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Assessing the credibility of how climate adaptation aid projects are categorised

Romain Weikmans, J. Timmons Roberts, Jeffrey Baum, Maria Camila Bustos and Alexis Durand

ABSTRACT

This article presents the findings of a re-evaluation of all 5,200 aid projects that OECD donors reported for 2012 as "climate change adaptation"-related, based on the "Rio marker" classification system. The findings confirm those from the academic and grey literature that the absence of independent quality control makes the adaptation Rio marker data almost entirely unreliable. This lack of credibility impedes meaningful assessments of progress toward the mainstreaming of adaptation in development cooperation activities. It also erodes trust in international climate negotiations, given that these data are frequently used in the financial reporting of developed countries to the UNFCCC.

Cet article présente les résultats d'une réévaluation de l'ensemble des 5.200 projets d'aide que les pays donateurs OCDE ont considéré, pour l'année 2012, comme étant en rapport avec « l'adaptation aux changements climatiques », en se basant sur le système de classification des « marqueurs de Rio ». Les résultats confirment ceux de la littérature académique et grise selon lesquels l'absence de contrôle de qualité indépendant fait que les données sur l'adaptation des marqueurs de Rio ne sont pratiquement pas fiables. Ce manque de crédibilité entrave la conduite d'évaluations significatives de la progression vers l'intégration de l'adaptation à des activités de coopération au développement. Il a aussi pour conséquence d'éroder la confiance dans les négociations internationales en matière de climat, dans la mesure où ces données sont fréquemment utilisées pou les rapports financiers des pays développés transmis à la CCNUCC.

El presente artículo da cuenta de los resultados arrojados por una reevaluación de la totalidad de los 5,200 proyectos de ayuda catalogados como de "adaptación al cambio climático" utilizando el sistema de clasificación "marcadores de Río", que fueran reportados por los donantes de la OCDE para 2012. Los hallazgos al respecto confirman las conclusiones a que se ha llegado en el ámbito académcio y la literatura semipublicada, en el sentido de que la ausencia de un control de calidad independiente vuelve poco confiables los datos surgidos de los marcadores de Río en torno a la adaptación. La falta de credibilidad en estos datos impide la elaboración de valoraciones útiles sobre los avances experimentados en cuanto a la integración del concepto de adaptación en las actividades de cooperación para el desarrollo. Además, socava la confianza en las negociaciones climáticas a nivel internacional, ya que, frecuentemente, estos mismos datos son utilizados para sustentar los informes financieros de los países desarrollados sometidos a la Convención Marco de las NNUU sobre el Cambio Climático (CMNUCC).

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Introduction

Developed countries have committed for more than 20 years to "*… assist the developing country Parties that are particularly vulnerable to the adverse effects of climate change in meeting costs of adaptation to those adverse effects*" (UNFCCC 1992, Article 4.4). In Copenhagen in December 2009, developed countries pledged collectively to provide "*new and additional*" resources approaching US$30 billion for the period 2010–12 (a short-term commitment called "*fast-start finance*") with balanced allocation between adaptation and mitigation, and to mobilise jointly US$100 billion a year in climate finance by 2020 to address the needs of developing countries (UNFCCC 2009, Paragraph 8). Funding for adaptation is to be "*prioritized for the most vulnerable developing countries, such as the least developed countries, small island developing States and Africa*" (UNFCCC 2009, Paragraph 8). Those financial commitments were reiterated during subsequent Conferences of the Parties (COP), including in Cancun (UNFCCC 2010, para. 95–112) and during the Paris Climate Conference of December 2015 when the US$100 billion mobilisation goal was extended to 2025 (UNFCCC 2015, Paragraph 53).

For many years, developed countries have also committed to reporting to the United Nations Framework Convention on Climate Change (UNFCCC) their provision of climate finance to developing countries (UNFCCC 1999, Decision 4/CP.5; UNFCCC 2011, Decision 2/CP.17; UNFCCC 2012, Decision 19/CP.18). However, in the absence of any internationally agreed definition on what counts as climate finance, contributing countries have had a significant degree of discretion over what they consider as such. This has led to numerous contestations regarding the fulfilment of developed countries' financial promises (Roberts and Weikmans 2017).

Most developed countries base their bilateral financial reporting to the UNFCCC on the data that they collect with the so-called "Rio marker methodology".[1] This methodology was elaborated by developed countries under the Development Assistance Committee (DAC) of the Organisation for Economic Co-operation and Development (OECD) in order to track the mainstreaming of Rio Conventions' considerations into development cooperation practices (OECD 2012, 62). Besides this code, which marks for projects whose objectives include helping countries adapt to climate change impacts, the other Rio markers are for projects addressing biodiversity and desertification, and climate change mitigation (emissions reductions).

The credibility of the Rio marker data has, however, been called into question by various studies, including our own earlier work (Roberts et al. 2008; Michaelowa and Michaelowa 2011; Junghans and Harmeling 2012). Despite their shortcomings, these analyses are important because the quality of the Rio marker data is not systematically and publicly assessed by the OECD or by any other third party. As highlighted by the OECD, "*the* [OECD DAC] *Secretariat can undertake in-depth quality reviews of marker data only occasionally, and while it may spot anomalies when conducting specific analyses or preparing data for publications, quality relies essentially on members' own checks*" (OECD 2013, 11). Relying almost exclusively on donor countries' self-reporting on such important data leads to a variety of biases in the understanding of the true size and nature of developed countries' financial support to developing countries. Previous research has notably concluded that the Rio marker database reflects huge overestimations: far fewer projects than the developed countries reported were found to be relevant to what can be considered climate change mitigation and adaptation.

This article reports on a new analysis of all 5,200 OECD DAC donors' aid projects from 2012 that had been categorised as adaptation-related with the Rio marker methodology. By looking at 2012 bilateral aid activities, our analysis aims at assessing whether or not developed countries have improved the quality of their aid categorisation in recent years. Readers unfamiliar with the Rio marker methodology will find a description of this coding system in the next section. This section also examines the role that the Rio marker data plays in international debates on the fulfilment of climate finance promises and in our understanding of the climate finance landscape. The following sections review previous assessments of the credibility of the Rio marker data; position our methodological approach in relation to those previous assessments; present and discuss our results; and

conclude by highlighting several consequences of the lack of credibility of the Rio marker data for academic understanding of the international adaptation finance landscape.

The significance of the OECD DAC Rio marker methodology

A purpose-based scoring system of three values has been used since 1998 by OECD DAC countries, in which all bilateral official development assistance (ODA) projects[2] are "marked" as targeting climate change mitigation as its "principal" objective (score "2"), as a "significant" objective (score "1"), or as not targeting the objective (score "0").[3] The climate change adaptation marker – which uses the same three-score system – was only introduced in 2009 and the first data on this marker became available in March 2012 for 2010 flows. Projects marked as having a "principal" mitigation or adaptation objective would theoretically not have been funded but for that objective; projects marked "significant" have other primary objectives but have been formulated or adjusted to help meet mitigation or adaptation concerns. The Rio marker methodology defines climate change adaptation projects as those activities that " … *intend to reduce the vulnerability of human or natural systems to the impacts of climate change and climate-related risks, by maintaining or increasing adaptive capacity and resilience*" (OECD 2013, 2). The Rio markers are applicable to bilateral ODA commitments. Data on adaptation-related disbursements are not available in DAC statistics. Reporting is voluntary on other official flows (OOF) (that is, non-concessional developmental flows, excluding export credits) starting from 2010.

So far, most developed countries have heavily relied on data that they collect using the OECD DAC Rio marker system to report to the UNFCCC Secretariat on their financial commitments toward developing countries. The Rio marker data therefore play an important role in the international debates around the fulfilment of international climate finance promises. However, this methodology was not originally designed for pledges-monitoring purposes; it was rather intended to produce descriptive data to track the mainstreaming of Rio Conventions' considerations into development cooperation practices (OECD 2012, 62).

The Rio marker methodology lacks important features that would make it a relevant indicator for the assessment of the fulfilment of financial promises (Weikmans and Roberts 2016). For example, the Rio marker methodology lacks granularity: when an aid project is marked as principally or significantly targeting mitigation or adaptation, the whole cost of the project is considered to be mitigation or adaptation related – though only a component of the project may target a mitigation or adaptation objective (Weikmans and Roberts 2016). In addition, the Rio marker system allows for an aid project to be marked as targeting several Rio markers. While it is useful to recognise potential overlap between the objectives of different Rio Conventions, the situation is more problematic when the same aid project is marked as principally targeting more than one of the four Rio markers. In those cases, the use of the Rio marker methodology for financial accounting may result in double-, triple- or even quadruple-counting towards different financial pledges made under the Rio Conventions (Weikmans and Roberts 2016).

In an attempt to overcome the many problems associated with the use of the Rio marker data for their financial reporting to the UNFCCC, most developed countries "scale down" the volume of finance associated with the Rio markers. They do so by using "coefficients" to differentiate between funding marked as targeting climate change as a "significant objective" – reflecting that these projects have other "principal objectives" (Roberts and Weikmans 2017). These coefficients differ across DAC members and range from 0 to 100% (OECD-CPI 2015, 32). This inconsistency is especially problematic for developing any understanding of the scale of global, concessional flows of climate finance to developing countries.

The Rio marker data also play an important role in the academic understanding of the adaptation finance landscape. Indeed, both in the institutional and in the academic literature, the Rio marker data are often used as a proxy for international climate finance (see, for example, UNEP 2013; Ha, Hale, and Ogden 2015; Halimanjaya 2015; Weikmans 2015; Betzold and Weiler 2016). This is not surprising given the fact that the Rio marker data are easily available online,[4] in contrast to the official

international climate finance figures which are available on the UNFCCC Secretariat website[5] but in a very fragmented and non-user-friendly manner. More broadly, the understanding – which is relatively limited – of the emerging landscape of international adaptation finance is closely connected to the availability of figures on financial flows that could potentially be counted as adaptation finance. For example, the role of the private sector in financing adaptation activities is largely unknown (UNFCCC SCF 2014; CPI 2015). Similarly, little is known about the role of non-OECD DAC countries in providing adaptation finance (van Gameren, Weikmans, and Zaccai 2014). Such uses of the Rio marker data on climate-relevant development finance as a substitute for data on international climate finance are, however, highly problematic given that the Rio marker data, while constituting the basis of most developed countries' reporting to the UNFCCC, do not equal the climate finance figures that those countries actually report to the UNFCCC (Roberts and Weikmans 2017).

Assessing the credibility of the Rio marker data: a review of the literature

Various academic and other civil society observers have analysed the Rio marker data to assess the quality of self-reporting by DAC donors. Similar analyses have also been carried out by the OECD DAC Secretariat and by several bilateral aid agencies. Despite their shortcomings, these analyses provide valuable insights because the data reported by DAC donors on the screening of their bilateral aid portfolio with the Rio markers are not subject to systematic quality control by the OECD DAC Secretariat or by any third party.

The issue of "over-coding" has particularly attracted the attention of researchers and civil society observers. Prior to the introduction of the Rio marker "adaptation", Roberts et al. (2008) and Michaelowa and Michaelowa (2011) sought to assess the credibility of donors' Rio marker categorisation of aid activities as climate-related. They used a relatively similar methodology to extract those aid activities that could be considered to be climate-relevant. This methodology is mainly based on a keyword search of individual aid activity titles and descriptions, complemented with hand-coding to refine the results of the automatic screening. The results of these analyses were compared with donors' own coding and a certain level of over-coding could then be deduced.

By analysing a random sample of 115,031 aid activities reported to the OECD DAC over 2000–06, Roberts et al. (2008) concluded that 70% of aid activities reported by donors as climate-related were over-coded. The analysis by Michaelowa and Michaelowa (2010, 2011) on 636,962 aid activities (covering 1995–2008) contained in the AidData database led to a similar conclusion of more than 60% of over-coded activities by DAC donors. Mis-categorisation was found to be particularly common in the United States, the Netherlands, and Norway, but also in Portugal, Germany, Denmark, and Austria (Michaelowa and Michaelowa 2011).

As highlighted by the OECD DAC Secretariat (OECD 2010) in an answer to Michaelowa and Michaelowa (2010), several limitations are inherent to the methodology used in these two analyses. First, keywords cannot take into account the extremely diverse nature of activities associated with the fight against climate change. The absence of specific words in a title or project description does not necessarily mean that a particular project is not climate-related. Second, aid activities' descriptions made publicly available in the Rio marker database are sometimes extremely limited. Donors may have had access to more detailed information to code their projects. Third, while recognising significant variation among donors in terms of data quality, the OECD (2010) indicated that it is not appropriate to treat all aid activities in the same way given the differences in the amounts involved – some aid activities cost more than US$100 million while other activities cost only a few thousand dollars. Finally, the OECD (2010) noted that it is not relevant to analyse aid activities reported to the OECD prior to 2007 – covering 2006 flows – because it is only since 2007 that the Rio markers have been part of the standard DAC reporting system. Before that, Rio marker data were only reported by DAC donors on a voluntary basis.

Junghans and Harmeling (2012) partially addressed these shortcomings by focusing only on the Rio marker adaptation data for 2010 flows – the first year for which data associated with this marker

are available. Their analysis considered both the number and the amount of over-coded aid activities, using a similar methodology to that used by Roberts et al. (2008) and Michaelowa and Michaelowa (2010, 2011). Junghans and Harmeling (2012) first observed that 55% of the considered aid activities (3,363 out of 6,107) contained at least one of the 49 keywords that they identified beforehand. Hand-coding then revealed that 37% of these activities had no explicit link to climate change adaptation. In total, they concluded that 65% of the original dataset projects could be considered as inappropriately coded as adaptation-related. A third step was to assess whether the aid activities that could be considered adaptation-related had not been over-coded (that is, receiving the Rio marker's score "2 – principal" instead of "1 – significant"). According to Junghans and Harmeling (2012), of those projects that they agreed did apply to climate change, 52% of the aid activities could be considered to have been properly coded, 6% under-coded, and 42% over-coded. Regarding the amount involved in aid activities, they noted that a sixth of the 6,107 activities strangely had a zero-dollar budget. The ten costliest aid activities accounted for a third of the total amount of all the activities coded as adaptation-relevant by DAC donors. Junghans and Harmeling (2012) notably highlighted the fact that these ten costliest aid activities could all be considered over-coded. In particular, they found that the United States, Spain, Switzerland, Belgium, Denmark, and Luxembourg miscategorised a significant number of their projects.

Many critiques levelled by those studies against the quality of the Rio marker data have also been acknowledged by the DAC Secretariat and by several DAC members. In 2013, the DAC Secretariat (OECD 2013) analysed the quality of the reporting of DAC members in relation to the Rio marker for adaptation by reviewing the descriptions of activities that members had labelled as adaptation-relevant for 2010 and 2011 flows. If the descriptions of activities for which the score "principal" was assigned by donors were found to generally demonstrate a focus on adaptation, the OECD (2013) indicated that "… *descriptions* [associated with the score "significant"] *seldom made the adaptation objective explicit*" (OECD 2013, 4). As highlighted by the Secretariat:

> "The level of detail of project description reported by members varies and climate concerns may be present without being stated. However, the eligibility criteria state that adaptation objective ought to be 'explicitly indicated in the activity documentation' for the activity to qualify for the score significant." (OECD 2013, 4)

This highly problematic situation is reinforced by the fact that the labelling of expensive infrastructure projects as adaptation-related leads to a significant overestimation of the amounts made available for adaptation (OECD 2013). In addition, the DAC Secretariat noted the lack of consistency and accuracy in the reporting of non-core contributions to multilateral funds and programmes (OECD 2013). The principal score was attributed to the contributions made by donors to multilateral organisations that are not primarily focused on adaptation. Moreover, reporting was not consistent between DAC members for the same multilateral fund or programme: some scored their non-core contributions to a given fund or programme as primarily targeting adaptation, while others used the significant score for their contributions to the same fund or programme (OECD 2013).

Various donors have also undertaken or commissioned analysis of the quality of their reporting with the Rio markers (e.g. for Sweden, see Wingqvist et al. 2011; for Finland and Switzerland, see OECD 2012, 66; for Belgium, see ADE 2013, 23–24; for Austria, see Ledant et al. 2016, 66–69). Wingqvist et al. (2011), for example, concluded that the coding for adaptation was the least relevant of the four Rio markers used by the Swedish development cooperation, with only 50% correctly labelled activities. Switzerland and Finland, among others, also reviewed their activities related to Rio marker adaptation and concluded that there was a similar level of over-coding (OECD 2012).

Methodology

The purpose of our analysis was to re-evaluate the 5,200 projects that countries reported to the OECD for 2012 as adaptation-related, based on the Rio marker classification system. We followed the OECD

Table 1. Overview of the methodologies used by previous studies and comparison with our re-evaluation.

Authors and year of publication	Roberts et al. (2008)	Michaelowa and Michaelowa (2011)	Junghans and Harmeling (2012)	This study
Database	OECD DAC CRS database	AidData database for 21 bilateral DAC donors	OECD DAC CRS database (Rio marker "adaptation" only)	OECD DAC CRS database (Rio marker "adaptation" only)
Time period	2000–06	1995–2008	2010	2012
Types of climate projects	Adaptation only	Mitigation and adaptation	Adaptation only	Adaptation only
Number of aid activities	Random sample of 115,031 aid activities (out of 680,617 aid activities)	636,962 aid activities	6,107 aid activities	5,201 aid activities
Methodology	Mainly keyword search in individual aid activity descriptions; Complementary hand-coding	Mainly keyword search in individual aid activity descriptions; Complementary hand-coding	Mainly keyword search in individual aid activity descriptions; Complementary hand-coding	Hand-coding
Methodological shortcomings and approaches to address them	× Keywords cannot take into account the diversity of aid activities targeting climate change × The publicly available description of aid activities often is very limited and does not always allow a coding decision to be made × Only number of activities considered (large and small aid activities are considered in the same way) × Very spotty use of the Rio markers by donors over the time period covered: the Rio markers were used but have only been part of the required CRS since 2007 (reporting on 2006 flows)	× Keywords cannot take into account the diversity of aid activities targeting climate change ✓ A separate coding category was created to reflect the projects for which available information was so limited that the coding decision was impossible to make × Only number of activities considered (large and small aid activities are considered in the same way) × Very spotty use of the Rio markers by donors over the time period covered: the Rio markers were used but have only been part of the required CRS since 2007 (reporting on 2006 flows)	× Keywords cannot take into account the diversity of aid activities targeting climate change × The publicly available description of aid activities often is very limited and does not always allow a coding decision to be made ✓ Both number and amount of activities were considered ✓ Only the Rio marker "adaptation" data were re-evaluated; the time period that was considered corresponds to the standard reporting on Rio markers to the CRS	✓ Systematic hand-coding to avoid the shortcomings linked to the use of keywords ✓ A separate coding category was created to reflect the projects for which available information was so limited that the coding decision was impossible to make ✓ Both number and amount of activities were considered ✓ Only the Rio marker "adaptation" data were re-evaluated; the time period that was considered corresponds to the standard reporting on Rio markers to the CRS

DAC Rio marker categorisation methodology in our re-categorisation, classifying projects based on whether adaptation constituted a "principal" or "significant" objective of the aid activity. We re-categorised aid activities from all of the OECD DAC nations except the United States, which did not report any aid activity screened with the Rio markers for 2012. Our dataset was drawn from the OECD Creditor Reporting System (CRS) database, accessed in October 2014.

By contrast with earlier studies (see Table 1 for a comparison), our methodology did not rely on keyword search but rather on an assessment of each aid activity's title and description, as provided by donor countries to the OECD DAC. We considered a project to be adaptation-related if it contained a clear adaptation component in any of these fields, but as specified in the OECD coding instructions to member nations described above, the adaptation objective ought to be "*explicitly indicated in the activity documentation*". The projects that alluded to resilience-building or were clearly linked to an adaptation action or outcome were considered adaptation in our recoding. Activities and projects without clear delineation of adaptation objectives were coded as not having adaptation as an objective. Due to limited resources, we had to depend on a single coding round.

One irreducible weakness of our methodology – as with the previous studies reviewed above – is that donor countries' officials scoring aid activities could have had access to more detailed project information of aid activities than we did. Regrettably, donor countries only provide a short description for most of their aid activities, which means that climate adaptation concerns may be present in an aid activity without being stated in available project description. It is possible that aid project managers knew of more detail about projects than were reported to the DAC. However, countries vary widely in which person is responsible for coding projects for the Rio markers – some are coded by staffers in foreign affairs agencies with no more information than we had from the CRS reporting.

The lack – or the complete absence – of further information in the OECD DAC database in which Rio markers are recorded for many projects considerably hindered our ability to confidently and knowledgeably code projects in terms of their adaptation relevance. The 5,200 projects were recoded according to the following categories: "2 – adaptation appears to be the principal objective of the project"; "1 – adaptation appears to be a significant objective"; "0 – project apparently not adaption"; or "99 – insufficient information to categorise the project". However, as highlighted earlier, the Rio marker methodology explicitly requires that the climate change adaptation objective be indicated in the aid activity documentation for the project to be scored as "adaptation related" (OECD 2013). The projects that we re-coded as "99 – insufficient information to categorise the project", could therefore be considered as "0 – not adaptation".

Results

What does a multi-year funding package to enhance trade and development by supporting the World Trade Organization Global Trust Fund have in common with the redevelopment of the

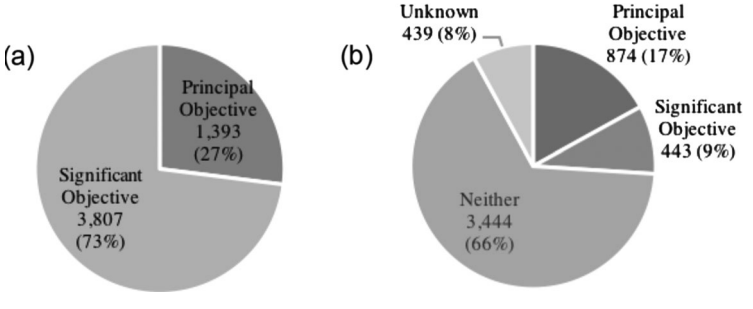

Figure 1. (a) DAC donors coding of projects ($N = 5,200$) as adaptation-related (2012). (b) Our re-evaluation.
Source: Authors' calculations.

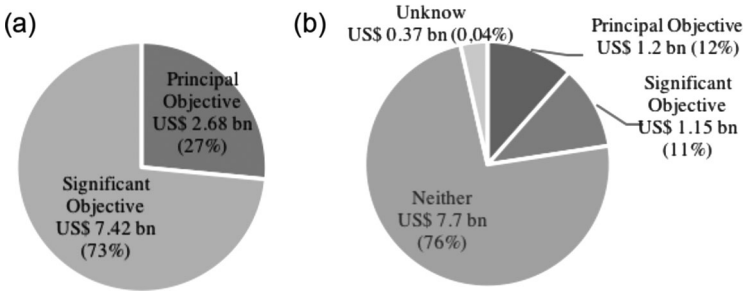

Figure 2 (a). DAC donors categorisation of 2012 projects as adaptation-related (total amount = US$10.1 bn). (b). Our re-evaluation. Source: Authors' calculations.

Matavai resort on the Pacific island of Niue? Both are projects apparently miscoded by donor countries as adaptation-related in the 2012 Rio marker adaptation data. Of the 5,200 aid activities marked as adaptation-related in the OECD CRS database for 2012 bilateral flows, 1,393 were classified by donors as targeting adaptation as a principal objective and 3,807 as having adaptation as a significant objective (Figure 1a). However, our re-evaluation showed that 3,444 of the total 5,200 aid activities (66% of aid activities) did not explicitly target climate change adaptation (Figure 1b).

Our findings indicate vastly fewer adaptation projects than reported by DAC countries.[6] Projects coded by donors as having adaptation as a principal objective were far more likely to be re-categorised (confirmed) by us as adaptation, but more than a third of these projects showed a questionable relationship to climate change adaptation. Only one ninth of projects coded by OECD members as having adaptation as a *significant* objective stood up to this independent review: the rest lacked an explicit tie to addressing vulnerability. We found that over 70% of projects coded by DAC donors as having adaptation as a significant objective were not clearly related to adaptation or lacked adequate information to be categorised. We found that 443 projects had adaptation as a significant objective (instead of the 3,807 projects claimed by donors). Only 874 aid activities were re-evaluated as

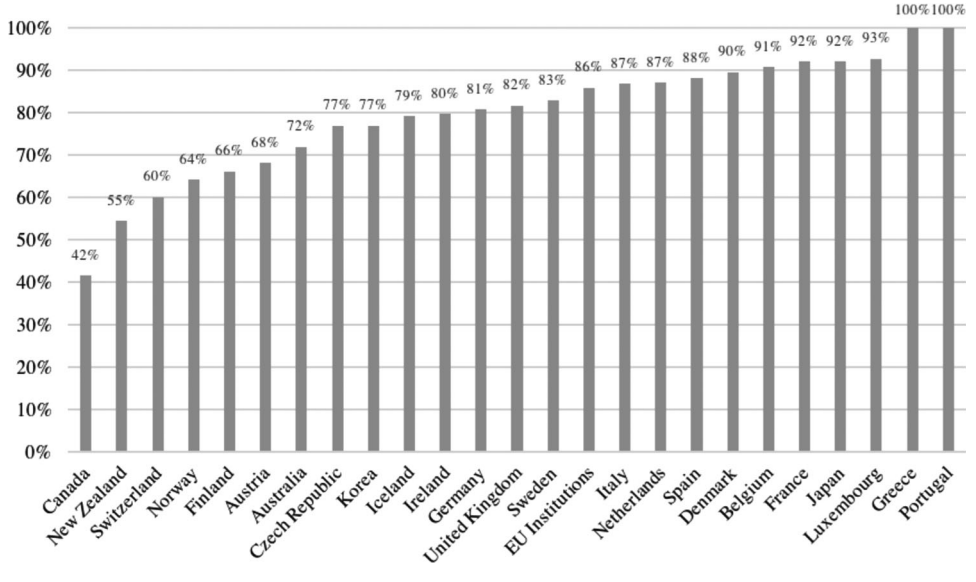

Figure 3. Proportion of projects that each donor has over-coded. Source: Authors' categorisation and calculations. The United States is not included because it did not mark any projects using the Rio markers in 2012.

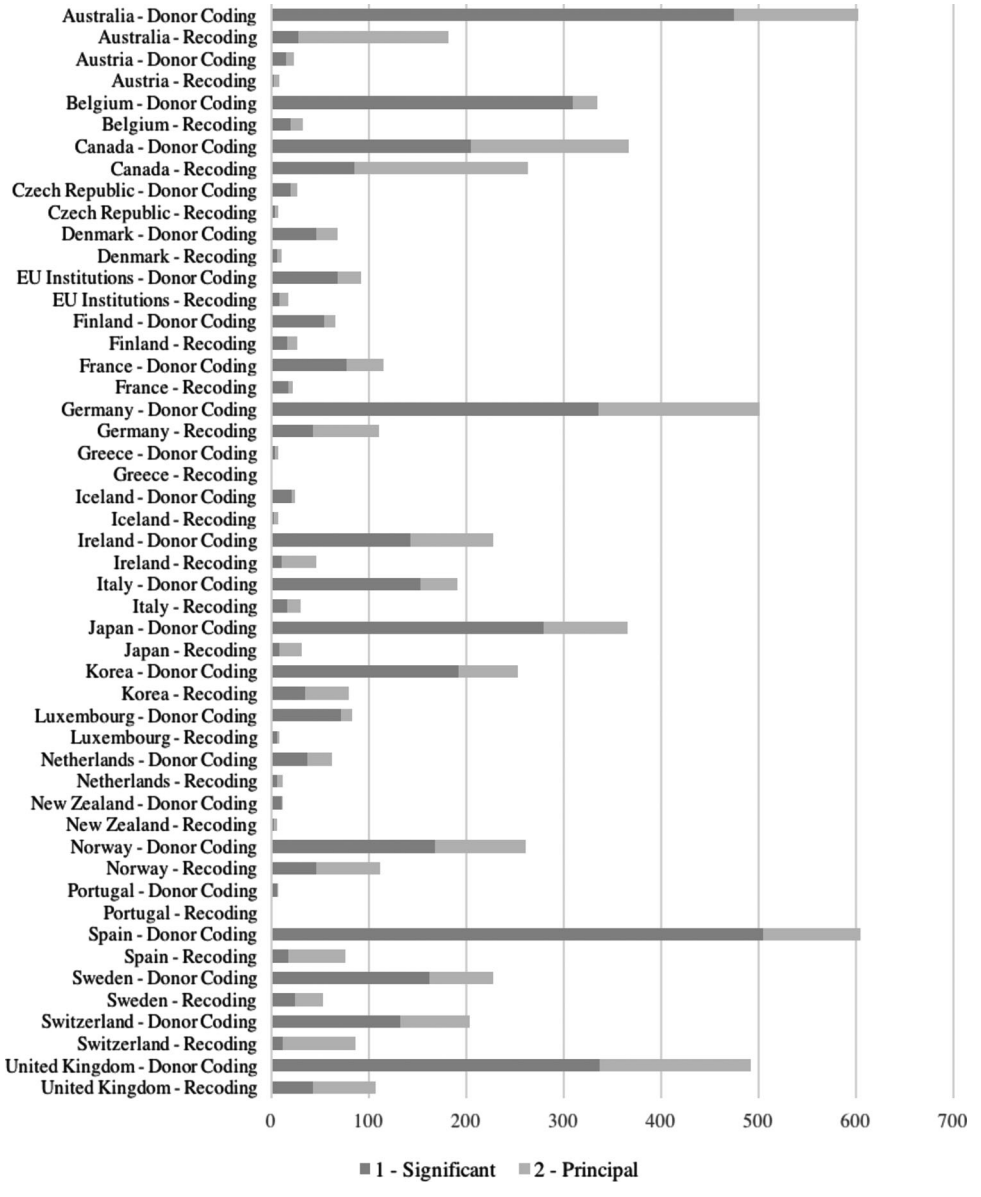

Figure 4. Number of projects coded as adaptation-related by donors versus our re-evaluation.
Source: Authors' categorisation and calculations.

targeting adaptation as a principal objective (instead of the 1,393 projects claimed by DAC countries). And 439 aid activities coded as adaptation-relevant by donors were found to be uncategorisable, for lack of clear project titles and/or descriptions.

In 2012, OECD countries claimed that US$10.1 billion of bilateral aid that year was adaptation-related, with almost US$2.7 billion explicitly targeting adaptation as a principal objective (Figure 2a). However, we found that only US$2.35 billion appears to be genuinely adaptation-related, and only US$1.2 billion targeted adaptation as a principal objective (Figure 2b). This means that of the US$10.1 billion claimed by OECD countries as adaptation-related aid in 2012, almost US$8 billion was not, in fact, explicitly adaptation-related.

Out of the ten projects with the highest financial budgets (together accounting for US$1.8 billion out of the US$10.1 billion), eight were re-evaluated as over-coded. The two other projects were considered to be correctly coded as having a significant adaptation objective.

Figure 3 illustrates the countries that significantly over-coded their adaptation-relevant projects, marking them with the score "2" instead of the more appropriate scores "1" or "0", or marking them with the score "1" instead of "0". In this figure, projects are also considered as over-coded if they were marked as adaptation-relevant by donor countries but had insufficient information to be re-categorised by the information provided in the OECD's CRS database. Figure 3 shows that all donors except Canada over-coded more than 50% of their projects. We found that Greece and Portugal over-coded all of the projects that they reported as adaptation-related for 2012 – but this finding has to be qualified by the small number of projects that they marked as adaptation-relevant (only six projects for each of these two donors in 2012). The United States is not shown since it reported no climate Rio markers in 2012.

Figure 4 further details the level of over-coding by donor countries. It also shows the countries that we considered had the most adaptation projects with a principal or a significant objective. According to our re-evaluation, Canada appears to be the leading donor in terms of number of adaptation projects in 2012.

Discussion

The results of our re-evaluation are in line with previous assessments of the credibility of the Rio marker data: that a large majority of aid projects claimed to be adaptation cannot be justified as such based on the public data. How can we explain the high level of over-coding of aid projects as adaptation-related? As highlighted by Michaelowa and Michaelowa (2011) and Junghans and Harmeling (2012), the most obvious coding errors might be related to rapid categorisation procedures and to misunderstandings linked to the difference between adaptation objectives and other kinds of environmental objectives. To test this second hypothesis, we applied a second categorisation system on all 5,200 projects to distinguish climate projects from other environmental aid activities.[7] Based on this categorisation system, we found that 56% of those aid activities listed by donor countries as adaptation projects were in fact *environmental* projects, but without a climate change adaptation component; 14% were projects to mitigate greenhouse gas emissions, but appeared to have no adaptation component, while 28% appeared to be completely unrelated to climate change adaptation, mitigation or environment, and 2% were uncategorisable. This strongly suggests a lack of clarity within aid agencies about the distinction between climate change adaptation and other types of environmental projects. Projects may have been coded by administrative support staff with little expertise in the evaluation of the climate relevance of projects (Junghans and Harmeling 2012).

However, as highlighted above, the issue of miscategorisation associated with the Rio marker methodology has been highlighted for years by various observers (Roberts et al. 2008; Michaelowa and Michaelowa 2011; Junghans and Harmeling 2012) and by the DAC Secretariat itself (see, for example, OECD 2010, 2013). In 2010, the OECD DAC Secretariat observed that "*There are large variations in data quality between donors*" (OECD 2010, 2). Our review of 2012 adaptation-related development projects complements previous assessments and shows that the progress made by developed countries on the quality of their self-reporting has been profoundly unsatisfying. Beyond the technical or capacity deficiencies that may partly explain the low quality of the Rio marker data, another important factor to consider is that developed country governments are under pressure to show they are taking action on climate change. The Rio marker self-reporting system could therefore allow pressures to result in systematic "over-reporting" of projects. Importantly, Michaelowa and Michaelowa (2011) found a relationship between levels of over-coding and the political pressure on governments to show they were doing something about climate change

(varying, for example, by the level of green party representation in parliament or the media coverage of international climate policy issues).

The lack of credibility of the Rio marker data is problematic for at least two reasons. First, it means that the international development aid community is ill-equipped to assess the progress toward the mainstreaming of climate change adaptation considerations in development cooperation practices. This risks threatening the effectiveness of aid activities as donors cannot meaningfully assess the level of exposure and vulnerability of their portfolio to climate risks. Similarly, this means that the development community is largely unable to assess the contribution of bilateral aid activities to the preparedness of developing countries in relation to climate impacts.

The low quality of the Rio marker adaptation data also impacts trust in international climate negotiations. This is because most developed countries use the Rio marker data as a basis for their reporting to the UNFCCC on their financial commitments toward developing countries. The fact that the Rio marker data are obtained through donors' self-reporting, without systematic and independent third party verification, further erodes the confidence of developing country parties' negotiators in the fulfilment of developed countries' promises. These problems add to several other issues such as the fundamental lack of transparency regarding how the volume of finance associated with the Rio markers is "scaled down" by using coefficients that differ from 0 to 100% among donors (Roberts and Weikmans 2017). They also add to the fundamental weaknesses of the Rio marker methodology to act as an accounting system – a purpose that this methodology was not originally designed to serve (Weikmans and Roberts 2016).

Going forward, current negotiations held under the UNFCCC Subsidiary Body for Scientific and Technological Advice in order to develop "*accounting modalities*" by 2018 (as mandated by UNFCCC 2015, Paragraph 57) present an important opportunity to elaborate a robust climate finance accounting methodology. As some of us have argued elsewhere (Weikmans et al. 2016), the current lack of control on contributing country parties' self-accounting could be addressed through a method of triple validation, that is: (i) proposed categorisation of a project or programme as "adaptation finance" by the contributing country (for bilateral climate finance) or by the multilateral institution (for multilateral climate finance); (ii) validation by the beneficiary country; and (iii) validation by an international committee under the authority of the UNFCCC Conference of the Parties.

Other important features are essential to a robust climate finance accounting methodology (see Weikmans and Roberts 2016). Such a methodology should notably be based on a high level of granularity. The whole cost of a project or programme should not be reported as adaptation finance if only a component of a project or programme targets adaptation. Only those components, sub-components, elements, or proportions of projects that target adaptation should be reported as adaptation finance. The so-called "*three-step approach*" methodology elaborated in 2012 by a group of multilateral development banks to track their climate finance follows such a granular approach (see MDB 2015). The multilateral development banks' tracking methodology is also more rigorous than the Rio marker one as it requires more documentation and analysis before a project may be determined to address adaptation (Weikmans et al. 2016). This methodology arguably represents a valuable example to build upon in order to go beyond the inherent flaws of the Rio marker methodology.

Conclusion

This article builds on previous research, providing a more robust analysis of adaptation-related development aid activities by revisiting the 5,200 projects (2012 flows) that DAC donors claimed encompassed adaptation as their principal or significant objective under the Rio marker categorisation system. Our findings confirm previous conclusions made in the academic and grey literature. The absence of systematic and independent quality control makes the Rio marker adaptation database largely unreliable. The lack of credibility of the Rio marker data impedes meaningful evaluation of the status of adaptation mainstreaming in bilateral aid activities. It also erodes trust in international

climate negotiations given the role that those data play in the financial reporting of developed countries to the UNFCCC.

Importantly, the academic understanding of the international climate finance landscape is hugely obscured by the fact that it heavily relies on data self-reported by donors and obtained with the Rio marker methodology. This methodology is prone to huge overestimations – and ones that are not homogenous among donors. The Rio marker data do not provide a relevant indicator of the scale of financial means made available by developed countries to developing ones. Consequently, these data risk altering the assessment of the "adaptation finance gap" (see UNEP 2013, 2014, 2015, 2016). They also distort the understanding of resource allocation patterns, which means that it is impossible to robustly assess where the financial gaps are, both in terms of beneficiary countries and targeted sectors (see Weikmans 2015). Vulnerable nations, recipients, contributors, and researchers all deserve better information.

Notes

1. There are some notable exceptions, including the United Kingdom and the United States, which use their own accounting approaches (OECD-CPI 2015, 49). Having inconsistent systems across nations is also problematic, as we discuss later.
2. The generic terms "project" or "aid activity" are indistinctively used in this article. They refer to various types of aid modalities (for example, project, sector budget support, technical assistance).
3. Each aid project is also screened against the Rio markers "biological diversity" and "desertification".
4. See http://stats.oecd.org/Index.aspx?DataSetCode=RIOMARKERS.
5. See www4.unfccc.int/sites/br-di/Pages/FinancialSupport.aspx.
6. The full data are available upon request from the authors.
7. The full codebook description for this coding scheme is available upon request from the authors.

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