

Nepal Is Neither a Creator nor Promoter of Climate Change, Yet It Suffers Its Consequences

The Rasuwa–Bhotekoshi Disaster and the Economics of Climate Vulnerability

A. R. Bhattarai

Chartered Accountant | Kathmandu, Nepal

September 2026

The Paradox of Climate Change in Nepal

Nepal presents one of the clearest paradoxes of climate change. It contributes very little to global greenhouse-gas emissions — estimated by the World Bank at around 0.1% — while its per-capita emissions remain extremely low. At the same time, climate change is already severely affecting Nepal's agriculture, water resources, infrastructure, labour productivity, and overall economic growth.

This is not merely an environmental issue. It is increasingly a macroeconomic, fiscal, financial, and structural development issue. The catastrophic Rasuwa–Bhotekoshi flood of August 2026 provides a stark illustration of this emerging economic reality.

≈ 0.1%

Nepal's estimated share of global greenhouse-gas emissions, alongside extremely low per-capita emissions (World Bank).

-7% GDP

Potential reduction in Nepal's GDP by 2050 without effective adaptation — an estimate that excludes many hard-to-measure social and systemic costs (World Bank).

Rasuwa–Bhotekoshi: From Natural Disaster to Economic Shock

The flash flood and associated glacial/ice-rock event in the Rasuwa–Bhotekoshi corridor destroyed or severely damaged settlements, roads, bridges, hydropower facilities, commercial establishments, financial institutions, government facilities, and telecommunications infrastructure.

Initial reporting links the event to a major ice-rock or glacial collapse and subsequent debris flow. Scientists caution that the event cannot be attributed solely to climate change; however, warming temperatures, glacier retreat, changing freeze-thaw conditions, and high-altitude terrain destabilisation are increasingly recognised as amplifying factors.

Key Policy Insight

Climate change may not have ‘caused’ every individual disaster, but it is fundamentally altering the risk environment in which economic assets operate. For Nepal, this distinction carries major macroeconomic consequences.

The Economic Cost Goes Far Beyond Damaged Infrastructure

A productive asset carries two distinct economic values — and disaster assessments that count only the first badly understate the true cost.

A Replacement Value

The cost of rebuilding the physical asset itself — the road, the bridge, the plant.

B Future Income Generated

The stream of economic activity the asset enables — trade, production, and employment — once it is gone.

When a road disappears:

1

Businesses cannot receive supplies

2

Tourists cannot travel

3

Workers cannot reach workplaces

4

Farmers cannot reach markets

5

Power projects cannot receive equipment

The disaster is therefore both a loss of productive capital and a severe disruption of economic networks.

Preliminary Economic Assessment

As of 27 August 2026 — figures in NPR billion

Component / Impact Area	Preliminary Estimate (NPR bn)
Hydropower Assets — 750 MW Capacity Affected	106 – 125
Roads and Bridges Infrastructure	35 – 45
Hotels, Shops and Small Businesses	32 – 46
Household Assets — Land, Building, Precious Metals & Valuables (1,500 Families)	8 – 9
BFI, Government Facilities, Telecom & Utilities	15 – 25
Indicative Physical Asset Damage — Total	196 – 250
Disrupted Annual Electricity Business (Direct)	14 – 22
Potential Annual Broader Output / Value-Added Loss	30 – 50

750 MW of Hydropower: The Hidden Economic Multiplier

14 projects

Hydropower projects affected, ≈753 MW of generation capacity (including under construction).

2.3 bn units

Annual electricity generation represented by the affected projects.

NPR 14–22 bn

Direct annual power-sales loss — the visible tip of the impact.

Electricity is an essential intermediate input across the economy — not a loss confined to power producers:

 Manufacturing

 Hotels & Tourism

 Construction

 Irrigation & Agro-processing

 Retail & IT

 Telecommunications

The NPR 14–22 billion direct figure should not be read as the total impact: the real economic loss is the domestic value creation that 2.3 billion units of reliable electricity would otherwise have enabled.

Employment & Livelihoods: A Shock Larger Than GDP

25,000–30,000

Livelihoods facing significant disruption — spanning formal employment, informal workers, self-employed entrepreneurs, and dependent family workers.

5,000–15,000

Livelihoods that could face prolonged income disruption if transport, electricity, and commercial infrastructure take many months to restore.

Nepal's economy is characterised by a very large informal sector and a high proportion of self-employment. The destruction of a small hotel, shop, transport vehicle, workshop, or family business may not appear immediately in formal unemployment statistics — but a person who loses the business through which they earn their livelihood has, economically, lost their job.

These are indicative estimates and should be refined through a detailed labour-market and household-impact assessment.

Small Businesses Are the Forgotten Victims

The destruction of large infrastructure attracts immediate attention because it is visible and measurable. The destruction of small businesses is less visible — but potentially more damaging to household welfare. A small hotel may employ ten people directly and support another twenty through suppliers, transport, food purchases, laundry, maintenance, and local services.

- A** A destroyed shop can eliminate the income of an entire household.
- B** A destroyed vehicle can remove the livelihood of a self-employed transport operator.
- C** A destroyed workshop can eliminate both capital and employment at once.

This distinction should become central to Nepal's disaster policy.

Nepal Climate Resilience Investment Framework

From reactive disaster relief to a proactive resilience economy — five priority areas

A

Climate-Resilient Infrastructure Standards

Mandatory multi-scenario climate-risk stress testing (1-in-50 and 1-in-100 year events) for strategic roads, bridges, and hydropower projects.

B

Disaster-Risk Financing & Liquidity

Catastrophe insurance pools, contingent credit facilities, and sovereign risk guarantees to ensure rapid emergency liquidity.

C

Climate-Resilient Hydropower Design

Re-engineering hydro infrastructure around changing hydrology, debris flow, glacial risks, and extreme peak runoffs.

D

MSME Climate Recovery Credit Facility

Targeted working capital and asset-replacement financing to help small businesses restart operations rapidly.

E

Advanced Early-Warning Systems

Expanding satellite monitoring, river sensors, and cross-border hydromet data sharing to protect lives and capital assets.

Hydropower Reconstruction: The Financial Picture

Government assessment — Rasuwa & Nuwakot districts

14 projects

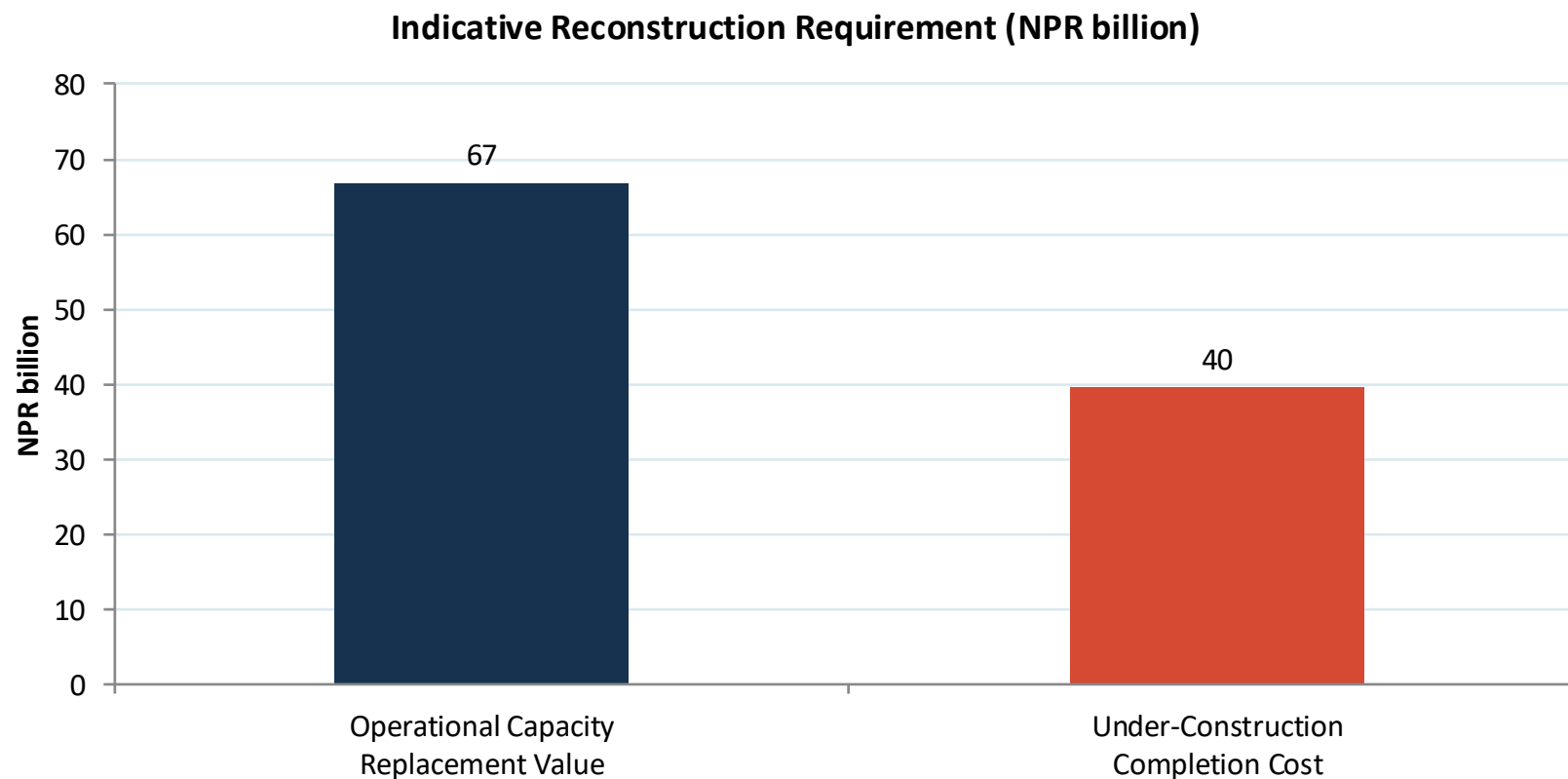
Affected — 9 operational, 5 under construction (excl. one solar project).

729 MW

Impacted: 334 MW operational + 395 MW under construction.

≈ NPR 106 bn

Indicative direct hydropower reconstruction requirement (NPR 10,632 crore).



Basis: indicative reconstruction cost of NPR 20 crore per MW; under-construction projects assumed at 50% average completion.

From Repair to Resilience: Rethinking Hydropower Risk

1

The Bill Is Bigger Than It Looks

The financial challenge exceeds the physical repair cost — flood protection, geological stabilisation, transmission redundancy, and early-warning systems all add to it.

2

Like-for-Like Won't Restore Feasibility

Higher costs, prolonged generation losses, higher insurance premiums, added debt, and higher risk premiums can weaken project returns.

3

Reassess Before Rebuilding

Each affected project should undergo a fresh technical and financial viability assessment before reconstruction begins.

4

Finance the Response to Fit the Risk

Viable projects gain access to concessional, climate-resilient financing; projects with a fundamentally changed risk-return profile should be redesigned, restructured, or relocated.

The lesson is not to slow hydropower development — it is to shift from a model built on low-cost generation to one that is climate-resilient, geographically diversified, and financially sustainable.

Four Pressures Converging on the FY 2026/27 Budget

The Bhotekoshi disaster does not add a single new line item — it strikes revenue, expenditure, aid inflows, and capital allocation simultaneously.

1 Widening Revenue Deficit & Contracting Tax Base

Collection shortfalls, disaster-eroded trade and output, and a halted hydropower revenue stream.

2 Acute Unbudgeted Recurrent Expenditure

Emergency relief and security deployment far exceed what domestic relief funds and CSR can cover.

3 Depressed Foreign Grants & Geopolitical Constraints

A weaker aid environment than 2015 pushes Nepal toward costlier loans, not grants.

4 Forced Capital Reallocation & Deeper Debt Reliance

Growth capex is diverted to emergency rehabilitation, widening the deficit and debt trajectory.

Widening Revenue Deficit & Contracting Tax Base

Inherent Execution & Collection Shortfalls

FY 2025/26 actual revenue collection reached only 84.57% of target — NPR 1,121 Bn collected against an NPR 1,325 Bn goal.

84.57%

Post-Disaster Erosion

Direct GDP output loss of NPR 30–50 Bn and disrupted northern border trade routes will severely compress customs duty, VAT, and corporate tax collection.

NPR 30–50 Bn

Hydro Revenue Halts

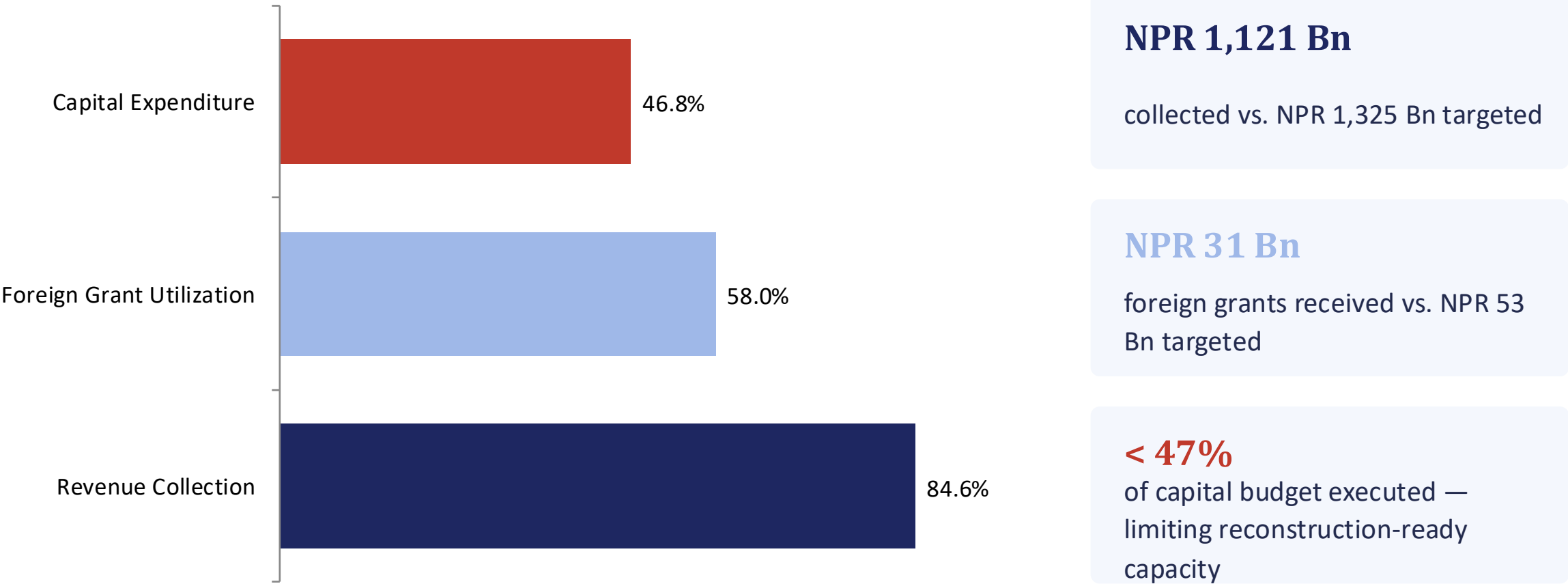
Suspension of ~750 MW of hydropower assets strips the national grid of direct revenue worth NPR 14–22 Bn annually — removing expected dividend and royalty contributions to the treasury.

NPR 14–22 Bn

THE STARTING POINT WAS ALREADY WEAK

FY 2025/26 Execution Gap: Actual vs. Target

Share of budgeted target achieved, by fiscal channel — every lever the government needs post-disaster was already underperforming.



Acute Unbudgeted Recurrent Expenditure Demands

Immediate Cash Relief & Humanitarian Deployment

1,500

severely affected families

NPR 8.55 Bn

in total asset losses among these families

Rebuilding shattered communities and deploying security forces for relief operations demand immediate, unbudgeted cash outlays — outside the FY 2026/27 recurrent plan.

Inadequacy of Domestic Relief Collections

NPR 6+ Bn

mobilized within days by the PM's Disaster Relief Fund (pmdrf.nchl.com.np)

< 2%

of total physical damage covered by that fund

Domestic relief and bank CSR contributions — however fast-mobilized — cannot bridge a multi-hundred-billion-rupee deficit.

Depressed Foreign Grants & Geopolitical Aid Constraints

2015 GORKHA EARTHQUAKE

\$4.1 Bn+

in international donor pledges secured

2026 BHOTEKOSHI FLOOD

Scaled Back

emergency grants amid global fragmentation, competing conflicts, and shifting bilateral priorities

Underperforming Aid Baseline

FY 2025/26 foreign grant utilization reached only 58.0% of target — NPR 31 Bn received against an NPR 53 Bn goal.

58.0%

Low Economic Diplomacy Leverage

Limited diplomatic maneuverability, combined with weak public investment execution (capital expenditure at just 46.79% of target), pushes Nepal toward expensive concessional loans rather than non-repayable grants — worsening the public debt trajectory.

**46–48%
of GDP**

Forced Capital Budget Reallocation & Deeper Debt Reliance

Capital Spending Pivot

NPR 35–45 Bn

required immediately for damaged bridges and strategic transport corridors

The government must divert capital allocations away from new, growth-oriented development projects toward emergency infrastructure rehabilitation.

Fiscal Deficit Escalation

Budgeted



~4–5% of GDP

Projected



5.5–6.5% of GDP

To finance reconstruction, the Ministry of Finance will rely heavily on expensive domestic bond issuances and multilateral emergency borrowing lines, such as World Bank ECF/RCF facilities.

Public debt trajectory pushed toward 46–48% of GDP

THE BOTTOM LINE

Four Weak Levers, Pulled at Once

Shrinking revenue, unbudgeted relief demand, a thinner aid environment than 2015, and forced capital reallocation are compounding together — pushing Nepal's FY 2026/27 fiscal deficit and debt trajectory well beyond pre-disaster projections.

84.57%

FY 2025/26 revenue collection vs.
target

58.0%

foreign grant utilization vs. target

46.79%

capital expenditure execution vs.
target

5.5–6.5%

of GDP — projected fiscal deficit
(from ~4–5%)

46–48%

of GDP — public debt trajectory

NPR 196–250 Bn

total estimated physical losses

CONCLUSION

From Reconstruction to Resilience Investment

Nepal did not create global climate change, yet it is forced to absorb its mounting economic costs. The Rasuwa–Bhotekoshi disaster is a clear warning that climate risk is a direct macroeconomic risk.

The policy mandate: build back smarter — transforming reconstruction expenditure into long-term climate-resilient capital investment that protects GDP, employment, and national development gains.