

NEPAL'S NATIONALLY DETERMINED CONTRIBUTIONS
UNDER THE PARIS AGREEMENT: EXPERT PERCEPTIONS OF TRANSPARENCY,
IMPLEMENTABILITY, AND POLICY COHERENCE

Master's Capstone Submitted to the Faculty of the Bard Center for Environmental Policy

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In partial fulfillment of the requirement of the degree of
Master of Science in Climate Science and Policy

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May, 2023

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List of abbreviations

CCMD	Climate Change Management Division
ETF	Enhanced Transparency Framework
GHGs	Greenhouse gases
IPCC	Intergovernmental Panel on Climate Change
LAPA	Local Adaptation Plan of Action
LDCs	Least Developed Countries
MDGs	Millennium Development Goals
MoFE	Ministry of Forest and Environment
NDCs	Nationally Determined Contributions
NSAs	Non-State Actors
SDGs	Sustainable Development Goals
UNFCCC	United Nations Framework Convention on Climate Change

Abstract

A key element of the Paris Agreement which aims to limit the temperature rise below 2°C by the end of this century is the requirement that member countries submit Nationally Determined Contributions (NDCs) that include their proposed efforts to mitigate greenhouse gas emissions. Ambitious NDCs are important to achieve the goals of the Paris Agreement but in order to make progress in implementing the NDCs, transparency, policy coherence, and implementability are equally crucial. This study examines the perceptions of key stakeholders involved in the formulation and implementation of NDCs using Nepal as a case. The analysis aims to identify barriers to achieving Nepal's climate goals and explore potential solutions that can be applied to other Least Developed Countries (LDCs). In addition to in-depth interviews, qualitative and quantitative data from key climate and development policies of Nepal were analyzed. The study finds that a lack of technical capacity is the key barrier to transparency along with weak institutional mechanisms. When it comes to policy coherence, Nepal has put forth progressive climate policies and updated relevant laws to incorporate climate aspects, but this study uncovers a mismatch between the ambitious goals mentioned in climate policies and government development goals and actions. Finally, this study discovers implementability as the weakest aspect due to lack of political stability and clear financing strategies. To increase the effectiveness of the NDCs, this study recommends that the government of LDCs should develop educational programs in national universities as climate policy capacity-building hubs, develop NDCs implementation plan with clear financing strategies, and strengthen public-private partnerships to achieve the mitigation-related goals of NDCs.

Key Words: NDCs, Transparency, Policy Coherence, and Implementability

Executive Summary

Introduction: history of the international climate regime

The climate crisis grows more critical with each passing year, and to meet this challenge, it is argued that the establishment of the United Nations Framework Convention on Climate Change (UNFCCC) in 1992, the Kyoto Protocol in 1997, and, more recently the Paris Agreement in 2015 (Kinely et al., 2021), indicate major successes in setting up frameworks to address the challenge. Yet, the international climate regime has struggled with poor implementation of the treaties (Dagnet et al., 2021). The Kyoto Protocol, which had a top-down approach and legally binding emissions targets, only applied to industrialized countries, leaving out emerging economies like China and India (Streck et al., 2016). In contrast, the Paris Agreement adopted a more bottom-up approach based on equity, where each country submits Nationally Determined Contributions (NDCs) based on the principle of common but differentiated responsibility in light of national capacities (Depledge, 2022). NDCs include political and voluntary commitments and proposed efforts by each country to reach their climate goals. Submitting lists of commitments is an important step, but unless they are implemented, they cannot solve the climate crisis.

Pauw and Klein (2020) argue that ambitious NDCs are important to achieve the goals of the Paris Agreement but to make progress in implementing the NDCs, transparency, policy coherence, and implementability are equally crucial. Transparency refers to the reporting of timely information related to climate actions (adaptation, mitigation, and climate finance). Policy coherence means the “systematic promotion of mutually reinforcing policy actions across government departments and agencies creating synergies towards achieving the defined objective” (Pauw & Klein, 2020, p.410). Furthermore, implementability refers to

well defined roles and responsibilities of NDCs (by whom, how, and stakeholder engagement). In this regard, this study applies this framework to the case of Nepal as a rapidly developing LDC to assess the credibility of meeting their NDCs. Interviews with key stakeholders involved in the formulation and implementation of Nepal's NDCs were conducted to identify barriers that exist in achieving Nepal's climate goals and explore potential solutions. The findings from this study are expected to provide insights for other least-developed countries (LDCs).

Too many treaties and too little progress?

Despite the creation of multiple treaties over the past few decades, progress in curbing greenhouse gas emissions has been limited (Young, 2014). The complexity of the issue, as well as geopolitical competition over resources, have proven to be obstacles to effective climate action (Stoddard et al., 2021). Some other scholars argue that despite the complexities of climate change and the diverse interests of nations with different economic development stages, the international climate regime has achieved significant milestones, including the UNFCCC, the Kyoto Protocol, and the Paris Agreement (Kinley et al., 2021).

NDCs, to achieve the goals of the Paris Agreement, are ambitious but not all the parties have the financial and technological capacity to meet them (Khan et al., 2020). Thus, multiple bodies have been established to provide financial, technological, and capacity-building support to developing countries in the implementation of the Paris Agreement (Dagnet et al., 2021). These institutional structures include bodies, working groups, financial mechanisms, and multiple processes established under the UNFCCC, collectively referred to as the "implementation architecture" (Dagnet et al., 2021).

In spite of the provision of financial, technological, and capacity-building support, most developing countries continue to face capacity challenges that undermine their ability to carry out the climate actions they promise and report their progress on achieving their climate goals (Khan et al., 2020; Weikmans et al., 2019). The lessons from the successes and failures of another major global regime of the last half century – the Millennium Development Goals (MDGs) - provide insights regarding finance, transparency, and policy coherence that can be applied to the case of actions needed to achieve climate goals. Progress has been made toward achieving MDGs on a global level, but it has been limited and uneven across the countries. The flow of finance has a positive correlation with progress towards achieving the goals, but it is not enough on its own. Poor policies and weak institutions in developing countries have been identified as major barriers to achieving the MDGs (Clemens et.al, 2007; Kenny and Summer, 2011). Additionally, the availability and reliability of data have been a challenge, making accurate assessment of the MDGs difficult (Fehling et al., 2013; Sachs, 2012). The lessons learned from the implementation of the MDGs are relevant to the discussion of climate finance, reporting, and policy coherence for the less-developed countries' ability to meet their Nationally Determined Contributions (NDCs).

Nepal, the Context of Climate Change, and Reconciling Development Goals with Meeting the NDCs

Nepal is a Least Developed Country (LDC) with an economy dependent on remittances and agriculture. Despite progress in socio-economic indicators over the past 30 years, including halving material poverty and reducing child and maternal mortality, Nepal is still one of the poorest countries in the world (World Bank, 2022). Climate change impacts in Nepal are predicted to be severe, particularly for the 29% of the population who are multidimensionally

poor and 84% who live in rural areas (Gerlitz et al., 2018). Therefore, adaptation practices, along with mitigation measures, are necessary to help communities adapt to extreme events and climatic variations.

Nepal aims to become a high-income country by 2043 through massive investment in physical infrastructure development while simultaneously committing to becoming a net-zero-emitting country by 2045 (MoFE, 2020; NPC, 2020). Nepal submitted an ambitious second NDC in 2020, intending to reach net zero by 2050, with quantifiable targets and sectoral coverage. The second NDC's targets include energy, agriculture, forestry and other land use, waste, and industrial processes and product use. Nepal's second NDC has set targets for mitigation for the short-term and medium-term that require a significant investment of \$28.4 billion, with the support needed from the international communities (MoFE, 2020).

The road ahead to achieving both development and climate goals is complex and requires overcoming challenges such as short-term tradeoffs between economic development and environmental goals, lack of technological and institutional capacity, and absence of clear national implementation architecture of climate policies. The current state of the forestry sector illustrates this point. Nepal relies heavily on the forestry and hydropower sectors to achieve its mitigation goals, but both carry risks. Although Nepal has successfully increased its forest coverage from 26% to 45% through community forestry in the last three decades (Gill, 2019), this comes with forgone opportunity costs as Nepal still imports wood and furniture worth \$129 million annually (DoC, 2022). International migration has also contributed to reforestation in areas with declining population density and agricultural activity due to inflowing remittances (Oldekep et al., 2018)., implying that accomplishing both climate mitigation and development may present conflicting goals. Regarding

challenges in transitioning to clean energy, Nepal heavily relies on traditional energy sources, with firewood being the main source. Hydropower is a reliable clean energy source and Nepal aims to generate up to 40,000 MW of electricity by 2044 (GoN, 2020). However, climate change may impact hydropower generation in the future as snow-fed river basins may limit hydropower generation during dry periods (Shrestha et al., 2020). These examples illustrate some of the conflicts and policy challenges LDCs such as Nepal may encounter in trying to achieve their NDCs.

To explore these issues using the case of Nepal, qualitative data were collected using interviews with key stakeholders focused on the opportunities and challenges to achieving mitigation-related goals of Nepal's NDC. The interviews provide descriptive information from the experiences and knowledge of those people involved in the NDC preparation and implementation process as well as high-level government officials, politicians, members of the private sector and non-government organizations between December 2022 and February 2023. Interviews were supplemented with data obtained from Nepal's second NDC, fifteenth five-year development plan, and sustainable development goals, and analysis of media reports from Nepal.

Result and Discussion

Transparency

This study found the recognition of the importance of transparency for achieving the ambitious climate goals among the experts, and also identified the lack of capacity as the main barrier to transparency. One hundred percent of the respondents agreed that transparency is very important to achieve the goals of the Nationally Determined

Contributions, but all of the respondents also mentioned that transparency of climate action is more important and relevant for developed countries compared to developing ones.

Experts recognize the flexibility being provided to countries like Nepal as a barrier to acting proactively in their climate actions and maintaining transparency. However, there is also recognition among experts that Nepal should not take this flexibility as an excuse for not submitting its transparency report. Similarly, 100% of the respondents agree that Nepal's inability to submit transparency reports is due to the lack of technical capacity. Experts also reported the capacity-building initiatives taken by the UNFCCC are not adequate to build the capacity of LDCs like Nepal for sustainable actions on transparency.

Additionally, the role of media and civil society organizations was not found to be sufficient to hold the government of Nepal accountable for its climate actions, especially mitigation-related actions.

Policy Coherence

Multiple examples of lack of coherency between climate goals and national development policies were found which are likely to be obstacles for the path to net-zero by 2045. For example, the erratic tax policies on electric vehicles which makes electric vehicles less competitive to fossil fuel powered vehicles, construction of mega projects of national pride, including Nijgadh International Airport and East-West Rail, which would require massive clearance of forest areas. However, the policies look well-aligned in paper and this has been reflected in experts' interviews as well. For example, almost all the respondents who work at the national level agree that there is no conflict between Nepal's climate policies and the

development agenda as these experts argue that many mitigation goals in NDC are copied as it is from existing developmental policies.

This research also shows that the government is putting minimum effort into getting buy-in from the private sector in Nepal in achieving mitigation-related goals and incentivizing businesses to align their goals with government mitigation-related goals.

Implementability

This study found the political acceptance of climate actions in Nepal, but frequently changing government and key bureaucrats have negatively impacted the implementation of NDC.

Almost all respondents agree that there is wide political acceptance of climate change commitments in Nepal. Many climate policies in Nepal including the second NDC were endorsed by the cabinet. However, experts also shared that political parties are using climate change only as a political platform, but it still not a priority for them. For example, the Ministry of Forests and Environment (MoFE) who looks after climate change in Nepal, has been without a leader (Minister) for more than a year. Experts also highlighted the frequently changing government and reshuffling of top bureaucrats as a barrier to establishing strong institutional memory for effective climate actions.

Only politicians and activists think that Nepal could achieve its mitigation-related goals by 2030 if Nepal received \$25 billion as requested. Other respondents including researchers, bureaucrats, and respondents representing INGOs highlighted climate finance as the top requirement but none of them believe climate finance alone will help to reach those goals.

Conclusions and Policy Recommendations

This study examines the credibility of Nepal's climate mitigation-related goals detailed in the second NDCs based on key experts' perceptions using the framework of transparency, policy coherence, and implementability. The study finds that a lack of technical capacity is the key barrier for transparency aspects followed by poor institutional capacity. When it comes to policy coherence, Nepal has put forth progressive climate policies and updated relevant laws to incorporate climate aspects into them, but this study uncovers a mismatch between the ambitious goals mentioned in climate policies and government development goals and actions. Finally, this study discovers implementability as the weakest aspect for three main reasons: lack of political stability, clear financing strategies and lack of implementation plans, and conditionality of the NDCs.

Policy recommendations

The following policy recommendations are for the government of Nepal as well as other LDCs, intending to increase the credibility of nationally determined contributions to address climate change.

Policy recommendations applicable to all LDCs

Develop educational programs in national universities as climate policy capacity building hubs

Many LDCs already have administrative staff college to train their government officials in governance system (Khan et al., 2020). This needs to be followed in climate change to train the bureaucrats as well as all relevant stakeholders about the UNFCCC processes. In the

future, Governments across all LDCs would benefit from the collaboration with their national universities to develop master's courses with a focus on the international climate regime. In addition to this, training centers should be established to train all staff from cross-sectoral ministries.

Develop and implement policies to build strong institutional memory

To maintain the strong institutional memory that would facilitate climate actions, LDCs should develop a mechanism to send the same key negotiators to the COPs to improve understanding of the UNFCCC working mechanisms and processes (Falzon, 2021).

Additionally, officials in LDCs are frequently transferred from one ministry to another or within a ministry from one division to another. For instance, senior staffs (joint secretaries) in Nepal currently cannot serve more than two years in one division. This needs to be amended at least for officials looking after climate change.

Public private partnership in achieving mitigation related goals

In NDCs of LDCs, they are considering the role that mobilization of private investment can help in achieving their climate and sustainable development goals. However, the participation of the private sector is limited to consultation meeting during formulation of NDCs. Many LDCs still lack NDC implementation and in the absence of NDC implementation plan, it is difficult to analyze the role of the private sector in achieving NDCs' goals. Therefore, LDCs should develop implementation plan with clear targets for private sector.

Policy recommendations specific to Nepal

Invest in climate mitigation policies that have economic benefits even with loans

Two and half years after the submission of the new NDCs to the UNFCCC, Nepal still lacks a financing strategy to achieve its mitigation-related goals. It should prioritize sectors for investments even with loans that would yield return on the investments and support both economic development and climate mitigation goals simultaneously.

Improve communication regarding policy implementation across all three level of government

Nepal should immediately communicate about the climate goals proposed by federal government to the provincial and local governments. Lack of sensitization about climate change and actions among the sub-national government has become a barrier to implementation of climate policies at the local level. Federal government should develop short, clear policy briefs of each policy initiative in accessible language for distribution to all local government to increase their climate knowledge

Chapter I: Introduction

Evolution of global climate policies

The last three decades of the international climate regime have shown positive incremental accomplishments. The establishment of the United Nations Framework Convention on Climate Change (UNFCCC) with the goals to mitigate and adapt to the impacts of climate change, the Kyoto Protocol with legally binding emissions target for developed countries, and the Paris Agreement to limit temperature rise below 2°C and establishment of net-zero target are three key milestones of 30 years of climate change negotiation (Kinley et al., 2021).

During the last two decades of the 20th century, global climate policy was entirely focused on mitigation of climate change, including the Kyoto Protocol (Biesbroek et al., 2010). Mitigation, which involves reducing the impact of climate change by reducing the emissions of greenhouse gases (GHGs), has been the primary political approach to tackle the impacts of climate change and is recognized by the United Nations Framework Convention on Climate Change (UNFCCC) (Farbotko & Lazrus, 2012; Huq et al., 2004). However, the Intergovernmental Panel on Climate Change (IPCC) reports that came out in 2001 predict that even with strong global emissions reductions and mitigation efforts in place, the impacts of climate change are inevitable (IPCC, 2001; IPCC, 2014).

Adaptation to climate change, therefore, emerged as an important agenda in early decade of the 21st century not only to reduce negative impacts of climate change but also to make sure that achievements made in reducing poverty are not diminished by changing climate (Huq et al. 2004; Saito, 2013, especially in poor countries (Silwal et al., 2019).

Implementation of global climate policies

The biggest failure of the international climate regime so far has been the poor implementation of the treaties (Streck et al., 2016). The Kyoto Protocol was characterized for adopting a top-down approach and legally binding emissions targets which are subject to strong compliance procedures only for industrialized countries but ignoring the emerging economies like China and India (Depledge, 2022; Streck et al., 2016). With the failure of the US congress to ratify, then the biggest emitter, the Kyoto Protocol is in operation till now without much success (Streck et al., 2016). Twenty years later, in contrast to the Kyoto Protocol, using a more bottom-up approach, the Paris Agreement was adopted in 2015 (Depledge, 2022). The Paris Agreement is based on the principle of equity enshrined under the UNFCCC that allows each country to come up with climate ambitions based on “common but differentiated responsibilities and respective capabilities, in light of different national circumstances” (Paris Agreement decision 1/CP.17).

With the ambitious Paris Agreement in place and the Paris Rulebook nearly completed, the focus now should be on effective implementation of the agreement (Dagnet et al., 2021). Although there is no legally binding goal set for greenhouse gas (GHG) emissions, primarily for political reasons, parties to the Paris Accord agreed that the Agreement will be implemented in a “facilitative, non-adversarial, non-punitive manner and in an atmosphere of mutual trust” (Voigot & Gao, 2020, p.32). It is increasingly recognized that, to accomplish its goals, the Paris Agreement will depend on increased transparency and accountability to meet the nationally determined contributions (NDCs) (Dagnet et al., 2021; Pauw & Klein 2020; Weikmans et al., 2020). NDCs are voluntary and political commitments that represent the proposed efforts by each country to achieve the goals of the Paris Agreement. Each NDC includes commitments to reducing emissions of GHGs, actions to adapt to impacts of climate change, and promises to

provide necessary financial and technical support to poor countries from developed countries (Pauw & Klein, 2020). Additionally, each country should update or communicate new NDC every five years and need to be more ambitious than the last one (Weikmans et al., 2019))

However, Pauw and Klein (2020) argue that ambitious NDCs are important to achieve the goals of the Paris Agreement but in order to make progress in implementing the NDCs, transparency, policy coherence, and implementability are equally crucial. Pauw and Klein (2020) refer to transparency as the reporting of timely information related to climate actions (adaptation, mitigation, and climate finance). In the case of NDCs, the information provided should be clear, understandable, and be able to be verified. For comparability, the NDCs should provide information on “underlying methodologies and assumptions, base years, sectors and emission reduction of GHGs” (Pauw & Klein, 2020, p.409). Similarly, Pauw and Klein (2020) define policy coherence as the “systematic promotion of mutually reinforcing policy actions across government departments and agencies creating synergies towards achieving the defined objective” (Pauw & Klein, 2020, p.410). Furthermore, implementability refers to well defined roles and responsibilities of NDCs (by whom, how, and stakeholder engagement) as well as “political acceptability of implementation needs and consequences” in terms of costs involved, need for support, equality of process and outcomes (Pauw & Klein, 2020, p.411). Scholars and policy makers have paid much attention on the transparency and accountability alone, however, there is disagreement about how far accountability and transparency will go in supporting implementation of the goals of the Paris Agreement.

Research question and road map

The Paris Agreement sets out laudable goals for addressing climate change, and attention has now turned to the critical task of implementing the stated global and national goals. However, increasing concern regarding the ability to accomplish these goals points toward the need to identify and address barriers and opportunities. There is still lack of clear NDC implementation plan and financing strategy for technical evaluation of different pathways to reach net-zero and identification of opportunities and challenges in the case Nepal and many LDCs. In this context, this capstone will use the framework of transparency, policy coherence, and implementability (Pauw and Klein 2020) to assess opportunities and constraints to achieving implementation of the NDCs of Nepal, which, although it is unique in many ways, may shed light on constraints to achieving climate ambitions in other LDCs.

This capstone focuses specifically on perceptions of key stakeholders—those involved actively in the formulation of NDC and who play key role in its implementation—to ask “Do weaknesses in transparency, policy coherence, and implementability create barriers to achieving the climate goals in Nepal?” If so, what are the opportunities to addressing these barriers? It is expected that this investigation will provide insights into opportunities in other LDCs. The following chapter discusses the evolution of the international climate regime from the mitigation-focused Kyoto protocol to the bottom-up Paris Agreement and the shifting focus to implementation of the treaties. There I discuss the implementation architecture under the UNFCCC and lesson that can be learned from the implementation of the Millennium Development Goals (MDGs) with focus on finance and transparency of the international climate regime.

In Chapter three, I introduce the case study of Nepal and argue that, although Nepal may be unique in some ways, it serves as a model for LDCs that aim to both develop their economies, emerging from LDC status to developed economies, as well as meet mitigation goals, with implications for challenges in reducing emissions. This chapter also provides details on Nepal's NDCs in the context of the current economy and political environment. Chapter four briefly discusses the method I employ to collect interview data, and policy documents I reviewed for analysis of results from interviews. In chapter V, I present the results from interviews in three themes, namely transparency, policy coherence, and implementability, drawing on the interviews and key quantitative information from key policy documents. In final chapter, I discuss the credibility of Nepal's NDC based on findings from chapter V and end with key policy recommendations applicable for all LDCs and specific for Nepal.

Chapter II: Review of the Literature on the Challenges of Implementing the Goals of a Global Climate Regime

Climate solutions: Too many treaties and too little progress?

For the last three decades, international environmental regimes have been a subject of great interest within the scientific and political community (Young, 2014; Stoddard et al., 2022). However, there are different arguments and opinions regarding the degree of effectiveness of these regimes in solving the problems they are created to solve (Young, 2014). In the last 40 years, international environmental regimes have been created to protect the stratospheric ozone layer, combat desertification, conserve and restore biodiversity, and tackle climate change (Bernauer, 2013). The Montreal Protocol, established to restore the ozone layer in stratosphere, is the most successful global environmental governance in solving an international environmental problem (Young, 2014). However, climate change has a different story. Despite having strong scientific consensus on the ecological and economic impacts of climate change and grabbing the attention of the world leaders, solving climate change problems has proved to be much more difficult than many working in this field initially expected (Bernauer, 2013).

Expecting a significant level of progress in curbing the emissions of GHGs is sensible after “hundreds of formal decisions, countless frameworks, action plans and work programs, the establishment of international financing mechanisms (such as the Global Environment Facility, and Green Climate Fund), a near continuous round of international meetings, and a proliferation of efforts at the regional, national, and local levels” (Stoddard et al., 2021, p.655). Contrary to expectations, emissions of GHGs have increased gradually over the last three decades and now the global emissions of GHGs are 60% higher than in 1990 (Young, 2014). Entrenched

geopolitical competition to gain influence through control of resources, for example oil and gas, is a principal bottleneck to effective climate action, especially mitigation (Stoddard et al., 2021). Stoddard et al. (2021) argue that failure of three decades of the international climate regime to bend the global emissions curve has led the global powers to rely more on technological solutions for reducing the emissions of GHGs rather than changing unsustainable socioeconomic behaviors that caused this problem. For example, John Kerry, the US Climate Envoy appointed by the US President mentioned that 50% of the emission reductions come will come for the technologies that do not exist yet and “people don’t have to give up a quality of life” to cut the emissions (Murray, 2021). Some of the technological solutions that are being considered are geo-engineering technologies that include atmospheric carbon dioxide removal and other interventions that alter the Earth’s radiative energy budget (Lawrence et al., 2018). Though these technical solutions might have potential to reduce impacts of climate change, they involve huge uncertainties and risks, and ethical and governance issues (Lawrence, 2018).

On the other hand, given the realities of multilateralism, sovereign nations with different stages of economic development, the complexity of climate change issues, and interests at play, Kinley et al. (2021) argue that the international climate regime has been able to achieve three key milestones: establishment of the UNFCCC, the Kyoto Protocol, and the Paris Agreement. The important thing is that these treaties are followed by the rulebook that set out the guidelines for implementation including the provision of data, national reporting, and compliance process (Kinley et al., 2021). After the failure of the legally binding Kyoto Protocol to include all the parties, the Paris Agreement adopted a bottom-up approach where every country would submit voluntary and political commitments called NDCs that highlight their ambitious climate

promises (Dagnet et al., 2021). However, meeting the Paris Agreement depends on the translation of the climate pledges into immediate and effective actions (Kinley et al., 2021).

Not all the parties to the Paris Agreement have similar financial and technological capacity to meet the ambitious climate target mentioned in their NDCs (Dagnet et al., 2021; Khan et al., 2020; Kinley et al., 2021). Therefore, multiple bodies, financial mechanism, work programs, and working groups have been established to ensure the provision of financial, technological, and capacity-building support to assist developing countries in implementation of the treaties, including the Paris Agreement (Kinley et al., 2021).

Implementation architecture of the international climate regime

To date, multiple institutional structures have been established to achieve the objectives of the convention and specifically to support the developing countries based on the principle of equity (Dagnet et al., 2021; Kinley et al., 2021). Bodies (Subsidiary Bodies & Constituted Bodies), working groups, the financial mechanisms, and multiple processes established under the operational guides are the institutional structures established under the UNFCCC. Dagnet et al. (2021) use the collective term “implementation architecture” to refer to these institutional structures.

Additionally, implementation architecture established under the UNFCCC has specific provision to support climate actions in LDCs. For instance, Adaptation Committee, Least Developed Countries Expert Group, Paris Committee on Capacity Building, Technology Executive Committee, and Durban Forum on Capacity Building are some of them. The Least Developed Countries Expert Group (LEG) is established with a mandate to provide technical guidance and support to the LDCs on the process to formulate and implement national adaptation

plans. Similarly, Technology Executive Committee focuses on identifying policies that can accelerate the development and transfer of low-emission and climate-resilient technologies with focus on developing countries (UNFCCC, n.d.). Furthermore, Consultant Group of Experts is established with a mandate to assisting developing country Parties fulfil their reporting requirements under the Convention, specifically the implementation of the enhanced transparency framework (UNFCCC, n.d.). The proliferation of the implementation architecture especially after the COP 16 in Cancun in 2010 shows the seriousness of the international climate regime to achieve its climate goals (Dagnet et al., 2021). Dagnet et al. (2021) further argue that the expansion of implementation architecture allows for “in-depth and substantive discussion on specific issues”, for instance climate finance, adaptation, capacity building for timely reporting, or technology transfer (Dagnet et al., 2021, p.5).

The implementation architecture under the UN climate regime focuses on delivering the necessary technical, financial, and capacity building support to the Parties, especially to support domestic climate action (Dagnet et al., 2021). Hence, the assessment of implementation architecture on its ability to deliver the effective and timely results depends on its ability to make the Parties to comply with the transparency and accountability mechanisms established under the UN climate regime. However, there is flexibility for developing countries to meet the transparency and accountability mechanisms in light of their national capacities (Weikmans et al., 2021). This flexibility raises doubt on whether the least developed and developing countries will provide comparable information on the actions, policies, and measures implemented for the achievement of their NDCs (Weikmans et al., 2021). Furthermore, despite provision of financial, technological, and capacity-building support undertaken by multilateral and bilateral operating entities established both under and outside of the UN climate regime, most developing countries

continue to face capacity challenges that undermine their ability to carry out the climate actions they promise and report their progress on achieving their climate goals (Dagnet et al., 2015).

Here, I look to the lessons from the successes and failures of another major regime of the last half century – the Millennium Development Goals (MDGs) mainly for two reasons. First, MDGs set out global development goals, with mobilization of finance from the multilateral and bilateral institutions, to be achieved by 2015. Second, each nation had flexibility to tailor policies to meet their country's need (Sachs, 2012). Insights regarding finance, transparency, and policy coherence can be applied to the case of actions needed to achieve climate goals.

Is lack of climate finance a barrier to climate action in developing countries?

Many climate pledges included in NDCs of developing countries are conditional upon receiving climate finance from developed parties (UNEP, 2022). Conditional pledges under the NDCs would only be achieved only after receiving necessary finance, technology transfer, and capacity building support from international community (Pauw et al., 2020). The latest emissions gap report from the UNEP shows that the implementation of conditional pledges could make the difference of 0.2°C warming by the end of this century (UNEP, 2022). Climate finance is the most reported challenge faced by developing countries followed by technology for the implementation of climate commitments mentioned in the NDCs (Pauw et al., 2020). Eighty-nine out of the 194 current NDCs submitted to the UNFCCC report requirements of climate finance and 51 of those NDCs report fully conditional finance requirements (Fransen et al., 2022). Therefore, in theory, climate finance is very important for developing countries to meet their climate pledges (UNEP, 2022) and achieving the global goals of the Paris Agreement. A great deal of literature on climate finance has focused on mobilization of finance to address the

mitigation and adaptation needs of developing countries and critiques of the inability of developed countries to provide the \$100 billion USD annually as they promised to support climate actions in developing countries. (Bhandari, 2022; Fransen et al., 2022; Weikman and Roberts, 2021). However, \$100 billion is not a need-based finance as the research estimates the needs of climate finance in the trillions (Fransen et al., 2022; Pauw et al., 2020)

However, much less attention is being paid on how developing countries have utilized climate finance in both academic and policy worlds. There has been a persistent concern whether the climate finance is reaching the intended beneficiaries and making real impacts in target countries (Bhandari, 2022). One study estimates that only 10% of climate finance mobilized between 2003 and 2016 reached local communities (Soanes et al., 2017). There is lack of systematic data on public climate finance and information about how the finance “is delivered, to whom, for what purpose” from both the donors and the recipient governments (Soanes et al., 2017). This has raised questions on transparency in public expenditure of climate finance.

Moreover, reviewing the outcomes of internationally funded climate interventions aimed at increasing climate adaptation and reducing vulnerability, Eriksen et al. (2021) found some climate interventions “reinforce, redistribute or create new forms of vulnerability” rather than reducing it. Specifically, climate policies and actions in developing countries are being labeled as donor driven, fulfilling just an obligatory document submitted to receive more international funding by members to the convention (Laudari et al., 2021; Ojha et al., 2016). In this scenario, international climate governance might benefit from the lessons of other similar global governance. In this context the lessons-learned from the UN Millennium Development Goals might be applicable to climate change and might offer suggestions for necessary course correction. Like climate change, MDGs had global goals with focus on poor countries and local

goals adapted for each country to meet their specific needs, involvement of multiple organizations including more than 20 UN agencies, and billion dollars investment from multiple actors to achieve the goals (Lomazzi et.al, 2014; Poku and Whitman, 2011; Sachs 2012). The cautionary tale is that climate finance might need to be linked to accountability requirements such as transparency, capacity-building, and evidence of implementability.

Lessons learned from Millennium Development Goals

The MDGs are composed of a list of eight common goals for human development for the world community to achieve by 2015. MDGs include 21 targets and 60 indicators to monitor the progress being made to achieve the goals and targets (UN, 2001). Remarkable progress has been made towards achieving the MDGs on global level (Fehling et al., 2013). However, the progress has been limited to some goals and is uneven across countries (Fehling et al., 2013; Kenny and Summer, 2011) For instance, since China alone contributed 76% of global poverty reduction to date, when China is excluded, progress toward achieving the global goal on extreme poverty reduction looks dismal (Fehling, 2013). Additionally, many countries in sub-Saharan regions and Southern Asia failed to achieve many of the MDGs (Fehling, 2013).

The flow of finance has positive correlation with achievements contributing toward the goals, but the effect of finance alone is not enough to achieve the MDGs, according to some authors (Clemens et.al, 2007; Kenny and Summer, 2011). Even after spending an estimated \$135 billion by 2015, the MDGs were expected to fall short of its target, including poverty reduction (Clemens et.al, 2007). Clemens et.al. (2007) linked this failure to poor policies and weak institutions in poor countries and further make bold statements about irony of aid: “those that need it most are frequently the ones least able to use it effectively” (Clemens et.al, 2007, p.741).

This is also noted by Kenny & Summer (2011) who argue that there is weak evidence to claim that the increasing aid flows had strong impacts on policies in developing countries to achieve the MDGs. Kenny & Summer (2011), therefore, further argue that successor of MDGs needs to link aid flows to social policy change. Similarly, lack of enough finance and political will have been identified as the main barriers to achieving the MDGs (Fehling et al., 2013). Another important criticism of the framework of the MDGs is that MDGs were incentivized to show quick results without synergy and coordination with other programs, thus promoting “picking low-hanging fruit” instead of long-term investment (Fehling et al., 2013). The lesson for the NDCs here is that caution needs to be taken when concluding that more financing alone will lead to improved accomplishment, and that both policy coherence and capacity building need attention simultaneously.

Other challenges related to the implementation of MDGs have been the availability and reliability of data (Fehling et al., 2013) which made accurate assessment of the MDGs difficult (Sachs, 2012). The lack of reliable and verifiable data might force organizations to misuse and manipulate data to access the competitive limited finance (Saith, 2006). Moreover, progress reports submitted by the countries have been difficult to compare and interpret because of different methodology and definition and poor-quality data and calculations done based on assumptions (Poku and Whitman, 2011; Sachs, 2012). Given the importance of reporting in supporting transparency, it is critical to avoid this problem of comparability between different countries. Although there is a well standardized reporting framework for GHGs under the ETF of the Paris Agreement, additional barriers such as technical capacity will need further attention.

These lessons from implementation of the MDGs have relevance for the discussion here regarding climate finance, reporting, and policy coherence, especially for the less-developed countries' ability to meet their NDCs.

Transparency, Policy Coherence, and Implementability to increase the credibility of NDCs

Will transparency lead to accountability?

Currently, the global narratives on climate change seem to be focusing on creating an environment that ensures a reliable supply of climate finance to developing countries that would enable them to take ambitious climate actions. However, very little is known in terms of climate finance efficiency as it is not mandatory for developing countries to submit transparency reports around utilization of climate finance that would help to track their progress facilitated by climate finance. The requirements of the Enhanced Transparency Framework (ETF) adopted under the Paris Agreement is shown in table 1 below.

Pauw and Klein (2020) refer to transparency as the timely reporting of information related to climate actions (adaptation, mitigation, and climate finance). In the case of NDCs, they argue that transparency refers to the availability of clear and verifiable information. For comparability, the NDCs should provide information on “underlying methodologies and assumptions, base years, sectors and emission reduction of GHGs” (Pauw & Klein, 2020, p.409). For transparency to increase climate actions and ambitions, the information on the performance of Parties to the Paris Agreement should be complete, comparable and timely (Weikmans et al., 2020). Weikmans et al. (2020) have identified key three pathways under which ETF might increase ambition. ETF provides i) clarity on a country's performance through monitoring and reporting on their climate goals and make them accountable to their promises, ii) non-state actors

internationally information to “name and shame laggards or name and fame the best performers”,
 iii) national media, civil society organization, and opposition parliamentarians ability to put pressure on national government based on data published on their country’s effort and pledges. However, given the flexibilities offered to developing countries under the Paris Agreement, the ETF may not be able to generate complete and comparable information.

Table 1. Transparency arrangements under the UNFCCC and the Paris Agreements

Requirement	UNFCCC	Paris Agreement
Reporting		
Greenhouse gas inventories	Who: All Parties Frequency: Every year for developed countries; Every two years for developing countries; Flexibility for LDCs and SIDS	Who: All Parties Frequency: Every year for developed countries; Every two years for developing countries; Flexibility for LDCs and SIDS Scope: Flexibility for developing countries that need it in light of their capacities
National Communication	Who: All Parties Frequency: Every four years for developed countries; Developing countries encouraged to do the same depending on support Scope: Information on support only mandatory for developed countries Guidelines: Different reporting guidelines for developed and developing countries	No new provisions: UNFCCC continue to apply
Biennial Reports	Who: All Parties Frequency: Every two years Scope: Information on support only mandatory for developed countries Guidelines: Different reporting guidelines for developed and developing countries	Who: All Parties Frequency: At least every two years; Flexibility for LDCs and SIDS, and developing countries that need it in light of their capacities Scope/level of detail: Flexibility for developing countries that need it in light of their capacities
Review		
Review of GHG inventories	Who: Developed countries; Review of developing country	Who: Developed Countries; Review of developing country

	inventories part of technical review of Biennial Update Report	inventories part of technical review of BTR Scope: Simplified review for National Inventory Report in years when no BTR is due No new provisions: UNFCCC continue to apply
In-depth review of National Communications	Who: Developed countries	
Technical expert analysis/review of biennial reports	Who: All Parties Guidelines: Different guidelines for review of developed and developing country reports	Who: All parties Scope: Flexibility for developing countries that need it in light of their capacities
Multilateral reviews/consideration	Who: All Parties Guidelines: Different guidelines for review process of developed and developing countries; Review voluntary for LDCs and SIDS, who can also be reviewed as group	Who: All Parties Scope: Flexibility for developing countries that need it in light of their capacities; Review voluntary for LDCs and SIDS, who can also be viewed as group

Source: Adapted from Weikmans et al. (2020)

Critiques of accountability and transparency mechanism adopted in the Paris Agreement

Significant resources have been channeled in establishing international transparency systems to make actions taken by individual countries to combat climate change visible (Weikmans & Gupta, 2021). There is a widely accepted assumption that such transparency systems are key to holding parties to the treaty accountable to their promises and securing trust, thereby resulting in increased climate actions. One of the examples of such transparency systems is the Enhanced Transparency Framework (ETF) under the Paris Agreement. With the adoption of the ETF under the Paris Agreement, there is an expectation that this mechanism will help to make climate pledges more ambitious by revealing information about their efforts and actions to tackle impacts of climate change (Weikmans et al., 2020). Additionally, it is expected that the ETF will illuminate the necessary technological, financial, and capacity building support needed to be provided to developing countries (Weikmans et al., 2020).

However, flexibilities offered to developing countries in reporting could limit the information generation, and financial, technical and human resources capacity of developing countries could cause hurdles to the timely submission of reports and thus reduce the quantity and quality of information gathered from the ETF (Weikmans et al., 2020; Weikmans & Gupta, 2021). Furthermore, the ETF neither has a mandate to assess the adequacy of NDCs submitted by the Parties to achieve the Paris Agreement goals nor to assess the adequacy of policies and measures adopted by Parties to achieve their NDCs (Obergassel et al., 2022).

Many scholars have pointed to the lack of capacity in developing countries to meet reporting commitments and call for more international support to enhance their capacities to report on time (Khan et al., 2021; Weikmans et al., 2020). Despite having less stringent reporting requirements, developing countries struggle with capacity challenges and have not been able to submit required biennial update reports (BURs) (Weikmans et al., 2020). For instance, only 46 of 156 developing countries had submitted their first BURs by the end of June 2019, which were due in 2014 (Weikmans and Gupta, 2021).

In this regard, one of the big lessons from the implementation of MDGs for the international climate regime would be to make the transparency reporting mandatory for all developing countries. In this case, it would be very important to focus on capacity building of developing countries to meet compliance of the ETF under the Paris Agreement along with climate finance for meeting the goals of NDCs.

Synergy between climate and development policies

Pauw and Klein (2020) define policy coherence as “systematic promotion of mutually reinforcing policy actions across government departments and agencies creating synergies

towards achieving the defined objective” (Pauw & Klein, 2020, p.410). In this regard, the adoption of the bottom-up Paris Agreement and the UN Sustainable Development Goals in 2015 created an opportunity for countries to come up with climate actions and sustainable development priorities that benefit each country socially and economically domestically and at the same time also contribute to global climate goals (Atteridge et al., 2019, Janetschek et al., 2019). Updating NDCs every five years also provides an opportunity to link the efforts of cities, regions, and businesses in tackling the impacts of climate change (Hsu et al., 2019). Hsu et al. (2019) further argue that the having a mechanism in place for facilitating regular “dialogue and exchange of knowledge” between government and Non State Actors (NSAs) could help strengthening the implementation of commitments from NSAs and encourage them to take more climate action (Hsu et al., 2019, p.11) Therefore, NDCs provide a perfect opportunity for countries like Nepal to identify climate actions that would also strengthen key national sustainable development agendas. Having said that, however, the least developed countries and developing countries might face significant burdens to comply with international climate policy requirements given the competing agendas like development with limited resources and capacity (Atteridge et al., 2019).

Climate commitments are meaningless unless they are met

Out of the 197 parties to the Paris Agreement, 196 parties have either submitted their first NDCs or updated their NDCs in 2020 with ambitious climate commitments to be achieved by 2030 (Fransen, 2022). However, the success of the Paris Agreement comes from the implementation of the NDCs. There are multiple factors that determine the implementability of the NDCs (Pauw & Klein, 2020). Clearly defined roles and responsibilities of NDCs (by whom, how, and

stakeholder engagement) as well as “political acceptability of implementation needs and consequences” are crucial for implementation of NDCs (Pauw & Klein, 2020, p.411).

Additionally, the implementability of NDCs is dependent to the extent to which committed pledges are conditional upon receiving technological support, capacity building and climate finance (Pauw & Klein, 2020). Pauw et al. (2019) show that NDCs submitted by LDCs and developing countries are either partly or fully conditional upon receiving climate finance from international communities. The implementation of conditional NDCs will require \$4.1 trillion by the end 2030 which far exceeds the available funding pledges for this decade which is only \$1 trillion (Pauw et al., 2020). Lack of necessary financial support raises the question on the implementability of conditional NDCs (Pauw et al., 2020).

In addition to climate finance, capacity, both institutional and technical capacity, will determine the implementability of NDCs as a majority of LDCs and developing countries have mentioned capacity building as a condition for implementing their NDCs. Analysis by Khan et al. (2020) shows that developing countries prioritize capacity building for adaptation over mitigation. Research and technology is the most indicated need for capacity building in NDCs. When it comes to mitigation, developing countries highlight the need of capacity in energy sectors specifically to enhance energy efficiency, and expand energy infrastructure (Khan et al., 2020). Moreover, climate finance is key to increasing the implementability of conditional NDCs but the lessons from the MDGs shows that climate finance alone will not help to reach those goals because of poor governance and weak institutional arrangement in developing countries.

Given the range of potential barriers for LDCs accomplishing their NDCs with respect to transparency, lack of capacity, the needs for finance and larger political obstacles, I now turn to the case of Nepal to explore these factors in more detail in the next chapter.

Chapter III: Nepal, the Context of Climate Change, and Reconciling Development Goals with Meeting the NDCs

This chapter discusses the current socio-economic development status of Nepal and its goal to reach developed country status within next two decades while reaching net-zero emissions by 2045. This will be followed by initiatives taken by Nepal to tackle the impacts of changing climate through adaptation and mitigation and critiques of those initiatives. Overall, this chapter will explore the opportunities and obstacles in the journey to be taken by a specific LDC to achieve economic growth in becoming a middle-income and developed country and at the same time taking actions to reduce GHGs emissions.

General introduction to Nepal

Nepal is a Least Developed Country (LDC) with an economy mainly dependent on remittances and agriculture. The remittances alone account for 22% of GDP in Nepal (World Bank, 2022). The per capita income of Nepal was \$1085 in 2020. Nepal has made progress in different socio-economic indicators in the last 30 years, including halving the number of people living in absolute material poverty from 49% in 1992 to 23% in 2015, a significant reduction in the child and maternal mortality rate, and increasing the primary school enrollment above 95% (World Bank, 2022). Nepal ranks 76th from the top out of 180 countries when it comes to Press Freedom but is still one of the most corrupt countries with a rank of 70th from the top out of 180 countries (source). After meeting two (Human Asset Index and Economic and Environmental Vulnerability Index) out of three (the third is the Gross National Income) criteria, Nepal is set to graduate from being an LDC in 2026 (UN, 2021). Thus, although Nepal is currently struggling to provide employment and social services, the trajectory toward a developed country is strongly positive.

Nepal's vision for development

With the objective of achieving a low carbon development pathway, Nepal developed its Fifteenth Five-year Development Plan in 2018/19 with a national aspiration of “Prosperous Nepal, Happy Nepali” by becoming a high-income country by 2043 (NPC, 2020, p.1). The long-term Vision 2043 aspires to graduate to a developing country by 2022 (which is already delayed to 2026 because of the COVID 19 pandemic), an upper-middle-income country by 2030 by achieving the Sustainable Development Goals (SDGs), and finally reaching the status of a developed country by 2043. The major quantitative development targets Nepal aims to achieve in next two decades are presented in table 2:

Table 2. Key quantitative targets of Nepal's Vision 2043

National goals/targets	Unit	Status in FY 2018/19	Target for FY 2043/44
Economic growth (average)	Percent	6.8	10.5
Contribution of agriculture sector to GDP	Percent	27.0	9.0
Contribution of industry sector to GDP	Percent	15.2	30
Contribution of service sector to GDP	Percent	57.8	61.0
Per capita national income	US dollar	1,047	12,100
Electricity generation (installed capacity)	Megawatt	1,250	40,000
Per capita electricity consumption	Kilowatt- hours	245	3,500
National and provincial highways (up to two lanes)	Kilometers	7,794	33,000
National highways (more than two lanes)	Kilometers	96	3,000
Railroads	Kilometers	42	2,200
Population with access to improved drinking water	Percent	21	95
Human Development Index	Index	0.579	0.760

To achieve the goal of becoming a developed country, Nepal aims for massive investment in physical infrastructure development, including transport, hydropower, irrigation, and communication. The fifteenth five-year plan identifies 24 “projects of National Pride”, including the Njghadh International Airport; the 1,003 km long East-West Electric Railway line that passes

through the iconic Chitwan National Park in the southern part of Nepal; and the 1200 MW Budhigandaki Reservoir Hydropower Project. Against this backdrop, Nepal has also developed ambitious emission-reduction goals from multiple sectors with a goal to become a net-zero emitting country by 2045. Nepal has an opportunity for low carbon resilient development but the reality on the ground to achieve these goals is more complex than the rhetoric (Fisher et al., 2017). Short-term tradeoffs between economic development and environment goals, lack of technological and institutional capacity, absence of clear national implementation architecture of climate policies might impede the transition to a low carbon, resilient economy.

Administrative structure of Nepal

Historically, Nepal has had a centralized policy making system. However, this centralized system changed after a decade long civil war and another decade of political upheaval to a system of three levels of governance in 2015: Federal (National), Provincial (Pradesh) and Municipal (Nagar and Gaon Palika) (Chaudhary, 2019). This new system devolves the political authority to the provincial and local government (Khatri et al., 2022). However, there are a number of uncertainties with this distribution of power across level of governance and what this means to governance of climate change (Thapa 2019). The implementation architecture of the NDC as well all climate related activities in new federal governance system is shown in Figure 1.

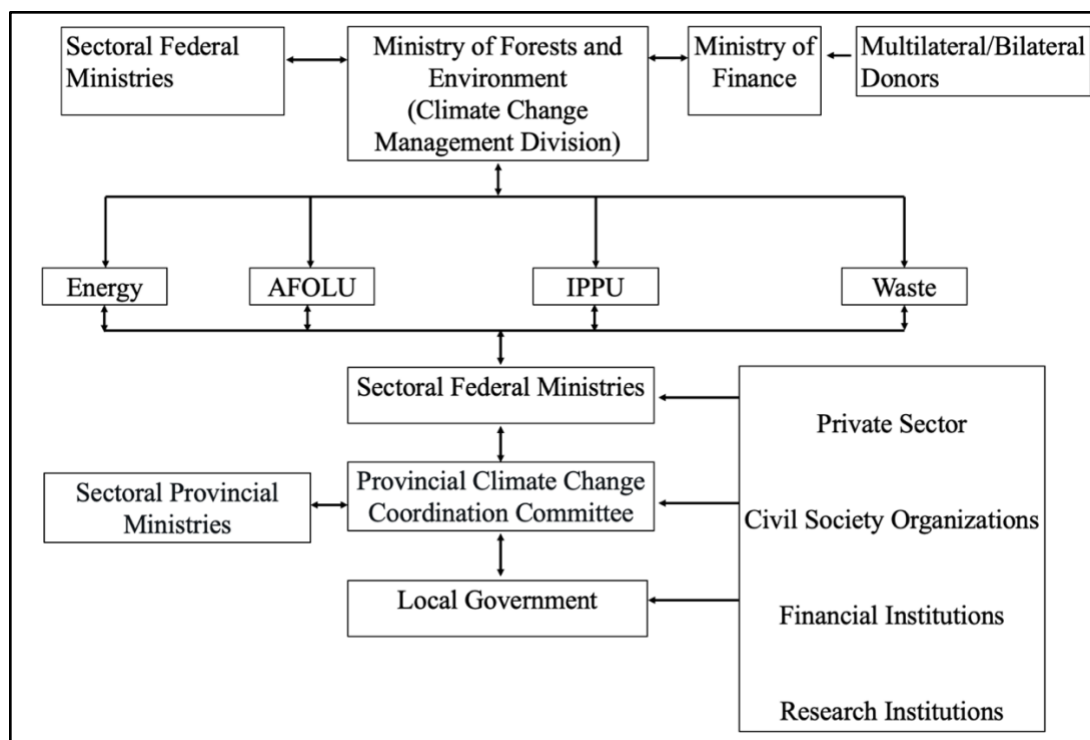


Figure 1. Implementation architecture of the NDC (mitigation-related) in new federal governance system

In theory, the federal government is clear with its responsibilities. Climate Change Management Division (CCMD) under the Minister of Forest and Environment (hereafter MoFE) leads all climate-related activities and has successfully held multiple cross-sectoral climate change consultations at the federal level. Officially, the provincial and local level governments have autonomy to develop their own climate policies, but despite this authority, in Nepal these levels of governance below the federal level have been unable to respond to climate change because of limited institutional capacities, and access to financial and human resources (Khatri et al., 2022). The map of Nepal with its Provincial and local administrative boundaries and land cover is shown in figure 2 below.

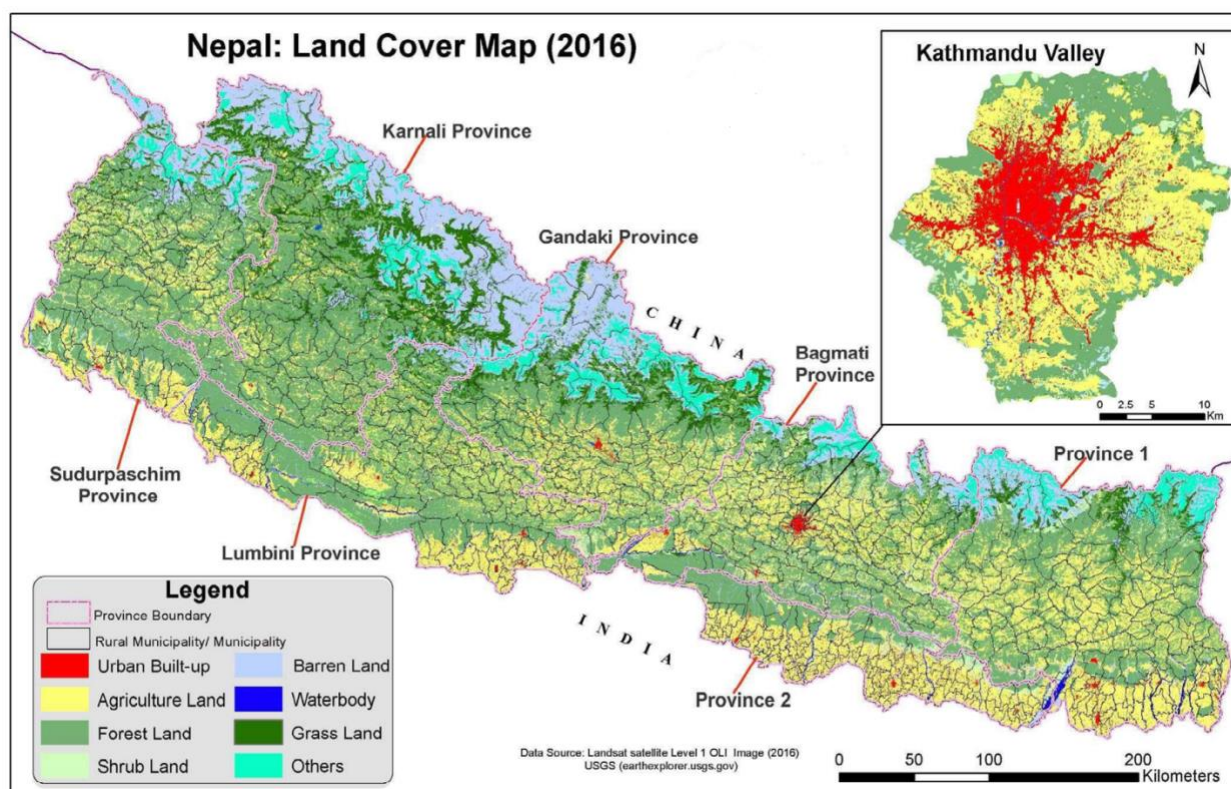


Figure 2. Land cover map along with political boundary of Nepal. Source: Government of Nepal (2021)

To address the “growing urgency” to adapt to climate change, Nepal developed a National Adaptation Plan of Action (NAPA) in 2010 and a Climate Change Policy in 2011 (Ojha et al., 2016, p.2). To address climate change at the local level, the government of Nepal came up with an innovative plan in 2011 to facilitate the adaptation process locally by adopting Local Adaptation Plans of Action (LAPAs) (Regmi et al., 2016). Nepal has been implementing LAPAs in Western Nepal since 2013 (MoFE, 2021; Ojha et al., 2016). The international communities (USAID, UKAID, UNDP, WWF) supported Government of Nepal (GoN) both financially and technically to identify potential local adaptation interventions and implementation with hope that local governments would be able to mainstream climate change adaptation into local level development process themselves in the future (Silwal, 2019; MoFE, 2021).

However, the reality is different. One of the key stakeholders responsible for looking at LAPAs at local level reflects, “There has not been further work on LAPA after the (Donor supported) project was over. We do not have resources to support climate change activities and local government have little ownership or say in the flow of climate funding” (Khatri et al., 2022, p. 1092). Despite the authority given to local governments, local governments lack operational clarity including the financing and institutional capacity to formulate and implement climate adaptive plans at local level (Khatri et al., 2022). The competition for authority and resources between different level of government during political transition from centralized to federalism might compromise the implementation of mitigation-related climate policies in Nepal as well (Khatri et al., 2022).

Impacts of climate change in Nepal

The impacts of drought, water scarcity, increasing temperatures and erratic rainfall will likely be severe in Nepal because almost 29% of the population is multidimensionally poor (meaning poverty beyond income and consumption level), and around 84% of people live in rural areas and have livelihoods primarily dependent on subsistence farming (Gerlitz et al., 2018). Climate change modeling used for the National Adaptation Plan in Nepal – that uses an ensemble approach by choosing four Global Circulation Models (GCMs) that provide range of possible future scenarios for RCP 4.5 and RCP 8.5 – shows that the average annual precipitation is likely to rise by 2-6% in the short term (2030) and 8-12% in the long term (2050), whereas mean annual temperatures are predicted to rise by 0.9-1.1 degree Celsius in the short term (2030) and 1.3-1.8 degree Celsius in the long term (2050) (MoFE, 2019). These changes are predicted to have serious impacts on different economic and environmental sectors, such as water, energy,

biodiversity, agriculture, and livelihoods (MoFE, 2019). Of these, households that depend on natural resources or agriculture for their livelihoods are expected to be the most vulnerable (Gentle & Maraseni, 2012). For instance, resource-dependent people, female-headed households, farmers from geographically remote areas, and people of low socioeconomic status are likely to be disproportionately impacted by climate change (Gentle et al., 2014; Pandey & Bardsley, 2015). Moreover, the likely negative impact on agriculture will have important repercussions on the livelihood of smallholders as agriculture alone accounts for 35% of gross domestic product (GDP) and provides employment opportunities to about 70% of Nepal's population (MoALD, 2015). Therefore, to tackle the impacts of climate change, Nepal has developed ambitious NDC to increase the adaptive capacity local communities to extreme events and climatic variations and mitigation actions to reach net-zero by 2045. The next section focuses on Nepal's mitigation commitments and key sectors to reach its climate mitigation goals.

Climate change mitigation initiatives in Nepal: Progressive only on paper?

Despite the negligible contribution to global GHGs emissions (0.027%), Nepal has proactively participated in global goals of emission reductions (GoN, 2020). Nepal participated in the Clean Development Mechanism (CDM), an emissions reduction program to support projects in developing countries to earn certified emissions reduction (CER) credits under the Kyoto Protocol to sequester carbon through forest preservation and avoided deforestation. That allowed Nepal to invest in household biogas systems and reduce dependency on forests for fuelwood (UNFCCC, 2015). However, Nepal's systematic engagement in mitigating the impacts of climate change is very recent. Nepal submitted its first NDCs to the UNFCCC in 2016 to show its

commitment to limiting global temperature rise below 2C above preindustrial levels (Laudari et al., 2021).

In 2020, Nepal submitted more ambitious second NDCs intending to reach net zero by 2050. Many international organizations have lauded Nepal's second NDC for its quantifiable targets and sectoral coverage compared to its first NDC, which had limited quantitative information. Nepal's second NDC has targets of mitigation for the short-term (2025) and the medium-term (2030) that include five primary sectors: energy, agriculture, forestry and other land use (AFLOU), waste, and industrial processes and product use (IPPU) (Table. 3).

Table 3. Mitigation goals of Nepal's NDCs by sector

Sector	Mitigation Goal	Current Status
Energy	<p>Electricity generation</p> <ol style="list-style-type: none"> “By 2030 expand clean energy generation from approximately 1,400 MW to 15,000 MW, of which 5-10% will be generated from mini and micro-hydro power, solar, wind, and bioenergy. Of this, 5000 MW is an unconditional target. The remainder is dependent upon the provision of funding by the international community. By 2030, ensure 15% of the total energy demand is supplied from clean energy sources 	<ul style="list-style-type: none"> Current total installed capacity for generation is approximately 1400 MW, mainly from hydropower.
	<p>Transport</p> <ol style="list-style-type: none"> “Sales of electric vehicles (e-vehicles) in 2025 will be 25% of all private passenger vehicles sales, including two-wheelers and 20% of all four-wheelers public passenger vehicle sales (this public passenger target does not take into account electric-rickshaws and electric-tempo) in 2025” “By 2030 increase sales of e-vehicles to cover 90% of all private vehicle sales, including two-wheelers and 60% of all four-wheeler’s public passenger vehicles (this public passenger target does not take into account electric-rickshaws and electric-tempo)” By 2030, develop 200km of the electric rail network to support public commuting and mass transportation of goods. 	<ul style="list-style-type: none"> The current share of electric vehicles is approximately 1% No reference available (no railway network in Nepal).
	<p>Residential cooking and biogas</p> <ol style="list-style-type: none"> “By 2030, ensure 25% of households use electric stoves as their primary mode of cooking” “By 2025, install an additional 200,000 household biogas plants and 500 large scale biogas plants (institutional/industrial/municipal/community)” By 2025, install 500,000 improved cookstoves, specifically in rural areas 	<ul style="list-style-type: none"> “Currently, around 5% of households use electric induction stoves, either as their primary or secondary mode of cooking” .
AFLOU	<p>Forestry</p> <ol style="list-style-type: none"> “By 2030, maintain 45% of the total area of the country under forest cover (including other wooded land limited to less than 4%)” “By 2030, manage 50% of Tarai and Inner Tarai forests and 25% of middle hills and mountain forests sustainably, including through the use of funding from REDD+ initiatives.” 	<ul style="list-style-type: none"> “Current forest cover is approximately 44.74% of which 4.38% is another wooded land (OWL)”
	<p>Agriculture</p> <ol style="list-style-type: none"> “By 2030, soil organic matter content of agriculture land will reach to 3.95%” “By 2030, the number of organic fertilizer production plants in the country will reach 100” 	<ul style="list-style-type: none"> “The current soil organic matter content of agricultural land is 2%. “The number of the organic fertilizer production plant is 23”.
Waste	<p>Waste</p> <p>“By 2025, 380 million liters/day of wastewater will be treated before being discharged, and 60,000 cubic meters/year of faecal sludge will be managed. These two activities will reduce around 258 GgCO₂eq. compared to BAU”</p>	<ul style="list-style-type: none"> Currently, 2.1% of wastewater and less than 1% of the faecal sludge is treated.

Within energy, the focus is on electricity generation, transportation, and residential cooking fuels. Out of the multiple emissions reduction targets, only one is non-conditional - the target to generate 5000-megawatt electricity from hydropower. Implementation of the second NDC is estimated to cost \$28.4 billion, nearly 90 percent of Nepal's GDP. Additionally, Nepal wants to invest only \$3.4 billion with its internal sources and seeks support of \$25 billion from international communities (MoFE, 2020). Nepal relies heavily on the forestry and hydropower sectors to achieve its mitigation related goals which is not free of risk. To understand the Nepal's journey to net-zero, it is pertinent to understand the status of Nepal's forestry sector and hydropower and the tradeoff between climate goals and development. In the following subsection, I will discuss these forestry and hydropower sectors as examples and their role in Nepal's transition to clean energy and net-zero by 2045.

Community forestry, increasing forest coverage and mass migration of youth in Nepal

His Majesty Government of Nepal enacted the Private Forest Nationalization Act to nationalize all forests to prevent the deforestation in 1957. The nationalization of forests took away the traditional rights of many indigenous communities to the forest resources without any compensation to the users. Fear of losing their forests, landowners deforested purposefully to avoid Nationalization (Acharya, 2002). The deforestation rates in the subsequent years were so high that the World Bank warned that the forest in Nepal's hill would be largely gone by 1990 (World Bank, 1979). After realization that the conservation of forests is not possible without community participation, the seventh five-year plan (1985-1990) identified the need of hand-over of government forests back to the community again. Master Plan for the Forestry Sector (MPFS) initiated by the government in 1988 paved the way for community forestry in Nepal

(Acharya, 2002). The objective of MPFS were to meet the basic needs of communities, including fuelwood, timber, and fodder, and promote the community participation in the management and conservation of forestry resources (Acharya, 2002).

Today, community forestry in Nepal has received international praise for its effort in doubling the forest coverage from 26% in 1992 to 45% in 2016 (Gill, 2019). Community forests cover one-third of total forest area of the country and are managed by 22,000 community forest user groups that comprise three million households out of 56 million households in Nepal (NYT, 2022). However, this increasing forest coverage does not come without forgone opportunity costs as Nepal imports wood and furniture worth around \$129 million in an average year (DoC, 2022). After achieving the goal of protection-oriented community forestry in Nepal aimed at increasing forest cover should now switch to prioritizing harvesting and regeneration to increase the economic wellbeing of people (Ojha, 2022). Underutilization of forest resources continues in Nepal and failure to establish community forestry enterprises has proven costly for Nepal's local communities as well as for its national economy (Aryal et al., 2021, Aryal et al., 2023; Shrestha et al., 2022). The policy, although successful from the perspective of carbon storage and climate mitigation, resulted in unintended consequences for rural development and an example of that is the exodus of youth from rural areas to either cities or foreign countries for employment opportunities.

On average, 1600 young people leave Nepal in search of foreign employment every day (IoM, 2017). Today, 3.5 million young people (around 14% of total population) are currently working abroad and nearly half of total households in Nepal rely on financial support from their relatives abroad (IoM, 2017). On the other hand, research shows that the regions with higher levels of international emigration from Nepal experience more reforestation because of

decreasing population density and declining dependence on agricultural for livelihoods (Oldekepe et al., 2018).

In spite of efforts under the national forest policy to implement more production-oriented forest management, the efforts have been deemed unsuccessful, so the plan was abandoned in 2021 (Aryal et al., 2021; Aryal et al., 2023). Therefore, challenges ahead for government of Nepal will be to create the job opportunities to all 3.5 million young people within the country, construct massive infrastructure to reach the status of high-income country and at the same maintaining the quality of forest coverage to 45% to reach net-zero by 2045 as mentioned in its NDC.

Harnessing hydropower potential

Nepal currently meets most of its energy demand from traditional sources such as wood. Firewood is the main source of energy (75 percent), followed by petroleum (9.24 percent), animal waste (5.74 percent), agricultural residue (3.53 percent), electricity from hydropower (2 percent), and other renewable resources (0.48 percent) (GoN, 2020). However, electricity from hydropower is expected to play a leading role in the transition to reliable clean sources of energy for Nepal in order to reduce the GHGs emissions in the energy sector.

Currently Nepal generates 1400 MW electricity from hydropower which is less than one percent of its economically feasible hydropower potential (42000 MW). To electrify its transportation, residential building and industry sector, Nepal aims to generate 5000 MW of electricity by 2025, 15000 MW by 2030 and 40,000 by 2044. Some of the under construction big hydropower projects are Upper Arun Hydropower Project with 1,061 MW capacity and Budhigandaki Reservoir Hydropower Project with capacity of 1200 MW and construction of

both is expected to complete by 2028 (GoN, 2020). Similarly, Nepal has received \$500 million from the US government (Millennium Challenge Corporation) to build an electricity transmission line. However, hydropower generation might be impacted by the changing climate in the future (Shrestha et al., 2021). Major river basins that are useful for hydropower generation are snow-fed and many hydropower projects in Nepal are run-of-the-river type (that harvest the energy from flowing water and does not need large dam and reservoir to generate electricity). In years with droughts, hydropower is vulnerable to reduced power generation (Shrestha et al., 2021). Nepal might experience increasing hydropower generation in the short-term because rising temperatures will increase the flow of water in rivers from rapidly melting glaciers. However, eventually electricity generation will decline because of depleting glaciers (Shrestha et al., 2021). Because of the uncertainties in hydropower generation from hydropower in the future, Nepal will eventually need to diversify the source of electricity generation to include solar and wind energy. Therefore, the path to net-zero looks theoretically feasible for Nepal with its expected electricity generation from hydropower that involves many uncertainties in the future in light of a changing climate.

Critiques of climate policies in Nepal

Many environmental policies, including climate policy, in Nepal are adopted on an ad hoc basis (Aryal et al., 2021). The impetus for new environmental policies in Nepal is guided by the global environmental discourse with development and financial assistance from international organizations and donors (Aryal et al., 2021, Karki and Comfort, 2016, Ojha et al., 2016). Once environmental policies are drafted by bureaucrats with support of experts and international organization, these policies are legitimized through the parliament, and the council of ministers

(Aryal et al., 2021). This has led to adoption of a top-down approach in the policy making process with the influence of a handful of actors, including bureaucrats and international organizations (Aryal et al., 2021). The consequence of this approach is “voluminous and comprehensive” policies with little chance of achieving their intended objectives because of a lack of true reflection of local realities, resources, and contexts (Aryal et al., 2021, Tiwari et al., 2014). Among environmental policies, this criticism is especially true for climate policies in Nepal.

Nepal has a decade long experience of implementation of climate adaptation policies. Therefore, learning from its implementation might be useful for implementation of mitigation policies as well. Nepal’s climate adaptation policies have been criticized for their failure to achieve the intended objectives because of existing socio-economic inequalities and, to some extent, increasing vulnerability rather than reducing it. Discrimination based on caste, gender and unequal access to social and political networks create the local vulnerability in the first place and climate change adaptation policies perpetuates this rather than reducing it by elite capturing the resources for adaptation (Nagoda and Nightingale, 2017). Similarly, Nightingale (2017) raises the same concern where the outcome of adaptation interventions is influenced by local politics as local powerful actors use adaptation programs for their own interests to secure votes. Additionally, local adaptation plan documents are “copy and paste version of generic templates provided by the donors” as aid money is tied to number of LAPAs being prepared and implemented (Ojha et al., 2016, p.426). This shows that politics of climate policy and practice in Nepal is about accessing aid money where multiple NGOs and consultants compete unfairly for the money (Ojha et al., 2016)

The biggest lesson from decades-long experience of implementation of adaptation interventions in Nepal is that mitigation policies should fix the existing inequities rather than increasing social and economic inequalities (Thapa, 2022). Additionally, the local government needs clarity of implementation, including financing and institutional capacity to achieve the mitigation related goals. Furthermore, Nepal's first NDC has been criticized for lacking rigorous scientific analysis when setting emissions reduction targets, lacking necessary political participation at federal level, and inadequate institutional and policy arrangements to translate commitments into actions (Laudari et al., 2021, although this criticism could be leveled against many other countries. Therefore, this capstone is an attempt to understand the possibility of Nepal achieving its climate commitments related to mitigation using “transparency, policy coherence, and implementability” as a framework.

Chapter IV: Research Methodology

This research uses transparency, policy coherence, and implementability as a framework to analyze the climate policy documents and the perceptions of experts about Nepal's climate commitments and actions (Pauw and Klein, 2020). To understand the perceptions of key stakeholders about the opportunities and challenges in achieving mitigation related goals of Nepal's NDC, qualitative data were collected which provide descriptive information from the experiences and knowledge of those people involved in the NDC preparation and implementation process. The qualitative approach was intended to supplement the quantitative as well as quantitative data obtained from Nepal's second NDC, fifteenth five-year development plan, and sustainable development goals. The qualitative data from the interviews enriched the discussion and conclusion as it provides insights on hard-to-measure aspects of knowledge, personal experience, and the opinions and beliefs of the respondents, which particularly helps to answer the "why" and "how" parts of achieving the climate pledges mentioned in NDC (Tracy, 2020).

Interviews

I developed an open-ended questionnaire to collect information about respondents' experiences, perceptions, and knowledge about the NDC planning and implementation processes (for the full questionnaire, see Appendix A). I conducted all the interviews virtually on Zoom™. To achieve my research objective, I employed purposive sampling method to identify the suitable respondents for the interviews (Tracy, 2020).

The respondents include key people who participated in the NDC preparation and implementation process or people actively working in the field of climate change in Nepal for a long time. The affiliation of the 15 participants are shown in Table 4.

Table 4. Affiliation of participants in-depth interviews

Respondent Category	Affiliation	Number of participants
State actor	Ministry of Forest and Environment (Focal ministry for climate change)	2
State actor	Ministry of Finance	1
State actor	National Planning Commission	1
Sub-national actor	Provincial Ministry of Forest and Environment	3
Politicians	Member of Parliament (includes former Federal Minister of Forest and Environment)	1
Non-state actor	Businesses	2
Non-state actor	Nonprofit/Research Institutions	4
Non-state actor	Civil Society	1

Interview analysis

For this study, I began analyzing the collected data from the interviews by first translating and then transcribing it for the analysis using the qualitative data analysis software Atlas.ti. I started “line-by-line coding” where I assigned suitable words that can better reflect the meaning of that sentence or phrase (Tracy, 2029, p.219). And in secondary-cycle coding, I again carefully examined the codes that I identified in primary-cycle coding to develop concepts or themes (transparency or policy coherence or implementability). I then selected relevant quotes from the interviewees to cite in the results and discussion sections, which help to support or contradict the

climate ambitions of Nepal and related targets mentioned in relevant climate and development policies.

Document Assessment

Primary documents from the Government of Nepal

A number of documents prepared by the Government of Nepal served as primary information sources beyond the enhanced NDC submitted by GoN in December 2020. Policy documents related to economic development and climate change of Nepal were evaluated in order to triangulate the data collected from the interviews. The Fifteenth Periodic Plan (2019/2020-2023/2024) prepared by National Planning Commission, the NDC Implementation Plan (2023), and the Sustainable Development Goals Status and Roadmap: 2016-2030 were particularly important in the assessment of policy coherence.

Media converge on climate change commitments in Nepal

To understand the role of media in holding the government accountable for their climate commitments related to mitigation, I analyzed the “Editorial” and “Climate and Environment” news sections of four major national print-media. Out of them, two are published in Nepali language and other two in English. I analyzed all the climate news published in between December 2020 (Nepal submitted its second NDC) and March 2023 and categorized the 150 articles in four different categories, namely, impacts of changing climate, climate finance, climate commitments and actions, and climate technology.

Chapter V: Results and Discussion

Descriptive characteristics of the interview respondents

The majority of the interview respondents were male, which accounted for 73% (13) of the total respondents, reflecting the dominance of males in positions of authority in both government and the international climate regime. Out of the 15 respondents, 53% of them have been working in the field of climate and environment for 5-10 years, eight of whom were from the government of Nepal, four were from research institutions, and the rest from the private sector and civil society organization.

Table 5. Descriptive statistics for sample of respondents

Variable	Measure	Number	Percentage
Gender	Female	4	27
	Male	11	73
Institutional Representation	Federal Government	4	27
	Non-State Actors (Research)	4	27
	Provincial Government	3	20
	Non-State Actors (Business)	2	13
	Non-State Actor (Activist)	1	7
	Politician	1	7
Work Experience	0-4 years	4	27
	4-10 years	8	53
	10+years	3	20
Age Group	20-40	4	27
	40-60	11	73

Transparency

Importance of transparency for climate action

One hundred percent of the respondents agreed that transparency is very important to achieve the goals of the Nationally Determined Contributions and the overall goals of the Paris Agreement.

However, all of the respondents also mentioned that transparency of climate action is more important and relevant for developed countries compared to developing ones. One of the respondents working with a research institution who has participated in multiple COPs reported:

There is an element of common but differentiated responsibilities under the Paris Agreement. Therefore, both developed and developing countries are required to maintain transparency of their climate actions. However, reporting on their climate actions is mandatory for developed countries but not for the least developed countries like Nepal. Moreover, transparency of developed countries is more important than that of developing countries to achieve the goals of the Paris Agreement.

Another respondent who holds a key position with a state actor also shared similar perceptions:

Nepal emits negligible amount of GHGs compared to other developed countries. Based on the principle of international climate justice, there is flexibility provided to countries like Nepal. The Government also seems not interested in transparency of its climate actions as it thinks its emissions are negligible and does not make any difference in global GHGs emissions.

Experts recognize the flexibility being provided to countries like Nepal as a barrier for acting proactively in their climate actions and maintaining transparency. However, there is also recognition among experts that Nepal should not take this flexibility as an excuse for not submitting its transparency report. One non-state actors shared: “Nepal has that flexibility for transparency because of its capacity issue and negligible emissions. But we eventually graduate from LDC in the future and have to take actions on transparency. Therefore, we should start exercising and practicing today.”

Interviews revealed that the Government of Nepal has started taking necessary steps to prepare its transparency reports. Nepal plans to submit its first biennial transparency report under the Paris Agreement by the end of December 2024 and has received funding for capacity building from the Global Environment Facility (GEF). Similarly, Nepal also received funding from the UNFCCC in 2019 and is working to prepare its first biennial update report (BUR) to submit in 2023 which was due in 2014. According to one state actor, Nepal is committed to transparency of its climate actions: “Nepal will soon start capacity building for transparency reporting through Capacity Building Initiative in Transparency (CBIT) which will be led by WWF.”. According to experts, submission of transparency reports is important for maintaining Nepal’s image as a progressive climate actor in the international arena. They also believe submitting transparency reports would help Nepal in getting necessary climate finance and in standing out from the crowd looking for climate finance. One of the state actors who represents Nepal in international climate fora shared that “Nepal wants to show the international community that it is taking proactive climate actions with timely submission of its transparency reports. I am confident that Nepal will submit its first transparency reports under the Paris Agreement even by hiring consultant.”

Not all stakeholders involved in climate action have good knowledge of transparency mechanisms and requirements. Respondents representing civil societies (activist) and politicians seem to be unaware of actions taken by the government of Nepal to make its actions transparent, and about the requirements of such reports due to being a member party to the Paris Agreement and UNFCCC. Moreover, the knowledge of politicians about transparency requirements under the ETF is found to be limited. For politicians, submission of mandatory documents such as the NDCs, NAPA, LAPA as required by the UNFCCC is fulfilling the transparency requirement of

the UNFCCC, which is to be expected. For instance, one politician, former Minister of Forest and Environment, said that:

Nepal takes climate actions seriously and has been working on transparency relentlessly. We submitted the second updated NDC to the UNFCCC to show solidarity to the global world in limiting the global temperature to below 2C above pre-industrial level. We have also submitted the National Adaptation Program of Action (NAPA) and Local Adaptation Plans of Action. Furthermore, Nepal has been submitting the required documents to the UNFCCC timely.

How comparable is Nepal's NDC to other NDCs?

One hundred percent of respondents agree that Nepal prepared its first NDC without much consultation and rigorous scientific analysis. For example, criticism was reported by one of the respondents, a non-state actor regarding the first NDC of Nepal:

One key person who represented Nepal at COP in 2016 shared with us (activists) that the sentiment around NDC in 2016 was that it was not for a country like Nepal with low GHGs emissions. The delegates from Nepal saw many other countries submitting their NDCs in that year's COP and realized the importance of having NDC to be seen as a progressive actor in international climate fora.

The delegates came back to Nepal and prepared the first NDC in less than a week without much thought and analysis.

Nepal's first NDC received criticism for setting its target without rigorous scientific analysis (Baniya et al., 2021; Laudari et al., 2021) and lacking comparability with other NDCs. One surprising goal in the first NDC was to maintain 40 percent of the total area under forest coverage by 2020, when Nepal already had 44.74 percent of the total area under forest coverage in 2014 (DFRS, 2015). Similarly, another goal was to increase the share of e-vehicles by 20% from the 2010 baseline. The target could have been easily achieved by adding just 200 another

electric vehicle as there were around 1000 electric vehicles in the country in 2010 (Laudari et al., 2012).

Nepal submitted a more ambitious second NDC intending to reach net zero by 2050 in 2020. Many international organizations, including NDC partnership and UN have lauded Nepal's second NDC for its quantifiable targets and sectoral coverage compared to its first NDC, which had limited quantitative information. The GHG emissions from different sectors is based on 2011 baseline based on the third National Communication report Nepal submitted to the UNFCCC in 2011. Nepal's second NDC has a target of mitigation for short-term (2025) and medium-term (2030) as mentioned in Chapter III (Table 3).

Domestic efforts to increase transparency: Naming and shaming for climate actions or inactions

Non-state actors (NSAs), including civil society organizations, media, and opposition parliamentarians can help to hold state actors accountable to their promises and spur actions by generating information that is easy to understand to the public about the Nepal's pledges and efforts to achieve those pledges. The assessment of climate and environment editorial media revealed a strong bias which potentially distorts information access in Nepal, as detailed below.

Role of media in making climate mitigation transparent

The analysis of the climate and environment- oriented news and editorial sections of four major national media shows that nearly 64% of the news appearing between December 2020 and March 2023 was about impacts of changing climate (rising temperature and erratic rainfall) on livelihoods, agriculture, and mountains of Nepal, followed by climate finance (16%) (figure 3). This makes sense given the vulnerability of Nepal to changing climate. Increasing the awareness

of the potential impacts in people's livelihoods is beneficial as there is low knowledge of climate change among ordinary citizens. A survey done by UNICEF among youth (age 15-24) shows that 82% shared that they have heard about climate change but only 34% respondents reported that they could explain climate change (UNICEF, 2021).

However, only 15% of the coverage was about Nepal's climate commitments and action. The majority of this coverage was about electric vehicles and Nepal's potential for hydropower. However, none of these articles mentioned Nepal's electric vehicles and hydropower related goals in NDC. Additionally, there were no articles that discussed the trajectory of Nepal towards its 2030 climate mitigation goals as mentioned in its second NDC.

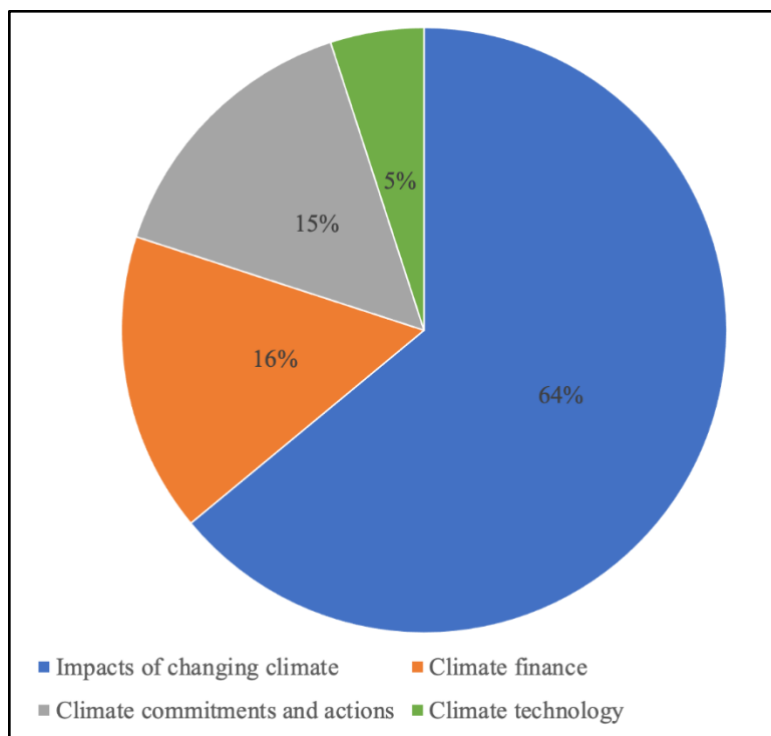


Figure 3. Topics related to climate change covered in four major print media outlets in Nepal between December 2020 and March 2023. N=150

The analysis confirms that the narrative about climate change in the media is similar to that of politicians, i.e., Nepali people are facing the brunt of the impacts of climate which they did not cause. Therefore, Nepal needs more climate finance to adapt to the consequences of climate change and Nepal's not responsible to solve the mess created by developed countries. Increasing coverage of climate change in recent years in national media is a positive change but more needs to be done with quality coverage based on rigorous analysis on the climate path taken by the government of Nepal.

Role of civil society organizations

There is a lack of powerful civil society and environmental organizations in Nepal with the meaningful capacity to hold the government accountable for the promises and climate ambitions mentioned in the NDC. A few youth-led environmental organizations, such as Nepalese Youth for Climate Action and Digo Biaksh Institute, can put pressure on the Nepali government to switch towards a low carbon economy. However, so far these organizations have not been very effective enough in their intended objective. One of the non-state actors shared this concern. "If Civil Society Organizations are truly concerned about climate, environment, and conservation, they need to have one voice. But we do not see that unity in Nepal. They must be influenced by some hidden interests.". Though these organizations are membership-based organizations, their grassroots level presence is not strong enough to put enough pressure on government. For instance, key environmental organizations in the US like Sierra Club and Natural Resources Defense Council have strong grassroots power with 3.5 and 2.4 million members respectively. These organizations in the US can mobilize their grassroots powers when government acts in the other direction of what they promised to achieve. At present, Nepal does not have similar

organizations with a large membership and clear agenda to put pressure on the government for their inaction.

Capacity building for transparency reporting

Almost 100% of the respondents agree that Nepal's inability to submit transparency reports is due to the lack of technical capacity. All of them also agreed that finance has never been a problem for preparing such reports as Nepal can access such finance from the UNFCCC under the name of capacity building and transparency reporting. In addition to technical capacity, the majority of respondents highlighted the lack necessary institutional mechanisms for such reporting. One of the state actors who works for MoFE stated:

“MoFE is a focal ministry for all activities related to climate change in Nepal and liaison ministry to the UNFCCC. Climate Change Management Division (CCMD) headed by joint secretary looks after all the climate actions and policies. Bureaucrats who work at CCMD are from forestry and wildlife backgrounds and don't have good understanding of the complexities of the UNFCCC reporting processes. Additionally, they have additional responsibilities that go beyond climate change. Moreover, there is also uncertainty of tenure. This has become obstacles in developing strong institutions that can undertake difficult work that requires continuous efforts like the UNFCCC reporting.”

Furthermore, the UNFCCC has provisions for training to build capacity in developing countries like Nepal. Bureaucrats from MoFE have also participated in those trainings. However, the nature of these trainings is “short-term, ad-hoc, supply-driven, and project-based” and are not adequate to build the capacity enough to undertake complex tasks of reporting required by the UNFCCC (Khan et al., 2021, p.1). One of the respondents who represents non-state actors (a research institution) shared:

Consultant based approach, where government brings people from abroad for working on reports or developing tools is not a sustainable solution. On a positive note (not overly criticizing the role of the UNFCCC), the UNFCCC has also done

the same thing. When it comes to capacity building, it is very important to understand whether we build capacity to retain and continue such work in the future.

In recognition of the importance of technical capacity that meets the need of the country sustainably, MoFE in collaboration with the Central Department of Environmental Science, Tribhuvan University, and Climate Analytics, has designed a short course for this purpose (GoN, 2022). This introductory course, designed for mid-career practitioners and researchers, is expected to improve capacity for developing, understanding, and complying with the reporting requirements under the UNFCCC and the Paris Agreement.

Based on the results from the expert interviews, this research identified following opportunities and challenges for Nepal to increase the effectiveness of transparency both internationally and nationally (Table 6).

Table 6. Opportunities and challenges to improve transparency of Nepal's climate goals

Issues	Challenges	Opportunities
Technical capacity	<ul style="list-style-type: none"> • Lack of human resources to undertake the reporting requirement under the ETF. • Consultant-based approach for capacity building has not been able to achieve its intended objective. 	<ul style="list-style-type: none"> • To strengthen the national universities and establish Master's course with focus on technical and political aspect of international climate regime.
Naming/Shaming for climate actions/inactions	<ul style="list-style-type: none"> • Absence of media publication that focus on Nepal's mitigation goals and question governments about its progress to net-zero goals. 	<ul style="list-style-type: none"> • Increasing coverage about climate change in the last few years in the national medias. Opportunities to increase their coverage on climate Nepal's climate mitigation goals and reach wider public as nearly 70% of population have access to internet.
Institutional Capacity/Memory	<ul style="list-style-type: none"> • Short tenure of two years of chief of climate change management division (CCMD). • Inability of government to send the same key negotiators at COP every year. • Absence of core team under CCMD who focuses mainly on transparency reporting including National Communication and Biennial Transparency Reports under the Paris Agreement 	<ul style="list-style-type: none"> • To Increase the tenure of chief of CCMD to at least five years so that they could undertake the one cycle of NDCs submission and update based on progress.

Policy Coherence

Synergy between climate policies and development policies in Nepal

Perceptions of stakeholders

The result from experts' interviews show the discrepancy in opinions between experts working at the national and local levels. For example, almost all the respondents who work at national level agree that there is no conflict between Nepal's climate policies and the development agenda. One of the respondents who worked closely with Government of Nepal in the formulation of the second NDC and represent non-state actors (research) reported:

There should be no conflict in policies and if there is any then we can take it to the court. Talking about NDC, we reviewed all existing policies, including all economic policies plus sectoral policies. Many of the targets mentioned in NDCs are copied as it is from existing developmental policies, for instance, energy and forests are adopted as it is from the five-year development plan and energy development plan. Whereas some other targets, for example, the transportation sector, come from technical analysis and stakeholder consultations. Therefore, the whole NDC is completely aligned with existing economic policies.

The next biggest challenge is whether we will implement it or not.

Despite assuring the strong anonymity of the respondents, the result also showed that the respondents do not want to strongly criticize the government's policies as they were afraid their criticisms might impact their future relationship with government. One of the respondents who works for an international non-governmental organization but also works closely with Nepal government shared the frustration with incoherent policies as:

I would say Nepal has good policies but always fails to create an enabling environment to implement policies. Almost all our NDC goals are conditional and that alone tells how serious we are with our net-zero commitments.

Government always comes up with actions that contradict policies. We aim to be 100% renewable by 2050 and at the same time provide subsidies on fossil fuels.

Why do we need subsidies on fossil fuels? Rather we should increase tax on fossil fuels. But government always acts on a whim.

However, the respondents who have local level experience on climate change expressed contrasting opinions to national level respondents. They expressed concern that climate change has not been the priority of local elected representatives. One respondent who works for an NGO on local climate change issues said:

Local government needs to take ownership of climate policies and actions but just the opposite is happening. Based on my experience and observation, local governments do not want to invest in climate solutions as it takes time, 2-4 years, to see the results of the investment. They want to invest in something where immediate results can be seen so that would ensure more votes in the next election. Local-level governments really do not have that patience. Their only top priority is development, mainly construction of roads, where bulldozer drivers act as an engineer.

Similarly, another state actor who works at local level government also expressed similar concerns “Many locally elected government representatives see the inclusion of climate as a barrier to their developmental goals. They think investment in climate-friendly development means less money for road and bridge construction and other communities' need.”

However, as shared by respondents working at national level, the analysis of economic development policies, and climate mitigation policies shows alignment with each other in paper but contradictory in actions as discussed below.

Alignment of climate and development policies on paper

Supporting the perceptions of interview respondents who work at national level, the analysis of the documentary evidence, government policies appear to adequately address and underpin the importance of integrating climate change into the regular developmental agenda. The *Fifteenth*

Plan (fiscal year 2019/2020-2023/2024) and the *Sustainable Development Goals, Status and Roadmap: 2016-2030* are two key development policies developed by the federal government of Nepal that reveal this coherence.

There are nine key quantitative national targets with multiple sub-targets mentioned in five-year development plan. Climate related goals are mentioned under “healthy and balanced environment” and the key climate related sub-targets are increasing the ratio of renewable energy in total energy consumption from 7% in 2019 to 12% by 2024 and developing and implementing the local levels adaptation plan from 217 to 460 respectively. Similarly, Nepal aims to increase climate awareness by providing climate change education in 90% of schools and train 2,000 individuals who will act as resources for local climate change adaptation planning.

Similarly, in five-year development plan, the government has a plan to increase the production of clean energy from 1250 MW in 2019 to 5,820 MW by 2024; increase the share of the electric vehicles in the transportation sector from 5% in 2019 to 35% in 2024; and increase the share of households using electricity for cooking purposes from 0.9% in 2019 to 2023 (NPC, 2020).

In addition to five-year development plan, the Sustainable Development Goals (SDGs) 7, 11, 13, 15 are closely linked to the goals of climate policies of Nepal’s NDC. The specific goals for SDG 7 (Ensure access to affordable, reliable, sustainable, and modern energy for all) aim to reduce the percentage of households who depend on firewood for cooking from 75% to 30% and increasing the production of clean energy to 15000 MW by 2030. The specific targets for SDG 13 (Take urgent action to combat climate change and its impacts) are to halve the GHG emissions economy-wide to the existing level (it does not mention base-year), establish 170 climate smart villages from zero and climate smart farming to 500 units from zero at present.

Similarly, the specific targets for SDG 15 (Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss) are to maintain the share of protected area at 23.3% of total land area, increase the share of community managed forest from 39% to 42% of the forest area, and plant 5000 hectares each year.

Therefore, theoretically, or at least on paper, Nepal's climate policies seem aligned with its developmental policies, but one needs to further assess whether this alignment holds true in actions and priority or not. The next section assesses the policy coherence in actions.

Examples on the ground of lack of policy coherence

Nepal has a good reputation for making ambitious policies and plans but a poor record of implementation (Laudari et al., 2021). This holds true especially when it comes to the ambitious goal of reaching net-zero by 2045. As discussed above, this policy looks coherent on paper and the path to net-zero looks theoretically possible if Nepal receives necessary financial and technology support and improves its institutional capacity and governance. However, on the other hand, the government has taken multiple missteps that that would seriously impair its net-zero commitment by 2045. Three examples of the key policy incoherency are presented below, starting with a national level policy and followed with two very specific projects.

Vision 2043: Roadmap to a developed country from Least Developed Country status

The government of Nepal has a very ambitious vision to become a developed country from the current Least Developed status. Nepal aims to achieve double digit economic growth every year from fiscal year 2089/19 to 2043 and increase its per capita income from \$1,047 in 2018/19 to \$12,100 by 2043. Similarly, Nepal aims to achieve 13.0 and 10.9 percent annual growth rate for

the industry and service sectors, respectively (GoN, 2020). Additionally, Nepal wants to have an annual average growth rate for agriculture of 5.5 percent. This would be a significant challenge for Nepal as AFOLU is already the biggest contributor of GHG emissions in Nepal and GHG emissions would go up with intensification of agriculture.

Furthermore, to achieve the goal of becoming a developed country, Nepal aims for massive investment in physical infrastructure development, including transport, hydropower, irrigation, and communication. The fifteenth five-year plan identifies 24 projects of National Pride to be achieved by 2043. Few of them are Njghadh International Airport in dense tropical forest in Southern Nepal, 1,003 km long East-West Electric Railway line that passes through the iconic Chitwan National Park in southern part of Nepal, 1200 MW Budhigandaki Reservoir Hydropower Project. Against these backdrops, Nepal wants to reach its net-zero commitments by 2045 as well.

Empirical findings show that Nepal could achieve rapid economic growth without increasing the GHG emissions (Raihan and Tuspekova, 2022; Sharma et al., 2019). But none of that research says that Nepal could achieve that level of economic growth and achieve net-zero goals. For that to happen, Nepal would need to get many things right, for instance, a well-designed carbon tax on fossil fuels, carbon capture, and carbon storage. More importantly, Nepal would have to harness its hydropower power potential to its fullest, i.e., to generate 44,000 MW by 2043 to reach net-zero. In this scenario, Nepal can sell surplus electricity and achieve net-zero through emission reductions credit sharing (Raihan and Tuspekova, 2022).

The Vision 2043 does not mention how Nepal would ensure the rapid economic growth without compromising the quality of the environment except to say that Nepal would follow low carbon development pathways. The critique of Vision 2043 and net-zero commitment here is

partially based on the question of why Nepal expects to reach net zero by 2045 rather than a more realistic goal of net-zero by 2060 such as China or 2070 as India has set. Two additional examples of policy coherence are provided in the new international airport construction, and tax policy regarding electric vehicles.

Erratic Tax policy on electric vehicles

To achieve the goals related to electric vehicles (EVs), Nepal has introduced several policies. The fifteenth five-year plan includes the goal of fixing an appropriate tariff to promote electric vehicles and the 2019 National Climate Change Policy states that a goal is to create a conducive environment to promote the use of EVs. Other policies to support the transition to electric vehicles include the Environment-Friendly Vehicle and Transport Policy from 2014, and the National Action Plan for Electric Mobility adopted in 2018.

Contrary to its objective, the government frequently changed tax policies on electric vehicles during the budget announcement discouraging people from buying them. For example, Government of Nepal imposed an excise duty ranging 30-80% depending on size of engine of vehicles and 60% custom duty in fiscal year 2020/21. That nearly doubled the price of electric vehicles in Nepal. After a huge protest from climate and environmental activists, the government completely waived the excise duty and reduced the custom duty to 10% in fiscal year 2021/22. Following that, in fiscal year 2022/2023, the government imposed another excise duty and maintained the custom duty at 10% (The Kathmandu Post, 2022). This has increased uncertainty and made electric vehicles less competitive relative to internal combustion engine vehicles. This sort of policy inconsistency creates uncertainty in markets and is counter-productive to reaching both climate and development goals.

Government of Nepal unable to buy-in private sector to achieve mitigation-related goals

NDC provides an opportunity to link the efforts of businesses in tackling the impacts of climate change. Government should have mechanism in place that facilitates regular “dialogue and exchange of knowledge” with private companies so that actions taken by companies could support mitigation related goals of government and further encourage companies to take more climate actions. This research shows that the government is putting minimum efforts to buy-in private sectors in achieving mitigation-related goals. Two businesses participated in this research and neither of them knew about the net-zero climate commitments of Nepal by 2045. Their commitments to climate action have been mainly guided by sustainable development goals and with technical support from the UNDP and other UN agencies working in Nepal. They both stated that there has been virtually no engagement from the government to encourage them to adopt climate actions. The CEO of one of two businesses who has climate commitments said:

We started this carbon neutrality project in 2017 and the head of UNDP of that time was a very proactive. He initiated the dialogue realizing the importance of private sectors in carbon reduction. He made direct offers to me and reached out to me through his mutual contacts.

Frankly speaking, I was not aware of all these things before UNDP reached out to us. We are a business. We could do socially beneficial things which still also makes business sense... that could reduce our operation costs.

Similarly, another person who is from the UK but has been working in the tourism sector in Nepal for the last 30 years and has run one of the biggest hotel chains in Nepal also voiced a similar perception. “I got to know about climate actions from my friend circles. The Government of Nepal has not been very open in defining its goals and sharing them with the wider public in Nepal. They have done quite a good international job of sharing but not within Nepal.” The lack of active engagement between government and the

private sector in achieving net-zero commitment has been highlighted by other stakeholders, including research organizations and bureaucrats.

The government consulted with all stakeholders including the private sector and provided the space for input and feedback on drafts of NDC. There is a minimum involvement of the private sector which is not adequate to achieve the climate goals. Nepal can't replace fossil fuel powered transportation sectors in absence of private sector.

Another top government official responsible for climate actions in Nepal said:

Nepal can't achieve its goals, especially energy and industry sectors, without the involvement of private sector. Nepal develops policies and strategies to ensure involvement of the private sector but always fails in operationalizing the policies. The government is not doing enough to encourage the private sector and more proactiveness is needed from the government side.

The result shows that Nepal has recognized the role of private sectors by inviting them for consultations and seeking their inputs in NDC formulation process. However, the engagement with private stakeholders appears to fall short of what will be necessary to achieve the NDCs.

Based in the results and discussion above, this research finds the following opportunities and challenges to increase the policy coherence in Nepal (Table 7).

Table 7. Opportunities and challenges to achieving policy coherence for Nepal's climate goals

Issues	Challenges	Opportunities
Policies	<ul style="list-style-type: none"> • Tradeoffs between short-term development needs and long-term net-zero goals. • Nepal has goals for electric vehicles and electric stoves for 2025 and 2030 but lacks clear target for each year. • Minimum participation of private sector in NDC formulation but still lacks clear roles and responsibilities to achieve the target by private sectors. • Erratic tax policy on electric vehicles. 	<ul style="list-style-type: none"> • Opportunities to focus on low carbon development pathways with focus on energy and forestry sectors. • Nepal has already developed policies but implementation of them is an opportunity. • New federal structure (Provincial and local government) can support federal government in each sector to achieve those goals. • Developing clear timeline for phasing-out subsidies on fossil fuels.
Knowledge Management	<ul style="list-style-type: none"> • Limited research and evidence to tell how Nepal will reach a status of developed country and net-zero by 2045. • Lack of data for trend analysis for adoption of electric vehicles and cooking stoves in both short-term and long-term. • Very limited dissemination of national ambitions and mitigation goals to local level. 	<ul style="list-style-type: none"> • Increase the participation of national universities in Nepal in knowledge generation for evidence-based policy development. • Development of two-pager of each national policies and ambitions accessible to non-technical person working at local level.
Governance	<ul style="list-style-type: none"> • Political parties using climate change as political platform for vote banks only • Absence of active and meaningful participation of political parties in climate policies formulation 	<ul style="list-style-type: none"> • Political parties have opportunity to choose MoFE as their priority ministries and show their climate as the issue of their priority. • Opportunities for political parties to lead the policy process with technical support from bureaucrats and other research institutions.

Implementability

Developing policy is the first step but what determines the success of policy is its implementation. The next section will present and discuss the findings from the interviews and document analysis regarding implementability of Nepal's NDCs.

Political acceptance of climate commitments

Almost all respondents agree about the political acceptance of climate change commitments in Nepal. The rationale behind their agreement is that many climate policies in Nepal including second NDC was endorsed by the cabinet with majority. This endorsement would not have been possible without the acceptance of political parties. One of the respondents who was the Minister of Ministry of Forest and Environment when Nepal submitted its second NDC reported:

“We (Political parties) have some differences in the concept of political economy. But when it comes to climate change, all political parties and civil societies are united. There might be some differences, but what I can confidently say is that all political parties are connected, equally concerned, sensitive, and share one voice to act on climate change.”

There is also other evidence of political acceptance of the NDCs as the major political parties all mention climate change and net-zero commitment in their latest election manifesto. One of the state actors shared that “Climate Change has slowly become the agenda of political parties”

However, most respondents also agree that the political parties are using climate change as a political platform because politicians expect Nepal to get climate finance from the international community. This also implies that they hold that Nepal does not need to spend its own internal sources for climate action. Therefore, it is difficult to tell whether climate change is the priority of political parties or just a political platform to secure vote during an election One of

the senior bureaucrats at MoFE shared a similar perception about the priority of political parties in Nepal:

Politicians think climate change is the consequence of the past activities of developed countries and Nepal needs finance as reparations for being one of the victims to cope with its impact. The only political discussion is that we need to benefit from international climate finance. However, we lack political debate about our responsibilities to integrate climate into developmental activities.

Therefore, the result shows climate change slowly becoming an agenda for political parties but there is still a gap to bridge the climate commitments of political parties into actions. In addition to political acceptance of climate policies, political stability also found to be impacting the implementation of climate commitments in Nepal.

Political stability for implementation of climate commitments

In addition to lacking political acceptance and priority, political instability has impacted the implementation of the NDCs in Nepal. One of the key government bureaucrats said:

Political stability is key for the implementation of NDC. Because of the frequently changing government and other priorities of political parties, the NDC implementation plan has been stuck in Cabinet for more than a year. This is already 2023 and we have not been able to endorse the implementation plan from Cabinet yet and have to update our NDC by 2025.

Additionally, another respondent who works for a research institution and supports the government of Nepal in climate policies shared:

The Chief of Climate Change Management Division (CCMD) under MoFE holds that position for 1-2 years. These people are from the forestry and wildlife background by training. When these people just start to understand the UNFCCC processes, acronyms, and jargon used in UNFCCC, they have to say bye-bye and clock resets again.

Since submission of the first NDC in 2016, Nepal experienced eight ministers of MoFE. The Climate Change Management Division established in 2019 under the MoFE to coordinate all climate related activities in the country experienced three chiefs. This high turnover of staff has resulted in low institutional memory which has negatively impacted the progress on climate activities, especially in monitoring, reporting and verification.

Additionally, political stability influenced representation of Nepal in international climate fora as well. In some years, negotiators fail to agree on some issues at a single COP and end with a provision to continue at the next COP (Falzon, 2021). Therefore, to fully understand the context and history of conversations, it is essential to have consistent participation of the key negotiators, if not all of them. Analyzing the delegation of Nepal, I found no government delegate who represented Nepal at more than five consecutive COPs. The consistent participation of government delegate, especially after the Paris Agreement, would be particularly important to understand the UNFCCC process align that with national climate actions . One of the biggest reasons for Nepal's high turnover of delegations is political instability, which leads to changes in the government bureaucracy with a change of political parties leading the government. One of the key government bureaucrats shared:

Frequently changing governments would impact the capacity building of both political leaders as well as bureaucrats. For example, the Environmental Ministers from developed countries in international climate fora seem well aware and updated on climate issues. They run roundtable discussions, serve as panelists and face questions from the audience. On the other hand, ministers from our side do not put that effort to learn. We (bureaucrats) have to write their speeches. At least if they could write in Nepal what they want to say, we could help by translating it into English. They even don't have the knowledge to do that. This reflects our political priority of climate actions.

Therefore, unless Nepal has a stable government, developing strong institutions that can translate the climate commitments into climate actions seems highly unlikely. Unless the MoFE becomes

the priority of political parties, Nepal will always tackle climate change on ad-hoc basis rather than tackling it systematically.

Will climate finance alone help Nepal to reach its climate mitigation goals?

Only politicians and activists think that Nepal could achieve its mitigation-related goals by 2030 if Nepal received \$25 billion as requested. One of the respondents who is also a Member of Parliament said “Nepal can achieve its mitigation targets if we get funding as we asked in our NDC. We might not achieve 100% of our goals but we will achieve around 60-70% of our goals which is still better than achieving nothing.” However, other respondents including researchers, bureaucrats and respondents representing INGOs expressed alternative views. All of them highlighted climate finance as the top requirement but none of them believe climate finance alone will help to reach those goals. One of the senior government officials reported:

Climate Finance is important for implementation but not enough to achieve the goals. We have not been able to utilize the funds timely in the past. Because of the current institutional setup, we do not have that absorption capacity to utilize finance. More importantly, our current system punishes the performers and rewards the non-performer.

Similar concern has been raised by another respondent who works for a research institution:

If Nepal invests parallelly in human resources and capacity building, I think Nepal can achieve the climate mitigation goals. But with business as usual - the way the government runs, current local government's priorities, and current infrastructure - Nepal can't achieve those ambitious goals.

Though there are arguments that Nepal can't achieve the mitigation related goals because of poor governance and institutional capacity, it is also true that Nepal has not taken the necessary steps to achieve those goals. For example, Nepal still does not have a financing strategy and a clear

implementation plan to achieve those goals. The next section discusses the perception of experts about climate finance and needs to have clear financing strategy to achieve its mitigation related goals.

The climate financing dilemma: how to translate climate commitments into climate action

A majority of respondents believe that Nepal should not receive loans for any climate activities in Nepal. They think this would be against the principle of the UNFCCC and its core objective to support developing countries like Nepal. One of the respondents working for an INGO shared that “Nepal’s intention right now is only to get grants and public-based finance for climate-related activities. Nepal's receiving loan is also a failure of international processes like the UNFCCC”. However, this is evidently not a hard and fast rule. Data from the Asian Development Bank (ADB) shows Nepal received loans even for adaptation in fiscal year 2021/2022. ABD provided \$70 million out of which \$60 million is loan to improve the livelihood and resiliency of horticulture of framers in five provinces of Nepal in 2022. Similarly, ADB provided another \$60 million loan for the Electricity Grid Modernization Project. Highlighting flexibility regarding climate finance, the former Minister of MoFE and current member of parliament shared:

It is true that given our vulnerability status and negligible emissions, Nepal should have access to international climate finance as grants. Our prioritization is climate grants but that does not mean we are not open to climate loans. For example, Nepal is not going to achieve 15,000 MW of electricity generation without loans. It's naive to say we won't accept a loan for these productive sectors.

The position of some government stakeholders of flexibility in whether to accept loans or not for climate action is not necessarily reflected by the public. This was evident as there were protests in Nepal when Ministry of Finance signed a \$100 million concessional loan with the World Bank for “green, resilient, and inclusive development” (GRID) in August 2022. Policymakers, MoFE,

academics, and climate activists expressed their concerns and disappointment with the climate loan. They argued unequivocally that climate finance should only come as grants, not as loans. Later the Ministry of Finance issued a statement saying that the loan agreement does not include a climate component and “is regular development aid” (Ghimire, 2022). Among this confusion among stakeholders, in the next section, this research discusses the importance of having clear financing strategy that identifies which sectors make economic sense to receive loans for investment.

Discussion for prioritizing mitigation sectors for investment even with loans

Since majority of stakeholders participated in this research think that Nepal should invest only either through public finance or climate grants received from the international communities. Therefore, this section discusses the author’s argument on Nepal’s need of climate investment even with loans.

Nepal should benefit from the concessional loans provided by multilateral financial institutions aimed at helping LDCs in achieving their development objectives. The country could use such loans to invest in climate mitigation goals that would benefit it economically and geopolitically and also help it become energy independent. Nepal’s second NDC, for instance, has ambitious conditional climate goals. Some of them include generating 15,000 megawatts by the end of 2030, increasing the sales of e-vehicles to cover 90 percent of all private passenger vehicles and 60 percent of all four-wheeler public passenger vehicles by 2030, and ensuring that 25 percent of Nepalis use electric stoves as their primary cooking medium by that year.

There is no cost-benefit analysis to tell the benefit of each dollar spent in the clean energy sector in Nepal. But the investment in the energy sector would benefit Nepal enormously. One

example of this potential benefit comes from phasing out fossil fuels, as Nepal imports billions of petroleum products from India every year (GoN, 2022). Additionally, there are other co-benefits associated with investments in clean energy. Nepal ranked 178th out of 180 countries regarding air quality, and 5,000 deaths in Kathmandu in 2019 were attributable to air pollution (World Bank, 2022). The country climate and development report for Nepal published by the World Bank estimates air pollution costs around 6.5 percent of Nepal's GDP (World Bank, 2022). These examples highlight the low-hanging fruits with potential economic benefits for investment, even with concessional climate loans.

Therefore, it would be unwise only to demand grants without prioritizing areas of investment with the potential to generate profits in the future with loans as well. Current investments in climate mitigation have the opportunity to generate profit in the future. Furthermore, as previously stated, the reality of the current distribution of climate finance reveals the bitter truth that even the least developed countries (LDCs) like Nepal will not receive all the climate finance only as grants (Pauw et al., 2020). For instance, the implementation of all conditional NDCs needs \$4.1 trillion by 2030 but climate the available climate finance is only \$100 billion each year as promised by the developed countries. That would make cumulative finance \$1 trillion by 2030 (Pauw et al., 2020). However, the report from Organization for Economic Cooperation and Development shows that the developed countries consistent failed to deliver on their promise as climate finance in 2020 had fallen short by 14 billion of its 100 billion target (OECD, 2022) Therefore, Nepal needs to prioritize the sectors where it would benefit even from the loans, but rejecting all loans will not move the needle on climate actions.

Federal and local governments: Mismatch between actions and authority for implementation

The result shows that despite adoption of a new federal structure in Nepal with more power given to local and provincial government, the climate policies and especially NDCs, are driven by the national government with little participation of local governments. One of the respondents, representing non-state actors, who has been supporting Government of Nepal for the last decade shared:

The problem is that our NDC is too centralized. The NDC does not touch the local government not even the provincial government. If you look at the NDC and NAP, it only communicates with federal sectoral ministries. This is because all our climate policies are driven by the international climate framework. We negotiate at the international level and later translate them into national policies to meet the international requirement. The whole international discourse on international climate change is only about the recognition of national-level climate actions.

The governance structure in Nepal, especially in environment sectors, adopts a top-down approach and always results in poor implementation of such policies. One of the respondents who participated actively in training and consultations with provincial officials reported:

Policy governance structure is designed in such a way that would always give the power to the central government. We established Provincial Climate Change Coordination Committee, but they are not active. We also developed a vision document "Provincial Climate Change Strategy Action Plan". It has been two years but none of the provinces has not been able to endorse and own it. MoFE in support of WWF created it and nothing happened after that.

Similar voice has been raised by another respondent who represents an international non-profit organization and works closely with government of Nepal:

Nepal always says it needs money from the international actors for climate actions, but all those incoming funds are centralized. To be honest, the climate agenda has not properly diffused outside the Singhadurbar (where all federal ministries are located).

Unless the local government has the necessary finance and technical resources, these local governments may never take action on their own.

The new constitution of Nepal has given authority and autonomy to provinces and local government to generate their own revenues and climate adaptation and mitigation policies. However, in practice, this undergoing political transition has resulted in “fierce struggles over authority and material resources” (Khatri et al., 2022, p. 1094). This struggle over authority and resources will have a serious consequence on the implementation of NDCs at the province and local level.

Based in the results and discussion above, this research has identified the following opportunities and challenges to increase the implementability of the NDCs in Nepal:

Table 8. Opportunities and challenges to implementing Nepal's climate goals

Issues	Challenges	Opportunities
Financing and resources	<ul style="list-style-type: none"> • Absence of clear financing strategy and implementation plan of the ambitious NDC's goals. • Absence of clear strategy how private sectors could financially support government in achieving NDCs goals. 	<ul style="list-style-type: none"> • Prioritizing sectors for investment based on cost-benefit analysis and co-benefits associated with investment. • Increasing the tax on fossil fuels and using that as a source for financing electric vehicles.
Governance	<ul style="list-style-type: none"> • Too centralized NDCs for implementation at local level. • Absence of adequate participation of provincial and local governments in formulation of NDCs. • Mismatch of authority and actions of provincial and local government. 	<ul style="list-style-type: none"> • Increasing the participation of local governments to increase the ownership and implementation of national mitigation policies.
Institutional Capacity/Memory	<ul style="list-style-type: none"> • Short tenure of two years of chief of climate change management division. • Inability of government to send the same key negotiators at COP every year. 	<ul style="list-style-type: none"> • To Increase the tenure of chief of CCMD to at least five years so that they could undertake the one cycle of NDCs submission, implementation and update NDC based on the progress achieved.
Policies	<ul style="list-style-type: none"> • Conditionality: Absence of unconditional goals that limits the incentives for government to take actions on its own. 	<ul style="list-style-type: none"> • Develop both conditional and unconditional targets for each sector for emission reductions to increase the implementability.

Chapter VI: Conclusions and Policy Recommendations

This study examines the credibility of Nepal's mitigation-related goals detailed in the second NDCs based on key experts' perceptions using the framework of transparency, policy coherence, and implementability. The study finds that lack of technical capacity is the key barrier for transparency aspects. When it comes to policy coherence, Nepal has put forth progressive climate policies and updated relevant laws to incorporate climate aspects into them, but this study uncovers a mismatch between the ambitious goals mentioned in climate policies and government development goals and actions. Finally, this study discovers implementability as the weakest aspect for three main reasons: lack of political stability, clear financing strategies and lack of implementation plans, and conditionality of the NDCs.

Among the experts interviewed, there is recognition of a lack of technical capacity to comply with ETF requirements, however Nepal seems to be taking some proactive actions to build the technical capacity. One of them is a short course on ETF designed in collaboration with Tribhuvan University and Climate Analytics that would produce human resources who would help Nepal in transparency reporting. Similarly, Nepal has sectoral coverage and quantifiable emissions reduction goals that align with the framework provided by the UNFCCC and would help in comparison with NDCs submitted by other countries.

Although clear solutions to the shortcomings regarding transparency were identified here, it is harder to see how the lack of policy coherence can be easily addressed. Nepal has very progressive and ambitious climate policies that potentially align with key national development policies, at least on paper. However, actions taken by the government of Nepal at times contradict its climate policies and broader aspirations for emerging from an LDC may conflict with climate goals. Construction of key mega projects in areas rich in biodiversity and dense

tropical forests, erratic tax policies on electric vehicles are some examples of the difficult trade-offs between climate mitigation and development. Mismatch between government ambitious policies and actions has raised question on the credibility of Nepal's NDC.

Similarly, there seems to be widespread political acceptance of the NDCs as major political parties include climate change and net-zero in their latest election manifestos. However, this study concludes that political parties are using climate change as a political platform to secure votes in elections, but climate change may not be their priority. This is evident as Nepal's NDC implementation plan and financing strategy has been stuck in cabinet for more than a year waiting for approval. Additionally, MoFE, that historically would play a leadership role in implementing climate policy, has been left without leadership in the absence of a Minister and Secretary for more than a year who could raise the voice about climate actions/inaction in parliament and elsewhere. Based on this analysis, I present here a set of recommendations that may provide a path forward.

Policy recommendations

I divide the following policy recommendations into those applicable to all LDCs, and those specifically for the government of Nepal, with the aim of increasing the credibility of nationally determined contributions to address climate change.

Policy recommendations applicable to all LDCs

Develop educational programs in national universities as climate policy capacity building hubs

Many LDCs already have administrative staff college to train their government officials in governance system (Khan et al., 2020). This needs to be followed in climate change to train the bureaucrats as well as all relevant stakeholders about the UNFCCC processes. For example, the Government of Nepal seems to be heading in right direction with a short course to train mid-career professional and researchers to support the compliance with the ETF. In the future, Governments across all LDCs would benefit from the collaboration with their national universities to develop master's courses with a focus on the international climate regime. In addition to this, training centers should be established to train all staff from cross-sectoral ministries.

Develop and implement policies to build strong institutional memory

To maintain the strong institutional memory that would facilitate climate actions, LDCs should develop a mechanism to send the same key negotiators to the COPs to improve understanding of the UNFCCC working mechanisms and processes (Falzon, 2021). Additionally, officials in LDCs are frequently transferred from one ministry to another or within a ministry from one division to another. For instance, senior staffs (joint secretaries) in Nepal currently cannot serve more than two years in one division. This needs to be amended at least for officials looking after climate change.

Public private partnership in achieving mitigation related goals

In NDCs of LDCs, they are considering the role that the mobilization of private investment can help in achieving their climate and sustainable development goals. However, the participation of the private sector is limited to consultation meeting during formulation of NDCs. Many LDCs

still lack NDC implementation and in the absence of NDC implementation plan, it is difficult to analyze the role of the private sector in achieving NDCs' goals. Therefore, LDCs should develop implementation plan with clear targets for private sector.

Policy recommendations specific to Nepal

Invest in climate mitigation policies that have economic benefits even with loans

Two and half years after the submission of the new NDCs to the UNFCCC, Nepal still lacks a financing strategy to achieve its mitigation-related goals. It should prioritize sectors for investments even with loans that would yield return on the investments and support both economic development and climate mitigation goals simultaneously.

Improve communication regarding policy implementation across all three level of government

Nepal should immediately communicate about the climate goals proposed by federal government to the provincial and local governments. Lack of sensitization about climate change and actions among the sub-national government has become a barrier to implementation of climate policies at the local level. Federal government should develop short, clear policy briefs of each policy initiative in accessible language for distribution to all local government to increase their climate knowledge.

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Appendix A: Interview Questions

Introductory/Rapport-building questions for all participants

1. Can you tell me about your current position, organization, and roles?
2. Which aspects (mitigation/adaptation/climate finance/all) of climate change are your organization focusing on?
3. How long have you been working with this organization?
4. Which part of Nepal did you grow up? What made you want to work in this field (climate change)?

For State Actors:

Transparency

Enhanced Transparency Framework under the PA has been considered as the bedrock for spurring climate actions. Do you agree that transparency is important? How do you think transparency arrangements spur climate actions?

1. What steps are being taken by the Government of Nepal (GoN)/your organization to make its climate actions transparent? Can you please shortlist them?
2. As of today, none of the transparency reports (Biennial update reports) from Nepal have been submitted to the UNFCCC? Can you tell me why this is the case? Probe: For example, lack of finance, lack of human resources technical capacity.
 - 2.1. Which factor is the most critical one? Why do you think that is the most critical?
 - 2.2. If lack of capacity is the top reason: What do you think about the support (both technical and financial) provided from the UNFCCC to countries like Nepal? What can the UNFCCC do in the future to support countries like Nepal in terms of meeting requirements of the Enhanced Transparency Framework (ETF)? (be specific)????
3. What are some preparations/ homework done by Nepal to submit its first transparency report as part of the Paris Agreement?
 - 3.1 Do you think Nepal will be able to submit its first transparency report under the Enhanced Transparency Report by 2024, December? If yes, how? If not, why?
 - 3.2 What do you think about the flexibility provided to the Developing and Least Developed Countries to submit transparency report under the ETF?
4. Why has Nepal not been able to communicate its National Communication (NC) after 2011? Nepal's second NDC emission reduction is based on baseline submitted in its 3rd National Communication in 2011. How do you think that will impact Nepal's NDC?

Policy Coherence

1. How well do you think Nepal's climate policies (NDCs, NAP, CCP, NAPA, LAPA) align with short-term and long-term economic development policies in Nepal? Can you give me examples?
 - 1.1 If alignment is not very strong, what actions should be taken to increase synergies between different ministries and government departments?
2. What are the steps taken to mainstream climate policies and climate actions into provincial and local governments? How can provincial governments support implementation of NDCs?
3. Do you think that the SDGs (energy efficiency (SDG7), sustainable forest management (SDG 15), sustainable agriculture (SDG2), climate action (SDG 13), and sustainable transport systems (SDG11)) are taken into consideration during the NDCs formulation?
4. How can non-state actors (businesses, banks, and civil societies) support the GoN to achieve its NDCs? What are some actions taken by GoN to involve non-state actors in achieving NDCs?

Implementability

1. Nepal's first NDC has been criticized for lack of political participation (indifference from political parties). Why and how do you see the importance of participation of political parties in NDC formulation and implementation?
2. Nepal has a bad reputation of frequently changing government. How do you think that would impact the political acceptance of Nepal's NDC? Follow-up: How do you think that would impact climate actions?
3. Are you aware of conditional targets of Nepal's NDC? In case of conditional targets, what do you think about the credibility of cost estimation of potential support needs?
4. Do you think enough money (finance) alone will help Nepal to accomplish its NDC? What do you think about political barrier and lack of policy coherence? What do you think the main barrier for Nepal to accomplish its NDC: finance or support for innovative and bold policy initiatives?

For international non-government organizations

Transparency

Enhanced Transparency Framework under the PA has been considered as the bedrock for spurring climate actions. Do you agree that transparency is important? How do you think transparency arrangements spur climate actions?

1. How is your organization supporting GoN to accomplish NDC? How specifically your organization support GoN to make its climate actions transparent? Can you please shortlist them?

2. As of today, none of the transparency reports (Biennial update reports) from Nepal have been submitted to the UNFCCC? Can you tell me why this is the case? Probe: For example, lack of finance, lack of human resources technical capacity.
 - 2.1. Which factor is the most critical one? Why do you think that is the most critical?
 - 2.2. If lack of capacity is the top reason: What do you think about the support (both technical and financial) provided from the UNFCCC to countries like Nepal? What can the UNFCCC do in the future to support countries like Nepal in terms of meeting requirements of the Enhanced Transparency Framework (ETF)? (Be specific)?????
3. How is your organization supporting GoN to submit its first transparency report as part of the Paris Agreement?
 - 3.1 Do you think Nepal will be able to submit its first transparency report under the Enhanced Transparency Report by 2024, December? If yes, how? If not, why?
 - 3.2 What do you think about the flexibility provided to the Developing and Least Developed Countries to submit transparency report under the ETF?
4. Why has Nepal not been able to communicate its National Communication (NC) after 2011? Nepal's second NDC emission reduction is based on baseline submitted in its 3rd National Communication in 2011. How do you think that will impact Nepal's NDC?

Policy Coherence

1. How well do you think Nepal's climate policies (NDCs, NAP, CCP, NAPA, LAPA) align with short-term and long-term economic development policies in Nepal? Can you give me examples?
 - 1.1 If alignment is not very strong, what actions should be taken to increase synergies between different ministries and government departments?
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Implementability

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For Businesses

1. Do you have idea about Nepal's net-zero goals? What do you think about Nepal's net-zero goals?
2. How did you learn about net-zero and what inspired your organization to commit your own net-zero goals? Do you intend to reach net-zero goals? When and how?
3. Who helped you in setting your emission reduction goals?
4. Tell me more about your company's efforts to lower GHGs emissions.
5. Did you receive support from governmental or any other non-governmental organization for this initiative?
6. What actions have you taken to make your climate actions transparent?