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Estimating mobilised private climate finance

METHODOLOGICAL APPROACHES, OPTIONS AND TRADE-OFFS

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Research Collaborative
Tracking Private Climate Finance

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by Raphaël Jachnik (OECD), Randy Caruso (OECD), Aman Srivastava (WRI)

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FOREWORD

This report has been prepared in the context of the Research Collaborative on Tracking Private Climate Finance, an OECD-led network of research organisations, international finance institutions, and governments. It aims to contribute to the development of methodologies for estimating private finance mobilised by developed countries' public interventions towards low-carbon and climate-resilient activities in developing countries.

This report places Research Collaborative findings to date, both on approaches to estimating mobilisation and on the availability of underlying private climate finance data, within an overarching framework. This framework outlines key decision points involved in estimating publicly mobilised private finance and assesses a range of methodological options to address these. It builds in particular upon the following Research Collaborative and related publications:

- Caruso, R. and R. Jachnik (2014), "Exploring Potential Data Sources for Estimating Private Climate Finance", *OECD Environment Working Papers*, No. 69, OECD Publishing, Paris.

- Caruso, R. and J. Ellis (2013), "Comparing Definitions and Methods to Estimate Mobilised Climate Finance", *OECD/IEA Climate Change Expert Group Papers*, No. 2013/02, OECD Publishing, Paris.

- Haščič I., M. Cárdenas Rodríguez, R. Jachnik, J. Silva and N. Johnstone (2015), "ublic Interventions and Private Climate Finance Flows: Empirical Evidence from Renewable Energy Financing", *OECD Environment Working Papers*, No. 80, OECD Publishing, Paris.

- Illman J., M. Halonen (Gaia Consulting Ltd), S. Whitley and N. Canales Trujillo (Overseas Development Institute) (2014), "Practical Methods for Assessing Private Climate Finance Flows", Nordic Council of Ministers, Copenhagen.

- Mirabile, M., J. Benn and C. Sangaré (2013), "Guarantees for Development", *OECD Development Co-operation Working Papers*, No. 11, OECD Publishing, Paris.

- Srivastava A. and S. Venugopal (2014), "Evaluating Methods to Estimate Private finance Mobilised from Public Interventions", *Discussion paper*, World Resources Institute, Washington DC.

Findings and methodological developments resulting from the first round of activities under the Research Collaborative provide a partial foundation for estimating mobilised private climate finance. However, they also clearly highlight a number of remaining data gaps and areas where further methodological progress is required. Future work related to the Research Collaborative intends to further develop and test estimation methods within the context of pilot measurements for climate-relevant sectors, in terms of different types of interventions/instruments, as well as at the levels of individual/groups of countries and public finance institutions.

Additional information can be found at: www.oecd.org/env/researchcollaborative.

ABSTRACT

Quantifying the effect of public interventions aimed at mobilising private finance for climate activities is technically complex and challenging. As a step towards addressing this complexity, the report presents a framework of key decision points for estimating publicly mobilised private finance. This framework outlines different methodological options and choices needed to make these estimates. It assesses trade-offs and implications of these choices in terms of their accuracy, the incentives they provide, their potential to be standardised across entities, and their practicality (data availability, expertise and resource demands). The report further identifies and suggests practical options available in the short-term for estimating mobilised private finance, while underlining the need to provide transparency about underlying definitions, assumptions and limitations. It also recommends longer-term actions to improve these methods, including the need to converge on definitions, to build data systems and to improve and standardise estimation methods.

The primary objective of this report is to inform the development of methods to measure in a transparent manner progress towards the fulfilment of the financial commitments made by developed countries in the context of international negotiations under the United Nations Framework Convention on Climate Change. It also aims to encourage careful examination of the links between public interventions and private climate finance. This is to ensure that methods to estimate mobilisation help encourage the efficiency and effectiveness of public interventions aimed at mobilising such finance.

Keywords: climate change, private finance, public interventions, mobilisation, estimation, measurement
JEL codes: F21, F53, G2, 016, 019, Q54, Q56.

RESUME

Mesurer les effets des interventions publiques visant à mobiliser de la finance climat privée est techniquement complexe et difficile. Afin d'aborder cette complexité, le rapport présente un cadre d'analyse pour estimer les financements privés mobilisés. Ce cadre met en avant un éventail d'options et de choix nécessaires pour effectuer de telles estimations. Il évalue les implications liées à ces choix en termes de précision, d'incitation, de potentiel de standardisation, et de fonctionnalité (disponibilité de données, expertise et ressources nécessaires). En outre, le rapport identifie et suggère des options pratiques pouvant être mises en œuvre à court terme afin d'estimer la finance climat mobilisée, tout en soulignant la nécessité d'assurer la transparence sur les définitions, hypothèses et limites. Il recommande également des actions de long terme vers une convergence des définitions, la construction de systèmes de données, ainsi que la standardisation et l'amélioration des méthodes.

L'objectif principal de ce rapport et d'informer le développement de méthodes pour mesurer de manière transparente les progrès vers la réalisation des engagements pris par les pays développés dans le cadre des négociations internationales sous la Convention-Cadre des Nations Unies sur les Changements Climatiques. Il vise également à encourager un examen approfondi des liens entre interventions publiques et la finance climat privée. Le but recherché est de s'assurer que les méthodes d'estimation de la mobilisation aident à encourager l'efficience et l'efficacité des interventions publiques visant à mobiliser ce type de financement.

Mots clés : changement climatique, finance privée, interventions publiques, mobilisation, estimation, mesure
Codes JEL : F21, F53, G2, 016, 019, Q54, Q56.

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EXECUTIVE SUMMARY

The participation of the private sector in financing the transition to low-carbon, climate resilient (LCR) economies is critical. While public finance and policy interventions can mobilise significant levels of private finance, the ability to estimate such mobilisation is currently limited. This is particularly apparent in the context of assessing amounts of private finance mobilised by developed countries, under the United Nations Framework Convention on Climate Change (UNFCCC), for LCR activities in developing countries. The primary aim of this study is to provide Parties to the UNFCCC with a better understanding of the key considerations and methodological options for improving estimates of publicly mobilised private finance.

Quantifying the linkages between public interventions and private finance flowing towards LCR activities is a technically complex and challenging endeavour. As a step towards addressing this complexity, this report examines and assesses a range of methodological choices and options for making such estimates. The framework developed here is based on the key decision stages involved in making these estimates. It enables a better understanding of the trade-offs and implications of different choices, potentially making it a valuable tool to inform the development of more robust methods. The report is in particular intended to guide future efforts to assess and test different methodological approaches, including through pilot measurements by relevant actors (e.g., countries, public finance institutions and researchers). The insights from this work will help shape future work under the Research Collaborative on Tracking Private Climate Finance.

Framework for estimating mobilised private climate finance

The framework developed here structures the key methodological choices and options into four sequential but interrelated decision stages. The choice at any given point will influence the availability and feasibility of choices at other stages within the framework.

Framework and overview of decision points to estimate publicly mobilised private climate finance

Stage 1. Define core concepts

- Definition of climate change activities
- Definition of public and private finance
- Classification of developed and developing countries
- Determination of geographical origin of finance

Stage 2. Identify public interventions and instruments that can be credited for mobilising private climate finance

- Types of public interventions
- Specific instruments used for the interventions

Stage 3. Value public interventions and account for total private finance involved

- Choice and conversion of currency
- Choice of point of measurement
- Valuation of different public interventions
- Boundaries and estimation of private finance involved
- Availability of climate-specific private finance data or proxies

Stage 4. Estimate mobilised private climate finance

- Assessment of causality between public interventions and private finance
- Attribution of mobilised private climate finance to public interventions and instruments

The report further discusses the implications of making choices among these methodological options for the design of credible and transparent methodologies and the related trade-offs in performance. This is done across the following four evaluation criteria:

- **Accuracy**: Reflects reality; avoids double counting;
- **Incentives**: Encourages the use of public interventions to deliver LCR benefits; promotes means to scale up finance for LCR activities;
- **Potential for standardisation**: Applicable to various types of reporting entities; allows for aggregation and comparison; and
- **Practicality**: Feasible with the data and expertise available; time- and cost-efficient to report.

This approach provides potential users of this framework with a tool to prioritise criteria according to their needs and aims, and to determine what options best match those characteristics.

Estimation stages, decision points and methodological options

Stage 1: Define core concepts

The first stage highlights key definitional issues that must first be tackled in order to subsequently estimate mobilised private finance. It involves:

- *Defining climate change activities*: Measuring and reporting LCR finance requires clear and transparent definitions of the types of activities that are to be included. These could build upon existing definitions and methods (e.g. Rio markers, multilateral development banks' approach for their joint reporting) or could be developed from the ground up. In addition, a decision needs to be made on how to treat activities and projects that only partially target LCR objectives, or that pursue multiple objectives.
- *Defining public and private finance*: Most climate finance monitoring and reporting initiatives consider all finance provided by government entities and their associated development finance institutions and funds as public. Questions remain with regard to how to consider the finance provided by institutions with mixed public and private shareholdings and funding sources (e.g. those that raise funds from international capital markets). There is a range of available definitions to categorise actors as public and private for statistical purposes, including ownership-, control-, and risk-based principles. Ultimately, the decision to use one definition or another will not change the total amount of finance measured but rather the respective volumes and shares labelled as public and private. This split will, however, have an impact on the amounts of private finance estimated and reported by entities as mobilised by their public interventions.
- *Classifying developed and developing countries*: Existing UNFCCC lists of countries (Annex I/ II and non-Annex I) could be used for defining 'developed' and 'developing' on the basis of historical circumstances and responsibilities. However, they do not reflect shifting economic realities, given for instance that some countries listed as non-Annex I are rapidly becoming significant providers of aid. Alternative options include more flexible and up-to-date lists based on changing indicators such as Gross National Income (GNI) per capita. The use of such options would produce estimates that represent flows to currently developing countries more accurately and provide incentives to increase the mobilisation of public and private finance to these countries.

- *Assigning a geographical origin to finance*: Deciding how to define the geographical origin of public and private finance can have significant implications for estimating private finance mobilised by specific countries or groups of countries. Options include using the country where the entity is headquartered or the nationality of its majority shareholder. A second decision point relates to deciding which geographic sources of private finance will be included in estimates of mobilisation. Options range from only considering finance originating in the same country as the reporting entity to including private finance from all international and domestic sources. This decision will lead to varying estimates of mobilisation. In practice, assigning an accurate and meaningful geographical origin can prove very difficult for private finance. This is due to diffuse/changing locations and ownership structures of private financiers, combined with their use of financial intermediaries, funds, and offshore financial centres.

Stage 2: Identify public interventions and instruments that can be credited for mobilising private climate finance

Stage 2 involves identifying relevant public interventions and instruments that will be credited for mobilising private finance in subsequent stages. This stage therefore implies sequentially making decisions about the:

- *Types of public interventions*: Finance interventions are those in which a public entity provides direct financial support, while policy interventions help to indirectly support LCR activities and shape markets to achieve LCR goals. Entities estimating mobilisation may choose to consider either or both of these types of interventions towards estimating mobilised private finance.

- *Specific instruments*: After determining the type(s) of interventions to be included, a choice should be made on specific instruments to consider.

Each type of public finance (grants, loans, equity, de-risking) and policy (regulatory, fiscal, information and innovation) instrument can play a unique role in mobilising private finance by reducing the various risks faced by the project or enterprise, and/or increasing the potential returns. Including a broader range of relevant interventions and instruments will therefore provide a more accurate and holistic picture of public efforts to mobilise private capital. In practice, the ability to broaden this range will be partly constrained by data limitations.

Stage 3: Value public interventions and total private finance involved

Stage 3 involves establishing the boundaries and determining the monetary value of public interventions and associated private finance. Relevant decision points include:

- *Choosing and converting currency*: Most data sources currently report international finance flows in US dollars. However, accounting for cross-border flows requires making choices relating to the conversion of currencies in which finance is provided and/or received to the global currency in which international data monitoring and reporting takes place. Such choices include deciding when to apply exchange rates in order to ensure consistency and allow for aggregation: at commitment, disbursement, end of year, based on a yearly average or a rolling average.

- *Choosing a point of measurement*: Most individual institutions and providers of climate finance data currently report transactions based on the amounts at the point of commitment. Reporting disbursements is a more accurate approach but might be more complex to implement in cases where finance is disbursed over time. Being able to combine and compare commitment and disbursement data would provide improved accuracy and transparency.

- *Valuing different public interventions*: This involves deciding whether and how to consider the different risk profiles, levels of concessionality, and/or cost to government budgets of public finance instruments, as well as determining how to treat categories such as de-risking instruments and results-based financing. Given the in-depth discussions taking place in the development finance community (particularly within the OECD Development Assistance Committee) on these issues, climate finance practitioners could establish further links with this body of work to consider potential synergies.

- *Defining the boundaries of total private finance*: It is crucial to establish boundaries to define and account for the total private finance associated with different public interventions. For example, with public investments in equity funds that attract private co-investments, total private finance considered could be restricted to that at the direct fund level, or expanded to include finance at the intermediate sub-fund or portfolio company and project levels. Increasing the boundaries can provide a more complete picture but increases the risk of double counting, in particular in the absence of appropriate attribution rules and robust data systems.

- *Availability of climate-specific private finance data or proxies*: This includes choosing between using data at the level of the individual public intervention or broader cross-institution/country data series. Except for the renewable energy sector, availability of comprehensive LCR-specific private finance data series is very limited at both levels. The use of alternative proxy methods and data therefore needs to be considered. Whether using a bottom-up or top-down approach, this may provide a practical way to partly fill data gaps in the short term. However, such approaches require full transparency about underlying methods and assumptions.

Stage 4: Estimate mobilised private climate finance

The fourth and final stage of the framework involves determining whether private finance would have been provided in the absence of public interventions and, thereafter, considering options to attribute mobilisation among public interventions/entities involved. There are two broad approaches towards assessing causality, with a number of methodological options available under each:

- *Assuming blanket causality between public finance and private finance*: This approach involves attributing all private finance (accounted for under Stage 3) amongst public finance providers involved. Public entities could base this attribution on volume, assumed risk, level of concessionality, time of commitment, or role of finance provided by each of them. Such methods of attribution can help avoid double counting if they are adopted in a coordinated manner. By disregarding the role of policies and country and market conditions, the blanket causality approach can, however, overestimate the mobilisation effect of public finance, which would be inaccurate and could create perverse incentives.

- *Assigning only partial causality between public interventions and private finance*: In contrast to assuming blanket causality, this approach involves assessing the mobiliation effect of public finance as well as determining which types of additional variables to consider as also contributing to mobilising private finance. Methods to assess the mobilisation effect of public finance can be based on assumed risk, concessionality, and/or sequence of public finance. The partial causality approach also outlines possible qualitative (case-based) and quantitative options for taking into account the effects of LCR-specific public policy interventions on private finance as well as the role played by broader recipient country and market conditions.

Broad pros and cons of different approaches

The choice of methodological options across the four stages of the framework will depend on the type of intervention being considered and instrument used. Different options will require different types of data and will have varied implications in relation to the four evaluation criteria. Broadly-speaking, project-level and case-based qualitative approaches may be accurate in capturing the mobilisation effects of public interventions, but could be impractical to develop (as they are time- and resource-intensive) and will be difficult to standardise across contexts and actors. Aggregate-level and quantitative approaches may be more easily standardised and transferable. Their use is, however, limited by a lack of data availability while their accuracy is dependent on sample sizes and robustness of the evidence on which they are based. Qualitative and quantitative approaches can be tested and implemented in a complementary manner with the aim of increasing the overall accuracy of tracking over time.

Choosing any option will involve making trade-offs across the four evaluation criteria. The current availability of robust options to estimate mobilisation in Stage 4 of the framework decreases as the scope of the accounting boundaries (as defined in the previous three stages) expands. For instance, there are limited options for meaningfully and accurately estimating private finance mobilised by public policy interventions, over longer time periods, and/or across the full range of financial actors and transactions. Though options that include a broad range of relevant public interventions and instruments are likely to offer greater accuracy and create more positive incentives, they will be less practical to implement due to data limitations and difficulties of standardisation across the full range of actors. On the other hand, more practical options might not necessarily be accurate and could create perverse incentives. For instance, assuming blanket causality of public finance can, by disregarding the effects of public policies and of domestic country and market conditions, lead to overestimating the mobilisation impact of public finance. This can create incentives to provide more public finance to relatively well-established markets and more commercially viable technologies, which might be at the expense of the efficient allocation of public finance, or might weaken the case for necessary policy interventions and market reforms. Thus, methods and options should not be considered in isolation and need to be carefully evaluated against all four criteria and stages of the framework.

Potential ways forward

Decision-makers are faced with two overarching priorities: to measure progress towards the fulfilment of the commitment by developed countries to mobilise USD 100 billion per year by 2020 for climate action in developing countries in a transparent, accurate and practical way; and to increase the incentives for, and efficiency of, public interventions to mobilise and scale-up private finance for LCR activities in the longer run. Adopting different approaches and options in the short versus the longer term can offer a way to progressively work toward aligning and balancing these priorities.

Implementable options in the short term

Quantifying mobilised private climate private finance is technically complex, involves a range of potential methods, and is currently constrained by data limitations. Making partial estimates of mobilisation in the short term therefore involves implementing options that are practical and easier to standardise. However, care needs to be taken to ensure that such selection of options does not undermine the other two criteria (accuracy and incentives). Alternatively, studies of mobilisation should openly acknowledge such shortcomings where they exist.

The concluding chapter of the report suggests specific options likely to be implementable in the short term for each decision point of the four-stage framework. Several principles emerge in considering such options:

- *Provide transparency on key definitions and methods* in order to build trust and facilitate comparison of amounts of private finance reported as mobilised.

- *Use options that minimise double counting across entities/countries*, in particular where multiple public interventions are involved in supporting the same LCR activity.

- *Consider collective reporting of mobilised private climate finance*, which could reduce the margin of error currently associated with individual reporting and complement, without necessarily replacing, existing UNFCCC reporting requirements and guidance.

- *Tailor approaches* by using differentiated methods for addressing decision points based on current data availability, the size of the transaction and the type of financial instrument.

- *Conduct pilot estimates of mobilisation based on available data and existing definitions* to test and gain practical experience of different methodological options and issues.

Longer-term options

There are current definitional, methodological and data challenges that limit the availability of options to estimate mobilised private climate finance. Thus, a number of areas needing further work have been identified towards better understanding the drivers of private finance and improving estimates of its mobilisation. In contrast to the short-term focus on practicality and standardisation, working on longer-term improvements will allow methods and resulting estimates to, over time, perform better against the other two evaluation criteria (accuracy, incentives) as well.

- *Converge on defining core concepts* to enable greater comparability of estimates of mobilised private climate finance and the development of more standardised methodologies for data collection and aggregation across public entities.

- *Build data systems for monitoring and reporting more comprehensive data on private flows to LCR activities to and in developing countries*, which will in particular require increased efforts by public finance institutions to measure private co-financing, both for the purposes of their individual reporting and to feed into international reporting systems such as the OECD DAC.

- *Increase communication between the development and climate finance communities* to foster synergies on methods and data collection efforts, which is particularly relevant in the context of the post-2015 financing for development agenda.

- *Design the architecture of a system for reporting private climate finance to the UNFCCC* based on future discussions to decide on the scale and level of standardisation desired/needed.

- *Increase the depth of information reported*, which, if desired, will require additional resources to expand or create national and international tracking systems relevant for climate finance, towards increased granularity (and thereby more transparency) in reporting than at present.

- *Increase the breadth of both developed and developing country public interventions considered when estimating mobilisation of long-term climate finance*, keeping in mind the value of estimating mobilisation more broadly to help better understand the drivers of private finance, and thereby more effectively shift investments at scale to LCR activities.

- *Explore possibilities to link the tracking of LCR-specific finance with the tracking of climate mitigation and adaptation outcomes*, which although very challenging, could involve considering options for more integrated frameworks and co-ordination with recipient country institutions.

1. INTRODUCTION

While the public sector plays an important role in financing climate change action, the participation of the private sector is critical in achieving the scale needed to transition to low-carbon, climate resilient (LCR) economies. Though public interventions (both finance and policies) can and do mobilise private capital, the current ability to quantify their mobilisation effect is limited. A better understanding of how and to what extent public interventions mobilise such private investment can provide a baseline to:

- Measure progress towards filling the investment gap to finance the LCR transition globally;
- Enhance transparency on the fulfilment of international commitments under the United Nations Framework Convention on Climate Change (UNFCCC).
- Inform the efficient use of public interventions in mobilising private finance; and

Countries and public finance institutions are increasing efforts to measure the effects of their interventions towards mobilising private capital. However, as shown in recent studies (Caruso and Ellis, 2013; Illman et al., 2014; Srivastava and Venugopal, 2014), most current methodologies, while practically feasible, can be simplistic and/or inconsistent. Quantifying the linkages between public interventions and LCR private finance is a technically complex and challenging endeavour. Recognising this complexity, the present report outlines a framework to guide the development of more robust methodologies for estimating private finance mobilised, giving considerations to both granular- and aggregate-level approaches. To this end, the framework puts forward a range of methodological options for addressing key decisions that need to be made as part of any attempt to quantify publicly mobilised private finance. The report evaluates these options against four criteria: accuracy, incentives, standardisation potential, and practicality; it further outlines the benefits and risks associated with them.

The primary objective of this study is to inform developed country Parties to the UNFCCC on how to estimate the private finance they mobilise for LCR activities in developing countries, including towards the fulfilment of their collective commitment to mobilise United States dollars (USD) 100 billion per year of climate finance by 2020, in the context of meaningful action and transparency on implementation. More specifically, relevant actors (countries, public finance institutions as well as researchers) could build upon this study to conduct pilot measurements of private finance mobilisation.

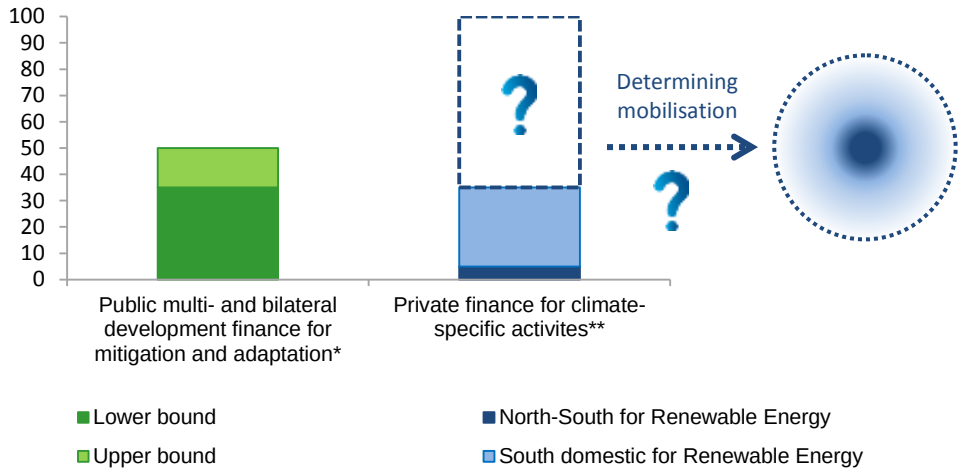
A discussion of the requirements for the architecture of a measurement, reporting and verification (MRV) system for climate finance under the UNFCCC is outside the scope of this report (see Buchner, Brown and Corfee-Morlot, 2011, for two alternative suggestions). Authors, however, acknowledge that the adoption of different options presented in this report will have varying implications for the type of reporting system needed. Conversely, the eventual architecture of an MRV system will have an impact on the applicability of options and methods that can be used to estimate mobilisation.

Given the challenges involved in analysing the relationship between public interventions and their effects on private finance, the methodological options provided may not fully address the specific needs of all entities. For instance, the MRV needs under the UNFCCC (e.g. Biennial Reports by developed country Parties) place a focus on attributing finance to specific actors. This issue might be less critical when more broadly estimating progress towards financing LCR development globally. The applicability and acceptability of methods will also differ depending on who estimates and formally reports this information, and at what level e.g. individual or group of financial institution(s) or country(ies).

Box 1. The challenge at stake - data and methodological gaps

Estimating amounts of private finance mobilised is challenging due to a lack of both comprehensive data on private finance and methods to estimate private finance mobilisation. Efforts to improve climate finance data availability and coverage have to date mainly focused on public finance from developed to developing countries with in particular ODA statistics provided by the OECD DAC and joint reporting by a group of Multilateral Development Banks. On the private side, fundamental data gaps remain. Data coverage of private flows to large renewable energy projects and activities is relatively good, since the inherent nature of these technologies makes them easier to identify and isolate. However, comprehensive data series on private finance for other mitigation activities that are more context- or condition-specific (e.g. energy efficiency, transport, water and forestry) are not readily available from existing commercial and public data sources. For adaptation, which depends more on context, the lack of data is even more acute. Addressing data gaps in the future will likely include combining increased efforts by public finance institutions to collect private co-financing data with the use of non-climate-specific data series to derive estimates/approximations where gaps will remain (Caruso and Jachnik, 2014).

Climate finance to and in developing countries USD billion commitments (3 year average)



* Combination of (i) a 3-year (2010, 2011, 2012) average of climate ODA based on Rio marked OECD Development Assistance Committee statistics, and (ii) of a 3 year (2011, 2012, 2013) average of mutlilateral climate development finance based on the joint reporting by multilateral development banks.

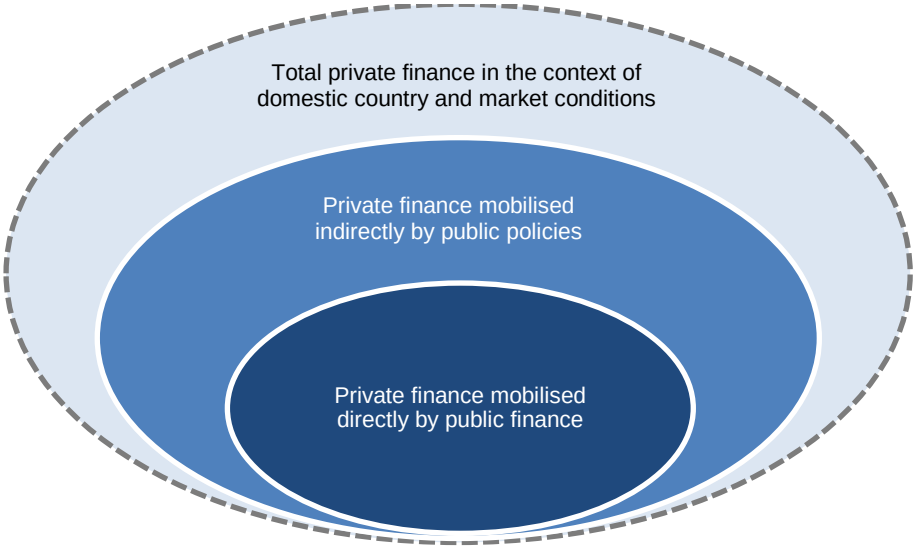
** 3-year average (2010, 2011, 2012) based on private finance transactions recorded in the Bloomberg New Energy Finance database for wind, solar, marine, small hydro, biomass and geothermal.

The report is structured as follows: Chapter 2 introduces a four-stage framework for estimating mobilised private finance. Chapters 3, 4, 5 and 6 detail these four stages: *Define core concepts*; *Identify public interventions and instruments that can be credited for mobilising private finance*; *Value public interventions and estimate total private finance involved*; and *Estimate private climate finance mobilisation*. Each stage highlights key decision points as well as a range of possible methodological options to address them, as well as assesses these options against the four afore-mentioned evaluation criteria. This assessment highlights key trade-offs in using the different options. It also points towards options that might be more pragmatic under current technical limitations and underlines a lack of clarity and consensus on some key definitional issues. Chapter 7 suggests possible options likely to be implementable in the short-term and recommends longer-term actions towards improving the availability and consistency of methods and data.

2. FRAMEWORK FOR ESTIMATING PRIVATE FINANCE MOBILISATION

Private finance, for the purposes of this report, refers to private sector funding or investment to finance LCR-specific activities. Public actors can mobilise private finance through a variety of interventions (further discussed in Chapter 4) that fall under two broad categories: public finance interventions provided to specific projects, activities, or programmes, and public policy interventions that indirectly support LCR activities. In this context, the range of developed countries' public interventions to mobilise private finance for developing countries includes both finance to individual activities and less direct support (finance or in kind) targeting domestic policy reforms. However, the mobilisation impact of public interventions will also be influenced by prevailing domestic conditions in the recipient country, which shape total private finance. Public interventions will thus in most cases mobilise only a subset of total private finance. The variables that must then be considered towards estimating amounts of private finance mobilised by public interventions are depicted in Figure 1 below.

Figure 1. Variables for estimating publicly mobilised private finance for LCR activities



Source: Adapted from Haščič et. al. (2015).

2.1 Stages of estimating publicly mobilised private finance

The report outlines a framework (adapted and expanded from a template in Srivastava and Venugopal, 2014) that incorporates these variables to guide the development of robust methods to estimate private finance mobilised by public interventions. The steps required to estimate amounts of private finance mobilised involve considering key decision points related to defining, selecting and valuing each variable and deciding how to estimate the effect of the explanatory variables (public finance and policies, country and market conditions) on private finance. The decision points are grouped into four stages:

- **Stage 1 - Define core concepts**: This stage highlights options for addressing some of the core concepts related to the variables introduced in Figure 1, such as defining LCR activities, delineating between public and private finance, and assigning a geographical origin to finance. This step is a precondition to subsequently estimating mobilisation of private finance by individual or groups of entities/countries.

- **Stage 2 - Identify public interventions and instruments that can be credited for mobilising private finance**: This stage focuses on determining which public interventions and specific instruments are relevant and will be assessed for their mobilisation impact in subsequent stages, which is a key scoping decision to be made by entities wanting to estimate mobilisation.

- **Stage 3 - Value public interventions and account for total private finance involved**: This stage outlines decision points and options to account for the monetary value of the public intervention and of the private finance associated with it. It covers in particular the valuation and boundaries of different types of financial instruments and includes a discussion of private finance data availability.

- **Stage 4 - Estimate private climate finance mobilisation**: This final stage highlights key decision points relating to assigning causality[1] between public interventions and private finance and attributing[2] credit to those interventions for their roles in mobilising private finance.

Figure 2 provides an overview of the four stages and lists the decision points to be addressed under each. These are neither exhaustive (as illustrated in Box 2) nor necessarily applicable to all possible public interventions and scenarios. Rather, they are meant to provide guidance for thinking through available options regarding common methodological issues, while highlighting remaining gaps and the need for future research to address them.

Figure 2.Framework and overview of decision points to estimate publicly mobilised private climate finance

Stage 1. Define core concepts

- Definition of climate change activities
- Definition of public and private finance
- Classification of developed and developing countries
- Determination of geographical origin of finance

Stage 2. Identify public interventions and instruments that can be credited for mobilising private climate finance

- Types of public interventions
- Specific instruments used for the interventions

Stage 3. Value public interventions and account for total private finance involved

- Choice and conversion of currency
- Choice of point of measurement
- Valuation of different public interventions
- Boundaries and estimation of private finance involved
- Availability of climate--specific private finance data or proxies

Stage 4. Estimate mobilised private climate finance

- Assessment of causality between public interventions and private finance
- Attribution of mobilised private climate finance to public interventions and instruments

The four stages are closely interconnected. For example, decisions on how to define and account for public interventions will determine what data is required. Thus, a robust methods for estimating private climate finance mobilised should look at decision points holistically and not in isolation.

[1] Causality refers to the concept that a public intervention/entity can reasonably claim to have 'caused' the flow of private finance.

[2] Attribution refers to ascribing a portion of private finance to a public intervention/entity.

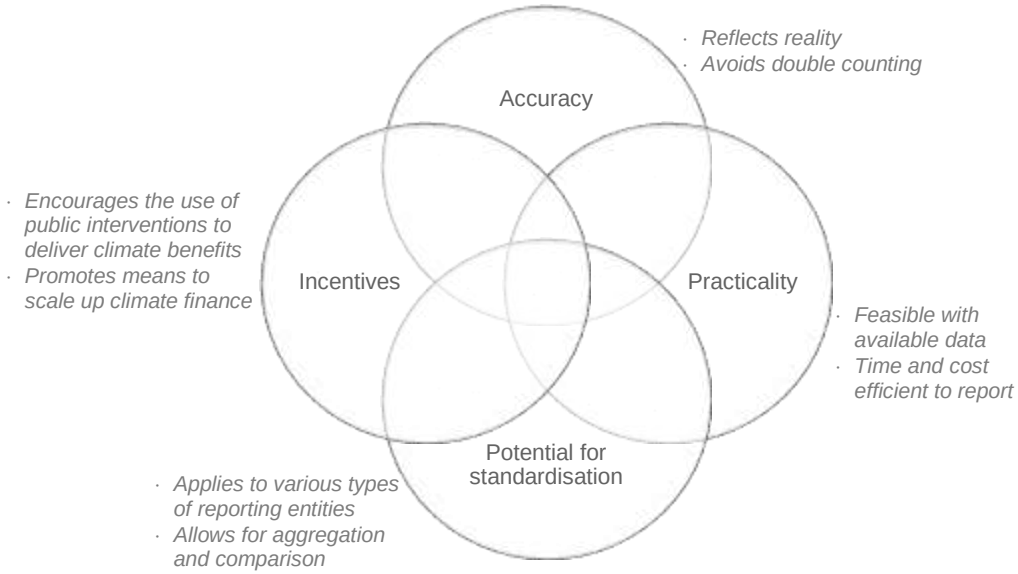
Box 2. Additionality, incrementality and causality

Ambiguities remain regarding the definitions and applicability of terms such as 'additionality' and 'incrementality'. Though they are sometimes used interchangeably, the concept of 'additionality' in the context of climate finance is most often used with respect to public finance support by developed countries. What this should be additional to, is however unclear e.g. baseline amounts of climate finance, existing levels of ODA, the 0.7% of donor countries' GNI targeted to be provided as ODA. The question of the additionality of public climate finance is out of the scope of this report. 'Incrementality' typically refers to the extra cost of investing in LCR activities and technologies over 'traditional' ones. The framework proposed in this report does not provide a discussion of this issue. 'Causality' relates to amounts of private finance 'caused' by public interventions in excess of business-as-usual levels. The report proposes methodological options for assessing causality in Stage 4 of the framework.

2.2 Evaluation criteria

In determining how to address decision points, methodological options presented are assessed against four complementary evaluation criteria illustrated in Figure 3, which relate to accuracy, incentives, potential for standardisation, and practicality of implementation.

Figure 3. Criteria relevant to evaluate methods to estimate mobilised climate finance



Source: Adapted from Srivastava and Venugopal (2014).

Available options to address each decision points are unlikely to perform well against all four criteria simultaneously, due to current data and methodological limitations. Decision-makers will have to consider trade-offs and select options based on the objectives and mandates pursued.

3. STAGE 1: DEFINE CORE CONCEPTS

3.1 Decision points and methodological options

The first stage highlights key definitional issues that must first be tackled in order to then meaningfully estimate mobilised private finance. It involves addressing the decision points outlined below.

3.1.1 Defining climate change activities

There is currently no single internationally agreed-upon definition of LCR activities. Typically, contributor and recipient countries and entities use their own definitions to track finance for climate change purposes. A number of multilateral definitions, however, do exist. These include the OECD Development Assistance Committee (DAC[3]) definitions of climate change mitigation and adaptation applied by the Rio markers to measure and monitor mitigation and adaptation activities within the context of Official Development Assistance (ODA) and increasingly Other Official Flows (OOF). More recently, a group of Multilateral Development Banks (MDBs)[4] and the International Development Finance Club (IDFC, which consists of a number of bilateral and national development banks[5]), have each developed definitions for tracking purposes, partly building upon the Rio markers. It is worth noting that the OECD DAC and international finance institutions have engaged in a collaboration process to view possible improvements and synergies between their respective approaches (OECD DAC, 2013a, 2013b).

To report mobilised public and private finance under the UNFCCC, Parties could build upon existing definitions (some of which like those mentioned above have emerged through consultation and consensus among certain stakeholder groups), or could develop alternative definitions from the ground up. In any case, the question of how to treat given activities and projects that are only partly LCR-specific or pursue multiple LCR and development objectives needs to be addressed i.e. should only part of the given activities and projects be included in such cases?

3.1.2 Defining public and private finance

There is a range of available principles and definitions to categorise actors as public and private for statistical purposes, including ownership-, control-, and risk-based principles. In the context of climate finance, most current reporting considers government entities and their associated development finance institutions and funds as public sector entities. However, grey areas remain, for example with institutions with mixed public and private shareholdings (e.g. utilities), or whose funding consists of both public and private sector contributions (e.g. investment funds) and/or a mix of private and public money borrowed from the capital markets (e.g. MDBs). Do we, in such cases, consider total disbursements from publicly owned institutions as public money, or just the amounts sourced from public budgetary expenditures? Other instances where the above-listed principles can prove challenging to apply in practice in a systematic manner include complex financial products, joint ventures, or pooled financial structures. As highlighted by recent OECD analysis, meaningfully splitting public and private capital in the total resources of financers would require detailed case studies but might still not allow for the identification of the true origin of finance (Caruso and Jachnik, 2014). Depending on the viewpoint one takes in the finance value

[3] See list of DAC members: www.oecd.org/dac/dacmembers.htm

[4] Namely the African Development Bank, the Asian Development Bank, the European Investment Bank, the European Bank for Reconstruction and Development, the Inter-American Development Bank, the International Finance Corporation, the World bank.

[5] See list of IDFC members at: www.idfc.org/Who-We-Are/members.aspx

chain, any given amount could be labelled as public or private, e.g. public institutions increasingly finance their activities through bond issuances partly subscribed by private actors, while private investors and finance providers often benefit from direct or indirect public financial participation and backing.

Ultimately, choosing one definition over others will not change the amount of total public and private finance measured, but rather the respective volumes and shares that are labelled as public and private. This split can, however, have an impact on the amounts of private finance estimated and reported as mobilised by public interventions. Methodological transparency and, where possible, ensuring compatibility with existing standard definitions of public-private finance might provide a pragmatic way forward. For instance, the OECD DAC monitors and reports development finance (including public climate finance) based on the ownership, control and risk principles (OECD DAC, 2013c)[6].

3.1.3 Classifying developed and developing countries

Current climate finance reporting under the UNFCCC makes use of a classification based on countries listed respectively as Annex I (including Annex II countries[7], which have a special obligation to provide financial resources and facilitate technology transfer to developing countries) and Non-Annex I. Such classification could be used to define 'developed' and 'developing' based on historical circumstances and responsibilities, but it is not flexible enough to reflect shifting realities. For instance, only a few countries have acceded to Annex I over time[8], despite the fact that some countries still classified as Non-Annex I already are or are rapidly becoming significant providers of aid, such as China or Brazil. It is also worth noting that the 2010-2012 'Fast Start Finance' period included instances of support provided to Annex I countries such as Russia (Fransen et al., 2013; European Commission, 2013).

Alternative options for defining developed and developing countries include using more flexible up-to-date, and therefore more accurate definitions based on changing indicators such as Gross National Income (GNI) per capita as used by the World Bank[9] (see Haščič et al., 2015, for en empirical analysis of private finance mobilisation for renewable energy based on the World Bank's classification). The OECD DAC categorisation of DAC members (donors) and eligible recipients (which builds upon the World Bank's classification), and the list of recipient countries used by MDBs for their joint reporting (Joint-MDBs, 2014) offer slightly different alternatives.

3.1.4 Assigning a geographical origin to finance

How to define the geographical origin of finance is a question that can have significant implications on the amounts of private finance estimated as mobilised by specific countries or groups of countries. There are multiple options to assign a country of origin, including assigning actors (and the finance they provide) based on the country where the immediate entity providing the finance is headquartered; or based on the nationality of its ultimate majority owner (Caruso and Jachnik, 2014; Srivastava and

[6] OECD DAC definition: "*Official transactions are those undertaken by central, state or local government agencies at their own risk and responsibility, regardless of whether these agencies have raised the funds through taxation or through borrowing from the private sector. This includes transactions by public corporations i.e. corporations over which the government secures control by owning more than half of the voting equity securities or otherwise controlling more than half of the equity holders' voting power; or through special legislation empowering the government to determine corporate policy or to appoint directors. Private transactions are those undertaken by firms and individuals resident in the reporting country from their own private funds*."

[7] Turkey was deleted from Annex II by an amendment that entered into force 28 June 2002.

[8] Croatia, the Czech Republic, Cyprus, Liechtenstein, Malta, Monaco, Slovakia and Slovenia.

[9] See http://data.worldbank.org/indicator/NY.GNP.PCAP.CD

Venugopal, 2014). In cases of mixed country ownership, principles similar to those outlined above for defining private versus public ownership are also relevant to assign geographical origin. Options consist of pro-rating based on nationality of shareholders/owners (which can lead to more accurate estimates but involves significant analytical efforts), or assigning 100% to the majority owner (which is more practical but likely less accurate). As further detailed in the evaluation section, applying these principles in order to meaningfully characterise geographical origin is in practice challenging, especially for private finance. For instance, institutions and countries raising/borrowing funds from capital markets (e.g. private corporations and funds) may partly do so from developing countries finance providers.

Another related decision point is determining from which geographic sources private flows could be considered as potentially mobilised. The four options consist of:

- Only considering finance originating in the same country as the reporting entity;
- Including only international private finance originating in developed countries (as defined under the previous decision point);
- Including all international private finance (from both developed and developing countries); and
- Including all international private finance to and domestic private finance within the recipient country.

Implementing the first three options in practice depends on the ability to differentiate and assign a geographical origin to finance. Where that is possible, the decision to include private finance of only some or all geographical origins will lead to varying estimates of mobilisation. For instance, only considering private finance originating from the same country as the reporting entity can underestimate actual mobilisation (Illman et al., 2014). Estimates of renewable energy financing (though only a sub-set of LCR activities) indicate that domestic private finance in developing countries amounts to more than double international private flows, and that they are driven in part by international public finance (Haščič et al., 2015; Buchner et al, 2014). This observation is however based on volumes aggregated across all countries and might not be valid for each developing country taken individually.

Decision points described above, together with the proposed range of methodological options, are summarised below in Table 1. Consensus-building and convergence among UNFCCC Parties over time on commonly-acceptable definitions would enable more transparent and comparable reporting. In the meantime, reporting entities should ensure transparency on the underlying definitions they use and methodological choices they make. These definitional issues also need to be addressed in the broader context of scaling up climate finance, and not just towards improving reporting methodologies.

Table 1. Defining core concepts - methodological options

Decision point	No	Question	Options			
			1	2	3	4
Definition of LCR activities and projects	D1	*Which sectors, activities and projects count as LCR-specific*	Refer to existing working definitions e.g. OECD DAC Rio Markers, joint-MDB reporting positive list	Define 'climate' on a case-by-case basis based on intent, impact, alignment with pathways, etc.	Develop new definitions of 'climate' from the ground up	-
	D2	*Should only part of given activities and projects count as LCR-specific*	Take a pro-rata share of the project (based on costs, or time, or net impacts, etc.)	Gradation e.g. using the Rio markers methodology	If a majority share is LCR-specific, treat entire project as such	Count 100% of project with any LCR-specific components
Definition of public and private finance	D3	*Which criteria for categorising actors as public or private*	Based on whole, minority, or majority holdings of shares e.g. OECD FDI statistics (OECD, 2009)	Based on who has the ability to exercise significant control over enterprise operations e.g. Eurostat	Based on who bears the ultimate risk in the event of enterprise default	Define a pre-agreed set of actors considered public or private. e.g. commercial bank, household as private; development finance institution, aid agency as public
	D4	*Which public finance is included as mobilising private finance*	All climate finance provided by public entities (as defined under D3)	Only finance provided by public entities (as defined under D3) that originates from public budgetary expenditures	-	-
	D5	*How to handle actors with both public and private capitalisation or origin of funds*	Apportion the finance provided by the actors based on its proportion of public and private shareholding	Apportion the finance provided by the actors based on the proportion of its funding originating from public and private sources	No apportioning - 100% of the finance provided by the entity recorded as public or private (based on principles under D3)	-
Classification of countries as developed or developing	D6	*How to classify countries as developed or developing*	Use existing UNFCCC Annex I, non-Annex I, Annex II	Use other existing definitions e.g. OECD DAC members and ODA recipients, MDB, etc.	Adopt dynamic approach based on economic indicators such as GNI per capita e.g. World Bank classification	-

Table 1 continued over page.

Table 1. Defining core concepts - methodological options
(*continued*)

Assigning geographical origin of finance	D7	*How to assign finance to a country of origin*	Based on the headquarter location of the immediate entity financing a specific transaction, asset, or project	Based on the headquarter location of the ultimate parent of the entity financing a specific transaction/project	Based on the nationalities of an entity's owners	Based on the entity's (and/or its parent's) main centre of economic interest
	D8	*How to handle multiple country ownership/funding*	Pro-rate based on nationality of individual equity ownership/percentage of total finance provided	Allocate 100% of the finance to the country of the majority shareholder/actor providing the largest share of finance	Do not assign a country of origin i.e. consider finance provided by such actors separately in aggregate	-
	D9	*Which private finance (geographical origin) can count as being mobilised*	Only private finance originating from the country of the reporting entity/country	All private finance originating from developed countries	All international private finance (including South-South private finance)	All international and domestic private finance to and in the destination (developing) country

Source: Based on Caruso and Jachnik (2014); Haščič et al. (2015); Illman et al. (2014); Srivastava and Venugopal (2014).

3.2 Evaluation of options

Deciding which definitions of climate activities and projects to use involves addressing outstanding questions of which sectors, activities, and projects count as climate-friendly as well as how to delineate the climate component of larger projects. In the short term, agreeing on a new comprehensive list of climate-friendly activities (option D1.2) is not practical as it requires time and would likely only apply to mitigation actions, given the high context-specificity of adaptation activities. Hence, options that build upon existing definitional systems such as OECD DAC's Rio markers or joint-MDB reporting guidelines (both of which have advantages and disadvantages[10]) are the most workable as a basis for early-stage measurements of mobilised private climate finance (D1.1). However, not all LCR activities implemented on the ground will necessarily match and fit under the categories used by these existing definitions. Alternatively, taking a case-by-case approach to defining climate friendly activities (D1.3) could also be a workable and more accurate solution in the short-term, provided that the guidelines or principles used for such classifications are transparent so as to allow comparison, including with the aforementioned existing definitions; however, this is not the case at present.

In terms of delineating the climate-friendly component of larger projects, simple approaches such as taking a pro-rata share of the total project (based on costs, time, net impacts, etc.) (D2.1) or a standard gradation (D2.4) may help to achieve a good balance between accuracy, practicality, and standardisation in the short term. Options that count 100% of any project independently of the share represented by its LCR-specific component (D1.3) may still require similar information (e.g. cost of total project and of the LCR component). They can, however, result in less accurate estimates and may incentivise implementing and reporting activities that are able to incorporate small LCR-specific components.

Defining which actors and their flows are public or private relates to choosing which criteria to use for the categorisation of finance providers, including how to handle those with mixed public and private capitalisation or origins of funds. In terms of the choice of criteria for determining whether an actor is public or private, it is difficult to say that one option would result in a more or less accurate estimation than another. Pilot studies testing different scenarios can inform decision-making on this. It may also be practical to take a differentiated approach by deciding on common principles for determining the public or private nature of flows from large institutions (e.g. MDBs) and transactions (D3.4); such an approach would partly trade accuracy for practicality. This could be combined with a more flexible approach (between D3.1-D3.3) for smaller entities or joint ventures with both public and private involvement.

Distinguishing between public and private finance based on the public or private origin of the total resources of financers could lead to more accurate estimates. In practice, doing so would be time-intensive and might not necessarily lead to a meaningful identification of the ultimate public or private nature of finance, particularly since any given amount might be rightfully labelled as public or private. For instance, government spending is raised from households as well as debt issuance through bonds that can be subscribed by private actors, while private investors and financiers can benefit from public financial participation and backing (Caruso and Jachnik, 2014; Haščič et al, 2015). In addition, the impact on compatibility and interoperability with official statistical systems should also be considered. For instance, if finance committed and disbursed by MDBs and DFIs based on the funds they raise on the capital markets through bond issuances is not by default considered as public, estimates based on such approach would not be compatible or comparable with OECD DAC statistics.

[10] An OECD Task Team composed of both development finance statisticians and climate policy experts is investigating options to improve Rio markers, collaborating with international finance institutions, including MDBs, in that process in order to compare approaches, optimise synergies and view possible convergences. For more information: www.oecd.org/dac/environment-development/statistics.htm

Available options for **classifying countries as developed or developing** do not vary greatly in terms of practicality or ability to be standardised across reporting entities. However, options that use more recently updated or dynamic definitions of developing countries (D6.2 and D6.3) will produce estimates that represent flows to currently developing countries more accurately as well as provide incentives to increase the provision and mobilisation of public and private finance to these countries. For instance, options using static definitions (D6.1) include flows to countries such as South Korea, which decreases the accuracy of estimates of flows to countries that are still in the early stages of development. In this context, transparency in reporting and granularity of the underlying data are key, as flows to and from countries whose categorisation is more questionable can be excluded later if desired.

The final decision point of **assigning geographical origin of finance flows** includes the question of whether and how to assign finance to specific countries and to handle multiple country ownership. The option that assigns geographic ownership based on the headquarter location of the immediate institutional unit providing finance (D7.1), while most practical, is not likely to provide an accurate picture of the true origin of funds. Alternative options of assigning country of origin based on the nationalities of an enterprise's owners (D7.3) or an institution's main centre of economic interest (D7.4) are likely to be more accurate but require additional information and research that may be resource intensive and thereby impractical on a large scale. The remaining option of examining the headquarter location of the ultimate parent of the institutional unit providing funds (D7.2) might offer a reasonable proxy for determining the country of origin of finance.

If an ownership- rather than location-based approach is chosen, the report highlights several options for dealing with instances where the owners of an enterprise are themselves from different countries. This question might be best addressed on a case-by-case basis, with a pro-rata approach based on ownership (D8.1) as a possible option for large institutions such as MDBs, utilities (e.g. in the energy or water sectors), commercial banks with an international profile, or multinational enterprises; but that might neither be worth the effort required nor practical for a multitude of small and medium size private enterprises. Conversely, allocating all of the finance mobilised by an institution to its majority shareholder (D8.2) is inaccurate for large actors with international operations but is most practical for small private entities as it allows for greater practicality without sacrificing much accuracy.

Finally, deciding which geographic sources of finance can be considered as being mobilised (D9) should be informed by previous considerations concerning the accuracy and relevance of assigning flows to a specific country. Hence, from a technical point of view, not distinguishing private finance originating in developing countries from private finance originating in developed countries would be most practical for producing estimates of private finance mobilisation in the short-term. This is because principles outlined above for assigning geographical origin of finance can prove extremely difficult to meaningfully implement in practice for private finance, which typically does not flow directly from initial sources to final recipients, but may be channelled and transited through financial intermediaries, funds, and other institutions. Measuring movements at various points along the financial value chain would in theory make it possible to identify and handle the routing of private finance through tax havens, offshore channels and other special purpose entities, but would be very resource-intensive without necessarily providing meaningful results (Caruso and Jachnik, 2014). Part of this issue is, however, being addressed in the field of FDI statistics, with on-going efforts towards separating out investments relating to so called "Special Purpose Entities" (SPEs), which typically distort the geographical assignation and distribution of finance (OECD, 2009). Further, including all sources of private finance (D9.4) would incentivise collaboration among actors and countries towards an efficient and optimal use of public interventions to mobilise both international to and domestic private finance in developing countries. This would, however, also increase risks of double counting as well as of possible misattribution and/or overestimation of private finance mobilised by specific public interventions. Such approach therefore requires careful and transparent co-ordination and reporting on methods.

4. STAGE 2: IDENTIFY PUBLIC INTERVENTIONS AND INSTRUMENTS

4.1 Decision points and methodological options

4.1.1 Types of public interventions

The second step in designing robust methodologies involves identifying and deciding (as highlighted in Table 2) which types of public interventions should be considered towards estimating private finance mobilisation in subsequent stages. Two types of interventions should be considered:

- Public finance interventions are those in which a public entity provides direct financial support to a project, programme, fund, or enterprise.
- Public policy interventions consist of a broad set of interventions that can help to indirectly support LCR projects and activities as well as shape country and markets to achieve LCR goals.

Table 2. Identifying public intervention types and instruments - methodological options

Decision Point	Options		
	1	2	3
Identifying relevant public interventions that can be credited for mobilising private finance	Public finance interventions only	Public policy interventions only	Public finance and policy interventions

Source: Based on Haščič et al. (2015); Srivastava and Venugopal (2014).

It is worth noting that the boundary between public finance and policy interventions is not absolute. For instance, the development and implementation by developing countries of certain public policy interventions might be partly supported and enabled by financial support from developed countries. Developed countries' technical assistance, grants and/or loans might for example be directed at budgetary support in a developing country to pay for the design and implementation of a specific policy e.g. feed-in-tariff (FIT) scheme for renewable energy projects.

4.1.2 Specific instruments used for the interventions

Once reporting entities have determined the type(s) of interventions to include towards estimating private climate finance mobilisation, they should further identify which specific instruments they will consider from within the selected intervention type(s). Table 3 provides an indicative typology.

Table 3. Typology of public interventions mobilising private finance

	Intervention types	Instruments	Examples
Public Finance Interventions	Grants	· Project- or company-level grants · Programme-level grants	· *Grant for feasibility studies, demonstration activities* · *Interest subsidies*
	Debt	· Loans · Credit lines · Bonds · Debt funds · Subordinated debt (mezzanine finance)	· *Syndicated loans* · *Export credit loans* · *Project bonds for LCR infrastructure* · *Green bonds* · *Revolving funds for energy efficiency* · *Debt swaps* · *Convertible debentures*
	Equity	· Direct equity investments · Shares in equity funds · Preferred equity (mezzanine finance)	· *Equity fund-of-funds ('umbrella funds')* · *Preferred stocks in companies developing/implementing LCR activities* · *Direct equity in LCR projects*
	De-Risking	· Insurances · Guarantees · Derivatives	· *Mono-line insurance* · *Loan or equity guarantees* · *Political, regulatory, credit risk, export credit guarantees* · *Swaps (interest, exchange, credit default)* · *Structured products including asset-backed securities* · *Weather-indexed derivatives*
Public Policy Interventions	Regulatory Policy	· Laws and policies · Plans and targets · Standards · Quotas	· *Energy efficiency standards* · *Market creation (e.g. Clean Development Mechanism (CDM))* · *Renewables purchase obligations* · *Feed-in-tariffs* · *Advance market commitments* · *Renewable energy certificate schemes* · *Land-use planning* · *Trade policies and preferential treatment of LCR products and services*
	Fiscal Policy	· Taxes · Subsidies and tax reliefs/credits · Market support	· *Environmentally related taxes* · *Preferential tax treatment (e.g. accelerated depreciation) for LCR technologies* · *Eliminating fossil-fuel subsidies*
	Information and Innovation Policy	· Research and development · Licenses and patents · Technology transfer · Education and awareness · Data and statistics	· *R&D for LCR technologies* · *Bilateral technology transfer agreements* · *Technology centres of excellence* · *Labelling schemes* · *Wind speed or solar radiation mapping*

Source: Based on Corfee-Morlot et al. (2012); OECD (2011, 2010); Venugopal and Srivastava (2012); Whitley (2014); World Economic Forum (2013).

Each of the instruments listed can play a unique role in mobilising private finance by reducing the risks faced by the project, enterprise or fund, increasing the potential returns and/or cutting down transaction costs for private investors. Financial instruments can for instance be structured in a variety of ways to provide individual or pooled financing, ex-ante or ex-post disbursements, and blend characteristics along the risk-return profile. The choice and combination of instruments employed in practice will vary based on a number of factors such as the maturity of the market, level of private sector development, stage of technology, and a financing institutions' risk tolerance or mandate (Venugopal and Srivastava, 2012).

It is important to note that the options chosen in this stage will determine the relevance and availability of options under the decision points within the subsequent two stages. For example, a focus on instruments such as grants and debt, as current estimation and reporting methodologies tend towards, has different implications than also considering equity and de-risking instruments. It would point towards different options for valuing the public interventions in Stage 3, and would lead to different values of private finance being attributed to public actors based on their choices of interventions in Stage 4.

4.2 Evaluation of options

Generally speaking, considering a broader range of public finance and policy instruments is likely to provide a more comprehensive and accurate picture of public efforts to mobilise private capital and would incentivise the use of the most appropriate interventions. However, it may be practically challenging due to limited availability of data and methods. Thus, while both types of interventions can play important roles in mobilising private finance for LCR activities in developing countries, concentrating in the short-term on estimating mobilisation from public finance interventions may be most practical for providing initial estimates. This is in light of the current lack of robust methodologies for estimating mobilisation of private finance from most types of public policies (see Stage 4). Thus, prioritising the refinement and implementation of robust and credible methodologies for public finance interventions can ensure that appropriate methods are in place in the short-term to measure at least a portion of private flows being mobilised by public interventions.

Disregarding the effects of public policies and of domestic country and market conditions can, however, by overestimating the mobilisation impact of public finance, create incentives to provide more public finance to relatively well-established markets and more commercially viable technologies. This might be at the expense of either providing public finance where it might be most needed or supporting the implementation of policy interventions and market reforms. Moving forward, further work on methods and data, while building consensus among Parties to the UNFCCC, is needed in order to include a wider range of instruments. A more holistic approach to estimating mobilisation is key towards providing a more comprehensive and accurate picture of public efforts to mobilise private capital, which in turn is necessary to inform the future use of public interventions towards mobilising private finance at scale.

5. STAGE 3: VALUE PUBLIC INTERVENTIONS AND TOTAL PRIVATE FINANCE

5.1 Decision points and methodological options

Following the identification of the types of public interventions and instruments that will be assessed for mobilisation, Stage 3 involves determining the monetary value of these interventions as well as establishing the boundaries of and estimating the private finance associated with them. To this end, this stage involves considering a number of decision points and corresponding options as outlined below.

5.1.1 Choosing and converting currency

Most public and commercial data sources currently report international finance flows in USD. However, cross-border flows of finance raise questions relating to the conversion of currencies. For example, should the value of public intervention and private financing be reported in the currencies in which they are disbursed, which would provide a more accurate picture of the currency risks adopted? Or should they be reported in USD and/or contributor country currency, which would be easier to aggregate and compare? Should there be a distinction between financing in local versus international currencies?

A related question arises in considering when exchange rates should be determined to ensure consistency and allow for aggregation: at project commitment or finance disbursement (further discussed below under "point of measurement"), end of year, based on a yearly average or on a rolling or dynamic average. Given the non-climate-specific nature of this issue, building upon practices and standards in use among providers of international finance statistics (such as Eurostat, the International Monetary Fund and the OECD) should be considered along with existing UNFCCC guidelines for National Communications and Biennial Reports. In doing so, it should be taken into account how well these options capture the currency risks taken on by the various actors.

5.1.2 Choosing a point of measurement

Any financial transaction involves various stages including approval, commitment, and disbursement. At which stage should amounts of finance be measured? Most individual institutions and providers of climate finance data currently report on a commitment basis. This practice captures the intent to provide a given level of finance, but it may misrepresent final costs and disbursement levels, which can change in the process of finalising the transaction. A hybrid measurement and reporting approach that tracks and compares public and associated private finance at both the point of commitment and disbursement could be pursued, which would enable a comparison between both.

5.1.3 Valuing different public interventions

Different interventions play varied roles in addressing risks and mobilising private finance. Determining appropriate monetary values of public interventions is a prerequisite to implementing some of the methodological options put forward in Stage 4 and can provide a clearer picture of how to mobilise private finance at scale. Valuing public interventions can, however, require differentiated methods based on their individual characteristics. For example, how should risk-adjusted return equivalence be estimated? Should non-concessional public financing be treated separately from concessional public financing? Should financing that is provided at market rates be considered concessional if no other finance is available? How can we distinguish between grants, instruments with repayments, instruments that require triggers to disburse pay-outs, and performance-based or market-based instruments (result-based financing)?

When considering decision points relating to valuing public finance instruments, it is important to keep in mind that the development finance community is discussing options for accounting for these characteristics at greater depth than is within the scope of this report. This includes in particular on-going work on new measures of total official support for development and on modernising the definition and scope of ODA (OECD DAC, 2014a, 2014b, 2014c). In order to ensure that methodological approaches developed for climate finance are compatible with official statistics on broader development finance, establishing further links and exploring synergies with approaches established or being developed by development finance colleagues and specialists may provide a coherent way forward.

5.1.4 Defining the boundaries of and accounting for total private finance

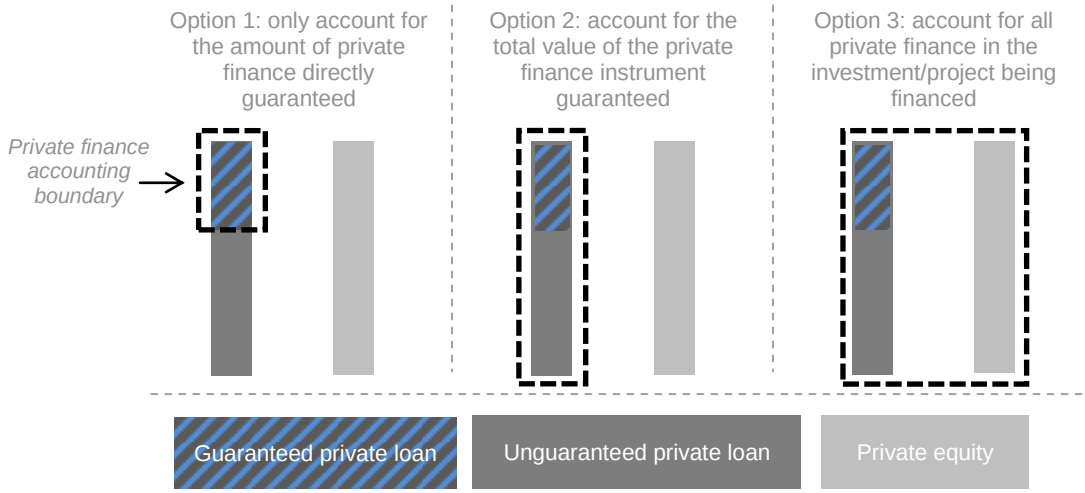
Boundaries must be drawn in order to define and account for the total private finance that could be associated with different public interventions. The amounts mobilised from this total can then be estimated in Stage 4. Some methods to estimate mobilisation in Stage 4 might, however, not require as a prerequisite that total private finance be measured at aggregate levels e.g. it can be possible to derive/extrapolate an estimate of total mobilisation based on a subsample of actors or activities.

Options for defining boundaries in Stage 3 need to be considered on an instrument basis. For the purpose of keeping this framework practical, the focus is on private finance associated with three widely-used public finance instruments: syndicated loans, investments in equity funds, and guarantees. Similar options for other relevant public finance instruments (such as grants, stand-alone loans, and export credits) can be derived and adapted from those presented for the three instrument specifically covered here.

The boundaries of private finance associated with syndicated loans can either be restricted to private finance within the syndication itself or expanded to include all private finance involved in the activity being financed. For public equity investments, total private finance can be narrowly accounted for at the direct fund level. A broader scope would take into account private finance involved at the sub-fund level, and, possibly, at the portfolio company or project level. For guarantees, the private finance considered could include: only the portion of finance that is guaranteed; the full value of the instrument to which the guarantee applies; or all the private finance involved in the ultimate investment in which the guaranteed instrument is present. These three options are illustrated in Figure 4 below.

Finally, decisions on where to draw the boundaries of instruments need to consider the number of intermediaries and other financiers likely to be involved. This is because the breadth of boundaries chosen influences the risk of double counting in cases where several intermediaries may be involved at different points across the financial-value chain.

Figure 4. Drawing the accounting boundaries of private finance involved: example of a loan guarantee



5.1.5 Availability of climate-specific private finance data or proxies

Understanding the role that public interventions play in mobilising private finance requires data on both categories of variables. While appropriate data is more easily available on public finance and, to a lesser extent on public policy interventions, (as detailed in Annex I), this is not the case with private finance to LCR-specific activities, both at the individual and cross-institutional levels.

At the cross-institution level, there is limited data on private finance to LCR-specific activities from public and commercial sources, except for large scale renewable energy projects. In terms of public institutions, data on FDI, a specific sub-set of overall cross-border finance, is regularly collected and reported by international organisations such as the OECD and the UN Conference on Trade and Development (UNCTAD). However, the aggregate-level at which these data are reported hinders the estimation of investment volumes into LCR-specific activities. In terms of commercial data providers, there are a number of databases that capture vast amounts of partial data on private finance and investment in LCR-relevant sectors through debt and equity transactions. However, issues such as a lack of granularity in sectoral classifications and poor coverage of de-risking instruments, small-scale and more informal transactions significantly complicate attempts to comprehensively identify, isolate, and quantify LCR-specific private finance flows beyond large renewable energy projects (Caruso and Jachnik, 2014).

Annex II provides an overview of the availability of LCR-specific data for private finance from commercial and public databases, both in terms of sectors and financial instrument. In addition, there have been efforts by non-governmental organisations to collate cross-institution data on private financing associated with individual transactions or projects from publicly available and/or commercial sources. While they contribute to greater transparency, they either are mainly limited to renewable energy project finance (e.g. Buchner et al., 2014), or include a broader range of sectors but result in non-systematic and often discontinuous reporting (e.g. Whitley, 2014; Whitley and Mohanty, 2013).

As a result, using institution-level information, where available, about the private finance associated with public interventions remains the more reliable option. The public availability of data, however, varies across institutions and is generally limited by confidentiality restrictions. Some individual public institutions have started collecting partial information on private co-financing associated with their interventions. For example, some individual MDBs and bilateral finance institutions (BFIs) report private co-financing in certain projects, the Multilateral Investment Guarantee Agency maintains an online

database of public guarantees issued to private actors (which includes information on the underlying private finance being guaranteed), and the Global Environment Facility (GEF) tracks ad-hoc data on project-level private co-financing. However, such information is not always publicly-available and often not collected in a systematic manner (Caruso and Ellis, 2013; Illman et al., 2014).

The OECD DAC has initiated work towards collecting instrument-specific private mobilisation data from international finance institutions reporting to the DAC. It has made progress for public guarantees (Mirabile, Benn and Sangaré, 2013). The DAC is further exploring options for collecting data for other public instruments, starting with syndicated loans and equity shares in investment funds (OECD DAC, 2015). Work in this area is expected to lead to routine data collection from as soon as 2016.

Given the current limited availability of comprehensive and systematic data, decision-makers need to consider alternative methodological options for estimating the value of total private finance using proxy methods. While these options may be practical ways to partly fill data gaps in the short term, they require full transparency about underlying methods used to produce such estimates.

- A possible approach consists in using, where available, average private co-financing observed historically by public finance institutions at the project or activity level (see for instance European Bank for Reconstruction and Development, 2012; Global Environment Facility, 2014; UN High-Level Advisory Group on Climate Change Financing, 2010; Smallridge et al., 2012) to estimate likely volumes of private finance associated with similar public interventions. This type of method has been explored and trialled in a study focusing on aggregate level estimates for Switzerland (Stadelmann and Michaelowa, 2013). The outcome highlighted the wide range of estimates resulting from such an approach and therefore their inherent uncertainty. Further, private co-financing data does not cover instances where private finance occurred where no public finance was involved. This precludes subsequent estimates in Stage 4 of the mobilisation effect of public policy interventions in the absence of public finance. This could be an important limitation for commercially mature technologies (e.g. onshore wind power) where private investment might be incentivised by policies (e.g. feed-in-tariff) without requiring further public finance support.

- Another possible approach consists of apportioning non LCR-specific financial data (such as FDI) using relevant environment- or energy-related coefficients e.g. data series on greenhouse gas emissions/energy intensity, market penetration of renewable energy, etc. The Climate Bonds Initiative, for instance, uses data on corporate revenues to evaluate the extent to which specific actors are involved in LCR-specific activities and is, as a result, able to apportion the LCR share of non-LCR specific corporate bonds (Climate Bonds Initiative, 2014; Oliver and Boulle, 2014).

Table summarises the decision points under Stage 3 of the framework as well as the range of individual methodological options available to address these.

Table 4. Valuing public interventions and estimating total private finance involved - methodological options

Decision point	No	Question	Options			
			1	2	3	4
Conversion of currency	A1	*What reporting currency to use*	Use international currency e.g. USD (per the USD 100 billion commitment), EUR	Use individual donor country currency	Use individual recipient country currency	-
	A2	*What exchange rates to use*	Convert based on rate at project commitment	Convert based on rate at project disbursement	Convert at year end based on annual average	Use practices and standards from providers of international statistics e.g. IMF, Eurostat, OECD
	A3	*How to calculate the value of local vs. international currency*	Do not make any distinction	Use proxies to determine countries risk exposures e.g. based on credit ratings	-	-
Choice of point of measurement	A4	*Which point of measurement and reporting to use*	Point of commitment of the finance	Point of disbursement of the funds	Work towards a system combining and comparing commitment and disbursement data	-
Value of different public interventions	A5	*How to account for different characteristics of public finance instruments*	All instruments are treated the same way at their face value	Use tailored approaches to take into account risk profiles, concessionality levels, repayments, etc.	Refer to ongoing methodological and definitional work within the development finance community	-
	A6	*How to account for the value of public policy interventions*	Do not attempt to estimate	Use qualitative techniques	Use quantitative techniques	-

Table 4 continued over page.

Table 4. Valuing public interventions and estimating total private finance involved - methodological options (*continued*)

Boundaries and value of total private finance	A7	*How to define the boundaries of private finance associated with syndicated loans*	Only account for private finance within the loan syndicate.	Account for all private finance associated with the investment/project	-	-
	A8	*How to define the boundaries of private finance associated with public investments in equity funds*	Only account for private finance at the direct fund level.	Account for private finance at the fund and sub-fund level.	Account for private finance at the fund, sub-fund, and portfolio company and/or project level.	-
	A9	*How to define the boundaries of private finance associated with public guarantees*	Only account for the value of the private finance directly guaranteed	Account for the total face value of the private finance instrument (loan, equity) to which the public guarantee applies	Account for all private debt and equity associated with investment/project	-
Availability of LCR-specific private finance data or proxies	A10	*What LCR-specific private finance data is available*	Use data on private co-financing at the level of individual public intervention level	Use LCR-specific cross-institution/country data series	-	-
	A11	*What to do in the absence of LCR-specific data*	Do not attempt to make estimates	Use bottom-up proxy: Estimate and aggregate private co-financing at the public intervention level using observed average co-financing in the past	Use top-down proxy: Apportion aggregate private finance data (e.g. FDI data) using environmental coefficients e.g. based on emissions or energy intensity	-

Source: Based on Caruso and Ellis (2013); Caruso and Jachnik (2014); Illman et al. (2014); Mirabile, Benn and Sangaré (2013); Srivastava and Venugopal (2014).

5.2 Evaluation of options

The first decision point deals with issues surrounding **currency and exchange rates** that are important in the context of reporting meaningful finance statistics across transactions denominated in various international and local currencies. The two main questions address what reporting currency and exchange rate to use. On the one hand, reporting in the currency that was used in the transaction would be most feasible and would capture the currency risk-mitigation roles taken on by respective providers of finance. It would, however, not result in comparable statistics and would require conversion at a later point in order to be integrated in international statistics and reporting, including towards assessing overall progress against the USD 100 billion commitment. On the other hand, reporting in an international currency, such as USD or EUR, (A1.1) using conversion rates that coincide with the chosen point of measurement (e.g. commitment, disbursement) would provide a more easily understandable picture of flows (A2.1 or A2.2) at that time. However, reporting only in an international currency would not provide an accurate and comparable picture of flows over time, due to the effects of inflation and exchange rate fluctuation.

Thus, the most pragmatic approach may be to report flows in an international currency (A1.1) along with transparent information on the original currency converted from, the point and date of conversion (A2.1 to A2.3), and the conversion methodologies used. This would allow for flows reported in different currencies to be standardised to a given base-year at a later point. For instance, when reporting financial flows over time, collators may wish to present volumes in constant prices and exchange rates. This would allow for the effects of inflation and exchange rate fluctuation between the actual and reported currencies to be cancelled out, thus presenting a more accurate picture of public efforts to mobilise private finance. However, by disregarding any fluctuations in rates over the time period of disbursements, it could also present a less accurate picture of the value of actual finance that reaches the final beneficiaries in local currency. Given the technical nature of this issue, using relevant practices and standards in use among providers of international finance statistics (e.g. Eurostat, the International Monetary Fund and the OECD) and under the UNFCCC would allow for transparency and facilitate standardisation across reporters.

The **choice of point of measurement**: While valuing public interventions and accounting for associated private finance at the point of commitment of finance (A4.1) might be most feasible, such estimates could differ from the amount of private finance paid out at the point of disbursement (A4.2). These differences can be due to cancellations of activities and projects, variations in scope and costs, or increases in the level of finance as a result of additional co-financers joining. For these reasons, only measuring at the point of commitment might not provide the most accurate estimates. The approach that involves assessing the value of private finance associated with the public intervention at the point of commitment and retroactively updating these estimates over the course of disbursement (A4.3) would lead to more accurate final estimates. It, however, needs systems and processes to ensure that the same private finance is not reported under both commitments and disbursements or multiple times when disbursements occur in multiple instalments. Here a balance should be found between accuracy and practicality.

The third decision point relates to **determining the value of public interventions**. It involves addressing the need to differentiate the valuation of public instruments based on their individual characteristics (A5) e.g. risk-return profile, level of concessionality, and the fact that some instruments require repayments or only involve disbursement in the event of a trigger or subject to the performance of a project. In doing so, decision-makers should ensure a balance between the practicality of using standardised valuation methods across instruments (typically based on face value of each instrument), and reflecting the true value of individual instruments, which involves differentiated valuation methods. While acknowledging the importance of these questions for climate finance practitioners, it is important to realise that they are being addressed in depth and with long-standing expertise by the development finance community, notably within the OECD DAC, in the context of defining new measures of total official

support for development. Building upon these developments for the purpose of estimating and reporting climate finance would ensure the use of robust, coherent and standardised methods.

An outstanding question remains on how to account for the value of public policy interventions (A6). The practicality of doing such valuation, whether qualitatively or quantitatively, highly depends on the type of policy being considered and related data availability (e.g. a policy involving a direct cost for the public sector, such as tax break scheme, will in principle easier to value than those that do not).

The fourth decision point, **defining the boundaries of and accounting for total private finance associated** with public interventions, addresses questions related to where to draw the boundaries around some of the most common public financing instruments. For syndicated loans, accounting for private finance within the loan syndicate (A7.1) provides a narrow view of the finance that could have been potentially mobilised by this financial instrument. It may for instance ignore the role of the syndication in helping the activity attract additional finance and thus undermine the accuracy of this approach. Hence, accounting for all the private finance associated with the loan syndicate (A7.2) may provide both a more accurate scope for accounting for the amount of private finance associated with the syndicate, as well as incentivise the use of syndicated loans where they are likely to have a catalytic impact in mobilising additional finance. Such expanded boundaries, however, increase the risk of double counting and misattributions in the absence of co-ordinated approaches among co-financiers to ensure they individually do not claim the same amount twice. Collective reporting of mobilisation by public actors involved in the syndication could be a suitable alternative in this context.

For public investments in equity funds, drawing narrow boundaries around only the direct fund in which the public actor invested (A8.1) may prove more feasible for conducting initial estimates. Also including finance in any sub-funds in which the fund may have subsequently invested (for fund-of-funds structures) (A8.2), or finance all the way down to the project or portfolio company in which the fund or sub-fund may have invested (A8.3), would provide a more accurate picture of the reach of the initial public equity investment. It would also incentivise additional public investment in this crucial form of finance. However, the lack of data (e.g. on volumes and sources of finance) and systems that would be required to avoid double counting at these deeper levels would make such options impractical and difficult to standardise, especially in the short term.

In the context of public guarantees, accounting for only the amount of private finance directly guaranteed (A9.1) is too limited to accurately portray the total amount of private finance that might have been mobilised by the public guarantee. Accounting for the total face value of the instrument to which the public guarantee applies (if different than the amount guaranteed) (A9.2) may therefore provide a more realistic picture of private finance that could be associated with this type public intervention, and would be consistent with the current approach taken by the OECD DAC (Mirabile, Benn and Sangaré, 2013). When accounting for private finance associated with public guarantees, the risk of double counting occurs in the presence of other accompanying public finance interventions that might also choose to account for the same private finance amount as the one guaranteed. For instance, a public entity providing a loan might consider to have mobilised the amounts of private debt/equity that benefit from a public guarantee issued by another public entity involved. Avoiding risks of double counting may not be feasible in the short term if expanding the accounting boundaries to all private finance at the project or ultimate investment level (A9.3). As with syndicated loans and equity investments in funds, this is due to the current lack of comprehensive data and systems to prevent the same amounts of private finance from being reported by multiple public actors.

The final decision point in Stage 3 involves **assessing and addressing the availability of climate-specific private finance data or proxies**. Options include using either data on private co-financing on which the public actor may have information (A10.1) or LCR-specific cross-instructional data series

(A10.2) from commercial or public databases. These two options can be combined towards providing a more accurate picture of total private finance that could be mobilised by the public intervention. Relying solely on co-financing data would also limit the ability to identify and measure private finance associated with policy interventions (e.g. feasibility studies, technical assistance) where no public finance may be involved. Where no suitable data is available, alternative options to derive approximations include conducting bottom-up estimates of private co-financing based on historical average co-financing ratios (A10.1) or a top-down apportionment of aggregated finance data (e.g. FDI) using climate-relevant coefficients (e.g. emissions or energy intensity) (A10.2). The accuracy of such approaches depends on the exact methods used, such as the quality and specificity of leverage ratios (e.g. whether they are available by country, technology, project size) or the relevance of environmental proxies. Thus, the most appropriate option is likely to vary based on what is feasible and likely to produce the most accurate estimates in the short term. However, neither of these approaches is currently developed enough for producing robust estimates.

6. STAGE 4: ESTIMATE PRIVATE FINANCE MOBILISATION

6.1 Decision points and methodological options

After determining the value of public interventions and the total private finance associated with them in Stage 3, the final step involves assessing the relationship between the two. Analysing these linkages requires viewing options for determining whether private finance would have occurred beyond the counterfactual case in the absence of the public interventions.

This presents two approaches:

- Approach 1: Assuming blanket causality between public finance and total private finance involved. This option is based on the default assumption that public finance interventions were responsible for mobilising all private finance as determined in Stage 3.

- Approach 2: Assessing the effect of both public policy and finance interventions on private finance involved, while considering the role played by broader country and market conditions. This option may imply assigning partial causality i.e. determining public interventions mobilised only a portion of the total private finance involved.

While the amounts of private finance mobilised may also be affected by a public actor's mobilisation effect on other public actors, this issue is beyond the scope of this report and is therefore only briefly discussed in Annex III.

6.1.1 Approach 1: Attributing all associated private finance

If blanket causality between public finance and private finance involved is assumed, the next step involves choosing whether and how to attribute credit amongst public actors, as illustrated in Figure 5 in a decision tree format (rather than the tabular format used for previous stages). Clear attribution rules can help to avoid double counting, especially when multiple public actors are involved in supporting a given activity. If only one public actor is involved, or if the involved actors have agreed to report mobilisation collectively, no attribution may be necessary. In other cases, actors may employ following options:

- Volume-based attribution: pro-rate the amount mobilised by each public actor based on the value of each public intervention involved (as determined in Stage 3).

- Risk-based attribution: apportion private finance according to the respective risk exposure of the public actor (e.g. the actor in the riskiest position of an investment fund mobilises more of/all private finance) or using risk-adjusted values in a hybrid risk- and volume-based attribution.

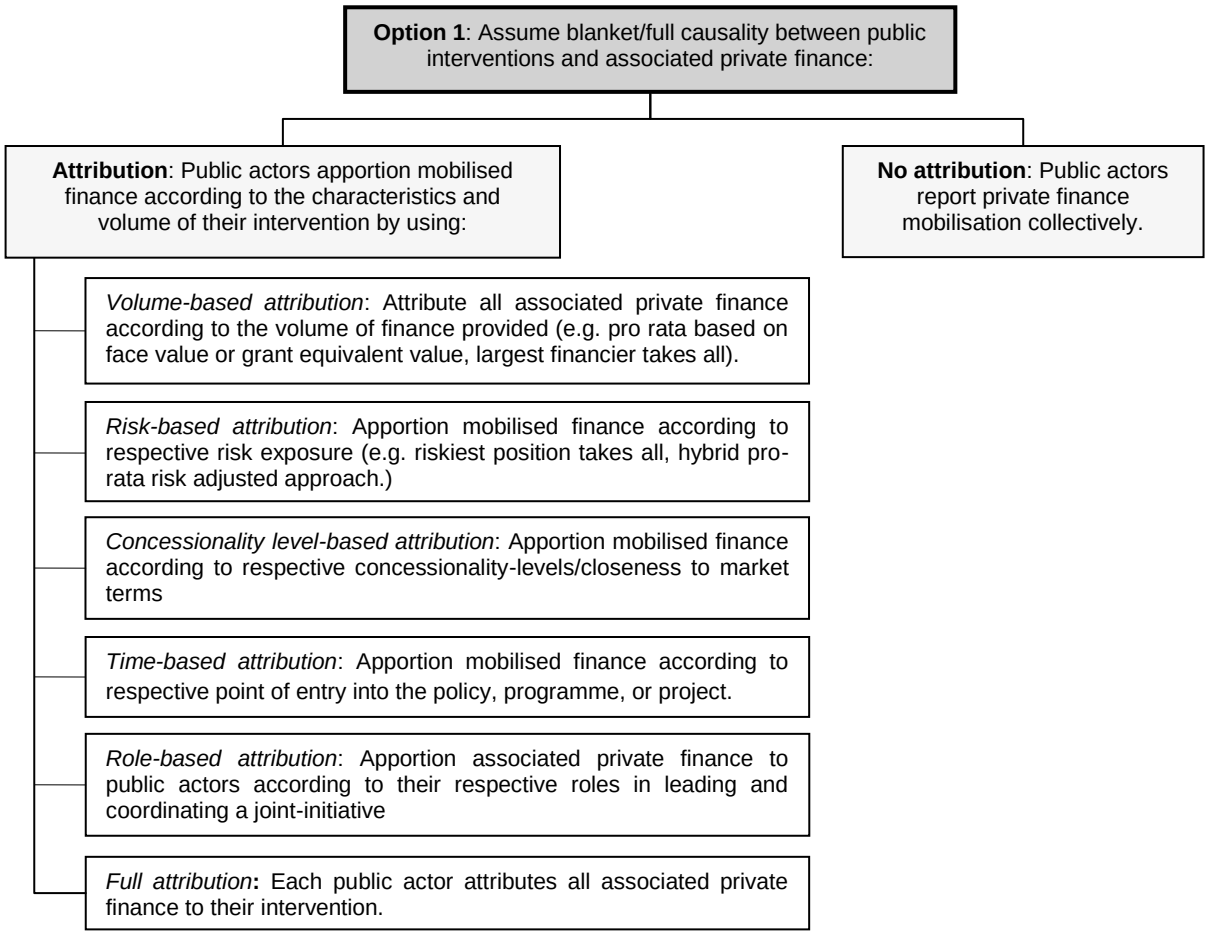
- Concessionality-based: apportion amounts based on respective concessionality levels of the finance provided by public financiers; for non-concessional public finance attribute decreasing mobilisation impact the closer one gets to market-level terms.

- Time-based attribution: apportion private finance amongst public actors based on their point of entry. For instance, a first mover could be seen as taking on more risk or signalling confidence in the project, thereby encouraging subsequent support from other public actors to the same project. In such cases, the first mover could claim a larger share of mobilisation credit.

- Role-based attribution: apportion private finance to public actors according to their respective roles in leading and coordinating public support provided a given activity e.g. the arranger of a syndicated loan will be credited with more of/all the private finance.

- Full attribution: attribute all associated private finance to each actor's intervention, which however leads to systematic multiple counting of the same amounts.

Figure 5. Estimating mobilisation – Approach 1



Source: Adapted from Srivastava and Venugopal (2014)

While these approaches are quite practical, they can over- attribute mobilisation to public finance interventions by disregarding the mobilisation effect of public policy interventions, as well as the role played by country and market conditions, as further discussed in the evaluation section.

6.1.2 Approach 2: Assessing causality

If public actors assume only partial causality between public finance interventions and private finance involved, the next step involves assessing the mobiliation effect of public finance as well as determining which types of additional variables to consider as also contributing to mobilising private finance i.e. public policies as well as broader country and market conditions as introduced in Chapter 2. These can, by

impacting the local investment environment, augment or constrain the amount of private finance that may be mobilised.

Not explicitly accounting for any of these three types of variables does not necessarily exclude their impacts on mobilisation. This is due to the 'omitted variable bias' that can occur when one important variable is not accounted for and its effects are misattributed to other factors that are included. For instance, this could result in over/underestimating the mobilisation effect of developed country public interventions by not explicitly accounting for country and market conditions in the recipient countries.

The following subsections outline methodological options that are available to account for each of these three types of variables. The relevant questions that arise when considering these options are closely interlinked and, since the option exercised for one question directly affects the options available to another, are addressed in a sequential process as summarised in Figure 6.

Estimating the effects of public finance

Assessing the causal effects of public finance involves deciding how to adjust mobilisation estimates based on the characteristics of the public financial support provided. This can include examining either or both risk and temporal characteristics of public finance. A risk-based assessment approach could be utilised to adjust the amount mobilised based on the additional risk-premium assumed by the public intervention compared to that of private or other public investors by:

- *Applying a mobilisation coefficient to total private finance*: Such a coefficient could equal the difference between the concessional lending rate (for debt) or expected rate of return (for equity) and typical commercial rates.

- *Excluding finance in higher (or equal) risk positions*: This option would involve only counting private finance where the entity has assumed less (or equal) risk than the public sector. This evaluation could be based on information such as rates of return or lending rates.

- *Assigning declining mobilisation rates based on relative risk position (prorated)*. This third option would assign mobilisation rates to different tranches based on respective risk positions assumed in an investment e.g. in the case of an equity fund structured into three risk tranches, a higher mobilisation rate would be attributed to public equity invested in the highest risk tranche compared to in the middle risk tranche.

Relevant characteristics can also include a temporal assessment by considering the order and timing of the public intervention, deciding whether and how to include or exclude:

- *Private finance within a project or fund that was committed prior to the public actor's decision to finance*: Available options are to completely exclude, partially include or fully include private finance that was committed before the public actor got involved.

- *Subsequent private finance within a project or fund*: This second issue applies to private finance that is committed within a project, deal, or investment, but comes in subsequent to initial rounds of funding. Options involve excluding, discounting, or fully counting subsequent finance.

- *Subsequent private finance outside of the project or fund*: This third issue applies to private finance that may occur outside the scope of a specific activity in which public finance was involved, due to the spillover, demonstration, or transformational effects of the initial activity. Options are: (i) To exclude all private finance that occurs outside of the activity or fund; (ii) To

include up-front, with a discount rate and possibly a tapering[11] factor, all mobilised private finance over the estimated lifetime and scope (e.g. sector, region) where the public intervention is assumed to have an effect; or (iii) To make updated annual estimates.

Estimating the effects of public policy interventions

The second group of variables that can be taken into consideration relate to LCR-specific policy interventions as presented in Table 3 under Stage 2 of the framework. Available options include both qualitative and quantitative approaches to estimate the causality between a public policy intervention and private finance flows over the lifetime of the policy.

- *Qualitative assessment*: This approach could include case-based stakeholder interviews and surveys to gauge the impact of policies on private finance. Such inputs could translate into the creation of gradation-based assessments, similar to those adopted by the Rio markers. Initial research has also mapped the introduction of policy interventions against the growth of relevant markets, providing intuitive guidance on which of them have been transformative (Srivastava and Venugopal, 2014). Finally, the impacts of policy interventions could also be subjectively assessed using qualitative factors on a case-by-case basis, similar to the GEF's approach of estimating the "*additional cost associated with transforming a project with national benefits into one with global environmental benefits*".[12]

- *Quantitative assessment*: This approach involves using empirical analysis to assess the mobilisation effect of relevant LCR-specific public policy interventions that may be present, possibly in combination with public finance interventions. Insights from recent econometric studies illustrate that current data availability makes this possible for the renewable energy sector and two policy instruments relevant to that sector i.e. renewable energy quotas and feed-in-tariffs (Haščič et al, 2015).

Estimating the effects of country and market conditions

This third variable that can be accounted for relates to country and market conditions that more broadly impact the amount of finance and investment flowing into different countries and markets. This can include adjusting for factors such as GDP per capita, electricity supply and consumption (e.g. IEA data), common characteristics (e.g. language, geographic proximity, and common legal systems), size and maturity of domestic financial sector and capital market (e.g. IMF data), and investment environment (e.g. the World Bank's Ease of Doing Business report or Global Financial Development dataset). Similar to public policy variables, these can be accounted for either quantitatively or qualitatively.

- *Qualitative assessment*: This involves using insights from case studies to adjust the amount of private finance mobilised based on the effect that country and market conditions are assumed to have played in similar projects in the past. Attempts have been made in that direction in relation to assessing total investments in energy efficiency (International Energy Agency, 2014; Ryan, Selmet and Aasrud, 2012). Similarly, case-based interviews and mapping exercises have provided insights into projects in Cambodia's forestry sector, solar power in India, energy efficiency in Thailand, and geothermal power in Kenya (Srivastava and Venugopal, 2014).

[11] Tapering relates to the fact that future flows of finance may be influence by other subsequent drivers and should not be fully attributed to the intervention in question. Cascading, on the other hand, refers to the fact that if intervention A mobilises B and B mobilises C, then A has a cascading effect on mobilising C. These concepts should not be confused with the discount rate, which is used to adjust for the declining time value of money.

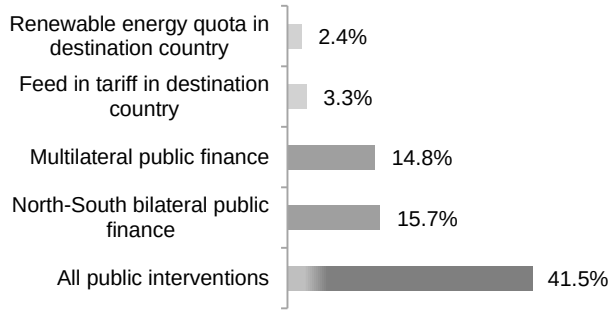
[12] See www.thegef.org/gef/policy/incremental_costs.

- *Quantitative assessment*: This approach would involve using empirical analysis to adjust the amount of private finance mobilised based on the effect of country and market conditions. Since this process involves considering additional variables to explain a fixed amount of private finance, the end result would most likely be attributing smaller volumes of finance to project-level public finance interventions, unless country and market conditions are assessed as negatively impacting volumes of private finance.

Box 3. Illustration of an econometric estimation of mobilisation by public finance and policies

Recent OECD analysis (Haščič et. al., 2015) trialed the development and implementation of an econometric methodology to estimate mobilisation across public finance and policy interventions, while taking into account a number of country and market conditions. Some of the results from this work, focused on renewable energy (mostly wind and solar) due to data constraints, are presented below. These are, however, exploratory and open to refinement as the analysis remains a first of its kind attempt.

Exploratory simulation: percentage of North-South private finance estimated as mobilised by four types of public interventions



Note: The effect of "All public interventions" does not correspond to the sum of individual interventions because the model is non-linear.

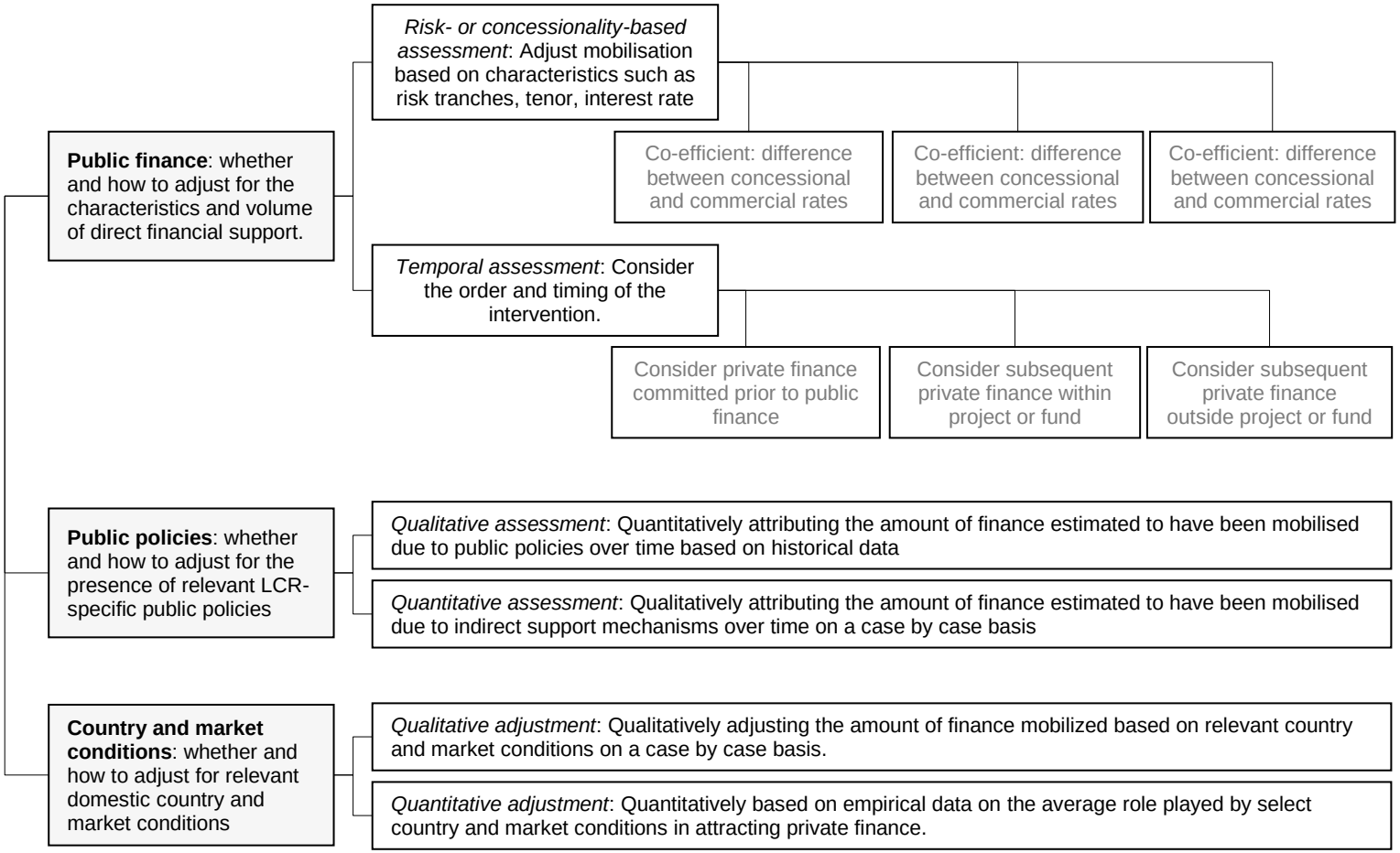
Source: Haščič et al. (2015).

These results illustrate the possibility of using this type of method to attribute known aggregate volumes of renewable energy-related private finance to types of public interventions covered in the model developed i.e. bilateral and multilateral finance in bulk, FIT and REQ policies in this case. In doing so, they underline that existing methods assuming blanket causality of public finance interventions likely overestimate the mobilisation effect of this type of intervention. Further, such econometric approaches account for the fact that public interventions more broadly (both public finance and policies) do not necessarily mobilise all private finance. Remaining volumes of private finance not explained by public interventions could be explained by country and market conditions.

On the other hand, such method also makes it possible to attribute mobilisation to public policies in the absence of public finance, which cannot be captured by methods based on measuring co-financing. Alternatively, such results could be used to construct more adjustment factors to be applied to public-private finance ratios observed at the project level (which typically only measure the mobilisation impact of finance).

While case-study-based qualitative approaches have the advantage of yielding context specific results, they raise questions of subjectivity and transferability in addition to being very resource intensive to implement. Quantitative estimation techniques on the other hand can provide more transferable results on the effect of public policies, as long as these interventions are not too context specific. In other words, interventions should be widely used and feature 'typical' characteristics e.g. the design of feed-in-tariff schemes, though not identical, will have a number of commonalities across countries implementing such schemes. This, along with other trade-offs, is further discussed in the following evaluation section.

Figure 6. Estimating mobilisation – Approach 2



Source: Based on Caruso and Ellis (2013); Haščič et al., 2015; Illman et al. (2014); Mirabile, Benn and Sangaré (2013); Srivastava and Venugopal (2014).

6.2 Evaluation of options

Stage 4 lays out two distinct methodological approaches for estimating mobilisation: assuming blanket causality of public finance or assessing causality between public interventions more broadly (finance and policies as presented in Stage 2) and all associated private finance (accounted for in Stage 3). While the approach of assuming blanket causality ranks high in terms of practicality and ability to be standardised across reporters, it is likely to be inaccurate by overestimating the mobilisation effect of public finance. The partial causality approach, on the other hand, requires additional information on the characteristics of other finance involved, relevant public policies, as well as country and market conditions, which limits its practicality and ability to be standardised across reporting entities. It would however incentivise coordination of public actors towards combining and optimising the use of both public finance and policy instruments most relevant under given domestic country and market conditions.

In choosing between the blanket and partial causality approaches, the way forward may involve taking a differentiated approach, assuming blanket causality where there is a clear argument for doing so, and resorting to the more in depth mobilisation analysis represented in the second approach where the relationship between the public intervention and private finance is more complex. The latter is, however, unlikely to be practically feasible in the context of international statistical systems relying on activity-level monitoring and reporting. In particular, on-going work conducted by the OECD DAC highlights that measuring mobilisation within official statistics needs to focus on the effect of public finance, handling the issue of causality by making assumptions that reflect reality, are conservative, commonly agreed and vary by financial instrument (OECD DAC, 2015). Annex V provides an overview of how the four-stage framework presented on this report can be applied based on the DAC's definitions and approach.

Under the approach of **assuming blanket causality**, all private finance identified in Stage 3, is assumed to have been mobilised by the public intervention. It can then either be attributed between public actors who have intervened or be reported collectively. In the short term, collective reporting would be a more feasible option for producing initial, standardised estimates as it does not require the additional information and analysis needed for attributing mobilisation to specific actors. Collective reporting would also contribute to reducing risks of double counting. On the other hand, it may lower the incentive to increase public financing by not recognising different levels of ambition and participation by individual public actors. Full attribution to each actor would not produce accurate estimates as it would lead to systematic double counting. The risk and potential scale of such double counting increases if boundaries defined under Stage 3 are expanded. Attribution options that take into consideration a public actor's relative risk position, role in leading or co-ordinating joint initiatives, volume of finance provided, or point of entry into the activity would mitigate against double counting and thus produce more accurate estimates. However, the risk-, time-, and role-based attribution options require additional information that is typically not readily available. Thus, the most feasible options in the short-term are either no-attribution (collective reporting) or attributing on a pro rata basis using the different volumes of finance provided, which is more practical but may be less accurate than risk-, role-or time-based attribution.

The approach of **assessing causality** involves accounting for the effects of certain characteristics of public finance instruments (i.e. such as risk assumed, concessionality to market terms, or timing of involvement) and, possibly, adjusting for the presence and effect of relevant LCR-specific policies as well as country and market conditions. In general, these options will be more complex to implement than assuming blanket causality and may/will not be feasible in all cases. This is because public financiers typically do not have access to enough information on the risk positions or timing of entry of other investors, on relevant LCR-specific public policies, as well as on broader country and market conditions and how these impact private finance more broadly. However, where the necessary information is available, these options can allow for a partial assessment of the causal relationship between public

interventions and private finance, thereby participating in incentivising public interventions that have longer term impacts.

Options for considering the relative level of risk assumed by public finance institutions use the level of assumed risk of a public intervention as a proxy for estimating its mobilisation effect. Similarly, considering the terms under which public finance is provided (and its eventual level of concessionality) compared to market terms could be used as a proxy. These options could incentivise the allocation of public finance towards filling risk gaps and the need for concessional finance that might not be addressed by commercial finance. In terms of feasibility, the first option (applying a co-efficient equal to the difference between the concessional lending rate or expected rate of return and commercial rates) requires an understanding of typical rates of return or lending rates for specific types of activities in specific countries. This approach is complex and requires information that is not readily available. It could, however, improve accuracy and increase incentives to support less well-developed activities and markets. If a risk-based approach to assessing causality is selected, the second or third options (excluding finance in higher or equal risk positions) are more practical.

The relative time at which public financing is provided can also be used as a proxy for assessing and adjusting the mobilisation effect of public finance. The option of excluding finance that predates a public actor's financing commitment could ignore the crucial role that public finance can play in helping a project or investment fund reach financial close. This might partly disincentivise allocating public finance to such purposes. At the other end, the option of including subsequent private finance beyond the scope of the direct finance intervention (e.g. to reflect transformational effects over time and within a sector) may increase the risk of double counting given the current lack of verification methods and systems. Such option might therefore only be likely to function for aggregate collective reporting. The intermediate option that considers all private finance within the direct scope of the activity may be an acceptable compromise in the short-term. This can, as appropriate, include private finance invested both before and after public finance has been committed. Some degree of methodological consistency and conservatism (to avoid double counting) among reporters would, however, be required.

In addition, taking into account the mobilisation effect of LCR-specific public policy interventions and the role played by broader country and market conditions will further increase the accuracy of estimates of publicly mobilised private finance. This is because explicitly accounting for the effect of these variables helps to avoid misattributing mobilisation to public finance interventions. In particular, they might help mitigate the potential incentives to provide the majority of public finance where direct mobilisation will likely be the highest (e.g. relatively more established and well-structured markets; commercially viable technologies), which could be at the expense of providing public support (in particular concessional finance) to countries and activities least likely to attract private capital.

However, assessing the effect of policies and country and market conditions may not be feasible in the short-term given the current lack of required data and of robust methods. Qualitative approaches require resource-intensive case-by-case analysis and make standardisation across reporting entities difficult. Quantitative approaches, such as econometric analyses, require large and consistent data sets, which is currently only available for the renewable energy sector. Within this restricted sectoral scope, the current volume of observed transactions however prevents the production of adjustment factors at the level of specific countries or types of projects. Thus, such methods may at this stage only add value in the context of collective reporting of mobilised private finance, for adjusting the mobilisation effect of public finance based on estimated effects of renewable energy-related public policy interventions as well as country and market conditions. Expanding the use of quantitative techniques to other climate-relevant sectors and breaking-down their applicability to sub-groups of countries or individual public finance instruments will require additional data series, which are unlikely to become available in the short term. This implies that qualitative attribution and adjustments remain the only option for the time being.

7. WAY FORWARD

The framework proposed in this paper can guide the development of more robust methodologies for estimating and thereby better understanding private finance mobilised by public interventions towards LCR activities. Gaps and only partial transparency on data and methodologies are, however, currently impeding accurate estimations of the effect of public interventions in mobilising private finance. This complicates the potential for meaningfully aggregating estimates of mobilised private finance across entities, and thereby increases the risk of double counting. Further, a number of definitional ambiguities remain, particularly in the context of the USD 100 billion commitment. In order to ensure that progress is made despite these issues, decision-makers should consider making practical short-term methodological choices while supporting longer-term improvements towards more holistic understanding and estimation of private finance mobilisation.

7.1 Implementable options in the short term

Quantifying mobilised private climate finance is technically complex, involves a range of potential methods, and is currently constrained by data limitations. Making partial estimates of and reporting mobilisation in the short term therefore involves implementing options that are practical and easier to standardise. However, care needs to be taken to ensure that the options selected for these reasons do not undermine the other two criteria (accuracy and incentives). Alternatively, studies of mobilisation should openly acknowledge such shortcomings where they exist.

Several principles emerge in considering such options:

- *Provide transparency on key definitions and methods*: Definitional and methodological transparency is needed to build trust as well as for data comparison purposes. This can involve providing an explicit list or referring to/adopting available approaches for defining LCR activities (e.g. OECD DAC Rio markers, multilateral development banks' positive list for mitigation activities), as well as adopting standard definitions of public and private finance used by existing statistical bodies, which will facilitate coherence and aggregation of estimates across individual entities and countries.

- *Use options that minimise double counting across entities/countries*: In particular, where multiple public interventions are involved in supporting the same LCR activity, the choice of method to attribute mobilisation of private finance needs to be co-ordinated to avoid double counting, misattribution and overestimation. For instance, avoiding double counting with full attribution of mobilisation to one intervention is only possible if other interventions involved do not also claim credit for mobilisation. Similarly, the use of methods for partial attribution to each intervention needs to be agreed on among those involved in order for their individually estimated mobilisation effects not to add up to more than one hundred percent.

- *Consider collective reporting of mobilised private climate finance*: Entities/countries might need to estimate the mobilisation effect of their individual interventions to inform their stake-/shareholders, as well as be incentivised to replicate interventions. However, a more accurate short term approach for estimating mobilised private finance internationally might be to focus on collective reporting to minimise the margin of error and risk of double counting. Such risk arises with individual reporting under the current absence of agreement on standardised methods and attribution rules across entities involved on the ground. Collective reporting of mobilisation could

complement, without necessarily replacing existing requirements and guidance for developed country Parties to report financial flows individually under the UNFCCC.

- *Tailored approaches*: This involves public entities using differentiated approaches for addressing decision points based on current data availability, the size of the transaction, and the type of financial instrument. For example, a tailored approach could make sense when estimating mobilisation. The partial causality assumption could be used where the relationship between public interventions and private finance is particularly complex and the underlying data required for such analysis available. Blanket causality of public finance could be assumed in the absence of identified public policies mobilising private finance for LCR activities combined with weak investment conditions, and a lack of information to conduct a deeper analysis.

- *Conduct pilot estimates of mobilisation based on available data and existing definitions*: It is crucial for relevant actors (countries, public finance institutions, researchers) to start conducting pilot measurements of mobilised private finance in order to test as well as gather evidence and gain practical experience on methodological options and issues. Such pilot studies can be undertaken with different scopes (e.g. private finance mobilised into certain sectors or by types of institutions), at various geographical scales (i.e. source or recipient countries/group of countries, regions, global), and would likely involve a range of relevant partners including countries and their public finance institutions as well as research organisations. At the scale of individual developed countries, publicly available examples to date consist of two studies commissioned by Switzerland (Stadelmann and Michaelowa, 2013) and the Netherlands (Bolscher, Veesntra and van der Laan, 2014).

The four tables below suggest possible options that are likely to be easier to implement in the short term for each stage and decision point of the framework.

Table 5. Possible short-term options to define core concepts (Stage 1)

Decision point	Available short-term option(s)	Rationale
Definition of LCR activities and projects	*Defining LCR activities*: Provide transparency on definitions used e.g. provide an explicit list; refer to existing approaches such as the OECD DAC Rio markers, joint-MDB positive list for mitigation activities	Initiating a new multi-stakeholder engagement process to develop an agreed taxonomy of LCR activities is unlikely to be feasible in the short term.
	Counting only part of an activity as LCR-specific: Take pro-rata share of total project (based on costs, time, net impacts) or a standard gradation	These options may achieve a good balance between accuracy, practicality, and standardisation
Definition of public and private finance	Large institutions/transactions: analyse the public/private nature of finance provided. Small institutions/transactions or joint ventures: take a practical approach (e.g. based on majority ownership); consider existing definitions in that process e.g. OECD DAC, Eurostat	Undertaking a robust analysis of the public or private nature of finance provided by small institutions and/or small transactions would be time- and resource-intensive, and may also face lack of data.
Classification of developed and developing countries	There are several different dynamic and static lists available that could be used to classify countries as developed or developing.	Static lists are readily available and reflect historical circumstances/responsibilities. Dynamic classifications are also practical to implement and likely to produce estimates that more accurately represent and incentivise flows to currently developing countries.
Determination of geographical origin of finance	*Assigning a geographical origin to finance*: Use the headquarter location of the ultimate (if information available) or intermediate parent of the entity providing funds. Known cases of multiple country ownership/funding (e.g. MDBs) need to be considered separately	The ultimate parent approach might, on average though not always, provide a reasonable proxy for determining the country of origin of private finance. This information might, however, not always be available.
	Handling multiple country ownership/funding: Either do not assign a country of origin or take a pro-rata approach (based on shareholdings or amounts of funds provided) on a case-by-case basis depending on information availability	While a pro-rata approach would be appropriate for large multilateral development finance institutions and funds, it would likely be costly and unpractical for smaller private enterprises
	Which geographical source of private finance to include: If/where assigning a country of origin is technically feasible and meaningful, run two scenarios in order to provide a range: one including in aggregate private finance mobilised from all origins; one including only private finance assigned to developed country entities.	Private finance often does not have a clear or unique country of origin due to diffuse and changing locations and ownership structures of private financiers, combined with how private finance may be channelled. Assigning a meaningful geographic origin is therefore not likely to be often technically difficult and inaccurate. A range of estimates can hence provide an indicative picture.

Table 6. Possible short-term options to identify public interventions and instruments that can be credited for mobilising private finance (Stage 2)

Decision point	Available short-term option(s)	Rationale
Identification of type of public interventions and specific instruments	Focus on public finance interventions for which data is available or can be collected in the short term (e.g. grants, loans, equity investments). This is likely to disregard the impact of public policies in mobilising private climate finance.	Current lack of robust methodologies for estimating mobilisation of private finance for most public policies. Prioritising the development of robust and credible methodologies to assess mobilisation from public finance can ensure appropriate methods are in place in the short term to measure the effect of at least some public interventions.

Table 7. Possible short-term options to value public interventions and total private finance (Stage 3)

Decision point	Available short-term option(s)	Rationale
Choice and conversion of currency	Build upon/make use of available international statistical standards to report in either the currency in which the finance was committed, or an international currency along with information on the exchange rate used and date of conversion.	Such approach makes it possible to address the effects of inflation and exchange rate fluctuation between the actual and reported currencies, thus presenting a more accurate picture of public efforts to mobilise private finance over time.
Choice of point of measurement	Measure finance at the point of commitment; cross-check with disbursement data, where available	While commitment-based estimates of finance could differ significantly from the amount involved at the point of disbursement, comprehensive and reliable data on disbursement is unlikely to be available in the short term
Valuation of different public interventions	Build upon/make use of approaches used or being developed by the development finance community e.g. OECD DAC	This would increase comparability between climate and development finance data.
Definition of boundaries and estimation of total private finance involved	*For syndicated loans involving a public actor*: Account for all the private finance associated with the loan syndicate	Accounting for only part of the syndication may ignore the public loan's role in helping a project attract additional finance and could result in disincentivising syndicated loans e.g. compared loans from a single provider.
	For public investments in equity funds: Only account for private finance at the direct fund-level.	There is a lack of information on volumes and sources of finance involved in equity funds, as well as of systems needed to prevent double counting across actors intervening at various points in the financial value chain.
	For public guarantees: Account for the total private finance instrument (loan, equity) to which the public guarantee applies	Using only the amount covered by the guarantee may underestimate the amounts mobilised by public guarantees and disincentivise the use of such instruments. However, including all private finance involved could lead to double counting.
Availability of LCR-specific private finance data or proxies	*Availability of LCR-specific private finance data*: Combine data on private co-financing available from public financiers with cross-institutional datasets could provide the most accurate picture of total private finance.	Data-sets can be complementary. Relying solely on private co-financing data would limit the ability to measure private finance mobilised where no direct public finance is involved e.g. some cases of capacity building.
	In the absence of data: Producing rough estimates of volumes of private climate finance can provide indications and inform decision-making. Neither bottom-up nor top-down proxy estimation approaches are, however, developed enough to produce verifiable estimates	The accuracy of each of these approaches would depend on the exact methods used, such as the quality and specificity of co-financing ratios (e.g. whether they are available by country, technology, project size) or the relevance of environmental proxies available.

Table 8. Possible short-term options to estimate private finance mobilisation (Stage 4)

Decision point	Available short-term option(s)	· Rationale
Estimation of causality between public interventions and private finance	Take a differentiated approach by assuming blanket causality where there is a clear argument for doing so e.g. absence of any relevant public interventions and weak enabling environment. Assign partial causality using default mobilisation factors for relevant public policies where the relationship between public interventions and private finance is particularly complex	Assuming blanket causality of public finance is unlikely to be accurate in the case of every public intervention. However, a more robust assessment of causality may not be possible (e.g. due to lack of information) or appropriate for every intervention
Attribution of mobilised private finance (if blanket causality of public finance assumed)	Either no-attribution to individual entities/interventions (aggregate estimate and collective reporting of mobilisation) or attributing based on readily available information, such as taking a pro rata approach based on the volume of funding and type of finance provided	Collective reporting can help avoid double counting and does not require additional information and analysis required for attributing a share of mobilisation among actors. Risk-, role-, or time-based attribution requires additional information that may not be readily available. Full attribution of the total amount to each actor would result in systematic double counting.
Attribution of mobilised private climate finance (if assessing causality)	*Assessing causality for public finance*: If a risk-based approach is selected, use simple rules based on the relative risk positions of public and private finance	Benchmark commercial rates of return or lending rates for specific types of projects may not be readily available.
	Temporal issues: Consider private finance only within the direct scope of the activity supported by the public intervention. This can include private finance invested before or after public finance was committed where appropriate (apply declining mobilisation rate/tapering factor).	Excluding private finance that predates a public actor's financing commitment could ignore the role public finance can play in helping reach financial close and may disincentivise allocating public finance to such purposes. Including private finance subsequent to the activity supported by the public intervention increases the risk of double counting.
	Adjusting for the effects of LCR-specific public policies and/or broader country and market conditions: Where possible, use transparent assumptions (e.g. a default factor to attribute mobilisation to a policy intervention); report qualitatively on the presence/absence of indirect public interventions and policies otherwise.	Case-study-based qualitative approaches make standardisation or avoiding double counting difficult. Quantitative approaches require comprehensive data series. Both need further methodological developments to be applied in a robust manner.

7.2 Longer-term developments

There are current definitional, methodological and data challenges that limit the availability of options to estimate mobilised private climate finance. Thus, a number of areas needing further work have been identified towards better understanding the drivers of private finance and improving estimates of its mobilisation. In contrast to the short-term focus on practicality and standardisation, working on longer-term improvements will allow methods and resulting estimates to, over time, perform better against the other two evaluation criteria (accuracy, incentives) as well.

- *Converge on defining core concepts:* Building progressive consensus on the definitions of specific concepts would enable greater comparability of estimates of mobilised private climate finance and the development of more standardised methodologies for data collection and aggregation across public entities. Parties to the UNFCCC could for instance arrive over time at common lists of public interventions and instruments mobilising private finance and of LCR-specific activities, though the latter would be more difficult for adaptation.

- *Build data systems for monitoring and reporting more comprehensive data on private flows to LCR activities to and in developing countries*: Improved tracking of LCR-specific private finance would allow the further development and improvement of methodological options to estimate private finance mobilisation. More and better quality data on LCR-specific private finance would also allow for methodological options to perform better across the four evaluation criteria. Building data systems will in particular require increased efforts by public finance institutions to measure private co-financing, both for the purposes of their individual reporting and to feed into cross-institutional reporting systems such as the OECD DAC. A parallel and possibly complementary approach could be to incentivise private data providers that track financial transactions to identify LCR-specific transactions within their datasets. Although it might be possible over time to compile more complete data series, some information gaps are likely to remain e.g. private finance for adaptation, and more broadly LCR-specific private finance flowing without public finance being involved (which will not be captured by the tracking of private co-financing). In such cases, the further development and use of proxy methods is likely to be needed.

- *Increase communication between the development and climate finance communities*: Increasing communication and, where relevant, collaboration between the climate and development finance practitioners could foster synergies on methods and data collection efforts. This is particularly relevant in the context of the post-2015 financing for development agenda, where the provision and tracking of development finance will be an essential part of implementation.

- *Design the architecture of a system for reporting private climate finance to the UNFCCC*: Even if data for LCR-specific private finance and methodological options to estimate its mobilisation improve over time, the robustness of estimates and ability to prevent double counting will depend on the architecture of the overall system(s) in which they are executed and reported. Making recommendations for the design of a reporting system is not within the scope of this analysis. The choice of options to address decision points will, however, have implications for the type(s) of system(s) needed and compatibility with existing tools (e.g. UNFCCC Common Tabular Format). Conversely, the architecture for a UNFCCC reporting system will affect the types of methods used by those reporting. Future discussions will be required to decide on the scale and level of standardisation needed to provide robust and complete results.

- *Increase the depth of information reported:* The provision of more disaggregated data on mobilised private finance is desirable over time to provide further transparency and accountability of aggregate estimates. It is, however, a challenging endeavour due in particular to technical issues and confidentiality restrictions. If decision-makers desire increased granularity (and thereby more transparency) in reporting than at present, additional resources will be needed to improve or create national and international tracking systems relevant for climate finance. This could for instance include improved measurement of climate finance within existing tracking systems for development finance, export credits, and foreign direct investment.

- *Increase the breadth of both developed and developing country public interventions considered when estimating mobilisation of long-term climate finance:* Considering the mobilisation effect of a wider range of public interventions (finance and policy interventions by both developed and developing countries) will improve comprehensiveness of coverage as well as accuracy of attribution. Doing so will incentivise a broader and more efficient use of interventions to mobilise long-term finance at scale. In particular, more holistic approaches need to consider the important role played by domestic policies (in the broader context of country and market conditions) in catalysing national and international private finance. While current methods to attribute mobilisation effects to public policy interventions as well as country and market conditions are

not well developed, their use could contextualise and qualify the measurement and reporting of private flows mobilised by public finance. In doing so, decision-makers should keep in mind the value of estimating mobilisation more broadly than towards assessing progress towards meeting the USD 100 billion commitment. Accurately estimating mobilisation can also help better understanding the drivers of private finance, and thereby more effectively shift investments at scale to LCR activities.

- *Explore possibilities to link the tracking of LCR-specific finance with the tracking of climate mitigation and adaptation outcomes:* As the scaling-up of finance is not an end in itself, making mobilisation more effective requires understanding the mitigation and adaptation outcomes of LCR-specific finance, such as avoided or reduced emissions and increased resilience (as well as co-benefits in other areas). Although a technically challenging task, decision-makers could explore and consider options to link the tracking of LCR-specific finance with the tracking of its outcomes through more integrated Measurement, Reporting and Verification (MRV) frameworks and closer co-ordination with recipient country institutions.

ANNEX I. AVAILABILITY OF CROSS-INSTITUTIONAL INFORMATION ON PUBLIC INTERVENTIONS FOR LCR ACTIVITIES

The availability of information on public interventions varies depending on whether systematic, cross-institution/countries or individual institution datasets are being discussed. Individual developed country public institutions usually have information on their public policy and financing interventions. However, this does not imply that these institutions will systematically be aware of and track the LCR relevance of all their interventions.

More systematic, cross-institutional climate finance data collection and reporting to date focuses mostly on interventions involving public financing flows, such as the provision of grants, equity, and debt, with limited data on de-risking instruments[13]. In the context of development finance, the OECD Development Assistance Committee (DAC) monitors and reports climate-ODA and increasingly OOF as well. Further joint reporting by a group of Multilateral Development Banks (MDBs) on the one hand, and the International Development Finance Club (IDFC, which consists of a number of bilateral and national development banks) on the other hand also provides relevant data, which however partly overlaps with the OECD DAC statistics. Data on public financing for LCR activities is therefore relatively good and consistent across instruments (except de-risking though work is on-going at the OECD DAC on guarantees) and sectors (despite some remaining definitional issues, especially for adaptation as it is highly context-specific).

The breadth of public policy interventions targeting LCR activities makes identifying and characterising the data availability for these interventions in a comprehensive manner a difficult task. However, a number of systematic datasets with particular relevance to LCR activities could be identified. These include cross-country datasets from the OECD and International Energy Agency (IEA) on the existence and characteristics of policies and measures established for renewable energy, energy efficiency, and fossil fuel subsidies. There are also datasets that can help to provide a sense of whether governments are fostering innovation and technology transfer, such as the OECD's Green Growth indicators (one of which focuses on 'green' or environmentally related patents) or public R&D expenditure.

In terms of geographic coverage, most of the data that is available for public financing interventions relate to public finance from developed to developing countries (North-South), with sparse data on public finance within (domestic)[14] or between developing countries (South-South). Efforts made by National Development Banks involved in the IDFC initiative may, however, participate in filling this gap.

The below table illustrates the availability of a number of sources providing data on more than one institution, many of which focus on specific types of interventions. Such cross-institutional datasets help to facilitate efforts to estimate mobilisation at different levels of aggregation (e.g. region, country and/or sector depending on available data granularity), and could help supplement or replace the need for multiple calls for data to the same individual institutions.

[13] While the Multilateral Investment Guarantee Agency makes data available on the full portfolio of guarantees it provided, other institutions providing guarantees typically do not publish such information in a systematic manner.

[14] The UNDP has sponsored a number of Climate Public Expenditure and Institutional Reviews to enhance understanding of the level of domestic public resources being devoted to LCR activities.

	Instruments and Interventions		Example datasets
Public finance	Grants		· BNEF for renewable energy projects · OECD-DAC for LCR activities · joint-MDBs* for LCR activities · IDFC* for LCR activities
	Debt		· OECD-DAC for LCR activities · joint-MDBs* for LCR activities · IDFC* for LCR activities
	Equity		· OECD-DAC for LCR activities · joint-MDBs* for LCR activities · IDFC* for LCR activities
	De-risking		· OECD DAC pilot survey +ADD DETAIL ON FUTURE DETAIL COLLECTION PROPOSAL
Public policy interventions	Regulatory Policy		· IEA *Polices and Measures Databases*: – Energy Efficiency Databases – IEA/IRENA Global Renewable Energy Policies and Measures · UNFCCC CDM/JI Database
	Fiscal Policy		· OECD/IEA Fossil fuels subsidies datasets
	Information and Innovation Policy		· IEA Energy Technology R&D Statistics · OECD Green Patent statistics

*Note: * aggregate data not reported by activity level or instrument*
Sources: Xxxx, Xxxx

Relative data availability

ANNEX II. AVAILABILITY OF CROSS-INSTITUTIONAL DATA ON PRIVATE FINANCE FOR LCR ACTIVITIES

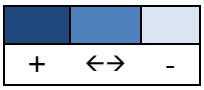
Coverage of LCR sectors

In contrast to the broad sectoral coverage of datasets on public climate finance, fundamental data gaps remain for private finance. As illustrated in the below table, data coverage of private flows to large renewable energy projects and activities is relatively good, since the inherent nature of these technologies makes them easier to identify and isolate. However, comprehensive data series on private finance for mitigation-relevant activities and sectors that are more context- or condition-specific (e.g. energy efficiency, transportation, forestry) are not readily available. For adaptation activities, which depend significantly on context, the lack of data is even more acute.

Sector	Coverage of example activities		Example sources
Renewable energy	Wind		BNEF, 2014
	Solar		
	Geothermal		
	Small hydro; marine		
	Biomass and waste		
	Solar water heating		Mauthner and Weiss, 2012*
	Smart grids		Navigant Research, 2013*
Low-carbon transportation	Mass transit systems		Commercial databases
	Non-motorized		
	Air, rail, and maritime		
	On-road		BNEF, 2014
Energy efficiency	Supply-side		IEA, 2012 and 2014*; BNEF, 2014
	Demand-side residential		
	Demand-side commercial		
Agriculture, forestry, and land use	Reforestation		
	Lands, crop and livestock management.		
	Biofuels		BNEF, 2014
Water and Waste	Solid waste management		
	Wastewater		
Industry and infrastructure	Process technologies		
	Carbon capture and storage		BNEF, 2014
	Climate resilient infrastructure		
Other	Health		
	Capacity building		
	Education		
	Communication		

* = denotes proxy estimates.

Relative data availability



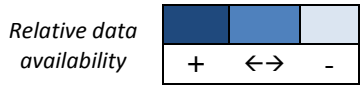
Source: Adapted from Caruso and Jachnik, 2014.

Coverage of private finance instruments

A number of commercial and public data sources provide information on a sub-set of financial instruments and transactions, such as syndicated loans, bond issuances, private-equity transactions, and large project-financing deals. However, there are significant gaps in coverage of de-risking instruments provided by the private sector (e.g. insurance, guarantees, and derivatives), small scale (e.g. microcredit) or more informal financing (e.g. household spending) and certain intercompany transactions (e.g. corporate self-financing). The presence and importance of such instruments therefore remains difficult to identify and systematically assess using commercial and public databases. An overview of the data available for a range of private finance instruments and transactions is presented below.

Private finance instruments	Examples		Example sources
Grants	Project and programme level grants		BNEF, OECD DAC (using US Foundations Center data)
Debt	Syndicated loans		BNEF, Bloomberg, Dealogic, FactSet, ThomsonOne, OECD (FDI)*
	Project loans		BNEF, Dealogic, ThomsonOne, Preqin Infrastructure
	Bonds (project and corporate)		Bloomberg, BNEF, Dealogic, Eikon, FactSet
	Other, e.g. microfinance, informal loans		No systematic data
Equity	Publicly traded		Not considered in this study
	Corporate-level private equity		Bloomberg, BNEF, FactSet, ThomsonOne, Preqin PE/VC, OECD (FDI)*
	Project-level private equity		BNEF, Dealogic, ThomsonOne, Preqin Infrastructure
	Other, e.g. microfinance, household investment, informal investment, enterprise reinvested earnings		No systematic data
De-risking	Insurance		No systematic data
	Guarantees		
	Derivatives		

* OECD (FDI) data is reported in aggregate as 'debt' or 'equity'.
Note: UNEP Risø CDM and World Bank PPI data on total investment is not disaggregated by instrument.



Source: Adapted from Caruso and Jachnik, 2014.

Grants*:* Data on grants provided by private entities such as charities and philanthropic organisations is available from only a few public and commercial databases. Available data appears to be partial and not necessarily specific to LCR activities.

Debt*:* In terms of the debt capital markets, the largest volume of data relates to corporate-level financing, mainly in the form of debt issuances in the bond and syndicated loan (provided by a group of lenders) markets. Bond data is, however, mainly limited to issuances, without coherent coverage of who purchased or currently holds the bond. Data on syndicated loans usually captures basic details such as total loan amount, issuer, lead arranger, as well as other banks involved in the syndicate. A breakdown of the exact amounts provided by each of the banks is often not provided. Available data is typically not specific to LCR activities, except for renewable energy. Furthermore, data is generally unavailable for smaller scale or more informal debt instruments, such as credit extended by microfinance institutions or loans provided by the informal financial sector. To the extent that these types of instruments play a significant role in financing LCR development in a given sector or developing country (see e.g. Whitley, 2014; Whitley and Tumushabe, 2014), additional options would need to be explored on how best to estimate these flows.

Equity*:* On the equity capital markets, private equity and venture capital transactions are the bulk of available data. Data series usually provide information on investors, related funds, and portfolio companies receiving the investment. Such companies can be parents, subsidiaries, or special purpose vehicles. Intercompany transactions between these actors can move finance throughout their hierarchical structure. This finance can then be used for a range of purposes including research and development, expanding working capital, acquiring other enterprises, or can make its way into projects in the form of balance sheet financing. Project-level equity is provided directly to a project or its attached SPV. Data on project-level private equity (along with debt) is found within project-financing datasets. The use of balance sheet financing in the context of project finance can have significant implications in terms of potential mischaracterisation of finance in terms of e.g. its geographical origin or whether it is to be accounted for as public or private, since the underlying source of finance is obscured.

There are also a number of other private finance instruments that can be relevant in financing mitigation and adaptation activities that are included here under a broad definition of equity. These primarily relate to internal sources of financing such as household spending and enterprises reinvested earnings. Household self-financing of cook stoves, solar rooftop panels and water heaters, residential energy efficiency projects are examples of this. In the commercial context, this can include corporate self-financing of demand-side energy-efficiency improvements, more efficient production and process technologies, or investments that make assets more resilient. Since these do not involve external financial transactions aside from the purchase of traded goods and services, they prove difficult to track.

Available data on equity is typically not specific to LCR activities, except for renewable energy. Further, as in the case of small-scale and informal debt instruments, data is generally unavailable for equity instruments provided by microfinance institutions or the informal financial sector in developing countries.

De-risking: Systematic data on private de-risking instruments is limited, except where certain debt or equity instruments may be used to address project-level risk. Some commercial datasets capture qualitative information in their descriptive or narrative sections on the presence of de-risking instruments such as private insurances. However, this only provides a limited basis for assessing the role of the private sector in providing de-risking instruments to facilitate the transition to LCR development.

Geographical coverage

Most commercial and public databases provide at least partial data for a large number of countries, including for transactions to, between, and within developing countries (Caruso and Jachnik, 2014). It is difficult to assess the quality and depth of this geographic coverage in absolute terms.

ANNEX III. CONSIDERING PUBLIC-PUBLIC MOBILISATION

A question arises when there are multiple public interventions within a given activity. Reporting entities, in the interests of devising more robust methodologies, may choose to consider the possibility of one public intervention mobilising another one (e.g. US OPIC is known to be a first-mover, while the US Exim Bank supports projects later in the financing chain). While this question of public-public mobilisation is outside the scope of this paper, it is useful to consider because the roles adopted by different public interventions will determine their relative contributions to mobilising private capital, and a consideration of this issue would enable a more efficient utilisation of public finance. The options for approaching this are illustrated below.

Decision Point	Options		
	1	2	3
Do we consider the possibility of public interventions causing other public interventions within a project a given point in time?	Each public entity can report all of the public co-finance in a project as "mobilised"	Public entities take partial credit for causing public co-finance within a project, potentially through proxies, such as sequencing	Assume that no public entity can take credit for "causing" public co-finance within a project

Source: Srivastava and Venugopal, 2014.

Assuming that public entities cannot take credit for 'causing' other public interventions may not participate in encouraging coordination among public actors. Assigning partial credit for 'causing' other public interventions, possibly based on proxies, would promote more risk-taking and inter-agency coordination. It, however, increases significantly the risk of double counting since every public entity will report all the finance it has provided, a portion of which would then also be reported as mobilised by other public entities.

ANNEX IV. APPLYING THE FOUR-STAGE FRAMEWORK: THEORETICAL EXAMPLE OF A PUBLIC EQUITY INVESTMENT WITH ADJUSTMENT FOR POLICY INTERVENTION

The below example illustrate how to apply the four-stage framework in practice. The methodological options exercised highlight what might be practical to implement in the short-term while, in some instances, highlighting possible longer-term alternatives.

Description

Country Z received a direct equity public investment into a special investment vehicle in early 2012 from Country C to support the development of a low-carbon mass transit system. Using the World Bank classification based on GNI per capita, country Z is considered as a middle-income developing country and Country C as a developed country. In parallel to the public transit improvements, Country C assisted Country Z in implementing a policy to reduce private vehicle usage, through a development policy loan to introduce a fossil-fuel tax in late 2012. The tax reform affected vehicle owners' budgets and indirectly increased demand for the new transit system.

Stage 3 decision points and options exercised

- *Exchange rate:* The investment was made by Country C through the capital markets of Country Z, and the local currency depreciated over time:

  Assumed average exchange rate in 2012: 1 (Z currency) = 0.25 USD
  Assumed average exchange rate in 2014: 1 (Z currency) = 0.20 USD
  (To break even on investment of value x, total required return = x * 1.25 * inflation rate)

  For reporting purposes, the international currency of USD might be more standardisable and feasible. However, reporting in the local currency would capture exchange risks taken on, using average annual exchange rates in 2012, or those at the point of disbursement. Assuming a standard rate of currency depreciation and given the values listed above, the difference between these two rates could be as much as 6.25%

- *Point of measurement:* A more accurate view of public funds applied to this project entails measuring these interventions at the point of equity investment; this also gives a better picture of the actual share of ownership based on the shifting values of the investment vehicle.

  Short term scenario: Assume rate is determined at commitment.
  Long term scenario: Assumed average rate from year of investment is applied.

- *Value of public intervention:* If the equity investment was initially worth USD 100 million, the most feasible option would be to treat it at face value. Other options could include adjusting its value based on its risk profile or level of concessionality. This example does not attempt to quantify these approaches and assumes the value to be USD 100 million.

  Short term scenario: Treat equity investment at face value. For this example, and based on exchange rates consideration, the value comes to between USD 100 – 106.25 million.
  Long term scenario: Attempt to adjust investments based on risk profile or level of concessionality

- *Boundaries of private finance:* The private equity finance into the special investment vehicle associated with this particular project was USD 60 million (of which USD 10 million was in a

higher risk tranche than the public equity investment. However, assume that four subsequent transport projects were derived from this project through demonstration effects, and that total private finance across these was USD 175 million.

Short term scenario: Consider only private finance associated with this project
Long term scenario: Consider private finance both associated with this initial project as well as with subsequent transport projects

Decision point	Question	Options			
Conversion of currency	*Reporting currency*	**Use international currency e.g. USD, EUR**	Use individual donor country currency	Use individual recipient country currency	-
	Exchange rates	Convert based on rate at project commitment	**Convert based on rate at project disbursement**	**Convert at year end based on annual average**	Use practices and standards from providers of international statistics
	Value of local versus international currency	**Do not make any distinction**	Use proxies to determine countries risk exposure	-	-
Choice of point of measurement	*Point of measurement and reporting*	Commitment	**Disbursement**	Work towards a system tracking both commitment and disbursement	-
Value of different public interventions	*Accounting for characteristics of public finance instruments*	**All instruments are treated the same way at their face value**	Use tailored approaches to take into account risk profiles, concessionality levels, etc.	Refer to on-going work within the development finance community	
	Accounting for value of public policy interventions	**Do not attempt to estimate**	Use qualitative techniques	Use quantitative techniques	-
Boundaries and value of total private finance	*Defining boundaries of private finance associated with instruments*	Only account for private finance within the loan and the guarantee	**Account for all private finance associated with the investment/ project**	Account for all private finance, including subsequent private finance outside of the project or fund	-

Note: Options exercised in the short term are highlighted.

Stage 4 decision points and options exercised

- *Causality: Stage 4 in this case assigns partial causality to the equity investment.*

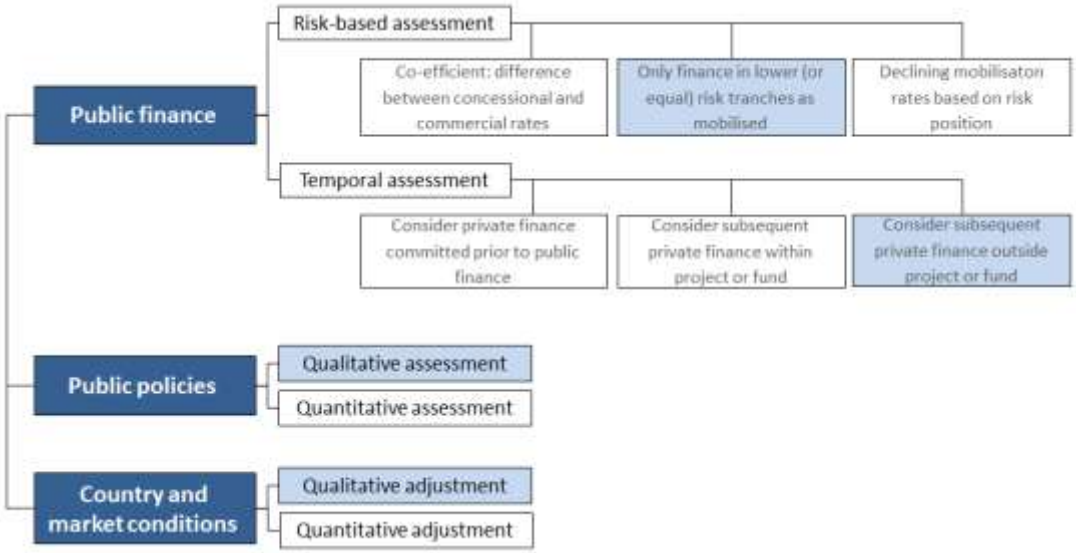
  Short term scenario: Assume blanket causality of public finance i.e. in this case of the direct equity public investment
  Long term scenario: Assign causality to direct equity investment, fossil-fuel tax, and prevailing country and market conditions

- *Attribution:* Based on qualitative approaches developed in the longer run, broader country and market conditions could be credited with 10% of the mobilisation effect and the recently-

introduced tax with 35%; the equity investment could thus claim to have mobilised 55% of the less-risky private finance associated with it.

Short term scenario: Total direct private finance in lower-risk position = USD 50 million
Long term scenario: Qualitative assessment to determine attribution; under two scenarios, the finance mobilised through the equity investment could be:

- Only considering direct private finance: (60-10)*55% = USD 27.5 million
- Considering both direct and broader associated finance (discounted and tapered down by 42.8%): [(60-10)+(175*57.2%)]*55% = USD 82.5 million



Thus, public money of between USD 100 – 106.25 million (depending on exchange rate) would have mobilised between USD 27.5 – 82.5 million (depending on the private finance boundary and temporal assessment) in the long run.

ANNEX V. APPLYING THE FOUR-STAGE FRAMEWORK: AN EXAMPLE BASED ON THE OECD DAC'S DEFINITIONS AND APPROACH

This Annex complements Annex V by offering an example of how the framework could be applied in the context of an existing international statistical system. The OECD Development Assistance Committee is working on new measures of development finance for post-2015 sustainable development goals, including towards collecting activity-level data on private finance mobilised by public development finance. In collaboration with development finance institutions to survey methods in use and data availability, a first set of instrument-specific methods have been developed for syndicated loans, shares in collective investment vehicles and guarantees.

Framework stages	Answers to decision points based on exercising DAC definitions and methods
1. Define core concepts	**Climate change activities**: Based on "Rio markers" for mitigation and adaptation
	Public and private finance: Official transactions are considered public, as defined in the DAC reporting directives, when undertaken by public entities at their own risk and responsibility.
	Country classification: Providers of development finance and DAC list of ODA-eligible countries (recipients).
	Geographical origin of private finance: Include - but separately identify where technically possible - all international and domestic sources of private finance
2. Identify public interventions and instruments	**Type of public intervention and instruments**: Public finance instruments only
	Specific instruments: To date: guarantee schemes for development, syndicated loans, shares in collective investment vehicles (CIVs)
3. Value public interventions and account for total private finance involved	**Currency and conversion**: Volumes of finance are reportable to the DAC in OECD currencies. OECD official exchange rates are used to convert into USD
	Point of measurement: *Guarantees and syndicated loans*: commitment date. *Shares in CIVs*: commitments during the fund-raising period
	Value of public interventions: *Guarantees*: Several options under discussion. *Syndicated loans*: face value of the loan provided by each public participant in the syndication. *Shares in CIVs*: face value of the equity investment by each first-loss public participant in the CIV.
	Boundaries: *Guarantees*: full nominal value of the instrument (loan, equity) being guaranteed regardless of the share of this value covered by the guarantee. *Syndicated loans*: private finance within the syndication. *Shares in CIVs*: private investments in the CIVs.
	Data availability: Activity-level data on private finance mobilised by guarantees for 2009 to 2011 are available based on a DAC survey, which will be renewed in 2015. Formal DAC data collection for guarantees, syndicated loans and shares in CIVs is expected to start from 2016.
4. Estimate private finance mobilisation	**Causality**: *Guarantees*: assumption that the private sector would not have invested in the project or activity without the presence of an official guarantee. *Syndicated loans*: assumption that the private sector would not have provided the loan without the public sector arranging/participating in the syndication. *Shares in CIVs*: assumption that the private sector would not have invested in the fund without the public sector taking on the first-loss risk.
	Attribution: *Guarantees*: to the official guarantor (pro-rata if co-guarantors). *Syndicated loans*: Options considered to attribute amount mobilised to the arranger entirely or to pro-rate among participants. *Shares in CIVs*: Pro-rata to first-loss participants: 50% attributed to each participant equally and 50% in proportion to the participants' financial share in the CIV.

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