all steps that the respective actors have undertaken to structure and regulate the policy issue at hand, for example the institutional design, regulatory provisions, instruments, and methodologies or administrative procedures.

The governance analysis of the GCF does not include the regulation of economic or financial effects and risks, even though these – as well as the regulation of corruption – are important factors in aligning mitigation financing and sustainable development. For time reasons, we have limited our analysis to the regulation of social and environmental effects.

With the delineation of governance approaches of each mitigation entry point, we aim to provide an overview on the current decision status. The GCF analysis considers decisions up to and including the 15th Board

meeting in 2016. The analysis of governance approaches of the CDM and REDD+ framework considers the regulatory framework as of 1 January 2017.

Table 1: Overview of possible approaches to foster synergies and govern trade-offs

Governance approaches	
Host country approval	Host country approval refers to the formal signature and related administrative process by which a government approves that the mitigation activity is in line with the country's policies and laws and/or sustainable development objectives.
Stakeholder participation	The involvement of stakeholders refers to ways that governmental or international decision makers use to allow non-governmental actors to voice any kind of concern with respect to a mitigation activity and/or to contribute to the planning, implementation or controlling of this activity. The participation can take different forms, including informal and formalised ways, such as workshops; public consultations; web-based consultations; free, prior and informed consent; or contributions in the form of community work.
Reporting requirements on SD effects	Reporting requirements refer to provisions or guidelines on information that can, or must be, reported or disclosed about the effects on sustainable development by/throughout a mitigation activity. Reporting can take different forms and be voluntary or obligatory. The provisions or guidelines are formulated by, and need to be directed to, either national or international entities.
Monitoring and evaluation	Monitoring and evaluation refers to the process of collecting and evaluating information about the performance/results of a mitigation activity against its pre-determined goals and strategies. This process is guided by national and/or international guidelines, takes place *ex post* an activity, and might include the (independent) verification of results of an activity or results-based approaches.

Table 1 (cont.): Overview of possible approaches to foster synergies and govern trade-offs	
Governance approaches	
Social and environmental safeguards	Social and environmental safeguards are political and institutional provisions that aim to inform about, prevent or protect against possible negative impacts of mitigation activities *before* investment takes place. The safeguards can provide for a set of additional regulations such as standards or social and/or environmental impact assessments.
Complaints mechanism and legal protection	Complaints mechanism and legal protection refer to institutionalised ways to address differing interest and trade-offs of a mitigation activity before or after investment has taken place and allows individuals or groups to make an official complaint, launch appeal procedures with respect to a mitigation activity or claim compensation for any incurred negative effects.
Other governance approaches	All governance approaches which do not fall into one of the previous categories are subsumed and discussed here.
Source: Authors	

The delineation of governance approaches furthermore serves to illustrate the qualitative differences between these approaches. This is important for the assessment of the status of the alignment of climate change and the Sustainable Development Agenda. The analysis reveals that the governance approaches are not standardised, and that it is not the mere existence of a "governance approach" but its quality and implementation practice that support this alignment, or not.

Respectively – and given a lack of rigorous evaluations on the link between climate change mitigation governance approaches and their effects on sustainable development – our conclusions on the governance approaches are based on our own qualitative interpretation and assessment. This is complemented by related discussions and suggestions in the literature. These are particularly relevant for the CDM, whose SD effects and governance approaches have been intensively debated among various stakeholders. Complementing our own observations, our analysis thus

provides an overview on the current status of debate and viewpoints as well as suggestions related to the CDM's governance approaches.

4 The positive and negative effects of CDM activities

With the CDM, Parties have gained more than 10 years of experience with a market-based mechanism that was explicitly set up to contribute to both emission reductions and sustainable development. Whereas there is a huge amount of literature on different aspects of the CDM, there are diverse answers to the question regarding to what extent the CDM has succeeded in also contributing to sustainable development.

Before analysing governance-related aspects of the CDM in Section 5, we look at the empirical evidence on the positive and negative effects of past CDM activities. First, we review the findings in the CDM literature on this question (Section 4.1). Second, we assess the methodological approaches of these studies and to what extent they are able to capture actual positive and negative *ex post* effects of the CDM projects (Section 4.2). Third, we discuss related findings (Section 4.3).

This analysis is complemented in Section 5 by a delineation of governance approaches of the CDM as well as an analysis on related weaknesses and proposals for improvement. This, again, is based on a review of the respective literature and our own evaluation. A summary of results of all CDM-related findings is provided in Box 1.

4.1 Findings in the CDM literature

Overall, the contribution of the CDM to sustainable development is highly contested in the CDM literature (He, Huang, & Tarp, 2014, p. 248; Hein & Garrelts, 2014; Olsen, 2007). On the question of whether the CDM has had positive or negative effects on sustainable development, Spalding-Fecher and colleagues conducted a comprehensive analysis in the context of the CDM Policy Dialogue in 2012 and concluded that "the majority of the studies agree that the CDM does have a positive impact on the various facets of sustainable development in the host countries" (Spalding-Fecher et al., 2012, p. 40). This has been confirmed by an econometric analysis conducted by He et al. (2014). Often stated positive impacts of the CDM are economic growth, alternative income sources, employment and the

expansion of renewable energy production in CDM host countries (He et al., 2014; Spalding-Fecher et al., 2012; Brown, Dettmann, Rinaudo, Tefera, & Tofu, 2011, p. 326; Corbera & Brown, 2010, p. 1750).

However, several mostly qualitative studies claim that the CDM is not providing significant benefits or even leading to negative impacts on sustainable development (e.g. Corbera & Friedli, 2012; Aggarwal, 2014; Smits & Middleton, 2014), and that the costs and benefits of CDM activities are unevenly distributed among actors (e.g. Olsen, 2007; Sutter & Parreño, 2007; Brohé, 2014). In some cases, human rights violations (e.g. Schade & Obergassel, 2014; Finley-Brook & Thomas, 2011; Roht-Arriaza, 2009) have been reported. Here, actors would have been better off without the CDM project.

As outlined in Section 2.1, the CDM literature provides examples of positive as well as negative effects of CDM activities on sustainable development. This is also reflected in the findings of our review of 34 articles. In Table 11, we summarise the findings on the positive and negative effects according to three dimensions of sustainability (environmental, social and economic). The Vietnamese hydropower project Song Bung 4, for example, provided employment and clean energy. However, the project had negative effects on farmers and provided no employment for the affected population (Smits & Middleton, 2014. The project might have increased Vietnams GDP but reduced the incomes of the impacted farmers.

Some CDM projects have also influenced the adaptive capacities of rural households against climate change. For instance, a study from Ethiopia illustrates that an afforestation/reforestation CDM activity (CDM A/R) contributed to ecosystem restoration, the reduction of soil erosion and reduced flood risk (Brown et al., 2011, p. 328). The Ethiopian project strengthened forest tenure of the involved communities and provided alternative incomes and has thus enhanced the adaptive capacities of the participating famers.

In contrast, renewable energy CDM activities in Vietnam and Honduras have challenged traditional livelihood strategies (Schade & Obergassel, 2014; Smits & Middleton, 2014) and have rather reduced the adaptive capacities of the population.

Table 2: Examples of positive and negative sustainable development effects of CDM activities from the literature sample

CDM project types	SD-dimension	Positive SD effects	Negative SD effects
Afforestation and reforestation (CDM A/R)	Environment	• increased vegetation cover • forest restoration; soil water infiltration • Increase in biodiversity reduced soil erosion • improved water quality • flood protection	• exotic species impact local biodiversity • monoculture plantations have negative impacts on soils and ground water recharge
	Social	• increased tenure security for land users participating in CDM activities • support through agricultural extension services/ technical assistance • employment/ alternative income	• lack of participation (e.g. local population involved as land owners or labourers and not in the project design phase) • reproduce/reinforce existing inequality (e.g. through creating mainly benefits for better-off community members)
Afforestation and reforestation (CDM A/R)	Economic	• diffusion of technologies (e.g. GIS training) • rural development	• project developers restrict access to natural resources, including land • long-term contracts determine future livelihood options • income from selling CERs do not cover opportunity costs of land and labour costs

Table 2 (cont.): Examples of positive and negative sustainable development effects of CDM activities from the literature sample			
CDM project types	**SD-dimension**	**Positive SD effects**	**Negative SD effects**
Renewable energy	Environment	• reduced air pollution	• flooding (caused by hydropower dams) • land-use change (e.g. deforestation)
	Social	• employment • access to energy for communities without connection to grid • poverty alleviation • infrastructure improvements	• (forced) resettlement of local population • human rights violations • disruption of (pre-existing) livelihood patterns
	Economic	• technology transfer • economic growth • diversification of energy production	
Source: Authors			

4.2 Empirical validity of the CDM literature on the positive and negative effects

The majority of studies in our sample only build on secondary data from PDDs (see Section 5.1.2 for further information) and other documents prepared by project proponents (see Table 3). Only a few of these studies rely on primary data obtained from field visits. In fact, most of our knowledge on the CDM is based on documents prepared by project developers, consulting companies or non-governmental organisations (NGOs). The amount of in-depth research based on primary data is still surprisingly small. Within our sample of 33 articles, only six authors rely on field research

in areas affected by CDM project interventions; 21 articles rely on PDDs and secondary data; and four articles rely on PDDs and expert interviews involving governmental actors and project developers.

Table 3: Methods of reviewed studies on the CDM

Methods	Number of studies
Secondary data only, (multi-criteria) assessments of PDDs and other project documents	**21**
Secondary data and primary data, assessments of PDDs and other project documents combined with expert interviews and/or survey	**4**
Original field research (secondary data and primary data), assessments of PDDs and other project documents combined with field research in areas affected by CDM projects	**7**
Methods and data not clear	**1**
Total	**33**

Source: Authors

Our review even indicates that methods and data influence the assessment of effects of the CDM (compare Tables 3 and 4). Conspicuously, more than three-quarters of the articles that drew exclusively on PDDs and related secondary data failed to mention any negative CDM effects on sustainable development. In contrast, as Table 4 shows, six of seven articles using primary data have identified negative effects. According to CDM regulations, project implementers have to prepare a PDD prior to the start of a project. Consequently, the documents cannot cover unintended negative effects and, since they reflect the opinions of project implementers and not the population living in project areas, they often do not cover critical information. Smits and Middleton (2014) even argue that project implementers conceal relevant information on conflictive local project realities in PDDs.

Table 4: Is there a relation between used methods and data and results?				
Methods	**Mostly or only positive effects**	**Only negative or both positive and negative effects**	**Total**	**Other**
Studies using only PDDs and secondary data	17 (81% of studies)	4 (19% of studies)	21	1
Secondary data and expert interviews/survey	3 (75% of studies)	1 (25% of studies)	4	
Studies based on original field research	1 (14% of studies)	6 (86% of studies)	7	
Source: Authors				

As Tables 3 and 4 show, most authors evaluate a large number of PDDs (e.g. Olsen, 2007; Sutter & Parreño, 2007; Olsen & Fenhann, 2008; Nussbaumer, 2009; Drupp, 2011; Spalding-Fecher et al., 2012). The CDM Policy Dialogue (Spalding-Fecher et al., 2012, p. 44), for instance, has assessed 202 PDDs and concludes that "all projects lead to benefits such as income generation through CERs […]"; 201 of the assessed PDDs mention that the projects will produce "other sustainable development benefits" in addition. Many authors use multi-criteria assessment frameworks to manage the large amounts of data. They facilitate the evaluation of large and complex data against a set of objectives or indicators, such as those in the SD tool kit of the CDM (Department for Communications and Local Government, 2009, p. 19; Nussbaumer, 2009, p. 94). For instance, Olsen and Fenhann (2008) have assessed the sustainable development impacts of CDM projects using the multi-criteria assessment frameworks outlined in 744 PDDs. They conclude that small-scale projects provide more benefits than large-scale projects; hydrofluorocarbon and nitrous oxide projects provide very few benefits; and that the most common benefits are employment, economic growth, better air quality and better access to energy (Olsen & Fenhann, 2008, p. 2829). However, as they stated, their methodological approach did not allow for the identification of potential negative effects (Olsen & Fenhann, 2008).

A smaller number of authors have combined the analysis of PDDs with reviews of other documents (e.g. auditing reports, donor and NGO reports,

and press articles; Corbera & Friedli 2012; Byrom, Thomas, & Dargusch, 2014; Schade & Obergassel, 2014), surveys and interviews involving state agencies and project developers (e.g. Sutter & Parreño, 2007; Brohé 2014). Schade and Obergassel (2014), for instance, reviewed publicly available documents on Kenyan and Honduran renewable energy CDM projects. Based on PDDs, different donor reports and reports of critical observers such as CDM Watch, the authors unravelled how the two CDM projects "feed into pre-existing conflicts" and contributed to human rights violations (Schade & Obergassel, 2014, p. 730). In both cases, the exact contribution of the CDM projects to the conflicts and human rights violations are difficult to assess. The root causes of both conflicts are conflictive property rights over land (Schade & Obergassel, 2014, p. 730).

Byrom and colleagues (2014), in contrast, depict a rather positive picture of the CDM. They analysed PDDs and auditing documents on nine CDM projects in Pacific Island countries for assessing the potential contribution of CDM projects to the millennium development agenda. They conclude that especially the renewable energy projects (e.g. hydropower and geothermal power) will contribute to millennium development goals (MDG) achievement by providing employment, infrastructure and clean energy. Sutter and Parreño (2007) have combined a multi-criteria assessment of 16 PDDs with a survey involving project developers. All projects of their sample created employment in host countries, but in most projects the employment creation per 1,000 CERs created is quite limited (Sutter & Parreño, 2007, p. 81). Corbera and Friedli (2012) argue – based on the assessment of PDDs and validation reports of eight CDM A/R projects – that stakeholder participation in the auditing process was inadequate. Moreover, only four of the PDDs have included opportunity cost analyses: "From a socio-economic perspective, all PDDs, except the Chinese case, fail to provide detailed short and long-term economic estimations due to production and price uncertainties, thus making it difficult to monitor projects' performance against alternative economic scenarios" (Corbera & Friedli, 2012, p. 231).

Only a very few studies build on field research in areas affected by CDM projects. Based on qualitative fieldwork in Vietnam, Smits and Middleton (2014) have shown that the social consequences of CDM projects can differ substantially from the impacts outlined in the respective PDD. The implementation of the Song Bung 4 hydropower CDM project, for instance, required the resettlement of four villages and led to flooding of

land previously used for agriculture and hunting and gathering. Affected households were compensated and received new houses and agricultural plots. However, the resettlements were not mentioned in the PDDs, employment promised in the PDD was not accessible for villagers and the new agriculture plots were not suitable for wet rice cultivation (Smits & Middleton, 2014, p. 574).

A recent study by Aggarwal on CDM A/R projects in India indicates that some CDM projects "could prove socially and ecologically detrimental rather than useful in the long term" (Aggarwal, 2014, p. 84). Based on the review of PDDs, concept notes, web sources, published literature, group discussions and stakeholder interviews including farmers affected by the project, Aggarwal (2014) shows that many farmers are "economically better placed without the project" (Aggarwal, 2014, p. 82). Many participating farmers have withdrawn from the project because of no or meager income. Moreover, since exotic tree species have been used, the project is not contributing to biodiversity conservation (Aggarwal, 2014, pp. 82, 86).

Corbera and Brown K. (2010) have shown that smallholders are often not able to benefit fully from the CDM. They conducted field research on the CDM A/R and voluntary market forestry projects for assessing the ability of actors to benefit from the projects. They argue that, in order to access benefits, farmers require capital, knowledge and technology.

Brown D.R. and colleagues (2011) investigated a successful CDM A/R case in Ethiopia. They combined field research with document reviews (PDDs and other project documents) and argue that the project helped farmers to receive community land titles and gain access to agricultural extension services and that it has also increased vegetation cover (Brown et al., 2011, pp. 326, 328). Interviewed community members stated that the reforestation efforts have reduced erosion and have attracted locally extinct species such as wild goats and antelopes (Brown et al., 2011, p. 329).

4.3 Conclusions

Our review of the CDM literature indicates that the used methods and data have most likely influenced the results of past analyses on the CDM's effects on SD effects. Past CDM analyses, to a large extent, have been based on PDDs as a data basis. The advantage of PDDs is that they are publicly available and that, through multi-criteria assessment frameworks, large

amounts of data can be assessed. Yet, our analysis illustrates that studies that are only based on the assessment of PDDs could have a bias towards positive impacts. Project developers formulate PDDs prior to the start of a project. Consequently, any analysis of a PDD can only capture potential effects outlined in the PDD, and they cannot cover unintended effects. Olsen and Fenhann (2008) argue in the same direction that, by analysing PDDs, only positive impacts can be captured "since project developers are unlikely to write anything negative about the proposed project" (Olsen & Fenhann, 2008, p. 2822). Smits and Middleton (2014) even argue that the omission of controversial information is part of the "politics of knowledge associated with CDM projects and their reporting, in which potentially 'difficult' information is strategically omitted, as stated by some consultants interviewed" (Smits & Middleton, 2014, p. 574).

Studies building on original field research have helped to unravel the idea that the project realities described in PDDs can be fundamentally different from the experiences of local actors. It is therefore important to complement an analysis of CDM effects on sustainable development with other methods and data sources. These can originate from field research or stakeholder feedback for example, as shown by the analysis of Schade and Obergassel (2014), whose analysis of PDDs was complemented by critical observer documents.

Overall, whereas the quantity of available studies on CDM activities suggests otherwise, we have a limited knowledge base on the effects of CDM activities on sustainable development, given the potential bias of data on which many CDM analyses are based. This is particularly the case for the distributional effects of CDM activities. The literature analysis shows that most CDM activities have led to positive as well as negative effects, but that only a few studies have analysed these effects. Consequently, we have limited knowledge on who has benefited and who carried the costs of CDM activities.

The data bias furthermore points to weaknesses in the global CDM regulations that guide the generation of data (e.g. reporting and monitoring requirements) and that enable an assessment of the positive and negative effects (e.g. stakeholder consultations; see Section 5 for further analysis). Also, the occurrence of negative effects and related complaints points to weaknesses in global CDM regulations related to a fair sharing of benefits and burdens and related safeguards or compensation mechanisms. However,

the analysis also illustrates the difficulties in discerning the influence of the CDM from other context factors that affect sustainable development.

5 Governing trade-offs under the UNFCCC

The analysis in Section 4 shows that CDM activities had positive as well as negative effects on sustainable development. Given the likely and needed increase in climate change mitigation investments, the results provide reasons for concern regarding the goal of the Paris Agreement in aligning the two agendas (see Section 2.4). In particular, negative effects show that past CDM governance approaches have not been successful or satisfying in preventing, reducing or managing adverse effects of mitigation investments. On the other hand, the question is whether the applied governance approaches sufficiently incentivise or support the generation of positive effects beyond reducing GHG emissions.

In this respect, Section 5 looks at the current status of related governance approaches under the UNFCCC. As the CDM is only one pathway to mitigation investments under the UNFCCC, the analysis furthermore looks at the REDD+ framework and the GCF (compare selection criteria in Section 3). In the following analysis, we first delineate the related global governance approaches that aim to support the alignment of the two agendas under the CDM, the REDD+ framework and the GCF regulations, respectively. Second, we assess their status in aligning the two agendas by highlighting actual or potential weaknesses as well as proposals and options on how current governance approaches could be improved (see conclusions at the end of the respective sections). In the CDM conclusion, we additionally review and summarise criticisms and proposals of the CDM literature on how to improve governance approaches under the CDM (see respective references in Section 5.1.3).

5.1 The Clean Development Mechanism

5.1.1 Institutional status, objectives, general scope of regulation

The CDM has two general purposes: it aims to assist developing countries in achieving sustainable development and help industrialised countries

in complying with their emission-reduction commitments. The CDM is operating under the authority of the CMP (which is the Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol) and regulated by the CDM Executive Board, consisting of 10 members and 10 alternate members from Parties to the Kyoto Protocol. COP 7 in Marrakech adopted modalities and procedures that govern the CDM, including with regard to the role of the CDM Executive Board; third-party validation and verification by DOEs; approval by the host and buyer countries; the principles governing the project eligibility; and the calculation of emission reductions, stakeholder participation, the registration of projects, the issuance of CERs, and the operation of the CDM registry.

At COP 7 in Marrakech, Parties also agreed to allow afforestation and reforestation projects under the CDM, for which modalities and procedures were adopted at COP 9 in 2003. In 2011, Parties furthermore adopted modalities and procedures for carbon (dioxide) capture and storage (CCS) projects in geological formations. In addition, Parties adopted simplified modalities and procedures for small-scale projects and small-scale Assessment Report projects. Next to these modalities and procedures, the CMP regularly provides guidance to the CDM Executive Board, which included a number of specific requests to the Board related to the objective of achieving sustainable development, as discussed below. Moreover, in 2005, Parties agreed to broaden the scope of the CDM to programme of activities (PoAs) that integrate activities in dispersed places – referred to as component project activities (CPAs) – under a single programme that is managed by a coordinating and managing entity (CME).

In UNFCCC negotiations on the CDM, developing countries argued that the assessment of sustainable development issues was their prerogative because they have different development priorities and national contexts. For this reason, the CMP and the CDM Executive Board have not defined sustainable development or established criteria to assess whether a project or programme achieves sustainable development. Rather, host countries have a key role in defining sustainable development and ensuring that the objective of achieving sustainable development is met. Nevertheless, the CMP and CDM Executive Board have introduced several governance approaches towards the goal of achieving sustainable development – approaches which differ between the different modalities and procedures, and partially between projects and PoAs.

5.1.2 CDM governance approaches

Host country approval

All countries wishing to participate in the CDM have to establish DNAs that are responsible for approving projects. When approving projects, host countries have to confirm through a Letter of Approval (LoA) that the participation in the project is voluntary, and that the projects assist the country in achieving sustainable development. The details of the approval procedure are up to each country. Host country approval is a prerequisite for requesting registration under the CDM. The host countries develop the rules for project approval and have the authority to approve or reject projects.

Some host countries have developed and published criteria or guidelines to assess the sustainable development benefits of projects and programmes, whereas most countries have not. Most countries use qualitative criteria to assess sustainable development impacts. The assessment process is also not always clear from the published documents.

Stakeholder participation

The CDM provides for different forms of stakeholder participation. The provisions governing stakeholder consultations are set out in four key documents: the CDM modalities and procedures, which set out the general requirements; the project standard (PS); the validation and verification standard (VVS); and the project cycle procedure (PCP), in which those general requirements are further elaborated. Overall, rules governing stakeholder participation have evolved and been improved over time.

In the process of approving CDM projects, local and global stakeholder consultation are compulsory (see below). Both consultations have to be completed before concluding the validation of CDM requirements and submitting a project for registration to the CDM Executive Board. So far, there are no provisions that allow for comments on a CDM activity after registration.

Other general forms of stakeholder participation are described in the procedures "Direct Communication with Stakeholders". Stakeholders have the possibility to write to the Board both on case-specific issues as well as on policy issues. Stakeholders can also provide feedback on regulatory documents (e.g. through public calls for inputs or consultation

events) and participate in interactions to enhance their understanding of the regulatory framework (e.g. DOE teleconferences, capacity-building events). In addition, all the meetings of the Board are webcasted and allow for interaction during the meetings with representatives from Parties and UNFCCC-admitted observer organisations.

Local stakeholder consultation

Local stakeholder consultations are conducted by the project participants (PPs) or the CME through physical meetings with local communities and stakeholders affected by a project activity.

The PPs/CMEs are required to invite local stakeholders to provide comments on the proposed CDM project activity or PoA and demonstrate how due steps/actions were taken to appropriately engage stakeholders and solicit comments. Version 9.0 of the project standard (paragraphs 74-80), validation and verification standard (paragraphs 161-166) and project cycle procedure (paragraphs 26, 33) further elaborate how these processes shall be conducted and what actions shall be undertaken by the PPs, the CMEs and DOEs.

The invitation shall be made in a transparent and open manner in a way that facilitates comments to be received from stakeholders and allows for a reasonable time for comments to be submitted. In addition, the proposed CDM project activity or PoA shall be described in a manner that allows the local stakeholders to understand the project activity or PoA. The PPs/CMEs shall also prepare a summary of the comments provided by local stakeholders and demonstrate that they considered all comments received for the proposed CDM project activity or PoA. The PPs/CMEs shall also ensure that the consultation process complies with applicable national regulations, if any, and was completed before the start date of the proposed CDM project activity or PoA and/or CPAs and the submission of the relevant documentation to the DOE for validation.

Whether local stakeholder requirements have been met needs to be validated by a third-party entity, the DOE (CDM modalities and procedures, paragraph 37(b)). This is based on a review of the PDD and any supporting documentation to confirm that the comments by local stakeholders have been invited, a summary of the comments received has been provided, and a report to the DOE on how due account was taken of any comments has been received.

In late 2014, the CDM Executive Board improved the local stakeholder process, including provisions for the assessment of the adequacy of the local stakeholder consultation in case significant changes have occurred to the design of the project after the initial local stakeholder consultation. Further improvement is the introduction of a complaints mechanism via which local stakeholders may submit a complaint to the DNA(s) of the host Party(ies) if they find that the outcome of the local stakeholder consultation is not appropriately taken into account. In such cases, the DOE shall request the DNA(s) to forward complaints, if any, to the DOE and promptly forward them to the PPs or the coordinating/managing entity.

In late 2015, the Board agreed on further improvements that have not yet been translated into requirements in the regulatory documents (PCP, VVS) and are, thus, not yet operational. Those improvements include the definition of the scope of local stakeholder consultations, which should include, as a minimum: the potential direct positive or negative impacts of the project or the PoA; the minimum groups of stakeholders to be invited; justification if relevant stakeholders have not been invited; as well as evidence that invitations have been made and comments invited. Improvements also include provisions for the use of appropriate means for inviting stakeholders, conducting the consultations and receiving the comments that are adequate for the local and national circumstances. Finally, provisions for making available all relevant information about the project activity in non-technical language have also been included.

For an overview of local stakeholder consultation practices in countries, the Parties to the Kyoto Protocol in 2013 requested the CDM Executive Board to collect and make available related information, and to provide technical assistance to DNAs, for the development of guidelines for local stakeholder consultations in the respective countries. To date, only the DNA of Brazil has shared its local stakeholder consultation practices, and the DNA of Haiti has requested assistance for the development of guidelines for local stakeholder consultations.

Global stakeholder consultation

Global stakeholder consultations are conducted through a web-based interface by the DOE, which is also responsible for the validation of a proposed CDM project. The regulatory documents elaborate how this process shall be conducted and what actions shall be undertaken (Version

9.0 of the PCP paragraphs 19-33; VVS paragraphs 31-42). Comments may be submitted, in English, to the DOE through the Secretariat via a dedicated interface on the UNFCCC CDM website. The submitters of the comments shall provide the name and contact details of the individual or organisation on whose behalf the comments are being submitted. The DOE shall check the authenticity of this information in case of doubt. The UNFCCC Secretariat shall make the comments publicly available on the UNFCCC CDM website where the PDD or PoA Design Document is displayed, and shall remove those that the DOE has determined to be unauthentic.

Further possible improvements of this consultation process, such as the possibility to also submit comments in alternative languages of the country, were not agreed by the CDM Executive Board. The initial provisions of the global stakeholder consultation have remained almost unchanged since their inception.

The current CDM regulatory framework limits the consideration of stakeholder comments under the global stakeholder consultation to issues on compliance with CDM validation requirements. Comments on sustainable development benefits or possible harm to affected communities do not need to be taken into account.

Stakeholder comments after registration

Past experience with stakeholder comments has shown that a significant proportion of the submissions from stakeholders to the Board have been unsolicited submissions or letters to the Board relating to project-specific matters that arise after local and global stakeholder consultation have been completed or after the registration of the project activity. The Board has rarely acted upon such concerns and letters and has usually forwarded them to the DNA of the host country.

In late 2015, the Board agreed that it would establish a 14-day commenting period after registration – namely after the publication of the monitoring report, and prior to the first request for the issuance of CERs – to allow for comments from stakeholders on any impacts that may have been triggered by the implementation of the CDM project activity or PoA. Under this new regulation, stakeholders can thus comment once after the implementation of a project, but they still do not have the possibility to provide comments at a later stage. This "improvement" thus provides only for limited stakeholder consultation after registration and project implementation. It has also yet to

be incorporated into the regulatory framework of the CDM and is therefore not yet operational.

Reporting requirements on sustainable development effects

Currently, sustainable development co-benefits of a CDM project activity are to be self-declared by PPs in the PDD in accordance with the guidelines for completing the project design document form (PDD guidelines). The PDD guidelines require the PP to include a brief description of how the CDM project activity contributes to sustainable development (not more than one page) as part of a description of the CDM project activity.

In 2011 at CMP 7, Parties requested the Board to continue its work and develop appropriate voluntary measures to highlight the co-benefits brought about by CDM project activities and PoAs, while maintaining the prerogative of the Parties to define their sustainable development criteria. In response to this request, the Board adopted a voluntary tool for describing sustainable development co-benefits of projects and PoAs. This tool was then launched on 1 April 2014. The tool is supposed to provide means by which PPs/CMEs can readily highlight sustainable development co-benefits of CDM activities based on sound qualitative and quantitative criteria, and in a comparable, structured and consistent manner. The tool also provides a means to report on the aggregated sustainable development co-benefits for various types of projects in various host countries over time for use by the Board and other stakeholders.

The tool, however, does not include any indicators on negative impacts, or "no harm" criteria. Furthermore, it remains a self-declaration by PPs/CMEs without third-party verification.

Monitoring and evaluation

Determining whether a project contributes to sustainable development is a prerogative of the host country. As such, current CDM rules do not require monitoring or verifying whether the claimed sustainable development benefits of a project are achieved. Most host countries do not have provisions in place for monitoring the claimed sustainable development benefits.

In 2013 at CMP 9 (decision 3/CMP.9, paragraph 8), Parties requested the Board to develop guiding tools to assist DNAs in monitoring the sustainable development benefits of CDM project activities and PoAs. The use of such

guiding tools is voluntary and at the request of host Parties. To date, only one request has been received from the DNA of Cambodia.

The UNFCCC Secretariat also requested DNAs to share their practices for monitoring SD benefits. So far, five DNAs have shared their practices (Kuwait, Switzerland, Thailand, Togo and Austria). Analysis of the submissions received shows that DNAs of host countries do not have provisions for monitoring sustainable development benefits during the lifetime of the projects, whereas DNAs of buyer countries do have certain provisions for monitoring (CDM, s.a.).

Social and environmental safeguards

Social and environmental safeguards only partially exist under the CDM and are largely in the judgement of the PPs and the host country. The provisions vary among the different modalities and procedures. Environmental and social impact assessments (ESIAs) are not required by global CDM regulations, yet some countries do require an analysis of environmental impacts, including transboundary impacts.

The modalities and procedures for afforestation and reforestation project activities require the PP to undertake an analysis of the socio-economic and environmental impacts, including impacts on biodiversity and natural ecosystems, and impacts outside the project boundary of the proposed afforestation or reforestation project activity under the CDM. If any negative impact is considered significant by the PPs or the host Party, PPs have to undertake a socio-economic impact assessment and/or an environmental impact assessment, in accordance with the procedures required by the host Party. PPs shall submit a statement that confirms that they have undertaken such an assessment in accordance with the procedures required by the host Party and include a description of the planned monitoring and remedial measures to address them.

More specific safeguards apply to CCS CDM projects. Geological storage sites shall only be used under the CDM if there is no significant risk of seepage and no significant environmental or health risks exist. To assess these risks, PPs have to conduct a detailed characterisation of the geological storage site, including a site development and management plan, a risk and safety assessment, and a socio-economic impact assessment. PPs also need to monitor whether the reservoir behaves as assumed. A so-called history matching has to be conducted, comparing the observed behaviour with

earlier modelling results. Where significant deviations are observed during history matching or when requesting a renewal of the crediting period, PPs have to update the characterisation of the geological storage site, the risk and safety assessment, as well as the environmental and socio-economic impact assessment. Where this information indicates that the geological storage site no longer meets the requirement that there are no significant risks of seepage and no significant environmental or health risks, the issuance of CERs shall cease.

The CDM rules do not have any specific requirements or provisions to deal with human right violations of projects or PoAs. Paragraph 53(c) of the "Procedure: Direct communication with stakeholders" (version 02.0) allows the Board to forward the communications made by stakeholders and to raise concerns, including those related to human rights, to the respective DNA(s). Such forwarding is process rather than substance-oriented, and the Board does not express a view on the content of the communication. The provision also does not require any action by the DNA. In late 2015, at its 87th meeting, the Board for the first time recognised that there may be human rights problems linked to some CDM project activities or PoAs and requested the Secretariat, in such cases, to forward the comments received from stakeholders on those issues to the relevant bodies within the United Nations system and within the host governments.

Complaints mechanisms and legal protection

The CDM provides for some complaints mechanisms but only provides for legal protection in the case of CCS projects. The following provisions are applicable or were discussed:

- **Requests for review:** A DNA involved in a project or PoA or a Board member may request a review of the request for registration or issuance within 28 days of a CDM project activity or 42 days for a PoA from the date of publication of the request for registration or issuance. In practice, the scope of such reviews is, however, limited to CDM requirements. This process is thus limited to Board members and government entities and not applicable to stakeholders.
- **Withdrawal of approval or authorisation:** DNAs involved in a project activity or PoA also have the possibility to either suspend or withdraw their approval or authorisation of projects or PoAs and/or of PPs. In the

case of withdrawal by a host country, the project can no longer issue CERs.

- **Appeals process:** In 2009 at CMP 5 (decision 2/CMP.5, paragraphs 42 (b) and 43), Parties requested the Board to create procedures for appeals against rulings taken by, or under the authority of, the Executive Board regarding the rejection or alteration of requests for registration or issuance. Following public consultation, the CDM Executive Board proposed recommendations for an appeals procedure in its 2010 Annual Report to the CMP. The recommendations identify PPs and DNAs as the only stakeholders that would have standing to appeal. The CMP reconsidered the issue; however, since then, Parties have not been able to agree on any procedures. The contentious issues include the nature of the appeals body and its composition, the type of decisions that can be appealed and who can appeal Board decisions.
- **Complaints by stakeholders:** As highlighted above (see section *Local stakeholder consultation*), the Board agreed in late 2014 on a complaints mechanism through which local stakeholders may submit a complaint to the DNA(s) of the host Party(ies) if they find that the outcome of the local stakeholder consultation is not appropriately taken into account. In such cases, the DOE shall request that the DNA(s) forward complaints, if any, to the DOE and promptly forward them to the PPs or the coordinating/managing entity during the validation. The Board also agreed that it will introduce the possibility to raise complaints during the public commenting period following the publication of the first monitoring report of emission reductions of projects and PoAs. This opportunity, however, is not yet operational and limited to the first monitoring report.

The modalities and procedures for CCS projects (decision 10/CMP.7) include specific provisions for legal protection that are not applicable to other types of projects:

- **Redress mechanism:** Host countries wishing to host CCS projects must have established laws or regulations that provide for "timely and effective redress for affected entities, individuals and communities for any significant damages, such as environmental damage, including damage to ecosystems, other material damages or personal injury, caused by the project activity, including in the post-closure phase".

- **Liability provisions:** PPs and host countries must specify and agree on clear liability arrangements for the different phases of CCS projects, including post closure.
- **Financial provision:** PPs must establish a financial provision that ensures that, for example, costs for the monitoring and safe operation of the site, as well as costs arising from liability cases, such as from damages to communities and ecosystems, are covered.

5.1.3 Conclusions: aligning climate mitigation and sustainable development under the CDM

The analysed CDM regulations show that there are very few global regulations under the CDM that prescribe or incentivise the alignment of mitigation and sustainable development. The generation of sustainable development benefits through – or along with – mitigation activities has predominantly been left to national governments and private actors of voluntary carbon markets. There are, however, only a few scientific studies about the national-level CDM governance and the extent to which these national approaches integrate mitigation and sustainable development.

Overall, the criticism on CDM governance in aligning the two agendas outweighs positive views in the CDM literature, independent of whether the above outlined governance approaches can actually be attributed directly to positive or negative effects or not, and whether the CDM has generated more positive or negative impacts (compare Section 4 for further discussion). There are more proposals on how to change certain CDM governance approaches in order to enhance its co-benefits or avoid negative effects than there are positive appraisals.

In summary, analysts highlighted and attributed the following positive effects for sustainable development to past CDM activities:

- Almost all self-declarations in PDDs claim that the CDM activity has directly contributed to multiple benefits for sustainable development in host countries, but the benefits vary considerably by project type and region (see Spalding-Fecher et al., 2012, pp. 44-47 for a discussion).
- Participants of the CDM Policy Dialogue in 2012 agreed that one of the most important effects of the CDM for sustainable development was that the CDM has led to capacity-building for low-carbon development

within developing countries. This led to an engagement of the local private sector in climate change mitigation and laid the foundation for domestic climate change policies in major developing countries (Spalding-Fecher et al., 2012, p. 5; Watson & Fankhauser, 2009).

- CDM projects have played an important role in furthering awareness and knowledge diffusion on low-carbon technologies, particularly in the renewable energy sector (Torvanger et al., 2013, pp. 478-479).
- Some analysts highlight the potential of the SD tool in contributing to standard-setting on reporting and assessment of sustainable development impacts of mitigation investments or carbon trading.[19] Yet, the assessment and application of the SD tool is contested and strongly varies among actors (see Olsen et al., 2015, pp. 23-24).

In contrast, many CDM governance approaches have been criticised for not achieving co-benefits or not avoiding negative effects on the CDM. We will give an overview on the criticism and proposals or options on how to improve the CDM governance in relation to sustainable development impacts in the following. **The respective criticism and proposals for improvement can be summarised under six main points** (compare also Table 3):

1. Insufficient reporting, monitoring and verification

The evaluation of effects of CDM activities is largely limited to emission reductions. Reporting, monitoring or verification obligations on sustainable development impacts and negative impacts of CDM activities in general do not exist. The quality of reporting currently mainly depends on national and private-actor practices. Current reporting, monitoring and verification requirements and practices have been criticised with respect to the following:

19 See, for example, Olsen et al., who propose three ways in which the tool can be relevant to future mitigation action: (1) "Strengthened standards for SD assessment at the international level"; (2) "Enhanced national standards for SD assessment based on the SD tool, e.g. by making it mandatory at national level for PPs to use the tool for issuance of LoAs [Letters of Approval] and by including the SDC report as a basis for local stakeholder consultations", and (3) "Market players could seek certification of SD impacts of mitigation actions based on the tool being further developed in line with general requirements for results-based finance applicable beyond CDM" (Olsen et al., 2015, p. 25).

a) Reporting requirements

- There is very limited guidance in relevant CDM standards on what should be reported (i.e. in the CDM project standard).
- The SD tool provides a template for reporting on SD benefits with structured criteria. Firstly, the use of the SD tool is voluntary, and it has rarely been used. Since the launch of the tool in 2014, only 36 sustainable development co-benefit reports have been published. Secondly, the tool only considers positive impacts and does not foresee any reporting on any negative impacts, which implies that trade-offs are not identified and reported through the tool. In contrast to the SD tool, it is common practice in many international mitigation certification standards to assess negative impacts (Arens et al., 2015, p. 12).
- Many host countries have not specified SD criteria or guidelines for how PDDs should evaluate and report on the impacts of a project.

b) No monitoring

- There is no requirement under the CDM to monitor the SD impacts after the implementation of a project (e.g. to check whether the "promises" in PDDs are actually fulfilled).
- Research indicates that the sustainable development contribution anticipated by PPs at the time the CDM project activity started may change over time, or may not be achieved, that is, once the CDM project activity is implemented or operating. When surveyed after implementation, a CDM analysis in 2011 found that only 10 per cent of CDM-projects achieve more than half of the benefits claimed in PDDs prior to project implementation (UNFCCC, 2011a, p. 16).
- In contrast to general CDM practice, the monitoring of SD impacts is obligatory in many international mitigation standards, and some such as the Gold Standard, the Climate Change Community and Biodiversity Standard (CCBS) and the Social Carbon Methodology additionally have independent verification of monitoring plans and reports (compare Arens et al., 2015, p. 13).

c) No verification

- Current reporting is based on self-declarations by PPs. There is no verification of the information by DOEs. The verification of SD benefits

after project registration and implementation is not required through CDM regulations. Some buying countries (e.g. Sweden)[20] as well as selling countries[21] and also project developers (e.g. in Norway, see Olsen et al., 2015, p. 21) have introduced provisions to follow up on sustainable development claims made in PDDs. Yet, it seems that many countries have not practiced the monitoring and verification of SD claims in a systematic way (e.g. Olsen et al., 2015, p. 24). Overall, however, a systematic overview on national-level reporting and monitoring practice of SD effects is lacking. There are only a few studies that address this question (e.g. Olsen et al., 2015). Olsen and colleagues (2015) are not clear on whether these recent provisions concerning following up on sustainable development claims represent continuous monitoring or singular reporting, whether these national provisions are obligatory or voluntary, or whether the monitoring and reporting refer to benefits only or include negative effects. Given the lack of information on the current status of national implementation, it is difficult to evaluate national-level reporting and monitoring practices.

Proposals to enhance the quality and uniformity of reporting include improved reporting requirements/guidelines based on DNA-specific or international guidelines (Spalding-Fecher et al., 2012, p. 10), improved reporting and monitoring guidelines for the SD tool while keeping the tool

20 "The Swedish government buyer applies its own due diligence assessment and has introduced a modified version of the draft EB SD tool including safeguards for human rights, good labour practices, environmental protection, anti-corruption and land rights to avoid negative impacts and prioritising participation of local stakeholders and communities. As a government buyer with a high capacity, they are able to conduct their own site visits using the modified draft EB SD tool questionnaire as a basis for due diligence assessment and they have a program to follow-up during implementation that projects perform in line with what is expected" (Olsen et al., 2015, p. 21).

21 See Olsen et al. (2015, p. 14): "DNAs, however, are increasingly becoming more pro-active and want to follow-up on SD claims during project implementation. In the early days of the CDM no country required that the expected SD benefits were monitored on an equal basis with GHG reductions to verify that they are real and measurable (Olsen & Fenhann, 2008). Yet this is currently changing with innovative approaches being developed (Tewari, 2012): the Peruvian DNA has introduced site visits and documentation for community acceptance, Rwanda requires updated SD checklists and documentation for impacts at verification stage, India has introduced more detailed SD provisions and a 2 per cent levy on large-scale projects, Thailand, Philippines and Georgia have introduced a scoring of SD indicators and Kenya and Malaysia DNAs have identified priority sectors for approval."

voluntary and flexible (Arens et al., 2015, p. 18), and/or the inclusion of negative effects in reporting requirements or guidelines such as the SD tool or PDD format.

The introduction of a global reporting standard could also guide the quantification, certification or even monetisation of SD benefits (Arens et al., 2015, p. 16, partly based on DNV 2013; compare point 6 below). Improved reporting could also be supported by project-specific indicators (Spalding-Fecher et al., 2012, p. 10) or methodological guidance on how to report sustainable development impacts, qualitatively or quantitatively, such as through the United Nations Development Programme's Nationally Appropriate Mitigation Action SD tool (Arens et al., 2015, p. 12, based on DNV 2013). Furthermore, stakeholder consultation requirements could be introduced for the CDM SD tool to get a meaningful assessment (Arens et al., 2015, p. 16). This would imply that stakeholders have socially legitimised the assessment in the SD tool. Stakeholders or local communities could also be involved in data collection or the monitoring and evaluation of SD impacts (Dong, Olsen, Filzmoser, & Trunkl, 2015). Others demand that DNAs be obliged to publish their SD benefit indicators at the national and international levels (Carbon Market Watch, 2015, p. 4).

Beyond proposals to improve the quality of reporting, monitoring and evaluation, there are ideas to address the lack of reporting and evaluation of sustainable development impacts. These include the introduction of either voluntary or mandatory monitoring guidelines[22] or the introduction of enhanced international or national standards on SD benefits only or SD impacts in general. As part of this approach, the SD tool, for example, could become an assessment basis for the issuance of LoAs or for local stakeholder consultation processes (compare Olsen et al., 2015, p. 20). Public participation in the SD tool could also become a prerequisite for the purchase of carbon credits (Carbon Market Watch, 2015, p. 4).

An additional option is to validate and verify reported sustainable development claims and impacts, for example through a third party, DNAs or local stakeholders and communities. In this respect, sustainable development criteria could also be embedded or added in the existing project verification stage (Spalding-Fecher et al., 2012, p. 34).

22 See ideas on "Voluntary monitoring of sustainable development co-benefits" by the CDM Executive Board (UNFCCC, 2015a, p. 10).

2. Insufficient safeguards against negative impacts

The safeguards against negative impacts under the CDM are insufficient. The CDM only requires socio-economic assessments for CCS and afforestation and reforestation activities, but the assessment of other negative impacts – including social or human rights implications – are not required.

Proposals to expand the safeguards against negative impacts partly overlap with proposals on improving reporting, monitoring and verification. Additional proposals include the definition of minimum global standards on sustainability and "no harm" requirements that each CDM project has to meet (Carbon Market Watch, 2015, p. 4); the general introduction of global or national "do no harm" safeguards; differentiating eligibility and procedures across project types, scales or regions in relation to sustainable development impacts (e.g. positive/negative lists; Spalding-Fecher et al., 2012, p. 10); or the adoption of international sustainable development safeguards consistent with international law, in particular human rights law (Knox, 2015).[23]

Procedurally, "do-no-harm safeguards" or a checklist of key safeguards could be included in the SD tool or PDD format (e.g. UNFCCC Secretariat SDM Programme, 2011; Arens et al., 2015, p. 12; Spalding-Fecher et al., 2012, p. 10). DNAs could address negative effects through national legislation or through enhanced stakeholder consultation and appeals processes (Spalding-Fecher et al., 2012, p. 10). The applied governance approaches at the national level vary from country to country and include, for example, the scoring of impacts in Cambodia or the certification against an ISO standard in Chile (see Olsen et al., 2015, pp. 14, 20, 21).

Overall, with respect to improving safeguards against negative impacts, the UN Special Rapporteur on Human Rights and the Environment, John Knox, and 96 NGOs and individuals furthermore propose that the CDM Executive Board generally supports the engagement by the UNFCCC Secretariat with the Office of the High Commissioner for Human Rights and UN Special Procedures in relation to potential human rights impacts of CDM projects (Knox, 2015).

23 The letter by John Knox, UN High Commissioner on Human Rights, is supported by 98 civil society organisations and individuals.

3. Limited possibility and role for stakeholders to comment and assess SD impacts

The formal possibilities for stakeholders to comment on SD impacts of CDM activities are limited to the pre-registration period (before activities have started). The planned stakeholder consultations that would allow for comments after registration are not yet operational and address the first monitoring report before CER issuance, which, under current reporting and monitoring regulations, does not entail SD-related information. Overall, stakeholders therewith have limited possibilities, but also a limited role in commenting or assessing SD-related information and impacts in formal CDM governance approaches. This includes their role with respect to monitoring, evaluation or verification.[24]

In order to maximise positive effects of the CDM or prevent negative ones, proposals have been made on how to enhance the respective role of stakeholders throughout the project cycle. In particular, these concern the role of stakeholders in reporting, monitoring, and verification (see above); proposals regarding the possibility for appeals or redress (see below); or the adoption of guidance on the right to free, prior and informed consent, such as under the UN-REDD Programme. Some regard community participation in the conception period of small-scale renewable energy projects as a means that could help stimulate sustainable development benefits (Subbarao & Lloyd, 2011, quoted in Torvanger et al., 2013, p. 477).

Furthermore, there is the proposal to provide a general global best practice guidance document or requirements for stakeholder consultations in order to improve the involvement of stakeholders at the national level (e.g. Carbon Market Watch, 2015). Also, the UNFCCC Secretariat and the CDM Executive Board have compiled suggestions on how to improve stakeholder consultation processes (CDM Executive Board, 2015a, Appendix 1; see also European Union (2013) for suggestions).

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24 See the CDM Executive Board's initial concept note considered at EB 69 and EB 70 for a detailed description of further concerns raised by stakeholders through various interactions, including calls for input and various workshops and roundtables. Furthermore, see CDM-EB86-AA-A15, page 8 and the following, for an analysis of national-level practice of stakeholder involvement during the validation process and gaps in CDM regulation (see CDM Executive Board Meeting, 2015).

4. No appeals and redress mechanism and legal protection

As outlined above, stakeholders have limited possibilities and roles to comment on and assess SD effects. Whereas stakeholders can file a complaint (in case these are not satisfied) on how their comments have been addressed by the PPs during the validation process, they have no right to file complaints on – or claim recourse due to – negative SD effects of CDM activities, except in the case of CCS projects.

To address this, some propose the introduction of procedures or a mechanism to consider appeals (e.g. Filzmoser, Voigt, Trunk, Olsen, Jegede, 2015; Schade & Obergassel, 2014; Arens et al., 2015, p. 16) that could also be located under the UNFCCC (CIEL & CARE International, 2015, p. 10); the introduction of best practice guidance for national effective grievance mechanisms and communication channels between institutions involved in a specific CDM project (Carbon Market Watch, 2015, p. 4); and, linked to this, the introduction of reporting and transparency requirements for national-level grievance processes (Carbon Marktet Watch, 2015, p. 4). Some stakeholders propose to develop a work programme to establish an independent accountability mechanism for the CDM (e.g. Knox, 2015).

5. Lack of economic value for sustainable development benefits

The CDM has been criticised for not sufficiently generating and promoting sustainable development benefits (e.g Olsen, 2007; Paulsson, 2009; Torvanger et al., 2013, p. 473; Olsen et al., 2015, p. 7). Many analysts have explained this non-performance with a failure of public regulations and/or the missing economic value for sustainable development benefits (see Torvanger et al., 2013, p. 477 for a list of references).

They therefore propose to integrate the generation of sustainable development benefits into carbon finance mechanisms and therewith incentivise global and national as well as public and private governance approaches that promote the alignment of mitigation and sustainable development. CDM analysts have proposed three principle options to enhance the generation of co-benefits.

First, suspend or discount the issuance of CERs or deregister the project in case of negative impacts or non-compliance of a CDM activity with global or national sustainable development requirements (compare Spalding-Fecher et al., 2012, p. 10; Knox, 2015; Alexeew et al., 2010; Carbon Market

Watch, 2015, p. 4). Compliance could be verified through DNAs based on national criteria and procedures (Spalding-Fecher et al., 2012, p. 10).

Second, alternatively to public regulation, the generation of sustainable development benefits could be incentivised by giving it a price or grade (Torvanger et al., 2013; Olsen et al., 2015; The Gold Standard 2014, quoted in Arens et al., 2015, p. 15). SD benefits could be certified and sold on the carbon market or linked to a price premium. So far, certification of SD benefits have only been implemented in voluntary carbon markets such as under The Gold Standard.

Proposals linked to the certification of SD effects include the introduction of a global common definition of sustainable development, a standard for the certification of SD co-benefits[25] (also under the UNFCCC), the development of a global standard for approving quantification methods of SD co-benefits and/or the transformation of a modified SD tool into a template for certification. SD benefits could be validated and verified by international or national actors such as DOEs (see e.g. Arens et al., 2015, p. 16; Torvanger et al., 2013, p. 477; Olsen et al., 2015, p. 15). Demand for SD-certified CERs could be ensured by introducing a binding purchasing quota for these CERs of, for example, 50 per cent (Torvanger et al., 2013, p. 481).

Third, offering enhanced capacity-building to project developers and stakeholders at the national level could increase performance on the generation of sustainable development co-benefits (Spalding-Fecher et al., 2012, p. 10; Torvanger et al., 2013, pp. 478-479).

6. Weak national governance of SD impacts

As host countries are mainly responsible for governing sustainable development impacts under current CDM regulations, critiques on the question as to whether the CDM has delivered on sustainable development are implicitly also linked to an appraisal of national CDM governance and implementation practice. Case studies have found that "national policy and institutional frameworks for DNAs matter greatly for their capacity to steer the CDMs' contribution to national development goals" (Olsen et al., 2015, p. 13). Furthermore, perspectives on how the CDM should function and

25 For example, the "Global Carbon Development Benefits Standard" by Norwegian project developer in cooperation with the DOE DNV-GL.

what national-level priorities it should support differ widely (Olsen et al., 2015, p. 13; Spalding-Fecher et al., 2012, p. 5).

Critiques on national-level governance have been voiced in relation to various aspects, including weak abilities or willingness to set national standards and steer the CDM towards high benefits for sustainable development; lack of transparency; consistency in assessments across CDM activities; possibilities to access information; monitoring and verification of effects; or human rights infringements (e.g. Olsen et al., 2015, p. 21; Schade & Obergassel, 2014; on national-level barriers see also Torvanger et al., 2013, p. 476).

Proposals to address weak national governance arrangements or implementation practices comprise the above-listed proposals on strengthening or introducing global rules and/or introducing stricter rules at the global level for the design of national-level governance. In addition, it has been proposed to provide capacity-building at the national level, in particular for DNAs and/or to change the role of DNAs (and other national actors) in the respective governance approaches (see e.g. Spalding-Fecher et al., 2012, pp. 10 and 34-35; Olsen et al., 2015, p. 14; UNFCCC, 2014b).

Box 1: CDM effects on sustainable development and governance approaches – summary of main results

1. Our analysis shows that existing studies on the positive and negative effects of CDM activities do not give a clear answer on the extent to which the three dimensions of sustainable development overlap or generate trade-offs. The findings indicate that both are possible.
2. We have limited empirical knowledge about past effects of CDM activities on sustainable development: There are two main reasons:
   a) Our analysis indicates that the applied methods and data of past studies have most likely influenced the assessment of the CDM's SD effects. Many, if not most, CDM studies that conclude that the CDM overall has had a positive impact on sustainable development are based on PDDs as a main source of information. However, the CDM regulations do not require an independent verification of claims on SD effect in PDD documents, even though these can differ substantially from actual effects.
   b) In particular the social and geographical effects of CDM activities at the subnational level have not been systematically assessed so far. The examples in Section 4 indicate that the costs and benefits of CDM activities are often unevenly distributed among actors, and that some CDM activities have even been detrimental to some.

Box 1 (cont.): CDM effects on sustainable development and governance approaches – summary of main results

3. There can also be negative effects through renewable energy and forestry activities. The promotion of renewable energies and forestry projects belongs to the five priority investment areas of the GCF, where they are seen as entry points for investment that can have impact in multiple results areas with few or no trade-offs.
4. The analysis of the positive and negative effects of CDM activities supports the assumption that effects of mitigation investments can affect adaptive capacities of people and ecosystems. Some CDM activities had a negative impact on the adaptive capacities of households. They restricted access to land, involved resettlement without adequate compensations and provided a meagre incomes. Examples of positive impacts enhancing the adaptive capacities of households are increased land tenure security, access to agricultural extension services and reduced erosion.
5. In the CDM literature, criticisms and proposals on how to improve CDM governance outweigh positive views on CDM governance (see Section 5.3). Criticism centred on insufficient reporting, monitoring and verification of SD effects; insufficient safeguards against negative effects; limited possibilities and roles for stakeholders to comment on and assess SD effects; the lack of appeals and redress mechanisms and legal protection; the lack of economic value for sustainable development benefits; and challenges related to the weak national governance of SD effects.
6. The analysis of existing research on CDM governance furthermore indicates that there are only a few scientific studies about national-level governance approaches to the CDM and the extent to which these national approaches integrate mitigation and sustainable development.

5.2 REDD+

5.2.1 Institutional status, objectives, general scope of regulation

The governance of REDD+ differs from the CDM and the GCF. REDD+ governance under the UNFCCC consists of a number of COP decisions (e.g. decisions 2/CP.13, 1/CP.16, 9-15/CP.19, 16-18/CP.21) and with the Warsaw Framework for REDD+ foremost provides a political framework in support of objectives under the climate regime. The UNFCCC has not established specific global implementation structures or institutions such as an executive board or committee for supporting and monitoring the implementation of

REDD+ (UNFCCC, s.a.). The Warsaw Framework shall guide national implementation or bi-/multilateral initiatives and builds the main reference framework for forest-related financing of the GCF but also of other potential results-based and market-based approaches under the UNFCCC.

At COP 16 in Cancún, Parties to the UNFCCC agreed on guidance criteria and safeguards that Parties should consider when implementing REDD+ activities. The different guidance criteria make explicit reference to the objective of the Convention, sustainable development, environmental integrity and adaptation needs. The safeguards for REDD+ (also called Cancún Safeguards[26]) refer to "transparent and effective national forest governance structures, taking into account national legislation and sovereignty […]". Moreover, the safeguards refer to the adoption of the United Nations Declaration on the Rights of Indigenous Peoples and "that any REDD+ actions are consistent with conservation of natural forests […]". Moreover, Parties that implement REDD+ activities are requested to provide information on how the safeguards are addressed and respected (UNFCCC, 2010a).

The Warsaw Framework consists of seven COP decisions, including on national and subnational forest reference levels for monitoring and verification, and on criteria for allocating results-based payments (RBPs) (UNFCCC, 2013b). The Warsaw Framework furthermore builds on decision 1/CP. 16 and on the Cancún Safeguards. Decision 9/CP.19 strengthens the status of the Cancún Safeguards by adding that

> developing parties seeking to obtain and receive results-based payments in accordance with decision 2/CP.17, paragraph 64, should provide the most recent summary of information on how all of the safeguards referred to in decision 1/CP.16, appendix I, paragraph 2, have been addressed and respected before they can receive results-based payments; […].

26 Complete list of safeguards referred to in decision 1/CP 16, appendix I, paragraph 2: a) Actions should "complement or are consistent with the objectives of national forest programmes and relevant international conventions and agreements"; b) actions should be "transparent and effective national forest governance structures, taking into account national legislation and sovereignty […]", c) actions should "respect for the knowledge and rights of indigenous peoples and members of local communities […]" and "notes the adoption of the United Nations Declaration on the Rights of Indigenous Peoples"; d) "the full and effective participation of relevant stakeholders, in particular indigenous peoples and local communities […]"; and e) "that actions are consistent with conservation of natural forests and biological diversity […]".

The Paris Agreement (Article 5) encourages Parties to implement the previous agreements on REDD+ and does not provide additional guidance. The main goal of REDD+ activities under the climate regime is to reduce emissions from deforestation and forest degradation and to sequester additional greenhouse gases by enhancing forest carbon stocks. Since COP 16, Parties to the UNFCCC have stated that REDD+ policies also have to be consistent with national sustainable development goals and adaptation needs of the respective host countries, and that implementation takes place in the context of sustainable development (UNFCCC, 2010a). Decision 2/CP.17, for instance, recognises that REDD+ policies "can promote" poverty alleviation, biodiversity conservation, ecosystem resilience and the linkages between adaptation and mitigation (UNFCCC, 2011b). Decision 18/CP.21 explicitly mentions the importance of incentivising non-carbon benefits that can contribute to adaptation (UNFCCC, 2015d). Article 5 of the Paris Agreement again reaffirms "the importance of incentivizing, as appropriate, non-carbon benefits" associated with the policy approaches on REDD+.

The policy goals are also reflected in the results-based finance scheme of the Warsaw Mechanism. This foresees payments for verified results that are defined as mitigation outcomes in the form of GHG emission reductions and/or enhancements in forest cover and carbon stocks (sinks) measured and verified against a benchmark (forest reference emission level, FREL / forest reference level, FRL) expressed in tons of carbon dioxide. In addition, results-based finance may include incentives that lead to such verified results. These can be intermediate, predefined and measurable milestones or outputs, such as policy performance and results from the implementation of national policies, strategies or actions plans (GCF/B.14/03, paragraphs 8 and 9). These policy approaches can – and ideally should – include the generation of co-benefits. How, and to what extent, the milestones and outputs of policy performance and the generation of co-benefits will have to be verified is not clear yet.

So far, Parties have not reached consensus on possible means of finance or on the transfer of mitigation outcomes of REDD+ activities under the climate regime beyond the GCF. So far, Parties have agreed that the GCF should take a key role in financing REDD+ activities and that finance could come from market and non-market sources and could be results-based. Other possible bilateral and multilateral funding entities have not been specified. At least four different funding options have been considered in the Warsaw Framework and debates beyond the UNFCCC: REDD+

as an offsetting instrument within global and/or regional carbon markets; REDD+ financed through RBPs without the transfer of mitigation outcomes (non-offsetting approach); or through RBPs with the transfer of mitigation outcomes (offsetting approach); or through common non-results-based aid (Hein, Meijer, & Rodríguez de Francisco, 2015).

Whereas the REDD+ framework under the climate regime shall also guide national implementation, the slow progress of REDD+ negotiations caused by their contested nature (e.g. disagreement on how to finance REDD+ and on aspects that affect national sovereignty) contributed to a highly fragmented REDD+ governance (Zelli et al., 2014, p. 18). Today, REDD+ is governed by a number of different institutions, with only one of them being the UNFCCC. REDD+ projects and programmes that are running across the globe are financed through multilateral (e.g. Forest Carbon Partnership Facility, FCPF) and bilateral public donors, host country governments and by transnational non-state actors. These actors have formulated and implemented funding structures and regulatory frameworks that go beyond the "Warsaw Framework on REDD+". The different REDD+ initiatives outside the UNFCCC have established their own regulations and safeguards. Prominent standards such as the CCBS and Plan Vivo have been developed by transnational non-state actors. Some of these standards include additional provisions on sustainable development benefits of REDD+ activities and will therefore be highlighted in the following section in comparison to the UNFCCC approach, if applicable.

5.2.2 REDD+ governance approaches

Host country approval

UNFCCC decisions on REDD+ do not explicitly mention that decisions and programmes have to be approved by host countries. However, according to decision 1/CP.16, REDD+ activities should be country-driven, indicating that host governments should have a decisive role. For implementing activities, the UNFCCC invites host countries eligible to receive RBPs for reduced deforestation rates and emission reductions to establish national entities that coordinate with the UNFCCC Secretariat, other relevant bodies of the UNFCCC or bi- and multilateral donors (decisions 9, 10/CP.19). The respective UNFCCC decisions only explicitly mention the GCF as a funding source and remain unspecific when it comes to other sources.

Private small-scale REDD+ project activities funded through voluntary carbon markets are in most cases certified by private and voluntary carbon standards such as the CCBS, Plan Vivo and the Verified Carbon Standard. These standards stipulate that REDD+ projects have to comply with laws and regulations of the host country (CCBA [Climate, Community and Biodiversity Alliance], 2013, pp. 24-26; Kollmuss, Zink, & Polycarp, 2008, p. 60). Whether REDD+ projects and the transfer of voluntary carbon credits have to be approved by the host country or not depends on national regulations.

Stakeholder participation

As mentioned above, the Cancún Safeguards of the UNFCCC (decision 1/CP.16) refer to the UN Declaration on the Rights of Indigenous Peoples. The decision adopting the safeguards therewith goes beyond earlier UNFCCC decisions. However, its legal status as such is contested, since the decision does not stipulate that REDD+ activities have to follow the safeguards (Spiller & Fuhr, 2010; Lang, 2010; Hein, 2016). Also, later decisions formulate stakeholder participation as a "may" rather than a "must". Decision 10/CP 19, for example, states that "participants may seek input from relevant bodies established under the Convention, international and regional organizations, the private sector, indigenous peoples and civil society […]".

In contrast, the private and voluntary carbon standards CCBS and Plan Vivo are more demanding and stipulate free, prior and informed consent (CCBA 2013, p. 19; Plan Vivo, 2013, pp. 5, 22).

Reporting requirements on sustainable development

Parties have agreed that developing-country Parties are requested to develop a safeguard information system that includes reporting on how the Cancún Safeguards are addressed. This includes reporting on stakeholder participation, sustainable forest management, and the conservation of natural forest, biodiversity and adaptation needs (decision 1/CP 16). Reporting should be made "periodically and be included in national communications, or communication channels agreed by the Conference of the Parties […]" (decision 12/CP 19). In addition, Parties are encouraged to publish these reports on the UNFCCC REDD+ web platform. However, at the time of

writing, only Brazil and the Democratic Republic of Congo had uploaded safeguard-related information (UNFCCC, 2016a).

Parties have also agreed on the importance of non-carbon benefits and their potential contribution to adaptation (decision 18/CP.21). Decision 18/CP.21 encourages Parties to report on the integration of non-carbon benefits into REDD+ activities. The reporting on non-carbon benefits is voluntary.

In addition, under the Warsaw Framework on REDD+, developing-country Parties aiming to access RBPs, among other requirements, have to report on the proposed national or subnational FREL and/or FRL and the measured results of the REDD+ actions as part of their biennial update reports.[27]

CCBS and Plan Vivo stipulate that REDD+ project developers document sustainable development impacts in the project design documents, and that auditors verify the provision of benefits for sustainable development. In the case of the CCBS, only projects that provide "net positive community impacts" can receive certification (CCBA, 2013, p. 35). Third-party auditors accredited by the Climate, Community and Biodiversity Alliance (CCBA) and Plan Vivo review to what extent the project developers meet these criteria.

Monitoring and evaluation

Monitoring and evaluation under the Warsaw Framework on REDD+ is so far limited to aspects of environmental sustainability. Here, two indicators need to be addressed: forest coverage (FRL) and national or subnational FREL. In addition to emission reductions, CCBS requires the evaluation of the impacts of REDD+ activities on biodiversity and communities at least every five years (CCBA, 2013, p. 11).

Social and environmental safeguards

Overall, REDD+ activities under the UNFCCC shall be consistent with the general objectives of the Convention, including with environmental integrity, sustainable development and adaptation needs, and they should also promote sustainable forest management. Moreover, REDD+ activities should not lead to the conversion of natural forests (decision 1/CP.16). If countries wish to receive RBPs (e.g. from the GCF), they have to report on

27 See decision 14/CP.19 on modalities for measuring, reporting and verifying the assessment of REDD+ actions and results.

how they address the Cancún Safeguards. Moreover, the COP requested that the GCF consider all REDD+ related COP decisions when providing results-based finance (decision 9/CP.19). However, the application of the Cancún Safeguards is not legally binding and will strongly depend on requirements of funding entities, such as the GCF, and other multilateral and bilateral entities, as well as on domestic policies of the Parties implementing REDD+ activities.

REDD+ projects and programmes outside the UNFCCC follow their own safeguards. For REDD+ activities funded by the FCPF, the "common approach to environmental and social safeguards (ESS) for multiple delivery partners" of the World Bank apply. The application of the safeguards is based on the use of the strategic environmental and social assessment (SESA) and the environmental and social management frameworks (ESMFs) (FCPF [Forest Carbon Partnership Facility], 2012). Operational policy 4.10 (OP4.10) of the World Bank stipulates free, prior and informed consent of indigenous communities potentially affected by REDD+ activities (FCPF & UNREDD, 2012). Involuntary relocation should be avoided and, if necessary, communities have to be supported "in improving or at least restoring their livelihoods and standards of living in real terms relative to pre-displacement levels [….]" (FCPF, 2012, p. 5). CCBS-certified projects as well have to compensate for "parties whose lands have been or will be affected by the project" (CCBA, 2013, p. 25).

REDD+ projects that have been certified according to CCBS and Plan Vivo standards have to comply with a detailed list of social and ecological safeguards. They should ensure community participation and the right to free, prior and informed consent. Furthermore, implementing agencies have to respect customary land tenure. For reforestation projects, Plan Vivo permits only naturalised and native tree species. Plan Vivo-certified projects should not have negative effects on water quality and biodiversity. In the case of CCBS-certified projects, the use of non-native species is permitted under specific circumstances, and implementing agencies have to prove that the project activities do not create negative effects on high conservation values.

Complaints mechanisms and legal protection

The REDD+ framework under the UNFCCC does not include a complaints mechanism, nor a specific decision on legal protection. Yet, decisions

1/CP.16 and 17/CP.21 note that international obligations and agreements related to the Cancún Safeguards should be taken into account when host countries implement REDD+ activities.

In contrast, the FCPF and the SESA and ESMFs approach of the World Bank include grievance mechanisms (FCPF, 2012).

5.2.2.1 Other governance approaches

REDD+ under the UNFCCC also aims to address the drivers of deforestation and forest degradation. Decision 15/CP.19 of the Warsaw Framework on REDD+ "encourages" host countries but also the private sector to develop national strategies and mechanisms that tackle the causes of deforestation. The decision also notes that reducing drivers of deforestation might have economic costs.

For the implementation of REDD+ activities, Parties explicitly highlighted the option of RBPs and encouraged the GCF to apply this concept in financing forest-related activities. In particular, decisions under the Warsaw Framework for REDD+ formulate guidance, modalities and requirements for developing-country Parties that wish to access finance for results-based actions.[28]

Accordingly, developing-country Parties need:

1. a national strategy or action plan;
2. a national or subnational FREL and/or FRL;
3. a robust and transparent national forest monitoring system;
4. a safeguard information system, including a summary of the most recent information on how the safeguards were addressed and respected; and

28 See GCF/B.14/03 footnote 2: "Decision 1/CP.16 set the activities, REDD+ phase approach, elements to be in place and the list of safeguards, while the operational decisions on the elements of that decision include UNFCCC decisions 11/CP.19 (on the national forest monitoring system), 12/CP.19 (on the timing and frequency of presentations of the summary of safeguards), 13/CP.19 (on modalities of the technical assessment of FRELs and/or FRLs), 14/CP.19 (on modalities for measuring, reporting and verifying the assessment of REDD+ actions results), and 15/CP.19 (on addressing the drivers of deforestation and forest degradation). In addition, guidance on safeguard systems and modalities/guidance on the development of FRELs and/or FRLs is provided in UNFCCC decision 12/CP.17."

5. the proposed FRELs and/or FRLs and the measured results of the REDD+ results-based actions need to be communicated or submitted to the UNFCCC Secretariat in a technical annex to the Party's biennial update report (compare GCF/B.14/03, paragraph 6).

5.2.3 Conclusions: aligning climate mitigation and sustainable development under REDD+

As mentioned above, REDD+ is not an operational climate finance instrument yet. It remains open who will finance REDD+ and how – and to what extent – emission reductions generated through REDD+ can be tradable and/or will count against national reduction targets. In particular, the issue of how to account for mitigation outcomes of REDD+ activities jointly achieved by host countries and donor countries remains unsolved. A number of Parties, including Benin, Angola, Ghana, Haiti and Vietnam, mention in their INDCs that they intend to participate in a future REDD+ market mechanism. Other countries, such as Brazil, Costa Rica, Guyana and Cambodia, refer to results-based approaches but do not mention transfers of mitigation outcomes to donor countries. Benin, for instance, clearly states in its INDC that it does not intend to transfer mitigation outcomes. The question on whether mitigation outcomes of REDD+ activities will be transferable – and thereby usable for offsetting the emissions of industrialised countries – will have a strong influence on the funding available for forest conservation. Making REDD+ eligible for offsetting will create incentives for industrialised countries to invest in forest conservation. However, if many industrialised countries intend to use REDD+ for offsetting national emissions, this might lead to reduced forestry-related GHG emissions but will not create any net emission reductions (Hein et al., 2015).

Overall, the COP has only introduced weak global governance approaches that either incentivise the generation of positive effects or aim at preventing negative effects on sustainable development. The generation of positive effects or non-carbon benefits is mainly limited to the formulation of political goals and references to national sustainable development policies. The GCF, in turn, incentivises the generation of non-carbon benefits at the national level through its results-based financing scheme.

The Warsaw Framework goes beyond previous frameworks, as Parties have agreed on safeguards at the international level that refer to the rights of local and indigenous communities, the conservation of natural forests and

biological diversity, and explicitly note the adoption of the UN Declaration on the Rights of Indigenous Peoples and other relevant international agreements and conventions. Nevertheless, the prevention of negative effects has been largely voluntary, so far. The main legal framework intended to prevent harm – the Cancún Safeguards – only encourages but does not require the application of the Cancún Safeguards by national governments. The language of the relevant decisions of the UNFCCC, for example 1/CP.16 and 9/CP.19, is – like the UN Declaration on the Rights of Indigenous Peoples – not binding. The application of the safeguards will mainly depend on the requirements of entities funding REDD+ activities and, as in the case of the CDM, on the political will and capabilities of host governments. Towards this respect, the Forest Carbon Partnership Facility of the World Bank and voluntary market standards (e.g. Plan Vivo, CCBS have developed stricter safeguards. However, experiences with CCBS-certified REDD+ projects (Hein & Garrelts, 2014), donor-financed forest conservation and climate protection projects in Indonesia (Hein et al., 2016), and with a number of previous World Bank financed conservation and development projects (e.g. Colchester, Anderson, Firdaus, Hasibuan, & Chao, 2011) indicate that even the existence of binding safeguards is not a guarantee for their implementation. In addition, experiences from REDD+ demonstration activities, CDM A/R and conservation initiatives indicate that aligning mitigation and (sustainable) development objectives involve trade-offs (Phelps, Friess, & Webb, 2012; Gupta, 2012; Muradian et al., 2013; Pokorny, Johnson, Medina, & Hoch, 2012; Zelli et al., 2014). Trade-offs have occurred between different ecosystem services (e.g. biodiversity-related services vs. carbon storage capacity) but also between ecosystem services and human wellbeing (Aggarwal, 2014; Hein & Faust, 2014). In this regard, the Warsaw Framework explicitly states that reducing deforestation might have economic costs.

Therefore, and given the weak legal status of the Cancún Safeguards and its enforcement, there is the risk that the REDD+ framework transfers part of the responsibility to reduce GHG emissions to rural areas of the global South. This might limit the development opportunities of the very actors that have emitted very little fossil fuel-based GHG emissions (Hein, 2016).

5.3 Green Climate Fund

5.3.1 Institutional status, objectives, general scope of regulation

Parties to the COP established the GCF in 2010 as a new global financing institution to explicitly support the goals of the Convention and keep global warming to well below 2°C and accordingly "pursue efforts to limit the [global] temperature increase to 1.5°C above pre-industrial levels" (Initial Strategic Plan for the GCF in GCF/B.12/33, p. 68; see also decision 3/CP.17; Cheikhrouhou, 2015, p. 2). The Fund serves as an operating entity of the financial mechanism of the Convention and is accountable to – and functions under – the guidance of the COP (Cancún Agreements, paragraph 102). It shall channel significant parts of the USD 100 billion that industrialised countries intend to provide annually to developing countries, and shall help mobilise finance towards this goal. After its initial capitalisation, "the GCF is the largest dedicated multilateral climate fund with pledges amounting to USD 10.3 billion for the 2015-2018 programming period" (GCF/B.12/33, p. 69).

The goal to keep warming to well below 2°C was explicitly put in the context of sustainable development. It shall be pursued by promoting a paradigm shift towards low-emission and climate-resilient development pathways by providing support to developing countries to limit or reduce their GHG emissions and to adapt to the impacts of climate change.[29] Furthermore, the Fund aims to seek a balance between mitigation and adaptation, not only with respect to the allocation of funds (decision 1/CP.16, annex III, paragraph 1(c); decision 3/CP.17, paragraph 8; GCF/B07/06), but also with respect to the impacts of its funding decisions for adaptation and mitigation. At the same time, the GCF aims to promote environmental, social, economic

29 Paragraph 2 of the Governing Instrument for the GCF stipulates: "In the context of sustainable development, the Fund will promote the paradigm shift towards low-emission and climate-resilient development pathways by providing support to developing countries to limit or reduce their greenhouse gas emissions and to adapt to the impacts of climate change, taking into account the needs of those developing countries particularly vulnerable to the adverse effects of climate change." Paradigm shift potential is defined as "[d]egree to which the proposed activity can catalyse impact beyond a one-off project or programme investment"; see B.09/23 annex III for the related definitions of coverage areas, activity-specific sub-criteria and indicative assessment factors of project proposals.

and development co-benefits, and to take a gender-sensitive approach.[30] At its 15th meeting in 2016, the Board in addition decided to develop a Fund-wide indigenous peoples' policy (decision B.15/01).

Whereas the COP decisions and the Governing Instrument do not define "sustainable development" or the meaning of "environmental, social, economic and development co-benefits" respectively, the Board has started to do so as part of its governance approaches and related definitions, criteria and indicators. It will develop these further in the future, based on the understanding that the GCF is a "learning institution".[31] The definitions, criteria and indicators – many related methodologies have yet to be developed[32] – that define or explain environmental, social and economic co-benefits have, in particular, been developed as part of the Initial Investment Framework (see below), the Results Measurement Framework (including PMF, see below), and the environmental and social management system (ESMS, see below). Some criteria and indicators need to be further defined by the Accredited Entities when applying for GCF funding. The term "development co-benefits" has so far not been further defined by the GCF Board.[33]

The respective approaches (including definitions, indicators, etc.) to the alignment of climate protection financing and sustainable development will be explained below, along with the governance arrangements. Overall, the GCF Board claimed that it aligned its targets with the general targets set by SDG 13 on climate action (see Table 5).

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30 "The Fund will strive to maximize the impact of its funding for adaptation and mitigation, and seek a balance between the two, while promoting environmental, social, economic and development co-benefits and taking a gender-sensitive approach" (Governing Instrument for the Green Climate Fund, paragraph 3).

31 The Board regards many of their policies as "initial" in the understanding that the GCF is a "continuously learning institution", where operational modalities can be further developed on the basis of learning and experience (compare GCF Strategy, GCF/B.12/06, paragraph 1).

32 For example, those for the indicators of the results measurement framework, see GCF/B.08/07; or the operationalisation of the risk dashboard, see GCF/B.10/07.

33 NGOs that observe the GCF criticise the term "co-benefits" for introducing a prioritisation between climate and development-related goals. Instead they propose the term "multiple benefits" (Interview Schalatek, 10 August 2016).

Table 5: Sustainable Development Goals, Target 13 on climate action
• Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries
• Integrate climate change measures into national policies, strategies and planning
• Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning
• Implement the commitment undertaken by developed-country parties to the United Nations Framework Convention on Climate Change to a goal of mobilizing jointly $100 billion annually by 2020 from all sources to address the needs of developing countries in the context of meaningful mitigation actions and transparency on implementation and fully operationalize the Green Climate Fund through its capitalization as soon as possible
• Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, youth and local and marginalized communities.
Source: UN (s.a.)

In general, the approaches to the alignment of climate protection financing and sustainable development of the GCF that will be analysed below apply GCF-wide to all funding proposals and transactions, including actors, financial instruments and activities. In particular, mitigation and adaptation activities shall be funded through an integrated approach to allow for cross-cutting projects and programmes (Governing Instrument, paragraph 37).[34]

The GCF can channel its resources through international, regional or national entities that are accredited and meet the standards of the GCF (Governing Instrument, paragraph 45).[35] Finance can currently be provided in the form of grants and concessional lending and the use of equity instruments and guarantees (Governing Instrument, paragraph 54; decision B.08/12). Activities that can be financed include the support of mitigation (e.g. as part of low-emission development strategies or Nationally Appropriate Mitigation Actions), adaptation (e.g. as part of National Adaptation Plans),

34 For the complete Governing Instrument of the GCF, see Annex to decision 3/CP.17 or GCF (s.a.).

35 Governing Instrument refers to "Governing Instrument for the Green Climate Fund" and will be used as an abbreviation in the following text.

technology development and transfer (including CCS), capacity-building or the preparation of national reports. The support of mitigation activities can include REDD+[36] (Governing Instrument, paragraphs 35-36; decision B.14/03) as well as fossil fuel-related activities, of which (the latter) civil society organisation (CSO) observers demand that they be excluded from the portfolio (e.g. GCF/B.12/33, paragraph 109). Mitigation and adaptation activities can also be financed through the direct and indirect support of private-sector activities through the private-sector facility (Governing Instrument, paragraph 41).

Even though the Fund aims at streamlined funding processes, the GCF Board can introduce differing funding modalities and approaches for certain funding windows and activities (e.g. REDD+ RBPs),[37] actors (e.g. Private Sector Facility)[38] or the size of funding proposals (e.g. small-scale). There can also be changes over time (see GCF as a "learning institution" above), as, for example, the proposed changes under the further development of the PMF (see GCF/B.13/26 and GCF section *monitoring and evaluation*). Funding modalities that do not fall under the GCF-wide approaches and which affect the governance of trade-offs between climate protection and sustainable development will be mentioned directly, along with the description of governance approaches in the respective sections below.

With respect to small-scale activities, the Governing Instrument of the GCF (paragraph 53) foresees that the "Board will develop simplified processes for the approval of proposals for certain activities, in particular small-scale activities". The rationale behind this is "to ensure that developing countries where certain historical data and/or records do not exist, including small island developing States, the least developed countries and African States, are not excluded from accessing GCF resources" (GCF/B.13/13, paragraph 5(c)).

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36 This refers to emission-reduction activities from deforestation and forest degradation in developing countries; conservation, sustainable management of forests; and enhancement of forest carbon stocks in developing countries (Governing Instrument, paragraph 35).

37 The Fund uses the term "window" to refer to differing topical objectives of the Fund, e.g. mitigation, adaptation or REDD+ (see e.g. GCF/B.07/12, paragraph 2012).

38 While the PMF is seen as an "integral component" of the GCF, the risk management framework, results areas and performance indicators, for example, can differ (decision 04/08); see also GCF/B.13/32/Rev.01 for the interim risk and investment guidelines for the public and private sectors.

The simplified approval process can only be used for micro- (up to and including USD 10 million) and small-scale proposals (USD 10-50 million) with activities that predominantly have minimal or negligible adverse environmental and/or social impacts (Category C/Intermediation 3, see Table 7; decision B.13/20 (b)). The simplified approval process shall apply to all AEs and shall simplify "the level of detail required in terms of feasibility studies and other supporting documentation for these proposals" (decision B.13/20 (d)).[39] To what extent the approval process will be simplified – including the required documents and information that the feasibility studies need to cover and the project risks to be addressed in a full proposal – will be considered further (decision B.13/20 (h); GCF/B.13/13/Rev.1; decision B.14/17).[40] The Board has so far not approved operational guidelines for a simplified approval process for micro- and small-scale projects/programmes (GCF/B.15/24, paragraph 25; decision B.14/07; decision B.13/20; GCF/B.13/13/Rev.1, footnotes 1 and 2).

5.3.2 GCF governance approaches

Host country approval

Overall, financing under the GCF needs to be consistent with developing countries' national climate strategies and plans and ensure country-driven approaches (e.g. GCF/B.15/06). Towards that respect, the Board will only consider funding proposals that have been approved by a national designated authority (NDA) or focal point through the no-objection procedure, which is a formal letter that is submitted together with the funding proposal (GCF/B.08/45, annex VII).[41] By communicating no objection, the NDA or focal point states that the government has no objection to the proposed projects and programmes; that these are in conformity with a country's national priorities, strategies and plans; and that these are in conformity

39 See also inputs from Board members regarding their views on document GCF B.11/17, titled: "Simplified processes for approval of proposals for certain activities, in particular small-scale activities."

40 So far, there are no guidelines on content requirements for any feasibility studies of project proposals.

41 See also GCF/B.06/07 on country ownership and GCF/B.06/19 (agenda item 14) on diverging views by Board members on how best to implement this, including no-objection procedure, best practices for the establishment and composition of NDAs and focal points; and best-practice options for country coordination and multi-stakeholder engagement.

with relevant national laws and regulations, in accordance with the Fund's environmental and social safeguards (GCF no-objection letter template).[42]

The no-objection procedure also applies to direct and indirect private-sector financing through the Private Sector Facility, which, in line with the no-objection procedure, will commence its operations through accredited Implementing Entities and intermediaries (decision B.04/08 (l)). As the Facility, over time, may directly work with private-sector actors, the Board might develop differing no-objection procedures for public-sector and private-sector financing proposals as, for example, under the Climate Investment Funds. The Private Sector Advisory Group had "urged the Board to not force a country to use an explicit no objection procedure, but rather to be given a choice if they wished to use explicit or tacit no objection procedure[s]" (GCF/B.07/10, annex 1, paragraph 9). Currently, the process for ascertaining no objection is to be decided by each country and needs to be described in the funding proposal.

Stakeholder participation

Related to the no-objection procedure and to support country ownership and consultations, the Board endorsed initial best practice options for country coordination and multi-stakeholder engagement (decision B.08/10, annex XIV). In these best practice options, the Board encourages countries to design consultative processes through which national climate change priorities and strategies can be defined or funding proposals be developed (decision B.08/10, annex XIV, paragraphs 2 and 4). Which actors to involve is not specified.

The preparation of funding proposals, as well as the monitoring and evaluation of activities, should be aligned with the Fund's ESS (see below). These, among other things, foresee the "[e]ngagement with affected communities or other stakeholders throughout funding proposal cycle" and require that all funding proposals for projects/programmes have an ESMS that establishes a process of stakeholder engagement and disclosure (decision B.08/10, annex XIV, paragraph 9; compare decision B.08/10(d); see GCF/B.07/11, annex III, paragraph Performance Standard 1.1 (c) and

42 The no-objection procedure had also been debated by CSOs; see e.g. Orenstein, Redman and Tangri (s.a.) or Friends of the Earth (2013).

(d)).[43] The "organizational commitment, capacity and competencies" of entities to properly implement this Performance Standard needs to be proven upon the accreditation of the entity to the Fund (see GCF/B.08/45, annex VII, table 3). The entity applying for accreditation also needs to be able to evaluate the executing entities' capacity and commitment to implement the Fund's ESS (see GCF/B.07/11, annex 1 for details).

The Board suggests that a countries' consultative processes should be ongoing and "inclusive and seek to engage all relevant actors within the government, the private sector, academia, civil society and other relevant stakeholder groups or sectors" (decision B.08/10, annex XIV, paragraph 6). In some decisions, the Board specifies the actors to be involved such as in the monitoring and accountability framework, which, for example, explicitly includes affected people and communities.[44] These specifications remain suggestions, however, as the decisions on which groups or actors to be involved are not prescriptive and remain the decision of countries, "consistent with any national regulations and processes for such engagement" (Accreditation Master Agreements, clause 4.06). At this point, the Accreditation Master Agreements (AMAs) encourage AEs to consider the best practice options during proposal development, and highlights host country authorities, in particular the NDA or focal point.[45]

Beyond the described criteria of "ongoing involvement", "inclusiveness of stakeholders" and an alignment of the consultation processes with those under an ESMS, the Board in its monitoring and accountability framework furthermore specifies that AEs should allow for participatory monitoring.

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43 See Performance Standard 1: "An effective Environmental and Social Management System (ESMS) is a dynamic and continuous process initiated and supported by management, and involves engagement between the client, its workers, local communities directly affected by the project (the Affected Communities) and, where appropriate, other stakeholders" (IFC [International Finance Corporation], 2012, p. 1).

44 The monitoring and accountability framework for accredited entities of the GCF states: "Monitoring and accountability involve a series of actors with specific roles and responsibilities. These include AEs; the Secretariat and the GCF accountability units; national designated authorities (NDAs) or focal points; the direct beneficiaries of the projects and programmes; project-affected people and communities; and other local actors such as local governments, civil society organizations, non-governmental organizations and the private sector" (decision B.11/10, annex I, paragraph 2(e)).

45 See clause 4.08: "The Accredited Entity will consider the Stakeholder Engagement Best Practices as part of its preparation of any Funding Proposal, particularly the role of the NDA or, if applicable, the Focal Point."

This refers to projects and programmes throughout the project cycle as well as to the overall country portfolio of GCF-funded activities.[46] With respect to the latter, the Board "encourages" (decision B.11/10, annex I, paragraph 15) NDAs or focal points "to organize an annual participatory review for local stakeholders, notably project-affected people and communities, including women and civil society organizations" (decision B.11/10, annex I, paragraph 15). For the participatory monitoring of the country portfolio, AEs shall provide respective materials in local languages in advance of the participatory review (decision B.11/10, annex I, paragraph 15(e)).

Some stakeholder consultation processes – the multi-stakeholder engagement plan, and development of funding proposal – need to be described in the funding proposal template.[47] To what extent it is obligatory to disclose stakeholder consultations under the participatory monitoring process, as prescribed by the monitoring and accountability framework, is not clear. At this point, the applicants shall indicate how the interim/mid-term and final evaluations will be organised. There is, however, no explicit reference to participatory monitoring through stakeholders. The term "multi-stakeholder engagement plan" has so far not been defined or further specified by content-related guidance or requirements.

Reporting requirements on sustainable development effects

Reporting requirements under the GCF are determined by a number of interrelated decisions and frameworks. The ones that are important with respect to the impacts of mitigation financing on sustainable development are, in particular:

- the Initial Investment Framework; here the criterion of sustainable development potential needs to be addressed in the funding proposals' logic framework;

46 "At the project/programme level, the AE should include participatory monitoring, involving communities and local stakeholders, including civil society organizations, at all stages of the project/programme cycle from the beginning" (decision B.11/10, annex I, paragraph 15).

47 See funding proposal template section E.5.3: "Please provide a full description of the steps taken to ensure country ownership, including the engagement with NDAs on the funding proposal and the no-objection letter. [...] Please also specify the multi-stakeholder engagement plan and the consultations that were conducted when this proposal was developed."

- the Performance Measurement Framework (GCF/B.08/07, paragraph 15 (b), see GCF section *monitoring and evaluation*); and
- the environmental and social management system, including the environmental and social safeguards.

Furthermore, the monitoring and accountability framework is relevant for the identification of co-benefits or trade-offs (see the section below; decision B.11/10, annex I, paragraph 2(e)). The framework specifies the reporting requirement for AEs and for individual GCF-funded activities against the Investment Framework and PMF criteria, as well as the GCF standards, including those on ESS and gender.

Finally, the risk-monitoring and reporting management system (decision B.07/05; GCF/B.12/17), in particular the risk dashboard, is relevant for sustainable development-related evaluations because it determines the selection criteria for annual reviews of projects/programmes as well as ad hoc compliance reviews. Next to the risk dashboard, the selection criteria for conducting these ad hoc compliance reviews is currently the classification of a project/programme in the high environmental- and social-risk category (see GCF section *monitoring and evaluation*, and Table 7 on risk levels).

Monitoring and evaluation

Monitoring and evaluation under the GCF is mainly guided by the results management framework (RMF) as well as the monitoring and accountability framework. The Board has furthermore developed an initial monitoring and evaluation policy and intends to set up and Independent Evaluation Unit. Neither, however, is operational yet.[48]

48 See GCF/B.08/45, annex IX, and the draft decision for the 13th GCF Board meeting on the operationalisation of the initial monitoring and evaluation system in GCF/B.13/26, page 6, as well as annex IV on the initial evaluation policy.

At the core of the RMF are the logic models corresponding to the logic frameworks of a concrete project/programme proposal.[49] The logic models have been determined by the GCF Board and denote the objectives of GCF funding with respect to paradigm shift, expected results as well as impacts at the fund level, and outcomes at the project and programme levels. The logic model forms the primary organising construct for the RMF as well as the indicators for the more specific PMFs (GCF/B.08/07, paragraph 7). Given the goal to pursue country ownership, "countries will identify their priority results areas in line with their national strategies and plans" (decision 08/07 (i)).

The PMFs detail the logic models and RMFs with a set of indicators for aggregate portfolio-level impacts and for project/programme outcomes against the objectives and results outlined in the logic models. They do not include project/programme indicators at the output, activity or input levels because these are specific for each intervention and are to be determined on a case-by-case basis (decision B.07/04, paragraph (f)). Here, Implementing Entities will have to develop detailed plans, including intended results with specific indicators for each intervention (GCF/B.08/07, paragraph 10). Overall, the PMF and entailed indicators form the basis for monitoring, reporting and evaluation of the GCF (GCF/B.08/07, paragraph 10).

The logic model and PMF for mitigation includes the possibility to achieve impacts through REDD+ related activities.[50] Related to these, mitigation activities can include outcomes at the project or programme level in the form of "improved management of land or forest areas" (decision B.07/04, paragraph (b)(ii)(3)). In addition to the mitigation logic model and PMF, the GCF Board is developing a logic model and performance framework for

49 The term "logic framework" (see funding proposal template H.1) has not been defined by the Board. It denotes the activity-specific rationale, Results Management Framework and Performance Measurement Framework of a concrete funding proposal in difference to the general RMF and PMF, in which the GCF Board has defined outcomes for all GCF-funded activities. See also the Accreditation Master Agreement of Acumen for example: "The accredited entity acknowledges and agrees that each funding proposal will include a logical framework setting out the arrangements for monitoring, reporting, and evaluation of the activities consistent with the Results Management Framework" (AMA ACUMEN, clause 5.02).

50 These activities include "[r]educed emissions from land use, deforestation, forest degradation, and through sustainable forest management and conservation and enhancement of forest carbon stocks" (decision B.07/04, paragraph (b) (ii) (2); see mitigation PMF result area four).

ex post RBPs for REDD+; see GCF/B.08/45, annexes X and XI) activities, which is seen integral to the mitigation PMF (GCF/B.08/08/Rev.01, paragraph 6). Like the indicators in the mitigation PMF for REDD+ related activities, these shall correspond with the methodological guidance in the Warsaw Framework for REDD+ (decision B.07/04, paragraph (k); see also decision B.08/08).[51] However, any related REDD+ guidelines under the GCF are still contested. Whereas some GCF Board members claim that "the GCF should be the gold standard in the field of REDD-plus financing" others demand that no new conditions be imposed on developing countries (GCF/B.14/18, paragraphs 137-161). The operationalisation of RBPs from REDD+ activities shall be considered further at the 16th GCF Board meeting (decision B.14/03; decision B.14/01).

So far, the GCF Board has not yet completely aligned the PMF with its Investment Framework. Whereas the Fund formulated sustainable development potential to be one of six investment criteria, the Board has not yet formulated an expected result at the fund level or an outcome or indicator at the project/programme level for impacts of mitigation activities on sustainable development. Towards this respect, it aims to develop a co-benefit indicator or index related to GHG reductions or low-emission development pathways for fund-level impacts only. This indicator or index shall denote social, environmental and economic co-benefits for fund-level impacts, and has been further specified by a proposal for the 13th GCF Board meeting in June 2016 (see Table 6 below on the evolution of the PMF).

At the project/programme level, environmental, social and economic co-benefits such as improved public health or energy security "can be identified on a project/programme case-by-case basis" by the accredited Implementing Entities (GCF/B.08/45, annex VIII, paragraph 4). If mitigation projects generate adaptation results, these should also be reported according to the indicators of the adaptation PMF (GCF/B.08/45, annex VIII, paragraph 5).

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51 The body of REDD+ decisions, incl. REDD+ finance (9/CP.19), coordination of support for REDD+ activities (10/CP.19), and methodological guidance on the main elements of REDD+ (11-15/CP.19) "define the requirements for recognizing developing countries' results-based actions and enabling them to receive results-based payments" (GCF/B.08/08/Rev.01, paragraph 4).

Table 6: GCF: evolution of co-benefit indicator in mitigation and REDD+ PMF

Mitigation Performance Measurement Framework (source: GCF/B.08/45 annex VIII)	**Expected result**	**Indicator**	**Reporting responsibility**	**Notes by Secretariat**
	Fund-level impacts			
	No text in original decision	Social, environmental, economic co-benefit index/ indicator at impact level	*no text in original decision*	Co-benefit indicator related to GHG reductions/low-emissions development pathways and sustainable development **Specifics to be determined**
	Project/programme outcomes			
	No reference to sustainable development/co-benefits by the GCF Board in the PMF table; the decision text says: "Context-specific environmental, social and economic co-benefits can be identified on a project/ programme case-by-case basis" (GCF/B.08/45 annex VIII paragraph 4)			

Table 6 (cont.): GCF: evolution of co-benefit indicator in mitigation and REDD+ PMF				
Proposal for updated Mitigation Performance Measurement Framework (source: GCF/B.13/26)	**Expected result**	**Indicator**	**Reporting responsibility**	**Notes by Secretariat**
	Fund-level impact			
		Co-benefits of mitigation actions by sector and type (i.e. economic, social, environmental)	AEs	Projects/programmes will report on priority co-benefit indicators (quantitative or qualitative). The AE and stakeholders should select a few co-benefits to develop specific indicators (e.g. job creation, health benefits, savings, etc.) for performance measurement at the project level. Those indicators will be standardised to the extent possible, through the development of methodologies and guidelines by the GCF. Since co-benefits are indicated in the funding proposals as part of the investment criteria, any methodologies/ guidelines developed will align with the investment criteria.
	Project/programme outcomes			
	No changes, see above			
*MCrC1 = cross-cutting indicator for mitigation number 1				

However, to what extent countries have to define goals and indicators in their logical framework with respect to sustainable development co-benefits is unclear under the current status of decisions. Following the principle of country ownership, it is up to countries to decide on their priority results areas as well as to whether the activity-specific sub-indicators and indicative assessment factors apply for a proposal or not. On the other hand, the GCF Board is currently developing a methodology that shall establish "minimum benchmarks" for the six investment criteria, including on the sustainable development potential (decision B.14/07 (e); decision B.09/05 (c); compare GCF sections *stakeholder participation* and *Initial Investment Framework*).[52]

The monitoring and accountability framework builds on two components: first, the monitoring of AEs' compliance with the accreditation standards of the GCF, and second, the monitoring and evaluation of individual funded projects or programmes (decision B.11/10, annex I, paragraph 5). Overall, the GCF Secretariat and the GCF Accountability Unit are responsible for implementing the monitoring and accountability framework.

The first component of the framework *inter alia* comprises an annual self-assessment of AEs of their compliance with the GCF fiduciary standards, ESS and gender policy (decision B.11/10, annex I, paragraph 7(a)). The self-assessment can be reported through a standard template. Compliance is furthermore monitored through a "light-touch mid-term review" (decision B.11/10, annex I, paragraph 7(b)) of AEs by the Secretariat guided by standard terms of reference (yet to be decided) and ad hoc compliance reviews initiated by the GCF. These can be initiated if, for example, the Board substantially revises the environmental and social standards or upon evidence of a lack of compliance with these.[53]

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52 On the relation between indicative minimum benchmarks and activity-specific sub-criteria and indicative assessment factors, see also GCF/B.09/07, paragraph 30: "[F]unding proposals should address only the relevant activity-specific sub-criteria and indicative assessment factors, which are intended to complement one another and provide additional analytical depth beyond the indicative minimum benchmarks."

53 Who exactly initiates the ad hoc reviews is not mentioned in the decision. The need for reviews is determined as follows: "If stipulated in the accreditation master agreement; or if the GCF revises its guiding framework for the accreditation process or substantially revises the GCF fiduciary standards, ESS and/or gender policy that are the requirements for accreditation; or if there is evidence of a lack of compliance by the AE with the legal terms agreed with the GCF, its fiduciary standards, its ESS and/or gender policy; or if there is any emerging indication of misuse of the entrusted financial resources."

The second component is "primarily" (decision B.11/10, annex I, paragraph 10) the responsibility of the AEs. Reporting requirements "may" (decision B.11/10, annex I, paragraph 11) include APRs, an interim-evaluation report and a final evaluation report. These evaluations should also assess performance against the Investment Framework criteria (see below), which include the criterion of sustainable development potential.

The APRs should include a narrative report based on the logical framework submitted in the funding proposal, the Investment Framework criteria (see below), the ESS (see below) and gender policy (decision B.11/10, annex I, paragraph 13). The report furthermore needs to be aligned with the RMF and PMF (see below). The APRs concern the implementation period, but the reporting period might in some cases be extended to the post-implementation period as well, for which the GCF would develop alternative arrangements (decision B.11/10, annex I, paragraphs 11-12).[54]

Part of the monitoring and accountability framework is the GCF's Risk Management Framework (see Section 5.3.2.1), including a risk register (an inventory of risks) and a corresponding risk dashboard. As part of the risk dashboard, the GCF Secretariat will develop an "early warning system based on risk flags" (decision B.11/10, annex I, paragraph 17), which have two main functions with respect to the monitoring of risks, partly including effects on sustainable development: first, they shall reflect the Secretariat's assessment of risks related to the project, the performance of the accredited entity or country risk flags to reflect the economic and/or political environment. The flags can be assigned in cases of non-compliance or weak performance. In these cases, additional measures have to be taken to solve the problems at stake, including the option of total suspension of disbursement or reclaiming of funds already disbursed to the accredited entity.[55]

Second, these risk flags also determine the selection of projects and programmes for the annual portfolio review by the Secretariat on a given proportion by the number of projects and programmes, and where to conduct the ad hoc compliance reviews (decision B.11/10, annex I, paragraphs 22-24). One of four defined selection criteria for this annual portfolio review

54 When such a case would apply is not defined in the decision.

55 The responsibilities of the AE are not described in the decision and need to be agreed in the action programme together with remedial measures.

is the classification of a project/programme in the highest environmental- and social-risk category (called A/intermediation 1, see Table 7).

For the evaluation of whether a project/programme has performed against the agreed results, outcomes and impacts, the Board has so far decided on four types of evaluations in the initial evaluation policy, which are in the responsibility of different actors, depending on the type of evaluation (see GCF/B.13/26, annex IV, paragraph 5). However, the minimum standards, roles and responsibilities as well as evaluation criteria still need to be defined after adoption of the initial evaluation policy. The respective draft foresees that at the project/programme level, evaluations can not only verify "whether and how the project/programme implementation has performed against the agreed outcomes and investment criteria, but also whether and how it has caused unintended impacts and other co-benefits" (GCF/B.13/26, annex IV, paragraph 10).

Environmental and social safeguards

Funded activities in accordance with national laws and regulations need to comply with the ESS provided by the Fund. For the review of first funding applications in 2015, the Fund adopted the Performance Standards on environmental and social sustainability of the International Finance Corporation (IFC), as listed in Table 8 (GCF/B.07/11, annex III).[56] The

56 On the relation of international and national law, see IFC guidance note on Performance Standard 1: "Where a client has an existing management system, its elements may meet or can be appropriately modified or expanded to meet the requirements of Performance Standard 1. Where a client has developed and implemented a formal environmental, labor, health and safety, and/or social management system consistent with an internationally-accepted standard, the alignment of the legal and other standards elements with the applicable Performance Standards (and implementation of an appropriate management program) may be sufficient to meet the requirements of Performance Standard 1. Formal management systems certified under international standards are not required by Performance Standard 1" (IFC, 2012, pp. 4-5).

IFC standards shall be gradually transformed into the GCF's own ESS (GCF/B.07/12, paragraph 64(iv)).[57]

The standards "will be applied to all projects, as well as individual projects or activities within a programme, to be funded by the Fund" (GCF/B.07/12, annex I). For each Performance Standard, there are Guidance Notes that specify the requirements of these.[58] Out of the eight Performance Standards, the first applies to all funding proposals (GCF/B.07/12, annex I, paragraph 12). It includes identifying a funding proposal's environmental and social risks and impacts through an ESIA,[59] the engagement with affected communities, an ESMS and a mitigation hierarchy (anticipate, avoid; minimise; compensate or offset; see IFC project standard 1). The remaining Performance Standards are applied only where respective environmental or social risks and impacts are identified. For these cases, the standards "establish objectives and requirements to avoid and minimize and, where

57 The GCF Board aims "to complete the process of developing the Fund's own environmental and social safeguards (ESS), which will build on evolving best practices, within a period of three years after the Fund becomes operational, and with inclusive multi-stakeholder participation" (decision B.07/02 (d)). The development of own ESS will furthermore be based on the GCF's track record of experience and lessons learnt, an in-depth review (incl. benchmarks against recently updated regional bank standards), the updated World Bank Safeguards, experience in implementing the Adaptation Fund principles, and observations of the Independent Evaluation Unit and independent redress mechanism (GCF/B.07/12, annex I, paragraphs 8-9). There was also a request to consider how the GCF's ESS incorporate the Cancún Safeguards, taking into account non-carbon benefits (GCF/B.14/18, pp. 201-221).

58 See IFC (s.a.). For Performance Standards 2 and 3, the GCF in addition refers to the World Bank Group Environmental, Health and Safety Guidelines as technical reference documents with general and industry-specific examples of good international practice (GCF/B.07/11, annex III, paragraph 3).

59 "The key process elements of an ESIA generally consist of (i) initial screening of the project and scoping of the assessment process; (ii) examination of alternatives; (iii) stakeholder identification (focusing on those directly affected) and gathering of environmental and social baseline data; (iv) impact identification, prediction, and analysis; (v) generation of mitigation or management measures and actions; (vi) significance of impacts and evaluation of residual impacts; and (vii) documentation of the assessment process (i.e., ESIA report). The breadth, depth and type of analysis should be proportionate to the nature and scale of the proposed project's potential impacts as identified during the course of the assessment process. The ESIA must conform to the requirements of the host country's environmental assessment laws and regulations, including the relevant disclosure of information and public consultation requirements, and should be developed" (IFC, 2012a, p. 10).

residual impacts remain, compensate/offset the risks and impacts to workers, affected communities and the environment" (GCF/B.07/12, annex I, paragraphs 14-15). Responsible for managing risks and impacts are the AEs through their relevant Executing Entity(ies).

The ESS are embedded in an environmental and social policy. "The Fund's environmental and social policy will describe the Fund's commitments, roles, and responsibilities related to environmental and social sustainability" (GCF/B.07/11, annex VI, paragraph 2). Next to the ESS, the policy so far consists of a) a review of the institutional capacities of entities during the accreditation process (fit-for-purpose accreditation) to implement an ESMS,[60] b) the application of a scaled-risk approach by the accrediting entities for categorising activities according to an environmental- and social-risk category and c) the monitoring and reporting requirements on compliance with the ESS and ESMS:

on a) As part of the fit-for-purpose accreditation, the Accreditation Panel assesses the ability of an Implementing Entity to manage environmental and social risks and impacts (GCF/B.07/12, annex VI, paragraph 1). The assessment is based on the information provided by the respective applicant comprising the AE's policies, procedures, track record and demonstrated capacities to manage projects/programmes of different environmental and social risks. As a result of this assessment, the "Accreditation Panel may recommend to the Board that an entity be accredited with a restriction on the risk category of activities it can carry out" (GCF/B.08/45, annex I, paragraph 16). There are three categories of environmental and social risks (see Table 7 below). The ESMS that AEs need to establish can differ according to the risk. Activities in the risk category B/I-2 or C/I-3 will not have to be "as mature in scope or documentation, or as well-integrated into business processes, as the ESMS required for

60 "An ESMS is a set of management processes and procedures that allow an organization to identify, analyse, control and reduce the adverse environmental and social impacts of its activities and maximize any potential environmental and social benefits in a consistent way and to improve the environmental and social standing of the organization and its activities over time" (GCF/B.07/11, annex VI, paragraph 1). "[T]he ESMS entails a methodological approach to managing environmental and social risks[…] and impacts […] in a structured way on an ongoing basis" (IFC, 2012b, p. 1; for a definition of risks and impacts, see IFC, 2012b, p. 1).

Category A/I-1 type projects/programmes".[61] Minimum elements of the ESMS for accreditation for all risk categories are listed in Table 8. Those institutions and organisations that have already been accredited under the Global Environment Facility (GEF), the Adaptation Fund or the European Union's DG DEVCO (Directorate-General for Development and Cooperation – EuropeAid of the European Commission) and can use the fast-track accreditation process needed to adapt their ESS according to the GCF standards.[62]

on b) Under the scaled-risk approach, the AEs use the three risk categories and assign the project activities to one of these.[63] The GCF Board will develop guidance on how to do this. The Secretariat assesses this categorisation.

on c) The Fund's initial monitoring and accountability framework for AEs shall ensure compliance with the ESS and, together with the information disclosure policy, defines reporting requirements. The final evaluation can also include the verification of unintended impacts or co-benefits of financed activities.

As part of the proposal appraisal process, AEs have to hand in the ESIA reports together with the funding template (note possible exceptions for micro and small projects, see Section 5.3.1),[64] and specify the ESMS,[65] and "how the project/programme will avoid or mitigate negative impacts at each stage (e.g. preparation, implementation and operation), in accordance with the Fund's Environmental and Social Safeguard (ESS) standard" (GCF online funding template section F.3).

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61 See Accreditation Application Form, Section 47 for details.

62 For an analysis of the respective gaps, e.g. for GEF accredited entities, that need to be addressed in order to receive accreditation, see GCF (2016a, pp. 34-36).

63 See also GCF/B.07/12, annex I, paragraph 19: "Accredited entities to the Fund will have the capacity and a system for screening funding proposals in order to identify the potential environmental and social risks and/or impacts and to determine if any potential inconsistencies with the Fund's interim ESS are insurmountable and/or not manageable over a reasonable period of time."

64 The review of compliance with the ESS Performance Standard 1 during project preparation can be done by the executing entity (EE) under the oversight of the implementing entity (IE)/intermediary or by the EE and IE/intermediary jointly (GCF/B.07/03, paragraph 20).

65 In the online funding template, this is called "Environmental and Social Management *Plan*". The term has not been defined by a respective decision so far.

Table 7: GCF risk levels in fit-for-purpose approach to accreditation		
Risk level	**Funding proposal**	**Intermediation**
High	**Category A**: Activities with potential significant adverse environmental and/ or social risks and/ or impacts that are diverse, irreversible, or unprecedented;	**High level of intermediation 1 (I1)**: When an intermediary's existing or proposed portfolio includes, or is expected to include, substantial financial exposure to activities with potential significant adverse environmental and/ or social risks and/or impacts that are diverse, irreversible, or unprecedented;
Medium	**Category B**: Activities with potential mild adverse environmental and/ or social risks and/or impacts that are few in number, generally site-specific, largely reversible, and readily addressed through mitigation measures;	**Medium level of intermediation 2 (I2):** When an intermediary's existing or proposed portfolio includes, or is expected to include, substantial financial exposure to activities with potential limited adverse environmental or social risks and/or impacts that are few in number, generally-site specific, largely reversible, and readily addressed through mitigation measures; or includes a very limited number of activities with potential significant adverse environmental and/or social risks and/or impacts that are diverse, irreversible, or unprecedented;
Low/No	**Category C**: Activities with minimal or no adverse environmental and/ or social risks and/or impacts;	**Low level of intermediation 3 (I3)**: When an intermediary's existing or proposed portfolio includes financial exposure to activities that predominantly have minimal or negligible adverse environmental and/or social impacts.
Source: Authors based on GCF (2016c, p. 29); see also GCF/B.07/12, annex I, paragraphs 20-21		

Table 8: GCF minimum elements of the ESMS	
	Elements Environmental and Social Management System (ESMS)
Elements which need to be proven for accreditation	Environmental and social policy (not required for risk category C/I-3) A process to identify risks and impacts consistent with Performance Standards 1-8; A management programme that manages mitigation measures and actions stemming from the risks and impacts. The management programme should include an identification process consistent with Performance Standards 1-8; Organizational commitment, capacity and competencies to properly implement Performance Standards 1-8; A monitoring and review programme to ensure completion of mitigation actions; this should facilitate learning and include reporting on the effectiveness of the ESMS; External communication channel that facilitates receipt of and response to external inquires.
Source: Authors based on GCF/B.08/45, annex VII, table 3; Accreditation Application Form Section VI	

Upon approval of the funding proposal through the no-objection procedure (see GCF section *host country approval*), the host country confirms that the proposed activity, in accordance with the GCF's ESS, complies with national laws and regulations. In addition, during the proposal approval process, the Secretariat reviews the documents for compliance with the ESS.[66] The independent Technical Advisory Panel (iTAP), which could theoretically provide an additional independent assessment, currently does not have the mandate to do so and reviews the project and programme proposals against the six criteria of the Investment Framework only (GCF/B.07/11, annex VII). The Panel's mandate would cover the assessment of ESS, if these were seen as a part of "sustainable development potential". In practice, past iTAP

66 Also referred to as second-level due diligence of the funding proposal. This second-level due diligence would not duplicate the IE's or intermediary's own appraisal but the Secretariat "would review the appraisal package to ensure compliance with Performance Standard 1 of the Fund's interim environmental and social safeguards, gender policy, financial policies and any other policies promulgated by the Board" (GCF/B.07/03, paragraph 29).

assessment reports have commented on the six investment criteria but not on the ESS or ESIAs.

Complaints mechanisms and legal protection

The GCF Board has established an independent redress mechanism (IRM) as a mechanism within the Fund that will 1) address the reconsideration of funding decisions, and 2) "[a]ddress the grievances and complaints by communities and people who have been directly affected by the adverse impacts through the failure of the project or programme funded by the Fund to implement the Fund's operational policies and procedures, including environmental and social safeguards" (GCF/B.13/17, paragraph 3; decision B.13/24). The GCF Board intends to approve detailed guidelines and procedures of the IRM with respect to grievances and complaints of communities at the 16th Board meeting based on the understanding that the need for the redress mechanisms presupposes that people are directly affected by relevant adverse impacts (GCF/B.13/17, paragraph 8; decision B.13/24 (b)).[67] Until full operation of the IRM, "grievances and complaints from communities and people should be addressed by the institutional grievance mechanism of the relevant accredited entity" (decision B.13/24 (d)).

5.3.2.1 Other governance approaches

The GCF Board has introduced further governance approaches that either address the creation of co-benefits of mitigation investments or aim at reducing adverse impacts of these. As they cannot be grouped in the classification of the previous section, they are explained separately in the following.

Initial Investment Framework

The GCF incentivises the generation of positive effects for sustainable development through its Initial Investment Framework.[68] The generation of positive effects for sustainable development ("sustainable development potential") is one of six main criteria of the Initial Investment Framework, and Implementing Entities are expected to respond to them in the funding proposal. "Sustainable development potential" is defined as "wider benefits and priorities" and covers the areas of environmental co-benefits, social

67 For the terms of reference and modalities of the IRM, see GCF/B.06/19, annex V.

68 See also Investment Policies decision B.07/06.

co-benefits, economic co-benefits and gender-sensitive development impacts. Each of these areas is furthermore defined by activity-specific sub-criteria and indicative assessment factors (see Table 9 below), which, however, only need to be addressed in the funding proposals to the extent they are applicable and relevant. The GCF Board has not clearly defined who defines "applicability" (compare decision B.09/05). According to observers of the GCF, this will most likely be clarified in an iterative process between the Secretariat and the AEs. In the sense of country ownership, the Board states "that national and sector-wide sub-criteria can be used only at the discretion of the recipient countries" (decision B.09/05 (b)).

Under the initial methodology to assess funding eligibility, the Secretariat and the independent Technical Advisory Panel assess the proposal's expected performance against the six investment criteria, the activity-specific sub-criteria and indicative assessment factors. The Board furthermore decided that it will use indicative minimum benchmarks for the six investment criteria in order to raise ambition for a paradigm shift towards low-carbon and climate-resilient sustainable development (decision B.09/05 (c)). For the investment criterion of sustainable development potential, the current proposal is that the proposed activities are projected to create a "[s] ignificant level of co-benefits […] in at least two of the four following areas: environmental, social, economic or gender-sensitive development" (GCF/B.09/07, annex III.A). The indicative minimum benchmarks are contested (see GCF/B.09/24, paragraphs 234-258) and have not yet been applied. The Board aims to take a decision on the indicative minimum benchmarks at its 17th meeting (decision B.13/03).

Risk Management Framework

The Risk Management Framework comprises financial risk policies, a financial risk-monitoring and reporting management system, and financial risk governance arrangements (GCF/12/17, paragraph 1). Key components are the risk register and risk dashboard. Whereas the risk register has been adopted already, other elements of the risk framework still have to be completed (decision B.13/35; decision B.12/34 (b); see also GCF/B.12/17).

Table 9: Sustainable development potential: activity-specific sub-criteria and indicative assessment factors of the Initial Investment Framework

Criterion	Definition	Coverage area	Activity-specific sub-criteria	Indicative assessment factors (including indicators)
Sustainable development potential	Wider benefits and priorities	Environmental co-benefits	Expected positive environmental impacts, including in other result areas of the Fund, and/or in line with the priorities set at the national, local or sectoral level, as appropriate	Degree to which the project or programme promotes positive environmental externalities such as air quality, soil quality, conservation, biodiversity, etc.
		Social co-benefits	Expected positive social and health impacts, including in other result areas of the Fund, and/or in line with the priorities set at the national, local or sectoral level, as appropriate	Potential of externalities in the form of expected improvements, for women and men as relevant, in areas such as health and safety, access to education, improved regulation and/or cultural preservation

Table 9 (cont.): Sustainable development potential: activity-specific sub-criteria and indicative assessment factors of the Initial Investment Framework				
Criterion	Definition	Coverage area	Activity-specific sub-criteria	Indicative assessment factors (including indicators)
		Economic co-benefits	Expected positive economic impacts, including in other result areas of the Fund, and/or in line with the priorities set at the national, local or sectoral level, as appropriate	Potential of externalities in the form of expected improvements in areas such as expanded and enhanced job markets, job creation and poverty alleviation for women and men, increased collaboration between industry and academia; growth of private funds attracted, contribution to an increase in productivity and competitive capacity; improved sector income-generating capacity; contribution to an increase in energy security; change in water supply and agricultural productivity in targeted areas, etc.
		Gender-sensitive development impact	Potential for reduced gender inequalities in climate change impacts and/or equal participation by gender groups in contributing to expected outcomes	Explanation of how the project activities will address the needs of women and men in order to correct prevailing inequalities in climate change vulnerability and risks
Source: Authors based on decision B.09/05, annex III				

The potential adverse effects of mitigation financing (e.g. social risks) have so far not been explicitly highlighted as a risk for the GCF and are not (yet)[69] included in the final risk register of the Fund (GCF/B.12/17, annex II; decision B.13/35). The GCF Board uses the register as an inventory of all the risks to which it is exposed, the mechanisms in place to mitigate them and to assess their relative priority (GCF/B.12/17, paragraph 14). The risk categories of the risk register furthermore build the basis for the risk dashboard, a reporting tool that the GCF Secretariat can use to report risks and which will summarise the Fund's exposure to each risk category (GCF/B.10/07, paragraph 11(b); see also GCF section on *reporting*).

In the risk register, the potential adverse effects on sustainable development have broadly and predominantly been subsumed under the category of compliance related risks. According to the risk description in the register, this refers to a "[f]ailure to comply with the applicable established laws, regulations, policies and standards and codes of conduct set by countries in which the GCF operates and by international law" (GCF/B.13/29, p. 14). Potential triggers that have been identified for these risks are a lack of privileges and immunities for the GCF and its staff, ineffective or inefficient staff to monitor compliance and uncertainty regarding laws, regulations or policies from counties where the GCF operates. Among others, ESS and periodic exchanges with home country authorities are seen as potential mitigation measures to address these risks. Under the monitoring and accountability framework, the Fund furthermore decided that the compliance check will focus among other issues on the Fund's ESS (see GCF section *monitoring and evaluation*).

Beyond this general reference to compliance related risks, the risk register only indirectly (and amply interpreted) covers or addresses potential adverse effects of mitigation finance on sustainable development. These, as part of the strategic risks, are the failure to develop a portfolio of projects and programmes a) as defined by the initial RMF; and b) a portfolio that "fosters the involvement of local actors" (GCF/B.12/17, annex II). Here the proposed mitigation approaches among others are the "no-objection process" from NDAs/focal points (see Section 5.3.3 below) and the

69 As the risk environment in which the GCF operates evolves as a result of external events, changes in the mix of instruments deployed by the GCF and other strategic priorities, the risk register will be updated "as frequently as the Risk Management Committee deems necessary, but no less frequently than once every three years" (decision B.13/35(b)).

"second-level due diligence" assessment. This assessment is part of the Risk Management Framework at the portfolio development stage where the GCF Secretariat assesses the compliance of the funding proposal with respect to GCF safeguards and policies.

Finally, the register lists reputational risk stemming from business practices and results in that "[e]vents or issues […] have a materially adverse effect on the credibility of the GCF in developing countries or with contributors, accredited entities or civil society organizations" (GCF/B.12/17, table 1). This could theoretically include adverse sustainable development impacts, yet the counter measures cited under this category include no substantial activity in this regard.

Information Disclosure Policy

The GCF Board at its 12th meeting in 2015 adopted an information disclosure policy. With this policy, the board aims to maximise access to information and will therefore "disclose any information not contained in the list of exceptions" (GCF/B.12/33, annex XXIX, paragraph 7, "negative list approach"; decision B.12/35, annex XXIX).[70] Yet the "timing of disclosure of the different types of information may vary, based on the nature of the information" (decision B.12/35, annex IIIIX, paragraph 8).

The funding proposal will be disclosed simultaneously with submission to the Board (decision B.12/35, annex XXIX, paragraph 16). For those funding proposals that have an environmental or social impact, the Board introduced differing disclosure requirements for AEs according to the risk category of the proposals (see Tables 7 and 10).[71] On this point, the decision is not clear as to which AE or GCF decision is being referred to. Proposals without significant environmental or social impacts (category C/category I-C) do not have any advance disclosure date (GCF/B.12/32, annex XXIV).

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70 For an overview of the Fund's disclosure standards for key GCF documents, see GCF/B.12/32, page 167. On the previous Interim Information Disclosure Practice, see decision B.05/15.

71 Information needs to be disclosed by the Accredited Entity via electronic links on the AE's website and convenient locations for affected peoples. The GCF shall disclose such reports on its website. In the case of the GCF website, disclosure of the relevant information shall be made at the time of submission of the relevant funding proposal to the Board (GCF/B.12/32, annex XXIV).

The information needs to be disclosed in English as well as in the respective local language on the website and in any convenient location pertaining to the affected peoples. Public input will be solicited by the GCF Board for at least 30 days through the Fund's website.[72] CSO observers have criticised the disclosure policy practice. They demanded, for example, that applications for accreditation be made public when filed, or to open project and programme proposals for public input upon submission of the iTAP (GCF/B.12/33, paragraph 374).

For any appeals that may arise under the disclosure policy, the Board will establish an Independent Appeals Panel on the disclosure of information. Pending its constitution, this function will be the responsibility of the Ethics and Audit Committee.

Table 10: GCF disclosure policy for proposals with environmental or social impacts

Risk category	Timing	Information to be disclosed
Category A projects	At least 120 days in advance of the AE's or GCF's Board decision, whichever is earlier	Environmental and Social Impact Assessment (ESIA)* Environmental and Social Management Plan (ESMP)
Category I-1 programmes	At least 120 days in advance of the AE's or GCF's Board decision, whichever is earlier	Environmental and Social Management System (ESMS)
Category B projects	At least 30 days in advance of the AE's or GCF's Board decision, whichever is earlier	Environmental and Social Impact Assessment (ESIA)* Environmental and Social Management Plan (ESMP)**
Category I-2 programmes	At least 30 days in advance of the AE's or GCF's Board decision, whichever is earlier	Environmental and Social Management System (ESMS)

72 The time frame between submission, the Secretariat's and iTAP's assessment and board decision is (should be) three months (see GCF/B.07/03).

Table 10 (cont.): GCF disclosure policy for proposals with environmental or social impacts

Risk category	Timing	Information to be disclosed
*"ESIA is 'environmental and social impact assessment (ESIA)', a comprehensive document of a project's potential environmental and social risks and impacts which is developed based on key process elements generally consisting of (i) initial screening of the project and scoping of the assessment process; (ii) examination of alternatives; (iii) stakeholder identification (focusing on those directly affected and other stakeholders) and gathering of environmental and social baseline data; (iv) impact identification, prediction, and analysis; (v) generation of mitigation or management measures and actions; (vi) significance of impacts and evaluation of residual impacts; (vii) consultation with and disclosure to project affected people including setting up a grievance mechanism; and (viii) and documenting the assessment process in form of an ESIA report." (Decision B.12/35 Annex XXIX §17)		
**"ESMP is 'Environmental and Social Management Plan', a document prepared either as part of an ESIA or as a separate document accompanying the ESIA describing the process of management of the mitigation measures and actions identified in the ESIA study including the associated responsibility, timeline, costs, and monitoring of key environmental and social indicators, described in the ESMP."		
Source: Authors based on GCF/B.12/32, paragraph 17		

Gender policy

The GCF shall maximise its funding impact for adaptation and mitigation by taking a gender-sensitive approach, among others, and by addressing gender aspects in the involvement of relevant stakeholders when accessing GCF finance (Governing Instrument, paragraphs 3 and 31). In line with international agreements, *inter alia* with reference to the SDGs, the Fund has formulated a gender policy and action plan for the years 2015 to 2017 through which the policy shall be implemented.[73]

73 See GCF/B.09/23, annex XIII, paragraph 3: "The Fund's gender policy is congruent with international agreements, in particular with the Universal Declaration of Human Rights, the Convention on the Elimination of All Forms of Discrimination against Women, […] the Millennium Development Goals […] and follows up on the sustainable development goals, […] and the International Labour Organization's core conventions, […] in that it recognizes the equal rights of women and men to access the Fund's services in order to adapt to and mitigate against the impact of climate change."

Entities seeking accreditation have to demonstrate that they have the policies, procedures and competencies in place to implement the Fund's gender policy. The main operational responsibility for the implementation of the gender policy will be with the AEs, including Implementing Entities and intermediaries (GCF/B.09/23, annex XIV, paragraph 3). The application of the Fund's guidelines on the initial socio-economic and gender assessments and the Fund's ESS as part of the proposal approval process is mandatory (GCF/B.09/23, annex XIII, paragraph 12). NDAs shall verify through the no-objection procedure that project proposals are aligned with the countries' gender policies, as well as with their climate change policies and priorities.

The GCF Board oversees the implementation of the action plan "through the review of periodic monitoring reports from the Secretariat, impact evaluation reports from the Evaluation Unit and reports from the redress mechanism" (GCF/B.09/23, annex XIII, paragraph 4).[74] Furthermore, the results management and PMFs (GCF/B.08/07) include qualitative and quantitative gender monitoring, impact and outcome indicators (GCF/B.09/23, annex XIII, paragraphs 11-12).

5.3.3 Conclusions: aligning mitigation investments and sustainable development under the GCF

As outlined before, the GCF Board has introduced a complex web of partly interrelated governance approaches to increase co-benefits or minimise possible negative effects of mitigation investments. Some of these approaches still need to be defined further by the GCF Board or need to be agreed between the GCF Board and the AE as part of the Funded Activity Agreement. These agreements set forth the responsibilities and requirements for the implementation of the funding proposal, for example, the monitoring, evaluation and reporting requirements.[75] The extent to

74 "Gender-related complaints and grievances that may occur in projects and programmes are processed through the Fund's redress mechanism" (GCF/B.09/23, annex XIII, paragraph 13). "The Fund's management and staff are accountable for gender results. This is reflected in the Fund's administrative policies and procedures, including human resource management and the procurement of contractors" (GCF/B.09/23, annex XIII, paragraph 14).

75 See, for example, AMA Acumen clause 15.02 (b), which denotes that Accredited Entities shall provide to the Fund "interim and final evaluation reports, as outlined in the relevant Funding Proposal or FAA".

which the decisions and agreements take effect in practice still needs to be seen, as the GCF has only started to fund activities. The Funded Activity Agreements cannot yet be accessed online. Thus, at this point in time, and from the perspective of the institutional and legal framework based on the decisions taken so far – until and including the 15th GCF Board meeting – the following points are unclear, critical or noteworthy with respect to the analysed governance approaches.

Overall, AEs and national-level actors have a decisive role in aligning climate protection and sustainable development in practice. Whereas the GCF Board has introduced important standards and standardised approaches at the global level, its role – and that of the Secretariat – remains predominantly a controlling or steering one, once funding has been approved. Accredited/Implementing Entities are central in aligning the tasks of maximising co-benefits and minimising negative effects of mitigation finance. They are responsible for central-related governance approaches such as the risk assessment and categorisations of projects/programmes; the design of logical frameworks and related RMFs and indicators; the quality of reporting, monitoring and evaluation, and thus data generation on activities that include a self-assessment of their compliance with *inter alia* the ESS and gender policy; as well as the involvement of stakeholders according to national-level laws and regulations.

The decisions on the design of stakeholder consultation processes indicate that, overall, these are predominantly at a country's discretion. As consultation processes need to be defined for each project or programme proposal, the degree and quality of stakeholder participation within countries can vary from one funded activity to another. This also implies that any later evaluation of stakeholder participation practices in countries can be complex.

Next to the design of the stakeholder participation processes, a country's definition of "stakeholder" will be decisive for the relevance of consultation processes with respect to creating co-benefits or minimising trade-offs.

Towards this respect, 10[76] (out of 33) AMAs that were accessible through the GCF's website in September 2016 refer to the GCF's best practice options but only highlight the collaboration between AEs and country authorities – in particular the NDA or focal point (see AMAs clauses 4.06 and 4.08) – but not the affected non-governmental stakeholders and communities.

Whereas the GCF decisions on stakeholder consultations' guidance contain important criteria on how to involve stakeholders, their binding character – and thus relevance – with respect to GCF funding decisions remains unclear. Next to the GCF's country ownership policy, this lack of clarity has two reasons. First, the decisions use different wording, and it is not always clear whether these have a specific meaning or legal implication.[77] Second, some decisions lack references to topic-related decisions.[78] Furthermore, it is currently not clear to what extent it is necessary to disclose the design of participatory monitoring processes, as prescribed by the monitoring and accountability framework in the funding template. So far, there is no explicit reference to participatory monitoring in the funding template, and the Board has not endorsed a definition of "multi-stakeholder engagement plan" or guidelines that further specify any content requirements.

Central for the identification of co-benefits or trade-offs is how AEs design the logical framework and the indicators as part of the mitigation PMF, because they define the goals as well as basis for monitoring, reporting and evaluation. So far, the GCF Board has not yet completely aligned the PMF with its Initial Investment Framework. Whereas the Fund formulated sustainable development potential as being one of six investment criteria, the Board has not yet formulated an expected result at the fund level or

76 These are AMAs with the AEs Acumen Fund, Agency for Agricultural Development of Morocco, Caribbean Community Climate Change Centre, Centre de Suivi Ecologique/ Senegal, Environmental Investment Fund/ Namibia, Ministry Natural Resources of the Public of Rwanda, National Environment Management Authority of Kenya, PROFONANPE/Peru, Secretariat of the Pacific Regional Environment Programme and World Meteorological Organisation.

77 The different wordings are: "consultation processes" in initial best-practice options for country coordination and multi-stakeholder engagement; "stakeholder engagement" in ESMS; "multi-stakeholder engagement plan" in funding proposal template.

78 For example, the document on best-practice options for country coordination and multi-stakeholder engagement (decision B.08/10, annex XIV) or the stakeholder consultation processes under the ESS (GCF/B.07/11, annex III) have no reference to stakeholder participation under the monitoring and accountability framework.

an outcome or indicator at the project/programme level for impacts of mitigation activities on sustainable development.

Furthermore, it is unclear how the GCF will handle possible conflicts of interest between the strong role of country ownership and the GCF's investment criteria in cases where countries do not regard the investment criterion of "sustainable development potential" as being a national priority result area, and thus would not address it in the funding proposal and would not include any related activity-specific sub-criteria in the funding proposal. The Board requested "the Secretariat and the iTAP in the application of the indicative minimum benchmarks to be flexible and take into account country circumstances and country ownership" (decision B.09/05). Guidelines for the operationalisation of country ownership, which might provide further clarification, are under development (GCF/B.15/06 annex; decision B.14/06; decision B.13/33).

In cases where countries would not address the investment criterion "sustainable development potential" as well as related activity-specific sub-criteria, the Secretariat would lack data for the generation of the co-benefit indicator or index that shall be defined and generated to monitor portfolio-level impacts and related information that would need to be collected independently.

Critical with respect to impacts on sustainable development and the monitoring and recording of these is also the further development of indicators in the PMF for mitigation activities. In the proposed updated mitigation PMF (GCF/B.12./13, annex 3), several points are contested (see also respective submissions in GCF/B.12./35). One is whether the indicator for achieving a paradigm shift by shifting to low-emission sustainable development pathways shall capture the contribution of the GCF only, or whether it should focus on the impact of GCF funding. In the updated mitigation PMF, the "degree to which the Fund is contributing to low-emission sustainable development" is proposed as an indicator. Focussing on the impacts instead would go beyond the GCF's financial input and would be in line with the ambition to induce paradigm shifts at the national level. It would require establishing reference and target scenarios as a minimum, comparable to the baseline approach under the CDM.

Next to the design of logical frameworks and PMFs, the quality of APRs will be crucial and are a central source of information for identifying the effects of mitigation investments. Despite its central role in reporting, it

is unclear why they are not mandatory but "may" be handed in by the AE. So far, the AMAs require APRs.[79] The AE of Senegal even has to hand in Semi-APRs.[80] In case of delays, the Fund may even adjust the disbursement schedule (see e.g. AMAs clause 15.02 (c) (i) of Acumen). So far, APRs only concern the implementation period.

It is so far unclear who beyond the AEs, with their self-assessments and reports, will assess and verify any project/programme results such as emission reductions, co-benefits or negative effects. The minimum standards, roles and responsibilities as well as evaluation criteria of the evaluation policy still need to be defined. The initial monitoring and accountability framework for AEs, as described in decision B.11/10, is furthermore not clear on the necessity of ad hoc checks in case significant concerns of non-compliance, for example with the Fund's ESS, arise. Whereas decision B.10/07 still clearly states that the Secretariat will conduct "ad hoc checks" at the level of the accredited entity and/or at the level of the project/programme, the final monitoring and accountability framework (decision B.11/10) does not explicitly refer to these two options (compare paragraph 22) and refers to the possibility of "ad hoc compliance reviews" at the level of the accredited entity only (decision B.11/10, annex I paragraph 7(c)). At this point, the framework is furthermore not clear on whether "ad hoc compliance review" and "ad hoc check" are the same.

Overall, the GCF Board should enhance its risk management with respect to potential negative effects of mitigation investments, including reconsidering options for redress and compensation. Potential adverse effects of mitigation

79 In September 2016, all 10 AMAs that were accessible online required APRs. These were AMAs with Acumen, ADA, CCCCC, CSE, EIF, MINIRENA, NEMA, PROFONANPE, SPREP and WMO.

80 See, for example, AMA Acumen, clause 15.02: "The Accredited Entity shall provide to the Fund […] (a) APRs on the status of each Funded Activity throughout the relevant Reporting Period, including a narrative report on implementation progress based on the logical framework submitted in the Funding Proposal and considerations on the ongoing performance of the Funded Activity against the Fund's investment framework criteria, including updated on the indicators as per the guidance provided by the Fund's results management framework, and a report on ESS as well as gender. Unless otherwise specified in the FAA, the APR shall be submitted to the Secretariat on an annual basis for the period ending on 31 December within sixty (6) days after the end of the relevant annual period, with the first APR required to be submitted following the end of the calendar year after the Parties have entered into the relevant FAA, and the last APR required to be submitted within six (6) months of the end of the relevant Reporting Period."

financing (e.g. social risks) have so far not been explicitly highlighted as a risk for the GCF and are not included as a risk category of the GCF's risk dashboard and risk register. The inclusion of a respective risk category in the risk register and dashboard would be important, as it determines the risks to be reported by the Secretariat and the selection criteria of projects/programmes of the annual portfolio review and where to conduct ad hoc compliance reviews.

The Board should furthermore prioritise the development of clear guidelines for the risk categorisation or projects or programmes. The appropriate risk categorisation (A, B, C) of projects/programmes, which is currently predominantly determined by AEs, is a decisive factor with respect to the minimisation of potential negative effects of mitigation activities, as it determines whether or how governance approaches apply (e.g. the kind of ESMS). In addition, the Board should consider an independent assessment of this risk categorisation, for example through the iTAP.

The Board might furthermore reconsider its eligibility or investment criteria for mitigation activities with high risks of adverse effects on sustainable development or adaptation to climate change and with limited transformative and sustainable development potential. These are activities that a) do not meet the requirements for limiting global temperature increase to 1.5/2°C; and/or b) activities that bear high social or environmental risks (e.g. nuclear energy) and thus might have detrimental or irreversible effects on local development and adaptation capacities. The GCF Board could, for example, choose a negative list approach that excludes certain technologies from funding, or a "best in class" approach that sets minimum standards for certain technologies or mitigation options. So far, the GCF has not limited funding eligibility for certain technologies or climate change mitigation options. Yet, as outlined in Section 2.2, limiting global warming to 2°C can only be achieved if certain technologies are phased out or drastically reduced (see in particular the report by IEA/IRENA, 2017).

Given the risk that vulnerable people may not only be adversely affected by the impacts of climate change but also by mitigation investments, Parties to the UNFCCC and the GCF Board should furthermore consider how to close the potential equity gap arising in case AEs fail to comply with the GCF's Social and Environmental Policy.

6 Conclusions: status of aligning climate change mitigation and sustainable development

Reconciling trade-offs between the promotion of climate protection and sustainable development as well as adaptive capacities to the impacts of climate change is one of the key challenges at the interface of climate and development policies. The question to what extent the three dimensions of sustainable development overlap or generate trade-offs for the respective other dimension has also been a struggle regarding the primacy of policy goals – a struggle that has shaped UNFCCC negotiations from the beginning. Throughout the 1990s up to the mid 2010s, mitigation targets have dominated policy development over subsequent goals such as adaptation, food security and/or human rights. In the past 10 years, the balance between these goals has changed, and the status of the named formerly subsequent goals has increased, at least at the policy level.

In our analysis of the CDM, REDD+ and the GCF, we have pointed to governance-specific weaknesses, challenges, and/or gaps in aligning climate change mitigation with sustainable development. We have also highlighted possibilities and proposals of how to improve this alignment (see respective conclusions). Table 11 briefly summarises the similarities and differences between the respective mitigation approaches.

The analysis shows that the institutional status of governance approaches is also a reflection of political goals. In the Paris Agreement, Parties have strengthened the legal basis for aligning climate change mitigation and sustainable development. In this respect, some governance approaches, such as the Investment Framework of the GCF, can be seen as a sign of increased political importance of aligning climate change mitigation and sustainable development in comparison to the 1990s and negotiations of the CDM and Kyoto Protocol. However, arguments against this increased importance are that many of the GCF approaches simply correspond to international financing practice, and that many UNFCCC policies, such as those under the CDM, lack incentives and requirements to generate positive effects for – or prevent negative effects on – sustainable development.

In the following, we compare and discuss the established governance approaches of the CDM, the REDD+ framework and the GCF by highlighting the main characteristics (Section 6.1), the common goals and established action corridors (Section 6.2) as well as the main challenges in aligning mitigation and sustainable development under the UNFCCC (Section 6.3).

Table 11: Comparison of UNFCCC governance approaches to align climate protection and sustainable development			
Governance approaches	**CDM**	**UNFCCC REDD+**	**GCF**
Host country approval	• DNA approves that project is voluntary and supports sustainable development	• Activities should be country-driven and national REDD+ policies (e.g. REDD+ strategy) should be developed • National coordinating entity (voluntary)	• No-objection procedure
Stakeholder participation	• Stakeholder participation required pre-registration at local (through physical meetings) and global (through CDM web interface) levels • 4 documents determine stakeholder participation: CDM modalities and procedures; PSs; VVS; project cycle procedure • Planned: 14 days commenting period after registration/prior to 1st CER issuance • Procedures on "Direct communications with stakeholders" (letters, submissions, calls for input, life-webcasting of CDM Executive Board meetings etc.)	• Cancún Safeguards promote and support "the full and effective participation of relevant stakeholders, in particular indigenous peoples and local communities" • Host country is in charge of further developing and implementing the safeguards. • Stakeholder meetings between national entities and financing bodies "may seek input from […] the private sector, indigenous peoples and civil society […]"	• Initial best practice options for country coordination and multi-stakeholder engagement • Established process of stakeholder engagement and disclosure under environmental and social management system (ESMS) as prescribed in ESS/ IFC Performance Standard 1 • Participatory monitoring of projects/programmes throughout project cycle; of GCF country portfolio through annual participatory review • Life-webcasting of GCF Board meetings; CSO active-observers inputs

Table 11 (cont.): Comparison of UNFCCC governance approaches to align climate protection and sustainable development

Governance approaches	CDM	UNFCCC REDD+	GCF
Reporting requirements on SD effects	• Self-declaration of co-benefits in PDD through PPs, in accordance with PDD guidelines • Voluntary SD tool: only positive effects captured	• Reporting on safeguards is a requirement for receiving RBPs • Voluntary reporting on the integration of non-carbon benefits • Voluntary UNFCCC information hub on implementation of Cancún safeguards • Biennial update reports	• APR of AE (part of monitoring and accountability framework): bindingness agreed in AMAs

Table 11 (cont.): Comparison of UNFCCC governance approaches to align climate protection and sustainable development			
Governance approaches	**CDM**	**UNFCCC REDD+**	**GCF**
Monitoring and evaluation	• Monitoring or verification of SD effects not required by CDM • CDM guiding tools for monitoring the sustainable development benefits of CDM activities • No provisions on SD monitoring at country level	• Decision 11/ CP 19 on national forest monitoring system, should include the assessment of different forest types including natural forest	• Draft monitoring and evaluation policy • RMF • PMF/logic models • Planned: PMF for REDD+ RBPs • Monitoring and accountability framework, incl. APR; risk dashboard, early warning system/risk flags of Risk Management Framework • Draft initial evaluation policy, incl. option on unintended impacts and other co-benefits
Social and environmental safeguards	• Environmental and social safeguards dependent on CDM activity, largely determined by PPs and host countries • No provisions to deal with human rights violations	• The Warsaw Framework and the Cancún Safeguards provide social and environmental criteria that have to be met by developing countries implementing REDD+	• GCF-wide: environmental and social management system (ESMS) according to risk category, incl. environmental and social safeguards (ESS) (= IFC Performance Standards) • Fit-for Purpose Accreditation, incl. AE's risk category;

Table 11 (cont.): Comparison of UNFCCC governance approaches to align climate protection and sustainable development

Governance approaches	CDM	UNFCCC REDD+	GCF
Complaints mechanisms and legal protection	• Complaints mechanism hosted by DNA for local stakeholders • Redress mechanism/liability provisions for CCS activities	• No complaints mechanism or legal protection beyond host countries' regulations • International obligations and agreements on indigenous peoples should be taken into account	• Independent Redress Mechanism
Other approaches		• Addressing drivers of deforestation • RBP framework for emission reductions achieved through REDD+	• Initial Investment Framework/ proposal approval process: Sustainable Development Potential is one selection criterion • Risk Management Framework: second-level due diligence; risk register/risk dashboard • Information disclosure policy/ Independent Appeals Panel • Gender policy

Source: Authors

6.1 Main characteristics of governance approaches under the UNFCCC

Overall, the analysis of UNFCCC governance approaches of the three mitigation approaches shows that the alignment of climate change mitigation and sustainable development is currently characterised by the following:

1. All three mitigation approaches have the explicit mandate to support sustainable development and to generate non-carbon benefits.
2. None of the three climate change mitigation approaches explicitly defines sustainable development or co-benefits or non-carbon benefits. This includes the term "development co-benefits", which shall be promoted by the GCF.
3. Under all three mitigation approaches, it is a prerogative of host countries to determine whether a project contributes to sustainable development. This refers to the assessment with respect to national sustainable development policies through host country approval processes as well as to the definition of sustainable development and related indicators.
4. For certain co-benefits of mitigation action, such as the generation of adaptation results, the GCF Board provides or suggests indicators that countries can include in the PMFs. Otherwise, indicators are defined on a project/programme case-by-case basis. It is unclear at the moment whether countries have to, or can, adopt such pre-defined sustainable development indicators under the GCF.
5. Overall, Parties of the UNFCCC have established a weak global governance framework for regulating the alignment of climate change mitigation activities and financing and sustainable development. There are only a few global regulations and requirements, many of which are voluntary.
6. Even though the governance approaches for aligning climate change mitigation and sustainable development can be categorised according to similar objectives such as establishing stakeholder consultations (compare Table 11 and Section 5), the legal and practical scope of these approaches differ considerably across the CDM, REDD+ and the GCF. The degree of regulating the alignment of the two agendas and its bindingness is highest under the GCF. Partially, these differences can be traced back to differences in institutional status: the CDM is a market-

based mechanism, REDD+ a political framework for financing forest conservation and the GCF a financing institution.

7. Many of the analysed governance approaches that guide the design of national-level governance are voluntary (e.g. guidance notes, best practice options). Yet, the kinds of activities that are voluntary or obligatory vary among the three mitigation approaches. For some governance approaches, the "degree of obligation" is unclear and depends on interpretation. This refers, for example, to stakeholder consultation processes under the GCF, or potential conflicts of interest between the GCF's country ownership policy and investment policy. In some cases, the degree of bindingness depends on the funding entity. For example, under the REDD+ RBPs scheme of the Warsaw Mechanism, developing countries "should" report how safeguards are met for receiving payments. Under the GCF, this "should" has turned into a "must" for REDD+ RBPs.

8. Under all three mitigation approaches, national-level actors have a decisive role in aligning climate change mitigation and sustainable development. This refers to the design of policies, related definitions and priorities of sustainable development, as well as to related institutional structures and administrative processes.

9. Overall, there is a lack of coherence between political goals and their translation into institutional structures and administrative processes. Whereas Parties now generally agree on the need to align climate change mitigation and sustainable development and have strengthened the legal basis for doing so under the Paris Agreement, the translation of policies into institutional and administrative structures remains contested and is often only partially supported by Parties.

10. All three mitigation approaches largely rely on self-assessments of SD effects by PPs or AEs. Under the CDM and REDD+, reporting practice has been insufficient in the past. Under both frameworks, claimed effects on sustainable development are not independently assessed and are not verified at a later stage after implementation. Under the GCF, reporting, monitoring and evaluation is obligatory, provided that APRs remain compulsory (which is most likely). The GCF furthermore provides for participatory monitoring and will set up an Independent Evaluation Unit and Accountability Unit. So far, the evaluation policy is still under development, and it is unclear who will assess and verify GCF project/

programme results. The relation of assessments and evaluations to SD effects under the GCF depends on the extent to which AEs incorporate sustainable development indicators in the logical framework of a funding proposal, which forms the basis for APRs and further evaluations.

11. The protection and risk management against negative environmental and social effects of mitigation activities is generally weak, particularly with respect to social impacts. Under the CDM and REDD+ framework, the establishment of risk management schemes (such as the ESMS or fit-for-purpose accreditation under the GCF or the ESMFs of the FCPF) is voluntary, the application of safeguards against negative effects is only partially required. For REDD+ activities, this applies at least to the modality of RBPs. The CDM requires the assessment of environmental impacts and socio-economic assessments for CCS and afforestation and reforestation activities only. Whereas the GCF Board has established internationally common risk management provisions, it could still enhance its risk management, in particular with respect to social risks.

6.2 Main goals and action corridors

The analysis of the CDM, REDD+ and GCF governance and related literature suggests that **five general political targets or action corridors** can be – or are currently – considered as particularly important in aligning climate change mitigation and sustainable development under the UNFCCC:

1. **Explicitly target the positive and negative effects of mitigation action in the policy framework and implementation structure.**
2. **Incentivise or support the alignment of climate change mitigation and sustainable development policies at the national level.**
3. **Create transparency and participation opportunities for stakeholders. The creation of transparency is based on reporting, monitoring, evaluation and stakeholder participation. Stakeholder participation requires transparency on, and access to, information, and furthermore includes feedback and complaints mechanisms.**
4. **Manage risks, avoid or mitigate negative effects.**
5. **Compensate for negative effects.**

The degree to which these goals or action corridors are supported through the governance approaches of the CDM, REDD+ and the GCF differs considerable. These differences, on the one hand, are rooted in the degree to which the respective governance approaches actually support these targets and action corridors. On the other hand, they are rooted in the degree to which these goals or action corridors are politically supported by Parties. In this respect, the goals and action corridors can, or should, be seen and used in at least three ways:

- First, they reflect issues that directly or indirectly have shaped the debate on the alignment of climate change mitigation and sustainable development under the UNFCCC;
- second, they represent goals and action corridors that are established under UNFCCC governance approaches to different degrees;
- third, our proposals are based on our empirical findings and interpretations.

In the following, we highlight to what extent the five goals and action corridors are supported through the governance approaches.

On 1) Explicitly target the positive and negative effects of mitigation action in the policy framework and implementation structure.

Whereas the CDM framework has focussed on the positive effects of mitigation action, in particular under the SD tool, the REDD+ framework considers positive effects, for example through addressing drivers of deforestation, and negative effects, for example through the Cancún Safeguards and references to the UN Declaration on the Rights of Indigenous Peoples. The GCF addresses positive and negative effects through a variety of governance approaches. In comparison to the political REDD+ framework, the degree of bindingness of these governance approaches is stricter, as they form part of the funding requirements. Related to this, the level of detail of global standardisation is higher. The CDM experience has shown that a focus on positive effects in the legal framework has led to gaps in safeguarding against potential negative effects. The lack of coherence between policy and implementation as well as insufficient risk management show (see Section 6.1) that the political support to introduce safeguards against negative effects has tended to be lower than the support for promoting the generation of positive effects.

On 2) Incentivise or support the alignment of climate change mitigation and sustainable development policies at the national level.

During the negotiations on all three governance approaches, there have been particular tensions over the primacy of global rules versus national rules, which tend to be decided in favour of country ownership and national rules and procedures. In the end, many provisions by the CDM, the REDD+ framework and the GCF are only recommendations to – and not obligations for – host country governments or national-level actors (compare Section 6.1, point 6). The application of the principle of country ownership refers to the policy as well as institutional and administrative levels and varies between the mitigation approaches. Whereas the principle of country ownership is generally widely supported, there are claims to introduce stricter global rules for national-level action, in particular with respect to negative effects of mitigation investments (see Sections 4 and 5.1.3).

For aligning mitigation and sustainable development under the GCF, the design of the logical framework – including its link to, or even influence on, national policies – by AEs will be central. As past experience with the GEF has shown, responsibility for an integrated policy approach to the two agendas is fragmented and not restricted to government actors. For example, there might be conflicting interests between these and AEs and non-government actors.

On 3) Create transparency and participation opportunities for stakeholders.

The creation of transparency is based on reporting, monitoring, evaluation and stakeholder participation. Stakeholder participation requires transparency on, and access to, information, and furthermore includes feedback and complaints mechanisms. As the analysis has shown, these global transparency requirements vary considerably between the three mitigation approaches; many governance approaches are voluntary and to a large extent rely on self-assessments (compare Section 6.1, points 6 and 9).

The possibilities for complaints by affected people currently vary greatly between the three mitigation approaches. They range from a planned independent redress mechanism under the GCF, to limited aspects and time periods under the CDM, and are not explicitly mentioned in the case of the REDD+ framework.

On 4) Manage risks, avoid or mitigate negative effects.

As outlined in Section 6.1, point 10, requirements for, and approaches to, risk management differ between the three mitigation entry points and are most comprehensive under the GCF.

On 5) Compensate for negative effects.

So far, the possibility for compensation for negative impacts of climate change mitigation activities exists at the national level or project/programme level for CCS activities under the CDM, and for general climate change mitigation activities under the GCF only. The REDD+ framework under the UNFCCC so far has not included a redress mechanism or a specific decision on legal protection. The GCF has adopted the IFC Performance Standards, which follow a mitigation hierarchy that foresees to anticipate, avoid, minimise and – if this is not possible – compensate or offset residual impacts. Responsibility for managing risks and impacts lies with AEs and Executing Entities.

6.3 Central challenges

Whereas the evolution of mitigation politics can explain some of the differences in governance approaches in aligning the two agendas, it hardly justifies these differences. Some governance approaches in aligning climate change mitigation and sustainable development under the UNFCCC reflect differing political goals and standards and need to be seen as being fragmented rather than useful. This is particularly problematic in the face of human rights infringements, the erosion of development opportunities and/or adaptive capacities.

As the analysis has illustrated, increasing levels of investment in climate change mitigation increase the risk of poor and vulnerable people being adversely affected by the impacts of climate change mitigation politics. Those who have contributed the least to climate change, but are the most vulnerable to the impacts of climate change, could thus face a double-equity gap. The analysis of the positive and negative effects of CDM activities has shown that the risk of adverse effects and a "race to the bottom" that merely focusses on the quantity of emission reductions is real. Examples illustrate that similar negative effects can also occur in the renewable energy and forestry sectors, both of which belong to the five priority investment areas of the GCF for their potential to generate multiple benefits with low

trade-offs. At the same time, examples of positive effects of mitigation activities illustrate that increasing mitigation investment raises the number of opportunities to support sustainable development, including for the poor and vulnerable.

In the conclusions for the sections on the CDM, REDD+ and the GCF as well as above, we have highlighted weaknesses and proposals, current characteristics and approaches of the UNFCCC global governance framework. The CDM analysis has illustrated the limited knowledge base with respect to SD effects of mitigation action (see also Box 1). In Section 3 we pointed to the lack of analysis on the effects of current governance approaches and on sustainable development.

Given these limitations – and given the assumption that the identified general goals and action corridors in Section 6.2 can be an effective starting basis for aligning the two agendas – what are the central challenges for improving the design of the global governance framework in aligning climate change mitigation and sustainable development? With a view to the characteristics and weaknesses of current governance approaches, we argue that three challenges and related questions in particular need to be addressed by Parties to the UNFCCC.

1. How to improve transparency on sustainable development effects of mitigation action?

Transparency on implementation practice is a prerequisite for improving the generation of positive – or the prevention of negative – effects, and for achieving a fair share of the burdens and benefits of climate change mitigation action, in particular if not only the process but also the result is regarded as being relevant. The analysis has identified weaknesses in reporting, monitoring and verifying SD effects of mitigation action and the related role and participation possibilities of stakeholders. It furthermore pointed to the limited knowledge that we have on those effects. Reporting requirements on SD effects are currently fragmented, which can increase transaction costs for countries. Fragmentation is caused by a lack of a common definition of sustainable development (effects) and related indicators. Reporting, monitoring and verification requirements vary.

Finding a common understanding of sustainable development and an approach to increase transparency has proven difficult so far, politically as well as technically. Politically, many countries, for example, wish to define

sustainable development at the national level or oppose strong transparency requirements, as they wish to keep related bureaucratic structures to a minimum. Technically, the assessment of SD effects is complex and can only be represented by indicators or indices to a limited extend.

2. How to improve risk management and legal protection against negative effects of mitigation activities?

Given the risk that vulnerable people are not only negatively affected directly by the impacts of climate change but also by mitigation investments, Parties to the UNFCCC should consider how to close this potential double-equity gap. Under the current principle of having a country-driven approach, this arises in cases where there is poor national-level performance and is dependent on factors such as national legislation and the difference between *de jure* and *de facto* rules, administrative procedures or the performance by AEs or private actors.

In order to enhance national-level performance, we propose two options: a) support national-level action, for example through capacity-building or voluntary global guidelines; b) introduce global risk management and legal protection requirements that are mandatory in case of unmitigated adverse effects. Proposals such as those by the UN Special Rapporteur on Human Rights and the Environment and 96 NGOs to introduce an independent Accountability Mechanism point in this direction. For an improved risk management, Parties should at least address two further questions:

a) How to deal with risks related to poor national-level performance?

b) How to address residual damages of mitigation action through the global governance framework?

3. How to promote social inclusion of mitigation investments?

Closely related to the previous challenge is the question of how to promote social inclusion and a fair share of benefits and burdens of mitigation investments. Under current global governance provisions, the social inclusion of mitigation action is hardly being promoted. Indeed, as the CDM analysis has shown, we know little about the distributional effects of mitigation action at the national level. This is not only problematic because of the double-equity gap. It is also problematic because a lack of social inclusion can lead to a lack of political support for mitigation politics at the

national level. In UNFCCC negotiations, the promotion of social inclusion has been politically and diplomatically challenging because the promotion of related policy goals has been interpreted as a sign against mitigation action. This was the case with the response measure agenda and the support of adaptation politics in the 1990s.

A cross-cutting challenge in aligning mitigation and sustainable development under the UNFCCC is finding a balance between the establishment of global approaches and standards and national ownership and needs. Here, CDM experience as well as the outlined weaknesses in existing global governance approaches suggest that global regulation of SD effects is necessary. Public and private actors have not sufficiently considered SD effects in the past.

On the other hand, CDM experience suggests that finding a common definition of sustainable development under the UNFCCC is difficult and partly not effective. National CDM practice has shown that ideas on how the CDM should function and what national-level priorities it should support differ widely. Such diverging views and interests could explain past difficulties in finding a consensus on a common definition on – and approaches to – sustainable development under the CDM. In addition, justified context-specific views and interests, as well as limited possibilities for affected stakeholders to influence global policy-making for example, provide legitimate arguments against global regulations.

A compromise would be a global governance approach that addresses both the justified need for national ownership and the justified concerns on adverse effects of mitigation action on sustainable development opportunities and adaptive capacities. Such an approach should be process-oriented, yet based on international norms and standards. In this respect, Parties to the UNFCCC should also aim to maximise coherence with existing norms, standards and political agendas under other UN agreements that are relevant for regulating effects of climate change mitigation action on sustainable development.

Overall, whereas the Paris Agreement provides new political momentum to strengthen the alignment of climate change mitigation and sustainable development, the current status of governance approaches under the CDM, REDD+ and the GCF does not yet sufficiently address the increased risk of negative effects as well as opportunities related to rising levels of mitigation investment. Given this increased risk and the evidence of negative effects of past climate change mitigation action on sustainable development and adaptive capacities, Parties should address the outlined weaknesses and

challenges of the global governance framework (see also the specific conclusions in Section 5). They should consider the outlined experiences of past climate change mitigation governance and introduce stronger incentives for aligning the two agendas, including in outstanding decisions. This is particularly relevant for decisions related to the implementation of NDCs and private-sector engagement, such as, for example, under Article 6 of the Paris Agreement.

With a view to the shifts in investment patterns that are necessary for limiting global warming to below 1.5/2°C, Parties should furthermore consider related consequences for climate change mitigation financing under the UNFCCC, which might require a prioritisation, limitation or exclusion for certain climate change mitigation technologies or options. Ultimately, limiting the global temperature increase to 1.5 and well below 2°C is essential for sustainable development.

Bibliography

Arens, C., Mersmann, F., Beuermann, C., Rudolph, F., Olsen, K. H., Bakhtiari, F., ... Fenhann, J. V. (2015). *Reforming the CDM SD tool. Recommendations for improvement*. Berlin: German Emissions Trading Authority (DEHSt).

Bernstein, S. F. (2001). *The compromise of liberal environmentalism*. New York/ Chichester: Columbia University Press.

Brown, K., Adger, W. N., Boyd, E., Corbera-Elizalde, E., & Shackley, S. (2004). *How do CDM projects contribute to sustainable development?* Norwich: Tyndall Centre for Climate Change Research.

Buchner, B., Stadelmann, M., Wilkinson, J., Mazza, F., Rosenberg, A., & Abramskiehn, D. (2014). *The global landscape of climate finance.* Report. San Francisco: Climate Policy Initiative.

Busch, J., Godoy, F., Turner, W. R., & Harvey, C. A. (2011). Biodiversity co-benefits of reducing emissions from deforestation under alternative reference levels and levels of finance. *Conservation Letters, 4*(2), 101-115.

Carbon Market Watch. (2015). *Social and environmental accountability of climate finance instruments*. Retrieved from http://carbonmarketwatch.org/wp-content/uploads/2015/09/SOCIAL-AND-ENVIRONMENTAL-08-web-.pdf

Castillo Jara, E. (2011). *Local opposition to wind energy projects in the Isthmus of Tehuantepec*. Retrieved from https://www.wind-watch.org/documents/local-opposition-to-wind-energy-projects-in-the-isthmus-of-tehuantepec/

CCBA (Climate, Community and Biodiversity Alliance). (2013, December). *Climate, community & biodiversity standards*. Third Edition. Arlington, VA: Author.

CDM (Clean Development Mechanism). (s.a.). *Designated national authorities*. Retrieved from http://cdm.unfccc.int/DNA/index.html

CDM Policy Dialogue. (2012). *Climate change, carbon markets and the CDM: A call to action. Report of the High-Level Panel on the CDM Policy Dialogue.* Retrieved from http://cdmpolicydialogue.org/report/rpt110912.pdf

CDM Executive Board. (2012). *Draft tool: Sustainable development co-benefits description for CDM project activities and programmes of activities.* CDM-EB70-AA-A20, Version 03.0. Retrieved from http://www.kyomecha.org/document/CDM/EB70/eb70annotation/eb70_Annex20_Draft_Tool_Sustainable_dev_co-benefits_description_for_CDM_project_activities_and_PoAs.pdf

CDM Executive Board. (2015a). *CDM glossary*. CDM-EB07-A04-GLOS, Version 08, EB 82, Annex 12. Bonn: United Nations Framework Convention on Climate Change. Retrieved from http://docplayer.net/22571073-Clean-development-mechanism-cdm-eb07-a04-glos-glossary-cdm-terms-version-08-0.html

CDM Executive Board. (2015b). *Procedure: Clean development mechanism project cycle procedure, Version 09.0, CDM-EB65-A32-PROC*. Bonn: Author.

CDM Executive Board. (2015c). *Procedure, Direct communication with stakeholders, Version 02.0, CDM-EB62-A15-PROC*. Bonn: Author.

CDM Executive Board. (2015d). *Standard CDM project standard, Version 09.0, CDM-EB65-A05-STAN*. Bonn: Author.

CDM Executive Board. (2015e). *Standard CDM validation and verification standard, Version 09.0, CDM-EB65-A04-STAN*. Bonn: Author.

CDM Executive Board. (2016). *Highlights – 88th meeting of the CDM Executive Board*. Retrieved from https://cdm.unfccc.int/press/newsroom/latestnews/releases/2016/1103_index.html

CDM Executive Board. (2017). *Standard CDM validation and verification standard for programmes of activities, Version 01.0, CDM-EB93-A08-STAN*. Bonn: Author.

CDM Executive Board Meeting. (2015). *Concept note: Improving stakeholder consultation processes*. Board Meeting No. 86-AA-A15. United Nations Framework Convention on Climate Change. Retrieved from http://cdm.unfccc.int/filestorage/B/H/W/BHW3PT5CDO24YF9SJ70ER6UZIAKL1Q/eb86_propan15.pdf?t=Y1Z8b2txbXMyfDDW4JjxaKpEVgnDCKL_BVtN

CERES. (2015). *The clean trillion. Closing the clean energy investment gap*. Retrieved from http://www.ceres.org/issues/clean-trillion

Cernea, M. M. (1997). *Hydro power dams and social impacts: A sociological perspective* (Environment Department Papers, Social Assessment Series 044). Washington, DC: World Bank.

Cheikhrouhou, H. (2015). *Global partnership and the three dimensions of sustainable development. Statement on the occasion of the Financing for Development Conference, Addis Ababa, Ethiopia, 14 July 2015*. Retrieved from https://www.greenclimate.fund/documents/20182/44502/1407_-_Global_Partnership_and_the_three_dimensions_of_sustainable_development.pdf/24def0fc-53f9-4427-9468-d2b70527173d

CIEL (Center for International Environment Law). (s.a.). *Barro Blanco hydroelectric dam threatens indigenous communities, Panama*. Retrieved from http://www.ciel.org/project-update/barro-blanco/

CIEL & CARE International. (2015). *Climate change: Tackling the greatest human rights challenge of our time. Recommendations for effective action on climate change and human rights.* Retrieved from http://careclimatechange.org/files/CARE_and_CIEL_-_Climate_Change_and_Human_Rights_web.pdf

Climate Action Tracker. (s.a.). *Effect of current pledges and policies on global temperature*. Retrieved from http://climateactiontracker.org/global.html

Colchester, M., Anderson, P., Firdaus, A. Y., Hasibuan, F., & Chao, S. (2011). *Human rights abuses and land conflicts in the PT Asiatic Persada Concession in Jambi: Report of an independent investigation into land disputes and forced evictions in a palm oil estate: Independent investigation of PT AP*. Moreton-in-Marsh, UK/Bogor/Jakarta, Indonesia: HuMa/Sawit Watch/Forest Peoples Programme.

Corbera, E., & Jover, N. (2012). The undelivered promises of the Clean Development Mechanism: Insights from three projects in Mexico. *Carbon Management*, *3*(1), 39-54.

Corbera, E., Estrada, M., & Brown, K. (2010). Reducing greenhouse gas emissions from deforestation and forest degradation in developing countries: Revisiting the assumptions. *Climatic Change*, *100*(3-4), 355-388, 1750.

Department for Communications and Local Government. (2009). *Multi-criteria analysis: A manual.* London: Author.

Deutsche Gesellschaft für Internationale Zusammenarbeit. (2016). *La inclusión íntegra de los mecanismos de Mercado y el financiamiento internacional a las Contribuciones Nacionalmente Determinadas*. Eschborn: Author.

DNV. (2013). *Global carbon development benefits standard. Standard for quantifying development benefits*. Version 2.1, DNV Climate Change Services AS: 23.

Dugan, P. J., Barlow, C., Agostinho, A. A., Baran, E., Cada, G. F., Chen, D., ... Marmulla, G. (2010). Fish migration, dams, and loss of ecosystem services in the Mekong basin. *AMBIO: A Journal of the Human Environment*, *39*(4), 344-348. Retrieved from http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3357701/

European Union. (2013). *Submission by Ireland and the European Commission on behalf of the European Union and its member states.* Guidance relating to the Clean Development Mechanism. Retrieved from https://unfccc.int/files/documentation/submissions_from_parties/application/pdf/eu_cdm.pdf

Filzmoser, E., Voigt, J., Trunk, U., Olsen, K. H., Jegede, A. O. (2015). *The need for a rights-based approach to the Clean Development Mechanism* (Public Participation and Climate Governance Working Paper Series). Rovaniemi, Finland/New Haven, CT: K. Lofts and S. Duyck Centre for International Sustainable Development Law, Yale University/University of Lapland.

Finley-Brook, M., & Thomas, C. (2011). Renewable energy and human rights violations: Illustrative cases from indigenous territories in Panama. *Annals of the Association of American Geographers*, *101*(4), 863-872.

FCPF (Forest Carbon Partnership Facility). (2012). *Common approach to environmental and social safeguards for multiple delivery partners.* Retrieved from https://www.forestcarbonpartnership.org/common-approach-environmental-and-social-safeguards

FCPF Carbon Fund. (2013). *World Bank Safeguard Policies and the UNFCCC REDD+ Safeguards.* Retrieved from https://www.forestcarbonpartnership.org/sites/fcp/files/2013/june2013/FMT%20Note%20CF-2013-3_FCPF%20WB%20Safeguard%20Policies%20and%20UNFCCC%20REDD%2B%20Safeguards_FINAL.pdf

FCPF & UNREDD (United Nations Programme on Reducing Emissions from Deforestation and Forest Degradation). (2012). *Guidelines on stakeholder engagement in REDD+ readiness. With a focus on the participation of indigenous peoples and other forest-dependent communities*. Retrieved from http://www.unredd.net/index.php?view=document&alias=5421-final-fcpf-un-redd-joint-stakeholder-engagement-guidelines-20-april-2012-5421&category_slug=joint-fcpf-and-un-redd-se-guidelines-1120&layout=default&option=com_docman&Itemid=134

Friends of the Earth. (2013). *Paris' unfinished business: A transparent no-objection procedure for the Green Climate Fund*. Retrieved from http://www.foe.org/news/archives/2013-10-paris-unfinished-business--a-transparent-no-objection-procedure

Fuessler, J., Herren, M., Wunderlich, A., Michaelowa, A., Matsuo, T., Honegger, M., & Hoch, S. (2015). *Market mechanisms: Incentives and integration in the post-2020 world.* Final Report. Retrieved from http://www.academia.edu/22248172/Market_Mechanisms_Incentives_and_Integration_in_the_Post-2020_World

Fulton, M., & Capalino, R. (2014). *Investing in the clean trillion: Closing the clean energy investment gap*. Boston, MA: CERES.

GCF (Green Climate Fund). (2015). *Investment opportunities for the Green Climate Fund. Essential knowledge about GCF. GCF's role and impact within the climate finance ecosystem*. Elements, 02. Songdo: Author. Retrieved from http://www.greenclimate.fund/documents/20182/194568/GCF_ELEMENTS_02.pdf

GCF. (2016a). *Compilation of submissions: Further development of indicators in the performance measurement frameworks*. GCF/B.12/35. Songdo: Author.

GCF. (2016b). *Head of GCF addresses Asia-Pacific leaders: "Climate change action is an enabler of the SDGs"*. Retrieved from http://www.greenclimate.fund/-/head-of-gcf-addresses-asia-pacific-leaders-climate-change-action-is-an-enabler-of-the-sdgs-?inheritRedirect=true&redirect=%2Fhome

GCF. (2016c). *Accreditation to the Green Climate Fund*. Songdo: Author.

GCF. (s.a.). *Governing Instrument for the Green Climate Fund*. Retrieved from https://www.greenclimate.fund/documents/20182/574763/Governing_Instrument.pdf

GCF. (s.a.). *Board Meetings.* REF#: B.04/18, B.05/15, B.05/24/Rev.01, B.06/06, B.06/19, B.07/03, B.07/04, B.07/05, B.07/06, B.07/10, B.07/11, B.07/12, B.08/07, B.08/08, B.08/10, B.08/45, B.08/46, B.09/05, B/09/07, B.09/23, B.09/24, B.10/07, B.10/18, B.11/10, B.11/17, B.11/25, B.12/13, B.12/17, B.12/32, B.12/33, B.12/34, B.12/35, B.13/03, B.13/13, B.13/17, B.13/20, B.13/24, B.13/26, B.13/29, B.13/32, B.13/33, B.13/35, B.14/01, B.14/03, B.14/06, B.14/07, B.14/17, B.14/18, B.15/01, B.15/06, B.15/24, B.15/25. Retrieved from http://www.greenclimate.fund/boardroom/board-meetings/documents

Gonzalez, G. (2013). *International REDD faces uphill battle in California in 2014.* Retrieved from http://www.ecosystemmarketplace.com/articles/international-redd-faces-uphill-battle-in-california-in-2014/

Granoff, I., Eis, J., Hoy, C., Watson, C., Khan, A., & Grist, N. (2014). *Targeting zero zero. Achieving zero extreme poverty on the path to zero net emissions* (Discussion Paper). London: Overseas Development Institute.

Griffiths, T. (2007). *Seeing "RED"? "Avoided deforestation" and the rights of indigenous peoples and local communities.* Moreton-in-Marsh: Forest Peoples Programme.

Gupta, J. (2012). Glocal forest and REDD+ governance: Win–win or lose–lose? *Current Opinion in Environmental Sustainability, 4*(6), 620-627.

Gütschow, J., Jeffery, L., Alexander, R., Hare, B., Schaeffer, M., Rocha, M., ... Blok, K. (2015). *INDCs lower projected warming to 2.7˚C: Significant progress but still above 2°C*. Climate Action Tracker Update. Retrieved from http://climateactiontracker.org/assets/publications/CAT_global_temperature_update_October_2015.pdf

Hein, J. (2013). *Reducing emissions from deforestation and forest degradation (REDD+), transnational conservation and access to land in Jambi, Indonesia* (Vol. No. 2, EFForTS Discussion Paper Series). Göttingen: University of Göttingen.

Hein, J. (2016). *Rescaling conflictive access and property relations in the context of REDD+ in Jambi, Indonesia* (PhD thesis). Göttingen: University of Göttingen.

Hein, J., Adiwibowo, S., Dittrich, C., Rosyani, Soetarto, E., & Faust, H. (2016). Rescaling of access and property relations in a frontier landscape: Insights from Jambi, Indonesia. *The Professional Geographer, 68*(3), 380-389.

Hein, J., & Faust, H. (2014). Conservation, REDD+ and the struggle for land in Jambi, Indonesia. *Pacific Geographies, 41,* 20-25.

Hein, J., & Garrelts, H. (2014). Ambiguous involvement: Civil-society actors in forest carbon offsets. The case of the Climate Community and Biodiversity standards (CCB). In H. Garrelts & M. Dietz (Eds.), *Routledge handbook of the climate change movement* (pp. 319-333). New York, NY: Routledge.

Hein, J., Meijer, K., & Rodríguez de Francisco, J. C. (2015). *What is the potential for a climate, forest and community friendly REDD+ in Paris?* (Briefing Paper 3/2015). Bonn: German Development Institute / Deutsches Institut für Entwicklungspolitik (DIE).

Human Rights & Climate Change Working Group. (2012). *Submission on views regarding the revision of the CDM modalities and procedures.* Retrieved from http://carbonmarketwatch.org/wp-content/uploads/2013/03/Human-Rights-Climate-Change-WG-Submission-on-CDM-Modalities-Procedur....pdf

IEA (International Energy Agency). (2014). *World energy investment outlook.* Paris: Author.

IEA. (2017). *Deep energy transformation needed by 2050 to limit rise in global temperature*. Retrieved from http://www.iea.org/newsroom/news/2017/march/deep-energy-transformation-needed-by-2050-to-limit-rise-in-global-temperature.html

IEA/IRENA (International Renewable Energy Agency). (2017). *Perspectives for the energy transition*. Retrieved from http://www.iea.org/newsroom/news/2017/march/deep-energy-transformation-needed-by-2050-to-limit-rise-in-global-temperature.html

IFC (International Finance Corporation). (2012a). *Guidance note 1 assessment and management of environmental and social risks and impacts*. Retrieved from http://www.ifc.org/wps/wcm/connect/b29a4600498009cfa7fcf7336b93d75f/Updated_GN1-2012.pdf?MOD=AJPERES

IFC. (2012b). *Performance standards on environmental and social sustainability.* Retrieved from http://www.ifc.org/wps/wcm/connect/115482804a0255db96fbffd1a5d13d27/PS_English_2012_Full-Document.pdf?MOD=AJPERES

IFC. (s.a.). *Overview*. Retrieved from http://www.ifc.org/wps/wcm/connect/Topics_Ext_Content/IFC_External_Corporate_Site/Sustainability-At-IFC

International Rivers. (s.a.). *CDM comments*. Retrieved from https://www.internationalrivers.org/taxonomy/term/1025

IPCC (Intergovernmental Panel on Climate Change). (2013). *Climate change 2013. The physical science basis. Working Group I. Contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*. Summary for policymakers. Retrieved from http://www.ipcc.ch/report/ar5/wg1/docs/WGIAR5_SPM_brochure_en.pdf

IPCC. (2014). *Climate change 2014: Impacts, adaptation, and vulnerability. Part A: Global and sectoral aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*. Summary for policymakers. Cambridge/New York, NY: Cambridge University Press.

IPCC WG III 2014 (Gupta S., Harnisch, J., Barua, D. C., Chingambo, L., Frankel, P., Garrido Vázquez, R. J., … Massetti, E.). (2014). Cross-cutting investment and finance issues. In O. Edenhofer, R. Pichs-Madruga, Y. Sokona, E. Farahani, S. Kadner, K. Seyboth, … J. C. Minx (Eds.), *Climate change 2014: Mitigation of climate change. Contribution of Working Group III to the Fifth Assessment Report of the Inter-governmental Panel on Climate Change*. Cambridge/New York, NY: Cambridge University Press.

IRENA (International Renewable Energy Agency). (2014). *The socio-economic benefits of solar and wind energy.* Abu Dhabi: Author.

IRENA. (2016). *Renewable energy benefits: Measuring the economics*. Abu Dhabi: Author.

Juárez-Hernández, S., & León, G. (2014). Wind energy in the isthmus of Tehuantepec: Development, actors and social opposition. *Problemas del Desarrollo, Revista Latinoamericana de Economía, 45*(178). Retrieved from http://www.probdes.iiec.unam.mx/en/revistas/v45n178/body/v45n178a6_1.php

Kirkman, G. A., Seres, S., & Haites, E. (2013). Renewable energy: Comparison of CDM and Annex I projects. *Energy Policy*, *63*, 995-1001. http://dx.doi.org/10.1016/j.enpol.2013.08.071

Knox, J. (2015). *Open letter on human rights and climate change.* CDM Stakeholder Communication Form No. INQ-03907 PUBLIC. Retrieved from https://cdm.unfccc.int/stakeholder/submissions/index.html

Kollmuss, A., Zink, H., & Polycarp, C. (2008). *Making sense of the voluntary carbon market: A comparison of carbon offset standards*. Berlin: WWF Germany.

Lang, C. (2010). *The Cancun Agreement on REDD: Four questions and four answers*. Retrieved from http://www.redd-monitor.org/2010/12/18/the-cancun-agreement-on-redd-four-questions-and-four-answers/

Lang, C. (2015). *COP21 Paris: REDD and carbon markets*. Retrieved from http://www.redd-monitor.org/2015/12/15/cop21-paris-redd-and-carbon-markets/

Larson, A. M. (2011). Forest tenure reform in the age of climate change: Lessons for REDD+. *Global Environmental Change, 21*(2), 540-549.

Lecocq, F., & Ambrosi, P. (2007). The Clean Development Mechanism: History, status, and prospects. *Review of Environmental Economics and Policy, 1*(1).

Lyons, K., & Westoby, P. (2014). Carbon colonialism and the new land grab: Plantation forestry in Uganda and its livelihood impacts. *Journal of Rural Studies, 36*, 13-21.

McAfee, A., Brynjolfsson, E., Davenport, T. H., Patil, D. J., & Barton, D. (2012). Big data. The management revolution. *Harvard Business Review*, *90*(10), 61-67.

McShane, T. O., Hirsch, P. D., Trung, T. C., Songorwa, A. N., Kinzig, A., Monteferri, B., ... & Welch-Devine, M. (2011). Hard choices: Making trade-offs between biodiversity conservation and human well-being. *Biological Conservation*, *144*(3), 966-972.

Messner, D. (2016). Paris Agreement: Gateway to a decarbonised global society. *Great Insights*, *5*(3), 4-6.

Michaelowa, A., & Michaelowa, K. (2009). *Does human development really require greenhouse gas emissions? Rethinking development in a carbon constrained world. Development cooperation and climate change.* Finland: Ministry for Foreign Affairs.

Monceau, T. du, & Brohé, A. (2011). *Sustainable development and social equity* (Briefing Paper No. 1). Retrieved from https://ec.europa.eu/clima/sites/clima/files/ets/markets/docs/sustainable_development_en_0.pdf

Muradian, R., Arsel, M., Pellegrini, L., Adaman, F., Aguilar, B., Aggarwal, B., ... Garcia-Frapolli, E. (2013). Payments for Ecosystem Services and the fatal attraction of win-win solutions. *Conservation letters*, *6*(4), 274-279.

NAMA Facility. (2015). *General information document.* Eschborn: NAMA Facility Technical Support Unit.

Olsen, K. H., Fenhann, J. V., Hinostroza, M. L., Arens, C., Mersmann, F., Beuermann, C., & Rudolph, F. (2015). *Assessing usefulness. Do stakeholders regard the CDM's SD tool as practical*? Berlin: German Emissions Trading Authority.

Orenstein, K., Redman, J., & Tangri, N. (s.a.). *The Green Climate Fund's "no-objection" procedure and private finance: Lessons learned from existing institutions*. Retrieved from http://libcloud.s3.amazonaws.com/93/21/8/2350/no_obj_reprt_foe_gaia_ips_FINAL_8-10.pdf

Organisation for Economic Co-operation and Development. (2015). *Climate finance in 2013-14 and the USD 100 billion goal*. A report by the Organisation for Economic Co-operation and Development in collaboration with Climate Policy Initiative. Retrieved from http://www.oecd.org/environment/cc/OECD-CPI-Climate-Finance-Report.htm

Osborne, T. M. (2011). Carbon forestry and agrarian change: Access and land control in a Mexican rainforest. *Journal of Peasant Studies, 38*(4), 859-883.

Paluoso, E. (Ed.). (2009). Rethinking development in a carbon constrained world. *Development Cooperation and Climate Change*. Helsinki: Ministry for Foreign Affairs.

Paulsson, E. (2009). A review of the CDM literature: From fine-tuning to critical scrutiny? *International Environmental Agreements-Politics Law and Economics, 9*(1), 63-80.

Pearse-Smith, S. W. D. (2012). The impact of continued Mekong basin hydropower development on local livelihoods. *Consilience*: *The Journal of Sustainable Development, 7*(1), 73-86.

Phelps, J., Friess, D. A., & Webb, E. L. (2012). Win-win REDD+ approaches belief carbon–biodiversity trade-offs. *Biological Conservation*, *154*, 53-60.

Plan Vivo. (2013). *The Plan Vivo standard for community payment for ecosystem services programmes*. Edinburgh: Plan Vivo Foundation.

Pokorny, B., Johnson, J., Medina, G., & Hoch, L. (2012). Market-based conservation of the Amazonian forests: Revisiting win-win expectations. *Geoforum, 43*(3), 387-401.

Räsänen, T. A., Koponen, J., Lauri, H., & Kummu, M. (2012). Downstream hydrological impacts of hydropower development in the Upper Mekong Basin. *Water Resources Management*, *26*(12), 3495-3513.

Rawls, J. (2009). *A theory of justice*. Cambridge, MA: Harvard University Press.

Redman, J. (2012). *The Green Climate Fund's "no-objection" procedure and private finance: Lessons learned from existing institutions.* Institute for Policy Studies. Retrieved from http://www.ips-dc.org/the_green_climate_funds_no-objection_procedure_and_private_finance_lessons_learned_from_existing_institutions/

Rodríguez de Francisco, J. C. (2013). *PES, peasants and power in Andean watersheds: Power relations and payment for environmental services in Colombia and Ecuador* (PhD thesis). Wageningen: Wageningen School of Social Science, Wageningen University.

Roht-Arriaza, N. (2009). First, do no harm: Human rights and efforts to combat climate change. *Georgia Journal of International and Comparative Law*, *38*, 593.

SCF (Standing Committee on Finance). (2014). *Summary and recommendations by the Standing Committee on Finance on the 2014 biennial Assessment and Overview of Climate Finance Flows*. Bonn: United Nations Framework Convention on Climate Change.

Scudder, T. T. (2012). *The future of large dams: Dealing with social, environmental, institutional and political costs*. Oxfordshire: Taylor & Francis.

SE4All. (2015). *Scaling up finance for sustainable energy investments*. Report of the SE4All Advisory Board's Finance Committee – 2015. Retrieved from http://www.se4all.org/sites/default/files/l/2015/09/SE4All-Advisory-Board-Finance-Committee-Report.pdf

Spiller, I., & Fuhr, L. (2010). *Wo steht die internationale Klimapolitik nach Cancun?* Retrieved from https://www.boell.de/de/navigation/klima-energie-analyse-klimagipfel-cancun-10814.html

Sterk, W., Rudolph, F., Arens, C., Eichhorst, U., Kiyar, D., Wang-Helmreich, H., & Swiderski, M. (2009). *Further development of the project-based mechanisms in a post-2012 regime.* Final Report of the Project Commissioned by the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety. Retrieved from https://epub.wupperinst.org/files/3396/3396_CDM_Post_2012.pdf

Sutter, C. (2003). *Sustainability check up for CDM projects*. Dissertation. Zürich: Eidgenössische Technische Hochschule ETH Zürich, Nr. 15332.

Tewari, R. (2012). *Mapping of criteria set by DNAs to assess sustainable development benefits of CDM projects*. CDM Policy Dialogue. New Delhi: The Energy and Resources Institute.

Torvanger, A., Shrivastava, M. K., Pandey, N., & Tørnblad, S. H. (2013). A two-track CDM: Improved incentives for sustainable development and offset production. *Climate Policy, 13*(4), 471-489.

UN (United Nations). (2015). *Transforming our world*. Draft outcome document of the United Nations Summit for the adoption of the post-2015 Development Agenda. A/RES/70/1. Retrieved from https://sustainabledevelopment.un.org/post2015/transformingourworld

UN. (s.a.). *Sustainable Development Goals. Goal 13: Take urgent action to combat climate change and its impacts*. Retrieved from http://www.un.org/sustainabledevelopment/climate-change-2/

United Nations Development Programme (United Nations Development Programme). (2014). *NAMA SD tool*. Retrieved from http://www.United Nations Development Programme.org/content/United Nations Development Programme/en/home/librarypage/environment-energy/mdg-carbon/NAMA-sustainable-development-evaluation-tool

UNEP (United Nations Environment Programme). (2014). *Emissions gap report*. Nairobi: Author.

UNEP. (2015). *The emissions gap report 2015: A UNEP synthesis report*. Nairobi: Author.

UNEP Risø (2013, September). *UNEP Risø CDM / JI pipeline analysis and database*. Retrieved from http://www.cdmpipeline.org

UNFCCC (United Nations Framework Convention on Climate Change). (1992). *The UN Framework Convention on Climate Change*. Bonn: Author.

UNFCCC. (1997). *Kyoto Protocol to the UNFCCC*. Bonn: Author.

UNFCCC. (2005a). *Modalities and procedures for a clean development mechanism as defined in Article 12 of the Kyoto Protocol.* Decision 3/CMP.1. Bonn: Author.

UNFCCC. (2005b). *Modalities and procedures for a clean development mechanism as defined in Article 12 of the Kyoto Protocol.* Decision 3/CMP.1, Annex: Modalities and procedures for a clean development mechanism. Bonn: Author.

UNFCCC. (2009a). *Report of the Conference of the Parties on its fifteenth session, held in Copenhagen from 7 to 19 December 2009. Addendum. Part Two: Action taken by the Conference of the Parties at its fifteenth session*. Document FCCC/CP/2009/11/Add.1. Bonn: Author.

UNFCCC. (2009b). *Further guidance relating to the clean development mechanism.* Decision 2/CMP.5. Bonn: Author.

UNFCCC. (2010a). *Report of the Conference of the Parties on its sixteenth session, held in Cancun from 29 November to 10 December 2010. Addendum. Part Two: Action taken by the Conference of the Parties at its sixteenth session*. Document FCCC/CP/2010/7/Add.1. Bonn: Author.

UNFCCC. (2010b). *The Cancun Agreements: Outcome of the work of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention.* Decision 1/CP.16. Bonn: Author.

UNFCCC. (2011a). *Benefits of the Clean Development Mechanism 2011*. Bonn: Author.

UNFCCC. (2011b). *Report of the Conference of the Parties on its sixteenth session, held in Durban from 28 November to 11 December 2011. Addendum. Part Two: Action taken by the Conference of the Parties at its seventeenth session*. Document FCCC/CP/2011/9/Add.1. Bonn: Author.

UNFCCC. (2011c). *Modalities and procedures for carbon dioxide capture and storage in geological formations as clean development mechanism project activities.* Decision 10/CMP.7. Bonn: Author.

UNFCCC. (2012). *Benefits of the Clean Development Mechanism 2012*. Bonn: Author.

UNFCCC. (2013a). *The timing and the frequency of presentations of the summary of information on how all the safeguards referred to in decision 1/CP.16, appendix I, are being addressed and respected*. Decision 12/CP.19. Bonn: Author.

UNFCCC. (2013b). *Warsaw Framework for REDD-plus*. Retrieved from http://unfccc.int/land_use_and_climate_change/redd/items/8180.php

UNFCCC. (2013c). *Guidance relating to the clean development mechanism*. Decision 3/CMP.9. Bonn: Author.

UNFCCC. (2014a). *Voluntary tool for describing Sustainable Development Co-Benefits of CDM Project Activities or Programmes of Activities (PoA) SD-Tool 01, version 01.1*. Bonn: Author.

UNFCCC. (2014b). *Possible changes to the modalities and procedures for the Clean Development Mechanism*. Technical Paper. Bonn: Author.

UNFCCC. (2015a). *Concept note. Voluntary monitoring of Sustainable Development co-benefits*. Version 01.0. Clean Development Mechanism. Bonn: Author.

UNFCCC. (2015b). *Adoption of the Paris Agreement*. *Conference of the Parties twenty-first session Paris, 30 November to 11 December 2015*. Proposal by the President, Draft decision -/CP.21 FCCC /CP/2015/L.9/Rev.1. Retrieved from https://unfccc.int/resource/docs/2015/cop21/eng/l09r01.pdf

UNFCCC. (2015c). *Synthesis report on the aggregate effect of the intended nationally determined contributions*. Note by the secretariat, FCCC/CP/2015/7. Retrieved from http://unfccc.int/resource/docs/2015/cop21/eng/07.pdf

UNFCCC. (2015d). *Decision 18/CP.21. Methodological issues related to non-carbon benefits resulting from the implementation of the activities referred to in decision 1/CP.16, paragraph 70*. Document FCCC/CP/2015/10/Add.3. Bonn: Author.

UNFCCC. (2015e). *Report of the Conference of the Parties on its twenty-first session*. Retrieved from http://unfccc.int/resource/docs/2015/cop21/eng/10a01.pdf

UNFCCC. (2016a). *REDD+ web platform.* Retrieved from http://redd.unfccc.int/

UNFCCC. (2016b). *Project design document form for CDM project activities, CDM-PDD-FORM.* Bonn: Author.

UNFCCC. (s.a.). *UNFCCC documents in relation to reducing emissions from deforestation and forest degradation in developing countries.* Retrieved from http://unfccc.int/land_use_and_climate_change/lulucf/items/6917.php.

UNFCCC SCF. (2016). *Biennial assessment and overview of climate finance flows report*. Bonn: UNFCCC.

UNFCCC Secretariat SDM Programme. (21-25 November 2011). *Sustainable development co-benefits and negative impacts of CDM Project Activities*. Power point presentation. Agenda item 4.3 Paragraph 60 of the annotated agenda, CDM Executive Board 65, Durban, South Africa.

United Nations Statistics Division. (2016). *Provisional proposed tiers for global SDG indicators*. Retrieved from http://unstats.un.org/sdgs/files/meetings/iaeg-sdgs-meeting-03/Provisional-Proposed-Tiers-for-SDG-Indicators-24-03-16.pdf

United Nations Statistics Division. (s.a.). *IAEG-SDGs: Inter-agency Expert Group on SDG Indicators*. Retrieved from https://unstats.un.org/sdgs/iaeg-sdgs/

Vorlaufer, H. C. T. (2009). *The contribution of the CDM to Sustainable Development in China: A case study of the emerging biogas sector*. Retrieved from http://www.frankhaugwitz.info/doks/cdm/2009_12_China_The_Contribution_of_CDM_to_Sustainable_Development%20_in_China.pdf

Warnecke, C., Day, T., & Tewari, R. (2015). *Impact of the Clean Development Mechanism: Quantifying the current and pre-2020 climate change mitigation impact of the CDM*. Retrieved from https://newclimateinstitute.files.wordpress.com/2015/11/newclimate_impacts-of-the-cdm_2015.pdf

Watson, C., & Fankhauser, S. (2009). *The Clean Development Mechanism: Too flexible to produce sustainable development benefits?* (Working Paper No. 2). London: Grantham Research Institute on Climate Change and the Environment.

World Bank. (2010). *World development report 2010. Development and climate change*. Retrieved from http://passthrough.fw-notify.net/download/283649/http://siteresources.worldbank.org/INTWDR2010/Resources/5287678-1226014527953/WDR10-Full-Text.pdf

World Bank. (2013). *Toward a sustainable energy future for all: Directions for the World Bank Group's energy sector*. Washington, DC: Author. Retrieved from http://documents.worldbank.org/curated/en/2013/07/18016002/toward-sustainable-energy-future-all-directions-world-bank-group's-energy-sector

World Commission on Environment and Development. (1987). *Our common future*. Oxford: Oxford University Press.

Zelli, F., Erler, D., Frank, S., Hein, J., Hotz, H., & Melgarejo, A. M. S. C. (2014). *Reducing emissions from deforestation and forest degradation (REDD) in Peru: A challenge to social inclusion and multi-level governance* (Studies 85). Bonn: German Development Institute / Deutsches Institut für Entwicklungspolitik (DIE).

Literature used for analysis of the positive and negative effects of CDM activities

Aggarwal, A. (2014). How sustainable are forestry clean development mechanism projects? A review of the selected projects from India. *Mitigation and adaptation strategies for global change*, *19*(1), 73-91.

Alexeew, J., Bergset, L., Meyer, K., Petersen, J., Schneider, L., & Unger, C. (2010). An analysis of the relationship between the additionality of CDM projects and their contribution to sustainable development. *International Environmental Agreements, 10*, 233-248. http://dx.doi.org/10.1007/s10784-010-9121-y

Anderson, E. K., & Zerriffi, H. (2012). Seeing the trees for the carbon: Agroforestry for development and carbon mitigation. *Climatic Change*, *115*(3-4), 741-757. http://dx.doi.org/10.1007/s10584-012-0456-y

Boyd, E., Hultman, N., Roberts, J. T., Corbera, E., Cole, J., Bozmoski, A., ... Liverman, D. M. (2009). Reforming the CDM for sustainable development: Lessons learned and policy futures. *Environmental Science & Policy*, *12*(7), 820-831.

Brohé, A. (2014). Whither the CDM? Investment outcomes and future prospects. *Environment, Development and Sustainability*, *16*(2), 305-322.

Brown, D. R., Dettmann, P., Rinaudo, T., Tefera, H., & Tofu, A. (2011). Poverty alleviation and environmental restoration using the Clean Development Mechanism: A case study from Humbo, Ethiopia. *Environmental Management, 48*, 322-333. http://dx.doi.org/10.1007/s00267-010-9590-3

Brunt, C., & Knechtel, A. (2005). *Delivering sustainable development benefits through the Clean Development Mechanism.* Canada: The Pembina Institute.

Byrom, S., Thomas, S., & Dargusch, P. (2014). Millennium Development Goals and clean development: Synergies in the Pacific. *Mitigation and Adaptation Strategies for Global Change*, *19*(1), 33-44. http://dx.doi.org/10.1007/s11027-012-9425-z

Corbera, E., & Brown, K. (2010). Offsetting benefits? Analyzing access to forest carbon. *Environment and Planning A*, *42*(7), 1739-1761.

Corbera, E., & Friedli, C. (2012). Planting trees through the Clean Development Mechanism: A critical Assessment. *Ephemera*, *12*(1/2), 206.

Curtius, H., & Vorlaufer, T. (2009). *The contribution of the CDM to sustainable development in China. A case study of the emerging biogas sector.* Retrieved from http://www.frankhaugwitz.eu/doks/cdm/2009_12_China_The_Contribution_of_CDM_to_Sustainable_Development%20_in_China.pdf

Del Rio, P. (2007). Encouraging the implementation of small renewable electricity CDM projects: An economic analysis of different options. *Renewable & Sustainable Energy Reviews, 11*(7), 1361-1387. http://dx.doi.org/10.1016/j.rser.2005.12.006

Dong, Y., Olsen, K. H., Filzmoser, E., & Trunkl, U. (2014). *Local stakeholder participation in CDM and new climate mitigation mechanisms: Case study of a small scale hydropower project in China* (CISDL/GEM Working Paper Series). Retrieved from http://orbit.dtu.dk/files/103563749/CISDL_GEM_working_paper_CDM_and_LSC_220814.pdf

Doukas, H., Karakosta, C., & Psarras, J. (2009). RES technology transfer within the new climate regime: A "helicopter" view under the CDM. *Renewable and Sustainable Energy Reviews, 13*, 1138-1143.

Drupp, M. A. (2011). Does the gold standard label hold its promise in delivering higher sustainable development benefits? A multi-criteria comparison of CDM projects. *Energy Policy*, *39*(3), 1213-1227. http://dx.doi.org/10.1016/j.enpol.2010.11.049

Ervine, K. (2013). Carbon markets, debt and uneven development. *Third World Quarterly*, *34*(4), 653-670. http://dx.doi.org/10.1080/01436597.2013.786288

He, J., Huang, Y., & Tarp, F. (2014). Has the Clean Development Mechanism assisted sustainable development*? Natural Resources Forum, 38*(4), 248-260.

Lee, C. M., & Lazarus, M. (2013). Bioenergy projects and sustainable development: Which project types offer the greatest benefits? (Working Paper No. 2011-04). *Climate and Development, 5*(4), 305-317.

Ma, M. H., Haapanen, T., Singh, R. B., & Hietala, R. (2014). Integrating ecological restoration into CDM forestry projects. *Environmental Science & Policy, 38*, 143-153. http://dx.doi.org/10.1016/j.envsci.2013.11.008

Mathur, V. N., Afionis, S., Paavola, J., Dougill, A. J., & Stringer, L. C. (2014). Experiences of host communities with carbon market projects: Towards multi-level climate justice. *Climate Policy, 14*(1), 42-62. http://dx.doi.org/10.1080/14693062.2013.861728

Nussbaumer, P. (2009). On the contribution of labelled certified emission reductions to sustainable development: A multi-criteria evaluation of CDM projects. *Energy Policy*, *37*(1), 91-101. http://dx.doi.org/10.1016/j.enpol.2008.07.033

Olsen, K. H. (2007). The Clean Development Mechanism's contribution to sustainable development. A review of the literature. UNEP Rise Centre: Energy, Climate and Sustainable Development. *Rise National Laboratory*. http://dx.doi.org/10.1007/s10584-007-9267-y

Olsen, K. H., & Fenhann, J. (2008). Sustainable development benefits of Clean Development Mechanism projects: A new methodology for sustainability assessment based on text analysis of the project design documents submitted for validation. *Energy Policy*, *36*(8), 2819-2830. http://dx.doi.org/10.1016/j.enpol.2008.02.039

Schade, J., & Obergassel, W. (2014). Human rights and the Clean Development Mechanism. *Cambridge Review of International Affairs*, *27*(4), 717-735. http://dx.doi.org/10.1080/09557571.2014.961407

Sirohi, S. (2007). CDM: Is it a "win-win" strategy for rural poverty alleviation in India? *Climatic Change*, *84*(1), 91-110. http://dx.doi.org/10.1007/s10584-007-9271-2

Smits, M., & Middleton, C. (2014). New arenas of engagement at the water governance–climate finance nexus? An analysis of the boom and bust of hydropower CDM projects in Vietnam. *Water Alternatives, 7*(3), 561-583.

Spalding-Fecher, R., Achanta, A. N., Erickson, P., Haites, E., Lazarus, M., Pahuja, N., ... Tewari, R. (2012). *Assessing the impact of the Clean Development Mechanism. Report commissioned by the High-Level Panel on CDM Policy Dialogue*. Final Report. Retrieved from http://cdmpolicydialogue.org/research/1030_impact.pdf

Stua, M. (2013). Evidence of the clean development mechanism impact on the Chinese electric power system's low-carbon transition. *Energy Policy, 62*, 1309-1319.

Subbarao, S., & Lloyd, B. (2011). Can the Clean Development Mechanism (CDM) deliver? *Energy Policy, 39*(3), 1600-1611.

Sutter, C., & Parreño, J. C. (2007). Does the current Clean Development Mechanism deliver its sustainable development claim? An analysis of officially registered CDM projects. *Climatic Change, 84*, 75-90.

TERI (The Energy and Resources Institute). (2012). *Assessing the impact of the CDM on sustainable development and technology transfer*. New Delhi: Author.

Voigt, C. (2007). Is the Clean Development Mechanism sustainable – some critical aspects. *Sustainable Development Law & Policy*, *8*, 15.

World Bank. (2012). *BioCarbon Fund Experience. Insights from afforestation and reforestation clean development mechanism projects*. Retrieved from https://wbcarbonfinance.org/docs/BioCarbon-Fund-Lessons-Learned-LOW-RES.pdf

Publications of the German Development Institute/ Deutsches Institut für Entwicklungspolitik (DIE)

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