Understanding the Allocation of Climate Finance in Nepal

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Sincerely,
Daya Shrestha
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Abstract

Developing a clear understanding of existing climate change policies and climate finance flows is integral to developing a coordinated national climate adaptation and mitigation strategy. This research provides a quantitative overview of the existing spending decisions relevant to climate change in Nepal, looks at the flow of climate development assistance from international donors and funds, and assesses some of the determinants of climate finance allocation. Nationally, there has been a 5-fold increase in the national budget allocated toward climate-relevant spending since the 2013/14 fiscal year. However, there has been a poor translation of the federally allocated budget to the provincial and local levels, with district-level expenditure being largely unresponsive to climate-specific risks and needs. OECD donors have reported project-level commitments amounting to US$6.3 billion between 2000 and 2022 in adaptation and mitigation assistance, while the Government of Nepal has recorded commitments of US$8.73 billion during the same period from a larger universe of donors. Donors favor Nepal's investment and governance readiness over climate vulnerability when making allocation decisions. Additionally, climate finance flows are characterized by unrealized commitments owing to mounting debt amounts and political instability. Existing institutional frameworks need to be strengthened and made more accountable in order to effectively mobilize and govern climate-related foreign development assistance. Existing data needs to be leveraged toward developing project performance indicators and early warning systems that help channel climate funds to vulnerable areas.

Table of Contents

LIST OF FIGURES

List of Tables

List of Abbreviations

A(s)DB – Asian Development Bank
AF – Adaptation Fund
AMIS – Aid Management Information System
CCBC – Climate Change Budget Code
CCFF – Climate Change Financing Framework
CIF – Climate Investment Fund
CRS – Creditor Reporting System
FCGO – Financial Comptroller General Office
GCF – Green Climate Fund
GoN – Government of Nepal
LAPA – Local Adaptation Programs of Action
LDC – Least Developed Country
LDCF – Least Developed Country Fund
MDB – Multilateral Development Banks
MoF – Ministry of Finance
MOFAGA – Ministry of Federal Affairs and General Administration
MoFE – Ministry of Forest and Environment
MoSTE – Ministry of Science, Technology and Environment
NAP – National Adaptation Plan
NAPA – National Adaptation Programs of Action
NDC – Nationally Determined Contributions
ODA – Official Development Assistance
OECD – The Organization for Economic Cooperation and Development
PFM – Public Finance Management
REDD+ - Reducing emissions from deforestation and forest degradation in developing countries
SDGs – Sustainable Development Goals
UNFCCC – United Nations Framework Convention on Climate Change
WB – World Bank

1. INTRODUCTION

1.1 Background

Global threats related to climate change have grown over the years. The impacts are disproportionately felt by the poorest and most vulnerable communities that have insignificantly contributed to the phenomenon (Scoville-Simonds, 2016). The concept of climate financing to address climate threats has existed in one form or the other since the 1990s, including initiatives such as the Kyoto Protocol (2001) and the Green Climate Fund (GCF, 2010) (Maina and Parádi-Dolgos, 2024). The 2010 Cancun Agreements of the UNFCCC identified climate finance as a new form of collective commitment by developed countries to developing countries for meaningful adaptation and mitigation actions in response to the growing threats of climate change. The Paris Agreement of 2015 brought a global consensus that developed countries have a responsibility to provide developing countries support for adaptation and mitigation measures to deal with the impacts of climate change (Scoville-Simons, 2016). The OECD countries recognize climate finance as a special form of official development assistance (ODA), which addresses the fundamental issues surrounding climate change (Mahat et al., 2019). One estimate places the global adaptation needs at over US$ 100 billion till 2030 (Scoville-Simonds, 2016).

Since 2015, there has been a significant increase in the number of global mechanisms in place to provide climate adaptation funds to countries that need them. Initiatives such as the Global Climate Fund (GCF), Adaptation Fund (AF), Climate Invest Fund (CIF), and carbon trading and credits under the REDD+ framework have added to the existing bilateral assistance mechanisms and climate-related funds from multilateral development banks such as the WB. This increasingly complex mix of philanthropic funds has created an added institutional burden on developing countries when it comes to deciding where to seek assistance from and how to manage those funds (Micale et al., 2018). While MDBs contributed around 38 percent of the global finance for adaptation in 2016, the GCF under the UNFCC makes the largest global contribution today (Watson and Schalatek, 2019).

Micale et al. (2018) suggest that a clear understanding of existing policies and thorough tracking of investment in adaptation are important components of developing climate risk-mitigating strategies. They suggest that understanding current adaptation finance flows and government expenditures is integral to developing a coordinated national approach within an effective financial management strategy. Numerous attempts have been made in the literature to quantify the overall adaptation finance flows to date. Early assessments suggest that there has been a steady global growth in the number of projects, total commitments, and the share of climate finance in overall ODA since the 1990s (Michaelowa and Michealowa, 2012). Since climate projects are intrinsically linked to development projects, it is difficult to isolate the exact amount associated with climate finance (Micale et al., 2018). However, the actual efficacy of those

contributions and how they are governed in recipient countries is still up in the air (Scoville-Simonds, 2016).

1.2 Nepal's climate finance needs

Nepal, too, has faced the brunt of climate change despite producing only 0.056 percent of total global greenhouse gas emissions (ADPC, 2023). Nepal has been continuously affected by extreme weather events since the start of the century and ranks in the top 10 of the world's most vulnerable countries (Eckstein et al., 2021). A report produced in 2014 estimated that the annual direct cost of climate-related disasters was 1.5-2 percent of the country's GDP and was expected to grow up to 5 percent (IDS-Nepal, PAC and GCAP, 2014).[1] The World Bank (WB) has warned of higher frequency of floods, landslides, forest fires, and droughts and projected similar economic costs of climate change amounting to around 2-3 percent of GDP per year by 2050 (2022). These events are more likely to disproportionately affect women and other marginalized communities. Both estimates are relatively high at international levels.

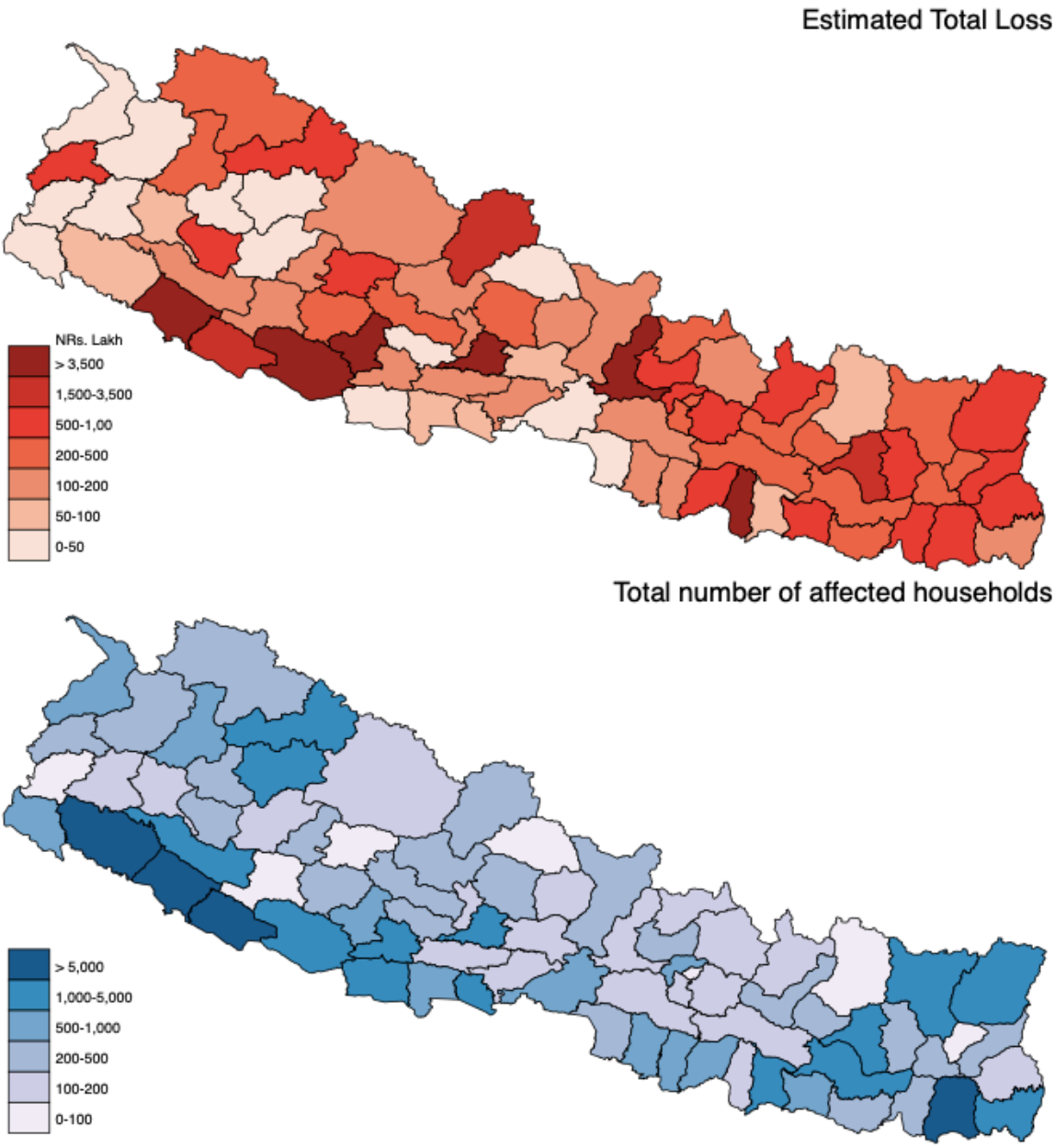
Data from the Disaster Risk Reduction Portal of the Ministry of Home Affairs reveals that the estimated monetary loss of victims of climate-related disasters[2] from 2011 till the present amounts to almost NRs. 20 arba (billion). This is in addition to the physical losses incurred in the form of displacements, injuries, and deaths. Almost 100,000 households have been affected. This just includes figures that have been reported and where rescue efforts have taken place. Actual figures are likely to be much higher. A complete district-wise breakdown of the estimated monetary loss and the number of households can be seen in Figure 1. Other consequences of climate change include rising poverty, food, water, and energy insecurity, and poor air quality standards in urban areas (WB, 2022).

Nepal's climate change vulnerability varies considerably across the country. The heterogeneity coincides with the geography and exposure risks. Demographic factors also influence the impacts of climate change. Extreme events such as rising temperatures and precipitation and prolonged erratic weather events have become more frequent. A report by the Ministry of Forest and Environment (MoFE) quantified various climate metrics in the form of district-specific indices. It produced scores on exposure risks, vulnerability risks, sensitivity, adaptive capacity, and aggregated baseline climate risk[3]. Figure 2 shows the district-wise variability in the vulnerability to and risk of climate change. Overall, the future projections from the metrics provide a bleak outlook, with climatic hazards becoming catastrophically more frequent, intense, and widespread (MoFE, 2021b).

[1] The WB estimates costs of 1.5-2 percent of GDP for just the agricultural sector. (WB, 2022).
[2] Climate-related disasters include avalanches, cold waves, floods, forest fires, heavy rainfall, landslides, and storms.
[3] Overall climate risk is composed of hazard intensity, vulnerability, and exposure. More details in MoFE, 2021b.

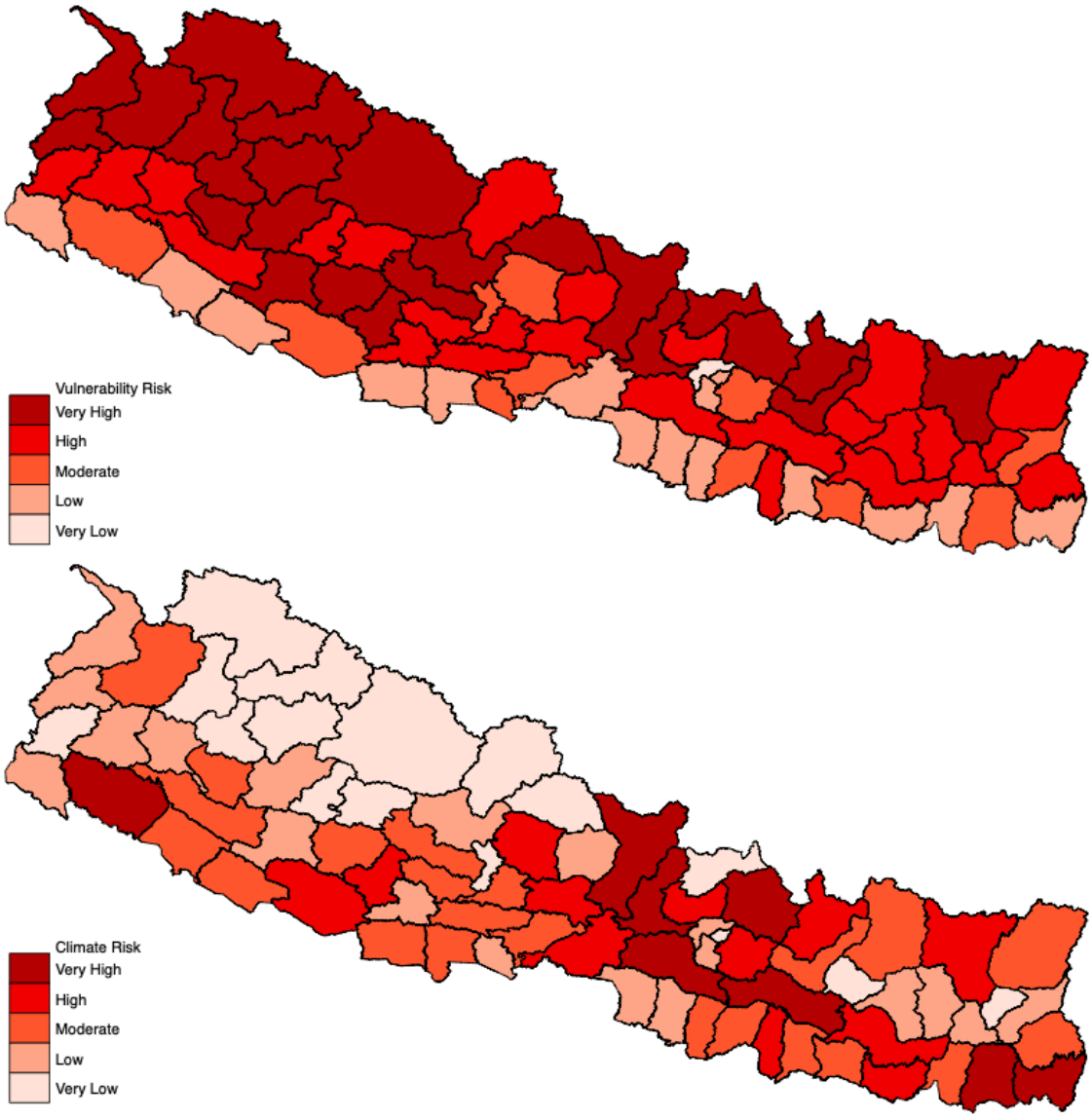
Despite the issues at hand, there are numerous opportunities to build climate-resilient infrastructure. Even though a haphazard wave of urbanization has contributed to rising GHG emissions and poor air quality standards, it has come with a growing realization that a low-carbon strategy is essential. The latest National Climate Change Survey highlighted that there is a growing awareness and perceptions of climate change among Nepalese households (NSO, 2022). There is potential to invest in cleaner energy through hydropower and solar energy, improve solid waste management, and promote climate-smart agriculture.

Figure 1: District-wise estimated financial loss (top) and total number of households affected (bottom) due to climate-related disaster events, 2011 – 2024



Source: Nepal Disaster Risk Reduction Portal, own visualization

Figure 2: District-wise vulnerability to (top) and risk of (bottom) climate change impact



Source: MoFE, 2021b, own visualization

Least developed countries like Nepal are particularly vulnerable to the effects of climate change as they lack the effective resources and adaptive capabilities to deal with weather-related threats. The Notre-Dame Global Adaptation Initiative, or the ND-GAIN index[4], which quantifies a country's vulnerability and readiness to climate change-related threats, places Nepal as the 51st most vulnerable country and the 116th most ready country (Chen et al., 2015). This highlights the

[4] The index measures a country's readiness based on social, economic, and governance metrics. Social readiness measures social attributes such as inequality and access to education. Economic readiness proxies business and investment friendliness. Governance readiness ascertains political risks and their response to foreign investments.

country's lack of economic, governance, and social readiness to leverage development assistance into concrete adaptative actions that mitigate threats to the most vulnerable. There is a major adaptation gap in addressing these threats due to the absence of resources. One estimate put Nepal's adaptation investment needs at US$ 295 million per year by 2020 and US$ 530 million/year by 2030 (IDS-Nepal, PAC and GCAP, 2014).

The second Nationally Determined Contribution (NDC) following the Paris Agreement estimates Nepal's needs at US$ 25 billion to meet all of its mitigation targets by 2030. Similarly, US$ 3.4 billion is needed to achieve the unconditional targets outlined (GoN, 2020). According to the more thorough National Adaptation Plan (NAP) of 2020, Nepal requires $47.4 billion to implement 64 climate-related priority programs by 2050 (MoFE, 2020). Nepal aims to contribute only $1.5 billion to the cause, with the rest being financed through external assistance. Nepal's eligibility to receive such funds is helped by its Least Developed Country (LDC) status (Lamsal et al., 2013). The central bank, Nepal Rastra Bank, provides a dedicated account to manage these external funds.

Private financing, through domestic banks is another potential option, but their ability to lend, especially to hydropower projects, is limited by their short-term deposit base. Hydropower investment projects promise a lot, but their estimated fiscal impact on climate adaptation and mitigation is very low (WB, 2022). Proper mechanisms, both private and government-led, for alternative climate financing sources such as green bond markets and carbon credits do not currently exist at a large capacity. Alternative FDI-based market assistance is constrained by a poor investment climate and a lack of access to credit among local enterprises. Any consideration for various financing options needs to be supported by a realistic planning and governance framework.

Given the extensive financing needs, it is imperative to understand where Nepal currently stands on the matter and how much has been disbursed by international development partners to meet the cause. It is also important to understand what portion of the funds received have been pure grants and concessional loans. However, this cannot come at the cost of the country's macroeconomic stability and national economic sovereignty. Mahat (2019) points out that despite initial promises that financial assistance mobilized for promoting a greener economy would be free from unwarranted conditionalities, Nepal has continued to rely heavily on concessional loans that need to be repaid in the future.

Within Nepal's context, Khatri et al. (2022) claim that poor climate finance governance boils down to two key issues – accessing international funds for projects and the allocation of those funds in a systematic budget at all levels. As a developing country, Nepal also needs to track climate finance investments to analyze potential threats to the country's external debt situation and financial sustainability. A thorough review of the publicly available literature suggests that these concerns have not yet been addressed. Despite the stated intent of tracking climate change

expenses within the national budget framework, there is little tracking of how this has fared over the years (NPC, 2012). Therefore, this research project aims to address these missing areas of focus within the context of Nepal's climate finance management strategy.

1.3 Research objectives and questions

Given the background outlined, two key research objectives are explored:

1) What is the current status of Nepal's climate adaptation needs and initiatives?
2) Broadening the understanding of climate finance in Nepal:
    a. How has the national public finance management system allocated climate-relevant spending federally and to the local levels?
    b. What is the extent and nature of climate financing received by Nepal from international development partners and funding sources?

Through this scoping and quantification exercise, the research identifies gaps, barriers, and challenges in accessing and mobilizing climate finance in Nepal. Once a proper quantification is in place, further studies can focus on evaluating how the funds are governed and mobilized.

1.4 Limitations

The study is based on various publicly available data sources. The completeness of the data used can be questioned. Private financing avenues and investment areas such as hydropower financing are not fully considered. The regression analyses must be considered with caution despite the best efforts to identify causal factors. Multiple factors can influence climate expenditure decisions, aid allocation decisions, and aid disbursement gaps. A full consultation with the Climate Finance Unit within the MoF or the Climate Change Management Division within the MoFE was not taken. Due to time limitations, the study provides a broad overview of the various aspects associated with Nepal's climate finance landscape. A proper in-depth investigation of all the findings and descriptive analysis was not possible. Similarly, the research does not fully assess the effectiveness and impact of the existing financing mechanisms in supporting climate adaptation initiatives in Nepal.

The remainder of the paper is structured as follows. Section 2 scopes the existing literature on climate finance in Nepal by looking at existing government policies and identifies some of the prevalent narratives on the topic. Section 3 presents the research methodology adopted for this study, details all the data sources used, and describes the analytical framework to further explore certain descriptive findings. Section 4 reports all the results and findings. Section 5 provides a brief analysis and discussion of the findings by tying them back to existing policies and narratives and identifies existing issues and implementation gaps. Section 6 provides relevant policy recommendations to the Government of Nepal. Section 7 concludes by contextualizing the study's findings to the present needs of climate finance governance and proposes further avenues of exploration.

2. Literature Review

2.1 Government Policies

Nepal first drew global attention to its climate change cause by organizing a cabinet meeting at Everest Base Camp Kalapatthar in 2009. Since then, there have been numerous policies and action plans underscoring its commitment to mitigating climate change threats. The Climate Change Management Division under the Ministry of Environment[5] (then the Ministry of Science, Technology and Environment (MoSTE)) was formed in 2009 and the first iteration of the National Adaptation Program of Action (NAPA) was endorsed a year later. A more guiding framework for the courses of action was provided by the Climate Change Policy (CCP) in 2011. These efforts signaled to the world, and crucially development partners, that the country's commitment was steadfast. This was followed by bilateral assistance on the implementation of the NAPA and the formulation of several Local Adaptation Programs of Action (LAPA) (Lamsal et al., 2013). The GoN also led international efforts, chairing the LDC coordination group for the 2013-2014 term.

In 2012, the country was hailed as a world leader in implementing climate budget tagging in the national budget following the introduction of the Climate Change Budget Code (CCBC). It uses 11 criteria to define climate-relevant programs. The CCBC was introduced into the national budget in the 2013/2014 fiscal year and has been continued since. It draws from the criteria used by the pro-poor and gender budget coding and was developed with the goal of tracking climate change public expenditure, especially for locally vulnerable groups, within the national budget (NPC, 2012). The code assigns a program to be *highly relevant* if 60 percent or more of the allocated budget is spent on climate change-related activities. Similarly, a program is considered *relevant* if 20 to 60 percent of the budget is allocated for climate change-related activities. Anything below 20 percent is classified as *neutral*. These thresholds were revised from the 2018/2019 fiscal year to classify spending above 50 percent as *highly relevant*. Every year, the budget speech provides a breakdown of spending allocations using the three categories.

Under the CCP and NAP, climate finance management under the purview of the Ministry of Finance (MoF) is one of twelve thematic and cross-cutting areas (MoF, 2017). The framework recognizes that climate change is not a sector per se, given that it encompasses every facet of development, and therefore establishing a clear institutionally accountable financial mechanism is challenging. Generating a consolidated expenditure picture every year is an important first step since it will enable a robust monitoring system that will assess the efficacy of such expenditure in an informed and timely manner. The framework aims to build a proper mechanism to track the utilization of the climate budget identified by the CCBC. It also recognizes the need to build

[5] The current version, the Ministry of Forests and Environment (MoFE), remains the focal ministry for climate change actions in the country.

capacity and introduce standardized reporting practices across all ministries. In efforts to introduce a greater degree of control and central authority, the MoF also has a designated Climate Finance Unit, which oversees the coordination of all climate finance issues in high-level planning and budgeting.

Despite the development of the CCFF, there is little consensus on the exact present status of climate financing in Nepal. International funding modalities are diverse and governed by the fiduciary standards of individual donor agencies, making it difficult to assess the nature of all incoming climate finance. While provisions exist for the integration of donor funds into the national budget, there is limited information on the amount allocated at the local level.

Policies have also been put in place to address the differential impact of climate change across the country. The revised LAPA framework of 2019 aimed to increase investment support in disaster risk reduction management. The second NDC, published in 2020, has prioritized supporting disadvantaged local communities by ensuring climate finance allocations are made through evidence-based assessments. There are also provisions in place to mandate all local governments to design adaptation plans that will address climate change and disaster vulnerability for all individuals, with a special focus on those normally disadvantaged (GoN, 2022). A national strategy and action plan on Loss and Damage associated with climate change impacts is expected by 2025. Overall, there is a strong demonstrated commitment to decentralizing climate finance so that it trickles down to vulnerable communities.

The government has proclaimed that 80 percent of the available climate finance will be allocated at the local level (MoFE, 2019). This is one of the key features of the 2019 CCP. The total funds would be strictly for program implementation without including administrative costs. However, there is limited country-level research on whether this has been the case since the first local elections were held in 2017. The NAP also established Provincial Climate Change Coordination Committees in four provinces.[6] The process for the remaining three provinces is ongoing. Similarly, the CCP outlines the formation of climate change units or focal points within local governments to deal with climate change issues at the local level. Such a process has progressed very slowly. The LAPA framework, mirroring the CCFF, also calls for a bottom-up approach to planning and implementation, giving greater authority to local governments (IIED, 2014).

In sum, financing climate responses in an effective way requires an understanding of how climate change and the costs of its impacts are integrated into the development planning and budgeting process at both the national and sub-national levels. The existing policies delegate responsibility to the MoF for allocating and procuring climate finance. The national budget allocates these funds, through grants, to various ministries and local governments. They are responsible for managing and allocating the budget for climate change responses.

[6] These provincial committees, however, fall under the purview of several ministries, increasing the onus on inter-ministerial coordination to provide sustained efforts.

2.2 Existing narratives

Bird (2011) identified climate finance as a new funding stream and a challenge for the country's public finance management (PFM) system. He envisioned a climate finance approach in line with the 2005 Paris Declaration on Aid Effectiveness, whereby joint ownership, harmonized result-centric contributions, and mutual accountability were forwarded. A more programmatic approach that incorporated development assistance into the national finances was also suggested with a high-priority time frame, but the trend of having numerous off-budget projects remains (MoFE, 2021a). Bird (2011) also warned that a disjointed mechanism with various entities serving different functions can undermine the overall coordination of the national approach in the long term. The potential investment support of the private sector, recognized as a key operating principle, remains to be fully realized with the absence of enabling regulatory provisions.

Low institutional capacity, characterized by lengthy bureaucracy and lack of informed personnel across many levels, is cited as the main challenge to adopting robust climate adaptation and mitigation strategies in Nepal (Lamsal et al., 2013; IIED, 2014). This aligns well with the universal nature of the problem identified in other developing countries too (Micale et al., 2018). Lamsal et al. (2013) refer to the existing coordination mechanisms in place as "anemic", citing the poor exercising of authority attributed to the MoSTE (and now MoFE). A readiness report submitted to the GCF echoed these concerns, claiming that "inadequate coordination and coherence among government institutions at all levels" has significantly impeded the mobilization of development finance for "strategic and scaled-up investment in climate adaptation" (IUCN, 2019). Project-level assistance from donors has exacerbated such issues since they are not holistically integrated into the development planning process. From a donor perspective, however, a lack of governance structure in place is precisely why donors continue to provide primarily project-based assistance (Maina and Parádi-Dolgos, 2024). The complex climate finance landscape, with multiple competing donors, makes it difficult for contributors to align their interests with national priorities (ADPC, 2023).

Despite the promise of federal structures and decentralized authority, a lack of coordination among government tiers has proved detrimental. Khatri et al. (2022) point out that the mismatch in authority and responsibility has been acutely felt in the flow of financial resources, especially for climate change, to local levels. They claim that the uneven and unreliable system of disbursing national and international funds to the local level can lead to scenarios where climate vulnerabilities are exacerbated rather than mitigated. Climate agendas and knowledge transfer continue to be targeted at the central level and the diffusion of that information is very slow and rare. Even the introduction of various national-level policies, such as the NAP, CCP (2019), and LAPA (all introduced after the formation of a federal structure) had very little input or contestations from sub-national governments. For many local governments, the agenda of climate change has taken a significant backseat since they are still in the process of developing

legislation procedures to guide basic development planning. The need for capacity building must recognize this harsh reality.

The existing difficulties were lamented by one government report in 2021. The MoFE's assessment of whether the 80 percent allocation of available international finance to local levels was seen in practice concluded with a less than satisfactory note (MoFE, 2021a). It identified that the current PFM system does not adequately track and report climate change expenditure at the local level, making robust assessments difficult. It does not help that local-level practitioners and stakeholders have little acumen for climate change-related programs and policies, despite the recognition that it is an ongoing issue. Other issues included the need to improve existing reporting, accountability, and transparency standards. The climate change budget code is not yet linked with many municipalities, making fund governance ineffective. The absence of strict regulatory and monitoring procedures further weakens any commitments made toward providing climate finance to local levels.

Similarly, the Ministry of Federal Affairs and Local Development also found a poor translation of the federally allocated climate budget to the district level based on a study of five districts. Their report finds little sectoral complementariness and coherence in the projects implemented despite the supposed availability of expertise and exposure to climate issues, owing to the absence of coordination across governance structures. Local governments receive lump-sum grants for climate change and the authorities in charge can spend based on the necessities or however they see fit. However, the concurrent practices of various donor-assisted NGOs complicate matters, providing independently planned assistance outside the local planning process. These finances and their outcomes are difficult to track and assess together with government-led initiatives (MoFALD, 2018).

Existing policies are more geared toward developing and attracting adaptation strategies rather than mitigation strategies. Of course, the rapid development of the hydro energy sector is one hallmark of its mitigation vision, but the overall focus rests on adaptation. The Climate Change Policy of 2019 highlighted the goal of "ensuring the socio-economic prosperity of the nation by building a climate-resilient society" (MoFE, 2019). Based on this, the WB recognizes the country's priority to invest in adaptation and resilience (WB, 2022). Similarly, Mahat et al. (2019) note that Nepal is better prepared to attract and implement adaptation finance. Disaster relief assistance and climate-smart agriculture are two examples of donor projects that have focused on adaptation (Mahat et al., 2019). Perhaps the focus on adaptation stems from the fact that international donors are more likely to provide adaptation support. Scoville-Simonds (2016) argues that adaptation finance closely matches traditional ODA, which implies that donors are happy to continue existing aid structures that align with their interests and control.

3. Research Methodology

3.1 Research design

The research is primarily a quantitative overview of the current status of Nepal's climate finance strategy. It quantifies all the climate change-responsive foreign development assistance that has entered the country from various bilateral and multilateral donors, including from various global climate funds. The process entails a detailed accounting exercise that looks at budget expenditure trends, local-level expenditures, donor contributions, and aid category breakdowns. It provides detailed descriptive summaries and trends for each of the topics listed. All data cleaning, analysis, and visualization are done using Stata. The results are supplemented by a thorough review of the existing literature and various government studies, and inputs from a few relevant experts and officials at the MoF. The overall goal is to develop a comprehensive overview of what Nepal's climate adaptation endeavor has been so far and contextualize the need for understanding the current adaptation financing flows and expenditures.

3.2 Data

The research relies on publicly available data from various sources. To quantify the extent of climate finance Nepal has received since the turn of the century, the study considers perspectives from both donors and the recipient i.e., Nepal. The time period considered is 2000 – 2023.

Donor-side data comes from the project-level ODA listed under the Organization for Economic Cooperation and Development (OECD) Rio Marker Creditor Reporting System (CRS). The database records aid commitments by 39 different donors under the Rio Markers of Adaptation and Mitigation. A project's relevance relative to the Rio Marker is denoted as principal, significant, or not targeted (OECD, 2011). Donor-year adaptation and mitigation aid flows are the aggregates of the shares of principal and significant contributions. Donor-year climate finance received by Nepal is taken as the sum of adaptation and mitigation aid flows. Amounts are expressed in 2022 US$. Data for some specific climate funds Nepal is eligible for due to its status as an LDC is retrieved from the Climate Funds Update website.

Nepal's own perspectives are captured by project-level data recorded in the MoF's Aid Management Information System (AMIS) portal. The portal lists incoming donor projects for each year under all sectors. Climate finance data is aggregated using the climate relevance marker listed for each project. The portal provides commitment and disbursement amounts in current US$. Other national-level budget, expenditure, and allocation data are gathered from the MoF's annual economic surveys, budget speeches, and the Financial Comptroller General Office's (FCGO) annual consolidated financial statements. Climate-relevant spending is categorized using the criteria outlined in the CCBC. Overall national climate finance is the sum of *highly relevant and relevant* categorizations. The extent of public finance that has been allocated to the local levels for climate-related programs and policies in line with the 80 percent allocation goal is also considered.

3.3 Analytical framework

Some of the trends identified during the scoping exercise are further explored using fixed effects and random effects regression models. Specifically, three aspects are given attention: factors that influence district-wise climate change-relevant expenditure in Nepal, the factors that determine the allocation of climate aid to Nepal, and the causes of sizeable disbursement gaps in climate aid. All of these empirical investigations are informed by the existing literature on aid and climate aid allocation. To provide estimates consistent with the general aid allocation literature (Alessina and Dollar, 2000) and make the results easily interpretable, the regressions are logarithmized.

3.3.1 Factors explaining district-wise climate change expenditure

The possible factors that are analyzed are based on the implicit hypothesis that the districts with the highest climate risk are entitled to have the largest expenditure. Other potential indices that can influence spending are a district's vulnerability, exposure, and adaptive capacity. Data for these indices is based on the MoFE's Vulnerability and Risk Assessment report described in Section 1.2. A single fixed effects model with a district's annual spending (logged) as the dependent variable and one of the four index scores as the primary independent variable tests this hypothesis. The year fixed effects account for the changes in the average level of district-wise climate expenditure across time. Standard errors are clustered at the district level to account for serial correlations within that district. The expected coefficient of interest should be positive for all indices.

The model is reinforced by the inclusion of various controls to minimize omitted variable bias. A district's socioeconomic and environmental characteristics are captured by its population, forest area, size, HDI, size of the road network, distance to the capital, average annual rainfall and temperature, and the number of local governments. More importantly, spending patterns should also be influenced by specific climate needs, proxied by the number of households affected by climate-related disasters and the associated economic loss. Given the fact that expenditure decisions are highly politicized in Nepal (Eichenauer et al., 2020), the share of votes received by each of the three major political parties in each district is also included to account for possible favoritism or patronage. Finally, it is also possible that the government's spending in a district is competing with existing climate aid projects from international donors. Table A4 in Annex A provides the descriptive statistics of all the variables considered.

The analysis also serves to establish whether there is any inter-ministerial coordination on matters related to climate change adaptation and mitigation. For instance, the MoF would be expected to direct greater spending decisions to vulnerable districts identified by the MoFE. Similarly, one would expect greater spending in districts where many families have been affected by climate-related disasters based on data from the DRR Portal of the Home Ministry.

3.3.2 Determinants of climate aid allocation to Nepal

Following the descriptive evaluation of the climate aid flow, the factors that determine those flows are also analyzed using a twenty-year panel of 18 donors. The main dependent variable is the (logged) financial value of all committed projects listed in the OECD CRS database. The independent variables of interest are the ND-GAIN's readiness and vulnerability scores since the key determinant of climate aid is the threats to climate change a recipient country faces (Halimanjaya, 2015; Peterson and Skovgaard, 2019; Doku et al., 2021). Other aid allocation factors are informed by the existing literature and broken down into three primary categories – recipient needs, recipient merits, and donor interests (Alessina and Dollar, 2000).

Climate-specific features of a recipient country highlight the country's needs in terms of donor assistance to address climate change threats (Halimanjaya, 2015). This translates from findings of general aid allocation, where poorer countries receive large aid amounts (Alessina and Dollar, Fuchs et al., 2014). In the analysis, Nepal's climatic needs are proxied by its per capita GHG emissions, the size of its forest area, the number of people, per capita GDP, the number of climate disaster events, and the number of individuals affected.

Donors are more likely to assist recipients who have good governance structures in place that can effectively administrate and govern the funds (Kaufman et al., 2010; Fuchs et al., 2014). The same holds true for climate aid (Halimanjaya, 2015). Nepal's governance quality is controlled by an average of the six governance indicators, collectively referred to as the Kaufman governance indicators.[7] In the context of Nepal, the constant political instability can impact aid assistance (Khadka, 1997), so this is also proxied using a dummy for the years in which the government changed. Similarly, donors' aid decisions are also motivated by their own as well as competing interests in a recipient country (Doku et al., 2021). Several relevant factors that proxy donor interests are included based on the literature.

Donor-specific fixed effects account for inherent donor characteristics that influence climate aid allocation but remain constant across yearly observations. Robust standard errors are clustered at the donor level to account for serial correlations within that country. Ideally, the coefficients for climate vulnerability and readiness should be positive, implying that donors are responding positively to Nepal's adaptation needs and the adequate presence of the necessary governance structures in place to mobilize their assistance. Table A5 in Annex A provides the descriptive statistics of all the variables considered.

[7] Worldwide Governance Indicators (WGI): Voice and accountability, political stability and absence of violence, government effectiveness, regulatory quality, rule of law, control of corruption; all indicators are measured on a scale ranging from -2.5 to 2.5 with larger values associated with good governance indicators (Kaufman et al., 2010).

3.3.3 Factors influencing the wide climate aid disbursement gap

Data from the AMIS portal revealed that there is a significant disbursement gap in the amount of aid committed – both for overall aid and climate-specific aid. It is consistent with literature and empirical evidence from different developing countries (Leurs, 2005; Diarra, 2011; Canavirre-Bacarreza, 2015). While the literature focuses primarily on general aid, there are suggestions that climate finance follows development aid tendencies, which means that the same factors that cause disbursement delays in development aid can be relevant to climate finance flows (Michaelowa et al., 2022). The main dependent variable is (logged) the disbursement gap and the main independent variable, given its significance in the allocation decision model, is the ND-Gain readiness score. Other control variables include the number of competing donors as well as loan and grant-based projects, factors that reflect the political scenario of Nepal for any given year, and the prevailing debt service amount. While donor interests are at play, the existing political climate heavily influences aid disbursement decisions in many African countries (Diarra, 2011). Significant coefficients would provide suggestive evidence that a particular factor contributes to the gap. Robust standard errors are clustered at the donor level to account for serial correlations within that country. Table A6 in Annex A provides descriptive statistics of all the variables considered.

Despite the inclusion of various time-variant and time-invariant characteristics and controlling for various relevant fixed and random effects, the analyses do not provide suggestive causal evidence for each of the dependent variables being a particular way. The frameworks minimize the probability of spurious factors and associations affecting aid allocation and expenditure decisions. Unobserved confounding correlates can still influence decisions. For instance, the association between the over-time variation in Nepal's readiness indices and the donor's climate aid commitments to Nepal can still be driven by some other time-varying characteristic. Similarly, expenditure decisions of a particular fiscal year can be influenced by factors from one or more previous fiscal years. Nonetheless, these additional analyses are conducted to shed light on potential existing blind spots in climate aid negotiations with donors so that strategies are adopted to minimize inefficiencies moving forward. Table A3 in Annex A provides a detailed overview of the variables considered in the three analyses, their definitions, and sources.

4. Results

4.1 Nepal's climate finance contribution and national expenditure

Climate-related expenditures have become a big part of the national budget and expenditure since the 2013/2014 fiscal year. Aggregating the shares of *highly relevant* and *relevant* budgets reveals that planned spending relevant to climate change has seen an almost 5 fold increase since the CCBC was first introduced. The most recent budget of the 2024/2025 fiscal year allocated NRs. 871.59 arba (46.85 percent) to climate causes. Table 1 shows Nepal's planned spending on actions to respond to climate change over the last 12 fiscal years for which the data is available.

Table 1: Planned spending on actions to respond to climate change

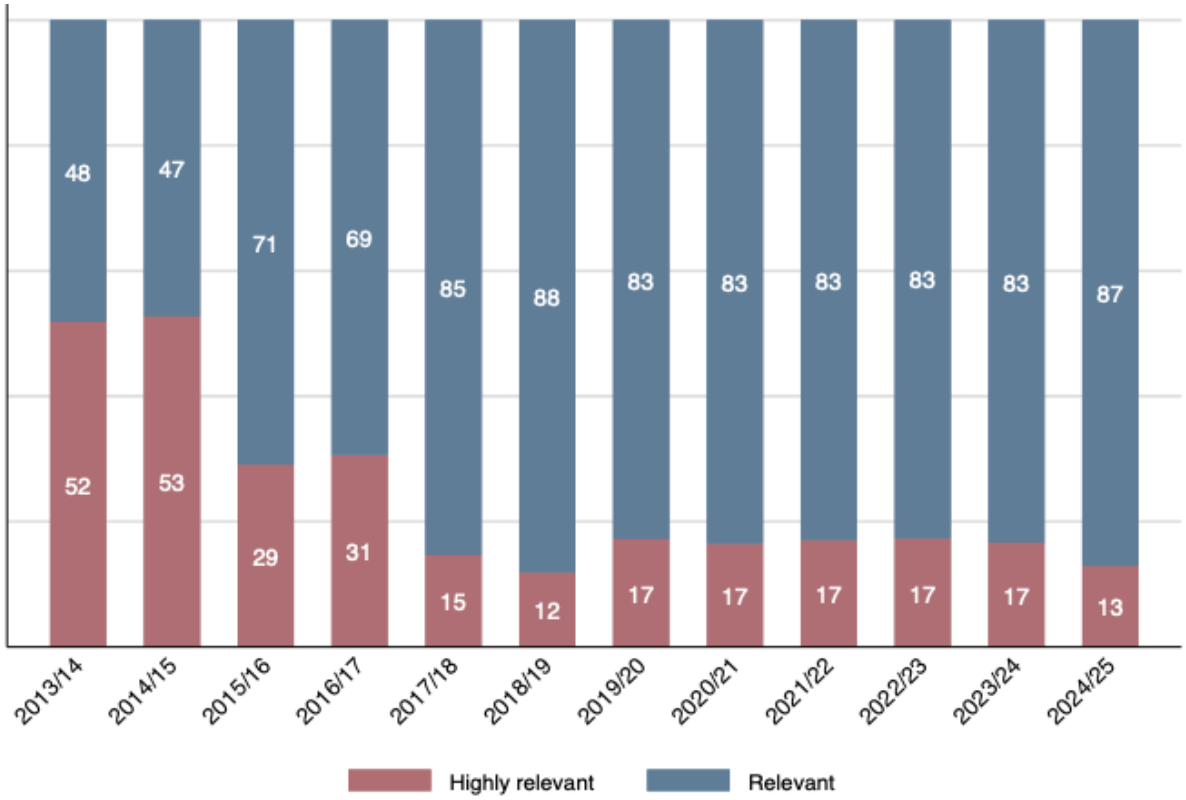
Fiscal year	Total annual budget (NRs. Arba)	Total amount relevant to climate change (NRs. Arba)[a]	Share of budget relevant to climate change (%)	Strategic allocation for Climate Action (NRs. Arba)
2013/2014	517.24	53.48	10.34 %	6.94[b]
2014/2015	618.1	66.35	10.73 %	8.85[b]
2015/2016	819.46	159.35	19.45 %	11.88[b]
2016/2017	1,048.92	201.61	19.22 %	2.79[c]
2017/2018	1,278.99	393.36	30.76 %	3.8[c]
2018/2019	1,315.16	487.01	37.03 %	N/A
2019/2020	1,532.97	463.88	30.26 %	N/A
2020/2021	1,474.65	478.84	32.47 %	N/A
2021/2022	1,632.83	549.7	33.67 %	16.65[c]
2022/2023	1,793.84	609.49	33.98 %	16.14[c]
2023/2024	1,751.31	627.98	35.86 %	11.63[c]
2024/2025	1,860.30	871.59	46.85 %	9.53[c]

Source: Data compiled from annual budget speeches

Note: [a] based on the 'highly relevant' and 'relevant' categorizations per the Climate Change Budget Code introduced in the 2013/2014 fiscal year (FY); [b] function classified in order to meet the strategy goals of the 13th periodic plan (FY2013/14-FY2015/16); [c] function classified in order to address the Sustainable Development Goals (SDGs)

However, the share of *highly relevant* allocation has remained steady at around 17 percent (see Figure 3) for the last six fiscal years, implying that a large portion of the climate budget is comprised of just *relevant* spending, which makes sense given the cross-cutting nature of the issue. Similarly, the climate change budget has been mostly going toward recurrent spending rather than capital spending over the years, suggesting that the government's priorities are aligned with maintaining ongoing activities as opposed to building more climate-resilient infrastructure.

Figure 3: Share (%) of climate change budget for 'highly relevant' activities



Source: Annual budget speeches, own visualization
Note: Highly relevant if 65% or more of a program's allocation is related to climate change; Relevant if 20–60% of a program's allocation is related to climate change

Even the narrative used in the annual budget speeches to support budgeting decisions has evolved from just focusing on mitigating the adverse effects of climate change on agriculture to adopting a broader national strategy that improves livelihoods, reduces emissions, and increases adaptive capacity and resilience. A sectoral breakdown of the climate change budget reveals that the top four functions are general public service spending, economic affairs, environmental protection, and housing and community amenities. Table A1 in Annex A provides an in-depth breakdown.

Despite the introduction and use of the CCBC, climate spending has been categorized under various labels. For instance, the three-year interim plan of 2013/14-2015/16 required a specific allocation for strategic spending on climate change goals. Similarly, the introduction of the SDGs in 2015 necessitated a specific share of the national budget to go toward addressing goal 13 of Climate Action (NPC, 2017). The last column in Table 1 above provides specific amounts for each fiscal year. The large discrepancy in planned spending under these headings brings into question the true reliability of the CCBC practice and creates confusion as to what exactly 'strategic allocation for climate action' consists of. At the very least, the amounts should be similar to the share planned for just *highly relevant* spending.

The federally allocated budget is distributed across various ministries to be spent across the country wherever necessary. This process changed following the introduction of smaller federal units and local governments in 2017. While the exact climate-relevant budget categorization is unavailable for the majority of the local levels, the annual consolidated fiscal statements produced by the FCGO show aggregated annual climate-related expenditure for all local and provincial governments and individual expenditure for each ministry and district. Table 2 reveals that there is a poor translation of the federally allocated national budget to the provincial and local levels. The aim of allocating 80 percent of all available climate finance to local governments seems to be far off the mark, especially considering that foreign cash, which makes up a sizeable portion of the national climate change budget, comprises less than six percent of the total expenditure.

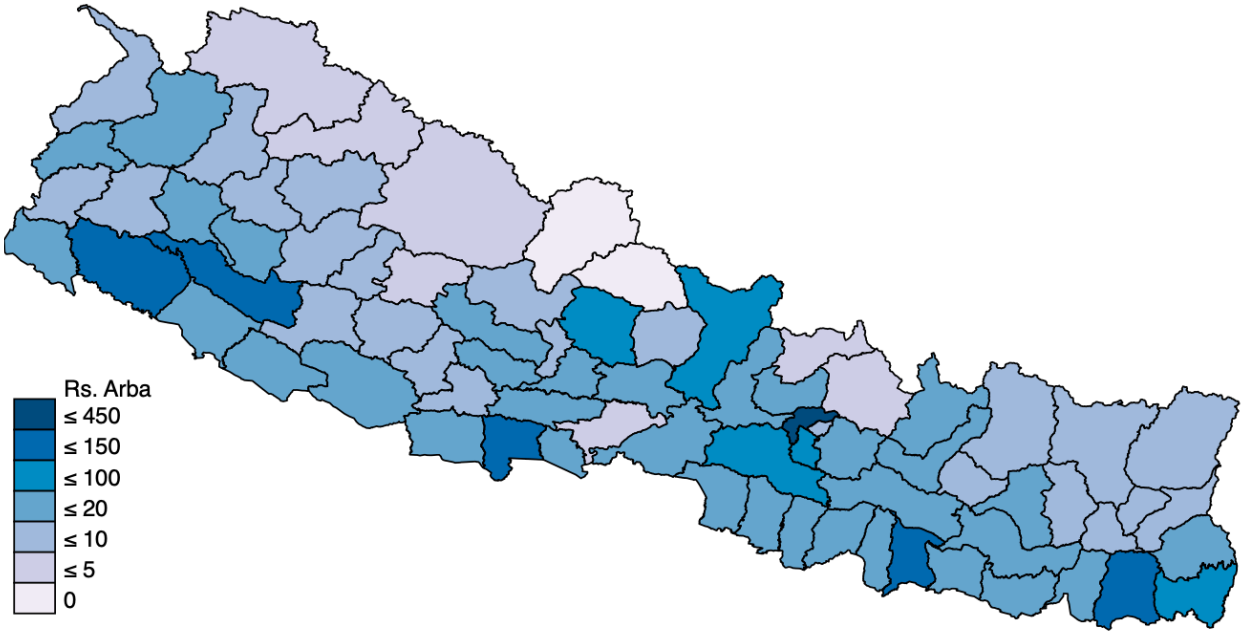
Table 2: Provincial and local level climate responsive expenditure

Fiscal year	Provincial Governments		Local Governments	
	Expenditure (Rs. Arba)	Share financed by foreign cash (%)	Expenditure (Rs. Arba)	Share financed by foreign cash (%)
2017/2018	7.15	0	234.01	0
2018/2019	110.47	4.73	210.72	4.13
2019/2020	107.41	1.52	242.97	4.02
2020/2021	110.35	4.42	284.13	12.7
2021/2022	109.04	3.89	297.02	5.82
2022/2023	99.66	3.51	297.7	6.75
Total	**544.08**	**3.58**	**1,566.55**	**5.87**

Source: Aggregated data from annual Consolidated Financial Statements
Note: Total share = Total foreign cash expenditure/total expenditure

At the ministry level, the Ministry of Home Affairs spends the largest amount, most of which goes into addressing the damages caused by climate disasters such as floods and landslides. Figure B1 in Annex B charts the aggregated climate change budget appropriation and expenditure of the top 15 ministries between the 2013/14 and 2020/21 fiscal years. One pattern that emerges is that many ministries spend beyond their appropriate budget, and there seem to be little adjustments made year-on-year within the budget allocation decision to address the issue. At the district level, expenditure patterns were analyzed more thoroughly. Over the six fiscal years for which the FCGO published district-wise climate expenditure data, districts on average spent NRs. 5.23 arba on matters responsive to climate change. Kathmandu spent the most while Manang and Mustang averaged the least. Figure 4 shows the variation in aggregated climate spending across the country.

Figure 4: Total district-wise climate change expenditure between FY 2015/16 and FY 2021/22



Source: *Annual consolidated financial statements, own visualization*

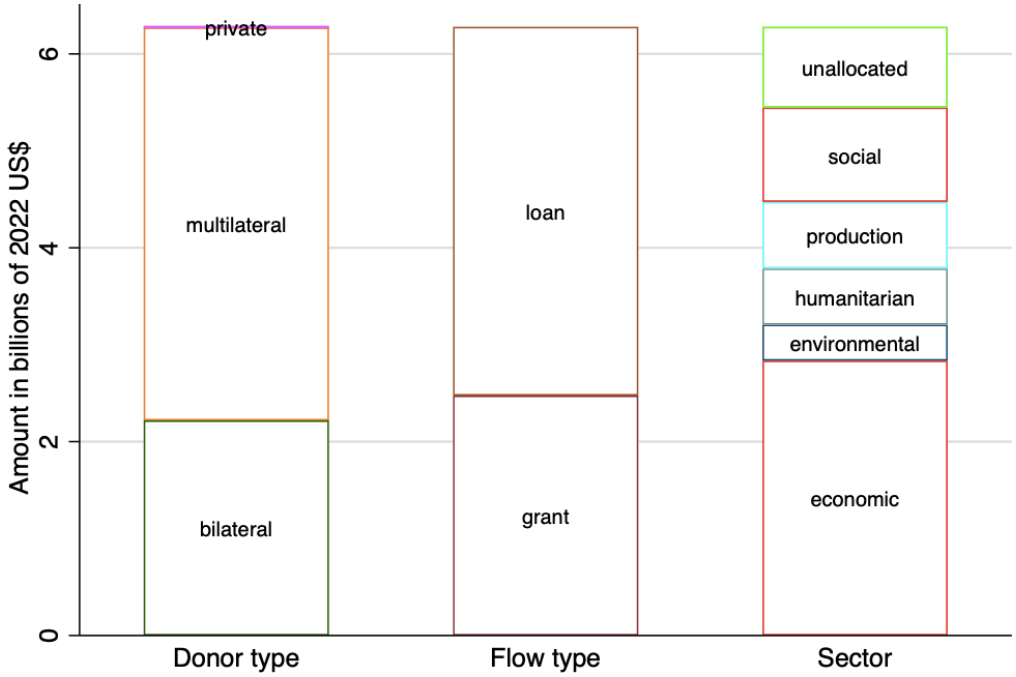
A cursory look at the data suggests that there is a significant positive correlation between a district's expenditure patterns and its climate risk index. However, a fixed effects regression model shows the spurious nature of the correlation. Column 1 of Table A7 in Annex A reveals that a district's overall climate risk score doesn't influence spending. Instead, it seems to be directed toward more well-developed districts that have a larger population size with greater HDI scores and access to larger road networks. These ideas are supported by results from columns 2 and 4 of the same table. More vulnerable districts have 1.9 percent less spending while districts with greater adaptive capacity have 2.7 percent more spending, both at the 1 percent significant level. One positive is that districts with greater exposure to climate threats see more spending (column 3), but it is worth noting that the districts with the greatest exposure scores are those

with the least population. However, it is crucial to note that these decisions are likely driven by the presence of well-equipped administrative units in richer districts that are able to better mobilize the climate budget on relevant activities. Additionally, competing resources (i.e., climate aid from international donors) do not seem to influence government spending, which should be seen as positive. The significant coefficients are driven by capital expenditure. The results provide little evidence that data from relevant ministries affects the expenditure decisions made by the MoF.

4.2 Incoming foreign climate aid: Donor perspectives

A part of the national budget that allocates toward climate spending is financed through international development assistance. Between 2000 and 2022, the CRS database recorded 39 OECD donors initiating 2,426 climate-related projects in Nepal, amounting to a total of US$ 6.28 billion. Of that, US$ 3.06 billion was attributed to adaptation-specific needs and US$2.6 was attributed to mitigation-specific needs. The rest went toward both adaptation and mitigation.

Figure 5: Climate finance flows from OECD donors to Nepal between 2000 and 2022



Source: OECD CRS (2024), own visualization
Note: Financial value of OECD climate finance flows by donor type, flow type, and sector (in billions of constant 2022 US$, 2000 – 2022)

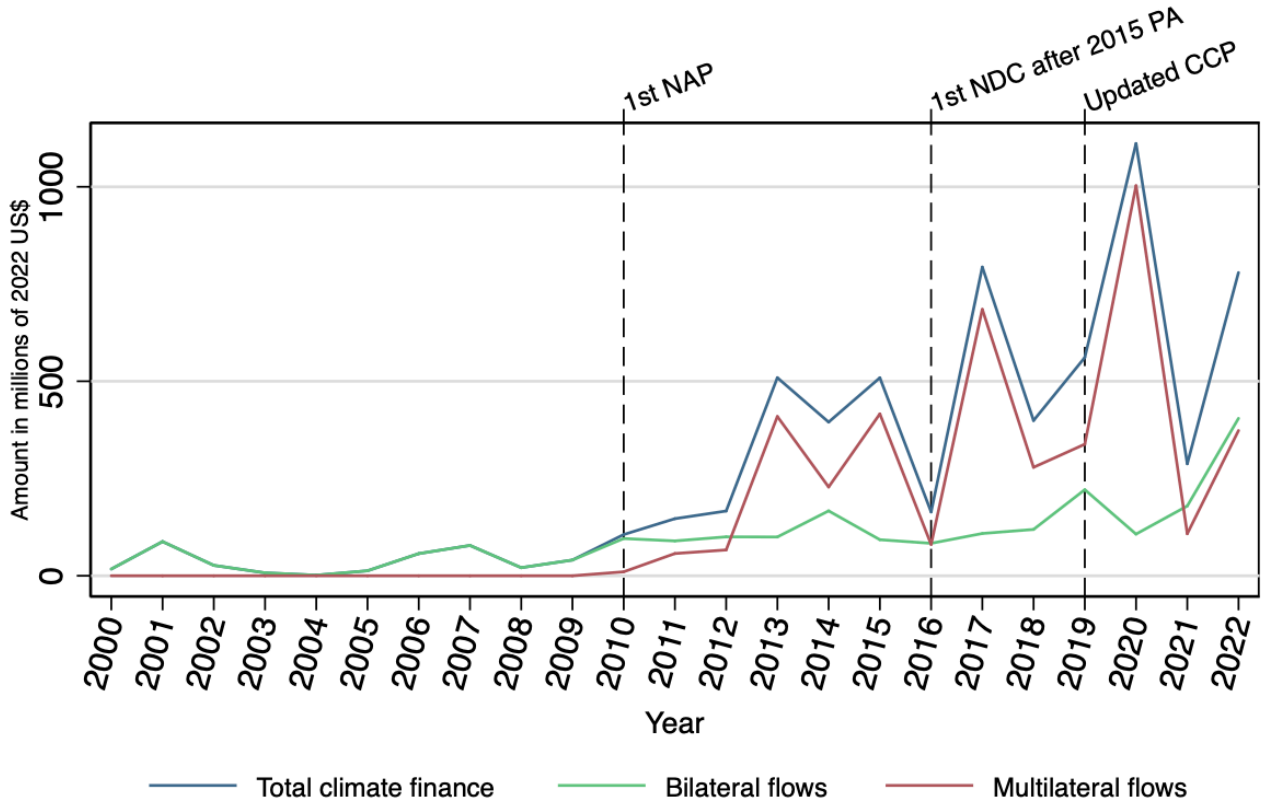
Figure 5 highlights some important features of the OECD CRS data on Nepal's receipt of climate development finance. The first column shows that multilateral funds constitute over 50 percent of the total climate finance. Private donors such as the Gates Foundation provided very little. The distribution of grant and loan-based assistance in the second column mirrors this since multilateral donors are more likely to attach concessional terms to their funds. Even though there

were a lot more projects funded by bilateral donors, larger financial value projects were provided by multilateral donors. The WB and the Asian Development Bank (ADB) were the largest donors. Disaggregating projects by sector[8] in the third column reveals that a large portion of the assistance goes toward the economic sector, which includes energy and transport-related contributions. Environmental funding, coded as 'General Environmental Protection,' makes up less than 10 percent of the total finance flows. Nonetheless, the sector breakdown shows the cross-cutting nature of climate financing and that all sectors need to adopt climate-resilient planning.

When considering the trend of climate finance flows to Nepal over the years, donors started assisting Nepal only after Nepal demonstrated its intent to address climate change threats through the first NAP published in 2010. Another massive wave of flows followed the publication of the first NDC in response to the 2015 Paris Agreement. A similar spike is seen following the update to the country's CCP in 2019. These patterns, seen in Figure 6, highlight that donors are only willing to contribute when a recipient demonstrates seriousness in ensuring the funds are intended to be utilized properly. The figure also confirms that multilateral flows constitute a large chunk of the total amount each year.

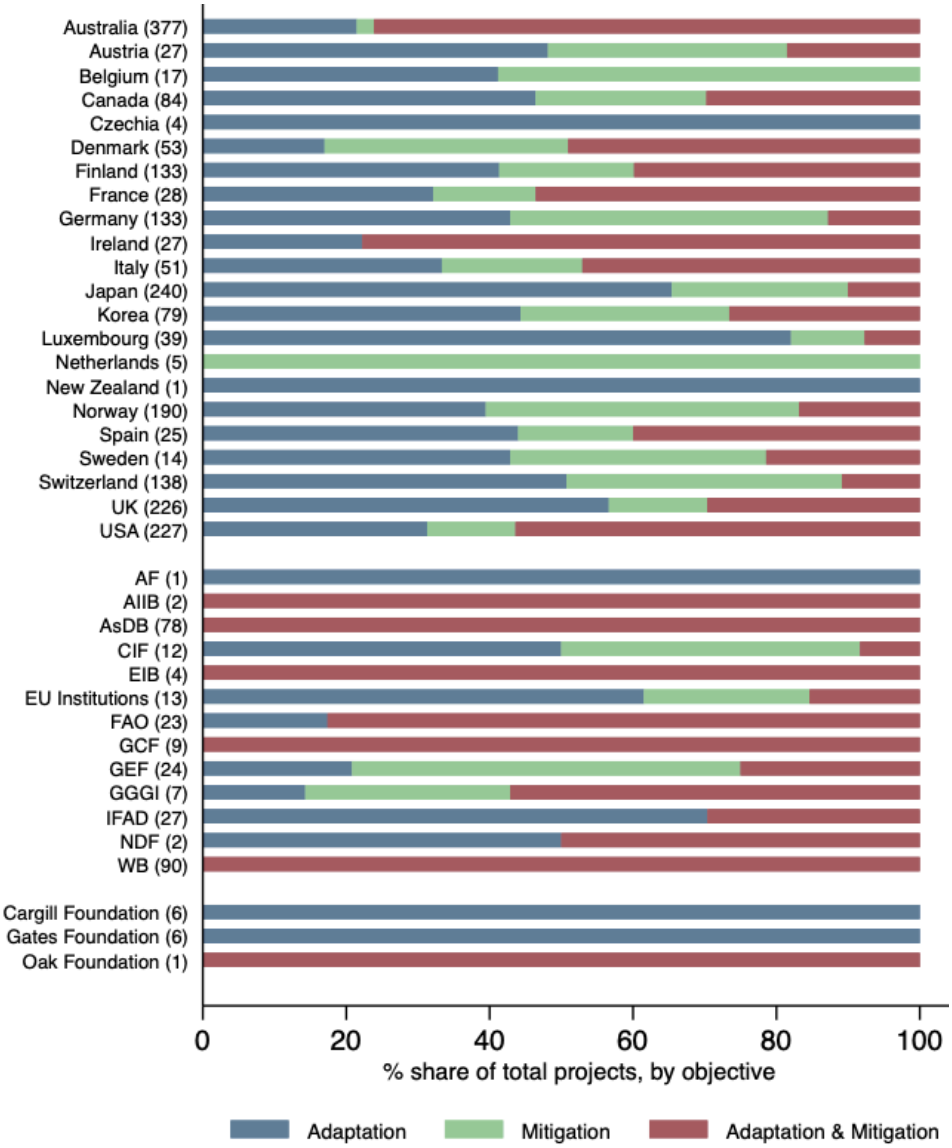
[8] Sectors, provided for each project, are aggregated using the OECD's definitions. Economic sector: banking & financial services, energy, business & other services, communications, transport & storage; Environmental sector: general environment protection; Humanitarian sector: emergency response, reconstruction relief & rehabilitation, disaster prevention & preparedness, development food assistance; Production sector: agriculture, forestry, fishing, industry, mining, construction, trade policies & regulations, tourism; Social sector: education, health, population policies/programs & reproductive health, water supply & sanitation", government & civil society", other social infrastructure & services.

Figure 6: Trend of climate finance flows from OECD donors to Nepal between 2000 and 2022



Source: OECD CRS (2024), own visualization
Notes: NAP: National Adaptation Plan; NDC: Nationally Determined Contributions; PA: Paris Agreements CCP: Climate Change Policy

Figure 7: Climate finance donors and their objective, 2000-2022



Source: OECD CRS (2024), own visualization
Notes: Adaptation or mitigation objectives are classified under the 2010 Rio Markers aid reporting convention of 2010; total projects of a donor are specified in brackets next to the donor's name; interpret graph as "Of Australia's 377 climate finance projects in Nepal between 2000 and 2022, roughly 20 percent of were targeted for climate change adaptation"; donors grouped by type (bilateral, multilateral, private)

The trend of climate finance flows to Nepal coincides well with flows to other countries in the South Asian region. Countries like Bangladesh, Pakistan, and Sri Lanka face similar climate threats, perhaps with even greater severity. Figure B2 in Annex B supports this idea as Bangladesh and Pakistan receive significantly more climate assistance than Nepal. However, it is possible that Bangladesh receives such a large amount of assistance because it has established a proven record of having a strong institutional framework in place to mobilize and govern these

funds (O'Donell et al., 2013). Another point to note is that the flows picked up after 2015, signaling the effect of the Paris Agreement in spurring developed countries to adhere to the convention's polluter pays principle. However, the pattern is attributed to the proliferation of various climate funds rather than the increased generosity of bilateral donors.

Taking advantage of the fact that the database states whether the objective of a donor project was adaptation or mitigation, Figure 7 lists the difference in shares for each objective for all donors. Almost 40 percent of all projects focused on adaptation as the primary objective, despite the fact that the Rio Markers for adaptation were introduced only in 2010. Mostly bilateral donors contributed to this. Multilateral donors such as the WB and ADB (AsDB) contributed all of their 90 and 78 projects, respectively, toward both adaptation and mitigation needs. A little over 50 percent of the total projects, largely from bilateral donors, prioritized gender as an objective.

A holistic and complete fund-tracking is made difficult by the fact that Nepal, as an LDC, is eligible to receive climate finance from various climate funds. While the OECD CRS database tracks assistance from funds such as the Global Climate Fund (GCF), Global Environment Facility (GEF), and the Adaptation Fund (AF), it does not capture the full extent of available funds. Table 3 presents the details of some additional sources through which Nepal has benefitted till now.

Table 3: Climate finance for Nepal approved and received by source, 2008 – 2022

Funding source	**Objective**	**Approved (US$ m)**	**Disbursed (US$ m)**	**No. of Projects**
Least Developed Countries Fund	Adaptation	32.12	9.19	7
Global Climate Change Alliance	Adaptation	9.64	0.67	1
Adaptation Fund (AF)	Adaptation	9.53	9.53	1
Pilot Program for Climate Resilience (PPCR)	Adaptation	73.97	50.88	4
Adaptation for Smallholder Agriculture Program (ASAP)	Adaptation	15	13.42	1
Green Climate Fund (GCF-1)	Mitigation	21.13	0	1
Scaling Up Renewable Energy Program (SREP)	Mitigation	43.73	16.35	4
Global Environment Facility (GEF4/GEF5/GEF7)	Mitigation	7.17	5.52	3

Total	**212.29**	**105.56**	**22**

Source: Climate Funds Update (www.climatefundsupdate.org)
Note: The table only refers to fundings with an explicit focus within Nepal, additional regional funds of which Nepal was also a recipient are not included; figures in US$ millions

A look at some of the determinants of climate aid allocation reveals that donors prefer to provide climate development assistance to Nepal based on the country's readiness score rather than its actual climatic conditions and vulnerability. Table A8 in Annex A details all the coefficients of the regression specification. To put that into context, a one percent increase in Nepal's readiness score translates to a 195 percent[9] increase in the total climate finance received, on average, in any given year (column 1). The increase is even more remarkable for adaptation finance (column 2). The results are based on a random effects model since a Hausman test revealed that a fixed effects specification was too restrictive given the heteroskedastic nature of many of the control variables.

With regards to recipient needs, donors prefer to provide support if there is a larger carbon sink (proxied by the share of forest area in the country), fewer GHG emissions per capita, and more people that can be impacted. More disaster-affected individuals seem to lead to lesser assistance. Similarly, recipient merits such as the improvement in good governance indicators positively impact flow amounts while the decline in characteristics such as budgetary management ratings and debt service amounts negatively affect flow amounts. Moreover, donors reduced their assistance by around 16 percent in the years in which Nepal's government changed, highlighting that the country's political instability has wide-reaching ramifications.

The results also support the notion that climate aid is determined by donor interests as established in the aid allocation literature. For instance, there is suggestive evidence that donors are hesitant to contribute large amounts if there are many other competing donors for the same cause. Having even one more competing donor in any given year can translate to the loss of 79 percent of climate finance from a donor, on average, albeit only at a 10 percent significance level. Additionally, it is important to note that Nepal's existing aid ties in other sectors translate positively to climate aid as well, e.g., an existing donor tie that assists in the health sector will also likely provide climate assistance.

4.3 Incoming foreign climate aid: Government perspectives

The GoN has also made efforts to diligently track all incoming foreign aid in a centralized portal. According to the MoF, Nepal has received foreign development assistance across 2,559 between 2000 and 2023, amounting to a total of US$ 38.56 billion in commitments. Table 4 provides a more detailed breakdown of all the projects. Over a third of the projects are financed by various foreign NGOs, all of which have grant elements. In monetary terms, multilateral donors commit the greatest share, making up almost half of the total amount received. This highlights the fact that most of the incoming foreign aid is made up of small, localized projects that have little weight on the federal budget. Table 5 supports this notion, as the NGOs contribute only committed US$ 2.26 billion, despite their large project count. Despite the sizeable commitments

[9] The percentage estimates of a log-level regression coefficient are given by 100 * exp(coefficient) = 1.

made, Table 5 also shows that there is a very large discrepancy in the actual disbursement of funds. This widening disbursement gap is considered in greater detail in the next subsection.

Table 4: Foreign development assistance project count by donor and aid type, 2000 – 2023

	Grant	Loan	In-kind	Technical Assistance	Total
Bilateral	385	33	4	367	789
Multilateral	350	124	1	457	932
NGO	825	0	0	13	838
Total	**1,560**	**157**	**5**	**837**	**2,559**

Source: MoF (2024)
Note: Aggregate project count of 18 bilateral donors, 32 multilateral donors, and 186 NGOs

Table 5: Foreign development assistance amounts by donor and aid type, 2000 – 2023

Donor Type	Commitment (US$ billion)	Disbursement (US$ billion)	Disbursement gap (US$ billion)	No. of Projects
Bilateral	15.94	9.10	6.84	789
Multilateral	20.56	12.12	8.44	932
NGO	2.26	1.69	0.57	838
Total	**38.56**	**22.79**	**15.77**	**2,559**

Source: MoF (2024)

The exact amount of climate finance is retrieved from this universe of projects. Of the projects that were marked with a climate-relevant marker, the portal records 425 in total, amounting to a commitment of US$ 8.73 billion. The patterns are similar to those of the overall project universe. NGOs contribute the least monetary amount despite contributing to the most number of projects. Only a handful of the total climate-relevant projects comprised loan elements. Most of the total climate finance went toward relevant projects, underscoring the cross-cutting nature of climate finance. Less than five percent of all foreign aid had a high priority of addressing climate-related threats. The extent of the disbursement gap for climate finance also follows a pattern consistent with other development aid. Tables 6, 7, and 8 provide a full overview. Table A2 in Annex A reveals that there was a steady rise in the number and associated value of climate finance projects after 2010, with a recorded peak in the 2018/2019 fiscal year.

There are two other crucial aspects to note. First, the amount of total foreign aid commitment to Nepal has been increasingly comprised of loan elements, which have led to a mounting net outstanding debt value according to the central bank (NRB, 2023). Figure B3 in Annex B reflects

Table 6: Climate change relevant project count by donor and aid type, 2000 – 2023

	Grant	Loan	Technical Assistance	Total
Bilateral	53	8	42	104
Multilateral	66	28	85	179
NGO	142	0	0	142
Total	**261**	**36**	**128**	**425**

Source: MoF (2024)
Note: Aggregate project count of 14 bilateral donors, 16 multilateral donors, and 67 NGOs

Table 7: Climate finance amounts by donor type, 2000 – 2023

Donor Type	Commitment (US$ billion)	Disbursement (US$ billion)	Disbursement gap (US$ billion)	No. of Projects
Bilateral	3.02	1.25	1.76	104
Multilateral	5.08	2.01	3.07	179
NGO	0.63	0.43	0.2	142
Total	**8.73**	**3.69**	**5.03**	**425**

Source: MoF (2024)

this trend. Climate aid shows a similar pattern. There has been a gradual uptick in the number of loan-based projects that have many conditionalities attached to them. Most of the recent large-value contributions from multilateral organizations have comprised entirely of loan elements, which places an undue burden on Nepal's external debt status (Pyakurel, 2022).

Second, and more importantly, over half of the total aid projects have been recorded as off-budget (Table A2 in Annex A). The on-budget modality involves donor organizations reporting directly through the government system, whereby funds are reflected in the annual budget declaration. Off-budget funds are mobilized directly by delivery partners such as foreign NGOs, and recorded at the Social Welfare Council (SWC). It is difficult for government entities to take full ownership of such projects as they are rarely involved in the implementation. Climate finance also suffers from this issue. Figure 8 shows the country-wide variation in the number of

on and off-budget climate finance projects. Off-budget assistance, attributed largely to NGOs, is concentrated in the country's Churia belt and the mostly rural far-western districts. On-budget support is concentrated in urban hubs such as Kathmandu and other eastern districts faced with greater flooding and glacial

Table 8: Climate finance: climate change relevant foreign development assistance, 2000-2023

Climate relevance	Commitment (US$ billion)	Disbursement (US$ billion)	Disbursement gap (US$ billion)	No. of Projects	Share of total projects[a] (%)
Highly Relevant	1.77	0.66	1.1	122	4.8 %
Relevant	6.96	3.03	3.93	303	11.8 %
Total	**8.73**	**3.69**	**5.03**	**425**	**16.6 %**

Source: MoF (2024)
Note: [a] Total projects is the number of foreign development assistance projects (2,559)

Table 9: On and off-budget disbursement (US$ million) of climate finance, 2000 – 2023

Donor type	On Budget		Off Budget	
	Highly Relevant	Relevant	Highly Relevant	Relevant
Bilateral	147.1	784.4	31.3	292.7
Multilateral	383.5	1481.4	49.9	99.5
NGOs	0	0	54.7	370.8
Total	**530.7**	**2265.8**	**135.9**	**763**

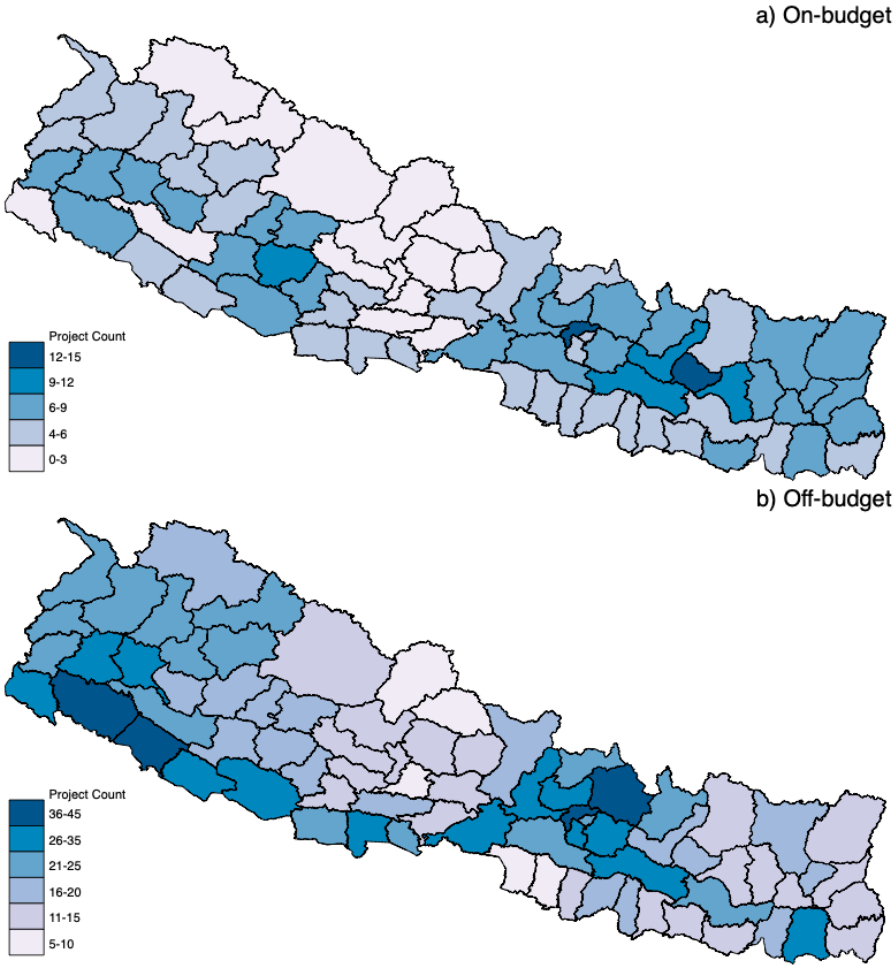
Source: MoF (2024)
Note: Only disbursed amounts are considered

threats. Such mechanisms create confusion in terms of overall climate finance tracking, especially when a portion of the project budget is on-budget and the rest is not. Nonetheless, Table 9 breaks down the climate finance received by on and off-budget categorization. Despite only 22 percent of the total climate-relevant projects being on budget, they are the most lucrative ones, making up over three-quarters of the total disbursement of climate finance.

4.4 Analyzing the disbursement gap

As noted earlier, the AMIS portal recorded a growing share of projects with a sizeable disbursement gap in the commitment amount. Overall, there was a disbursement gap of US$ 15.77 billion across all development assistance and a US$ 5.03 billion gap in climate-specific assistance. From climate-centric considerations, this is particularly alarming, given that the share of the disbursement gap in climate finance is much higher (57.6 percent) relative to the overall project universe disbursement gap (40.9 percent) and considering that climate finance makes up just over a fifth of all aid flows. It calls into question the existing absorption capacity and institutional bottlenecks associated with mobilizing and governing climate finance, considering that more than

Figure 8: District-wise variation in on (top) and off-budget (bottom) climate aid, 2000 – 2023



Source: MoF (2024), own visualization

half of the promised foreign contributions remain unrealized. Table 7 shows that 60 percent of the disbursement gap in climate aid is attributed to commitments made by multilateral donors.

A look into the determining factors that contribute to the widening disbursement gap in aid commitments to Nepal – more specifically climate aid – in Table A9 of Annex A reveals that a mounting year-on-year debt amount significantly contributes to the increasing gaps. Perhaps donors are reluctant to follow through on their commitments because Nepal has shown little initiative to address its external debt. This correlates closely with the number of loan-based projects, which accrues debt amounts. Surprisingly, the results in the fixed effects model suggest that earthquake-related assistance had a significant delay in disbursement. Other political and event-related factors do not seem to influence disbursement decisions. One important factor seems to be that UML-led governments fare the best in ensuring commitments are met, reducing disbursement gaps by around 15 percent on average. A test of overidentifying restrictions suggests that a fixed effects model is preferred over a random effects model since it can account for time-invariant factors and unobserved factors in disbursement decisions.

5. DISCUSSIONS

5.1 Reconciling differences in policy and practice

The results align well with Nepal's vision of building a climate-resilient society, as outlined in the Climate Change Policy. Domestic spending on the matter has seen a significant rise, highlighting the government's priority in addressing climate change issues. At face value, the incoming foreign development assistance for climate change seems significant, especially considering the fact that the NAP is built on reliance on external assistance. Of course, figures from both the OECD CRS and the AMIS portal are likely to be significantly lower than the true amount that Nepal has been pledged since not all donors have been considered or not all projects have been considered. However, the pace at which the funds have come in over the last 20 years does not bode well for what Nepal can receive till 2050. These concerns are not helped by the fact that there are sizeable delays and gaps in donors' provided funds to which they have committed. The growing trend of relying on concessional loans with conditionalities is particularly worrying, given Nepal's uncertainty in being able to repay them. This has also negatively contributed to the widening disbursement gap.

The overall picture, as suggested by the results, suggests that there is still a long way to go before the goals and visions of the various national policies in place are fully realized. The merits and stated intentions of the CCFF have been realized to some extent, but the PFM system is yet to be incorporated across all levels of the government. Ambitious goals outlined by the NDC and NAP are unlikely to materialize, considering that many of the financial contributions necessary have yet to be fully put in place. The existing narratives in the literature have not exactly been allayed; in fact, the results provide evidence to support the failures that have been described.

Similarly, the policy in place to allocate eighty percent of the available climate finance to local levels seems to be far off the mark. Aggregated data from the last six available annual consolidated financial statements shows that less than 6 percent of the climate change expenditures at the local level were financed by foreign assistance. It does not help that standardized budgeting practices are not implemented across all local levels. Moreover, the findings suggest that climate change expenditure decisions focus on areas that are more capable of implementing adaptation projects rather than areas that face vulnerability. The adaptation strategy needs to be geared toward building uniform adaptive capacity rather than reinforcing those with strong foundations.

5.2 Implementation gaps and identified issues

The results also highlight that Nepal's process of advocating for international climate finance does not fully consider donor interests. Negotiations need to be backed up by strong research and an understanding of the needs. The fact that donors seem to prefer strong governance readiness implies that Nepal's approach to securing international assistance must pivot to accommodate broad-level improvements across various governance, economic, and social sectors in

concurrence with climate-centric issues. Moreover, the practice of having two different entities responsible for climate change actions seems to be hurting the flow of committed funds. The MoF's responsibility of securing funds must be complemented by a rigorous involvement in ensuring those funds are managed as designated by the implementing agency, i.e., the MoFE. Similarly, the MoFE must advocate for funds that target the issues it has identified. Coupled with the existing narrative that the lack of inter-ministerial coordination has hurt Nepal's efforts in the past, the issue can be a chronic hindrance if not addressed.

A methodological concern that came up during the research process was the very fuzzy categorization strategy of the CCBC. It is not entirely clear what exactly a climate-relevant spending decision is within a project or a program. One could argue that a project's budget becomes climate finance only if it is in the *highly relevant* category. Since climate change is such a cross-cutting issue, as highlighted by the CCP and the CCFF, it makes sense that any program takes on a sustainability and climate-conscious angle. But categorizing them as climate spending perhaps oversteps the mark. The discrepancies in the data provide support for this issue. Even though Nepal's climate spending has significantly gone up over the years, it has been due to the bloated share of *relevant* spending. This seeming overrepresentation of Nepal's climate contribution is further called into question when considering that funds directed toward 'climate action' under the SDGs do not even make a fraction of the overall amount. Perhaps that is the true reflection of purely climate-centric budget allocation. The potential overestimation issue highlights the necessity to have a uniform and standardized definition of what climate-relevant spending is across all ministerial decision-making.

A brief examination of some of the project-level details from both the OECD CRS and AMIS databases revealed that there were only a few projects that incorporated a detailed poverty or gender analysis. Despite references to the fact that climate has a differential impact on women, the project descriptions did not outline any gender equality objectives. This criticism is not new, given that a report by CARE Nepal also called for a more holistic approach, citing the absence of poverty mapping tools and gender-responsive adaptation strategies in these climate finance projects (Rai et al., 2020). This is especially concerning, given that a large portion of those affected by climate vulnerabilities come from disadvantaged communities such as the poor and women.

While the research doesn't specifically focus on assessing the efficacy of climate finance to date, the trends and figures set up important foundations to build. There is a dearth of literature on the matter even across various developing countries. Nonetheless, Bhandary et al. (2020) suggest that strong complementary policies are essential for climate change policies to flourish. National macroeconomic stability and the health of the financial system are strong determinants. Yeganeh et al. (2020) claim that public perceptions of climate change are the strongest determinant of climate change policy. When considering Nepal's landscape, the existing frameworks necessary

for an effective climate change policy are in place on paper. Whether that has been effectively translated onto the ground is a research topic worth considering.

6. Recommendations

Specific policy recommendations are difficult to pinpoint given the exploratory nature of the research. Nonetheless, some larger themes need to be addressed, by both the GoN and MoF.

a. There needs to be a parliamentary initiative that aims to codify an informed and detailed 'Climate Law' that governs the actions of all ministries in response to the cross-cutting issues of climate change to bring ownership and accountability into existing adaptation and mitigation strategies. Such an initiative will help bring the issues of climate change into a legally binding political discourse. It will foster an environment where informed decision-making takes place on various climate-related actions by bringing various stakeholders into the fold. For instance, it will proliferate the involvement of various research institutes in designing need-based vulnerability assessment frameworks. A larger-scale government involvement will also bring a greater share of climate finance into the national budget without having to rely on solely NGOs.
b. Strengthen the institutional frameworks in place to ease climate finance procurement and spending decisions. Being mindful of donor preferences, the GoN needs to ensure that good fund governance practices are in place which conveys a sense of readiness in effectively mobilizing donor assistance. Moreover, local-level absorption capacities need to be expanded so that a greater share of foreign climate finance is channeled directly to local and provincial governments, especially to those that most need it. It is also imperative to make sure that all local units are similarly equipped with underlying human and capital resources to make the best use of allocated climate funds.
c. Standardize and uniformize data coding procedures so that climate change-relevant projects are reflected accurately in the national financial management system and aligned with international reporting practices. For instance, to minimize underestimates of total climate finance, all past development finance needs to be accurately categorized as climate-relevant. A standardized coding and accounting practice will also help reconcile the discrepancies between donors' reporting standards and national reporting standards. The national budget can ascertain the proportion of funds allocated to adaptation and mitigation needs. In the same vein, the existing financial management system needs to have a clearer mechanism to bring foreign climate finance into the national budget and effectively distribute those funds to all levels of government. This can be eased by the proposed standardized definitions and accounting procedures.
d. Increase and improve the use of project performance assessments and indicators to gauge how well donor-funded projects have fared in helping vulnerable households so that implementation agencies can continue to secure committed funds. A robust monitoring, reporting, and verification procedure of all projects, with support from various ministries (e.g., MOFAGA), can help strengthen local government capacity. Expenditure decisions need to be coordinated among various ministries to streamline an effective climate response strategy. One way to do this is to leverage existing data from various

government institutes (e.g., the Department of Hydrology and Meteorology) to devise early warning systems that help channel climate funds, both domestic and foreign, to vulnerable areas. These can be regarded as 'low and no regret' adaptation measures. Moreover, expenditure practices need to be realigned to areas with climate, vulnerability, and exposure risks in favor of those that can best utilize the money.

e. Development partners must be asked to ensure that climate-relevant spending considers the differential impacts of climate disasters faced by women and marginalized communities. As the primary agency responsible for securing climate finance, the MoF needs to ensure that such commitments are in place before approving partnerships with donors.
f. The MoF also needs to develop a framework to accommodate the potential drying out of certain climate funds following the country's graduation from an LDC status in 2026. Newer or updated climate finance procurement procedures need to be ready to go to ensure there are no gaps in finance flows.

7. Conclusions

Over the years, Nepal has benefitted tremendously from the flow of development aid to build a climate-resilient future under the 'common but differentiated responsibilities' of the Paris Agreement. The research forms a clearer understanding of Nepal's climate finance landscape. It explores the policies in place to address climate change and assesses how the national budgeting system has responded to the increasing threats. It also quantifies the flow of foreign climate-related development assistance and analyzes some of the determinants of climate aid allocation. Overall, the study sheds a broad light on the features of Nepal's financial response to climate change. It identifies gaps and failures in the existing climate change financing framework that must be further explored. The existing financial management system needs to have a clearer mechanism to bring foreign climate finance into the national budget and effectively distribute those funds to all levels of government.

Moving forward, the limitations of the study need to be addressed to have an in-depth look at the exploratory overview this research provides. The full understanding of climate finance allocation in Nepal goes beyond the findings of this research. For instance, there needs to be thorough research to update the existing climate framework to accommodate the potential drying out of certain climate funds following the country's graduation from a Least Developed Country status in 2026.

Of the various recommendations provided, two key reforms stand out. The introduction of a broad-level legislative act will help govern the actions of all ministries in response to the cross-cutting issue of climate change to bring ownership and accountability into existing adaptation and mitigation strategies. The adoption of data-driven project performance indicators

and vulnerability assessments will ensure existing projects are completed with 100 percent financial disbursement from donors and channeled to the most vulnerable areas.

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ANNEX

Annex A: Tables

Table A1: Share (%) of climate change budget by top four functions

Fiscal year	General public service	Economic affairs	Environmental protection	Housing and community amenities	Others
2013/2014	1.1 %	71.3 %	5.6 %	21.7 %	0.3 %
2014/2015	0.8 %	68.5 %	8.5 %	21.4 %	0.8 %
2015/2016	0.4 %	84.7 %	4.5 %	9.9 %	0.5 %
2016/2017	0.6 %	77.7 %	7.0 %	14.6 %	0.1 %
2017/2018	59.3 %	27.8 %	3.6 %	9.1 %	0.2 %
2018/2019	69.2 %	20.4 %	4.4 %	4.3 %	1.7 %
2019/2020	57.4 %	20.4 %	4.3 %	5.8 %	12.1 %
2020/2021	55.8 %	23.2 %	1.6 %	6.5 %	12.9 %
2021/2022	53.5 %	25.5 %	1.5 %	4.3 %	15.2 %
2022/2023	62.4 %	28.9 %	1.4 %	5.1 %	2.2 %

Source: Data compiled from annual budget speeches and consolidated financial statements
Notes: Other relevant climate change functions include health, education, and social protection; The budget for general public service increased from FY 2017/18 onwards due to fiscal transfer to provincial and local governments; Economic affairs includes general economic, commercial and labor affairs, agriculture, forestry, fishing and hunting, fuel and energy, mining, manufacturing and construction, transport, communication, and other industries

Table A2: Annual climate change relevant foreign assistance projects between FY 2002/03 and FY 2022/23

Fiscal year	On Budget		Off Budget	
	Highly Relevant	Relevant	Highly Relevant	Relevant
2002/2003	0	1	0	0
2003/2004	1	0	0	0
2004/2005	0	4	0	0
2005/2006	0	0	0	0
2006/2007	0	0	0	2
2007/2008	0	2	0	3
2008/2009	1	0	3	1
2009/2010	0	2	3	10
2010/2011	3	3	1	4
2011/2012	1	7	3	6
2012/2013	5	6	4	8
2013/2014	1	9	3	20
2014/2015	1	1	4	22
2015/2016	1	2	6	24
2016/2017	5	1	4	15
2017/2018	0	3	9	25
2018/2019	2	6	15	28
2019/2020	2	8	10	27
2020/2021	1	4	6	24
2021/2022	4	3	9	14
2022/2023	3	1	11	7
Total	**31 (7.3%)**	**63 (14.8 %)**	**91 (21.4 %)**	**240 (56.5 %)**

Source: MoF (2024)
Note: Shares (%) in the total column represents the share of projects in the given category over the total number of climate finance projects (425)

Table A3: Variables, definitions, and sources

Variable Name	Definition	Source
Total climate finance	Total climate aid by OECD donors, US$	OECD (2024)
Total adaptation finance	Total adaptation aid by OECD donors, US$	OECD (2024)
Total mitigation finance	Total mitigation aid by OECD donors, US$	OECD (2024)
Total foreign aid	Total aid commitments, 2000-2023, US$	MoF (2024)
Disbursement gap	Difference between aid commitment and disbursement amounts, US$	MoF (2024)
ND-Gain vulnerability	ND-GAIN climate change vulnerability score	Chen et al. (2024)
ND-Gain readiness	Mean of ND-GAIN readiness indicators (governance, social, economic)	Chen et al. (2024)
Climate risk index	District-wise climate risk index	MoFE (2021)
Vulnerability index	District-wise climate vulnerability index	MoFE (2021)
Exposure index	District-wise climate exposure index	MoFE (2021)
Adaptive capacity index	District-wise climate adaptive capacity index	MoFE (2021)
No. of *x* projects	Number of *x* climate projects per year	OECD (2024), MoF (2024)
Climate aid probability	Likelihood of a district receiving climate aid project by a specific donor in a given year	MoF (2024), own computation
No. of competing donors	Number of donors providing climate finance in a given year	OECD (2024)
Donor office in Nepal	=1 if specific donor has their office in Nepal	Individual donor agency websites
Forest area share (%)	% of total land of Nepal covered by forests	WDI (2024)
Per capita GHG emissions	Per capita CO2 equivalent kt of GHG emissions	WDI (2024)
Population	Annual total population, district-wise population	WDI (2024), CBS (2021), CBS (2011)
Per capita GDP	Annual GDP per capita (US$)	WDI (2024)
Disaster-affected individuals	No. of persons affected by climate-related disasters per year	EM-DAT (2023)
Climate disaster events	No. of climate-related disaster events per year	IDMC (2024)
Debt service amount	Debt service on external debt (US$)	WDI (2024)
Kaufman governance indicators	Average of six governance indicators (-2.5 to 2.5, higher = better)	Kaufman et al. (2010)
CPIA budgetary rating	CPIA quality of budgetary and financial management rating (1=low to 6=high)	WDI (2024)
Mean rainfall	Mean annual rainfall by district	ICIMOD (2024)
Mean temperature	Mean annual temperature by district	ICIMOD (2024)
Government change	=1 if government changed in a given year	Khatiwada (2023)
x Government	=1 if *x* party led government in a given year	Khatiwada (2023)
Political Party (%)	Share of votes secured by each party in 2017 elections within each district	Election Commission (2024)

HDI	District-wise HDI index	UNDP (2014, 2020)
Distance to Kathmandu	Road distance from Kathmandu to district HQ	DoR (2016)
Road network	Total length of roads in each district (km)	DoR (2016)

Table A4: Summary statistics, district-wise expenditure analysis between FY 2015/16 and FY 2021/22

Variable	Obs.	Mean	Std. Dev.	Min	Max
Total expenditure (NRs. Arba)	528	5.23	8.56	0.06	76.60
Total expenditure (log)	528	21.63	1.27	17.91	25.06
Total recurrent expenditure (NRs. Arba)	528	4.06	5.49	0.01	33.10
Total recurrent expenditure (log)	528	21.10	1.80	16.12	24.22
Total capital expenditure (NRs. Arba)	528	1.17	4.60	0.00	54.94
Total capital expenditure (log)	496	19.65	1.48	16.12	24.73
Climate risk index	528	0.39	0.14	0.12	0.72
Vulnerability index	528	0.50	0.19	0.22	1.00
Sensitivity index	528	0.83	0.09	0.58	1.00
Exposure index	528	0.51	0.14	0.24	1.00
Adaptive capacity index	528	0.68	0.17	0.18	1.00
Climate extreme events	528	0.54	0.09	0.26	0.76
No. of affected households	528	2.57	1.60	0.00	8.02
Total estimated loss (NRs. Lakh)	528	8.61	7.09	0.00	20.72
Mean rainfall	528	1,805.75	356.52	1,003.50	2,874.60
Mean temperature	528	15.65	8.31	-3.40	26.20
District area (log)	528	7.35	0.69	4.78	8.97
Forest area (log)	528	10.94	0.87	6.37	12.04
Size of road network (km)	528	4.98	1.38	0.00	6.85
Distance to Kathmandu (log)	528	5.79	1.17	0.00	6.88
Number of Palikas	528	9.81	3.62	4.00	20.00
Per capita income (US$)	528	1,076.98	440.21	487.00	3,166.00
HDI	528	0.47	0.06	0.36	0.63
CPN Maoists (%)	528	11.66	16.58	0.00	64.45
Nepali Congress (%)	528	35.83	9.42	0.00	57.95
UML (%)	528	32.47	22.41	0.00	77.13
Population (log)	528	12.43	0.96	8.34	14.87
Climate aid probability	528	0.01	0.01	0.00	0.10

Note: Summary statistics are based on the estimation sample used in column 1 of Table A7 in Annex A

Table A5: Summary statistics, determinants of climate finance allocation

Variable	Obs.	Mean	Std. Dev.	Min	Max
Total climate development finance (log)	159	15.41	2.36	9.02	20.30
Total adaptation development finance (log)	131	14.97	2.50	9.02	20.06
Total mitigation development finance (log)	149	14.64	2.45	7.05	19.18
ND-Gain Index Score	159	41.88	1.57	38.28	43.54
Climate vulnerability ND-Gain score	159	0.50	0.01	0.49	0.55
Readiness score (governance, social, economic)	159	0.34	0.02	0.31	0.36
Share of area by forest (% of total)	159	41.55	0.13	40.58	41.59
CO2 equivalent GHG emissions per capita	159	1.73	0.15	1.50	1.93
Population (log)	159	17.14	0.04	17.02	17.22
GDP per capita (current US$, log)	159	6.75	0.36	5.48	7.21
No. of households affected (log)	159	10.91	2.65	4.48	15.55
No. of disaster events	159	3.30	1.72	1.00	7.00
CPIA quality of budgetary and financial management rating)	159	2.85	0.27	2.50	3.50
Debt service on external debt (current US$)	159	18.97	0.24	18.02	19.33
Kaufman governance indicator	159	-0.71	0.15	-1.03	-0.47
Government change dummy	159	0.64	0.48	0.00	1.00
Total ODA commitments by donor (log)	159	17.11	1.94	12.04	21.02
Total ODA disbursements by donor (log)	157	16.76	1.84	11.34	20.67
No. of donors	159	32.21	4.91	7.00	37.00
Donor has office in country (dummy)	159	0.92	0.27	0.00	1.00
Total no. of adaptation projects	159	4.23	7.63	0.00	49.00
Total no. of mitigation projects	159	2.13	3.43	0.00	30.00

Note: Summary statistics are based on the estimation sample used in column 1 of Table A8 in Annex A

Table A6: Summary statistics, factors influencing the disbursement gap in climate finance

Variable	Obs.	Mean	Std. Dev.	Min	Max
Disbursement gap (ln)	116	15.69	2.74	7.82	20.46
Governance readiness	116	0.36	0.04	0.31	0.41
Debt service amount (ln)	116	19.31	0.20	18.91	19.68
No. of loan-based projects	116	1.33	3.64	0.00	20.00
No. of grant-based projects	116	12.73	20.52	0.00	163.00
No. of competing donors	116	32.94	3.16	23.00	37.00
Multilateral donor (=1)	116	0.24	0.43	0.00	1.00
Government changed (=1)	116	0.63	0.49	0.00	1.00
Election year (=1)	116	0.16	0.36	0.00	1.00
Earthquake year (=1)	116	0.07	0.25	0.00	1.00
Donor office in Nepal (=1)	116	0.92	0.27	0.00	1.00
Maoist government (=1)	116	0.36	0.48	0.00	1.00
UML government (=1)	116	0.72	0.45	0.00	1.00
Congress government (=1)	116	0.27	0.44	0.00	1.00

Note: Summary statistics are based on the estimation sample used in column 1 of Table A9 in Annex A

Table A7: Factors influencing district-wise climate change expenditure between FY 2015/16 and FY 2021/22

	(1) Climate Risk	(2) Vulnerability	(3) Exposure	(4) Adaptive Capacity
Index	-0.381	-1.886	1.714	2.721
	(0.757)	(0.459)***	(0.593)***	(0.825)***
District area (ln)	0.090	0.120	-0.128	0.003
	(0.084)	(0.086)	(0.116)	(0.095)
Forest area (ln)	0.185	0.213	0.158	0.142
	(0.101)*	(0.076)***	(0.072)**	(0.066)**
Population (ln)	0.296	0.270	0.207	0.217
	(0.147)**	(0.141)*	(0.144)	(0.140)
No. of affected households	0.012	0.013	0.010	0.012
	(0.011)	(0.011)	(0.011)	(0.011)
Total estimated loss (NRs)	-0.002	-0.002	-0.002	-0.002
	(0.003)	(0.003)	(0.003)	(0.003)
HDI	3.957	1.488	1.505	0.425
	(1.586)**	(1.169)	(1.500)	(1.582)
Size of road network	0.110	0.108	0.070	0.089
	(0.045)**	(0.039)***	(0.038)*	(0.046)*
Distance to Kathmandu (ln)	-0.177	-0.150	-0.118	-0.089
	(0.098)*	(0.072)**	(0.076)	(0.073)
Mean rainfall	-0.000	-0.000	-0.000	-0.000
	(0.000)**	(0.000)*	(0.000)*	(0.000)**
Mean temperature	-0.000	-0.017	-0.001	-0.011
	(0.014)	(0.013)	(0.013)	(0.013)
Number of Palikas	0.066	0.051	0.040	0.033
	(0.027)**	(0.019)***	(0.022)*	(0.019)*
Climate aid probability	1.763	1.502	1.425	1.661
	(2.322)	(2.265)	(2.317)	(2.284)
CPN Maoists (%)	-0.000	0.002	0.005	0.001
	(0.004)	(0.004)	(0.004)	(0.003)
Nepali Congress (%)	-0.006	-0.003	-0.003	-0.003
	(0.005)	(0.004)	(0.004)	(0.004)
UML (%)	0.000	0.003	0.005	0.002
	(0.003)	(0.003)	(0.003)	(0.003)
Observations	528	528	528	528
Districts	77	77	77	77
R-squared	0.844	0.863	0.861	0.864
Year FE	Yes	Yes	Yes	Yes

Notes: The dependent variable is total climate change expenditure (in logs). FE: Fixed effects. Robust standard errors are in parentheses, clustered at the district level.
***,**,* Statistically significant at the 1%, 5%, and 10% confidence level respectively.

Table A8: Determinants of climate finance allocation

		(1) Total climate finance (log)	**(2)** Total adaptation finance (log)	**(3)** Total mitigation finance (log)
	ND-Gain vulnerability score	56.488	182.345	69.374
		(124.080)	(257.637)	(121.562)
	ND-Gain readiness score	194.516	418.075	171.912
		(53.780)***	(185.119)**	(55.618)***
Recipient needs	Forest area share (%)	15.620		11.783
		(3.294)***		(4.615)**
	Per capita GHG emissions (kt)	-12.206	-54.679	-9.667
		(5.235)**	(27.146)**	(3.929)**
	Population (log)	50.081	104.578	43.041
		(21.883)**	(58.201)*	(29.140)
	Per capita GDP (log)	3.036	10.007	1.321
		(2.204)	(4.211)**	(1.808)
	Disaster-affected individuals (ln)	-0.151	-0.125	-0.197
		(0.077)**	(0.122)	(0.101)*
	No. of climate disaster events	0.347	-0.343	0.464
		(0.352)	(0.738)	(0.296)
Recipient merits	CPIA budgetary rating	-2.216	-7.949	-1.050
		(1.147)*	(3.833)**	(1.010)
	Debt service amount (log)	-24.449	-57.705	-18.020
		(6.625)***	(28.296)**	(7.975)**
	Kaufman governance indicators	7.915	32.731	7.658
		(3.659)**	(24.578)	(3.819)**
	Government changed (=1)	-1.732	-0.857	-1.604
		(0.737)**	(1.916)	(0.536)***
Donor interests	Total foreign aid (ln)	0.631	0.576	0.644
		(0.143)***	(0.156)***	(0.130)***
	No. of competing donors	-0.221	-0.763	-0.178
		(0.124)*	(0.343)**	(0.076)**
	Donor office in Nepal (=1)	-0.969	-1.189	-1.078
		(0.635)	(0.797)	(0.468)**
	Post Paris Agreement (=1)	-1.162		-1.435
		(1.505)		(1.494)
	No. of adaptation projects	0.031	0.057	-0.043
		(0.024)	(0.025)**	(0.025)*
	No. of mitigation projects	0.084	-0.011	0.155
		(0.034)**	(0.046)	(0.036)***
	Donor-Year Pairs	159	131	149
	R-squared	0.349	0.293	0.362

Notes: Robust standard errors are in parentheses, clustered at the donor level. All columns are random effects models based on Hausman tests.

***,**,* Statistically significant at the 1%, 5%, and 10% confidence level respectively.

Table A9: Factors influencing the disbursement gap in climate finance

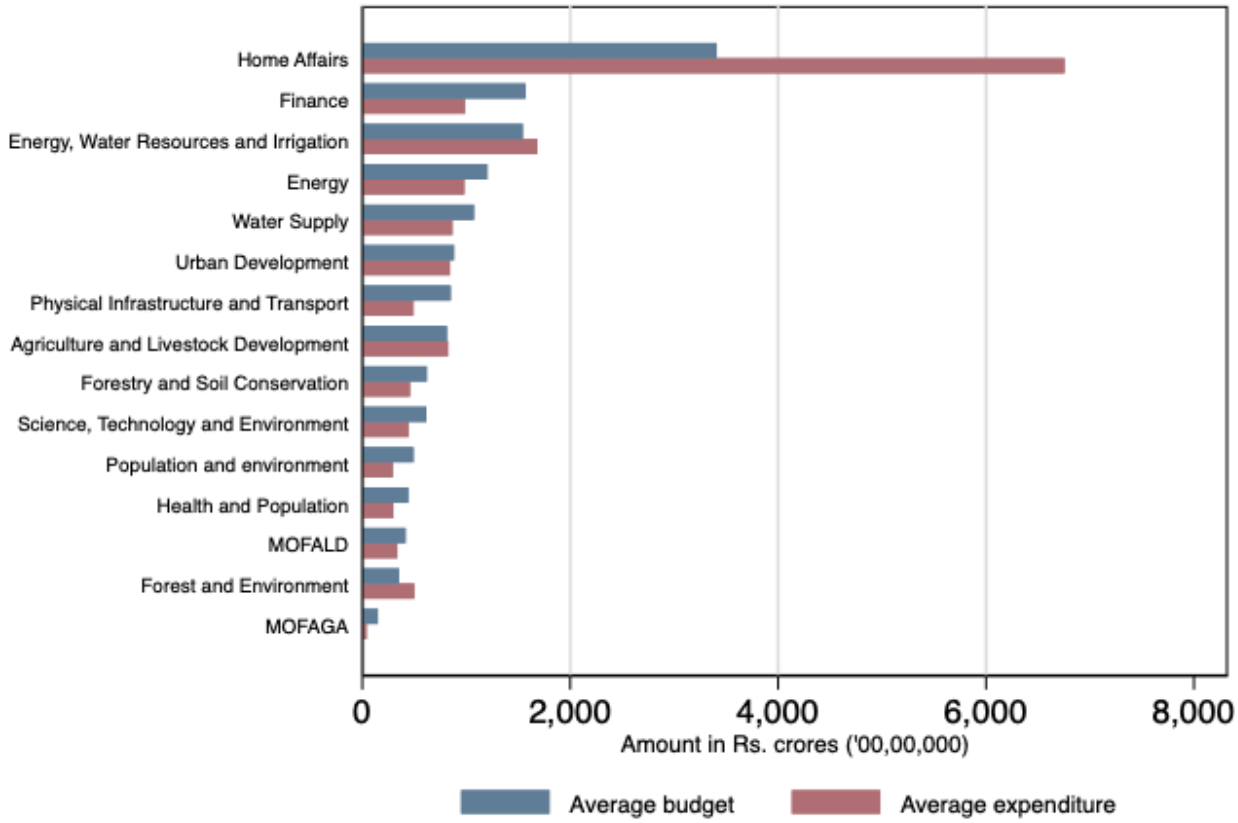
	(1)	(2)
ND-Gain governance readiness	-30.169	-26.219
	(16.895)*	(19.079)
Debt service amount (log)	8.852	8.374
	(2.807)***	(2.979)**
No. of loan-based projects	0.228	0.197
	(0.066)***	(0.040)***
No. of grant-based projects	0.014	0.022
	(0.013)	(0.011)*
No. of competing donors	0.023	-0.016
	(0.087)	(0.092)
Multilateral donor (=1)	1.009	
	(1.254)	
Government changed (=1)	0.129	-0.099
	(0.671)	(0.638)
Election year (=1)	-0.469	-0.362
	(0.746)	(0.659)
Earthquake year (=1)	1.004	1.629
	(0.851)	(0.879)*
Donor office in Nepal (=1)	-0.874	
	(0.977)	
Maoist government (=1)	0.297	0.296
	(0.808)	(0.827)
UML government (=1)	-1.762	-1.856
	(0.697)**	(0.742)**
Congress government (=1)	0.367	0.131
	(0.628)	(0.607)
Donor-Year pairs	116	116
R-squared	0.333	0.254
Model	Random Effects	Fixed Effects
Sargan-Hansen statistic	386.135***	

Notes: The dependent variable is total climate aid disbursement gap (in logs). Robust standard errors are in parentheses, clustered at the donor level. A test of overidentifying restrictions prefers a fixed effects model (column (2)).

***,**,* Statistically significant at the 1%, 5%, and 10% confidence level respectively.

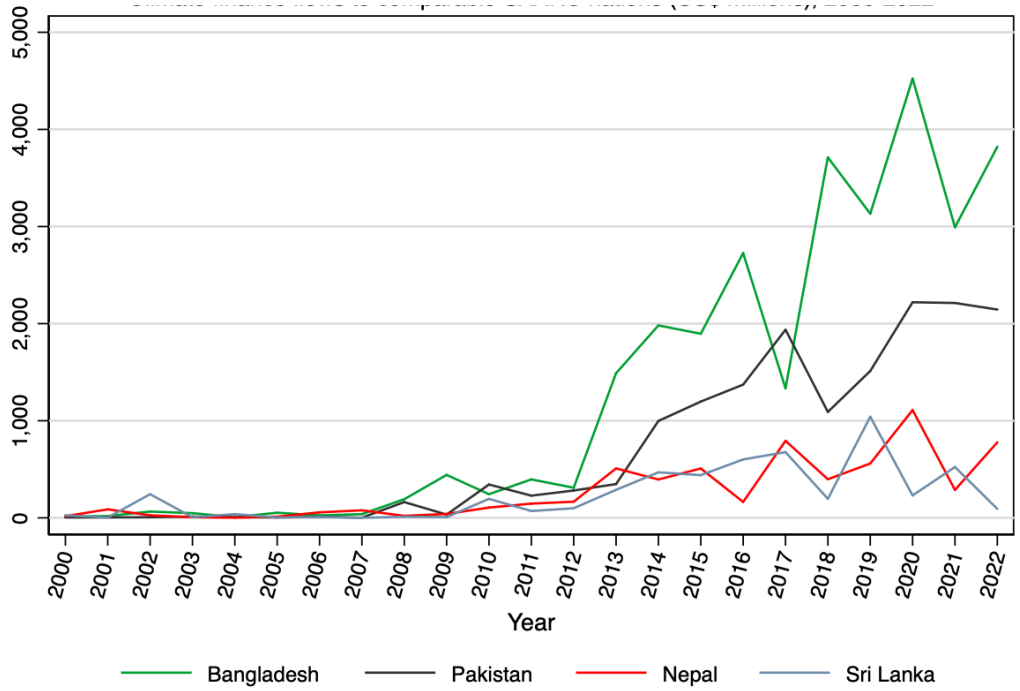
Annex B: Figures

Figure B1: Average appropriation and expenditure of climate change budget by key ministries, FY 2013/14 - FY 2020/21



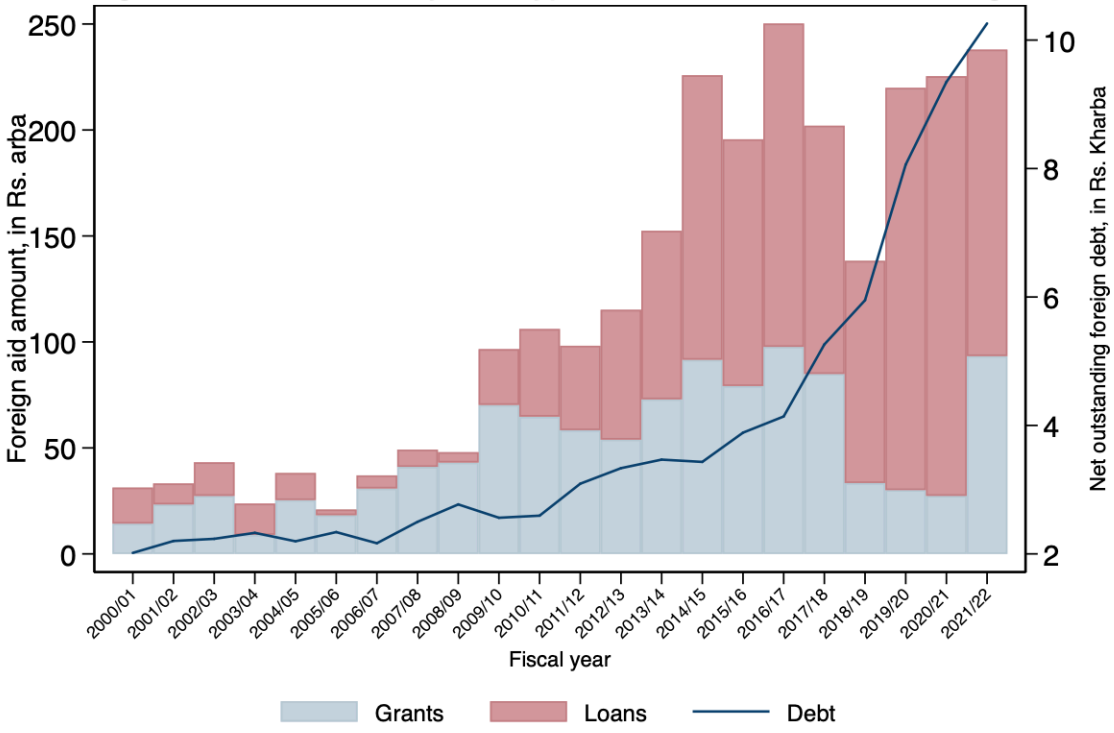
Source: Annual consolidated financial statements, own visualization
Note: The names of ministries constantly changed during the time period – aggregate amounts reflect the budgets and expenditures of similar ministries grouped together

Figure B2: Trend of climate finance flows (in US$ millions) from OECD donors to comparable SAARC nations between 2000 and 2022



Source: OECD CRS (2024), own visualization

Figure B3: Foreign aid commitment to Nepal by flow type and associated outstanding debt



Source: Nepal Rastra Bank (2023), own visualization
Notes: Figure shows total foreign aid commitments to Nepal; the left axis reports annual flows to Nepal in Rs. Arba, right axis reports net outstanding foreign debt in Rs. Kharba