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Splitting the difference in global climate finance: are fragmentation and legitimacy mutually exclusive?

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Abstract

International funding for climate change action in developing countries may enhance the legitimacy of global climate governance. However, by allowing for a fragmented approach to mobilizing funds, current multilateral commitments raise further legitimacy challenges. We analyze the potential for unilateral and coordinated approaches to advance “output” and “input” legitimacy respectively by raising adequate funds and representing interests in contributing and recipient countries that are affected by funding decisions. Achieving legitimacy will require coordinated approaches to goal-setting, oversight and effort-sharing. Vesting contributing countries with substantial discretion over funding sources may enhance taxpayers’ support and boost funding more rapidly. However, multilateral coordination will be necessary to maximize opportunities for raising revenue from carbon pricing and to minimize adverse impacts of funding choices on developing countries. Our analysis provides a principled justification for the degree of fragmentation compatible with achieving legitimacy. These insights may inform future evaluation of legitimacy requirements in other spheres of environmental governance.

Keywords

Climate policy, climate finance, legitimacy, fragmentation, climate change mitigation, climate change adaptation, development assistance

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Introduction

Mobilizing finance to address climate change in developing countries is widely regarded as a prerequisite for their engagement in global efforts to cut greenhouse gas emissions. Funding commitments by wealthy countries may help to promote the legitimacy of global climate governance by ensuring a more equitable distribution of the costs of reducing emissions and adjusting to the impacts of climate change, and by demonstrating good faith on the part of developed countries. Conversely, if wealthy countries fail to fulfill the commitment they made in 2009 to mobilize $100 billion a year in climate finance by 2020, the climate regime's legitimacy will suffer lasting damage.

With many developed countries continuing to experience challenging fiscal conditions, developing countries are increasingly uncertain about whether they are on track to scale up funding towards the long-term commitment.[1] Against this backdrop, achieving legitimacy in global climate finance will require identifying sources of funding that are sufficient to meet the collective commitment without disproportionately burdening some countries and demanding too little of others. At the same time, legitimacy will require crafting institutional arrangements to represent the interests of those in contributor and recipient countries most affected by funding decisions.

A notable feature of current multilateral efforts to raise climate finance is that developed and developing countries have agreed to "split the difference", not only by sharing responsibility for funding mitigation and adaptation measures in developing countries, but also by spreading the task of mobilizing the required funding across a range of sources and institutions. Recent scholarship on global environmental governance has drawn attention to the ways in which fragmented governance—for example through unilateral action or "minilateral" action comprising a limited group of countries rather than under a cohesive multilateral framework—may complicate efforts to secure legitimacy.[2] However, significant disagreement persists both in the scholarly literature and among negotiating parties over whether fragmentation necessarily undermines or potentially enhances legitimacy. Moreover, understanding remains limited about whether the effects of fragmentation vary across and within different types of institutions.

Through the case study of climate finance, we aim to inform theoretical understandings of how requirements for legitimacy may vary across the policy functions that an institution

[1] Nauru on behalf of AOSIS 2013.

[2] Biermann et al. 2009; Zelli and van Asselt 2013; Karlsson-Vinkhuyzen and McGee 2013.

performs. We examine how fragmentation in mobilizing resources may affect legitimacy in ways that are distinct from its effects on other policy functions such as setting collective targets, oversight, and delivery of resources. Thus whereas there is a strong case for coordinated approaches to setting and monitoring aggregate commitments of climate finance, we argue that contributor countries may justifiably retain significant discretion over how they raise revenue to meet their international or domestic commitments. This suggests that some degree of fragmentation in resource mobilization arrangements may be compatible with (and indeed necessary for) legitimacy. Our analysis of two major aspects of resource mobilization—effort-sharing and the selection of funding sources—indicates that a range of countervailing considerations nevertheless point to the need for a substantial degree of international coordination. These considerations include deterring free-riding, harnessing funding sources that simultaneously reduce emissions, and minimizing the adverse impacts of fundraising methods on developing countries.

Our analysis encompasses multiple strands of evidence, including lessons from existing financing and mitigation efforts, deliberations under the *UN Framework Convention on Climate Change* (UNFCCC) spanning 2008 to late 2013, and economic and political analysis of longer-term financing sources. We also evaluate quantitative indicators for sharing the financing effort among developed countries. We conclude by identifying policy implications and implications of our findings for broader research on fragmentation and legitimacy.

Fragmentation and legitimacy in climate policy: a conceptual framework

Dimensions of fragmentation

The concept of fragmentation we apply builds on the foundational work of Frank Biermann and colleagues, who define fragmentation in global governance as:

> a patchwork of international institutions that are different in their character (organizations, regimes, and implicit norms), their constituencies (public and private), their spatial scope (from bilateral to global), and their subject matter (from specific policy fields to universal concerns).[3]

Thus defined, the concept of fragmentation encompasses “horizontal” fragmentation among and within *international* institutions, and to this extent shares common ground with debates

[3] Biermann et al. 2009, 16.

about the value of multilateral versus minilateral variants of international coordination.[4] At the same time, we may readily extend the concept to encompass "vertical" fragmentation among international, national and sub-national levels of governance. Conceptualizing fragmentation as having a vertical dimension helps to orient it in relation to the literature on "top-down" versus "bottom-up" approaches to climate governance.[5]

While much of the literature on fragmentation in climate governance has focused on its overall institutional setting or architecture, our analysis follows the strand of research that has addressed fragmentation within specific components of the architecture, while taking into account existing levels of overall fragmentation.[6] We will primarily focus on the implications of three degrees of fragmentation prominent in debates about climate finance: (i) multilateral coordination under the UNFCCC (vertically and horizontally integrated), (ii) minilateral coordination among contributor countries (vertically integrated, horizontally fragmented) and (iii) unilateral action by contributor countries (horizontally and vertically fragmented). Other important variations of fragmentation include coordination through other multilateral organizations and delegating public authority over the fulfillment of commitments to private investors.[7]

Evaluating fragmentation from the perspective of legitimacy

In a recent journal special issue on fragmentation, editors Fariborz Zelli and Harro van Asselt called for further research aimed at "examining implications of institutional fragmentation beyond the level of output effectiveness, for the compliance and problem-solving effectiveness of affected institutions".[8] The concept of legitimacy provides a useful yardstick for evaluation as it can encompass the implications of fragmentation for institutional *effectiveness* (or "output" legitimacy) as well as for the quality of institutional decision-making *procedures* ("input" or procedural legitimacy).[9] At the same time, applying the concept of legitimacy enables us to situate our evaluation within the context of broader debates about legitimacy in political philosophy and international law.[10]

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[4] Eckersley 2012, Shaffer and Bodansky 2012.

[5] Hare et al. 2010; Bodansky 2011; compare also Ostrom 2010.

[6] van Asselt and Zelli 2013.

[7] See Lövbrand et al. 2009 and Green 2013.

[8] Zelli and van Asselt 2013, 10.

[9] Lövbrand et al. 2009; see also Biermann and Gupta 2011, 1858. Some typologies also include a third aspect of "source-based" legitimacy: see Bodansky 1999; Karlsson-Vinkhuyzen and McGee 2013. For parsimony we largely subsume this aspect under criteria of participation and political acceptability.

[10] Buchanan and Keohane 2006; Bodansky 1999.

In this article we adopt a normative analysis of legitimacy, according to which an institution is legitimate "if there are good reasons in support of its claims to authority".[11] In doing so, the legitimacy criteria we develop below draw not only on principles commonly invoked in normative theory but also on criteria widely accepted by developed and developing countries (and thus reflecting standards of descriptive or "sociological" legitimacy). To be fully legitimate, rules and institutions require both output *and* input legitimacy.[12] Input legitimacy is important both instrumentally (as a means of securing greater output legitimacy) and intrinsically (as a measure of respect for the interests and autonomy of others). However, as we discuss below, difficult tradeoffs may arise between these two dimensions of legitimacy.

Climate finance and its associated policy functions

In recent years climate finance has become a priority for multilateral climate change negotiations alongside deliberations on national mitigation actions. Climate finance received a major boost at the fifteenth Conference of the Parties to the UNFCCC in 2009. Under the Copenhagen Accord, developed countries committed to provide climate finance approaching US$30 billion between 2010 and 2012 ("fast-start finance") and to mobilize long-term finance of US$100 billion a year by 2020.[13] Parties have not agreed on an official definition of what should count as climate finance, but for present purposes we use the following working definition: "financial flows mobilized by industrialized country governments and private entities that support climate change mitigation and adaptation in developing countries".[14]

For present purposes we may distinguish three major policy functions associated with climate finance: (i) goal-setting; (ii) implementation; and (iii) oversight.[15] These functions and associated sub-functions are illustrated in Figure 1 below. We have framed our typology in terms that enable us to draw comparisons with related policy domains or sub-domains involving international commitments, including national climate change mitigation efforts and development assistance.

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[11] Bodansky 1999, 601; see also Lövbrand et al. 2009.

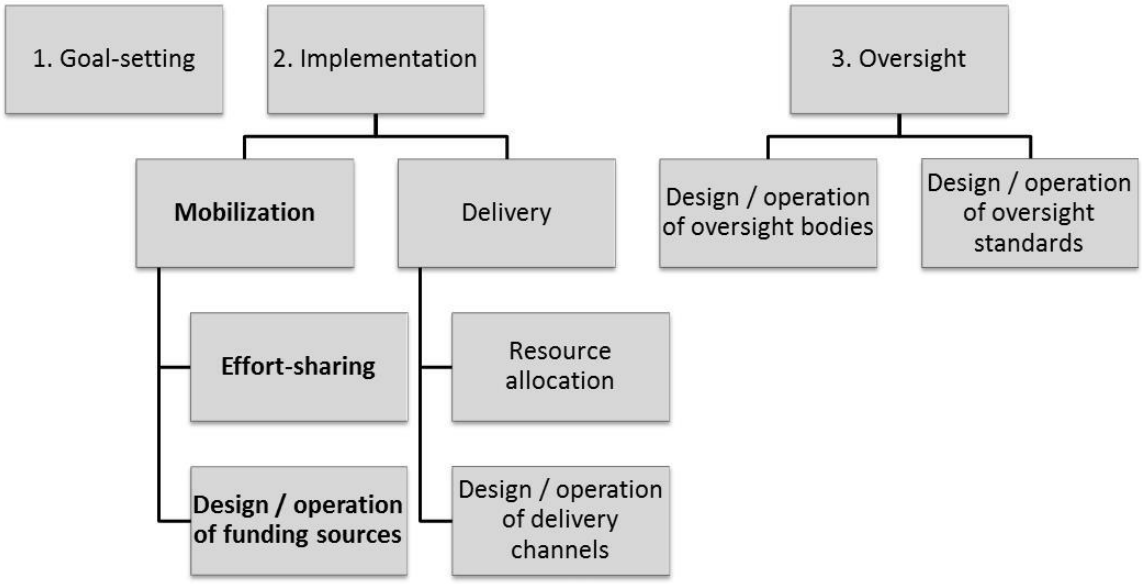
[12] Lövbrand et al. 2009, 77.

[13] UNFCCC 2009, Paragraph 8.

[14] Stadelmann et al. 2013, 3.

[15] This typology modifies and expands upon one set out in Pickering and Wood 2011.

Figure 1. Policy functions associated with climate finance and related international commitments



Note: Functions in bold text indicate primary coverage of the present article.

Criteria for legitimacy in climate finance

Table 1 synthesizes a range of criteria commonly invoked in academic discussion of legitimacy or fairness in climate finance[16] and related official documents[17]—including the Copenhagen Accord and the report of the UN High-Level Advisory Group on Climate Change Financing (AGF)—and maps them against the dimensions of output and input legitimacy. While some of these documents formulated criteria specifically for evaluating funding sources, we show how a common framework can encapsulate other functions associated with climate finance. We have incorporated some factors that could function as criteria for overall desirability but also have a specific bearing on legitimacy, such as efficiency and equity. For parsimony we have also subsumed under other criteria some factors that are often treated separately (reliability, practicality and additionality).

[16] Ballesteros et al. 2010; Grasso 2010; Hof et al. 2011; Schalatek 2012; Ciplet et al. 2013.

[17] UNFCCC 2009; AGF 2010.

Table 1. Criteria for legitimacy in climate finance

Principles	Criteria
Output legitimacy (effectiveness)	1. *Adequacy*:*# Is the goal adequate for meeting recipients' needs? Is the collective effort or package of financing sources adequate to fulfill the commitment? Are funding sources practicable# and reliable*#? Does funding delivered yield effective mitigation and adaptation? 2. *Efficiency*:# Does the source or delivery measure create incentives to reduce greenhouse gas emissions, and does it reduce or exacerbate economic distortions? Is the funding delivered cost-effectively? 3. *Equity*:# Does the financing burden (or incidence#) fall disproportionately on particularly disadvantaged countries or individuals? Is the source likely to be additional*# to or to displace existing resources available to developing countries? Is funding allocated equitably?
Input (procedural) legitimacy	4. *Transparency* and accountability*: Can funding mobilized and delivered be adequately measured, reported and verified? 5. *Participation*: Are affected public and private actors involved or represented in decision-making? 6. *Acceptability*:# Is the goal, source or delivery measure likely to be accepted by constituencies in contributor and recipient countries?

Note: Symbols indicate whether criteria are mentioned (either verbatim or in synonymous terms) in the Copenhagen Accord (*) or Advisory Group on Climate Change Financing (AGF 2010) (#).

Do coordination requirements vary across policy functions?

Recent scholarship has highlighted a "legitimacy gap" and a "democratic deficit" in the institutional architecture for governing climate finance, and in doing so has suggested that fragmentation may be part of the problem.[18] Liane Schalatek, for example, argues that the present multiplicity of institutions and actors involved in governing climate finance "creates an overall lack of transparency and accountability […], preventing citizens in contributor and recipient countries from having a stake or say in the way public climate funds are raised, governed, allocated and implemented".[19] However, the few works that have addressed legitimacy or fairness in implementing climate finance have placed less emphasis on

[18] Lövbrand et al. 2009, 74; Schalatek 2012, p.952.

[19] Schalatek 2012, 953.

mobilization than on other policy functions.[20] Accordingly, further analysis is necessary to determine whether the role of fragmentation in widening the legitimacy gap applies as much to mobilization as to other policy functions associated with climate finance, or whether the relationship varies.

Multilateralism as the gold standard for legitimacy

Many commentators consider multilateral coordination to be the highest standard for legitimacy in international governance. Consensual multilateral decision-making may offer greater scope for inclusive and transparent deliberation, thereby helping to curb abuses of power.[21] Multilateral coordination may also secure greater output legitimacy in addressing collective action problems such as climate change. Thus William Hare et al argue that only coordinated or top-down approaches to mitigation will be able to circumvent free-riding problems.[22] Sylvia Karlsson-Vinkhuyzen and Jeffrey McGee argue that, even though the UNFCCC falls well short of being a paragon of effective action, a range of parallel minilateral forums on climate change spearheaded by developed countries have fared considerably worse on both output and input legitimacy.[23]

While a presumption in favor of multilateral coordination to address global collective action problems seems plausible, it is vulnerable to two strands of objection. First, more fragmented approaches could potentially achieve greater output legitimacy—even at the cost of input legitimacy—particularly in second-best (or "non-ideal") circumstances where information and compliance levels are limited. Given the limited timeframe available to address global climate change, it may be impossible to realize ideals of procedural legitimacy such as the representation of all affected interests.[24] Moreover, the failure of multilateral negotiations to reach consensus may place output legitimacy at risk, thus justifying some forms of unilateral measures aimed at overcoming collective inaction.[25] Even if fragmented approaches cannot entirely overcome collective action problems, some argue that interstate competition for clean technology investment may in turn stimulate a "race to the top" among countries intent on greenhouse gas emissions reductions.[26]

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[20] Ballesteros et al. 2010; Grasso 2010; Schalatek 2012; Ciplet et al. 2013.

[21] See Zürn 2004; Biermann et al. 2009, 30.

[22] Hare et al. 2010, 604; see also Biermann and Gupta 2011, 26-28.

[23] Karlsson-Vinkhuyzen and McGee 2013, 74.

[24] Eckersley 2012, 28.

[25] Shaffer and Bodansky 2012, 38-39.

[26] Bodansky 2011; Keohane and Victor 2011; Ostrom 2010.

A second objection is that even if there is a strong case for multilateral coordination in setting overarching goals (and, as we discuss below, monitoring overall progress against those goals), it may not necessitate tightly integrated *implementation* of those goals. In many areas of international law and international relations it is common to assert that sovereign states should enjoy a "margin of appreciation" in regard to how they fulfill their international commitments.[27] Indeed, in addressing collective action problems such as climate change, a degree of fragmentation in implementation is a matter of practical necessity, since the source of the problem (greenhouse gas emissions), the resources available to address the problem (public revenue and private capital) and those who can change their actions (households and firms) all reside largely within the borders of individual countries, and are subject to those countries' laws, institutions and customs. Devolving implementation to national and sub-national levels may also enhance input legitimacy by facilitating the direct participation of affected groups.[28]

Clearly the applicability of these objections may vary across policy domains. Here we focus on evaluating the extent to which each objection affects the legitimacy of fragmentation in climate finance.

Does climate finance require comprehensive multilateral coordination?

Goal-setting and oversight

Mobilizing adequate global climate finance, like climate change mitigation, involves a collective action problem whose resolution is vulnerable to the risk that some countries will free-ride on the actions of others.[29] For this reason, multilateral agreement on a common goal is strongly preferable in both cases. Developing countries have argued that the 2020 commitment falls considerably short of their financing needs. While there are relatively few systematic estimates of needs in 2020, numerous analyses estimate that needs could exceed $200 billion a year by 2030.[30] However, as with national mitigation efforts, it is unlikely that parties could secure funding levels higher than the present financing commitment in the absence of a coordinated goal.[31]

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[27] Shany 2005.

[28] Compare Føllesdal 1998; Ostrom 2010.

[29] Bayer and Urpelainen 2013.

[30] Haites 2013, 8.

[31] Compare Hovi et al. 2009.

The case for coordinated oversight (or, in the terminology of the UNFCCC, measurement, reporting and verification (MRV)) is likewise strong for both climate finance and national mitigation efforts, and attracts support from advocates of both top-down and bottom-up approaches to mitigation.[32] An important rationale for coordinated oversight arrangements for finance and national mitigation is that both those who bear the costs and those who benefit have an interest in knowing how much effort governments are expending and whether that effort is producing the desired results.

Parties have agreed on the need for credible arrangements to oversee the delivery and mobilization of funding, including periodic reporting by contributors and recipients, as well as the establishment of a Standing Committee on Finance to assist the UNFCCC in improving coherence and coordination in institutional arrangements for climate finance.[33] However, ongoing disagreement between developed and developing countries over whether and how certain types of flows should count towards the overall commitment illustrates the risks associated with a fragmented approach to setting oversight standards.

First, contributors have applied widely different interpretations of their pledge to provide “new and additional” funding. Many of these have permitted contributors (in the face of sustained opposition from developing countries) to use aid funds to fulfill their commitments without an accompanying increase in their overall aid budgets, prompting fears of diverting aid away from purposes that may be of greater immediate benefit for developing countries.[34]

Second, to the extent that contributors have relied on private finance, their accounting approaches have lacked transparency and consistency.[35] An important concern for developing countries is that the net benefit they receive from private finance could diminish if contributors count (i) the gross value of the funds they leverage (rather than the net value after loan repayments and the like), and (ii) private investment that may have occurred even in the absence of government incentives. If parties were to adopt an expansive approach to accounting for private sources, such flows could indeed already exceed $100 billion a year.[36] Counting these flows in their entirety towards the 2020 target with the wave of an accounting wand would render the target meaningless. For these reasons, countries should intensify coordinated international efforts to establish credible accounting methods for both aid and private finance.

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[32] Hare et al. 2010, 604, 607; Bodansky 2011.

[33] UNFCCC 2011, Paragraphs 96, 112.

[34] Stadelmann et al. 2011.

[35] Kuramochi et al. 2012.

[36] Stadelmann et al. 2013, 16; Buchner et al. 2013.

Implementation: distinguishing delivery and mobilization

The arguments canvassed above in favor of fragmented implementation appear to translate relatively well to the delivery of climate finance. Contributors delivered their fast-start finance through a wide range of bilateral and multilateral funding channels, many of which (such as bilateral aid agencies) are closely aligned with contributors' priorities.[37] Countries have recognized the need for at least some degree of decentralization in delivery through a "country-driven" approach involving stakeholders in recipient countries.[38] At the same time, developed and developing countries have acknowledged that the existing tangle of delivery channels will be inadequate to manage much larger volumes of funds over the longer term. This was a major driver for agreement to establish a UN Green Climate Fund (GCF), which may go some way in reducing duplication of effort (or what Biermann and colleagues call "conflictive" fragmentation[39]) and integrating at least some financing efforts under an institution that gives equal representation to developing and developed countries.[40]

It is much less clear that the degree of coordination required for the policy functions discussed so far pre-determines the level of coordination necessary to secure legitimacy in *mobilizing* funds. Admittedly, coordinated oversight standards may place some constraints on the range of funding sources that contributors may count towards meeting their commitments. Moreover, choices about some delivery channels imply particular configurations for mobilizing funds (as in the case of private finance, which decentralizes both mobilization and delivery decisions to market actors). But beyond this, many options for delivering finance are compatible with a wide range of more or less fragmented options for mobilization.[41]

There are, moreover, two strong reasons for thinking that legitimacy in mobilization may require a significant degree of fragmentation. Consider first the case for output legitimacy. Contributors began from a relatively fragmented starting point, since they relied on domestic aid budgets to mobilize the large bulk of their fast-start commitments. However, under the Copenhagen Accord countries cleared the way for further fragmentation by stipulating that the long-term target would be drawn "from a wide variety of sources, public and private, bilateral and multilateral, including alternative sources of finance."[42]

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[37] Stadelmann et al. 2012.

[38] UNFCCC 2012a, Annex, Paragraph 3.

[39] Biermann et al. 2009, 19-20.

[40] Schalatek 2012, 961; Ciplet et al. 2013, 58.

[41] Bowen 2011, 1026.

[42] UNFCCC 2009, Paragraph 8; UNFCCC 2011, Paragraph 99.

One could argue that such an approach largely entrenches contributors' discretion over their funding choices. Nevertheless, both contributors and recipients appear to share some common ground on why some degree of fragmentation is necessary. First, there is widespread recognition that no single source will be adequate to fulfill the entire commitment.[43] In particular, attempts to divert much larger shares of aid for climate change purposes will encounter strong political resistance from developing countries as well as constituencies supportive of aid in contributing countries. Second, no single source will be capable of effectively addressing the range of actions that require funding in developing countries. Private finance, while vital for adequate mitigation, is not well equipped to become the exclusive means of addressing climate-related financing needs, particularly since many adaptation measures offer little scope for commercially motivated investment and are best addressed through public resources.[44]

A further argument for fragmented mobilization rests on input legitimacy. Contributor countries have emphasized that they should be entitled to a substantial degree of discretion in their choices about mobilization. The US, for example, has argued:

> There was *no agreement* to have the [UNFCCC's Conference of the Parties] *determine, limit, or otherwise take decisions on sources*, whether the relative contributions of public and private finance or otherwise. Rather, a fundamental backdrop to [Conferences of the Parties in 2009 and 2010] was that *each country is free to determine the mode and source of its climate finance contributions*.[45]

The EU, while apparently more open to coordinated approaches to mobilization, has emphasized the importance of maintaining "fiscal sovereignty" in its choices about sources.[46]

Developing countries, by contrast, have argued for a more systematic or coordinated approach not only to goal-setting and burden-sharing—by proposing that commitments be based on a fixed percentage of contributors' national income—but also to the range of sources that contributors may employ.[47] Nevertheless, India—while expressing a preference for public funding from contributors' national budgets—has acknowledged that some funding

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[43] AGF 2010; and UNFCCC 2012b, 14.

[44] Bowen 2011, 1021-22.

[45] United States 2011; emphasis added.

[46] European Commission 2013.

[47] South Centre 2011, 11.

"could be generated, according to the *national discretion* of such Parties concerned[,] from new instruments in accordance with the principles of Common but Differentiated Responsibilities".[48]

The idea of fiscal sovereignty not only reflects more general notions of national sovereignty in international relations, but also embodies the view that taxation and expenditure arrangements form part of the domestic social contract between governments and their citizens.[49] If we accept the idea that procedural legitimacy requires at the very least the participation of those *most* affected (if not all those affected in any way) by a government's decisions,[50] then it is plausible to think that taxpayers in contributing countries have a stronger claim to participate in mobilization decisions than recipients, just as it is plausible to think that potential recipients have a strong claim to participate in decisions about the delivery of funding.[51] On this basis, we might assume that as long as contributing countries comply with standards of legitimacy applicable to domestic policymaking (such as representing the interests of their own citizens), they should retain wide discretion over how to raise funds to meet their commitments. This could in turn justify a highly fragmented approach involving little, if any, multilateral standardization or scrutiny of fundraising. Nevertheless, as we argue in the following sections, a number of important countervailing considerations may require a more integrated approach.

Effort-sharing: *ad hoc* and formulaic approaches

Even though parties have agreed on a coordinated funding goal, disagreement persists over whether a coordinated process is required to apportion efforts among contributors. Contributing countries announced their individual fast-start commitments in an apparently *ad hoc* fashion at the Copenhagen conference and in the months thereafter.[52] As it happened, individual pledges were sufficient to cover the collective fast-start commitment, although a substantial proportion of funds pledged had not yet flowed through implementing agencies towards the end of the 2010-12 fast-start period.[53] On this basis, one could argue that a "bottom-up" approach to effort-sharing is sufficient for securing adequate funding, as some

[48] India 2011.

[49] Dietsch 2011.

[50] See Eckersley 2012, 27.

[51] Compare Schalatek 2012, 960.

[52] Ciplet et al. 2012.

[53] Ciplet et al. 2012.

countries may unilaterally make up for shortfalls in the overall commitment (as Japan and Norway did in the case of fast-start finance), possibly in order to protect or enhance their international standing.[54]

However, when the stakes are considerably higher—as in the long-term finance commitment, which requires a ten-fold increase in annual funding—it is far less likely that parties will be able to rely upon unilateral action of this kind. As is painfully evident from the ongoing "emissions gap" between the global temperature goal agreed at Copenhagen and current mitigation efforts,[55] it is one thing to set a collective goal and quite another thing to ensure that national pledges add up to a sufficient level of effort. A coordinated approach to effort-sharing can help to build common expectations, foster transparency and dispel mistrust resulting from perceptions that countries are either being forced to do more than—or getting away with less than—their fair share.

In this section we present quantitative analysis comparing more or less fragmented approaches to effort-sharing. In keeping with our focus on implementing agreed goals, we limit our discussion here to effort-sharing within previously agreed parameters, namely how to distribute responsibility for meeting the $100 billion commitment among "developed" (Annex II) countries. As we have argued elsewhere, however, there are strong reasons for expanding the contribution group to include a number of other countries with high per capita emissions and income that the UNFCCC does not currently class as developed countries.[56] Our quantitative analysis is neutral as to whether effort-sharing arrangements apply to the total commitment or only the public proportion thereof. However, since private flows are much harder to attribute to individual countries, we note that collective agreement on a goal for public funding would significantly help constructive deliberation on effort-sharing.

One option for a coordinated approach to effort-sharing widely favored by developing countries is to calculate contributors' shares on the basis of a scale or index of contribution.[57] Scales of contribution have been adopted for several other multilateral funding mechanisms,[58] and the European Union has supported the use of a uniform scale for calculating climate finance commitments.[59] However, some countries including the United

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[54] Compare Ciplet et al. 2012.

[55] UNEP 2013.

[56] Jotzo et al. 2011, 18, 51; Pickering et al. 2012.

[57] See for example India 2011.

[58] Haites 2013, 163.

[59] European Commission 2011.

States remain reluctant to countenance formulae for sharing either mitigation or financing efforts.[60]

Table 2 shows illustrative shares for the five largest Annex II contributors of fast-start finance. We primarily use a range of indicators based on the UNFCCC principle of parties' "common but differentiated responsibilities and respective capabilities", measured respectively in terms of national emissions and income.[61] We also include indicators based on countries' existing shares of funding for international purposes, as some contributors used these indicators as a guide to their fast-start finance contributions.[62]

Table 2. Illustrative indicators for sharing the climate finance effort[63]

Percentage of Annex II contribution		Australia	EU Annex II member states	Japan	Norway	USA	Other Annex II
Responsibility (emissions)	Current (2008-10)	4.7	29.6	9.9	0.2	48.6	7.0
	Cumulative (1990-2010)	4.3	31.7	9.9	0.3	47.4	6.4
Capacity (income)	GDP (2008-10, PPP)	2.5	38.0	12.4	0.7	41.4	5.1
	GDP (2008-10, MER)	2.8	40.5	13.2	1.1	36.8	5.6
Existing pledges	Fast-start finance (2010-12)	1.8	24.2	44.2	2.9	22.1	4.7
	UN Scale of Assessment (2012)	2.5	46.7	15.9	1.1	27.9	5.9

[60] Houser and Selfe 2011, 7; Haites and Mwape 2013, 163.

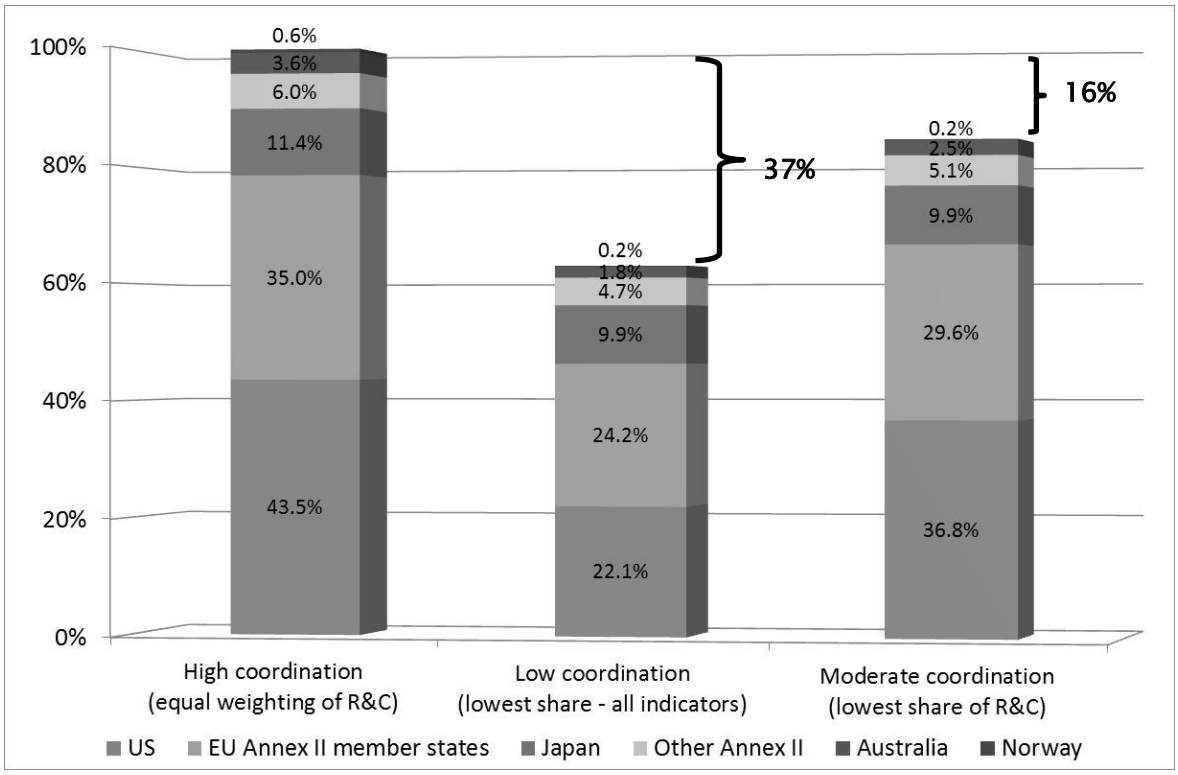
[61] UNFCCC, Article 3.1; Dellink et al. 2009; European Commission 2011.

[62] Pickering et al. 2013.

[63] Emissions data are from UNFCCC 2013 and include emissions from land use, land use change and forestry (LULUCF); GDP data are from IMF 2011 and are reported at purchasing power parity (PPP) and market exchange rates (MER); fast-start finance data are from WRI 2012; UN Scale of Assessment figures are from United Nations 2011.

In Figure 2 we use three hypothetical scenarios to illustrate the impact that uncoordinated choice of indicators on the basis of national self-interest might have. If each country chose the indicator that minimizes its own contribution, the sum of pledges would fall considerably short of the aggregate funding required (reaching 63 per cent of aggregate funding in the second column). However, if countries can only choose between measures based on capacity and responsibility (R&C, as in the third column), the sum of pledges only falls by about 16 per cent of the funding required, thus substantially reducing the shortfall. This is because national income and emissions levels are correlated, so the scope for minimizing each country's contribution is limited.[64]

Figure 2. Comparing degrees of coordination in effort-sharing



[64] Bassetti et al. 2013.

Even if adequacy may require a substantially greater degree of coordinated effort-sharing among contributors, it is not clear that input legitimacy also requires that recipient countries have the same degree of involvement in decisions on sharing the financing effort as in mitigation negotiations. In the absence of a collective mitigation goal for developed countries, the relative mitigation efforts of developing and developed country groups as a whole may vary if any one country alters its national mitigation pledge (thus underscoring the need for multilateral deliberation on sharing the mitigation effort). By contrast, the contribution of developed countries is more or less set once they agree to an overall financing target. While the participation of developing countries in effort-sharing decisions could potentially serve to hold individual contributors to account for contributing their fair share, that seems clearly subsidiary to the priority of (i) contributors establishing satisfactory objective criteria amongst themselves to avoid shortfalls; and (ii) recipients holding contributors to account as a group for meeting the overall funding target.

Harnessing a "wide variety" of funding sources: unilateral and coordinated approaches

As noted above, within the parameters set by the Copenhagen Accord there remains considerable scope for more or less fragmented approaches to mobilizing sources of climate finance. In this section we assess whether tighter international coordination is more or less likely to satisfy legitimacy requirements.

Bundling financing sources

Recent research has emphasized the value of evaluating options for mobilization not purely on the basis of individual sources, but from the perspective of "bundles" or "portfolios" of sources with common characteristics. Mattia Romani and Nicholas Stern distinguish two dimensions along which bundles could differ.[65] On the first dimension, a bundle could be strongly geared towards international or domestic sources. On the second dimension, a bundle could be oriented exclusively towards raising funds, or also towards reducing emissions. Table 3 illustrates some possible configurations.

[65] Romani and Stern 2013, 122.

Table 3. Illustrative bundles of funding sources

	Domestic	**International**
Linked to emissions reductions objectives	Domestic carbon pricing Reducing domestic subsidies or tax concessions for fossil fuels Taxes on emissions-intensive imports ("border measures")	Auctioning of international emissions entitlements Levies on international offsets Levies on international aviation and shipping
Not linked to emissions reductions objectives	Aid budgets Consolidated revenue	Financial transaction tax

We concur with a range of analysts that a carbon-linked bundle of sources is preferable, as this may yield substantial additional revenue outside aid budgets while also increasing incentives for mitigation in contributing countries (thus advancing the adequacy, efficiency and equity criteria in tandem).[66] For this reason the degree of fragmentation under a carbon-linked approach to financing is likely to depend on the degree of fragmentation in countries' overall mitigation efforts. We elaborate upon the resulting implications next.

International coordination on sources linked to mitigation

Achieving output legitimacy in mitigation will require a significant degree of international coordination, for example in order to secure low-cost emissions reductions through international trade in emissions entitlements; reduce carbon "leakage" of emissions-intensive industrial production to countries not covered by emissions reduction policies; and target transnational sources of emissions not yet subject to stringent regulation, notably international aviation and shipping.[67]

This in itself will require the intensive participation of developing countries. Not only is their participation essential for ensuring sufficient global mitigation (due to their rising share of global greenhouse gas emissions) and for the specific purposes listed, but also cooperative mitigation will also produce a range of economic effects on developing countries even if they do not participate directly in mitigation. For example, even if a levy on international transport

[66] AGF 2010; Hepburn and Müller 2010; Romani and Stern 2013, 125.

[67] Romani and Stern 2013, 125.

emissions only covered journeys originating from developed countries, it would still have an impact on prices paid by consumers in developing countries. Unless the design of coordinated mitigation schemes takes such concerns into account, developing countries may block the consensus required to establish them. Ensuring input legitimacy by representing the interests of those most affected will therefore be crucial for securing output legitimacy.

Raising adequate finance from coordinated mitigation will involve further challenges but also important opportunities. On the one hand, the primary motivation for countries to initiate domestic carbon pricing mechanisms or schemes to regulate international transport emissions is typically not to raise climate finance but to enhance mitigation efforts. Even if emissions-linked sources raise a substantial amount of overall revenue that can plausibly be earmarked for climate-related purposes in developing countries, other interests will compete for the revenue. This concern may be more pronounced where it takes the form of the "domestic revenue problem" (where taxpayers view funding raised at the domestic level as "nationally owned").[68] However, coordinated efforts to introduce levies on international transport for climate finance purposes will also need to contend with claims for compensation from the transport industry.

This concern is exacerbated by the fact that coordinated action on mitigation is not limited to the UNFCCC but spread across a number of other multilateral organizations. These include the International Civil Aviation Organization (ICAO) and International Maritime Organization (IMO) on international aviation and shipping emissions respectively, whose mandates constrain their ability to differentiate responsibilities according to a country's level of development.[69] However, the prospects of climate financing arrangements taking root in schemes administered by these organizations is likely to be greater if only a portion of total revenue is directed towards climate finance, with the remainder directed towards other purposes such as assisting affected industries to introduce low-emissions technologies.[70] At the same time, political acceptability of coordinated mitigation efforts for developing countries could be enhanced by ensuring that revenue raised via developing countries benefits them, either by channeling revenue back to developing countries as a group for climate finance purposes, or directly reimbursing the poorest countries to avoid disproportionate burdens upon them.[71]

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[68] Müller 2008, 8.

[69] Haites and Mwape 2013, 169.

[70] Romani and Stern 2013, 131; Haites and Mwape 2013, 164.

[71] Scott and Rajamani 2012; Haites and Mwape 2013, 169.

A potentially more intractable barrier is that multilateral funding sources may be politically unacceptable to contributors if viewed as a form of global taxation (a particular concern of countries that are especially protective of their fiscal sovereignty such as the United States). One means of addressing the latter concern would be to adopt a more limited degree of coordination whereby revenue for a particular scheme is collected not by a centralized multilateral agency but by national governments, then disbursed as climate finance.[72]

Even if coordinated mitigation efforts could raise substantial finance over the longer term, they may be incapable of generating adequate funding during this decade, given existing institutional structures and constellations of interests. A corollary of the inclusive decision-making processes of multilateral organizations is that they are generally slow to reach consensus.[73] This concern also applies to internationally coordinated sources that are not associated with emissions reductions but whose efficiency will suffer without the participation of major developing economies, such as a financial transaction tax. Significant reliance on domestic sources over the short to medium term appears unavoidable.

Domestic sources linked to mitigation

As at the international level, the total amount of domestic revenue that carbon pricing arrangements can raise is sensitive to the stringency of developed countries' mitigation targets, which remains low.[74] Furthermore, many developed countries—such as the United States at the federal level—have to date found it politically impossible to introduce carbon taxes or emissions trading schemes. In the short term, therefore, it may be necessary either to augment aid budgets or draw directly on consolidated revenue to bridge the financing gap. Furthermore, all of these strategies will face to varying degrees the domestic revenue problem mentioned above.

But assuming that contributor countries progressively introduce domestic emissions trading or emissions taxes, and that it is practically and politically feasible for them to earmark some proportion of for climate finance purposes (as Germany has done[75]), need we worry about any concerns of input legitimacy affecting recipient countries?

Here two concerns emerge. First, even though raising revenue from regulating purely domestic emissions may provoke few concerns of political acceptability among developing countries, any attempts to implement border measures—especially raising carbon levies on

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[72] See for example Switzerland's carbon tax proposal (Switzerland 2008).

[73] Shaffer and Bodansky 2012.

[74] World Bank 2012.

[75] Stadelmann et al. 2012, 128.

imported goods or services—are likely to be politically risky (as the EU found in its recent controversial attempt to regulate aviation emissions beyond its borders[76]).

Second, where contributors raise funds unilaterally, they may be strongly inclined to deliver that funding through their own institutions, notably their aid programs. While this may not greatly affect output legitimacy if those institutions operate effectively, it poses a more significant concern for input legitimacy, as many developing countries see existing channels for delivering aid as favoring contributors' national interests, and furthering contributing countries' diplomatic interests is sometimes an explicitly stated goal of aid.[77] Ballesteros and colleagues have argued that in order to give more voice to developing countries in allocation decisions, it is necessary to "de-link" sources of finance from institutions over which contributors have greater power.[78] But even if multilateral sources achieve such a de-linking, the practical limits on multilateral sources suggest that a realistic second-best approach would be for contributors to channel a greater overall proportion of their domestically mobilized resources through multilateral funds.

Implications for the institutional division of labor

Our analysis demonstrates that despite the presumption that contributing countries maintain fiscal sovereignty over how they mobilize resources to meet international commitments, legitimacy will require a division of labor among minilateral and multilateral institutions as well. Raising innovative sources of finance over the longer term will require coordinated action under the UNFCCC, ICAO, IMO and G20. But given the difficulties of rapidly introducing multilateral sources, the UNFCCC's primary role on mobilizing resources in the short term is likely to be one of "orchestrating" rather than directly engaging in implementation.[79]

To this end, the UNFCCC should: (i) set and periodically review collective financing goals based on rigorous needs assessments; (ii) formulate and implement robust oversight arrangements (in conjunction with minilateral institutions with relevant accounting expertise such as the OECD); (iii) foster common understanding among contributors on criteria for effort-sharing; (iv) establish a "roadmap" or set of concrete "pathways" to an overall bundle

[76] Scott and Rajamani 2012.

[77] Ballesteros et al. 2010, 310.

[78] Ballesteros et al. 2010, 310.

[79] Abbott and Snidal 2010.

or portfolio of public and private sources capable of fulfilling the commitment;[80] and (v) through the Standing Committee on Finance, recommend ways of managing conflictive fragmentation among sources. More broadly, reaching an ambitious long-term climate agreement under the current Durban Platform negotiations is likely to stimulate further coordination on mitigation, which in turn can underpin expanded measures to raise funds from international and domestic carbon-linked sources.

Contributor governments, for their part, should: (i) develop credible national or minilateral accounting standards for climate finance in advance of multilateral agreement; (ii) formulate objective estimates (preferably in conjunction with other contributors) of their fair share of the collective commitment; and (iii) pursue unilateral sources of funding, with an emphasis on emissions-linked sources with minimal impacts on developing countries (notably through earmarking funds from domestic carbon pricing and reducing concessions for fossil fuels). Although the UNFCCC and contributor governments have commenced some of these tasks (notably through a UNFCCC Work Programme on Long-Term Finance during 2012-13), far more rapid progress is needed—particularly on establishing collective pathways and innovative unilateral sources—to ensure that contributors will be on track to meet the 2020 commitment.

Conclusion

Our analysis indicates that multilateral coordination on goal-setting and oversight has a vital role to play in ensuring the legitimacy of global climate finance. Yet this may not always imply the same degree of coordination in *implementing* agreed commitments. Our account of mobilizing finance indicates that there are good reasons for according contributing countries a substantial measure of discretion over how they raise funding to meet their commitments in recognition of their fiscal sovereignty. The fragmented decision-making arrangements implied by this discretion may retain input legitimacy as long as the choice of funding source does not compromise other fundamental interests of developing countries (such as diverting aid from other development priorities). Nevertheless, discretion must be tempered by the need for a significant degree of cooperative action among countries. Coordination among contributors is needed to counter risks of free-riding in effort-sharing arrangements, while cooperation among both contributors and recipients is necessary to raise funding while simultaneously stimulating mitigation efforts, and to ensure the representation of developing countries affected by coordinated mitigation and resource mobilization efforts.

[80] Parnell 2013.

While our findings complement the prevailing wisdom that a variety of sources of climate finance is necessary, our analysis provides a more principled justification for the degree of fragmentation that will allow achieving input legitimacy and output legitimacy. The findings can inform broader understanding of how fragmentation affects legitimacy in global environmental governance, and how the consequences of fragmentation may vary depending on the policy function in question. Thus our conclusions reinforce findings in other spheres of global environmental governance on the value of coordinated goal-setting and oversight. Our analysis also suggests that empirical path dependencies may arise between fragmentation in one policy function and fragmentation in others. There is a need for further systematic comparative analysis to identify how fragmentation affects legitimacy across a broader range of policy functions, issue areas and policy domains.[81]

Finally, the importance of mitigation policies as a vehicle for raising international climate finance highlights that ensuring legitimacy for recipients need not always mean sacrificing legitimacy for contributor countries. Climate change poses threats to the long-term fiscal position for contributors and recipients alike, for example through potential revenue losses from declining productivity of natural resources[82] and public costs of dealing with climate change impacts. Coordinated action to avoid such impacts through mitigation could therefore enhance rather than erode contributors' fiscal sovereignty.[83] Considered in this light, earmarking a portion of the revenue from carbon pricing policies for climate change measures in poorer countries may be a small price to pay for the global benefits it could yield.

[81] Compare Biermann et al. 2009, 18.

[82] Jones et al. 2013, 30.

[83] Compare Musgrave 2006.

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