Catalyzing Change through Local Adaptation Plans for Actions in Karnali:

An Analysis of Longer-Term Impacts Using Evidence from the Yale-RENT Local Government Survey (Round 5)

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Executive Summary

This report assesses the impact of the Nepal Climate Change Support Program (NCCSP and NCCSP2)[1], which supports Local Adaptation Plans for Actions (LAPA), on climate action by municipality leaders. The analysis combines LAPA implementation data and the February–May 2023 RENT Local Government Survey (LGS-5) fifth round, and creates a comparison group of non-LAPA municipalities using nearest neighbor matching.

LAPA municipalities are more aware of climate change impacts on physical infrastructure than similar non-LAPA municipalities. LAPA officials have completed 2.4 climate responsibilities, significantly higher than the 2 fulfilled by non-LAPA officials (the difference is statistically significant at a 1% level). The mandated responsibilities involve the creation of Local Disaster Climate Resilience (LDCR) plans and the establishment of disaster management committees. The majority of LAPA municipalities – 80% – have implemented climate policy actions like building river embankments. This is 10 percentage points higher compared to non-LAPA municipalities. In contrast, climate budget allocation between LAPA and non-LAPA municipalities is similar with one-third of municipalities in both categories uncertain of climate budget allocation.

As legally mandated five-year terms, Nepali local governments can function as long-term internal players for community development, making these findings encouraging. However, the similar budgetary behavior across LAPA and non-LAPA municipalities suggests that absence of mechanisms to raise additional financing may limit the benefits from LAPA. Looking ahead, we would encourage mechanisms that tie performance to financing (as in REDD+ schemes) and we also advise that future program rollouts be designed in a manner that enables improved causal evaluations.

[1] The NCCSP program was implemented in close coordination with Ministry of Forest and Environment (MoFE), Ministry of Federal Affairs and General Administration (MoFAGA), and Alternative Energy Promotion Centre (AEPC), and technical assistance from UNDP. The first phase of the program lasted from 2013 to 2018, and the second phase is ongoing in a set of municipalities primarily located in Karnali province.

Research Objectives and Design

This report evaluates the effects of the LAPA program by analysing LGS-5 data collected from elected officials at the municipal and ward levels. The data covers 716 out of 753 local governments. The LAPA program, with support from UNDP, worked closely with local governments to incorporate vulnerability assessments and adaptation plans into local and ward planning processes. The program has been successfully implemented in 86 municipalities, with 85 of them overlapping with our survey. These municipalities were selected based on their high levels of poverty and vulnerability to climate change.

The key evaluation challenge is identifying counterfactual municipalities. Here, the nearest neighbor matching method was used to establish a comparison group for the 85 LAPA municipalities. A remoteness index[2] and climate-induced disaster incidence[3] were used to determine propensity scores for each municipality. These scores were used to create a comparison group consisting of 155 municipalities that have similar propensity scores to the LAPA municipalities. In sum, the method constructs a comparison group by identifying similar municipalities to LAPA in terms of remoteness and disaster risk, but without receiving the program.

Finding 1: Elected officials in LAPA municipalities better recognize climate risks posed to physical infrastructure.

Officials in LAPA and non-LAPA municipalities do equally well in correctly answering factual questions about climate change. However, 45% of LAPA municipality representatives, 11 percentage points more than their counterparts (significant at 5% level), state climate change is a lot more serious issue for their constituency.

Compared to non-LAPA representatives, a larger proportion (significant at 1% level, see Figure 1) of LAPA representatives report climate risks to education (70% vs 50%) and health (41% vs 25%) facilities, and irrigation channels (50% vs 33%). It is noteworthy that one of the program's focus was on sensitizing local officials to the impacts of climate change.

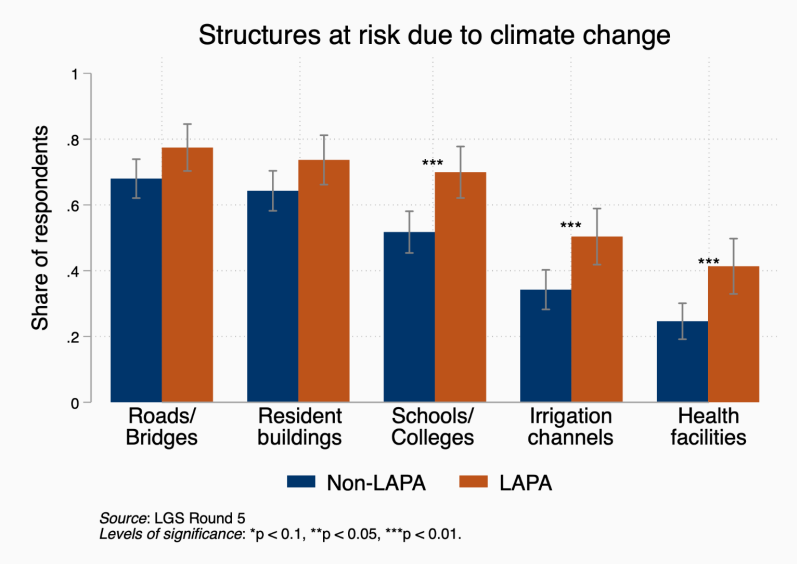


Figure 1: Impacts of climate change on physical infrastructures

[2] The information on remoteness comes from Banick and Kawasoe (2019), who use travel time to estimate municipality-level travel time variables (eg, average time to reach district headquarter). Following Katz, Kling and Liebman (2007), we construct a remoteness index by calculating the average z-score over the various travel time variables.

[3] Disaster incidences accumulated over time (2011-2023) come from Bipad Portal maintained by National Disaster Risk Reduction and Management Authority (NDRRMA).

Finding 2: Elected officials in LAPA municipalities report undertaking more adaptation plans.

Local governments are constitutionally mandated to oversee disaster risk management under Disaster Risk Reduction and Management (DRRM) Act, 2017. They are responsible for climate policies, including local disaster and climate resilience (LDCR) plans, and supporting long-standing initiatives like community forest management. Figure 2 shows LAPA municipalities have fulfilled 0.4 more (significant at 1% level) of mandated climate responsibilities but exhibit similar behavior to other municipalities on non-mandated responsibilities.

One NCCSP program goal was to enhance resilience against climate-induced hazards. A higher share of LAPA municipalities have undertaken climate policy actions (see Figure 3). With a 10-percentage point difference (significant at 5% level) 80% of LAPA municipalities have built river embankments compared to 70% of non-LAPA municipalities.

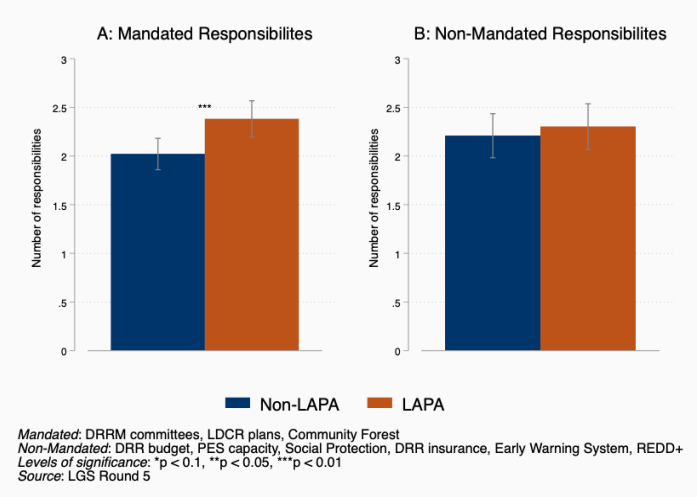


Figure 2: Climate responsibilities of local governments

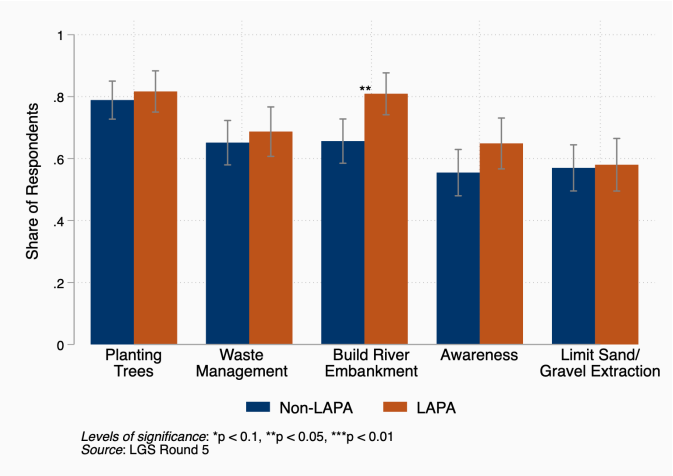


Figure 3: Climate policy actions of local governments

Finding 3: LAPA and non-LAPA municipalities have similar budget allocation for climate action, with one-third reporting uncertainty about climate budget allocation.

35% of LAPA municipalities and 25% of non-LAPA municipalities are unsure if their budgets include climate allocations (Figure 4). We do not see a difference in climate budget allocation: both LAPA and non-LAPA municipalities allocate about 10% of annual budget to climate activities. This potentially reflects a lack of performance-based financing when it comes to budgetary allocations.

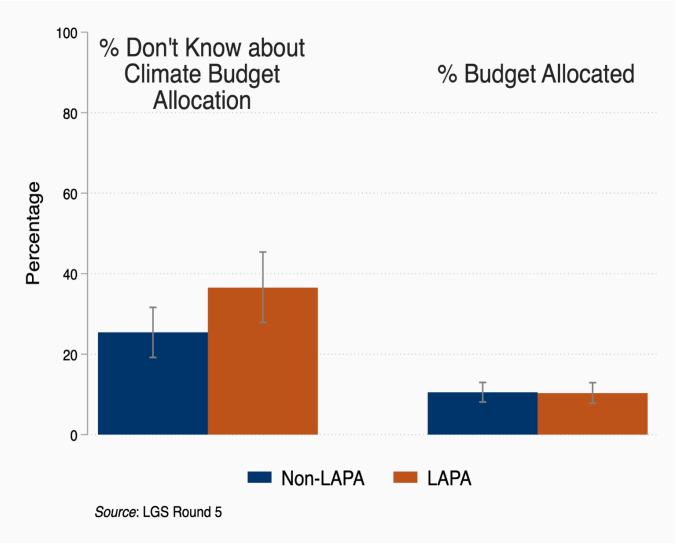


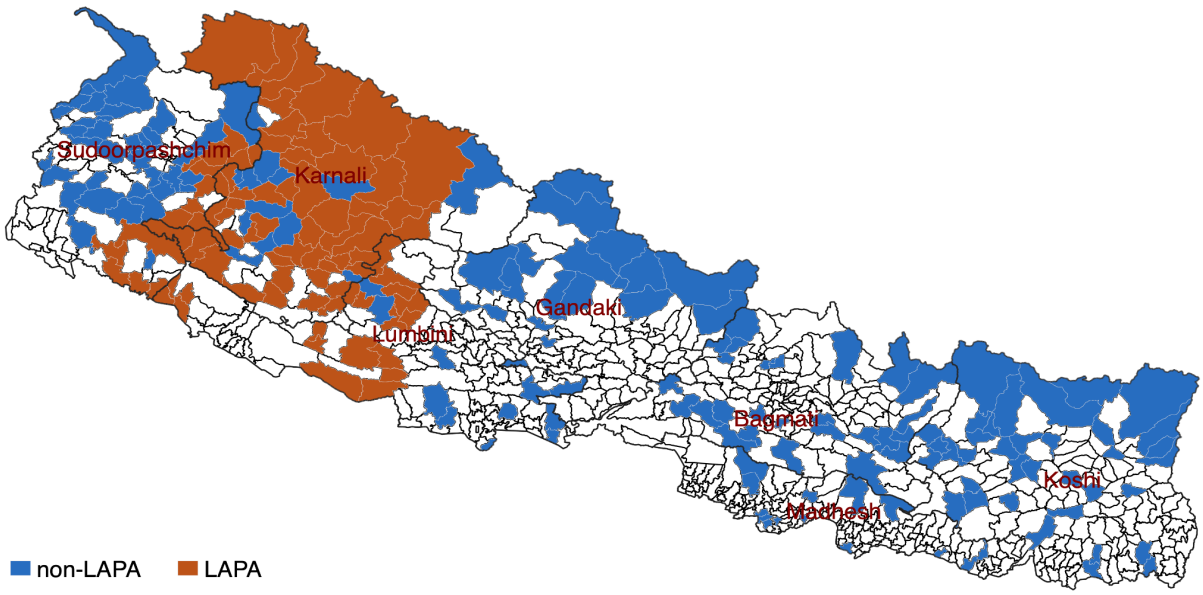
Figure 4: Climate budget uncertainty and allocation

Policy Implications

The NCCSP program has yielded targeted successes, as LAPA municipalities, compared to non-LAPA municipalities, have demonstrated higher fulfillment of climate responsibilities and specific climate actions. However, climate budget allocations are similar suggesting value in introducing performance-based financing, as in REDD+ schemes, in future iterations. We would also encourage the phased rollout of future versions of such programs to gain even stronger causal evidence.

Appendix

A. Map of NCCSP Coverage: The orange color indicates the LAPA municipalities for both phases of the program, while the blue color represents the municipalities in the comparison group. The comparison group is created using nearest neighbor matching. This method calculates propensity scores for each municipality based on the remoteness index and disaster incidence, creating a set of municipalities that resemble LAPA municipalities. As the map shows, it is possible for a far eastern municipality to closely resemble one of the Karnali municipalities.



References

Banick, R. S., & Kawasoe, Y. (2019). Measuring Inequality of Access: Modeling Physical Remoteness in Nepal. World Bank Policy Research Working Paper, (8966).

Kling, J. R., Liebman, J. B., & Katz, L. F. (2007). Experimental analysis of neighbourhood effects. Econometrica, 75(1), 83-119.

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