°REPORT 2015:04

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Asbjørn Torvanger, Patrick Narbel, Harald Francke Lund

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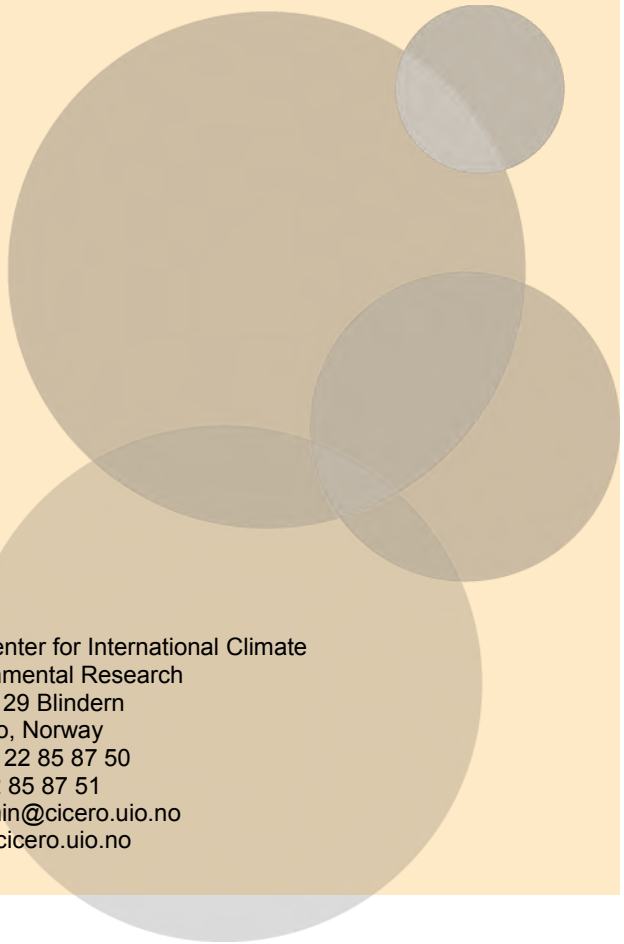

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**Keywords:** Climate finance; Norway; Developing countries; Bilateral; Multilateral; Mobilized private finance.

**Abstract:** The point of departure for this study is the available data in Norway on climate finance for developing countries. The bottleneck in tracking mobilized private climate finance is availability and quality of data. The main challenge is that Norwegian public institutions sourcing public support for climate finance have not yet implemented sufficient systems for measurement, reporting and verification of mobilized private climate finance. In addition, climate finance tracking is constrained by methodological difficulties and lacking international standard definitions and methods.

Despite these limitations, we have estimated that Norwegian public climate finance support to developing countries via bilateral and multi-bilateral support amounted to 1,019 MUSD in 2014, split into bilateral flows at 578 MUSD and multi-bilateral flows at 441 MUSD. The main public institutions sourcing this money, ranked according to the size of their money flows, are: Ministry of Foreign Affairs (MFA) - embassies, Norad, MFA, KLD, and Norfund. We examined public support for projects summing up to 692 MUSD, which we could link to an estimated 202 MUSD of mobilized private co-finance. Based on our analysis, Norfund is the primary institution that has mobilized private climate finance. These climate finance flows are likely to be low estimates. In addition, Norway provided another 123 MUSD as climate-related core support to multilateral organizations. Although a number of uncertainties are attached to the data, they cover the largest flows and most available project data.

One learning from this process is not to aim for a "perfect" standardized and complete tracking system, but for an international tracking standard that is simple and transparent, and with built-in flexibility to handle different contexts in terms of actors and sources at international and national levels.

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# Contents

# Foreword

The background for this report is the pivotal role of climate finance in the United Nations Framework Convention on Climate Change (UNFCCC) negotiations leading up to the Conference of the Parties (COP) 21 in Paris autumn 2015. Developed country parties have agreed on a target of mobilizing 100 billion USD annually for climate action in developing countries from 2020. The need for climate finance for a green and climate-friendly transition at a global level, however, is much larger. Part of this finance can be public, but private finance also has a key role to play.

This report has been produced on assignment from the Norwegian Ministry of Climate and Environment (KLD) in the period June to November 2015. The aim of the study is to estimate climate finance flows from Norway to developing countries in 2014. The emphasis is on private flows mobilized by some type of public action, on a background of public climate finance flows. The study is one of a number of such national pilot studies in Europe that in part build upon and feed into the OECD-hosted Research Collaborative on Tracking Private Climate Finance, which aims at exploring and assessing methods for measuring private climate finance mobilized for climate action in developing countries.

We thank Gard Lindseth, KLD, Raphaël Jachnik, OECD, and our colleague Knut H. Alfsen for valuable comments to the report. In addition, we would like to thank all that have provided us with information and have taken the time to answer our questions. The responsibility for any remaining shortcomings or errors remains with CICERO.

# Executive summary

The point of departure for this study is the available data in Norway on climate finance for developing countries, instead of exploring technical and methodological challenges. The bottleneck in tracking mobilized private climate finance is availability and quality of data. The main challenge is that Norwegian public institutions sourcing public support for climate finance have not yet implemented sufficient systems for measurement, reporting and verification of mobilized private climate finance. In addition, climate finance tracking is constrained by methodological difficulties and lacking international standard definitions and methods.

Despite these limitations, we have estimated that Norwegian public climate finance support to developing countries via bilateral and multi-bilateral support amounted to 1,019 MUSD in 2014, split into bilateral flows at 578 MUSD and multi-bilateral flows at 441 MUSD. The main public institutions sourcing this money, ranked according to the size of their money flows, are: Ministry of Foreign Affairs (MFA) - embassies, Norad, MFA, KLD, and Norfund. We examined public support for projects summing up to 692 MUSD, which we could link to an estimated 202 MUSD of mobilized private co-finance. Based on our analysis, Norfund is the primary institution that has mobilized private climate finance. These climate finance flows are likely to be low estimates. In addition, Norway provided another 123 MUSD as climate-related core support to multilateral organizations. Although a number of uncertainties are attached to the data, they cover the largest flows and most available project data.

One learning from this process, useful for climate finance pilot studies in other countries, is that a number of trade-offs must be made. Instead of aiming at a "perfect" standardized and complete tracking system, it seems more pertinent to aim for an international tracking standard that is simple and transparent, and with built-in flexibility to handle different contexts in terms of actors and sources at international and national levels.

# 1 Introduction

The landscape of Norway's climate finance support to developing countries is complex, as for other donor countries. Tracking climate finance is challenging since the actors and sources involved have not established suitable procedures for systematically registering climate finance and tracking these flows, in part due to a lack of standardized definitions of concepts and delimitation of categories of finance. On this background, there is sizeable uncertainty attached to the estimated climate finance flows, in terms of incomplete flow estimates, double-counting of flows, or inclusion of dubious flows, e.g. flows that are not related to climate mitigation or adaptation. Tracking mobilized private climate flows is more challenging than tracking public finance since there are issues of identification, attribution and causality involved for all possible approaches in making the concept 'mobilized' operational.

In terms of tracking climate finance flows, the main definitional categories are actors and sources, intermediaries transmitting climate finance, financial instruments employed, recipients of the flows, and the projects invested in. In this study, we focus on tracking climate finance flows from actors and sources, and through intermediaries. The mapping of the receiving end of the finance and the impact on greenhouse gas emissions and adaptive measures are beyond the scope of the study. In a sister project for the Norwegian Ministry of Foreign Affairs (MFA) we explore the suitability of various financial instruments to stimulate and de-risk private climate finance in developing countries dependent on national conditions (confer Torvanger et al., 2015).

| Category | Actor |
|---|---|
| **Public institution** | Norwegian Ministry of Foreign Affairs |
| | Norwegian embassies |
| | Norwegian Ministry of Climate and Environment |
| | Norfund |
| | Norad |
| | GIEK |
| | Export Credit Norway |
| | NBIM |
| **NGOs** | Peace Corps |
| **Public companies** | SNPower |
| | Agua Imara |
| **Multilateral (non-exhaustive list[1])** | GEEREF |
| | Global Environment Facility |
| | Forest Carbon Partnership Facility (WB) |
| | Clean Energy Financing Partnership Facility (ADB) |
| | Global Gas Flaring Partnership (IBRD) |
| | Energising Development |
| | UN-REDD |
| | Green Africa Power (PIDG) |

**Table 1**. Actors and sources of Norwegian climate finance for developing countries.

[1] An actor worth commenting on is Climate Investment Fund (CIF), for which Norway pledged 249 MUSD as of June 30, 2014 (CIF, 2015). The data we were provided did not specify disbursed amounts from Norway to this fund in 2013 or 2014. Though previously disbursed amounts are likely to have been used also during 2013 and 2014, we have chosen to only focus on the amounts disbursed in 2014 in order to avoid double-counting, in case this study is replicated in subsequent years.

Norway's main actors providing climate-related international public finance are Norfund, NORAD, the Norwegian Ministry of Foreign Affairs (MFA), Norwegian embassies, and the Norwegian Ministry of Climate and Environment (KLD). Funding is either through bilateral channels, which may include state companies and NGOs, through multi-bilateral projects, or through multilateral channels.[2] The main multilateral channels are development banks such as the World Bank (WB), the International Finance Corporation (IFC), the Asian Development Bank (ADB), the African Development Bank (AfDB), and financial mechanisms such as Global Environmental Fund (GEF) and United Nations' REDD (Reducing Emissions from Deforestation and forest Degradation), in addition to numerous funds that only or in part have a climate agenda, such as the Green Climate Fund (confer Table 1).

[2] Multi-bilateral funding is voluntary contributions to specific purposes via a multilateral agency, supplementary to core membership contributions to multilateral agencies.

# 2 Methods and data

We focus on two types of climate finance: a) public climate finance from Norway for investments and projects on the ground, and b) mobilized private climate finance.

We first identified and selected public finance actors and sources. Second, we identified available data for private climate finance, before assessing whether and to what extent these private finance flows were mobilized by some type of public action.[3]

Figure 1 presents a simplified version of the study. Public and private Norwegian climate finance are tracked, and filtered through climate-relevance and relevant timing.

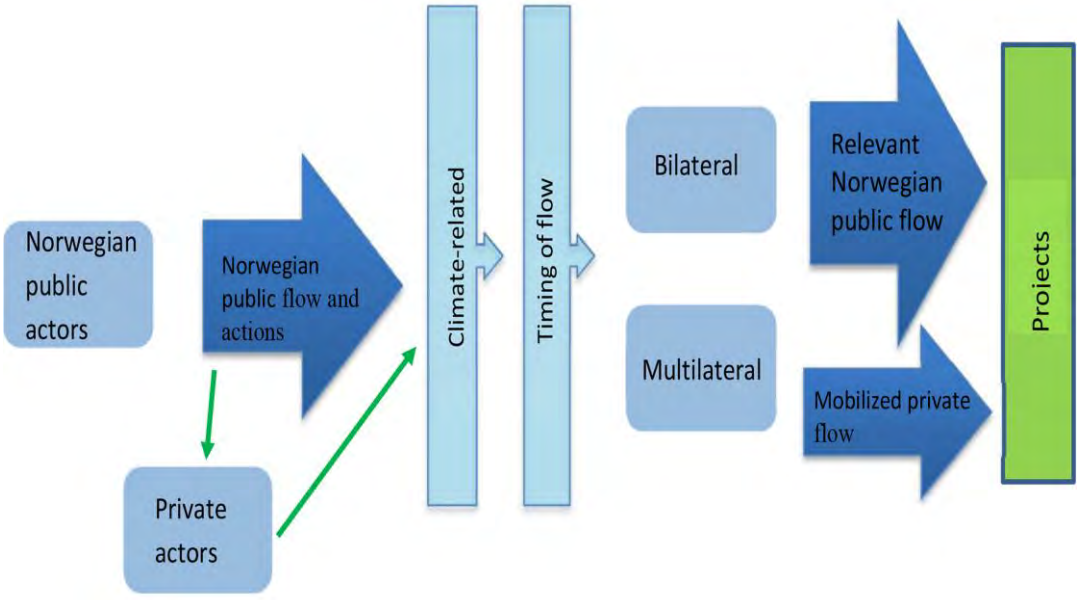


**Figure 1**. Schematic representation of the study tracking Norwegian climate finance for developing countries.

[3] An analysis of the Norwegian fast-track climate finance contribution can be found in Moe et al. (2013).

Tracking private climate finance mobilized for climate action in developing countries raises a number of conceptual, definitional and methodological issues, especially related to accounting private climate finance mobilized by public action, and tracking of public climate finance through multilateral organizations and funds. Comprehensive discussions of these issues can be found in Jachnik et al. (2015), Jachnik and Raynaud (2015), Stumhofer et al. (2015), OECD (2015a), Brown et al. (2015), European Union DG CLIMA (2015), and Brown et al. (2011). The choices made in preparing this study are in part based on outcome from the OECD-hosted Research Collaborative on Tracking Private Climate Finance. Issues of particular relevance for our study are discussed in connection with the next sections, explaining how we gathered data on public finance, as well as mobilized private climate finance. First, we discuss some common issues. Then, remaining issues are discussed in the context of public finance and mobilized private finance.

## 2.1 Common methodological issues

### 2.1.1 Climate related projects

Only climate-related financial flows are relevant for this study, either investments to reduce emissions of greenhouse gases or investments to improve resilience to climate change impacts (adaptation). In some cases this is straightforward, for instance money for renewable energy projects and measures to improve energy-efficiency in production or consumption. However, a clear delimitation is more challenging in other cases, for instance when investing in agriculture and forestry. In line with reporting procedures among Norwegian institutions we rely on the so-called Rio markers to indicate climate relevance.

Most projects we examined are based on data provided by Norad (see section 2.2 for a list of actors covered by Norad's database) and have Rio markers connected to climate change mitigation and/or climate change adaptation. We did not make a judgment on whether some of these projects should be excluded from the analysis.

### 2.1.2 Timing of climate finance flows: committed or disbursed

A climate-related project typically lasts for some years. First, a project is proposed by a public actor. Then if accepted, funds will be committed and the funds disbursed after some time. Depending on the type of projects, private climate finance may be mobilized at the same time or later, if at all. The issue is how to attribute the financial flows to specific years for multiannual projects (for example in the case of loans). In this study, we only use disbursed amounts for public finance and data on private co-finance.

### 2.1.3 Relevant public instruments and actions

A number of financial instruments are available for public institutions to support climate finance for developing countries. According to Torvanger et al. (2015), the main categories are revenue support, credit enhancement, direct investment, and insurance. These instruments can reduce the cost or, more importantly, de-risk private investments. The most widely used instruments by Norwegian institutions involved in climate finance for developing countries are direct investments (grants, concessional loans, direct equity investments, and fund-level equity

investments), and credit enhancement (guarantees). Two categories of public support that are more challenging to account for and track, in part because they overlap with financial instruments, are technical support and policy support (e.g. strengthening financial institutions and markets). On this background, we have given lower priority to account for technical and policy support, because they will typically only mobilize private finance indirectly.

### 2.1.4 Origin of finance

For most public climate finance flows, the national origin is straightforward. In the case of support to multilateral institutions (banks and funds) this issue is often convoluted by a number of steps for each climate flow, from the first contribution until the actual investment in a project, where different national, partly national, and private actors are involved. In this report, we focus on the first contribution (first stage) and flows that are tractable and therefore more or less certain.

### 2.1.5 Aggregated climate finance flows

Aggregating climate finance flow data from various sources requires that data are comparable, e.g. in terms of definition of climate relevance, timing, delimitation between public and private finance, and methods to estimate leveraged (mobilized) private finance. Non-comparable data will cause biased estimates and a substantial risk of over-estimation due to double-counting. Thus, as far as possible, definitions, reporting and estimation methods must be identical, or at least consistent. In this study we have put emphasis on the issue of comparability, but it should be noted that limitations to measurement, reporting and verification of climate finance data implies that there are remaining uncertainties related to the comparability of data and therefore the accuracy of aggregated climate finance flows.

## 2.2 Public finance

Norad provided CICERO with data on 2 457 financial flows on direct public finance spanning over the period 2013 and 2014.[4] The data includes all projects with a Rio marker on climate change mitigation and/or adaptation for the following public finance extending agencies:[5]

- Ministry of Foreign Affairs (MFA) - embassies
- Ministry of Foreign Affairs (MFA) - Oslo
- Ministry of Climate and Environment (KLD)

[4] Shortly before the deadline for submitting this report, CICERO was informed that some changes were made to the data as a result of communication with OECD - Development Assistance Committee (DAC). In practical terms, this means that the number of relevant projects have increased compared to what is indicated here. The new projects amount to another 20 MUSD in public finance.

[5] NORAD (2015) and (2014) report on 'Food security in a climate perspective' programs, containing some adaptation related activities in agriculture.

- Norad
- Norfund
- Norwegian Peace Corps

The data includes a large amount of details on each flow, such as the name of the extending agency, the program officer, the agreement title, the agreement partner, a description of the project, the type of assistance (bilateral or multi-bilateral), the form of assistance (e.g. project-type interventions), and the amount disbursed in each year both in USD and in NOK.

Figure 2 illustrates the flows for 2014 based on the database provided by Norad.[6] These flows are divided between extending agencies and according to the type of assistance. In 2014, these six extending agencies disbursed 1,019 MUSD, of which 441 MUSD were multi-bilateral transactions.

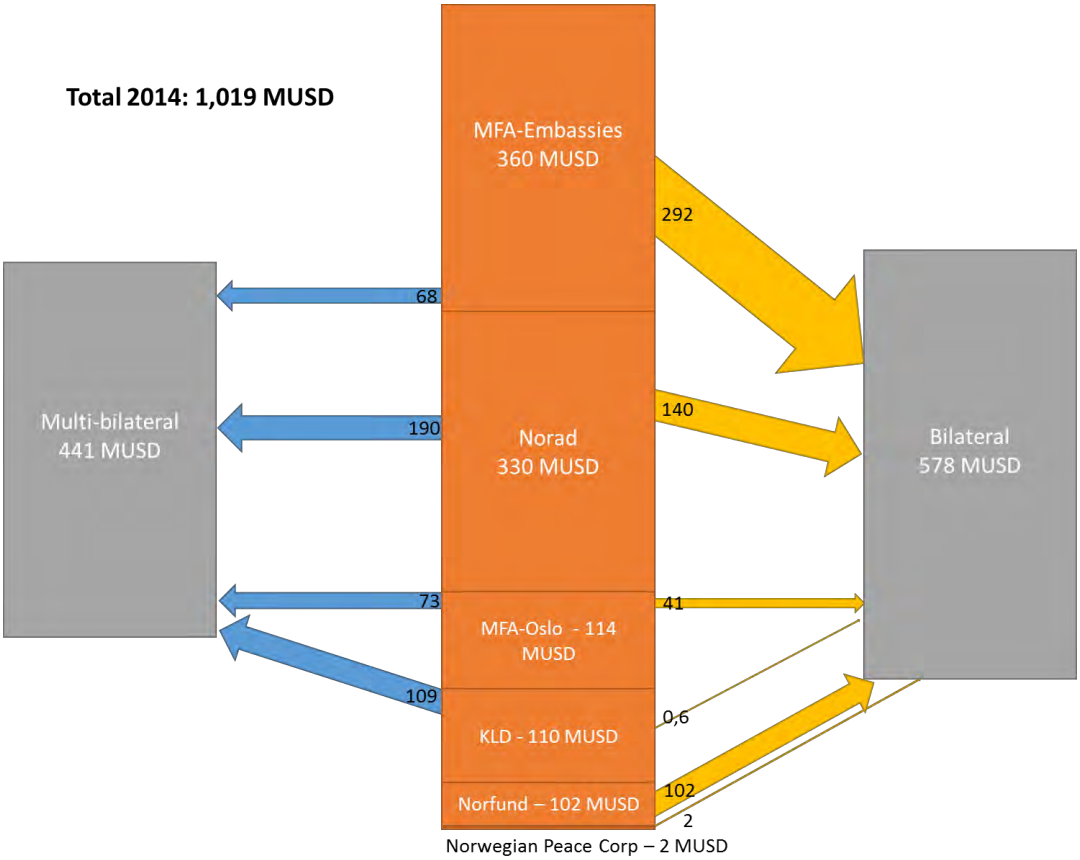


**Figure 2.** Norwegian climate-related financial flows to developing countries, 2014.

[6] Data for Norfund was adjusted based on information provided directly by Norfund.

In addition to the flows described above, Norad provided us with data on core support to Multilateral Development Banks (MDB) and other multilateral organizations. Based on imputed shares provided by the OECD, Norad has calculated the climate-relevant part related to core support to MDB.[7] The data is summarized in Table 2 below. In 2014, a total of 123 MUSD was provided to these multilateral institutions.[8]

| Agreement partner | Climate relevant contribution to multilateral organizations in 2014 ('000 USD) |
|---|---|
| **IDA – International Development Association** | 34 080 |
| **SCF – Strategic Climate Fund** | 30 150 |
| **AFDF – African Development Fund** | 28 954 |
| **GEF – Global Environment Facility** | 9 666 |
| **NDF – Nordic Development Fund** | 5 643 |
| **GEF – LDCF – Least Developed Countries Trust Fund** | 3 491 |
| **GEF – SCCD – Special Climate Change Fund** | 2 380 |
| **UNFCCC – United Nations Framework Convention on Climate Change** | 2 072 |
| **ASDF – Asian Development Fund** | 2 014 |
| **AFDB – African Development Bank** | 1 684 |
| **Multilateral Fund for the Implementation of the Montreal Prot.** | 1 325 |
| **IBRD – International Bank for Reconstruction and Development** | 935 |
| **ASDB – Asian Development Bank** | 401 |
| **IDB – Inter-American Development Bank** | 103 |
| **TOTAL** | **122 898** |

**Table 2**. Norwegian core contributions to multilateral organizations which are climate related according to the OECD.

In this study, the primary focus is on non-core support to MDB since it is easier to follow the flows from the source to the recipient.

The data provided by Norad did not include full information on the monetary contribution of other public or private actors to the various flows such as SN Power or the Norwegian Export

[7] The numbers are a result of a communication between OECD and Norad in autumn 2015.

[8] The numbers indicated in the table are not final and small changes may therefore occur later.

Credit Guarantee Agency (GIEK). In order to identify climate finance from relevant actors, CICERO created a list of public actors based on earlier projects (confer Torvanger et al., 2015) and existing literature (Norwegian Ministry of Climate and Environment, 2014). The list was circulated to various ministries and completed based on input from the KLD. The following public agencies were then added to our list of public actors:

- Norwegian Export Credit Guarantee Agency (GIEK)
- Export Credit Norway
- SN Power
- Agua Imara
- Statoil
- Statkraft
- Norwegian Central Bank Investment Management (NBIM)

Statoil, Statkraft, and NBIM have a significant public ownership share, but were excluded from the analysis, given that these entities do not operate under a subsidiarity mandate.[9] The Norwegian Export Credit Guarantee Agency, Export Credit Norway, SN Power and Agua Imara have, however, been included in the analysis. SN Power and Agua Imara are included in the study since these companies are joint ventures with Norfund. They are partly owned by public actors without a subsidiarity mandate such as Statkraft and BKK and only the share related to Norfund is included as public capital towards the results. In the case of Statkraft for example, its share counts towards mobilized private capital (Norfund, 2014). In addition, only projects not previously reported on by Norfund have been included in the analysis in order to avoid double-counting. Data on these actors was not directly available and therefore had to be collected via a combination of meetings, phone calls, email exchanges and publicly available reports. In this process, CICERO identified flows for another 98 MUSD in 2014.

Data from actors like GIEK is likely to be complete, but it is uncertain to what extent we captured all flows from other actors such as Agua Imara and SN Power.

The additional challenges we encountered in the process of gathering data on public finance are described in the following sub-sections.

[9] The subsidiarity principle implies a mission to build the private sector and that public money is used to 'crowd in' or mobilize private development finance (Stumhofer et al., 2015).

### 2.2.1 Not all public actors should be included

Besides obvious public actors such as the Ministry of Foreign Affairs, we included some additional public actors (e.g. SN Power and Agua Imara), while we made the decision to leave out other public actors (Statoil, Statkraft, and NBIM). The actors included have at least a 50 % public ownership and operate under a mandate of subsidiarity.[10] Only projects not reported in Norad's database are included in the additional public actors category, and only the share of the project that can be linked to Norfund has been accounted for as public finance, the rest being accounted for as mobilized private capital.

### 2.2.2 Completeness of the data

The data provided by Norad was assumed to be complete for the extending agencies covered by the dataset. Data provided by Norfund indicated that some projects were missing. Incompleteness and possible errors in the data will obviously affect results.

### 2.2.3 Treatment of guarantees and export credits

A challenge in estimating mobilized private finance is the treatment of guarantees. In some cases, guarantees can directly mobilize private finance. In other cases, guarantees will be part of a larger package, for example including equity from a public actor and an interest rate subsidy. In such cases, it becomes challenging to determine how much private capital is mobilized by the guarantee itself. At present, several methodologies exist to account for guarantees, such as the approach developed by OECD Development Assistance Committee (2013).

In the Norwegian case, guarantees are emitted by the Norwegian Export Credit Guarantee Agency (GIEK). GIEK did not emit guarantees to climate related projects in 2014, hence we did not need to conclude on the treatment of guarantees. Yet, it will be important to agree on how guarantees should be accounted for in future studies.

Export credits can also be discussed at length. In its annual report, Export Credit Norway indicates that 76 % of the projects it provided a loan to would not have been realized (in part or in full) without the loan (Export Credit Norway, 2015, p. 21). For this reason, Export Credit Norway is a relevant public actor, though only the loans that have mobilized private finance should be accounted for.

[10] Development Finance Institutions (DFI) operate under a subsidiarity principle (Stumhofer et al., 2015).

## 2.3 Private finance mobilized by public intervention

In addition to lacking data on some public actors, Norad's database did not include data on the amount of mobilized private climate finance. Identifying these flows turned out to be a time-consuming task as data is not necessarily available. In addition data may be estimated based on different definitions, or may be provided in different currencies or time periods.

We adopted an approach allowing us to focus on the 'largest volumes' first. For the actors' part of Norad's database, we first sorted out the financial flows based on the extending agency, the form of assistance, the type of assistance and the sector. Figure 3 shows a chart with some details on the financial transfers from Norad in 2014. The figure can be interpreted as follows: Norad disbursed 330 MUSD in 2014 (this number can also be seen in Fig. 2). Of these, 179 MUSD went to projects/initiatives labelled as '*project-type interventions*', including 89 MUSD to the multilateral agency Inter-American Development Bank (IDB) (multi-bilateral transaction), where the funds have been used for energy and the environment projects and programs. The data further details which projects have been funded. These projects are not shown in Figure 3 for simplicity purposes.

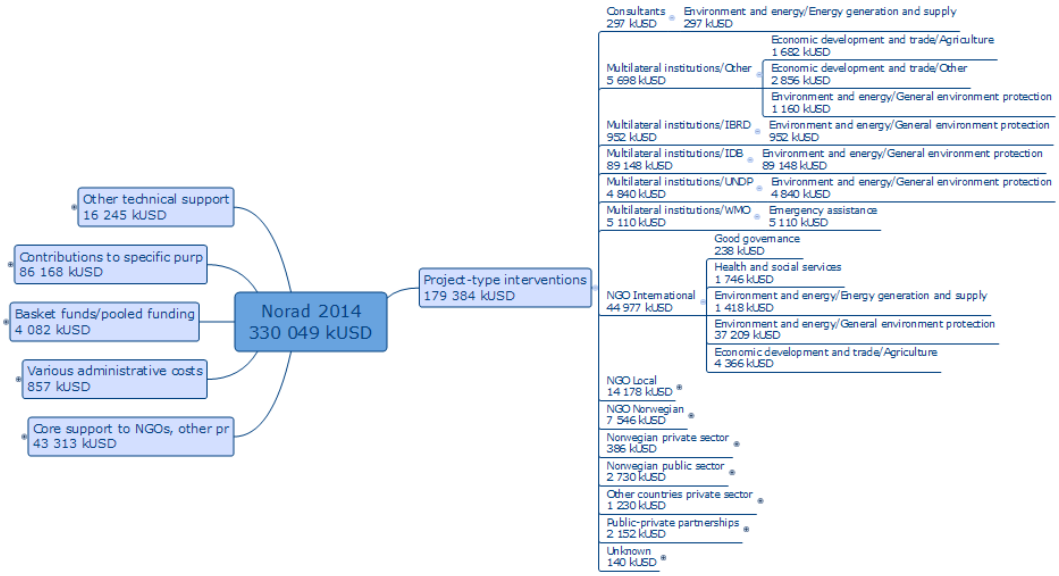


**Figure 3**. Climate finance flows from Norad, 2014.

For each actor, we selected the five largest financial bilateral transfers in 2014 as well as the largest transfers to multi-bilateral entities. In addition, we checked the remaining projects and hand-picked a couple of projects which seemed promising in terms of how much private climate finance had been mobilized. Figure 4 shows how much public finance is covered in this study for public agencies that are included in Norad's database

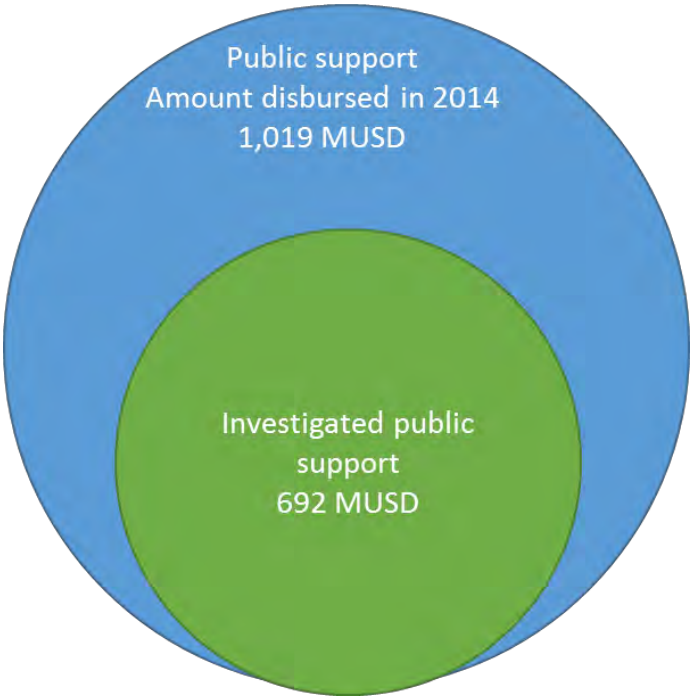


**Figure 4.** Public climate finance support amounted to 1,019 MUSD in 2014, of which we investigated 692 MUSD (68 %) in more detail.

We did not investigate all projects because obtaining data on mobilized private climate finance proved to be a time-consuming task. Still, the projects not investigated involved relatively small amounts, or are projects with limited potential for mobilizing private climate finance. Although we cannot guarantee that these projects have not mobilized private climate finance, the short-term private finance amount should be limited. Even though it can be argued that indirect public finance (e.g. capacity building such as building institutions and supporting market reforms), will contribute to mobilizing private climate finance in the longer term, we did not attempt at estimating these amounts.

In addition, we did not use a significant amount of time on Export Credit Norway. From their annual report, we found that approximatively 100 MUSD were provided as loans to renewable and climate projects by end of 2014 (Export Credit Norway, 2015). Provided that the maximum tenure on a loan is 18 years and that Export Credit Norway provides loan up to 85 % of the value of the project, it is unlikely that more than 5-10 MUSD in private climate finance has been mobilized in 2014. Because of our choice of focusing on bigger numbers, we moved our attention on other actors and projects.

Once the projects were identified, CICERO combined meetings, phone calls, email exchanges and literature reviews (e.g. annual reports) to gather additional data. Eventually we gathered funding data from public actors outside Norway, amount of private capital mobilized from Norwegian actors, and to some extent, the amount of private capital mobilized from non-

Norwegian actors. For actors not included in Norad's database, meetings, phone calls, email exchanges and literature review were used to gather relevant data for our analysis.

The main challenges faced by CICERO in estimating mobilized private capital are detailed below.

### 2.3.1 Estimating mobilized private capital

An existing agreement on foreign public participation and/or private funding may not always be a guarantee that these funds eventually will be transferred to the project. We have not entered into details to check whether the committed amount has effectively been disbursed for all projects (see section 3.1.1 for a concrete example).

Estimating mobilized private capital is a complex and challenging undertaking. Jachnik et al. (2015) explore a number of issues related to concepts, definitions, type of public interventions, value of public interventions, value of total private finance, and estimation of private finance mobilization. It is more straightforward to estimate mobilized private capital for some projects since data is known and available. For other projects, public finance may only mobilize private capital in subsequent years. For some projects which may only mobilize private climate finance indirectly, only an estimated leverage factor may be available. In these case, we assumed that no private climate finance is mobilized (confer 2.3.3).

### 2.3.2 Challenge in accounting for attribution

Some projects are easier to account for in the sense that a number of investors get together for a single purpose, for instance, the construction of a wind farm. Other projects are more complex. This happens, for example, when investors invest in a fund where money is reinvested in other funds, which in turn invest in projects. Private capital can thus be leveraged at several levels. The private capital indicated in our database (spreadsheet) is considered mobilized (certain), which implies that we ignore higher level effects (see 3.1.2 for details and concrete examples).[11] This is in line with the approach used in the recently released OECD (2015a) report "Climate Finance in 2013-14 and the USD 100 billion goal".

The consequence of this choice is that the estimate shown in the following section must be interpreted as a low estimate, since one may expect that at least some projects have mobilized private climate finance at higher levels.

In terms of causality between public action and mobilized private finance, we accepted the data on mobilized private finance supplied by relevant funds and companies, confer examples in 3.1. We calculated the share of private capital resulting from the Norwegian contributions as volume-based pro-rata attribution, in accordance with the approach used in OECD (2015a).

[11] The full database (Excel spreadsheet) is available from CICERO upon request.

### 2.3.3 Estimating mobilized private climate finance based on an estimated leverage factor

Norway contributed to a fund denominated 'Get-Fit' and to 'Green Africa Power', confer Box 1. These have in common that private climate finance will only be mobilized at a later stage. Though an expected leverage factor is available, we did not include any amount in terms of mobilized private climate-finance given the uncertainty in the estimate and the difficulty of avoiding double-counting.

***Box 1: Get-Fit – estimated leverage factor of 1:5***

Norway contributes to a fund that tops up a feed-in tariff for renewable energy production in Uganda, the so-called Global Energy Transfer Feed-in Tariffs. The Norwegian contribution was 13 MUSD in 2014 and Norway pledged 66.5 % of the total. No private capital was mobilized in 2014. However, several private actors are interested in the scheme, including TrønderEnergi and Jakobsen Elektro, which may invest in renewable energy projects in Uganda as a result of the program. The expected leverage factor is 5 (GET FIT Uganda, 2014).

Identifying causality is a challenge since it is a combination of the top-up feed-in tariff and of the existing feed-in tariff that will eventually mobilize private climate finance. For the Get-Fit case Uganda could have been attributed part of this private mobilization. If the renewable energy projects in addition are co-financed in the future (partially funded by public agencies and/or made possible by public guarantees, etc.), the causality becomes very uncertain. The expected leverage factor of 5 should therefore be considered as an upper limit. The real leverage factor will be lower since other actors and programs will have contributed to making the renewable energy projects financially attractive.

More research is needed on this particular issue. CICERO has, however, not concluded on how indirect mobilization should be treated and has therefore not included an amount of private finance mobilized as a result of the GET-FIT in the spreadsheet. Had we done this, the amount of private finance mobilized in Norway would have increased by 67 MUSD. In the case of 'Green Africa Power', for which the indicated leverage factor is 2, this leverage factor would lead to another 38 MUSD mobilized private capital.

# 3 Analysis of climate finance flows

In this section we first present concrete cases illustrating some of the issues discussed above before providing an estimate of publicly mobilized private capital.

## 3.1 Cases and issues

### 3.1.1 Accuracy of data – Example

Norfund is a partner in the development of a 30 MW hydropower project at Fula Rapids, South Sudan. The project is supposed to be financed in collaboration with Nord-Trøndelag Elektrisitetsverk (NTE) and the government of South Sudan. According to some sources the project came to a stop in 2015 and no evidence was found that the partners in the project had effectively disbursed the capital.[12] In our analysis, we relied on the numbers provided by the different actors we talked to, without adjusting the data.

The database Norad provided us with reports that 811,000 USD was disbursed in 2014. The three partners are supposed to contribute equally to the project, meaning that we assumed another 811,000 USD from the Government of South Sudan and also from NTE. Using volume-based pro-rating, we reported 406,000 USD as mobilized private capital in the spreadsheet (leverage factor of 0.5).

### 3.1.2 Attribution of finance – Examples

CICERO has been in touch with the Global Energy Efficiency and Renewable Energy Fund (GEEREF). The data obtained provided us with a good base to discuss the issue of attribution. Note that the data indicated here should not directly be compared to the numbers reported in the spreadsheet. In the spreadsheet, we relied on disbursed amounts, whereas the following examples are not linked to a specific year. The examples are useful to justify why we only focus on amounts that can directly be linked to the disbursed public finance and why we ignore higher-order effects. The value of this section is to explain how we treated the issue of attribution. The data in the spreadsheet builds on the knowledge provided below, but is based on data provided by Norad for 2014 and reported in USD.

[12] http://www.bistandsaktuelt.no/nyheter/2015/fula-falls-stoppet/

## GEEREF

GEEREF is a fund-of-fund, which means that capital is invested in funds, which in turn invest in projects. There are thus three levels of investments. In level 1, Norway invested 12 million Euro into the fund, while the European Commission and Germany invested another 100 million Euro.[13] Together, they mobilized 110 million Euro from private investors (none from Norway), bringing the total to 222 million Euro. The leverage factor is thus:

$$\frac{110\ MEur}{12\ MEur + 100\ MEur} = 0.98$$

The Norwegian share of mobilized private capital can be calculated as:

$$\frac{12\ MEur_{Public,Norway}}{100\ MEur_{Public,Foreign} + 12\ MEur_{Public,Norway}} \cdot 110\ MEur_{Private} = 11.8\ MEur$$

At level 2, GEEREF invests in other funds, taking a 10-15 % equity share. This means that GEEREF 222 MEUR will mobilize another 1,554 million Euro from development banks and private investors if we assume a 12.5 % equity share and no management fee. The total money at level 2 then reaches 1,774 million Euro. The level 2 leverage factor is thus 8.

There are different ways of estimating this leverage factor. For instance, GEEREF would assume that it is only the public contribution (112 million Euro) which has mobilized the capital at level 2. With this approach, the leverage factor increases to nearly 16. Our approach, however, implies that it is the public and private investment in GEEREF which together have contributed to mobilizing capital at level 2, hence the lower leverage factor. If we apply this logic to the Norwegian public contribution, we can conclude by estimating the level of capital mobilized by the Norwegian public contribution at 96 million Euro.[14]

In turn, the 1,774 million Euro from level 2 will be invested in projects with debt-to-equity ratios of 30/70 or 50/50. Assuming a debt-to-equity ratio of 40/60, another 2,661 million Euro will be mobilized in level 3. The leverage factor at level 3 is thus 1.5. This implies that at level 3, the initial Norwegian endowment contributes to raising another 48 million Euro, bringing the total to 144 million Euro. The leverage factor for Norway is thus 12. These numbers are illustrated in Figure 5.

[13] European Commission (2013) presents an account of climate funding for developing countries.

[14] (12 million Euro / 222 million Euro) x 1,554 million Euro + 12 million Euro from level 1.

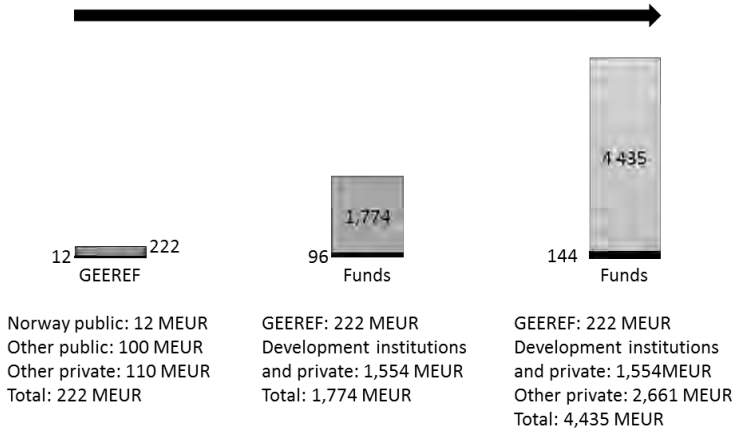


**Figure 5**. Mobilized private climate finance at different levels with GEEREF.

The GEEREF case indicates that it is possible to estimate how much private capital has been mobilized at several levels as long as numbers are available. These numbers are, however, often uncertain and investing at higher levels involves increasing number of assumptions and more uncertain assumptions, which in turn increase the uncertainty of the estimate.

In 2014 MFA disbursed 14 000 USD to GEEREF. Since the focus is on amounts that can directly be linked to public finance, we attribute the amount of mobilized private capital according to a volume-based pro-rating at the first level. The 14 000 USD have therefore mobilized slightly below another 14 000 USD in private capital.

## EnDev

The second example is Energising Development (EnDev). EnDev provided us with the following amounts.

- Public Norway 2013/2014: 9.7 million Euro
- Public Foreign 2013/2014: 65.2 million Euro
- Private Foreign 2013/2014: 121 million Euro
- Other Private Foreign (markets EnDev no longer is involved in), 2013/2014: 9 million Euro
- Estimated additional private leverage 2013/2014: 177 million Euro
- Total leverage: 307 million Euro

'Private Foreign' is an estimate from EnDev, where the number of projects involving technologies supported by EnDev (solar home systems, improved cook stoves, etc.) was multiplied by the own contribution of the beneficiaries, correcting for missing data and underreporting.

For the sake of our study and in line with recent work (OECD, 2015b), we retain first-order level mobilized private capital, which is the 121 million Euro. The amount of capital mobilized

based on Norway's public contribution is thus 15.6 million Euro, which corresponds to a leverage factor of: 1.6.[15]

EnDev goes further and claims that the initial contribution will lead to results beyond the investment period. EnDev thus claims a share of the outcome due to their initial contribution, which is calculated based on their initial financial contribution. For 2013/2014, this led to another 9 million Euro mobilized.

Finally, according to EnDev, investments outside EnDev's monitoring can be traced back to their initial financial contribution, such as imitators (copy cats). EnDev's estimate is 177 million Euro mobilized in 2013/2014. In practice, this estimate raises some concerns (EnDev claims it is careful and conservative in its estimates). According to EnDev, for instance, the Norwegian company Differ built two production sites for improved cook stoves in Senegal and Indonesia. Although EnDev has no direct linkages to Differ, EnDev's direct contribution to the sector over the last decade created enthusiasm and awareness about this market. EnDev claims that Differ would probably not have set up these production sites without EnDev's contribution, and hence argues that they should be able to count a share of those investments.

EnDev's leverage factor is thus: 307 million Euro / (9.7 + 65.2 million Euro) = 4.1. Similarly, the share attributable to Norway amounts to 9.7 * 4.1 = 40 million Euro.

In order to be consistent, we only estimated directly mobilized private capital and have therefore not included higher levels. This approach will likely underestimate how much private capital has been mobilized, but it will greatly reduce the risk of double-counting. Hence, the 11 MUSD Norway disbursed in 2014 have mobilized an estimated 20 MUSD in private climate finance (only first-level order effect).

[15] 121 million Euro / (9.7 million Euro + 65.2 million Euro) x 9.7 million Euro = 15.6 million Euro.

## 3.2 Summary of issues and choices made

The following Table 3 summarizes the challenges we have encountered while collecting the data. The template used is that of the OECD-hosted Research Collaborative's 4 stage framework and overview of decisions points to estimate publicly mobilized private climate finance, as presented in Jachnik, Caruso, Srivastava (2015, p.8).

| Stages | Short description of methodological options pursued |
|---|---|
| 1. Define core concepts | **Climate change activities**: we follow the methodology of the OECD DAC Rio markers for climate change mitigation and adaptation |
| | **Public and private finance**: we follow the definition of the OECD DAC, which considers transactions as public when undertaken by public entities at their own risk and responsibility. Other entities/transactions are considered private. |
| | **Country classification**: recipient countries are defined as developing based on the OECD DAC's list of ODA-eligible countries |
| | **Geographical origin of private finance**: we follow the methodological choices of the OECD DAC |
| 2. Identify public interventions and instruments | **Specific instruments**: we included all public transactions regardless of the instrument used |
| 3. Value public interventions and account for total private finance involved | **Currency and conversion**: Volumes of finance are reported in USD. An exchange rate of 6.3 NOK per USD was used for 2014. |
| | **Point of measurement**: The amounts of public capital from Norway that have effectively been disbursed. Private co-finance is added. Mobilized private capital are estimated based on the information available and can be effective or estimated. |
| 4. Estimate private finance mobilisation | **Causality and attribution**: we assumed that the projects we obtained numbers for have been mobilized by public finance. Yet, we only include private numbers when these are relatively certain (confer section 3.1) |

**Table 3**. Issues faced while collecting the data and choices/approaches selected.

## 3.3 Total climate finance

### 3.3.1 Selection of projects

| Project description | Public support (Norway) '000 USD | Mobilized private finance '000 USD | Public finance instrument used |
|---|---|---|---|
| 'Get-FiT' supported by the MFA | 13 329 | N/A | Grant |
| 'Lake Turkana Wind Project' supported by Norfund | 10 661 | 61 833 | Equity |
| 'Feasibility study Muchinga – hydropower' financed partly by Norad | 1 553 | 973 | Grant |
| 'Economic Valuation of Changes in Amazon Forest Area' supported by Norad via the World Bank | 952 | Unlikely | Grant |
| 'Solar Energy Rwanda' supported by Norfund | 487 | 3571 | Equity and loan |
| 'GEEREF' supported by the MFA | 14 | 14 | Equity fund |

**Table 4**. Selection of six projects included in our study, as well as the financial instruments used.

### 3.3.2 Key findings

Figure 6 summarizes our findings. We have been able to track an estimated 202 MUSD in mobilized private capital from the 676 MUSD we have investigated from the extending agencies covered by Norad's database. In addition, the 98 MUSD we identified from other public finance sources (e.g. SN Power) have mobilized an estimated 147 MUSD in private finance.

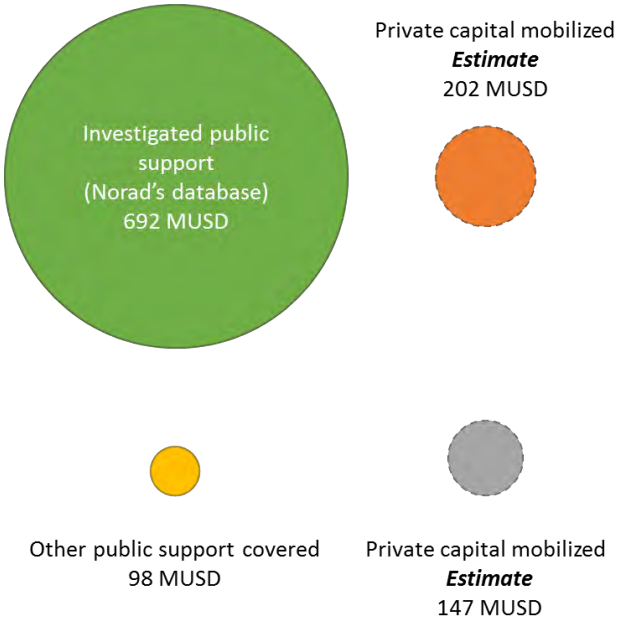


**Figure 6.** Publicly mobilized private climate finance, 2014.

Based on these numbers, an estimated average private finance leveraged factor of 0.3 can be calculated for 2014 for the following extending agencies: MFA-Oslo, MFA-embassies, KLD, Norad, Norfund, and Norwegian Peace Corps. This estimate is based on our conservative assumptions in accounting for mobilized private climate finance, for example not taking into account indirect mobilization, and only accounting for first-level effects when it is likely that these have contributed to mobilizing private climate finance at higher level effects. The corresponding leverage factor for projects outside Norad's database public support (SN Power, Agua Imara) amounts to 1.5.

In addition, as discussed in section 2.2, Norway provided core support to multilateral organization, of which a share is climate-related. Some of this support is likely to have mobilized private capital.

## 3.4 Bilateral and multi-bilateral climate finance

Figure 7 splits the amount of mobilized private climate finance between bilateral and multi-bilateral sources. Private finance mobilized by multilateral banks and funds is not part of this picture as it was outside the scope of this study.

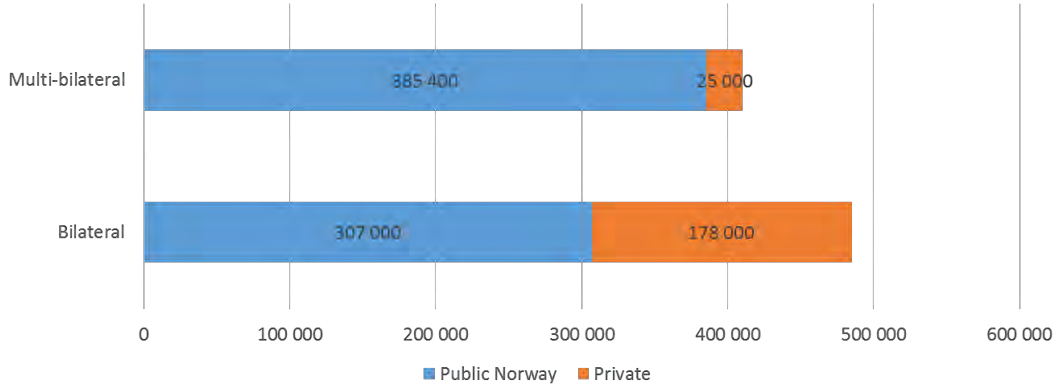


**Figure 7.** Allocation of private capital mobilized between bilateral and multi-bilateral channels, 2014, based on the projects we examined on details (projects outside Norad's database, namely those pertaining to Agua Imara and SN Power are excluded from the figure). Numbers have been rounded.

Figure 7 indicates that bilateral projects mobilized 178 MUSD in 2014 (leverage factor of 0.6), while multi-bilateral projects mobilized 25 MUSD (leverage factor of 0.06). These numbers are not directly comparable due to the limitations described earlier. Many of the multi-bilateral projects we analyzed pertain to forestry, where it has been difficult to identify whether, and how much, private capital has been mobilized. This could explain the relatively low leverage factor for multi-bilateral projects.

Alternative ways of showing the data are possible, including separating between extending agencies. Although this could be illustrative by allowing actors to identify how private capital is most effectively mobilized, one must note that the data is not accurate. Therefore disaggregating results to a more detailed level may lead to misinterpretation.

## 3.5 A focus on a short time-period can misrepresent reality

Finally, we emphasize our focus on financial flows in 2014, which can introduce a bias, as 2014 may have been a less representative year for a number of extending agencies. For example, Norfund supported climate-related projects for 30 MUSD in 2013 and 102 MUSD in 2014. We could link 2013 flows to 59 MUSD in mobilized private capital (leverage factor of 2) and 2014 flows to 155 MUSD in mobilized private capital (leverage factor of 1.5). The bias created by focusing on a short period (one year) can thus potentially be large. We did not make an attempt at estimating this possible bias.

# 4 Conclusions

The bottleneck in tracking Norwegian climate finance for developing countries is availability and quality of data. Essentially, public institutions that are sourcing public support for climate finance have not yet implemented sufficient systems for measurement, reporting and verification of climate finance flows. This data limitation is particularly pressing in the case of tracking private climate finance mobilized through public action. In addition, climate finance tracking is constrained by methodological difficulties and lacking international standard definitions and methods. This means that there exists a significant room for improvements in tracking climate finance, both in terms of reliability and completeness, provided that methods and standardization are improved, and sufficient procedures for measurements, reporting and verification implemented in the public institutions responsible for sourcing and extending climate finance for developing countries.

The point of departure for this study has been available data in Norway on climate finance for developing countries, instead of exploring technical and methodological challenges. Tracking of bilateral climate finance is generally more straightforward than tracking multi-bilateral climate finance, although some multilateral institutions have established procedures and reporting that facilitate estimation of mobilized private flows. One learning from this process, potentially useful for climate finance pilot studies in other countries, is that a number of trade-offs must be made. Different concerns pull in different directions. Instead of aiming at a "perfect" standardized and complete tracking system, it seems more pertinent to aim for an international tracking standard that is simple and transparent, and with built-in flexibility to handle different contexts in terms of actors and sources at international and national levels. This is in line with objectives of the ongoing activities to track private climate finance mentioned.

Norwegian public climate finance support to developing countries amounted to 1,019 MUSD in 2014, split into bilateral flows at 578 MUSD and multi-bilateral flows at 441 MUSD. The main public institutions sourcing this money, ranked according to size of money flows, are MFA - embassies, Norad, MFA, KLD, and Norfund. From these flows, we carried out a more detailed analysis of flows amounting to 692 MNOK. From the examined public support at 692 MUSD (covered by the Norad database), we have estimated that an additional 202 MUSD of private finance was mobilized. Other public support covered is at 98 MUSD, which according to our estimates has mobilized 147 MUSD of private climate finance. Based on our analysis, Norfund is the primary institution that has mobilized private climate finance.

These climate finance flows are not complete, but rather low estimates. However, they cover the largest flows and most available data. A number of uncertainties are attached to the data and estimates. In terms of bilateral and multi-bilateral climate finance flows, tracking the former is more straightforward and less prone to errors than the latter. Collecting data has proven to be a time-consuming task since the climate finance flows must be tracked at the level of individual projects. Improved availability of data, however, will eventually facilitate tracking of climate finance flows. Also a number of ongoing activities in MDBs, bilateral Development Finance Institutions (DFIs), the OECD-hosted Research Collaborative on Tracking Private Climate

Finance, the OECD DAC, country pilots, and the Standing Committee on Finance (SCF) under the UNFCCC, will improve our prospects of tracking climate finance flows.

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# Annex 1: Spreadsheet containing climate finance data

The end-goal has been to create a spreadsheet which summarizes the data collected. The spreadsheet includes nine columns:

1. Extending agency/actor: A Norwegian public entity providing funding to a project
2. Type of assistance: Bilateral or multi-bilateral
3. Project title
4. Public Norwegian ('000 USD): Amount disbursed by the actor/extending agency measured in 1000 USD
5. Public Foreign ('000 USD): Other public capital disbursed along the Norwegian contribution measured in 1000 USD
6. Private Norway ('000 USD): Private capital disbursed by private actors headquartered in Norway, measured in 1000 USD
7. Private Foreign ('000 USD): Private capital disbursed by foreign actors, measured in 1000 USD
8. Description of the project: Entails a short description of the project
9. Our remarks: Encompasses important information to understand the data, such as how mobilized private capital has been estimated

Table A1-1 illustrates the nine columns.

| Extending agency/actor | Type of assistance | Project title | Public Norwegian ('000 USD) | Public foreign ('000 USD) | Private Norway ('000 USD) | Private foreign ('000 USD) | Desciption of the project | Our remarks |
|---|---|---|---|---|---|---|---|---|
| Extending agency A | | Project A | | | | | | |
| | | Project B | | | | | | |
| | | Project C | | | | | | |
| | | Other projects | | | | | | |
| | | **TOTAL** | **0.00** | **0.00** | **0.00** | **0.00** | | |

**Table A1-1**. Design of spreadsheet with climate finance data.

CICERO (Center for International Climate and Environmental Research - Oslo)
CICERO (Center for International Climate and Environmental Research - Oslo) was established by the Norwegian government in 1990 as a policy research foundation associated with the University of Oslo. CICERO's research and information helps to keep the Norwegian public informed about developments in climate change and climate policy.

The complexity of climate and environment problems requires global solutions and international cooperation. CICERO's multi-disciplinary research in the areas of the natural sciences, economics and politics is needed to give policy-makers the best possible information on which to base decisions affecting the Earth's climate.

The research at CICERO concentrates on:

- Chemical processes in the atmosphere
- Impacts of climate change on human society and the natural environment caused by emissions of greenhouse gases
- Domestic and international climate policy instruments
- International negotiations on environmental agreements

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