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Climate Change and the Nepalese Economy

POLICY BRIEF

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Summary

Climate Change has emerged as one of the key challenges of the twenty-first century. Global economies have witnessed climate change-driven disasters on annual basis and Nepal is not an exception. In this brief, we highlight the key impacts of climate change on the Nepali economy, and related Government of Nepal (GoN) policies aimed at addressing stakeholders' efforts on local mitigation and adaptation strategies

Background

The Intergovernmental Panel on Climate Change (IPCC)'s 6th Assessment¹ Report provides a stark warning. It states that human-induced climate change may have already caused an irreversible change in temperature. If the world does not reach net-zero emissions by 2050, the temperature rise will exceed 1.5 degrees Celsius. There is still a short window to prevent the most harrowing effects. Based on the report, COP26² was billed as the 'last opportunity to save mankind.'

Global concern for climate change and its mitigation has come a long way. The First Earth Summit³ held in Stockholm, Sweden in 1972 set out principles for the preservation and enhancement of the human environment, and an action plan containing recommendations for international environmental action. Efforts were made to implement the decision over the next twenty years as the concern for the atmosphere and global climate slowly gained international attention and action.

The cornerstone of the climate change action was the adoption of the Kyoto Protocol in 1997 to the UNFCCC. It aimed to reduce the industrialized countries' overall emissions of greenhouse gases (GHG) by at least five percent below the 1990 levels by 2012. Key principles such as 'common but differentiated responsibilities' were established to deal with climate change. The principle⁴ states that all countries around the globe have a common obligation to address climate change, but advanced states have a bigger responsibility owing to their economic and technological capabilities and historical contribution to climate change⁵.

Recent pattern in climate change shows that developing countries and Least Developed Countries (LDCs) are most susceptible to climate change-induced disasters. Nepal is among them. Nepal⁶ was ranked ninth globally among the countries most affected by climate change from 1999 to 2018, causing a loss of 0.4 percent GDP and 0.87 deaths per 100,000 population during the period. This is a huge cost for a country like Nepal that is to transcend to the developing country category by 2026. Besides the loss, Nepal also needs to spend a significant amount for adaptation, which could be better used for development works.

Impacts of Climate Change

Nepal endures intense catastrophic flash floods which result in massive human, ecological, and economic losses every year⁷. Between 1954 and 2018, floods in Nepal caused 7,599 deaths, affected 6.1 million people, and caused economic losses of about USD 10.6 billion. On average, 100 people were killed annually. Monsoon floods in 2021 alone have damaged around NPR 8.26 billion worth of paddy crops which is considered to be the highest loss on record. At the same time, Nepal's poorly planned and built infrastructures cannot withstand climate-induced disasters. According

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- ▶ to the Department of Roads, the damage to roads and bridges in the 2021 monsoon floods is estimated at NPR 2.20 billion and NPR 800 million, respectively. Climate change has worsened the situation.

A study done in 2014 by the Ministry of Science, Technology, and Environment (MoSTE) on the economic assessment of climate change in three sectors (agriculture, hydroelectricity, and water-induced disasters) highlights the potential loss and damages for Nepal. It found losses in crop productivity will cost USD 140 million/year by 2070, and direct costs of flood events will be USD 100-200 million/year. It also estimated that the direct costs from the three areas could be equivalent to 2-3 percent of GDP.

During COP26 climate negotiations, climate-vulnerable countries made it clear that we wanted to bring up the topic of financing for loss and damage because countries that are affected the most are also the ones contributing least to climate change. It is estimated that the annual economic loss and damage cost will be between USD 290 billion - USD 580 billion in developing countries by 2030. These economic costs are expected to rise to between USD 1 trillion - USD 1.8 trillion per year by 2050. At the COP26 press notice, Nepal's Minister of Forest and Environment (MoFE) also mentioned that the country will require an additional USD 47 billion till 2050 to ensure lives, livelihoods, and assets are protected from the impacts of climate change and costs.

Adaptation

Due to Nepal's fragile topography and poor socio-economic conditions, the country is ranked fourth in terms of vulnerability to climate change⁸. Despite global efforts being made to limit the rise in global temperature, climate-vulnerable countries like Nepal will continue to face more damaging natural disasters. Nepal's high climate vulnerability

has compelled the GoN to prioritize adaptation strategies that focus on making the required adjustments in our social, economic, and government structure to be resilient to future impacts of climate change.

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MoFE processed the National Adaptation Plan (NAP) in 2015 which was approved on 28 October 2021. It took about six years for the NAP to get formal approval from GoN, mainly due to the key GoN authorities remaining busy in post-earthquake recovery works, elections at all the three-tier of governments, and thus formally implementing Nepal's federal governance system. The NAP covers eight thematic and four cross-cutting areas which include a total of 64 priority programs till 2050, to be implemented on a priority basis. Based on identified climate change adaptation priorities, GoN has estimated USD 47.4 billion as the required budget for the successful implementation of NAP (2021-2050). The budget is more than that of Nepal's GDP of USD 33.66 billion (2020). To finance the NAP, Nepal will be contributing USD 1.5 billion and will require external funding of USD 45.9 billion. The sector-wise required budget is about twice Nepal's current GDP.

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Sector-wise Required Budget

Sector	Required Budget NPR
Agriculture and Food Security	11.2 billion
Forest, Biodiversity, and Watershed Conservation	8.7 billion
Water Resources and Energy	5.35 billion
Rural and Urban Settlements	2.85 billion
Industry, Transport, and Physical Infrastructure	3.05 billion
Tourism, Natural, and Cultural Heritage	1.13 billion
Health, Drinking Water, and Sanitation	4.27 billion
Disaster Risk Reduction and Management	8.05 billion
Gender, Social Inclusion, Livelihoods and Governance	0.7 billion
National Capacity Building, Research and Awareness Raising	0.16 billion
Total NAP implementation cost	USD 47.4 billion

Source: MoFE

Mitigation

Based on the Nationally Determined Contributions (NDC) report submitted in 2016, Nepal's GHG emission is around 0.027 percent of the total global GHG emissions of almost 50 billion metric tonnes. However, Nepal's carbon emission per capita is gradually increasing every year. In 2016 it was 0.29 tons and in 2020 it doubled to 0.59 tons. However, the GoN has submitted an ambitious second NDC in 2020 with proper mitigation strategies and effective policies to support it. The NDC covers four areas and aims to achieve the targets by 2030 with a total implementation cost of USD 28.4 billion which is around Nepal's GDP in 2017⁹.

Sector	Key Targets
Energy	<ul style="list-style-type: none"> 15 percent of energy will be produced from clean energy sources such as solar energy Increase sales of electric vehicles to cover 90 percent of all private vehicles and 60 percent of public vehicles 25 percent of households will use electric stoves <p>Total GHG emissions reduction: 23 percent</p>
Agriculture, Forestry and Other Land use (AFOLU)	<ul style="list-style-type: none"> Maintain 45 percent forest cover
Industry	<ul style="list-style-type: none"> Adopt low emission technologies in brick and cement industries to reduce coal consumption and air pollution
Waste	<ul style="list-style-type: none"> 380 million liters/day of wastewater will be treated before being discharged, and 60,000 cubic meters/year of fecal sludge will be managed. <p>Total CO2 reductions: 258 Gigagrams</p>

Recently, during the COP26 press notice on 9 November 2021, the MoFE, Nepal also announced that Nepal will remain cumulatively “net zero carbon” from 2022-2045 and become carbon negative after that. He further added that keeping Nepal carbon neutral over the next 30 years will cost USD 196 billion though there was no explanation as to how the total was reached at. It is almost double the climate finance goal pledged for developing countries in Copenhagen twelve years ago.

Economic Opportunities of Climate Change

Despite the looming threat of climate change, there are also many opportunities that arise from climate change adaptation and mitigation efforts. Every country has the potential to turn the climate crisis into an opportunity and for Nepal, this potential can be achieved by rapidly developing our renewable energy sector to quickly transition into a net-zero economy by 2050.

GoN has set an ambitious target of increasing clean energy production by 15 percent to around 15,000 MW by 2030. This target will require huge increases in renewable energy power generation. In the past few decades, Nepal has made significant progress in the renewable energy sector, especially with hydropower development but is still way below our hydropower potential of 42,000 MW. On paper, the hydropower potential of Nepal is 80,000 MW wherein¹⁰ 42,000 MW is economically and technically viable to be harnessed (The estimated feasible/commercial amount can vary). A study done by Asian Development Bank on Nepal's hydropower development potential estimates that if Nepal increases hydropower generation by 20 percent of the economic potential it will result in an 87 percent increase of real GDP by 2030 above the baseline growth (References).

In Nepal, we are seeing a gradual shift towards electric mobility and to support this it would require us to redesign our cities that are not only well connected but also have climate-resilient infrastructures. They¹¹ refer to ‘planned, designed, built and operated in a way that anticipates, prepares for, and adapts to changing climate conditions. The UN estimates one USD investments on such infrastructures yield of USD four.

Nepal government policies vis-à-vis climate change

The climate change policies are gradually improving in terms of integrating the concept and issues of climate change. Nepal has taken various initiatives to mitigate climate change impacts and has been actively participating in international processes. Likewise, being a party to the Kyoto Protocol, Paris Agreement, Sendai Framework (succeeding instrument to Hyogo Framework for Action¹²), and Sustainable Development Goals, Nepal ►

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- ▶ has been utilizing the opportunities created in the international platform as per the national needs. Necessary actions have been initiated for updating the NDC submitted in 2016 as a Party to the Paris Agreement and acceptance of the Doha Amendment to the Kyoto Protocol. The process of granting recognition to the governmental, non-governmental and private sector organizations has also been initiated to establish their direct access to International Climate Finance¹³.

Nepal is having some bold targets to mitigate climate change and achieve sustainability. It is formulating a long-term low GHG emission development strategy by 2021 with the aim to achieve net-zero GHG emissions by 2050. In COP26¹⁴ Government of Nepal pledged to achieve net-zero emission by 2045, 15 percent clean energy by 2030, and 45 percent forest coverage by 2030.

The government has made¹⁵ adaptation plans in all the 753 local governments. In the budget¹⁶ of the fiscal year 2020/21, 5.6 percent of the budget was highly relevant and another 27 percent was relevant to climate change. In the annual budget plan speech, the government has announced a complete ban on the production, import, sale, distribution, and use of plastic bags thinner than 40 microns to reduce environmental pollution from plastic products. This is the third announcement towards this end made by the federal government as the previous two announcements were limited to paper.

GoN is making environmentally friendly economic commitments in the form of NDCs. However, MoFE lacks the human resources and institutional set up for effective implementation of the policies, plans/strategies, and frameworks. There is a huge gap in institutional arrangement, capacity to implement, and mechanisms for adaptation policies and programs at the local level. There lies a fluctuation in the decision-making process along with the absence of a consistent and larger framework.

Cross-sectoral and stakeholders' partnerships

Various Non-Government Organizations (NGOs) in Nepal at different levels have concentrated their efforts on reducing climate change impacts. They have been involved from the policymaking to its implementation process along with the awareness and capacity building (e.g., technical, financial, human, institutional) of local people. NGO Group on Climate Change (NGOCC) has created an information-sharing platform on climate change among grassroots NGOs in Nepal.

Besides this, climate change/environment has been one of the key focus areas of development partner agencies and other international organizations. They provide climate financing, support policy interventions, and raise awareness.

Policy Recommendations

- 1. Nepal needs a clearer stand on its understanding of measuring Nepal's contribution to climate change** as it seems still a vague idea from GoN side. We believe, such positioning will help Nepal in its negotiations with regional as well as global players.
- 2. Nepal should organize major regional and global seminars to draw attention to the impacts of climate change in Nepal.** Forums like Sagarmatha Dialogue, postponed due to Covid-19 pandemic, would be good forums to gather leaders and experts from around the world and draw major media attention in this regard.
- 3. Nepal should emphasize the role of spirituality in addressing climate change.** This will not only help Nepal to employ a unique way to address climate change-related issues but also incorporate local culture into climate change mitigation and adaptation. Religions such as Hinduism and Buddhism are closely linking nature with human beings. It could serve as a spiritual basis for paying attention to climate change. Receptivity for such activities among the general populace could be higher at home and could help with Nepal's soft power abroad.
- 4. Nepal should emphasize green investment and green infrastructure construction.** An approach that relies on 'aid' will have severe limitations. For a start, Nepal is likely to receive only a small proportion of the aid that Nepal has calculated is required to address the climate change and mitigation measures.
- 5. Nepal should slash (eliminate, if possible) its customs duty on electric vehicles and other engines that run on electricity.** This will have three major implications. Firstly, it will encourage higher electricity consumption in the domestic market itself. Secondly, it will go a long way in addressing climate change. Thirdly, it will help balance growth along with environmental balance.
- 6. Nepal must harness its untapped potential in hydropower** while keeping an eye on the power/energy laws and policies adopted by neighboring countries, namely, India and Bangladesh. Nepal should focus on exporting electricity to the mentioned countries through both bilateral and multilateral mechanisms.

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