

Synergies between adaptation and mitigation in climate change finance

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Abstract

Purpose – As adaptation and mitigation are separated in international and national policies, there is also a division in the financial resources mobilized by the international community to help developing countries deal with climate change. Given that mitigation activities can benefit or hinder adaptation, and vice versa, promoting activities that contribute to both objectives can increase the efficiency of fund allocation and minimize trade-offs, particularly in land-related activities such as agriculture and forestry. The purpose of this study is to analyze how climate funding organizations consider the integration of adaptation and mitigation.

Design/methodology/approach – The authors interviewed representatives of climate funds directed toward forestry and agriculture to gain a better understanding of how they perceive the benefits, risks and barriers of an integrated approach; whether they have concrete activities for promoting this approach; and how they foresee the future of adaptation–mitigation integration.

Findings – Interviews revealed a diverse range of perceived benefits, risks and barriers at local, national and global scales. Most interviewees focused on the local benefits of this integration (e.g. increasing the resilience of forest carbon projects), whereas others emphasized global risks (e.g. decreasing global funding efficiency because of project complexity). Despite the general interest in projects and policies integrating adaptation and mitigation, few relevant actions have been implemented by organizations engaged in climate change finance.

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Originality/value – This paper provides new insight into how the representatives of climate funds perceive and act on the integration of adaptation and mitigation in forestry and agriculture. The findings by the authors can inform the development of procedures for climate change finance, such as the Green Climate Fund. While managers of climate funds face barriers in promoting an integrated approach to adaptation and mitigation, they also have the capacity and the ambition to overcome them.

Keywords Trade-off, Policy, Agriculture, Vulnerability, Funding, Forest

Paper type Research paper

1. Introduction

International negotiations have distinguished two options for addressing climate change: mitigation (reducing the sources or enhancing the sinks of greenhouse gases) and adaptation (responding to the effects of climate change). Policies and negotiations have treated them separately because these two options pursue different objectives and operate at different spatial and temporal scales:

- (1) mitigation provides benefits for the global climate in the long term (because of the inertia of the climatic system); and
- (2) adaptation provides more local benefits, which can accrue in the short term, as well as longer term (Swart and Raes, 2007).

As a result of this separation in international and national policies, there is also a division between adaptation and mitigation in the financial resources mobilized by the international community to help developing countries cope with climate change (Illman *et al.*, 2013).

Adaptation activities can influence mitigation positively or negatively, and vice versa (Denton and Wilbanks, 2014). Promoting activities that contribute to both climate objectives can increase the efficiency of fund allocation and reduce trade-offs. The lack of consideration of mitigation in adaptation projects could lead to increased greenhouse gas emissions, which is one type of “maladaptation”, according to Barnett and O’Neill (2010). Equally, without consideration of adaptation, initiatives for greenhouse gas emission reductions could underperform due to direct climate hazards (e.g. increasing flooding), as well as increase the vulnerability and reduce the capacity of communities to adapt to a changing climate. Such negative interactions between adaptation and mitigation would greatly reduce the overall effectiveness of global climate funding. There are also expectations that better integration could help close the adaptation funding gap with mitigation finance (Klein *et al.*, 2005). Current funding flows are estimated to be far below any investment needs for limiting climate change and its impact, and particularly for adaptation, as most climate funding supports mitigation (Buchner *et al.*, 2013).

Synergies and trade-offs between adaptation and mitigation are particularly manifest in land-related activities such as agriculture and forestry (Locatelli *et al.*, 2015; Harvey *et al.*, 2014; Thuy *et al.*, 2014). The forestry and agriculture sectors are the main recipient of public funding for adaptation and the third largest recipient for mitigation, after the renewable energy and transport sectors (Buchner *et al.*, 2013). Land-use practices are relevant to mitigation because they either emit or remove carbon in the atmosphere depending on the management of soils and vegetation (e.g. deforestation or reforestation). Forests and agriculture are also relevant to adaptation because they are

vulnerable to climate change (Guariguata *et al.*, 2012; Locatelli *et al.*, 2008) and can contribute to societal adaptation, for example through the contribution that forests make in regulating floods in watersheds or mangroves protecting against storms in coastal areas (Pramova *et al.*, 2012).

In 2011, the Conference of the Parties of the United Nations Framework Convention on Climate Change (UNFCCC) decided to establish a Green Climate Fund to support developing countries to reduce their greenhouse gas emissions and to adapt to the impacts of climate change. A balance between adaptation and mitigation is expected in financial allocation, and “an integrated approach to funding mitigation and adaptation will be used to allow for cross-cutting projects and programs” (UNFCCC, 2011); however, it has not yet been decided how this integration will be achieved. International climate funds can support integrated projects that aim to create synergies in adaptation and mitigation; however, questions remain on how fund managers perceive this integrated approach and how they would promote it (Illman *et al.*, 2013).

This study addresses the questions of how representatives of climate funds directed toward forestry and agriculture perceive the benefits, risks and barriers of an integrated approach; what they do to promote this approach; and how they foresee the future of this integration. In this study, we define the integration of adaptation and mitigation as the search for synergies and the recognition and reduction of trade-offs between these two climate objectives in the development of projects and policies. Among the representatives of climate funds, we consider top management (e.g. members of the board and directors), middle management (e.g. project portfolio managers) and technical experts.

This study focuses on the opinions of one group of stakeholders in the climate finance arena, despite the existence of many others, such as ministry representatives in donor and recipient countries, project developers (including non-governmental organizations), local communities) and representatives of the private sector (as a funder or project developer). Although we acknowledge the need to explore the opinions of other groups on the integration of adaptation and mitigation, we focus on representatives of climate funds because of their central position between international policies and local or national actions and role in decision-making (Remling and Persson, 2014). The authority of donor countries contributing to multilateral funds is devolved on a day-to-day basis to the secretariats of these funds (Ballesteros *et al.*, 2010), and similar devolution occurs from the governments of donor countries to their agencies in charge of climate funding. The managers, technical experts and board members of these secretariats and agencies can be highly influential in setting project eligibility criteria or evaluation procedures and approving projects (Ballesteros *et al.*, 2010; Remling and Persson, 2014) and can thus influence the degree of integration of adaptation and mitigation in their portfolios. This paper aims to provide new insight into how these key stakeholders perceive and act on this integration.

Business studies confirm how managerial discretion can result in decisions that do not fully align with organization’s strategy and reflect the personal opinions of managers (Ditlev-Simonsen and Midttun, 2011). Managers’ decisions are driven by institutional factors (such as external regulations and the strategic decisions made by the organization) and individual factors (such as managerial attitudes and perceptions) (Marshall *et al.*, 2005; Hahn and Scheermesser, 2006). Our target group is assumed to

influence the outcomes of upper-level strategic orientations (i.e. from the international community or national governments) in two ways:

- (1) upward (by bringing information and proposing alternatives during strategy development or update); and
- (2) downward (by facilitating the implementation of the strategies and adapting them) (Floyd and Wooldridge, 1992).

2. Background on climate funding

The total volume of climate change finance was estimated at USD 359 billion in 2012, far less than is needed for limiting global warming to below 2°C. Estimated needs range from USD 500 to 900 billion per year for mitigation (Buchner *et al.*, 2013) and USD 30 to 230 billion per year for adaptation (Smith *et al.*, 2011). The great majority of the funding (94 per cent) in 2012 was targeted at mitigation (Abadie *et al.*, 2013). Most funding was domestic (i.e. generated and used in the same country) and 24 per cent flowed between countries (mostly private finance between developed countries, and public finance from developed to developing countries) (Buchner *et al.*, 2013).

International public finance plays a central role in creating incentives and facilitating other investments toward low-emission and climate-resilient development, particularly in developing countries. The *Global Landscape of Climate Finance 2013* assessment showed that public funding represented the great majority of the estimated USD 39–62 billion of climate finance having flowed North–South (i.e. from developed to developing countries) in 2012 and that this public funding comes mostly from bilateral finance institutions and multilateral development banks (Table I). Within this North–South flow, it is estimated that adaptation finance was all publicly funded; however, this does not mean that the private sector does not finance adaptation, but rather that adaptation finance is not properly tracked, as most organizations do not yet have an adequate measuring and reporting methodology.

Among public sources contributing to North–South flows, the distribution of funds also favors mitigation (Table I). The distribution is more balanced, however, in agriculture and forestry: the expenditures of development finance institutions in 2012 were estimated at USD 2 billion for both adaptation and mitigation in these sectors. For agriculture and forestry, it is estimated that adaptation will require funding of around USD 7 billion per year (Smith *et al.*, 2011), and the estimated costs of halving emissions from global deforestation range between USD 17 and 33 billion (Streck, 2012). This

Sources	Total	Mitigation (%)	Adaptation (%)	Mean estimate of North–South flows (%)
Governments budgets	12.0	9.0 (75)	3.0 (25)	7.5 (63)
Multilateral development banks	38.0	31.0 (82)	7.0 (18)	18.5 (49)
Bilateral finance institutions	15.0	12.0 (80)	3.0 (20)	14.0 (93)
Multi-donor climate funds	1.6	1.0 (63)	0.6 (38)	1.4 (88)
Total	66.6	53.0 (80)	13.6 (20)	41.4 (62)

Note: All values in USD billion, except percentages of total flows

Source: Buchner *et al.* (2013)

Table I.
Climate finance
breakdown into
mitigation and
adaptation in 2012
from public sources

shows a clear funding gap in forestry and agriculture for both adaptation and mitigation, even though the estimates of funding needs are not fully reliable.

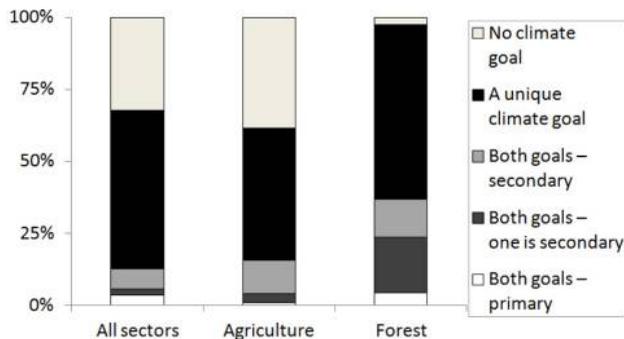
With pledges ranging between USD 0.24 and 1.11 billion, the largest adaptation funds are currently the European Union’s Global Climate Change Alliance (GCCA), the Least Developed Countries Fund (LDCF) and the Special Climate Change Fund (SCCF); the Adaptation Fund; and the Pilot Program for Climate Resilience (PPCR) of the World Bank’s Climate Investment Funds (CIF) (Schalatek *et al.*, 2012). The countries or groups of countries contributing the most to the adaptation funds are Canada, the European Community, Germany, Japan, the UK and the USA.

With regard to mitigation funding in forestry, the major funds for REDD+ (reducing emissions from deforestation and forest degradation, and enhancing forest carbon stocks in developing countries) comprise:

- the United Nations Programme on Reducing Emissions from Deforestation and Forest Degradation (UN-REDD);
- the Forest Carbon Partnership Facility of the World Bank;
- the Forest Investment Program (FIP) of the World Bank’s CIF;
- the Congo Basin Forest Fund (CBFF), a multi-donor fund;
- the Amazon Fund, established by the Government of Brazil; and
- the Indonesia Climate Change Trust Fund (ICCTF) created by the Government of Indonesia.

In terms of bilateral finance on REDD+, major donors are Norway, through its International Forest Climate Initiative; Germany, through its International Climate Initiative; and Australia, through its International Forest Carbon Initiative (Nakhooda *et al.*, 2011).

Although all these funds have a unique goal (either adaptation or mitigation), an important share of committed aid to address global environmental challenges reportedly contributes to both goals (Figure 1). The Organisation for Economic Co-operation and Development (OECD) Creditor Reporting System on aid activities for the global environment describes whether the principal or significant objectives of each activity are related to the “Rio markers”: biodiversity, climate change mitigation,



Source: OECD (2014)

Figure 1. Share of committed aid targeting global environmental objectives in 2010-2012 in agriculture, forestry and all sectors, depending on the reported goals of climate change adaptation and mitigation

climate change adaptation and desertification (OECD, 2014). Forestry represented 3.3 per cent and agriculture 7.8 per cent of the total funding in this data set; both adaptation and mitigation were reported objectives (either principal or significant) in 36.8 per cent of forestry funding and 15.5 per cent of agriculture funding, compared to 12.6 per cent for all sectors. Analyzing the Rio markers can, however, leave significant room for interpretation and error, as they do not quantify the amounts allocated within projects specifically to address climate concerns and do not assess project subcomponents. More analysis would be needed to understand the degree of integration of adaptation and mitigation in these activities (some activities were labeled “Support to national organizations” and reported contributions to all Rio markers, without further details).

3. Method and sample description

We conducted semi-structured interviews with representatives of climate funding organizations. The interview guide was structured in three parts. First, preliminary questions were aimed at determining the role of the interviewees within the organization and their level of confidence to talk about integrating adaptation and mitigation. We also asked representatives to give specific examples of projects (funded or implemented by their organization) that highlighted potential benefits for both adaptation and mitigation. Second, we asked questions about how the organization considered the integration of adaptation and mitigation, for example through internal policies, project templates or guidelines for internal project managers or external project developers. Third, through open-ended and non-prescriptive questions, we asked them to describe how they perceived the benefits, risks and barriers of integrating adaptation and mitigation in land-use projects.

We first identified 47 potential interviewees from 23 major organizations that fund activities related to climate change in agriculture and forestry, including all the organizations identified as major funders in the previous section. Following our initial email and phone contact with the organizations in May 2013, several forwarded our request to more appropriate contact people within their organizations, which resulted in 80 people being approached. Finally, 22 people from 19 organizations were interviewed by phone, each for a duration of between 30 and 60 minutes, in June 2013. Organizations represented by the interviewees are:

- (1) Multilateral funds and organizations:
 - *World Bank*: FIP within CIF;
 - *World Bank*: PPCR within CIF;
 - *World Bank*: Bio Carbon Fund with Carbon Finance Unit;
 - *Adaptation Fund*: Secretariat and board members;
 - *African Development Bank*: CBFF;
 - *European Commission (EC)*: Directorate General for Development and Cooperation;
 - *European Commission (EC)*: Directorate General for Climate;
 - *European Commission (EC)*: GCCA;
 - *GEF*: LDCF;
 - *GEF*: SCCF;

- *GEF*: Scientific and Technical Advisory Panel; and
 - United Nations Environment Program.
- (2) Governmental organizations, bilateral cooperation agencies:
- *Canada*: Canadian International Development Agency;
 - *France*: Fonds Français pour l'Environnement Mondial;
 - *Germany*: GIZ;
 - *Indonesia*: ICCTF;
 - *Japan*: Japan International Cooperation Agency;
 - *Norway*: Norwegian Agency for Development Cooperation; and
 - *United Kingdom*: Department for International Development.

Around 32 per cent of interviewees had an operational role (e.g. managing and monitoring fund execution), 27 per cent had an advisory or technical role (e.g. providing guidance and making recommendations but without direct decisions or actions), 18 per cent had a managerial or directorial role (e.g. board members, directors and executive officers) and 23 per cent had multiple roles.

The group of interviewees was small because many people at upper-management levels were not available. It was not possible to secure interviews with some major donors, despite repeated attempts, and, in some cases, it was difficult to identify the most suitable person to interview within an organization. Nevertheless, representatives of most large funding organizations were finally included. The semi-structured interviews enabled an understanding of the diversity of perceptions and actions related to adaptation–mitigation integration. Given the explorative nature of this study, a representative sample was not required.

4. Arguments about integrating adaptation and mitigation

We present a typology of arguments used by respondents in favor of adaptation and mitigation integration (benefits and opportunities) and against integration (risks) at different scales (local to global), as well as arguments on the barriers to this integration.

4.1 Arguments in favor of integration

A majority of interviewees (73 per cent) presented arguments in favor of integrating adaptation and mitigation and described benefits arising from this integration (Table II). The most common argument was that adaptation measures in mitigation projects could address potential climate risks, making mitigation projects more resilient to a changing climate. Adaptation was perceived as a project safeguard that would provide benefits to local communities and project developers, as well as global benefits because carbon storage would be more permanent. This was particularly clear for forestry and REDD+ projects according to some interviewees, who asserted that it would be difficult, if not impossible, to undertake these projects successfully without incorporating adaptation.

Several interviewees shared the opinion that there were many low-hanging fruits in the land-use sector, i.e. land-based activities that could contribute easily to the dual goals of adaptation and mitigation, and provide multiple benefits. They gave examples of REDD+ projects that could potentially deliver large adaptation outcomes: conserved

Short name	Frequency	Description	Scale		
			Global	National	Local/ project
<i>Pros</i>					
Resilience	**	Ensuring local resilience and carbon permanence in mitigation projects	×		×
Opportunities	**	Capturing the many low-hanging fruits for synergies, particularly in REDD+			×
Cost	**	Reducing costs and increasing global funding efficiency	×		
Legitimacy	*	Giving attention to local issues and improving mitigation project legitimacy			×
Institutions	*	Strengthening coordination, cooperation and capacity among host country institutions		×	
Priorities	*	Ensuring mitigation projects respond to host country priorities		×	
Climate	*	Ensuring adaptation projects also provide global climate benefits	×		
<i>Cons</i>					
Breadth	***	Overlooking broader and more important issues	×	×	×
Complexity	**	Increasing project complexity			×
Focus	**	Losing focus and reducing project effectiveness			×
Gap	*	Amplifying adaptation funding gap	×		
Cost	*	Increasing costs and decreasing global funding efficiency	×		
<i>Barriers</i>					
International	***	International political economy, including funding structure	×		
National	***	National political economy in host countries		×	
Knowledge	***	Lack of knowledge and skills		×	×
Rationale	**	Different principles and targets	×	×	×
Monitoring	**	Difficult monitoring, evaluation and reporting	×		×
Feasibility	*	Practical feasibility, uncertainties			×

Notes: Refer to the frequency of this argument (*less than 20% of respondents, **between 20 and 40%, ***more than 40%)

Table II.
Arguments
mentioned during
interviews and scales
to which the
arguments refer

natural forests increasing the resilience of forest-dependent local communities, forests protecting against landslide and floods and mangroves providing a green infrastructure for coastal protection.

According to some interviewees, integration could increase efficiency in the use of limited financial resources, allowing greater economies of scale and facilitating operations and management, as one single project would deliver multiple benefits. Another common argument stated that the inclusion of adaptation goals would increase the attention given by mitigation projects to local issues, such as food security or livelihood improvement, making them more appealing to local communities.

Several interviewees highlighted the institutional benefits of adaptation–mitigation integration in host countries, such as the creation of new partnerships, cooperation among practitioners and between national ministries, dialogues between development partners and beneficiary countries and capacity building at the country level. Interviewees also mentioned that adaptation goals could better align mitigation projects with the development priorities of host countries. Finally, a few interviewees reported the obvious benefit of integrating mitigation objectives in adaptation projects such as improved carbon sequestration and reduced emissions for global climate change mitigation.

4.2 Arguments against integration

More than two-thirds of the respondents (around 68 per cent) presented arguments against integrating adaptation and mitigation and described risk arising from this integration (Table II). They suggested that too much emphasis on integration could lead to a lack of focus on broader and more important issues, such as poverty reduction. They also mentioned that the discussion should not be about the integration in climate change projects or policies, but rather about the mainstreaming of climate change (irrespective of whether it is adaptation or mitigation) into development policy and planning. According to them, the biggest challenge was about achieving “triple wins” (i.e. for development, adaptation and mitigation), as illustrated in the World Bank’s concept of “climate-smart development”.

According to another argument, integrating adaptation and mitigation would lead to overly complex projects, for example, because of the need to engage with a large and disparate group of mitigation- and adaptation-focused stakeholders with diverging interests, or because of increased reporting requirements. Some interviewees also perceived a challenge in managing climate projects with multiple objectives. The actual challenge of integrated climate projects can be explained, however, by the siloed funding streams and the complexity of applying and reporting to multiple climate funds, rather than the multiple objectives (almost all forest or agriculture projects pursue multiple objectives anyway). This complexity could be a burden for beneficiary countries and project developers with low technical expertise and awareness, exacerbating the uneven distribution of climate finance between least developed countries and other countries. For example, two respondents noted that the non-carbon aspects of mitigation projects are sometimes perceived by project developers as extra requirements that complicate the application process. Similarly, another argument referred to the risk of wanting to “do everything” while diverting efforts and losing focus from the main goals.

Other arguments included the risk of redirecting the limited adaptation funding to mitigation activities, if mitigation projects that integrate adaptation goals tap into adaptation funding. This could also increase competition among projects over existing sources of climate finance. Integration could also raise the costs of climate initiatives and could be counter-productive and less cost-effective than addressing adaptation and mitigation separately.

4.3 Perceived barriers

All interviewees described barriers that explained why the integration between adaptation and mitigation is not straightforward (Table II). The most common argument related to the international political economy of climate change (i.e. the way

organizations, institutions and actors are structured at the international level, with their power relationships and their ideologies). According to many interviewees, the international climate architecture (e.g. UNFCCC) has addressed adaptation and mitigation in separate silos, which has resulted in the emergence of narrow mandates for funding organizations and a separation between adaptation and mitigation in donor agencies. For instance, the Global Environment Facility (GEF) finances adaptation through the LDCF and the SCCF, and mitigation through the GEF Trust Fund. If a project was to address both objectives and be funded for them, it would have to apply to two different sources.

Some interviewees recalled that the instruments used to finance adaptation and mitigation activities were different in nature and may sometimes appear incompatible. For example, they mentioned that mitigation funds favored loans, while adaptation was primarily financed through grants. In addition, mitigation projects could more easily tap into private sector finance by attracting money from the capital market, by offering clear and quantifiable indicators on profitability throughout the project cycle. Adaptation projects supported by development partners were less likely to show financial returns for investors.

The national political economy of recipient countries was the second barrier most often mentioned by interviewees, who explained that agencies in charge of adaptation and mitigation must compete for funding. This competitive scenario, and the lack of coordination at the national level, was attributed mainly to the way in which climate issues have been structured at the international level, particularly by the UNFCCC. According to the third most common argument, a major barrier to integration was related to a lack of adequate knowledge, information and technical capacity among project developers. Moreover, because adaptation and mitigation have become increasingly specialized fields, few practitioners have the necessary skill set to deal with both issues simultaneously.

The fourth most common argument highlighted the different rationalities of adaptation and mitigation. Interviewees pointed out that mitigation is primarily driven by cost-effectiveness and efficiency in emission reductions, whereas adaptation responds to principles of community development, social equity and fairness. In addition, adaptation and mitigation may have different targets: sectors or countries that are highly vulnerable to climate change might not always be the ones with the greatest potential for emissions reduction. Several interviewees also perceived an important barrier in the use of different terminologies, and metrics to measure results (i.e. carbon vs vulnerability, and quantity vs quality), which made communication difficult between the two communities. Finally, another perceived barrier was about practical feasibility, when adaptation activities cannot clearly contribute to mitigation (or vice versa) or the future of policies and funding is too uncertain.

As a result of the aforementioned barriers, and despite the recognized benefits, few actions have been taken to promote integration, in terms of procedures or guidance (Table III). One-third of the interviewees noted, however, that their organizations were currently planning to better harness synergies between adaptation and mitigation. For example, one funding organization was planning to request adaptation activities in its REDD+ projects in the future, and, in another one, discussions were taking place with host countries to understand how adaptation–mitigation synergies could be harnessed in development agendas.

Table III.
Agreement of
interviewees with
selected statements

Statement	Frequency ^a
The integration of adaptation and mitigation will gain importance in the future	†
People in the organization are aware of the benefits of integrating adaptation and mitigation	***
The organization is currently planning to better harness synergies between adaptation and mitigation	**
A project contributing explicitly to both adaptation and mitigation is more likely to be funded by the organization than a project contributing to one single goal	**
Informal guidance on adaptation–mitigation integration is provided to project developers	*
The organization provides guidance to project developers to better understand and identify synergies	*
The project proposal templates considers adaptation–mitigation integration	

Notes: ^aEmpty 0%; *more than 0 and less than 20% of respondents; **between 20 and 40%; ***between 40 and 60%; † more than 80%

5. Discussion

5.1 Scales

Among the diversity of views, three dominant combinations of arguments emerged and differed according to their focus on either the benefits or the risks of integration and their emphasis on either the local or the global scale at which benefits or risks would occur (Table IV). A large group of interviewees highlighted the local and national benefits of adaptation–mitigation integration, without elaborating on the risks. Their discourse covered the benefits for project resilience and legitimacy, the large opportunities offered by REDD+ projects and the respect of national priorities. Second, a smaller group did not mention any benefit but focused on the risks and barriers at the international level (such as increasing the adaptation funding gap or raising transaction costs). Finally, a third group mentioned national and global benefits (e.g. cost-efficiency gains in climate funding) and local risks (e.g. overlooking broader issues, losing focus and making projects too complex).

The combinations of arguments suggest that the integration of adaptation and mitigation is generally appealing but for different reasons. They also show that the

Table IV.
Main discourses on
adaptation–mitigation
integration

Name of the combination	Frequency ^a	Highlighted arguments ^b		
		Pros	Cons	Barriers
Locally beneficial	***	Resilience, legitimacy, priorities, opportunities		National, knowledge, feasibility, rationale
Globally risky	**		Gap, cost, breadth	International
Globally beneficial but locally risky	*	Climate, institutions, cost	Complexity, focus, breadth	Monitoring

Notes: ^aRefer to the frequency of this argument (*less than 20% of respondents, **between 20 and 40%, ***more than 40%); ^bsee Table II for the description of arguments

outcomes of integration are perceived differently according to scales: for example, outcomes are often considered only at local or global scale, and, when combinations of arguments relate to multiple scales, arguments are positive for the global scale and negative for the local one. This difference may be explained by the respondent's role and knowledge of the realities at their scale of action, for example whether they assist the development of local projects.

Regarding local projects, interviewees presented examples of projects providing both mitigation services (i.e. carbon sequestration) and adaptation services (such as hydrological regulation, regulation of microclimate in agriculture or coastal protection), in line with an ecosystem-based approach to adaptation and mitigation (Pramova *et al.*, 2012; World Bank, 2009). Most arguments in favor of adaptation–mitigation integration in projects refer to adding adaptation objectives into mitigation activities, rather than the other way around. Mitigation project developers may have good reasons to integrate adaptation, regardless of funding requirements, for example, because increased project sustainability and carbon permanence in the long term has an intrinsic value for local stakeholders (Klein *et al.*, 2005; Locatelli *et al.*, 2011). By contrast, project developers may have few reasons to integrate mitigation objectives into adaptation projects if there are no incentives to do so. In this case, donors have a role to play, and mitigation outcomes could make adaptation projects more attractive to donors (Klein *et al.*, 2007).

5.2 Actions

Despite the interest shown by interviewees in adaptation–mitigation integration, climate funds have implemented few prescriptive actions in that direction, such as including adaptation and mitigation in project requirements or proposals. One interviewee warned that promoting integration as a mandatory requirement during project development would be inefficient, as it would add another layer of bureaucracy and complexity to the project cycle. Another risk would be to prioritize only win–win measures and neglect measures that effectively contribute to either adaptation or mitigation separately (Moser, 2012). Interestingly, despite the lack of formal consideration of integration in the fund procedures, many interviewees considered that projects contributing explicitly to both adaptation and mitigation were more likely to be funded than a project contributing to one single goal. This difference between formal selection rules and actual project selection may reflect managerial discretion (Ditlev-Simonsen and Midttun, 2011).

In our sample, all the organizations currently planning to better harness synergies between adaptation and mitigation are organizations that fund REDD+ activities, probably because of the large potential for synergies and trade-offs between adaptation and mitigation in REDD+ projects. Plans include developing new budget lines for integrating adaptation and mitigation, going beyond the traditionally segmented approach and promoting ecosystem-based approaches that can contribute to mitigation, adaptation, food security and good governance. Plans also include merging land-use activities into a single funding window, which would promote a more balanced combination between adaptation and mitigation in forestry (currently more mitigation-oriented) and agriculture (currently more adaptation-oriented).

Among the barriers mentioned by the interviewees, the international political economy is perceived as the main one, although some of the interviewees had the capacity to act on it by improving integration in their procedures. There are avenues to

leverage synergies, as reflected by the approach taken by the Green Climate Fund, which will have separate windows dedicated to adaptation and mitigation but will favor “linkages between mitigation and adaptation” in certain areas, such as sustainable forest management. The national political economy of recipient countries is also considered a major barrier to integration, for example, because of competition or a lack of communication among government agencies in charge of climate change. At the same time, improving the coordination, communication and capacity of these agencies is perceived as a potential benefit from the integration of adaptation and mitigation. Interviews reveal a chicken-and-egg problem, in which changes in political economy are needed for integration, while integration is seen as a means to facilitate these changes (Illman *et al.*, 2013).

The discussion should not, however, be limited to the integration of adaptation and mitigation but should be extended to incentives that can improve coordination between sectors and ministries for climate change policy development. This can be supported by climate finance readiness activities being currently funded by development donors, such as the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) (GIZ, 2013). Adaptation–mitigation integration should also be framed more broadly, mainstreaming climate change into the policy domains of poverty reduction, rural development and disaster management, as proposed by Kok and de Coninck (2007). Connecting adaptation and mitigation may be a first step toward more holistic, climate-smart development policies (Smith *et al.*, 2011; Swart and Raes, 2007).

5.3 Recommendations

Almost all interviewees agree that the integration of adaptation and mitigation will gain importance in the future, but they propose different approaches at different scales. Multilateral organizations (e.g. secretariats of multilateral environmental agreements), recipient countries and the Green Climate Fund are the institutions most often cited as catalyzers of this integration. The private sector and standards bodies, such as the Climate, Community and Biodiversity Standards, are less often cited.

International donors and funds have a critical role to play in guiding countries to identify adaptation–mitigation synergies, through consultation processes, dialogue and awareness raising. Better coordination among funds, for example through multilateral institutions adopting a holistic mandate, can help harness synergies and minimize trade-offs between adaptation and mitigation. In particular, the Green Climate Fund can promote more integrated, innovative and transformational projects as set out in the Business Model Framework of this fund, but it is still unknown how implementation will be achieved.

Independently of what is happening at the international level, the integration of adaptation and mitigation can also be driven at local or national levels. For example, better coordination of activities at the national level, through programmatic approaches rather than project approaches, can ensure that adaptation and mitigation are aligned with national development priorities. Climate-smart programs or policies with inter-ministerial coordination are vehicles for integration. There is also a need to identify and analyze success stories and best practices related to adaptation–mitigation integration, and also to increase the technical capacity and skills of policy makers and project developers to design activities with an integrated approach, for example in relation with assessing adaptation and mitigation

outcomes, particularly measuring the adaptation benefits of policy or development interventions (Barrett and Constas, 2014).

6. Conclusion and policy implications

This paper has provided new insights on how the representatives of climate funds perceive and act on the integration of adaptation and mitigation in forestry and agriculture. Interviews revealed a diversity of perceived benefits, risks and barriers for the integration of adaptation and mitigation. One common argument was that adaptation measures in mitigation projects could make projects more resilient to a changing climate: for example, REDD+ forestry projects were considered difficult to implement successfully without incorporating adaptation. Despite the general interest of interviewees in projects and policies integrating adaptation and mitigation, few actions have been implemented in that direction by climate funders. Many opportunities for integration in the agriculture and forest sectors can be captured without forcing a marriage between adaptation and mitigation, for example through the provision of adequate information, tools and guidance to project developers or policy makers.

It is hoped that our findings will inform the development of procedures for the Green Climate Fund or the readiness activities being currently funded by bilateral agencies. These organizations can promote integration by revising their procedures and structure to ensure that initiatives capture opportunities to provide multiple adaptation and mitigation benefits without excessively increasing project cycle complexity and costs. The Green Climate Fund could test innovative approaches to the integration of adaptation and mitigation and stimulate changes at the national level in recipient countries and at the local scale in projects, contributing to the mainstreaming of climate change in development. More generally, climate funds can play an important role in facilitating policy integration and removing internal contradictions among climate change policies. A conscious approach to the interactions between adaptation and mitigation would facilitate policy mainstreaming and the management of trade-offs between non-climate and adaptation and mitigation policy objectives.

References

- Abadie, L.M., Galarraga, I. and Rübhelke, D. (2013), "An analysis of the causes of the mitigation bias in international climate finance", *Mitigation and Adaptation Strategies for Global Change*, Vol. 18 No. 7, pp. 943-955.
- Ballesteros, A., Nakhooda, S., Werksman, J. and Hurlburt, K. (2010), "Power, responsibility, and accountability: rethinking the legitimacy of institutions for climate finance", *Climate Law*, Vol. 1 No. 2, pp. 261-312.
- Barnett, J. and O'Neill, S. (2010), "Maladaptation", *Global Environmental Change*, Vol. 20 No. 1, pp. 211-213.
- Barrett, C.B. and Constas, M.A. (2014), "Toward a theory of resilience for international development applications", *Proceedings of the National Academy of Sciences*, Vol. 111 No. 40, pp. 14625-14630.
- Buchner, B., Herve-Mignucci, M., Trabacchi, C., Wilkinson, J., Stadelmann, M., Boyd, R., Mazza, F., Falconer, A. and Micale, V. (2013), "The global landscape of climate finance 2013", CPI Report, Climate Policy Initiative, Venice.

- Denton, F. and Wilbanks, T. (Eds) (2014), *Chapter 20: Climate-Resilient Pathways: Adaptation, Mitigation, and Sustainable Development, Working II Group Contribution to the 5th Assessment Report of the Intergovernmental Panel on Climate Change*, IPCC, Stanford, CA.
- Ditlev-Simonsen, C.D. and Midttun, A. (2011), "What motivates managers to pursue corporate responsibility? A survey among key stakeholders", *Corporate Social Responsibility and Environmental Management*, Vol. 18 No. 1, pp. 25-38.
- Floyd, S.W. and Wooldridge, B. (1992), "Middle management involvement in strategy and its association with strategic type: a research note", *Strategic Management Journal*, Vol. 13 No. S1, pp. 153-167.
- GIZ (2013), "Ready for climate finance: GIZ's approach to making climate finance work, building on climate expertise and good financial governance, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH", Eschborn, available at: www.giz.de/expertise/downloads/giz2013-en-climate-finance-approach.pdf
- Guariguata, M., Locatelli, B. and Haupt, F. (2012), "Adapting tropical production forests to global climate change: risk perceptions and actions", *International Forestry Review*, Vol. 14 No. 1, pp. 27-38.
- Hahn, T. and Scheermesser, M. (2006), "Approaches to corporate sustainability among German companies", *Corporate Social Responsibility and Environmental Management*, Vol. 13 No. 3, pp. 150-165.
- Harvey, C.A., Chacón, M., Donatti, C.I., Garen, E., Hannah, L., Andrade, A., Bede, L., Brown, D., Calle, A. and Chará, J. (2014), "Climate-smart landscapes: opportunities and challenges for integrating adaptation and mitigation in tropical agriculture", *Conservation Letters*, Vol. 7 No. 2, pp. 77-90.
- Illman, J., Halonen, M., Rinne, P., Huq, S. and Tveitdal, S. (2013), "Scoping study on financing adaptation-mitigation synergy activities", Nordic working papers, Nordiske Arbejdsrapporter, Copenhagen.
- Klein, R.J.T., Huq, S., Denton, F., Downing, T.E., Richels, R.G., Robinson, J.B. and Toth, F.L. (2007), "Inter-relationships between adaptation and mitigation", in Parry, M.L., Canziani, O.F., Palutikof, J.P., Van Der Linden, P.J. and Hanson, C.E. (Eds), *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, Cambridge University Press, Cambridge.
- Klein, R.J.T., Schipper, E.L.F. and Dessai, S. (2005), "Integrating mitigation and adaptation into climate and development policy: three research questions", *Environmental Science & Policy*, Vol. 8 No. 6, pp. 579-588.
- Kok, M.T.J. and de Coninck, H.C. (2007), "Widening the scope of policies to address climate change: directions for mainstreaming", *Environmental Science & Policy*, Vol. 10 Nos 7/8, pp. 587-599.
- Locatelli, B., Evans, V., Wardell, A., Andrade, A. and Vignola, R. (2011), "Forests and climate change in Latin America: linking adaptation and mitigation", *Forests*, Vol. 2 No. 1, pp. 431-450.
- Locatelli, B., Kanninen, M., Brockhaus, M., Colfer, C.J.P., Murdiyarsso, D. and Santoso, H. (2008), *Facing An Uncertain Future: How Forest and People can Adapt to Climate Change*, CIFOR, Bogor.
- Locatelli, B., Pavageau, C., Pramova, E. and Di Gregorio, M. (2015), "Integrating climate change mitigation and adaptation in agriculture and forestry: Opportunities and trade-offs", *WIREs Climate Change*, Vol. 6 No. 6, pp. 585-598.

- Marshall, R.S., Cordano, M. and Silverman, M. (2005), "Exploring individual and institutional drivers of proactive environmentalism in the US wine industry", *Business Strategy and the Environment*, Vol. 14 No. 2, pp. 92-109.
- Moser, S.C. (2012), "Adaptation, mitigation, and their disharmonious discontents: an essay", *Climatic Change*, Vol. 111 No. 2, pp. 165-175.
- Nakhooda, S., Caravani, A. and Schalatek, L. (2011), *Climate Finance Thematic Briefing: REDD-plus Finance, Climate Finance Fundamentals*, Heinrich Boll Stiftung, Washington, DC.
- OECD (2014), "Aid activities targeting global environment objectives, development assistance committee (DAC) creditor reporting system (CRS)", Organization for Economic Co-Operation and Development, Paris, available at: <http://stats.oecd.org/Index.aspx?DataSetCode=RIOMARKERS>
- Pramova, E., Locatelli, B., Djoudi, H. and Somorin, O.A. (2012), "Forests and trees for social adaptation to climate variability and change", *Wiley Interdisciplinary Reviews: Climate Change*, Vol. 3 No. 6, pp. 581-596.
- Remling, E. and Persson, Å. (2014), "Who is adaptation for? Vulnerability and adaptation benefits in proposals approved by the UNFCCC adaptation fund", *Climate and Development*, Vol. 7 No. 1, pp. 10.1080/17565529, 2014.886992.
- Schalatek, L., Nakhooda, S., Barnard, S. and Caravani, A. (2012), *Climate Finance Thematic Briefing: Adaptation Finance, Climate Finance Fundamentals*, Heinrich Boll Stiftung, Washington, DC.
- Smith, J.B., Dickinson, T., Donahue, J.D., Burton, I., Haites, E., Klein, R.J. and Patwardhan, A. (2011), "Development and climate change adaptation funding: coordination and integration", *Climate Policy*, Vol. 11 No. 3, pp. 987-1000.
- Streck, C. (2012), "Financing REDD+: matching needs and ends", *Current Opinion in Environmental Sustainability*, Vol. 4 No. 6, pp. 628-637.
- Swart, R. and Raes, F. (2007), "Making integration of adaptation and mitigation work: mainstreaming into sustainable development policies?", *Climate Policy*, Vol. 7 No. 4, pp. 288-303.
- Thuy, P.T., Moeliono, M., Locatelli, B., Brockhaus, M., Di Gregorio, M. and Mardiah, S. (2014), "Integration of adaptation and mitigation in climate change and forest policies in Indonesia and Vietnam", *Forests*, Vol. 5 No. 8.
- UNFCCC (2011), "Decision 3/CP.17: launching the green climate fund", Germany, United Nations Framework Convention on Climate Change, Bonn, FCCC/CP/2011/9/Add.1, available at: <http://unfccc.int/resource/docs/2011/cop17/eng/09a01.pdf>
- World Bank (2009), *Convenient Solutions to an Inconvenient Truth: Ecosystem-based Approaches to Climate Change*, The World Bank, Washington, DC.

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