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How does the "Global South" mobilize resources for environmental projects – a per capita comparative analysis based on the Global Environment Facility database (1991-2023)

Como o "Sul Global" mobiliza recursos para projetos ambientais – uma análise per capita comparativa baseada no banco de dados do Fundo Global para o Meio Ambiente - GEF (1991-2023)

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Abstract

This paper analyzes how the different regions and countries of the (conceptually subjective) "Global South" mobilized resources for environmental projects, that were partially sponsored by the Global Environment Facility (GEF). The quantitative analyses were mostly based on per capita indicators, which form the foundation for most of the conclusions presented. The data analysis looked at the information of over 5.000 GEF projects- amounting to more than US$ 160 billion, including cofinance- ever since its establishment in the early 1990s, until the first semester of 2023. The main findings suggest that smaller countries, especially those composed of low-lying islands, present the best per capita ratios of resources mobilized (GEF grants plus cofinance) for the projects. Size, necessity and GEF's inclusive, but finite, resources, seem to catalyze these results. Among the three "macro" regions examined, Latin America and the Caribbean (LAC) presents the best resources mobilized per capita ratios, and parts of Asia and the Pacific (ASIAPAC) excel at completing existing projects. One-country projects followed through better than multi-country ones. Finally, this paper concludes that wars and superior political instability are relevant factors that make countries cancel more projects. Theoretical hypotheses that help to corroborate most of these findings are included.

Keywords: Global South; Global Environment Facility; environmental projects.

Resumo

Este artigo analisa como as diferentes regiões e países do (conceitualmente subjetivo) "Sul Global" mobilizaram recursos para projetos ambientais, que foram patrocinados parcialmente pelo Fundo Global para o Meio Ambiente (GEF). As análises quantitativas foram baseadas substancialmente em indicadores per capita. A análise de dados examinou as informações de mais de 5.000 projetos do GEF - totalizando mais de US$ 160 bilhões, incluindo contrapartidas - desde sua criação no início dos anos 1990 até o primeiro semestre de 2023. Os principais resultados sugerem que países menores, especialmente os compostos por ilhas de baixa altitude, apresentam os melhores indicadores per capita de recursos mobilizados (doações do GEF mais contrapartidas). Tamanho, necessidade e os recursos inclusivos, mas finitos, do GEF, parecem catalisar tais resultados. Entre as três macrorregiões examinadas, a América Latina e Caribe (LAC) apresenta os melhores indicadores de recursos mobilizados per capita, e a partes da Ásia e do Pacífico (ASIAPAC) se destacam na conclusão de projetos existentes. Projetos de um país executaram melhor que os coletivos. Por fim, este artigo conclui que guerras e maior instabilidade política são fatores relevantes para maiores cancelamentos de projetos. Hipóteses teóricas que ajudam a corroborar a maioria destas conclusões foram incluídas.

Palavras-chave: Sul Global; Fundo Global para o Meio Ambiente (GEF); projetos de meio ambiente.

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Introduction

This paper proposes to link the "Global South" with environmental care, within our worrying scenario of climate change. As stated by the Intergovernmental Panel on Climate Change-IPCC, "human activities, principally through emissions of greenhouse gases (GHG), have unequivocally caused global warming" (IPCC, 2023, p. 6). Academic studies on the various relationships between this phenomenon and human behavior – including causes and efforts to mitigate it – are urgently important. This paper proposes to contribute to the comparative cross-country debate with an economic and objective element, which is resources mobilized by countries to environmental projects, more specifically from one of the main funding sources available in the multilateral space: the Global Environment Facility (GEF). GEF numbers being analyzed in academia is not new. Monika Figaj (2010) correlated GEF projects data from 1995-2006 with several variables, and poverty and environmental factors were more determinant to explain superior environmental aid received (2010). A study by Bayer *et al.* (2014) analyzed the GEF database of projects from 1991 to 2011 and concluded, among other findings, that economically important countries presented superior levels of resources mobilized (by bargaining power with international organizations – IOs), as far as the World Bank resources were involved (2014).[1] Cui *et al.* (2019) also worked on the GEF database from 1991-2018 with a specific focus on the co-financing part of the projects, concluding that its ratio (vs. GEF grants) have almost doubled throughout the time period, which demonstrates an increasing mobilization by non-GEF parties to contribute.

As stated by Biagini *et al.*, which have analyzed the technical dimension of GEF projects, "there is little evidence that the mainstreaming projects funded through Global Environment Facility have produced peer-reviewed articles written either by the project implementers or by others" (BIAGINI *et al.*, 2014, p. 106). This reinforces the case that the GEF has not been approached much by theoretical lenses. Connected to this, Steiner and Medeiros (2010) evaluated if international environmental conventions do work, by employing theoretical-methodological approaches, mainly related to the efficacy of the former. This study stated that given the complexity of the theme, there was still much to be developed in theoretical-methodological terms but, focusing on the measurement of efficacy, posited that a simpler approach would be to analyze the evolution of GHG emissions (STEINER; MEDEIROS, 2010). Looking at these numbers, unfortunately, global GHG emissions reached a new record in 2023 (STATISTA, 2024). According to dictionaries, efficacy is the ability to perform a task to a satisfactory or expected degree. I posit that the increase in GHG emissions is very unsatisfactory. But I also posit that the environmental efficacy of the GEF projects relates to "expected" outcomes, such as to successfully execute training/capacity-building in countries. GEF database shows if their projects are completed or not, so successful completion can be deemed as effective. Completion rates are analyzed further in this paper.

GEF funds have strongly increased amidst the growing climate change global concern. So, this paper proposes to present a newer, updated macro perspective to this funding source, reflecting more recent times. Using the GEF database of projects, covering all their investment cycles ever since the start in the early 1990s until June 2023, this paper cross-checks amounts mobilized (direct grants and co-finance) and encompass them into a macro-level "Global South" study. Drawing from the economic relevance of the source of funding in case here, the GEF, herewith I would like to answer the following primary question: How have the "Global South" countries and regions compared in the GEF funds they mobilized in the last three decades, on a per capita basis, for environmental care projects?

[1] In this study, the trio of China-India-Brazil, in this order, were the top recipients of GEF projects. In my study, the trio persists as the leading recipients, the only difference is that the order changed to China-Brazil-India. The GEF numbers, in absolute terms, for all GEF country-recipients can be found at the Appendix, which location is referenced in the "Available database as further avenues for analysis" section of this paper. Different from Bayer *et al.* (2014) study, my focus is mostly on per capita basis.

"Global South" conceptualization

This paper normatively conceptualizes the "Global South" as a large group of countries from the less-developed regions of Latin America, Asia, Africa, and Oceania (DADOS; CONNELL, 2012). For Peter Jacques, Global North encompasses Western societies and Global South the non-Western ones (JACQUES, 2008). Dubey *et al.* conceptualized Global North and Global South as a distinction between countries with higher and lower rates of human development, respectively; in an exercise which is "not geographically absolute" (2024, p. 72). This latter source included Mexico and Turkey as part of the "Global North", which I disagree with because the first has similar level of development of other Latin American countries and the second is predominantly in Asia, and it has distanced itself from European influence in the last years. However, this source also included Eastern Europe as Global North, a perspective that this paper adopts as well. For Russia, it also has been considered as Global North by Dubey et at. 2024, and this very debatable case is treated according to considerations in the methodology section of this paper.

The concepts of different levels of "development" permeating Global North-South categorization of countries carry subjectivity. The problematization of what "development" is and why country A is North but not South, or vice-versa, is a deep area of contention, which involves many elements such as poverty, income inequality, among others, and these are not within the scope of this paper. To move forward to the quantitative analyses, this paper mainly draws from the sources mentioned above (JACQUES, 2008; DADOS; CONNELL, 2012; DUBEY *et al.*, 2024). Therefore, for the purpose of this study, the Global North consists of the United States, Canada, Australia, Japan and all Western Europe – these countries are not served by the GEF. Eastern Europe is served by the GEF, and it is also considered Global North. Russia is a special case, which is explained specifically in this paper. With this imperfect, but pragmatic categorization of countries, this study proposes to tackle the following question: does the GEF really focus its funding on the "Global South"? The numerical results presented below attempt to answer this question, with the primary answer being a positive one.

According to many scholars and authors, the "Global South" is less to blame for climate change than the Global North is (YORK *et al.*, 2003; PARKS; ROBERTS, 2006; BERNERS-LEE, 2011; CLINI 2017; CALDEIRA *et al.*, 2020; MUNDY, 2021; CRIPPA *et al.*, 2022; MARIA; NASCIMENTO, 2023). This is what numbers of the carbon footprints of different countries tell us, as per what York *et al.* posited, "if the Chinese try to eat as much meat and eggs and drive as many cars (per capita) as the Americans the biosphere will fry" (2003, p. 295), or as Mundy showed, "while the United States emits 15.5 tons of carbon (per capita) a year, Ethiopia emits just 0.1 tons" (2021, p. 380). Stemming from the previous statistics, one of the main issues around global environmental politics relates to a debt that the Global North owes to the South, due to its historically higher levels of carbon emissions. This paper acknowledges that this debt is being paid, not in (and probably still far from) the adequate total amount, but in a small part at least. As posited by Cui *et al.*, developing countries do still face huge financial gaps in addressing climate change (2019, p. 96). An additional, enormous challenge our world faces is environmental skepticism. Getting back to the North vs. South confrontation, Jacques posited that "skepticism is – at least if books in print tell the tale – an exclusively Northern social countermovement with Northern interests in undermining insurgent interests in ecological sustainability" (2008, p. 9)[2].

The GEF and the "Global South"

The GEF employs resources that mostly come from richer countries and distribute them mostly to poorer ones, in projects which aim to confront biodiversity loss, climate change, pollution, and strain on land and ocean health. Ever since its creation in the early 1990s, the GEF has provided more than US$ 21 billion in grants and blended finance and has

[2] The author surveyed 141 "environmentally-skeptical" books published between 1972 and 2005 and found that only one was written by a "Global South" author from South Africa, while the remaining 140 were authored by individuals from the "Global North".

mobilized additional US$ 140 billion in co-financing (which takes part with funds from various sources, local governmental ones being more relevant) to more than five thousand national and regional environmental projects in the world, focusing preponderantly on its developing regions.

In part similar to the Figaj (2010) and Bayer *et al.* (2014) studies, this paper employs a methodology of comparative quantitative assessments, but focuses on how the "Global South" mobilizes GEF resources for projects, mostly through simple per capita analyses. More specifically, how the regions of the "Global South" (i.e., Latin America and the Caribbean, Africa and less-developed Asia/Pacific nations) differentiated themselves in the numbers mobilized to environmental projects. This paper is structured as follows: (i) a brief chronology of how global environmental politics advanced within the increasing awareness of climate change, culminating in the creation of the GEF – the core data source for this paper, (ii) how the GEF operates and the methodology for the data-analysis done for this paper, (iii) results of the data-analysis, and (iv) concluding and discussing considerations.

Brief chronology of environmental politics amidst our climate change crisis

Despite very limited publicity and dissemination/acceptance, the discovery of climate change can be traced back to 1896, when a Swedish chemist named Svante Arrhenius published a prediction that humankind would gradually warm the planet by several degrees by releasing carbon dioxide into the atmosphere (OPPENHEIMER, 2023). More than a century passed by and climate change has become one of the defining issues of our current times, and it is very difficult to address, the primary reason being it is "a collective action problem where the benefits of limiting greenhouse gas emissions accrue globally but the costs are borne by individual countries and communities, leading to little common ground among nations to share costs of recovery or fixture" (GUSTAFSON, 2021, p. 2). Awareness of climate change effects has increased as many states have been impacted, especially the most vulnerable and developing ones, and low-lying islands (ECKERSLEY, 2004; HALL, 2016; HUQ, 2023; TAYLOR, 2023).

Climate change affects conditions to produce economic output, such as by the sharp increase of rainfall (as the recent case in Rio Grande do Sul, Brazil, showed), or by fires and droughts and other types of natural catastrophes, as Dietz and Rosa (1997), Jackson (2009), Hamilton (2014) and Oppenheimer (2020) presented, or by strengthening virus or bacteria-caused vector-borne diseases (BROWNSTEIN *et al.*, 2023; COLÓN-GONZÁLEZ, 2023).

The evolution of global environmental politics leading up to the establishment of the GEF

The issue of climate change, within global environmental politics, has been mostly circumscribed to the Global North during the late 1960s and 1970s, or mostly imposed by the former to the "Global South" (GORGEN ZECA, 2022). The early 1970s marked the rise of non-state actors such as non-governmental organizations, which were able to enhance their soft power through the presentation of their transnational environmentalism agenda to wider audiences (HAYNES, 2016). The "Global South" was finally at the door during the 1970s most prominent efforts, like the Club of Rome initiative, that drew from the grand narratives of "limits to growth" and absolute "scarcities". A globalist discourse was central to this period; "the work commissioned by the Club of Rome, for instance, assumed that the various important processes (population, resources, pollution) had to be examined at a global level, what placed North-South issues in a central position" (STEVIS, 2006, p. 26).

The narrative expressions "sustainable development" and "global environment" only came about in the 1980s and replaced the previous decade's "limits to growth" and "scarcities" primary discourses. The internalization of globalization within the environment debate came to stay in this decade as the depletion of the ozone layer and climate change, crystallized. The trajectory of environmental protection insertion into politics from the 1970s to the 1990s can be

summarized, as follows: it evolved from "an additional, identifiable, but subsidiary task of the welfare state" in the first decade of the period, to being elevated to "a more significant (although still not primary) task to be integrated with, rather than overshadowed by, the goals of economic development" (ECKERSLEY, 2004, p. 79-80).

In 1992 the United Nations Earth Summit took place in Rio de Janeiro. This was a notable milestone which effects made the environment climb up the agenda of policymakers from various countries, amidst its increasing importance at the multilateral space. Some theorists observe that Rio 1992 was a pivotal event for the start of a global political conscience regarding the environment (BETSILL, 2006; IVANOVA, 2013; DALBY, 2016; HALL, 2016; CLINI, 2017; OPPENHEIMER, 2023; LAFER, 2023). At the onset of Rio 1992 preparations, the Global Environment Facility-GEF was founded. This brief section on global environmental politics is instrumental in demonstrating how North-South cleavages have evolved over the past decades. The founding and ongoing existence of the GEF highlight some aspects of this persistent divide.

Operationalization - the GEF and multilateral funds mobilized for environmental projects

The primary focus of this paper is the resources mobilized by the GEF, with accompanying larger amounts mobilized by governments, non-governmental and private entities, for environmental projects located worldwide. Established by the World Bank, the United Nations Environment Programme-UNEP and the United Nations Development Programme-UNDP in the early 1990s and headquartered in the heart of the "developed", "Western" world in Washington D.C., GEF funding is provided by participating donor countries and made available to developing countries and countries with economies in transition to meet the objectives of internal environmental conventions and agreements. This North-South configuration where GEF sits on the middle does not escape the criticism from some developing countries, which are reluctant to watch its role as "the operating entity for the financial mechanism to implement (the environmental) Agenda 21" (GUPTA, 2007). One of the key implementation agencies of GEF is UNEP[3], where I have worked for more than three years as from 2020.

The numbers presented were extracted from the project database section of GEF's website (GLOBAL ENVIRONMENT FACILITY, 2023). Ever since its creation in the early 1990s, until mid-2023, the GEF has provided more than US$ 21 billion in grants and blended finance and has mobilized additional US$ 140 billion in co-financing to more than five thousand national and regional environmental projects. Considering these numbers, the GEF is still the largest funder in the world for environmental projects, despite some growing alternative funds – for instance, the Green Climate Fund (GCF), headquartered in South Korea, which claims to be the "world's largest climate fund", with almost US$ 14 billion cumulatively provided (GCF, 2024), but these numbers are still smaller than GEF's. According to Carugi, the GEF "is one of the most important, if not the most important multilateral fund specifically supporting environmental projects and programmes throughout the world" (2016, p. 55).

In summary, the GEF operates as follows. The GEF functions as an open space for any climatic demand of any asking country, if it aligns with GEF's main areas of focus. Country specific biomes are part of GEF projects, for example, Brazil's *cerrado* (GEF ID project 2641), Brazil's *caatinga*, *pampa* and *Pantanal* (GEF ID 4859), South Africa's national grasslands (GEF ID 2615), Russia's steppe (GEF ID 3745), among many other examples (GLOBAL ENVIRONMENT FACILITY, 2023). The Ministry of the Environment of the asking country is oftentimes involved in the process of designing a project which will be submitted for GEF consideration. So, theoretically, the environmental issues or demands of a particular country are potentially addressed through the most appropriate channel for it. But in some other instances, the environmental ministries are not involved and projects might be submitted to the GEF through other political channels.

[3] Since its inception in 1972, the United Nations Environment Programme (UNEP) has been the global authority that sets the environmental agenda, promotes the coherent implementation of the environmental dimension of sustainable development within the UN system and serves as an authoritative advocate for the global environment (UNEP, 2023).

Either way, for any project to be funded by the GEF, it is normally substantially scrutinized and discussed inside a country, as the course ensues a rather long, detail-rich, technical approval process. The country (or group of countries) needs to present a detailed plan for the project, within two eliminating rounds of approval, leading up to a "project document" (named "CEO Endorsement") that is submitted to the GEF CEO/Council. Every project that gets into the GEF pipeline, even if cancelled afterwards, needs to go over these steps, or at least walk a good portion of the first stage. Therefore, to present and get a project approved by the GEF implies a high level of preparation, mobilization, and political willingness by the asking country(ies). In summary and despite some criticism for some alleged "favoritism" towards certain countries by the GEF, in my view it would be fair to reckon that this entity seems to operate in a neutral manner. Notwithstanding, it would be also fair to acknowledge that countries which are more prone to climate change adverse effects, e.g., sea rise, would naturally receive more funds than others.

The GEF numbers – methodology of the data analysis

GEF project data were retrieved and exported for analysis on June 30, 2023.[4] From the GEF project database, multi-layered filters were applied and all the projects that individually belong to 164 countries served by the GEF were initially taken into consideration. The GEF also has multi-country projects, labeled as "regional", "global" or "world" projects. The two latter labels were not included in the analysis. Projects labeled as "regional" were considered on a case-by-case basis in two ways: either as designated to a specific country or designated to a specific region when only countries from that were involved. The four regions were labeled according to geography: (i) Latin America and the Caribbean (LAC), (ii) Africa (AFR), (iii) Asia-Pacific (ASIA PAC) and (iv) Eastern Europe. It's worth reemphasizing the absence of countries such as the United States, Canada, Australia, Japan and all Western Europe ones, which are not served by the GEF, what reinforces a non-Global North inclination. In contrast, Russia, a clearly "Global North" type of country geography-wise, is a nation which has been served by the GEF. As it will be later presented in this paper, the consideration of Russia inside this North-South conceptualization can bring many discussions, but the primary approach was to exclude it from most of the analyses hereinafter.

Data formatting was executed for many projects which had broken text, and data quality control was obtained through extensive check procedures. The raw database encompassed 5.674 projects, totaling US$ 22,4 billion in GEF grants plus US$ 148,7 billion in Cofinance amounts, what would aggregate to more than US$ 171 billion mobilized resources. The number of projects that were identifiable by countries and regions (remembering that global, world and regional projects which have countries from different regions were excluded) was 5,044. 349 of those were marked as individual-country Eastern Europe projects, and thus were excluded from this analysis, which is focused on the "Global South".

In addition to non-Global South projects and to projects which had no value in the database, a small portion of the projects was cancelled (215 projects, or 3.8% of 5,674 total projects), and the number of actual projects analyzed for this paper was 4,526, representing almost 85% of the number from the original dataset, net of cancellations. Regarding dollar figures, the total amounts of GEF grants and Cofinance that were analyzed were US$ 16,3 and US$ 114,3 billion, respectively. In sum, the relevant total amount of US$ 130,5 billion was analyzed, representing almost 81% of the total amount from the original dataset, net of cancellations. The breakdown of these numbers is presented below:

[4] Since mid-2023 was the cut-off point for the data analysis, any GEF data reference in this paper, such as "1991-2023", reflects numbers until the end of the first semester of 2023.

Table 1 – GEF projects breakdown (in US dollars)

Type of projects	Number of projects	GEF Grant	Cofinance	Totals
"Global South" Country-only	4,027	13,066,852,018	92,693,810,167	105,760,662,185
Regional ASIA PAC	128	747,078,646	3,517,059,831	4,264,138,477
Regional LAC	146	1,019,215,125	6,193,132,560	7,212,347,685
Regional AFR	225	1,419,705,328	11,871,803,527	13,291,508,855
(A) Totals	**4,526**	**16,252,851,117**	**114,275,806,085**	**130,528,657,202**
GEF Raw Database Totals	5,574	22,389,602,423	148,683,587,530	171,073,189,953
Cancellations	215	1,110,116,185	8,165,112,857	9,275,229,042
(B) GEF Not Cancelled Projects	**5,359**	**21,279,486,238**	**140,518,474,673**	**161,797,960,911**
"Global South" % (A/B)	**84.5%**	**76.4%**	**81.3%**	**80.7%**

Source: Own elaboration, based on the GEF project database (1991-2023), retrieved at its website on June 30, 2023.

When the "Global South country-only" projects are distributed to their applicable region, the numbers look the following:

Table 2 – GEF projects breakdown for "Global South" (in US dollars)

	GEF Grant	Cofinance	Totals
ASIA PAC 1-country projects	5,446,186,880	48,543,601,831	53,989,788,711
ASIA PAC regional projects	747,078,646	3,517,059,831	4,264,138,477
ASIA PAC Total	6,193,265,526	52,060,661,662	58,253,927,188
LAC 1-country projects	3,326,767,664	17,424,287,769	20,751,055,433
LAC regional projects	1,019,215,125	6,193,132,560	7,212,347,685
LAC Total	4,345,982,789	23,617,420,329	27,963,403,118
AFR 1-country projects	4,293,897,474	26,725,920,567	31,019,818,041
AFR regional projects	1,419,705,328	11,871,803,527	13,291,508,855
AFR Total	5,713,602,802	38,597,724,094	44,311,326,896
Totals	16,252,851,117	114,275,806,085	130,528,657,202

Source: Own elaboration, based on the GEF project database (1991-2023), retrieved at its website on June 30, 2023.

Data limitations and per capita methodology limitations

The amounts that are disclosed by the GEF and that are used for the comparisons across countries in this paper are budgetary ones. The actual amounts spent can vary. But from practical experience, it is fair to say that the GEF grants' budgets are usually followed. The original GEF budget is set on stone right from the beginning (i.e., cannot be changed under any circumstance), is heavily controlled by the implementing agency (UNEP or others) – as the executors need to periodically render accounts and justify all amounts spent – and independent audit also applies for many cases. Regarding Cofinance amounts, actual variation from budget can be greater. Notwithstanding this last comment, the budgeted Cofinance amounts are reasonable references to be considered as the decisions to commit to them, although not binding, are done after extensive discussions and as official letters from the Cofinance parties (governmental entities, NGOs, foundations, private entities, etc.) need to be submitted to the GEF.

Per capita indicators were calculated as this approach was deemed as the most appropriate – and possible, due to the available form of the data - to derive cross-country conclusions on the GEF project database. The GEF database is extensive in terms of the number of projects but provides limited detailed information for each project. The per capita approach has its limitations, such as the eventual leaning of the better results (higher per capita ratios) towards smaller countries. Some exercises of leaving out some outliers were performed to alleviate some of these shortcomings. It is

important to emphasize that the GEF aims to serve as many countries as possible, which naturally leads to a tendency to prioritize smaller countries.

Results

The main results of the data analysis will be presented in the next subsections. The question-and-answer format will be the primary mode to present the findings.

How do the regions of the "Global South" compare in terms of mobilized funds per capita?

Taking into consideration the numbers derived in Table 2 above, and considering the population of the countries involved within the regions, a regional per capita analysis would result per the following:

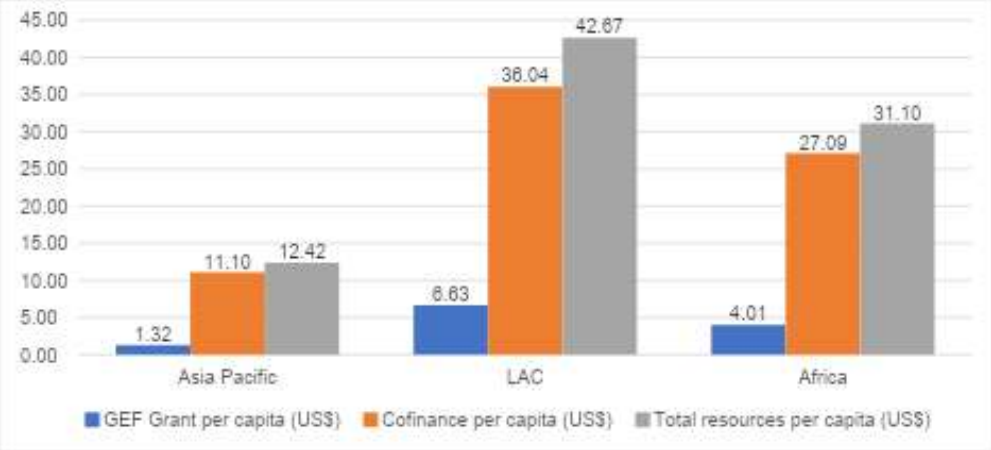
Table 3 – Regional per capita analysis, GEF grants and Cofinance

		A		B		A+B	
Region	**Sum of Population (k)**	**GEF Grant (US$)**	**GEF Grant per capita (US$)**	**Cofinance (US$)**	**Cofinance per capita (US$)**	**Total resources (US$)**	**Total resources per capita (US$)**
Asia Pacific	4,690,442	6,193,265,526	1.32	52,060,661,662	11.10	58,253,927,188	12.42
LAC	655,269	4,345,982,789	6.63	23,617,420,329	36.04	27,963,403,118	42.67
Africa	1,424,857	5,713,602,802	4.01	38,597,724,094	27.09	44,311,326,896	31.10

Source: Own elaboration, based on (i) the GEF project database (1991-2023), retrieved at its website on June 30, 2023; and (ii) population data (as of July 2022) taken from the UN Population Division - Department of Economic and Social Affairs website in June 2023.

The following chart shows the per capita results. LAC stands out as the best region for mobilizing resources – for both GEF grant and Cofinance levels, Africa comes second, and Asia Pacific comes third.

Chart 1 – Mobilized funds per capita (1991-2023)



Source: Own elaboration, based on Table 3 above.

What are the best performing countries in per capita mobilized resources?

Analyzing the "Global South" countries, and considering only 1-country projects (i.e., excluding any multi-country projects), a top 30 ranking in terms of mobilized resources (GEF Grants + Cofinance) would be the following:

Table 4 - Top "Global South" countries

Rank	Country	Region	Per capita mobilized resources (US$)	Population (000)
1	Niue	ASIAPAC	31,697	2
2	Tuvalu	ASIAPAC	12,453	11
3	Cook Islands	ASIAPAC	4,993	17
4	Nauru	ASIAPAC	4,639	13
5	Palau	ASIAPAC	4,568	18
6	Seychelles	AFR	1,923	107
7	Kiribati	ASIAPAC	1,307	131
8	St. Kitts And Nevis	LAC	1,280	48
9	St. Vincent and Grenadines	LAC	1,258	104
10	Sao Tome and Principe	AFR	1,149	227
11	Samoa	ASIAPAC	1,079	222
12	Dominica	LAC	822	73
13	Vanuatu	ASIAPAC	740	327
14	Antigua And Barbuda	LAC	676	94
15	Marshall Islands	ASIAPAC	631	42
16	Tonga	ASIAPAC	596	107
17	Cabo Verde	AFR	479	593
18	St. Lucia	LAC	421	180
19	Bhutan	ASIAPAC	421	782
20	Solomon Islands	ASIAPAC	413	724
21	Comoros	AFR	390	837
22	Grenada	LAC	388	125
23	Maldives	ASIAPAC	326	524
24	Djibouti	AFR	295	1,121
25	Barbados	LAC	289	282
26	Belize	LAC	267	405
27	Timor-Leste	ASIAPAC	258	1,341
28	Suriname	LAC	219	618
29	Mauritius	AFR	211	1,299
30	Namibia	AFR	192	2,567

Source: Own elaboration, based on (i) the GEF project database (1991-2023), retrieved at its website on June 30, 2023; and (ii) population data (as of July 2022) taken from the UN Population Division - Department of Economic and Social Affairs website in June 2023.[5]

Interestingly, the rankings show that in general very small countries, and low-lying islands, benefit the most from GEF and Cofinance resources. Out of the top 30, there are just three countries with population greater than 1 million inhabitants (Djibouti, Timor-Leste and Mauritius) and one greater than 2 million inhabitants (Namibia). These results make some sense for the very small countries (in terms of population), considering that smaller countries tend to be politically nimbler, and resources ensue to being higher on a per capita basis. Some academic references suggest the hypotheses that "less distance between those who govern and those who are governed, and more open and flexible political processes" (ANCKAR, 2002) are catalyzers to explain why smaller nations can outperform others. Sanches *et al.* (2022) also studied the "smallness" and "islandness" factors and concluded that "smallness leads to closer links between citizens and politicians in addition to more effective service delivery; while islandness promotes community cohesion" (SANCHES *et al.*, 2022, p. 210). Similarly, drawing from Dahl and Tufte (1973), they hypothesized throughout history analysis that size can matter, as the Greeks have found out that a good polity had to be small in territory and population; advancing in time through Montesquieu and Rousseau - the latter posited that making decisions vary inversely with size:

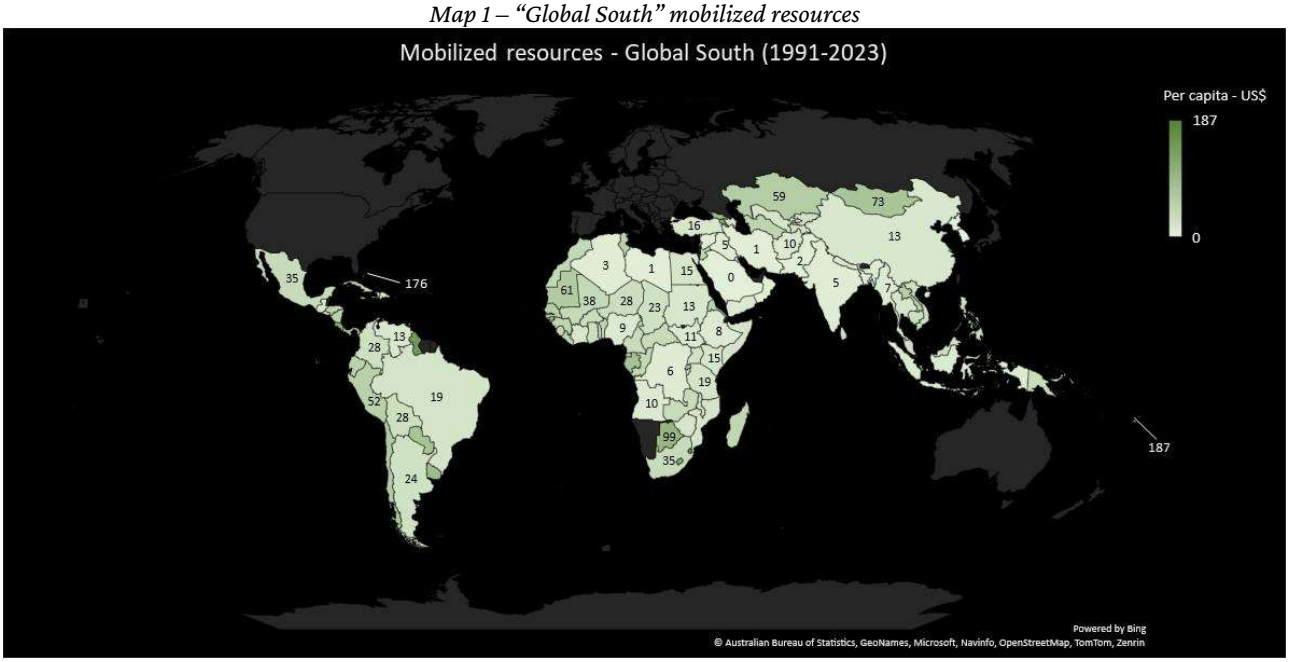
[5] Note: All 142 "Global South" countries' information are shown in an Appendix worksheet, which is available at a public repository noted at the "Available database as further avenues for analysis" section of this paper.

the larger the number of citizens, the smaller the average citizen's share in the decision (1973, p. 4-6). The necessity of resources for low-lying countries, more susceptible to climate change effects such as sea rise, also explains their leading positions in the ranking. The small-island developing states (SIDS) are particularly vulnerable to the adverse effects of climate change (LAI *et al.*, 2022, p. 1214). More importantly than (and related to) the SIDS's vulnerability, Kalaidjian and Robinson (2022) posit that these cases are oftentimes deemed as "special cases for environment and development" by multilateral entities such as the GEF, which propels them to receive special attention and more dedicated resources.

How would a "Global South" map look like, excluding the top 30 countries, in terms of per capita mobilized resources?

Leaving those top 30 smaller countries aside and focusing on the rest of the "Global South", this subsection presents how the numbers for its more populous countries would portray. Initially, it is worth stating that Russia is not being considered for the sake of the map presented below. As previously stated, the designation of which countries would be part of a "Global South" can be a very subjective exercise, and this is not the scope of this paper. Russia is obviously a geographic North country, and for this simple reason, it is not being considered part of the "Global South", even though it receives funding and has projects with the GEF. For the record, Russia's GEF projects (net of cancellations) accounted for US$ 327 million in grants and almost US$ 3.5 billion in Cofinance in the period of analysis (1991-mid 2023). These numbers would be equivalent to per capita ratios of US$ 2,26 for GEF grants and US$ 24,11 for Cofinance, totaling US$ 26,37 mobilized resources. These numbers would put Russia as the 93rd position (out of 142 "Global South" countries). A map of the countries of the "Global South", excluding Russia and the top 30 countries previously mentioned, and their respective per capita resources mobilized would be as follows:

Map 1 – "Global South" mobilized resources



Source: Own elaboration, based on the GEF project database (1991-2023), retrieved at its website on June 30, 2023.

To facilitate the comparative color scaling, the US$ 187/per capita threshold was used here. Following the top 30 countries that were presented in a previous section, Fiji and Bahamas come with ratios superior to US$ 175/per capita. In Asia, two large countries that stand out are Mongolia and Kazakhstan. The Middle-East North Africa (MENA) sub-region, which includes countries from both continents (Asia and Africa) also stands out, but negatively, with generally low per capita ratios. The Americas portions of the "Global South" and the African continent are analyzed in more details in the next subsection.

How would South America, Central America and Africa maps look like in terms of per capita mobilized resources?

Map 2 – South America mobilized resources

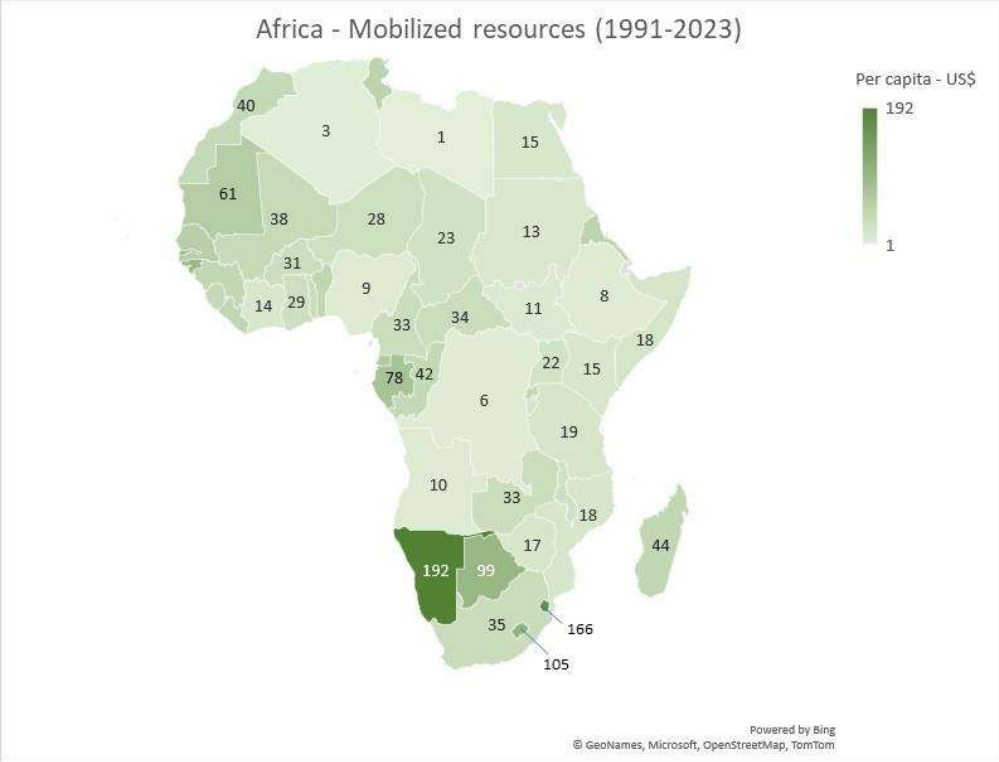
Source: Own elaboration, based on the GEF project database (1991-2023), retrieved at its website on June 30, 2023.

Map 3 – Central America mobilized resources

Source: Own elaboration, based on the GEF project database (1991-2023), retrieved at its website on June 30, 2023.

Central American countries performed generally better than South American ones. In South America, small Suriname and Guyana performed the best. Similarly, small Belize outperformed the Central American countries. Costa Rica is the only "not very small" country in South-Central Americas to present per capita mobilized resources in excess of 100 dollars. These superior numbers correlate with this country, which is world-famous for its "*pura vida*", environment-friendly motto.

Map 4 – Africa mobilized resources



Source: Own elaboration, based on the GEF project database (1991-2023), retrieved at its website on June 30, 2023.

For Africa, to facilitate the color scaling, the US$ 192/per capita threshold was also used. As it was previously mentioned, the small African country-islands of Seychelles, São Tome and Príncipe, Cabo Verde, Comoros and Mauritius stood out with ratios all superior to the threshold; and the only country in the continent that surpassed that threshold was Djibouti with around US$ 295/per capita. And as the map above shows, Namibia came strongly at first in that sample, followed by the Southern nations of Eswatini, Lesotho and Botswana. After these leading countries, as a general trend, Western countries performed better than Eastern ones in Africa.

How would the regions of the "Global South" compare in percentages of cancellation and completion?

Completion (i.e., delivery of the designed outcomes and objectives) of a project is an important achievement, and I posit, could be related to the concept of efficacy, per Steiner and Medeiros (2010) conceptualization. Typical GEF projects have a duration of around five years. Closure procedures are generally very strict and need to go over both the agency's implementation and GEF's approvals. The regional cancellation rates are also presented below. Taking a look at the three macro regions of the "Global South" plus the (Eastern) European 1-country projects, the rates would be the following:

Table 5 - Three macro regions of "Global South" - cancellation and completion.

	Totals	Cancelled	% Cancelled	Active	Completed	% Completed
AFR 1-country projects	1,544	43	3%	1,501	836	56%
LAC 1-country projects	1,005	26	3%	979	579	59%
ASIAPAC 1-country projects	1,614	67	4%	1,547	924	60%
EUR 1-country projects (*)	349	16	5%	333	254	76%
AFR regional projects	236	11	5%	225	113	50%
LAC regional projects	151	5	3%	146	74	51%
ASIAPAC regional projects	145	17	12%	128	66	52%
Totals excluding EUR (*)	**4,695**	**169**		**4,526**	**2,592**	

Source: Own elaboration, based on the GEF project database (1991-2023), retrieved at its website on June 30, 2023.[6]

From the table above, as a general observation, 1-country projects perform better than regional ones: there is less cancellation and more completion for all regions. The Asia Pacific region presents the best completion rates, followed by LAC and then by Africa. The "Global South" countries generally present similar performances. Conversely, the European 1-country projects performed better in terms of completion. These are interesting findings which suggest that 1-country projects are more effective than multi-country projects, and that specifically Eastern European projects are also more effective than the "Global South" ones. One datum that stands out is the comparatively high cancellation rate in the Asia Pacific region. Explanations on this are presented in the next subsection.

What are the countries of the "Global South" that present the highest cancellation rates?

Cancellation is not very usual, but it takes place. As it was previously mentioned, the overall cancellation rate of all GEF projects is around 4%. There were 17 countries which cancelled at least 10% of their projects. The list of them is below:

[6] EUR regional projects (i.e., inter-European projects and projects which have at least one European country participating plus at least one country from another continent) exist in the database but were not analyzed in more details as the focus of the paper is the Global South.

Table 6 - Largest cancellation rates

Country	Region	Project cancellation rate
Libya	AFR	60%
Syria	ASIAPAC	31%
Algeria	AFR	22%
Ukraine	EUR	19%
Myanmar	ASIAPAC	17%
Yemen	ASIAPAC	17%
Hungary	EUR	14%
Venezuela	LAC	14%
Trinidad and Tobago	LAC	13%
Russian Federation	ASIAPAC	12%
India	ASIAPAC	11%
Afghanistan	ASIAPAC	11%
Indonesia	ASIAPAC	11%
Eswatini	AFR	11%
Iran	ASIAPAC	10%
St. Vincent and Grenadines	LAC	10%
Republic of Congo	AFR	10%

Source: Own elaboration, based on the GEF project database (1991-2023), retrieved at its website on June 30, 2023.

Higher cancellation rates generally correlate with higher political turmoil. Cancellations occurred more in countries which have faced war (Syria, Ukraine, Yemen, Russia and Afghanistan) in the last few decades. But superior political instability also explains to a great extent some cancellations (Libya, Algeria, Myanmar and Republic of Congo). Ultimately, sharp declines in the political freedoms – such as the cases of Hungary, Venezuela and Iran[7] – appear also to be a factor to catalyze the cancellation of projects. A plausible accelerant for the cancellation of projects might be related to the theoretical concept of "danger of anocracy" (anocracy meaning a middle ground between democracy and autocracy, but perhaps more importantly, a sign of sudden and relevant change between the former and the latter). According to this reasoning, rapid political freedom (or regime) change oftentimes precedes political instability, and civil wars are more likely to break out (WALTER, 22, p. 18). Higher levels of instability, or civil wars per se, imply people organizing and/or fighting their governments. Since governments are crucial actors in the design and implementation, as well as key co-financiers, of GEF-sponsored projects, attacks on these governments often lead to a vicious cycle of project abandonment and subsequent cancellations.

Conclusions and discussion

As stated in the beginning, climate change has, among others, two key facets, its historical (human-made) generation and its more recent mitigation efforts; this paper focused on this latter element. This paper's goal was to propose a quantitative route, mostly based on per capita analyses, to draw connections between the "Global South" and levels of environmental care, as measured by the execution of environmental projects coordinated by the Global Environment Facility (GEF). In the considered period of analysis (1991-2023), the amounts of GEF grants and cofinance mobilized for these projects were relevant, aggregating to more than US$ 130 billion in the timespan. Drawing from brief theoretical and chronological sections which qualified what is the "Global South" and how global environmental politics

[7] As measured by specialized institutions such as Freedom House. Per Freedom House, in the 2017-2023 period, all democratic scores from these countries considerably fell (Iran: 17/100 to 12/100; Hungary: 76/100 to 66/100 and Venezuela: 30/100 to 15/100).

evolved to culminate in the creation of the increasingly relevant (but also contested to a certain extent) GEF, in the early 1990s, this paper's fundamental tasks comprised of extensive data analysis to attempt to answer the main question of how the "Global South", or different "Global Souths", compare in mobilizing GEF's and own resources for environmental projects. The following main findings from the analyses conducted, accompanied by some theoretical hypotheses possibly linked to the results, can be highlighted:

First, the results corroborate the assertion that the GEF focus of funding is the "Global South". The ratios presented of "Global South" representativeness over number of total GEF projects (85%), GEF Grant resources (76%) and Cofinance resources (81%) all illustrate this importance. Contestations aside on (i) GEF's possible exertion of biased behavior towards certain countries (BAYER *et al.*, 2014) or (ii) some undeserving leadership of a Western-based entity to implement a global environmental agenda within the Global North-South divide (GUPTA, 2007), these numbers clearly corroborate GEF's focus on the developing world.

Second, at the regional level, the Latin America and Caribbean (LAC) region has performed the best, compared to Africa and countries of Asia and the Pacific. This is represented by the superior "mobilized resources per capita" that the region showed, which was then followed in order by the other two regions. Despite LAC's more positive project "generation" level, Asia Pacific countries performed better in terms of completing existing projects. Still on the project completion topic, it was observed that 1-country projects presented better completion rates than multi-country projects, and the non-Global South countries of Eastern Europe presented considerably better completion rates than the "Global South" ones. Bringing Steiner and Medeiros (2010) theoretical conceptualization of "efficacy" to measure the success of multilateral environmental initiatives, while the simplest approach proposed by them would show negative results (GHG emissions kept increasing), I posit that the findings that 1-country projects are more effective than multi-country ones relate to the complexity inherent to international cooperation to solve collective problems.

Third, at the individual country level, it can be observed that smaller and low-lying insular countries stand out. The insular countries act more out of necessity, aiming to mitigate sea rise. This finding aligns with the scientifically proven superior vulnerability of SIDS countries (LAI *et al.*, 2022) when it comes to climate change. The fact that a country is small, meaning it has a more lean, agile governmental structure, also seems to be an important factor to explain superior amounts being mobilized. The smallness-remoteness characteristics can be an advantage for some countries for getting more resources, as the hypotheses raised by Anckar (2002), Sanches *et al.* (2022) and Dahl & Tufte (1973) sustain. As it was shown, all the top 20 countries in mobilized resources per capita ratio are very small countries and are all insular. Countries that come next in the applicable ranking are also all small in population; Djibouti, Timor-Leste, Mauritius and Namibia are the exceptions that have at least one million inhabitants. The inclination of the best results (per capita indicators) towards smaller countries in detriment to larger ones might be related to the finitude of GEF's resources and its goal to include/serve as many countries as possible, connected to Cui *et al.* (2019) assertion that developing countries do still face huge financial gaps in addressing climate change.

Fourth, two regions were analyzed in more detail, with a focus on their countries. For LAC, in South America and in Central America, (smaller) size seemed also to matter, as Suriname, Guyana and Belize all showed very much superior per capita indicators. Diverting attention from the very small countries for a moment, the countries which performed the best in the two predominantly Latin American regions were Costa Rica, Uruguay, Paraguay, Panama and Chile. These are all relatively smaller countries (in both population and area), what could strengthen hypotheses that smaller countries either tend to benefit from their smallness (as conjectured in the previous paragraph) and/or also from GEF's inclusivity goal. In Africa, smallness also seemed to be beneficial, as small countries like Eswatini and Lesotho were among the champions in mobilized resources per capita in the continent. The North of Africa, which is generally oil-rich and Arab, as well as most of the Middle East countries, which carry similar features of the former region, present rather disappointing

mobilized resources per capita indicators. Lastly, and different from the previous more blurred conclusions, an important and clearer finding that arose is that war and superior political instability were factors, when strictly analyzing the GEF dataset, that catalyzed the cancellation of GEF projects, as the last part of the previous section demonstrated. Here, the "anocracy danger" hypothesis posited by Barbara F. Walter (2022) gains traction in explaining this finding.

Available database as further avenues for analysis:

The worked database is available at: https://osf.io/mvje4/. Additional types of analyses can be done through the modeling of it.

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