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Climate finance interactions with national development & climate policy frameworks: Review of current research status

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Climate finance interactions with national development & climate policy frameworks: Review of current research status

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Abstract

This review paper addresses some of the crucial questions of international cooperation that emerge when industrialized and developing countries conceptualize and implement forms of climate finance with the objective of strengthening the national climate and development policy frameworks of developing nations. It seeks to explore how the interaction between domestic climate policy and international climate finance is conceptualized and assessed in the literature. It argues that the effectiveness of climate finance on the development of national climate and development policy frameworks can only be assessed if a deeper analysis of transformational change processes of developing countries is conducted. The review shows that such comprehensive analyses are not yet conducted in a systematic manner and that the main analytical units and related analytical frameworks are not yet available if the analysis is to exceed project levels and instead consider national settings. Further, transformational change processes in developing countries may take place on a continuum between win-win processes and conflictive struggles between actor groups so as to achieve a deviation from a business as usual type of development. This suggests that the principles of official development assistance (ODA) – alignment with not just host countries' programs and systems, but also their ownership over policy processes – need to be adjusted to support transformative climate action.

Key policy insights

- Linkages between international climate finance (ICF) and national climate & development policies are a crucial element for transformational change and deserve more attention by policy actors and climate finance providers. These linkages become important in the design of ICF contributions, necessitating a wider view beyond project boundaries.
- International climate finance based on development finance (ODA) require an open debate whether established principles of ODA are suitable approaches for transformational change in all circumstances: country ownership is not always broadly available and alignment with existing country systems not always goal-leading if a deviation from business as usual is intended.
- A framework for the assessment of climate finance – policy linkages is presented, which allows to capture elements of interaction between funders and recipient countries beyond the sphere of projects. Such a framework can be applied in design and evaluation of ICF contributions.

Key words: International climate finance, official development assistance, policy interactions/integration

1 Introduction

1.1 Objective of the review and main research questions

This explorative review paper addresses some of the crucial questions underlying international cooperation that emerge while industrialized and developing countries conceptualize and implement forms of climate finance with the objective of strengthening the national climate and development policy frameworks of developing nations.

On the one hand, climate finance constituted a critical element within the United Nations Framework Convention on Climate Change (UNFCCC) negotiations that resulted in the Paris agreement and is regarded by developing countries as a prerequisite for implementing policy actions on mitigation (UNFCCC, 2018). On the other hand, developed nations frequently link their financial support to climate goals and policies. Consequently, policy-making and climate finance are interdependent.

Hence, it is surprising that, so far, little existing, systematic, research investigates these linkages between finance and policies. Thus, the present review takes an explorative approach through various fields of research and academic disciplines.

The following questions guide our review:

- How do academics and practitioners define and conceptualize international climate finance and its links with domestic climate & development frameworks?
- What methodological frameworks are available for the assessment of these linkages and what results do they produce?
- How can an understanding of these linkages and well-designed assessment frameworks inform the design of effective climate finance mechanisms?

The first research question is of a descriptive nature, formulated with the expectation of filling a conceptual gap, i.e., to show which elements typically play a role between providers of international climate finance and areas of application in policy processes of host countries. Secondly, we seek to advance methodologically in this under-researched area. Thirdly, last question is designed to derive recommendations for policy actors, researchers, and providers of climate finance.

Considering the above, the aim of this paper is to review the literature with a view to understand better the interactions between, and impacts of, climate finance on national climate and development policy frameworks. For brevity, in this review, we call these interactions and impacts the policy – finance interface. We are interested in understanding what the literature says about this interface, how it is structured, what experiences have been gathered so far, as well as what types of conclusions and recommendations can be drawn. Section 2 provides a review on the literature on climate finance and policy linkages, including what can be learned from official development aid. Section 3 discusses the insights and begins to conceptualize an analytical framework to assess the finance-policy interface, while section 4 offers the conclusion.

It is found that a gap remains in both empirical research and theoretical frameworks guiding the study of the climate finance-policy interface. Whilst ODA assessment frameworks offer a starting point to address the interaction of finance and policy developments, these frameworks fall short of addressing policy developments beyond the typically narrow evaluation frameworks of effectiveness and efficiency on the level of projects. The complex reality of competing actors, ideas, and interests at the domestic level demands a taxonomy of climate finance that can conceptualize the different channels of influence between domestic and international levels.

The strategic objective of this review is to guide future research by highlighting the current research status and results as well as deriving major research gaps. If future research can address questions as to, for instance, how climate finance can be linked in the most effective way to national climate and development processes, then we are advancing simultaneously with regard to how the conditional commitments of developing nations to the Paris Agreement can be achieved.

1.2 Political background of the climate finance and policy interface

This section describes the two interacting areas of domestic mobilization of finance toward low carbon development policies as well as international cooperation to support such efforts, thereby setting the stage for the subsequent literature review.

Developed and developing nations agreed upon the decisive role of finance in climate mitigation (and adaptation) in the Paris Agreement. On the one hand, climate finance constitutes a domestic effort of all countries to move toward low carbon development (Art. 2.1.(c) of the Paris Agreement) and, on the other hand, climate finance is considered to be an instrument of international cooperation (Article 9). Hence, these two functions are linked and play equally important roles in climate action: the domestic level of developing nations to enact and implement climate policies, as well as the international processes¹ of making climate finance available, channeling it, and implementing it.

Article 2.1.c of the Paris Agreement includes a long-term ambition to *“make finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development”* (UNFCCC, 2015). This implies that international and national finance institutions, as well as national policy makers, must ensure that policies and finance flows are aligned with the 1.5 - 2 degree target of the Paris Agreement.

Thus, finance is central for the implementation of the national climate and development policies of developing nations.² On a global level, it is estimated that USD 89 trillion in investments are needed to replace, upgrade, and expand existing urban, land-use, and energy systems infrastructure between 2015 and 2030 (New Climate Economy, 2014). The major share of these investments can be made by redirecting funds from high-carbon to low-carbon investments (Hansen et al, 2016). This also highlights the strong role of policymakers in revising and redirecting policies to steer investments toward a low carbon development path. The planning and allocation of domestic budgets play crucial roles, as well as the mobilization of the private sector, where appropriate. These efforts to decarbonize key sectors of the economy is, in many countries, only addressed in very early steps and presents significant challenges to governments.

To address these challenges, the role for international climate finance is highlighted in Article 9 of the Paris Agreement. Around 80% of developing countries communicate conditional targets and commitments – in most cases conditions related to financial or capacity building support (Weischer et al, 2016). Seventy-five developing countries articulate finance needs in their Nationally Determined Contributions (NDCs) – but data and information presented in the NDCs provides limited clarity on actual finance and support needs (Röser, Day, & Kurdziel, 2016). This conditionality of NDCs and the reference to climate finance in the Paris Agreement are the entry points and rationale for international cooperation: the international community is prompted to provide support so that the more ambitious climate targets of developing countries can be met.

2 Literature review

2.1 Methodology

Given the scarcity of existing research on the policy-finance interface, this review follows a broader thematic approach, which means that thematic blocks and related keywords are identified for the literature research.

The keywords that guided the literature review relate to official development assistance (ODA) and international climate finance, climate finance effectiveness, climate policy analysis, low carbon transitions, and transnational policy processes. A snowball system was applied, i.e., key publications were used as entry points for further literature search.

¹ “Developed countries” according to the wording of the Paris Agreement

² For this review, the term of national development and climate policy frameworks is used instead of NDCs in order to address a wider context and reality than the NDCs.

The wide variety of concepts and interpretations of climate finance as well as the multitude of academic disciplines examining the topic make it challenging to establish an overview of the climate finance – policy interface. Literature is found in economics, political economy, political science, international relations, as well as sector specific disciplines (forestry, energy, and related), each specific literature often using its own terminology and research approaches.

Notwithstanding, we could identify literature in thematic blocks, which are provided in the following subsections.

2.2 Definitional and conceptual issues of climate finance

There is no internationally accepted definition of climate finance or standards for climate finance accounting; i.e. addressing questions on what precisely counts as climate finance, what channels are used, or what it was disbursed for (Selin, 2016); (Weikmans & Roberts, 2017). In the UNFCCC, climate finance refers to the provision of financial resources by developed countries to assist developing country parties in implementing the objectives of the UNFCCC. Furthermore, the UNFCCC underlines the importance of all governments and stakeholders understanding and assessing the financial needs developing countries have so that these countries can implement activities that address climate change. Sources of finance, as well as their mobilization, need to be properly understood, including how these resources can be transferred and accessed by developing countries (UNFCCC, 2018).

This description by the UNFCCC already alludes to a broader international framework within which developed countries channel financial resources in adequate amounts to support the developing countries’ mitigation and adaptation actions, i.e., the linkages of financing from abroad with domestic climate change actions.

Figure 1 provides an overview on the international finance flows.

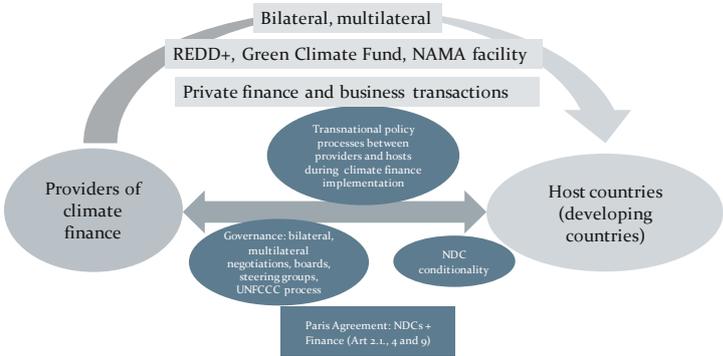


Figure 1: Schematic overview of international climate finance flows between provider and host countries, including types of financial flow (upper arrow), and elements of international interactions that influence these flows (grey). (own elaboration)

Another set of definitions revolve around financing in the context of decarbonization and “shifting the trillions,” where financing encompasses all types of financial flows – public, private, international, national – and where coherence between financing of climate compatible investments and “brown” investments, for instance in fossil fuels, becomes crucial for steering toward a low carbon development path (Hansen et al, 2016; Climate Transparency, 2017).

The definitional differentiation between official development assistance (ODA), which is “government aid that promotes and specifically targets the economic development and welfare of developing countries” (OECD, 2018), and climate finance has not advanced yet to the point where the two concepts can clearly be separated. Climate finance should be new and additional to ODA as it is demanded by developing countries (Selin, 2016). In contrast, some argue that a complete separation of ODA and climate finance will make the latter less effective in terms of outcomes for climate and development (Eyckmans, Fankhauser, & Kverndokk, 2016).

This latter stance, however, does not stand uncontested. Salazar (2019), whilst analyzing the integration of climate justice principles in the Green Climate Fund, asserts that without clear tracking of climate finance flows and projects, the former could be conflated with traditional development assistance and an increase in climate finance could potentially decrease traditional development assistance. Against the background of historical emissions in developed countries and global injustices, this conflation would deter from the two separate goals: aiding development and achieving emission reductions. The issue of definitional differentiation between ODA and climate finance remains a contested field of research. For example, Kumar (2015) describes the Green Climate Fund and raises the question for climate finance in how far it is actually additional financing or simply funds rerouted from previous mechanisms.

Contrasting the situation of climate finance, public policy is a well-researched and established scientific field (Howlett & Ramesh, 2009; Sabatier & Weible, 2014). Here we apply the definition of Jenkins (1978, page 15) of public policy as: “a set of interrelated decisions taken by a political actor or group of actors concerning the selection of goals and the means of achieving them within a specified situation where these decisions should, in principle, be within the power of those actors to achieve.” With regards to public climate policy, this can, for instance, refer to financial instruments to improve energy efficiency in the building sector, introduce feed-in-tariffs for renewable energies, or fiscal reform packages that sustainably manage and protect peatlands. Such policies constitute part of the domestic policy and international climate finance interface.

Table 1: Overview of linkages between sets of definitions and resulting unresolved issues of domestic policy and international climate finance interfaces.

Item	Definitions	Unsolved issues
Finance: International climate finance	...provision of financial resources by developed countries to assist developing country parties in implementing the objectives of the UNFCCC and conduct activities to address climate change.	How are the two aspects of the definition – provision of financial resources and activities to address climate change - linked? It is only if international cooperation contributes to domestic decarbonization efforts that the effectiveness for climate and development goals can be safeguarded. Definitional unclarity and ambiguity allows for deviation from meaningful climate and development objectives.
Finance: Financing decarbonization	Encompasses all types of financial flows – public, private, international, national – and where coherence between financing of climate compatible investments and “brown” investments, for instance in fossil fuels, becomes crucial for steering toward a low carbon development path	Conceptual unclarity, how financing decarbonization is linked to international climate finance
Public policy definitions	...decisions taken by a political actor or group of actors concerning the selection of goals and the means of achieving them within a specified situation where these decisions should, in principle, be within the power of those actors to achieve.	Climate policy definition not yet widely agreed upon, but can refer to: decisions, goals and instruments by political actors to address climate change mitigation and adaptation.
Definition of linkages of domestic policy and international climate finance	Not available	Linking up all of the above definitions is not yet accomplished or sufficiently discussed in the literature

2.3 The ODA perspective: Climate finance effectiveness and political conditionality

Climate finance effectiveness. As a first approximation to research the linkages between finance and policies, a look into the body of literature regarding climate finance effectiveness is prudent. OECD (2015) states that the objective of assessing climate finance effectiveness is the extent to which the activity's stated objectives have been met. With regards to such objectives, the OECD defines that the objective of climate finance is to “support national climate change policy and planning,” which makes such effectiveness frameworks relevant for the purpose of this paper. A recurring theme in the literature on climate finance effectiveness is its linkage with policy development and implementation, which climate finance ought to support in order to be effective (Ellis, Caruso, & Ockenden, 2013).

The Busan Partnership (2012) states that financial support for national climate change policy and planning should be integrated with developing countries’ overall national development plans. Furthermore, it needs to be ensured that measures are financed, delivered, and monitored through developing countries’ systems in a transparent manner.

The debate on climate finance effectiveness is largely based on principles of aid effectiveness, as included in the 2005 Paris Declaration (OECD Development Assistance Committee, 2005). For climate finance, certain key principles were formulated in the context of the Busan partnership (2012) in the following way:

- Partner countries’ ownership: recipient countries should be able to use the finance based on their strategic objectives. Stand-alone projects should give way to integrated programs with national policies and plans.
- Alignment of donors with partner countries’ systems: climate finance should be channeled through national systems and parallel systems should be avoided.
- Harmonization of donor’s programs: donors should ensure coherence of climate finance among their own programs.

These normative principles are relevant as they clearly connect two sides of climate finance – sources and disbursement – in developing country programs and systems through alignment and ownership. Interestingly, relatively few studies use these principles (as well as derivative criteria and indicators) for analyzing effectiveness empirically; i.e., via case studies of climate finance disbursement, impacts, and effectiveness in developing countries (for an assessment of the Scaling-up Renewable Energy Program and the Indonesia climate change trust fund, see Halimanjaya & Barnard (2014). Nakhoda (2013) distinguishes broadly between effectiveness of spending (resource mobilization, governance, allocation, disbursement, and monitoring) and effectiveness of outcomes (scale, enabling environments, catalytic impacts, innovation, and national ownership). Her framework is developed to analyze effectiveness of multilateral climate funds and addresses important questions like what kinds of policy, regulatory, and institutional changes were induced by the fund’s spending.

With a few exceptions as follow, the literature lacks proposition building under which climate finance can produce the greatest impacts respecting domestic policy conditions and international implementation modes. Based on a survey by Zou & Ockenden (2016) of experts and practitioners, certain preconditions for effective climate finance are mentioned, which can be seen as propositions for climate finance to effectively support national climate policies:

1. **Mainstream climate change** into development planning, budgeting, and co-operation. This includes the integration of climate change into national strategies and budgets, proper coordination among institutions, ministries, and climate finance providers, and the alignment of climate finance with national systems. An often-cited precondition for successful mainstreaming is country ownership and institutional leadership (Winkler & Dubash, 2016; Bird, 2017).
2. **National transparency and accountability systems.** This includes the availability of functional tracking and monitoring systems, particularly for finance.
3. **Capacity building and engagement:** access and readiness for international climate finance as well as the engagement with civil society, local governments, and the private sector.

Zou & Ockenden (2016) report that the problem of lacking coordination and fragmentation can be addressed by increased mainstreaming of climate change into donor's portfolios.

Lessons learned from ODA conditionality. While the effective design and operationalization of climate finance channels to facilitate the implementation of developing countries' national climate policies is still a field of experimentation, much can be learned from related fields like ODA.

The literature on effectiveness of ODA, in general, has a long tradition and yields a substantial number of lessons learned for climate finance (Drexhage et al., 2007); (Sippel & Neuhoﬀ, 2009); (Victor, 2013). In particular the political conditionality of ODA – for instances when donors made debt relief dependent on particular fiscal policy conditions – yields interesting findings, as some can be discussed in the light of conditions that developing countries have set for the implementation of higher, more ambitious, climate goals.

Making contributions of foreign aid conditional on policy and governance reforms in recipient countries is, to varying degrees, an inherent element of all forms of ODA. Yet it is regarded as controversial due to its often unresolved conflict between recipient country ownership and influence seeking through the application of conditions to foreign aid (Stichelmans, 2016). For instance, counterproductive effects of conditionality are oftentimes stated, such as worsening poverty rates through impacts of ODA induced fiscal austerity measures (Montinola, 2010). Despite the general absence of successful policy and governance reforms due to conditional ODA, positive effects of conditionality are also found in the literature, such as improved financial management and transparency in the case of applying direct budget support (Ministry of Foreign Affairs of the Netherlands, 2012). The same source also confirms that policy and governance reforms are only feasible if prior will by the recipient country is declared, hence confirming the importance of the ownership principle. Ownership is also stated by Sippel & Neuhoﬀ (2009) to be the most important success factor for generating positive outcomes of conditional ODA, next to designing support in a customized way and presence of good governance in recipient countries, among others.

Some sources hint that climate finance is regarded as a means for achieving foreign policy aims; it is also seen as a means to influence developing countries to take a more collaborative stance in the UNFCCC negotiations and to become more active in addressing climate change domestically. Hand in hand with this issue are concerns about national sovereignty and the appropriateness of international influence on domestic policy processes. Concerns have been voiced over possible infringements of the national sovereignty of developing countries in case of the monitoring, reporting, and verification (MRV) of support received (Schalatek, Bird, & Brown, 2010), imposition of international influence over national policy developments (Winkler & Dubash, 2016), as well as the lack of transparency of differentiation with conventional ODA resources (Selin, 2016).

The dialogue and relationship between donors (development partners) and developing countries with a view to transformational change is not without potential tensions due to concepts of conditional support and questions of dwindling ownership of developing countries (Winkler & Dubash, 2015). The same authors mention that this tension can be resolved through, for instance, long-term scenario developments for transformational change (ibid).

A slightly different understanding of interactions between international negotiations and domestic positioning on climate policy is offered by the economics literature. This literature provides insights into how the terms and commitments of international climate change treaties can, through the provision of international climate finance, incentivize climate change mitigation actions by national governments. Kornek and Edenhofer (2020) show that countries are more likely to commit to climate change action when this is explicitly encouraged by the mechanism of international climate treaties. Specifically, free-riding and not-acting become more attractive when other countries' actions, like international climate finance payments, are independent of any one country's actions. Thus, the authors conclude, when one country chooses not to cooperate, e.g. by stopping payments for international climate finance mechanisms, other countries' contributions should be lowered dynamically, as determined *ex-ante*. This, in turn, reduces mitigation action by receiving parties. Recognizing this should however disincentivize stopping the

payments, as the economic environmental damages from unabated climate change increase even stronger than the individual countries' stop in payments would have triggered on its own.

Cramton and Soft (2012) show that international climate finance, paid out in case of commitments under a climate treaty, increases overall emission reductions. This is echoed by the result of Nordhaus (2015), who states that countries need incentives for joining such treaties, which are, thus, effectively climate clubs. He concludes that countries not participating in such climate clubs should face sanctions. This increases the attractiveness of joining climate clubs, ultimately leading to greater overall participation and stronger emission reductions. Going yet a step further, Meltzer (2016) suggests specific instruments, including public concessional loans, to de-risk investments and attract private finance. Similar to Orazio and Popoyan (2019), he argues that recipient countries' financial systems need to adjust to the climate challenges and that the capital allocation must reflect the risks stemming from climate risks.

Analysis of ODA programs shows that the motivations of donor country governments to provide ODA resources to developing countries are usually aligned with their specific interests in foreign policy (Apodaca, 2017). In the context of transfer of international climate finance to developing countries, donor country goals can be divided in a functional and a strategic set of objectives:

1. **Functional objectives:** these objectives refer to support for obvious goals like the reduction of GHG emissions, strengthening mitigative capacities of recipient countries, and the like. Needs of recipient countries (for instance to raise rates of renewable energy deployment) influence to a large extent the donor preference of recipient countries and can be a major objective for energy development cooperation (Halimanjaya & Barnard, 2014; Kim, 2018).
2. **Strategic objectives** can include the promotion of, for example, renewable energy technologies to developing countries markets (Kim, 2018) or, more generally, to strengthen trade relations between donor and recipient countries. Eyckman et al (2015) mention the special interest of donors that recipient countries may play a constructive role in international climate policy through the provision of climate finance.

Donors tend to allocate more aid to those countries that already have a favorable index of good governance and show high ownership over sectoral policies, such as renewable energy, because of donor expectations that aid effectiveness will be greater (Victor, 2013; Halimanjaya, 2014; Kim, 2018). This points to a central dilemma of ODA allocation: those countries that need capacity building the most are at the greatest risk of being bypassed.

While in the case of traditional ODA, conditions were predominantly brought into the negotiations by the donor countries, the case of the conditionality of NDCs appears to be different, as conditions were introduced by the potential recipient countries themselves (Weischer et al, 2016). This might take away some of the concerns found in the ODA literature with regards to conditionality of support provided, if the setting of conditions by the recipient countries is interpreted as an indication of ownership over the intended mitigation policies and measures.

While this section highlights literature findings on experiences with ODA type of approaches for effective finance policy linkages (see summary table 2), the next part specifically addresses the domestic policy angle.

Table 2: Critical factors for effective linking of international climate finance with developing countries' climate and development programs.

Item	Factors for effective finance – policy linkages
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ODA	Ownership, harmonization, and alignment essential. Dialogues critical to foster understanding about right fit of demand and supply.
ODA conditionality	Only feasible if ownership principle is obeyed and influence seeking is minimized. Might be promising in areas of financial cooperation in NDC contexts.
Donors' objectives	If donor's strategic and functional objectives meet the needs of developing countries.
Developing countries' conditions	Mainstreaming climate change in development policies, increasing transparency, accountability, and engagement.

2.4 Linkages of domestic policy processes with international climate finance

This section reviews the literature with regards to linkages between international finance mechanisms and domestic finance as well as low carbon economy initiatives by developing countries, including the role of domestic actors, institutions, and policy processes.

Studies clearly show that the pledges by industrialized nations to mobilize USD 100 bn per year from 2020 must be seen in the context of a more comprehensive, larger investment and expenditure need if goals of the Paris Agreement are to be met (Peake & Ekins, 2017). While there is a significant variation of estimates for the overall investment needs to meet the low carbon transition challenge world-wide,³ there is agreement among scholars that effective mechanisms for the disbursement of international climate finance are needed in order to build on domestic efforts toward a low carbon economy by developing countries (Flynn, 2011; Nakhoda, 2016). A particular challenge consists in the strategic use of public finances (both domestic and international) to influence private investments as this would generate leverage effects as well as influence markets toward low carbon growth (Jin & Kim, 2017). This, however, frequently requires detailed and sector-specific knowledge on actors, institutions, and the effects of policy instruments, which is available in textbooks but is not, to the authors' best knowledge, yet discussed in light of climate finance mechanisms.

There is naturally a wide variation in the ways that developing countries finance their climate and development policy frameworks as well as mobilize additional investments in a low carbon economy. These can range from a mix of government interventions (e.g., renewable energy investment programs, city support policies, green funds, and others) to public-private partnerships and banking policies. Technical coordination issues of linking donor support with these governmental interventions are reported by Lundsgaarde et al (2018) and relate to issues of synchronization of budgetary cycles of donor and host countries, adherence to fiduciary standards, and timely disbursement of donor resources.

In terms of factors for successful outcomes, Román, Arto, & Ansuategi (2018) find that effects of disbursing climate finance on economic growth recipient countries are largest in the case of countries that have aligned climate and development strategies and where industries already operate in such policy environments. This underlines the argument of domestic policy development, which can then interlock with international climate finance.

Based on work on the political economy of geothermal energy financing of Indonesia and the Philippines, Chelminski (2018) identifies climate finance as a game changer in a suitable policy environment: by providing and earmarking funding through international finance institutions, critical gaps in financing are overcome and the cost-benefit ratio is altered. This allows for implementing renewable energy policies and a reframing of related economic aspects.

As shown by Newell & Bulkeley (2017) for energy transitions in sub-Saharan Africa, climate finance needs to be viewed and understood within the context of broader transitions to low carbon development, due to manifold linkages and influences of, for example, market and technological developments, transnational influences, and domestic political economy constellations. This also implies that limiting climate finance to

³ Ranging from a factor of 1.4 to 270 times the amount of the USD 100 bn per year

project based approaches will not suffice when attempting to achieve wider sector transitions (Mersmann, Olsen, Wehnert, & Boodoo, 2014).

Looking into the linkages of international finance and policies from the domestic angle, it emerges that a wide variation of ways exist in developing countries through which domestic low carbon policies are developed and financed, which is context and country specific. An individual design to international cooperation design is deemed necessary in order to ensure compatibility and functioning of both national and international elements in a systematic approach and avoiding narrow project approaches. None of the studies provides an explicitly comparative approach, which distinguishes country-level insights from systemic efforts. This makes it difficult to draw general conclusions about climate finance implementation both empirically and conceptually.

2.4.1 Roles of domestic policy processes, actors, and institutions

When examining the finance – policy linkages in greater detail, the question of which actors and institutions play relevant roles for cooperation comes into greater focus. These appear to be determined, on the one hand, by the individual political and governance setting of the country in question and, on the other hand, by the type of policy instruments used. Newell & Bulkely (2017) point out that different types of transformations toward low carbon development require different finance and economic instruments, considering respective assets, instruments, and timeframes. In Indonesia, for example, Chelminski (2018) identifies for geothermal energy the state owned companies for electricity utility and primary energy resources, next to ministries of finance, and energy & mineral resources, while on the side of the international finance institutions, bilateral and multilateral development banks play important roles. For dynamics of influences of finance on policies and vice versa, the political decision (and related mandates) to appoint responsibilities and roles to certain actors is crucial in this regard. This can range from directorate level in ministries over bodies such as high-level commissions and representatives of embassies and financial institutions to the head of state. Another influencing factor is the degree of legitimacy, which is regarded appropriate for international actors to play roles as policy actors.

In addition, there is a sizable body of literature that informs about potentials, barriers, and ways of overcoming barriers to effective implementation of climate finance by actors and institutions. A common finding is that countries are struggling with a number of challenges related to the alignment of policies on national levels toward achieving NDC objectives and enabling investments to flow toward a low carbon economy. Such barriers reportedly relate to lacking policy clarity and related priority setting, gaps of engagement with the private sector on climate change policy, adverse investment patterns, occurrence of finance barriers including the short-term nature of local debt markets, high credit risk, and the lack of insurance (risk guarantees). Furthermore, traditional, non-climate friendly values, culture, and organizational matters may represent barriers to designing low carbon investment policies ((Varma et al, 2015), (World Resources Institute, 2014), (Naidoo, 2011), (Buchner, Mazza, & Falzon, 2016).

Looking further into literature on policy change processes might elucidate how political actors and institutions deal with such challenges and what conclusions can be drawn for an effective finance – policy interface.

Bernstein and Hoffmann (2018) provide a useful framework to study such policy changes. They distinguish between three political and two systemic mechanisms that help assess the impact and development of climate policy initiatives. Although they restrict their application to the development of subnational climate experiments, the mechanisms of coalition building, capacity building, and normalization to reach systemic entrenchment of decarbonization efforts remain valid, even when looking at transnational financial flows to domestic climate efforts. Identifying key actors and developments through their framework allows us to study the broader national policy response to climate finance both in terms of actors, institutions, and policy content.

Most available literature on policy change hint at contributing factors and processes such as discursive (and oftentimes conflictive) struggles across actor groups and coalitions, disruptive events, and major global developments (e.g., UNFCCC and others), among others (Sabatier, 1991); (Hall, 1993); (Carter & Jacobs,

2014). However, it must be pointed out that not all transitions for low carbon development require policy changes of larger dimensions to begin with, as in many instances, developing countries are facing barriers to implementation related to a lack of funding, technical capacities, and resources, situations in which climate finance and international support are expected to make a difference. In other situations, so-called co-benefits (or rather, development benefits) tip the balance for policy decision makers to decide on a mitigation policy without larger dissent (e.g., economics of renewable energies, energy independence). Quantifying co-benefits can make it more compelling for policy makers to adopt certain climate compatible development policies and can increase the chances for domestic and international funding (Winkler, Höhne, & Elzen, 2008); (Ürge-Vorsatz, Herrero, Dubash, & Lecocq, 2014).

Thus, it is not just domestic politics that plays a role, but also the international context of climate finance. Liang and Liu (2020) find that emerging multilateral institutions of finance can have a positive effect on mitigation efforts in host countries as long as close trade relations between donor and host countries do not outweigh these effects. The origin of finance, therefore, can have significant impacts on the effectiveness of domestic decarbonization.

In summary, it is essential to recognize that policy and institutional change processes are ongoing and, in many instances, needed to move toward low carbon development, as well as that various actors are involved in oftentimes dynamic processes. These are needed to strategically support climate finance. Experiences of linking finance with such oftentimes dynamic process is provided in the next subsection.

2.4.2 Experiences with linking international climate finance and domestic policy processes

Investment decisions in the context of international climate investment funds may be the result of coalition dynamics of stakeholders engaging in favor of certain investment objectives, as is found for Bangladesh, Nepal, and Ethiopia in a political economy analysis by Rai et al. (2015). Recognizing these actor constellations and coalition dynamics as well as embedding the investment flow in the domestic institutional setting will help to effectively channel climate finance in a way that is legitimate and sustainable.

Boodoo, Mersmann, & Olsen (2018) analyze and discuss the theories of change and results chains of two major climate funds, the nationally appropriate mitigation actions (NAMA) facility and Green climate fund. The authors conclude that the interpretations used by these two funds regarding what transformational change and supporting climate policy means could move from rather linear logical framework approaches, which are currently in practice, toward an approach that incorporates more adaptive and reflexive approaches in order to cater to those uncertainties, non-linearities, and feedback loops that are characteristic of the transition processes of countries. This implies that in order to establish closer linkages with transformative policy processes and support them accordingly through climate finance channeled through these funds, the implementation mode and design of projects might be more tailored to such adaptive and reflexive approaches.

The extent to which international climate finance triggers feedback loops at the domestic level is analyzed by Sarker, Rahman, and Giessen (2017) in their paper on power changes in the forest sector of Bangladesh. They argue that policy changes result in increases of power among sector specific state bureaucracies as well as foreign donors. These changes affect the implementation of public policy and the design of future policies through strategic coalition building. Hence, climate finance not only directly affects decarbonization efforts, but it also makes long term contributions to changing actor constellations in the climate policy domain.

A case for illustration of an approach that takes into account the individual context of policy processes is the Eco Casa program by the Mexican government, which aims at constructing houses with 20% less energy use (Abramskiehn et al., 2017). EcoCasa offers bridge loans with a preferential interest rate to developers providing standardized social housing. By reframing the housing policy problem as a climate change issue (a NAMA), it was possible for policy actors to engage with international finance institutions and to obtain direct access to finance and technical assistance. Moving the housing issue into the international arena made it possible for domestic policy actors to acquire high international visibility and accrue a positive image domestically. Much agreement among policy stakeholders within the policy arena already existed with regard to the necessity for policies and measures for green housing and related energy efficiency instruments when

international finance institutions started their respective contributions. This enabled a smooth decision making and openness toward international contributions in the policy process, something that might not be safeguarded in cases of much dispute and discursive struggles within and across domestic policy coalitions. Taking the perspective of domestic policy actors, it appears advantageous to select those modes of climate finance that fit best to the domestic situation, an important lesson for the structuring of international climate finance.

Fridahl, Hagemann, Röser, & Amars (2015) report that donor preferences for policy interventions through NAMA type of instruments seem to have prioritized financial incentives, followed by regulations and standards as well capacity building and institutional readiness. Awareness raising, education campaigns, and research and development are ranked the lowest. In case of mismatches between funder's priorities and recipient's needs and objectives, support might be offered that could be undesired by recipient countries and conflict with well-established principles such as the alignment of mitigation actions and national development plans. Focusing exclusively on financial instruments, as implied by the respondents, might not lead to the desired emission reduction if such instruments are not part of a comprehensive policy package. If NAMAs emphasize providing financial incentives, support providers should also, during their implementation, ensure that other barriers, such as the lack of awareness or research and development, are addressed by other means.

3 Discussion and conclusions

3.1 Finance – policy linkages in the international perspective

This review reveals that the scarcity of empirical studies has resulted in significant knowledge gaps regarding the effectiveness of international climate finance on domestic policy frameworks in developing countries. Closing these knowledge gaps is important for designing improved international cooperation mechanisms, especially since the success of international climate policy depends in part on effective climate cooperation, as stated in Article 9 of the Paris Agreement.

The literature identifies a two-sided system of international climate finance flows, comprising two sets of actors who both have functional and strategically motivated objectives when interacting: developed countries as providers of climate finance and developing countries as recipients.

The reviewed publications consistently find that climate finance should support, or contribute to, the development of national policy frameworks for climate change (Nakhoda, 2013; Busan Partnership, 2011; Kato et al, 2014). An aspect that emerges very clearly is that two elements are connected when it comes to the influence of climate finance on national climate policy frameworks: that the source (donors, contributors) influences through levels and amounts of funding, strategic plans, voting, and governance systems, while the other – the disbursement side – influences via integrated or fragmented climate policy frameworks, aligned or non-aligned systems, and agendas.

While seeking to influence the political and economic directions of countries as well as to further foreign policy goals is a common and contested theme in the ODA literature, it is worthwhile analyzing to what degree this plays a role in international climate finance flows. A mixed picture emerges: ODA experiences with conditionality have been controversial and with limited success thus far, yet conditionality was introduced by developing countries' NDCs. This time, conditionality may work the other way around compared to conventional ODA approaches, as conditions were introduced by prospective recipient countries. However, the general experiences of ODA conditionality are also applicable in this context. For instance, experience with conditionality shows that policy and governance reforms are only feasible in cases of high recipient country ownership. ODA experience shows that sectorally-customized and country-specific approaches are more successful, as well as if the host country has sound governance structures.

Functional and strategic interests by donors may match with recipient countries' policy objectives and ownership, but at the same time, concerns with regards to possible sovereignty infringements can occur and may act counterproductively. In practice, an open, informed dialogue on equal terms between recipient and

donor countries might avoid pitfalls in terms of mismatch of priorities and influence-seeking except for directing climate finance flows to where it can create the most value for development and climate.

3.2 The finance – policy interface from the domestic perspective of developing countries

In line with the argumentation above that international contributions need to take careful account of national policy processes to be effective, Zou & Ockenden (2016) mention the importance of domestic agenda setting for climate investment priorities by national level actors for the effective use of international climate finance. This appears to be crucial point as it is in the domestic processes where the major part of investments must be mobilized and directed in order to match investment levels as implied by the NDCs (Peake & Ekins, 2017). A proposal is to put the domestic processes into the center of analysis and analyze linkages with international finance from there. This could help to detect potential pitfalls as identified by Gomez-Echeverri (2010): among others, that some funders follow path dependencies in selecting certain sectors and countries and thereby contributing to fragmentation. Furthermore, that a supply driven character of climate finance might lead to a neglect of real capacity needs or necessary strengthening national structures and institutions.

Table 3: Possible ways how international climate finance can be linked with domestic policy areas (climate and sectors). Understanding these flows is crucial for understanding effectiveness of linkages and underpins the need for mainstreaming as a success factor for climate finance.

	Climate policy stovepipe	Sector policy stovepipe	Climate – sector mainstreamed
ICF flowing to	Institution coordinating climate policy: ambition raising and NDC strategies, MRV and reporting, UNFCCC focal point	For instance, direct energy sector funding in renewable energy policy support	May require funding flows to several institutions in a strategic way, or supporting an integrated climate-sector governance system
Possible outcomes of ICF	Can be very efficient as support can be channeled with less transaction costs but might miss the involvement of sectoral policy fields that are crucial for implementation.	Can be very efficient as support is channeled with less transaction costs but might miss including climate policy elements.	Might involve higher transaction costs of support as several institutions and government levels may be involved, but can ensure that multiple outcomes are feasible: sector outcomes (e.g., MW renewable energy) and climate outcomes (less GHG emissions)

The findings of the literature reviewed support the claim that analysis of national processes ought to stand at the center of the scientific quest for understanding effective international finance and domestic policy linkages. Table 3 shows possible flows and linkages that need to be carefully examined, if climate finance is to make a difference by deviating from business as usual scenarios of development, a concept that is used in many developing countries’ NDCs.

Furthermore, climate finance is oftentimes a comparably small factor among several others in wider domestic frameworks. For instance, Vij et al (2018) identify international funding as one among several drivers for a policy paradigm shift in Bangladesh and Nepal, in the sense that stand-alone climate policies were changed toward mainstreamed, integrated approaches for adaptation due to national development priorities. This, in turn, allowed donors to contribute, due to the novel opportunity of funding both development and climate change. For the same case studies, the authors find that comparably higher levels of donor funding occurred for mainstreamed approaches, as opposed to funding stand alone projects (ibid). Apparently, different strategies by domestic actors evoke different levels of funding by donors. It is assumed that, with regards to impact logic, the integration (or mainstreaming) of climate change aspects into policies, strategies, and budgets is considered to be an indispensable precondition for effective climate finance – and effective support to policy development and implementation (Zou & Ockenden, 2016).

In the context of climate finance – assuming its main objective is the support of national climate and development policy frameworks – the alignment of donor and recipient countries policy objectives raises interesting questions. To what mix of factors are countries responding when they mainstream climate and development policies? From the literature examined, we know that it is not just a mix of motives, including global policy change, national developments, and policy strategies, but also the international cooperation via climate finance. However, we do not know much about the constellations of factors, relative weight of factors, as well as how to measure them.

The alignment between donors and political actors, their ideas, interests and institutions of recipient countries can be understood as a continuum between a total mismatch (no match of donors’ and recipient countries’ objectives and strategies) and a complete alignment (100 % match of donors and recipient countries’ objectives and strategies). In the case of complete alignment, the common goal of donors and recipient countries is to pursue climate change objectives and strategies, including a departure from possible high-carbon development paths, i.e., a transition toward low carbon development. Climate finance is supposed to contribute here.

An analytical framework needs to take into account the envisaged and occurring policy and system changes in terms of directions, underlying dynamics, and political processes in order to understand the interactions and effectiveness of climate finance with domestic climate and development policies. It should account for both the international and the national spheres in the course of climate finance implementation, as we are interested in analyzing the effects and interactions of international finance on national policies and institutions.

3.3 Synthesis

In Table 4, the main conclusions from Sections 2 and 3 are summarized. Learning from the literature review, it can be said that the key to effective climate finance implementation that supports national climate and development frameworks consists of obeying the Paris principles and specifications thereof in the Busan framework, i.e., alignment of donor and host country objectives, while considering the ownership of host countries as top guiding principles. However, the literature review also shows several important specifications and particularities when the application of climate finance is analyzed in the context of developing countries’ policy frameworks (Table 4).

Table 4: Main Conclusions

Donors: Climate finance based on ODA approaches	Developing nations: Transformation processes
Country ownership: Cannot necessarily expect that host governments speak with one voice, as protagonists in policy struggles may be a minority and not represented in climate finance design processes	Can be win-win processes if interests of multiple actors are converging (e.g., energy efficiency in housing) Can be a struggle with winners and losers if tough political issues are tackled (e.g., fossil fuel subsidy phase out)
Relying on the alignment principles may take out of consideration that deviations from business as usual type of development may be needed	Usually imply a deviation from the business as usual scenario of development, as it is formulated in many developing nations’ NDCs.
Dependence on solid governance systems to ensure effective spending of climate finance: this might be mistaken, if new governance systems are emerging	Can result in struggles for overall new governance systems, if existing ones do not prove effective for low carbon development
Strict reliance on linear logical framework approaches might be ineffective	Can be chaotic, non-linear, and with uncertain results

Strategic objectives may prove effective and deserve recognition if matching with host countries' prioritization	Might be prioritized and sector specific according to ongoing economic, political and societal objectives
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In order to provide for effective climate finance – policy interface, the nature of transformational change processes needs to be properly understood. This implies that climate finance is often implemented in a political environment characterized not just by high turbulence due to conflicting actor constellations, but also by win-win type of processes, if actors show matching interests. This also shows that the ODA principles of alignment and host country ownership needs to be viewed in the context of such processes. Following from this is the conclusion that further analysis is needed with the objective of understanding which actor group and which policy process is key for determining ownership and alignment within the context of transformational change.

3.4 Outlook: toward an analytical framework to assess the finance-policy interface

There are several analytical frameworks available in the literature that were developed to analyze processes of interactions between nation states and international actors along with the resulting outcomes. These approaches – mostly applied in disciplines of international relations and transnational policy research – are useful for the analysis of international climate finance and domestic policy interactions. Such frameworks are valuable for analyzing and understanding the oftentimes complex web of influencing factors and governance systems at work at various levels within international – national interactions (Bernstein & Cashore, 2012; Jodoin, 2017).

A possible analytical framework, which is based on the literature review, as we structure the available frameworks (Steinberg, 2003; Bernstein & Cashore, 2012; Jodoin, 2017) is depicted in Figure 2. It takes into account the domestic actors with ideas, interests, and institutions, as well as processes toward climate and development policies (right side), while also recognizing the strategic and functional objectives of donors, related rules, and those material resources that can be provided (left side; the interaction processes that run between these two sides largely determine if the finance – policy interface is effective or not.

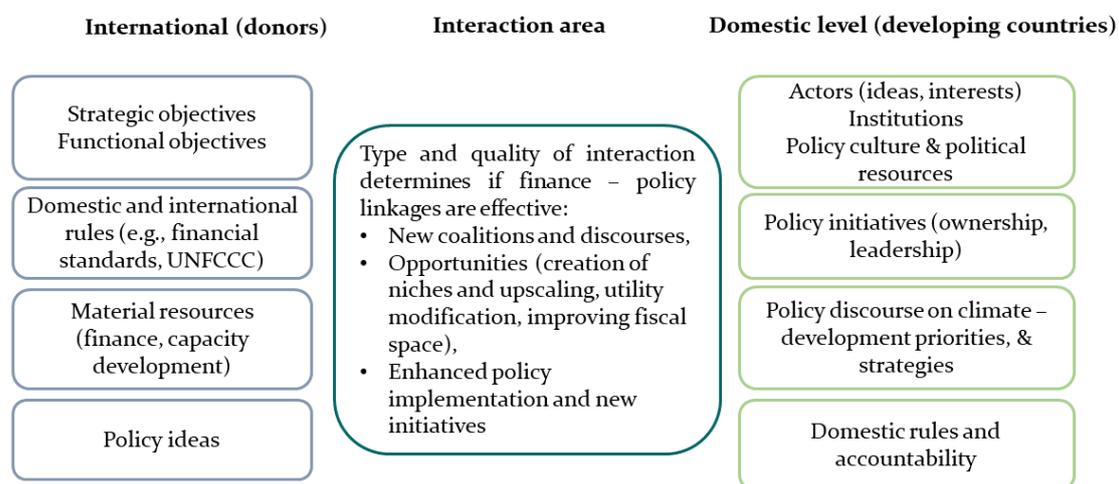


Figure 2: Summary of elements of an analytical framework to assess finance policy linkages, comprising international, national, and interacting levels. The elements, based on Steinberg (2003), Bernstein & Cashore (2012), and Jodoin (2017), are adapted based on the literature review findings.

Such a framework needs further testing and refinement through empirical research that tests the analytical units and the hypotheses with regards to the effectiveness of the finance – policy interface. Further research is needed to advance the theory building for conditions on both national and international levels that should be in place for climate finance to make an effective contribution to national climate and development policy processes. This should include comparative studies where various political economy situations are analyzed

in light of different climate finance delivery modes. Another area of research can include comparative studies on climate finance effectiveness of conventional ODA types and direct access, considering given political economy situations. Empirical research should include an analysis of both documentation and evaluation of the increasing amount of applications of climate finance through projects and programs (bilateral, multilateral), thereby contributing to theory development.

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