



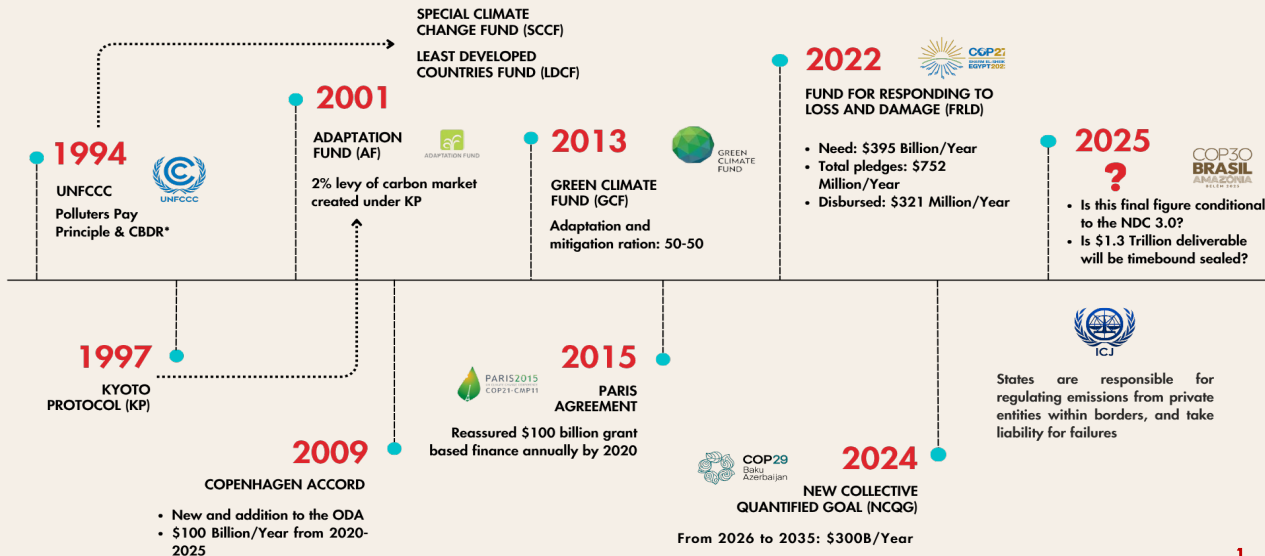
# Climate Debt Risk Index 2025: Spotlight on Vulnerable Nations

Revealing Climate Injustice for 55 countries through the lens of Natural Rights  
Led Governance



15 November 2025, Belém

# Pathway of Climate Finance Mechanism and Milestones



\*CBDR: Common But Differentiated Responsibilities

# The Broken Promise of Climate-Finance

1

COP29: \$300 Billion/year pledge under NCQG is far below than LDCs' \$1.3 Trillion/year need (UNFCCC, 2024).

2

Developed nations claimed \$116B climate finance in 2022 but the real value of provided fund is only \$28-35B (Oxfam, 2025).

3

LDCs emit < 3.3% CO<sub>2</sub> but suffer over two-thirds of climate deaths (UNDP Climate Promise, 2023).

4

Climate disasters killed 832,000 people, caused \$4.5T losses to 9,700+ extreme weather events since 1995 (Germanwatch, 2025).

5

9.8 million people were internally displaced by disasters across 94 countries as of 31 Dec 2024 (IDMC, 2025).

6

Human-driven warming doubled compound drought-heatwaves in 31% low-income vs 4.7% high-income regions (1981-2020) (UNDRR, 2024).

# Climate Debt Risk Index 2024

## Key Highlights from CDRI 2024

- Among 20 vulnerable nations, **18 LDCs at risk: 4 Very High, 14 High, none Low.**
- For every \$1 in grants, countries receive about \$0.53 in loan on average.
- **Delivery Gap:** 44% disbursed of committed funds.
- By 2030, several nations are projected to fall into higher tiers of climate debt risk:

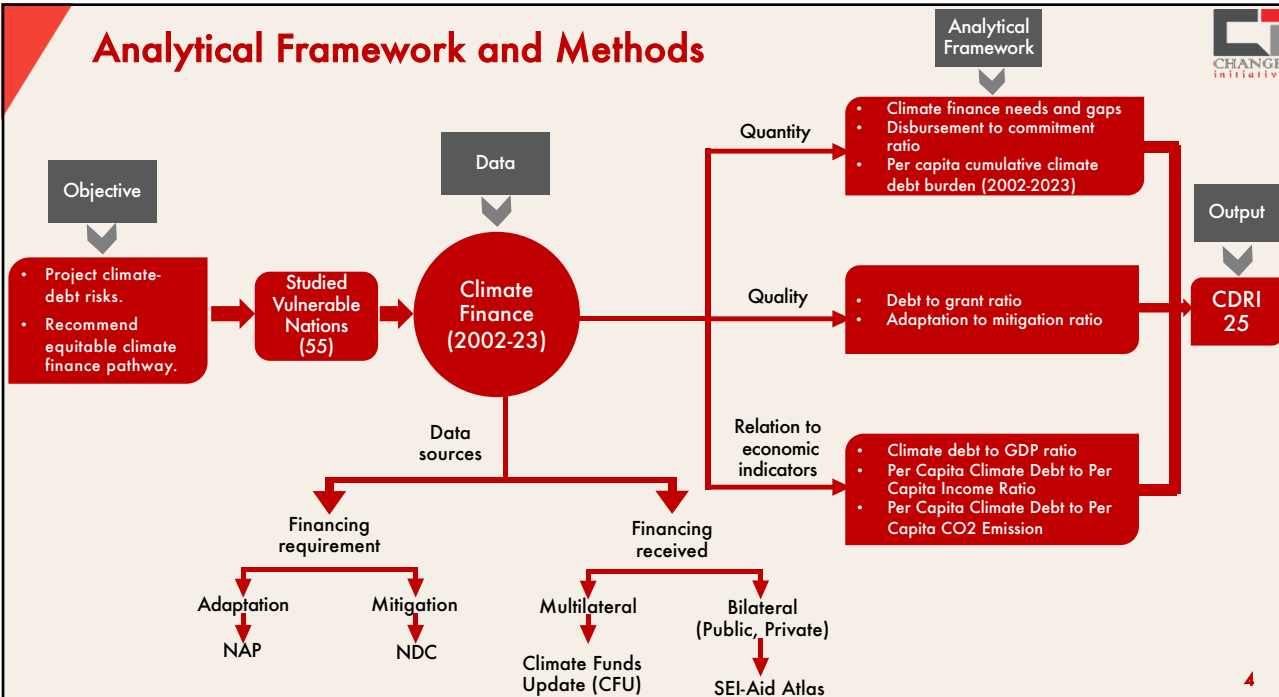
**High → Very High:** Senegal, Rwanda, Bangladesh

**Moderate → High:** Bhutan

| Country     | Per Capita Overall Cumulative Climate Burden (2002-21) | CDRI-2024 | CDRI-2027 | CDRI-2030 | Debt-Trap Risk |
|-------------|--------------------------------------------------------|-----------|-----------|-----------|----------------|
| Mozambique  | 14.19                                                  | 80.10     | 79.32     | 80.05     | Very High      |
| Madagascar  | 8.74                                                   | 76.21     | 76.73     | 81.41     | Very High      |
| Myanmar     | 14.64                                                  | 75.09     | 75.58     | 78.87     | Very High      |
| Sri Lanka   | 64.31                                                  | 71.38     | 71.94     | 74.17     | Very High      |
| Senegal     | 48.06                                                  | 69.11     | 69.71     | 73.39     | High           |
| Bangladesh  | 79.61                                                  | 67.91     | 68.42     | 70.47     | High           |
| Rwanda      | 10.92                                                  | 65.23     | 69.82     | 73.68     | High           |
| Malawi      | 1.66                                                   | 64.57     | 65.12     | 67.35     | High           |
| Zambia      | 8.26                                                   | 63.08     | 63.65     | 64.59     | High           |
| Uganda      | 6.67                                                   | 61.83     | 62.35     | 68.38     | High           |
| Laos PDR    | 8.70                                                   | 61.39     | 61.91     | 62.70     | High           |
| Cambodia    | 53.68                                                  | 61.20     | 61.70     | 62.41     | High           |
| Ethiopia    | 2.67                                                   | 60.38     | 60.95     | 63.22     | High           |
| Pakistan    | 5.89                                                   | 58.97     | 59.50     | 61.63     | High           |
| Bhutan      | 41.86                                                  | 58.15     | 58.86     | 61.68     | High           |
| Tanzania    | 7.84                                                   | 56.40     | 56.98     | 58.01     | High           |
| Haiti       | 1.46                                                   | 54.61     | 55.09     | 57.00     | High           |
| Nepal       | 2.30                                                   | 54.12     | 54.68     | 56.92     | High           |
| Maldives    | 14.64                                                  | 49.37     | 48.62     | 49.64     | Moderate       |
| Philippines | 20.00                                                  | 49.20     | 49.75     | 49.35     | Moderate       |

\* Very High Risk: Final Index ≥ 70; High Risk: 50 ≤ Final Index < 70; Moderate Risk: 40 ≤ Final Index < 50; and Low Risk: Final Index < 40.

# Analytical Framework and Methods

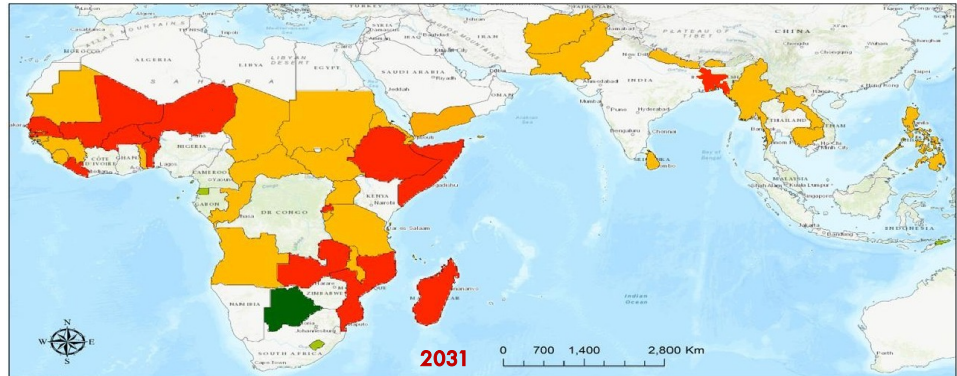


# Climate Debt Risk Index 2025

## Vulnerable Countries at a Glance

By 2031, several South Asian and African nations are projected to fall into higher tiers of climate debt risk:

- **High → Very High:**  
Bangladesh, Djibouti, Liberia, Uganda, Guinea
- **Moderate → High:**  
Lesotho, Timor-Leste



| Very High (17) |                 | High (32)   |                          | Moderate (4)          | Low (2)  |
|----------------|-----------------|-------------|--------------------------|-----------------------|----------|
| Bangladesh     | Mali            | Afghanistan | Eritrea                  | Equatorial Guinea     | Botswana |
| Benin          | Mozambique      | Angola      | Gambia                   | Samoa                 | Tuvalu   |
| Burkina Faso   | Niger           | Bhutan      | Guinea-Bissau            | Sao Tome and Principe |          |
| Cabo Verde     | Rwanda          | Burundi     | Haiti                    | Vanuatu               |          |
| Djibouti       | Senegal         | Cambodia    | Kiribati                 |                       |          |
| Ethiopia       | Solomon Islands | Chad        | Lao PDR                  |                       |          |
| Guinea         | Uganda          | Comoros     | Lesotho                  |                       |          |
| Liberia        | Zambia          |             | Malawi                   |                       |          |
| Madagascar     |                 |             | Maldives                 |                       |          |
|                |                 |             | Mauritania               |                       |          |
|                |                 |             | Myanmar                  |                       |          |
|                |                 |             | Nepal                    |                       |          |
|                |                 |             | Pakistan                 |                       |          |
|                |                 |             | Philippines              |                       |          |
|                |                 |             | Sierra Leone             |                       |          |
|                |                 |             | Somalia                  |                       |          |
|                |                 |             | Sudan                    |                       |          |
|                |                 |             | Tanzania                 |                       |          |
|                |                 |             | Timor-Leste              |                       |          |
|                |                 |             | Togo                     |                       |          |
|                |                 |             | Yemen                    |                       |          |
|                |                 |             | Central African Republic |                       |          |
|                |                 |             | Congo Dem. Rep.          |                       |          |
|                |                 |             | South Sudan              |                       |          |
|                |                 |             | Sri Lanka                |                       |          |

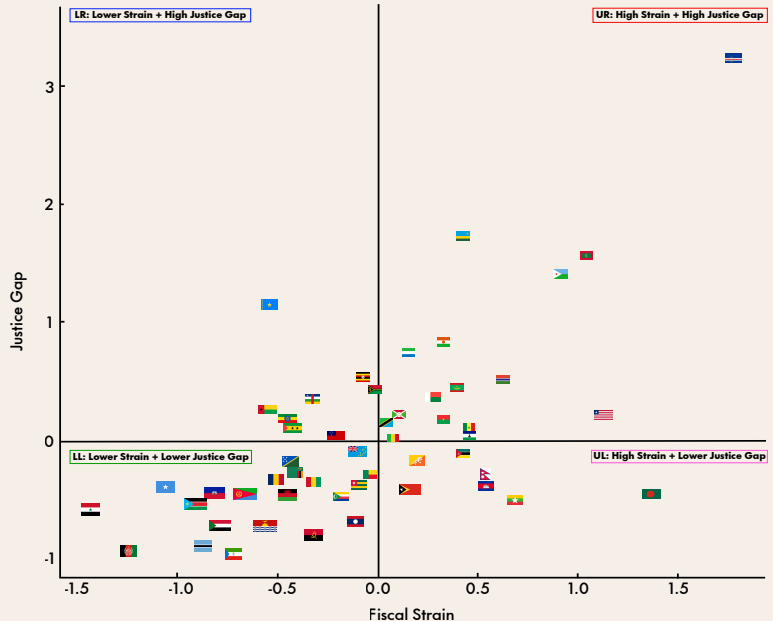
\* Very High Risk: Final Index  $\geq 70$ ; High Risk:  $50 \leq$  Final Index  $< 70$ ; Moderate Risk:  $40 \leq$  Final Index  $< 50$ ; and Low Risk: Final Index  $< 40$ .

# Balancing Fiscal Strain and Justice Gaps Globally

- **Fiscal Strain:** Budget strain from loan-heavy, slow-delivering climate debt.
- **Justice Gap:** Mismatch between debt burden, emissions, and natural capital.

Using median cut-offs creates four quadrants:

- **UR = Debt-trap & inequity risk;**
- **UL = Over-indebted but relatively fair burden;**
- **LR = Under-resourced despite low fiscal stress;**
- **LL = Relatively sustainable & fair**



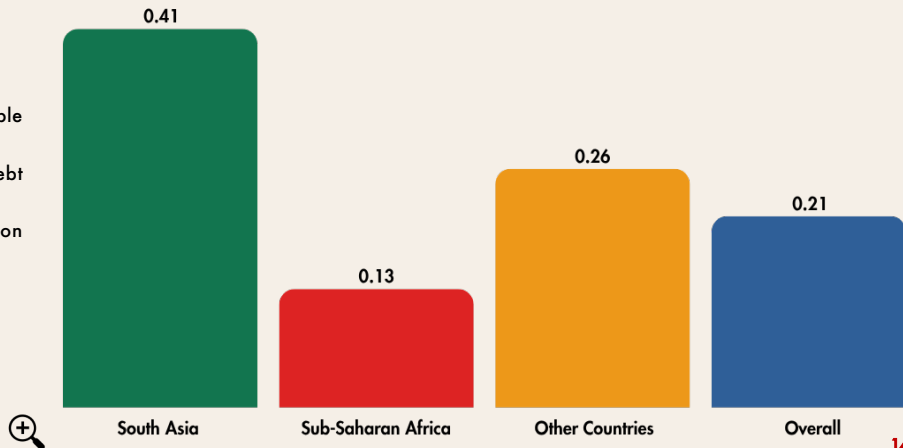


## Global Climate Finance For Vulnerable Nations: A Landscape Under Stress

## Total Debt Service (2023) to Total Climate Debt (2002–2023)

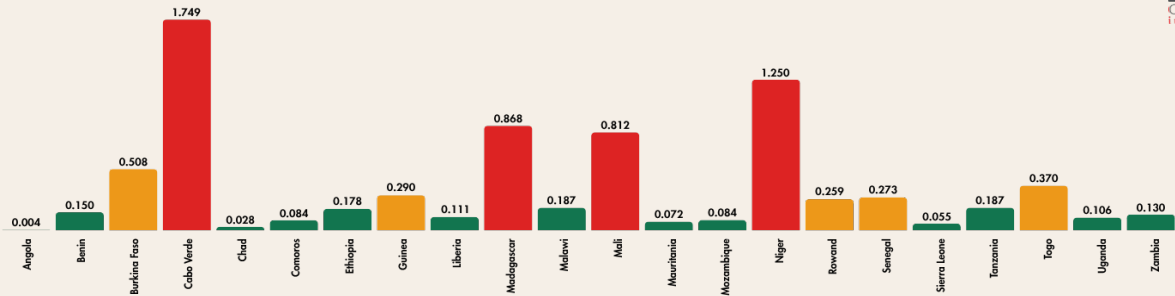
In 2023, 55 climate-vulnerable countries

- Paid US\$47.17 billion in debt repayment
- Received only US\$33.74 billion for climate action.



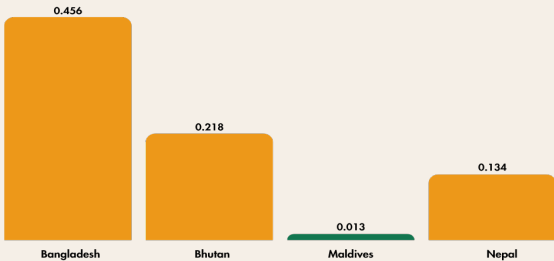
## Sub-Saharan Africa

High Moderate Low



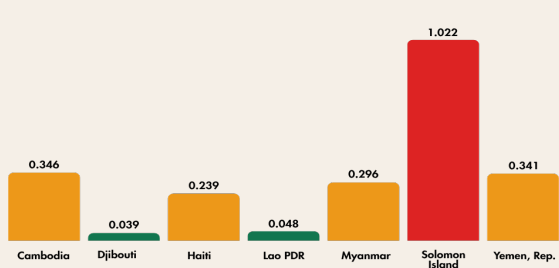
## South Asia

Moderate Low



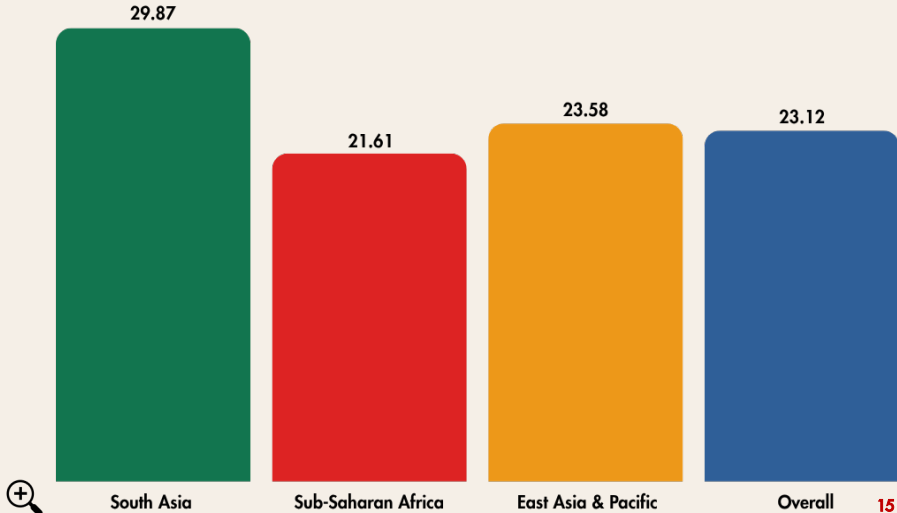
## Other Countries

High Moderate Low

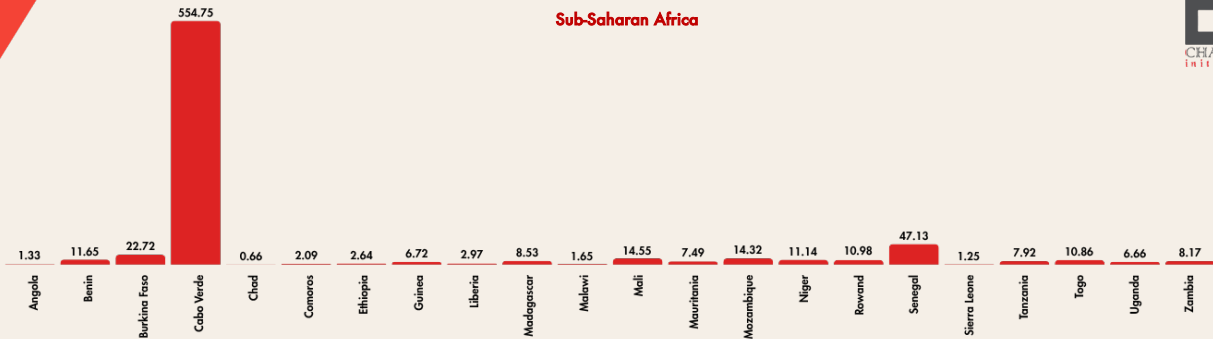


## Per-Capita Cumulative Climate Debt (2002–2022)

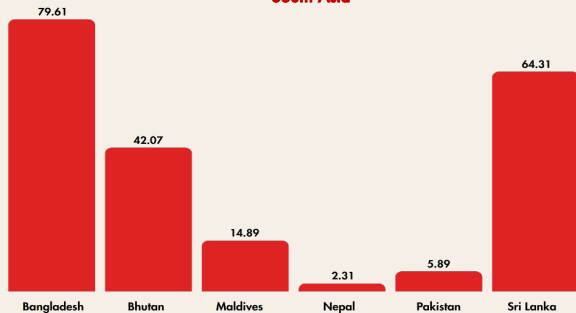
- An average person accumulated about USD 23.12 in climate-labelled public debt.
- The burden is highest in South Asia (USD 29.87 per person), followed by East Asia & Pacific (USD 23.58) and Sub-Saharan Africa (USD 21.61).



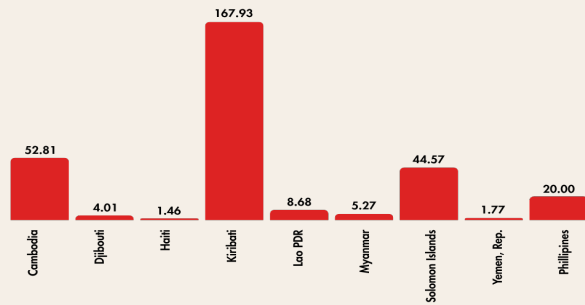
## Sub-Saharan Africa



## South Asia

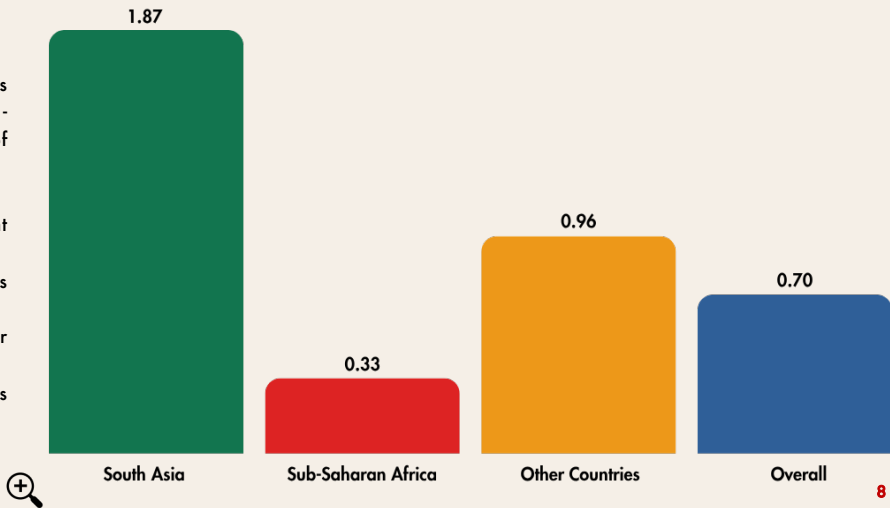


## Other Countries



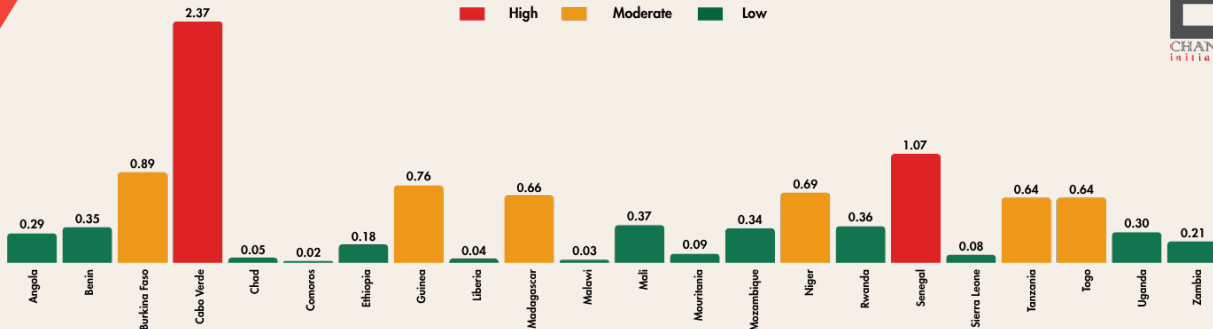
## Debt-to-Grant Ratio

- For every dollar received as grants, 70 cents came as loans - shows debt remains a big part of climate finance.
- The balance looks very different across regions:
  - South Asia with 187 cents (debt-heavy)
  - Other Countries 96 cents (near equal), and
  - Sub-Saharan Africa 33 cents (more grant-based).



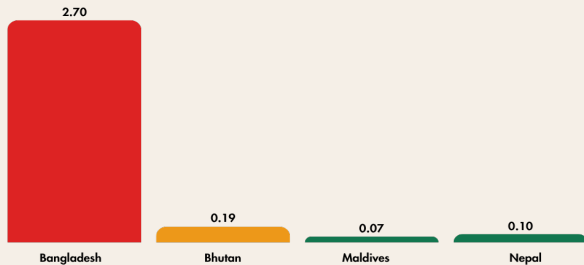
## Sub-Saharan Africa

High Moderate Low



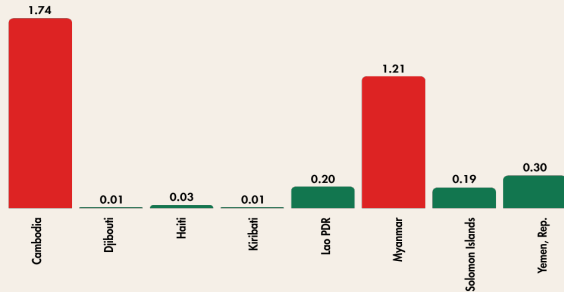
## South Asia

High Moderate Low



## Other Countries

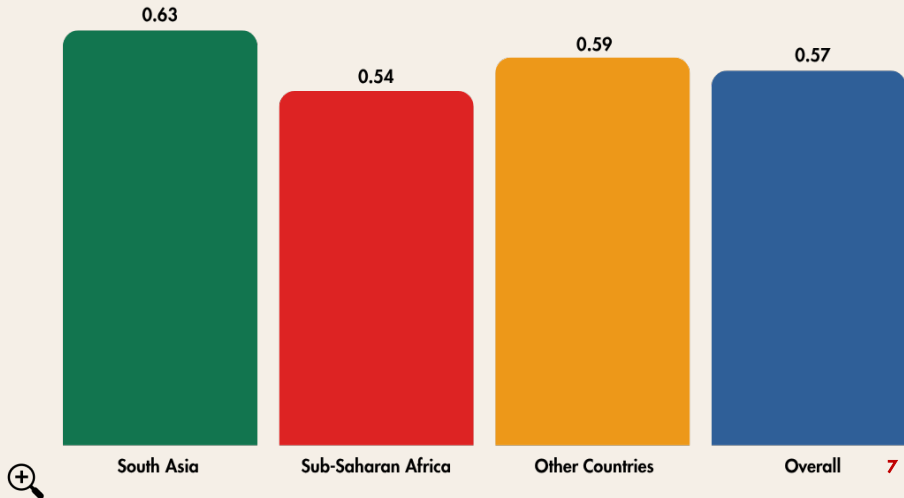
High Moderate Low



## Disbursement-to-Commitment Ratio

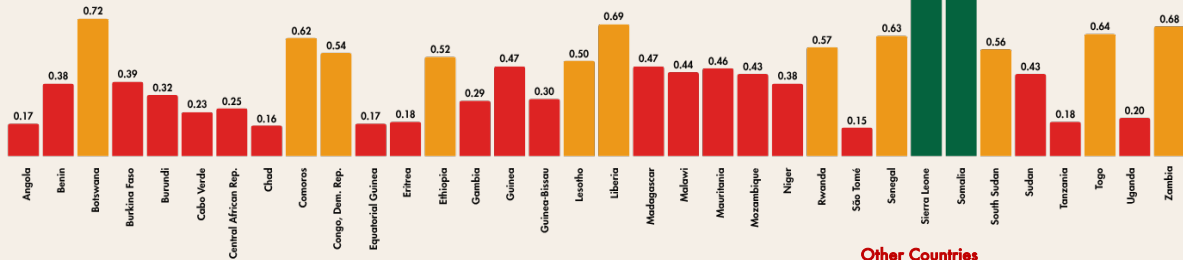
Disbursement efficiency is weak and low-

- Overall, only 57 cents of 1 dollar committed climate finance reaches projects
- South Asia fares slightly better at 63 cents,
- Sub-Saharan Africa trails at 54 cents, and
- Other Countries receive 59 cents for every one dollar committed.



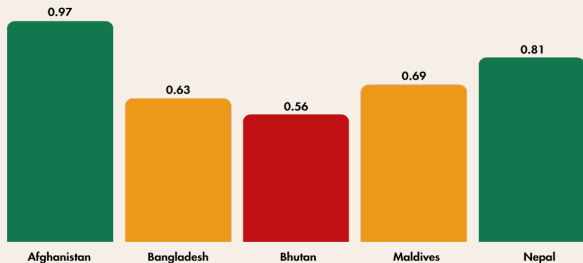
## Sub-Saharan Africa

High Moderate Low



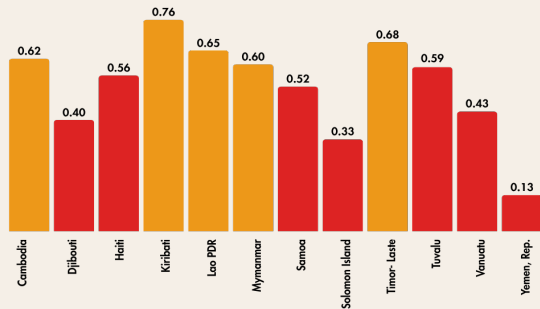
## South Asia

High Moderate Low



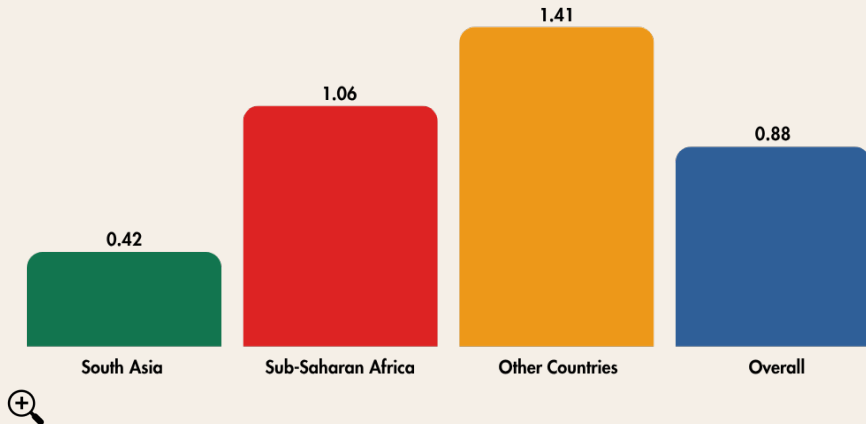
## Other Countries

Moderate Low



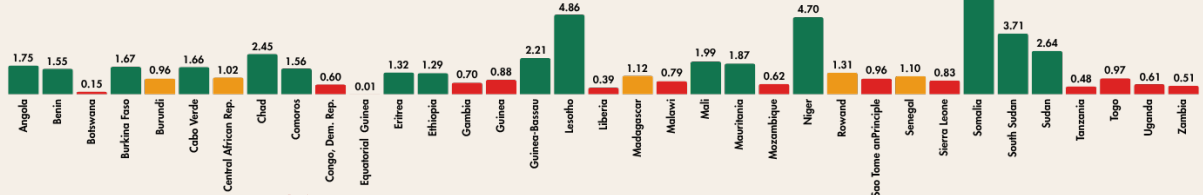
## Adaptation-to-Mitigation Ratio

- For every one dollar invested in mitigation, only 88 cents is directed toward adaptation.
- The balance varies sharply across regions, against 1 dollar in mitigation, adaptation in
  - South Asia 42 cents
  - Sub-Saharan Africa 106 cents, and
  - Other Countries 141 cents reflecting maladaptation in some regions.



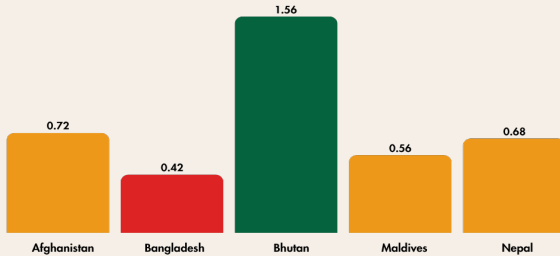
## Sub-Saharan Africa

High Moderate Low



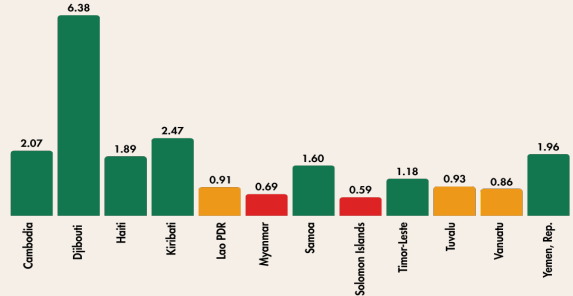
## South Asia

High Moderate Low

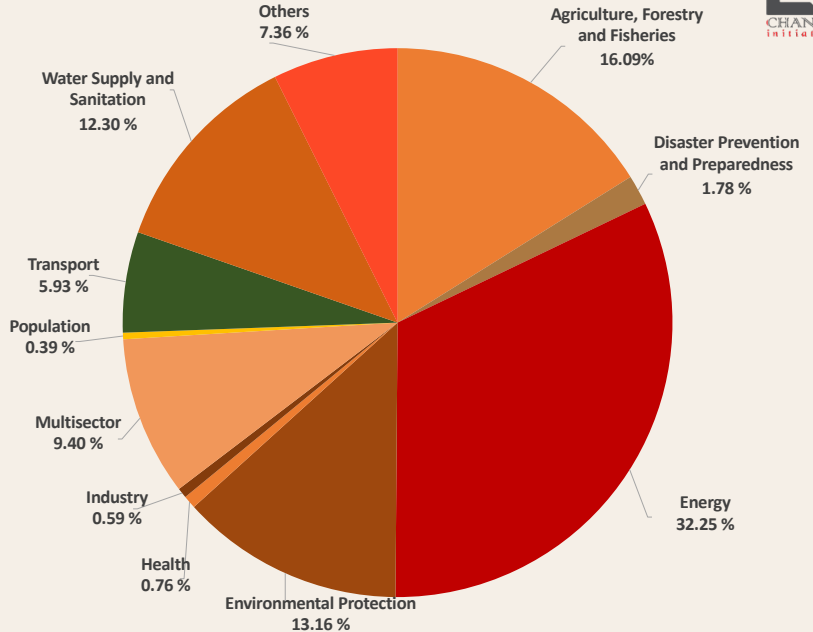


## Other Countries

High Moderate Low



# Sectoral Distribution of Total Climate Finance



# Patterns of Climate Finance

Reveals how climate finance across 10 key vulnerable sectors is still loan-heavy, unevenly delivered, and not aligned with national priorities.



## Loans vs Grants

**Grant-dependent:** Water, agriculture

**Debt-intensive:** Energy, transport



## Adaptation vs Mitigation

Adaptation is emphasized over mitigation in agriculture, disasters, water, and health sectors.



## Disbursement Gap

On average, disbursement is 25-50% behind schedule.



## Deprived Sectors

Population, Industry, and Health sectors are underfunded significantly.

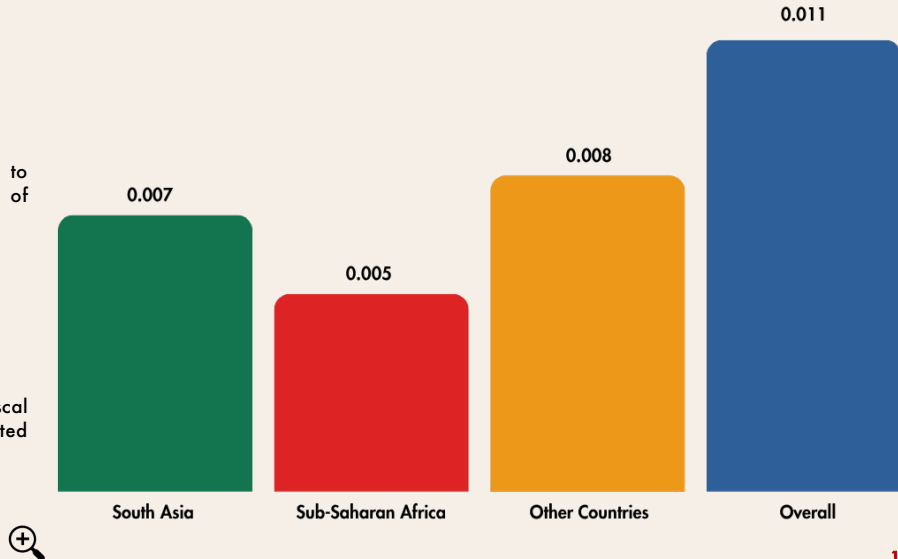
## Climate Debt-to-GDP Ratio

Overall, climate debt amounts to about 1.1 cents for every dollar of GDP.

The share differs across regions:

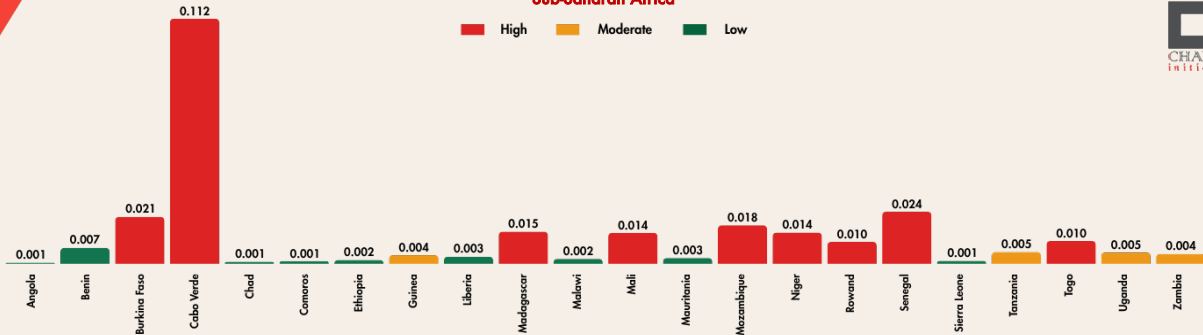
- South Asia 0.7 cents,
- Sub-Saharan Africa 0.5 cents,
- Other Countries 0.8 cents,

Reflecting varying degrees of fiscal pressure from climate-related borrowing.



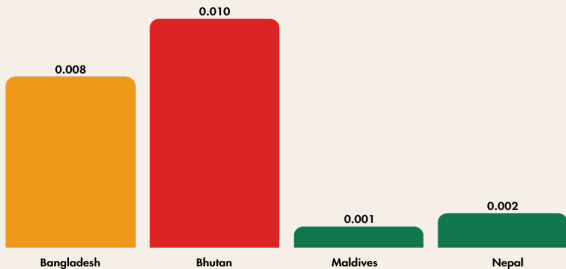
### Sub-Saharan Africa

High Moderate Low



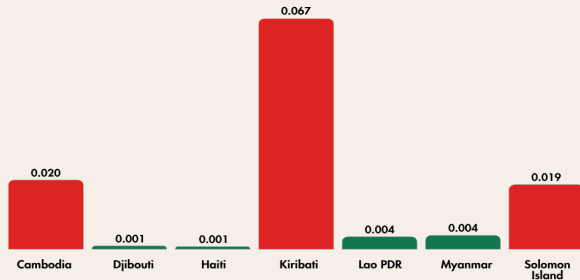
### South Asia

High Moderate Low



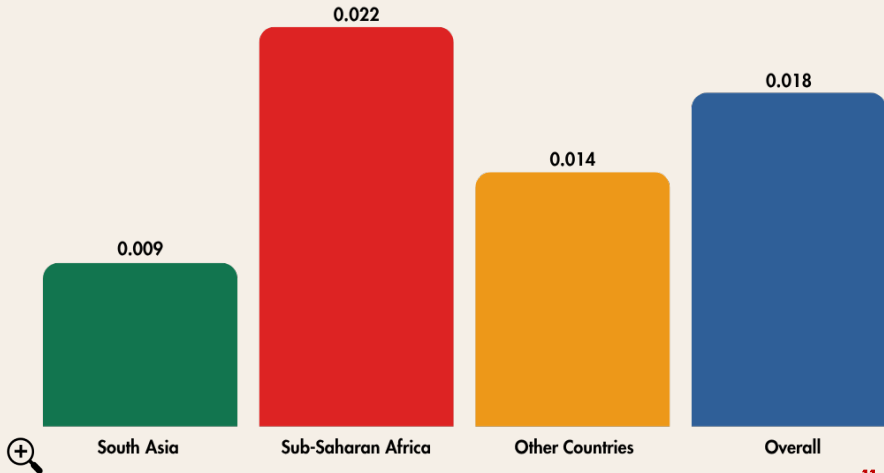
### Other Countries

High Low



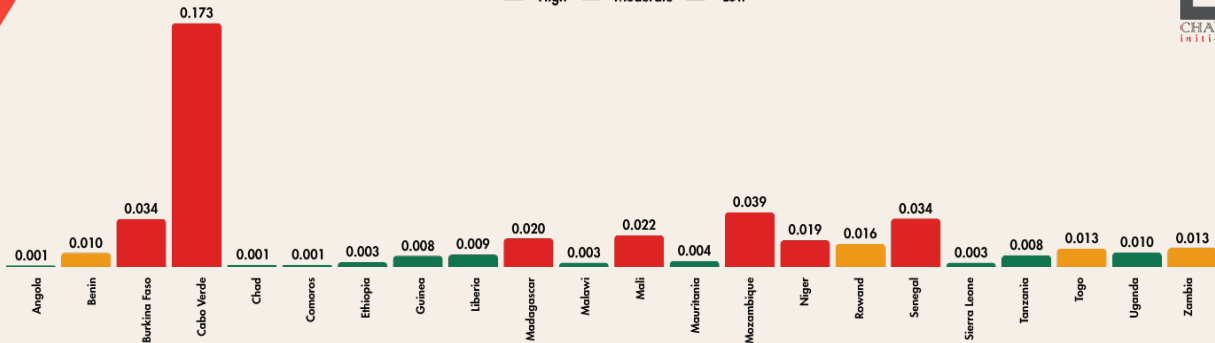
## Per-Capita Climate Debt to Per-Capita Income

- For every USD 1 earned by citizen of climate vulnerable nations, around 1.8 cents translate into climate debt.
- The burden, however, is uneven: it's heaviest in Sub-Saharan Africa at 2.2 cents per dollar, followed by Other Countries at 1.4 cents, and South Asia at 0.9 cents per dollar.



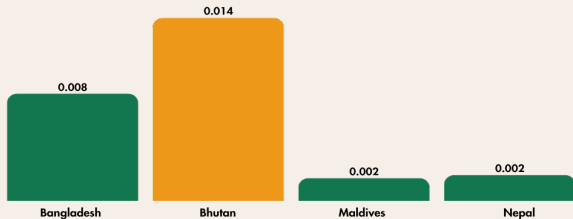
### Sub-Saharan Africa

High Moderate Low



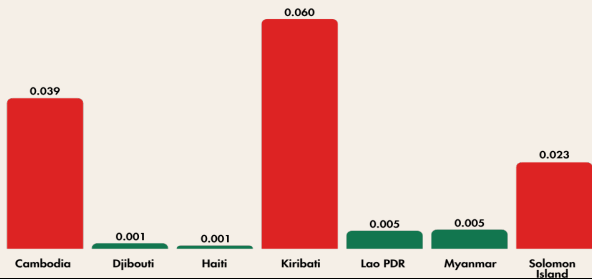
### South Asia

Moderate Low



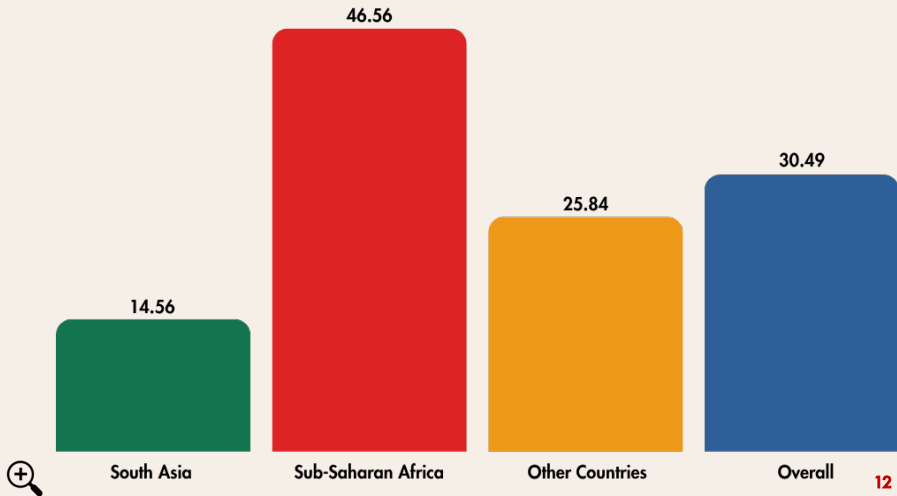
### Other Countries

High Low



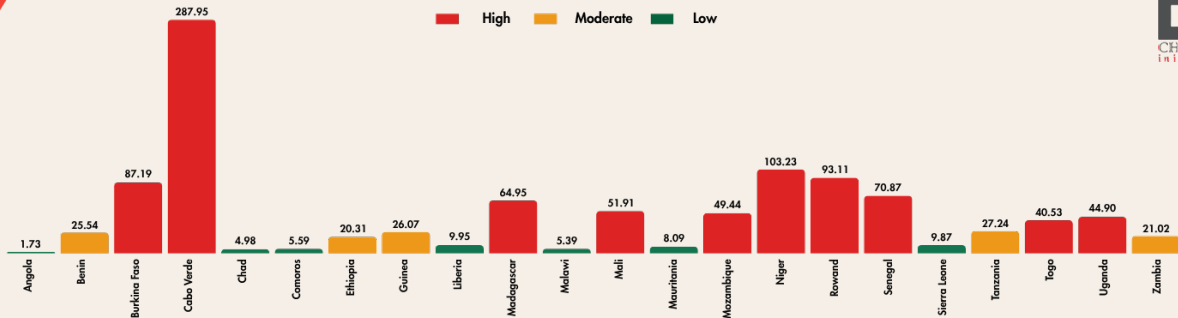
## Per Capita Climate Debt to Per Capita CO<sub>2</sub> Emissions (USD/tCO<sub>2</sub>)

- Each ton of CO<sub>2</sub> emitted by citizens of climate-vulnerable nations carries a climate debt of USD 29.52.
- But the burden isn't equal: Sub-Saharan Africa carries USD 46.6 per ton, South Asia USD 14.6 and Other Countries USD 25.8.



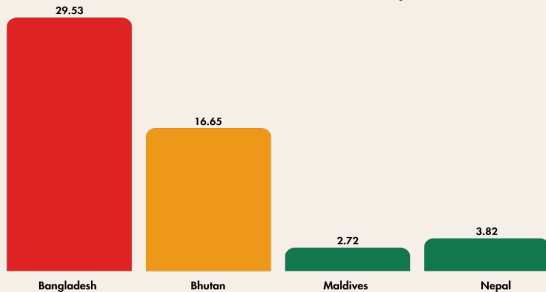
## Sub-Saharan Africa

High Moderate Low



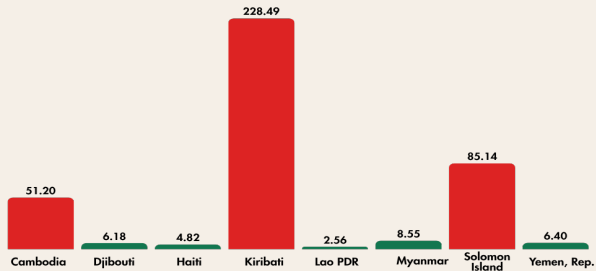
## South Asia

Low Moderate High



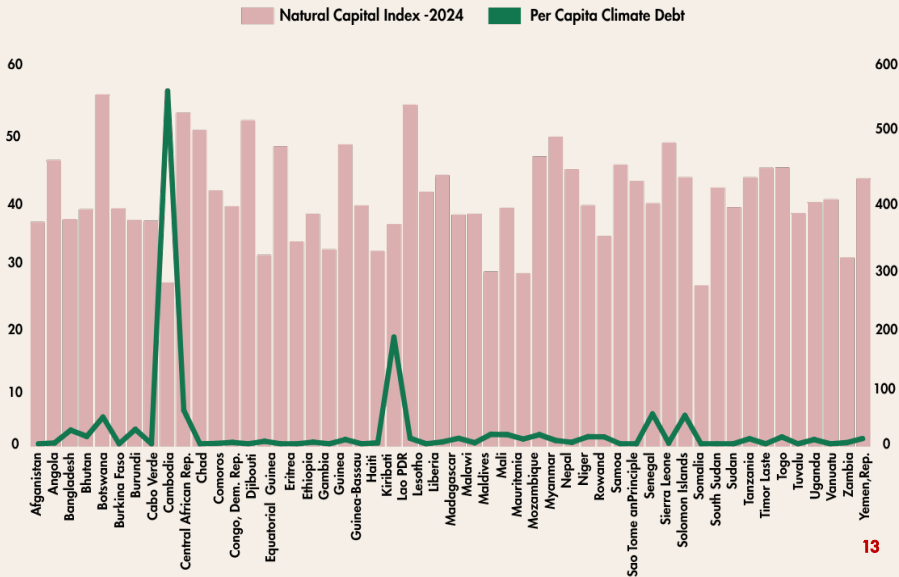
## Other Countries

High Low



## Per Capita Climate Debt vs Natural Capital Index Score

- Climate debt piles up in a few small island/coastal states, while many high natural-capital African countries sit near zero.
- Low-NCI, highly exposed people are paying the most per person: squeezing health, water, and resilience budgets.
- Best: Dem. Rep. Congo (NCI 55.48; climate debt US\$0). Worst: Cabo Verde (NCI 27.89; climate debt US\$554.75).



# Climate or Carbon Finance? The Misattribution Trap



## Loans, Not Lifelines

- Reported CF \$83.3 Billion (2020) shrinks to ~\$21–24.5B in real climate value.
- Around two third arrives as debt; deepening fiscal stress instead of funding protection.



## Green on Paper, Grey on the Ground

- Matarbari coal (1.2 GW, ~6.8 MtCO<sub>2</sub>/yr)
- Nador West Med port marked "adaptation" while moving coal/hydrocarbons
- Azerbaijan offshore gas tagged "efficient"
- Haiti Marriott & Venchi retail counted
- Japan airport upgrades credited for LEDs/solar.

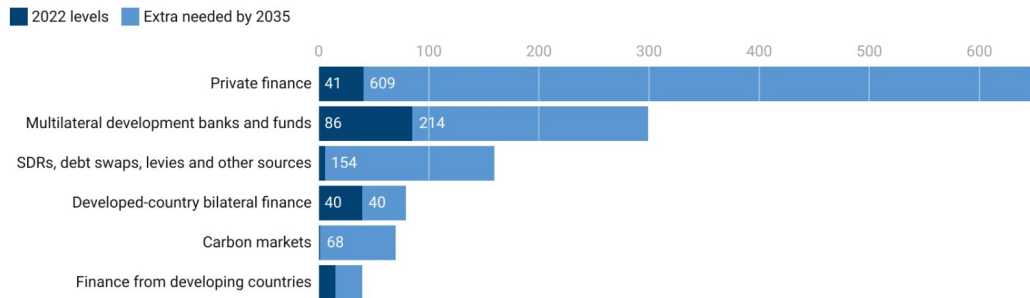


## Billions in "Climate" with No Climate

- **Reuters audit:** ≥ \$3B in negligible-climate projects (coal plants, airport expansions, crime prevention) plus \$65B too vague to verify.
- **MDBs (2016):** ≥ \$5B approved for fossil projects while counting "resilience/efficiency" slices as climate.

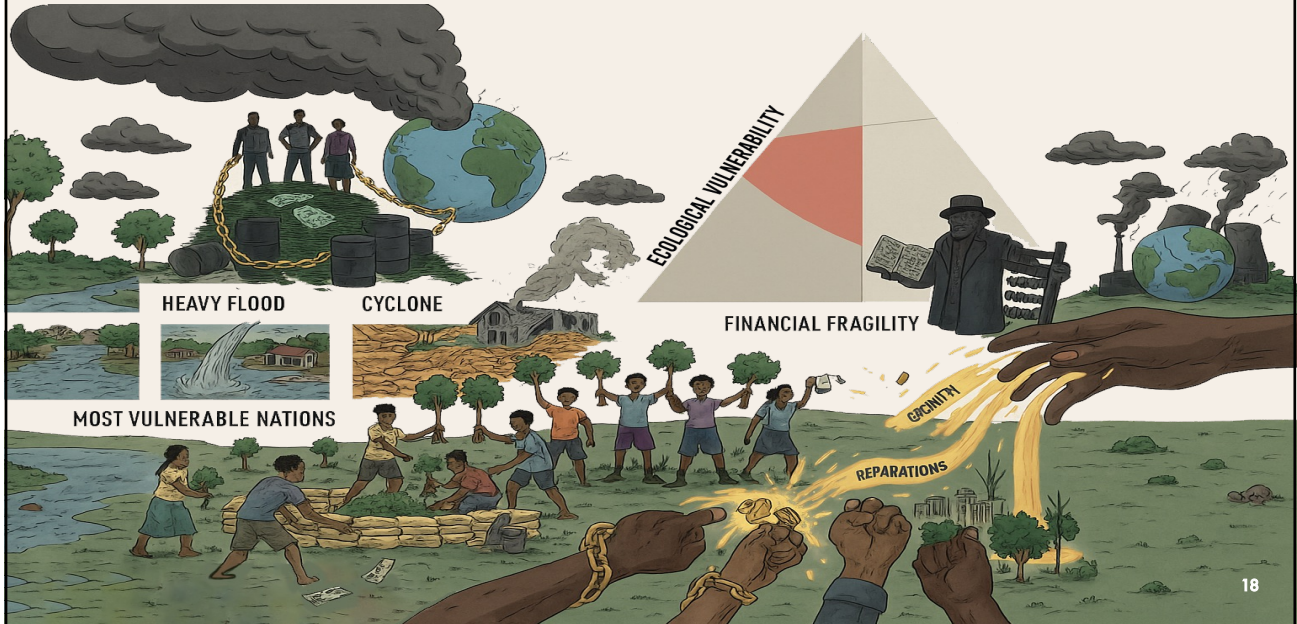
# Half the \$1.3tn climate-finance target comes from private sources in the expert group's pathway

Climate finance for developing countries, excluding China, from non-domestic sources, \$bn, in the IHLEG pathway to \$1.3tn

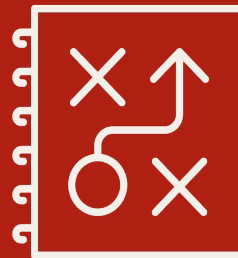


Source: IHLEG

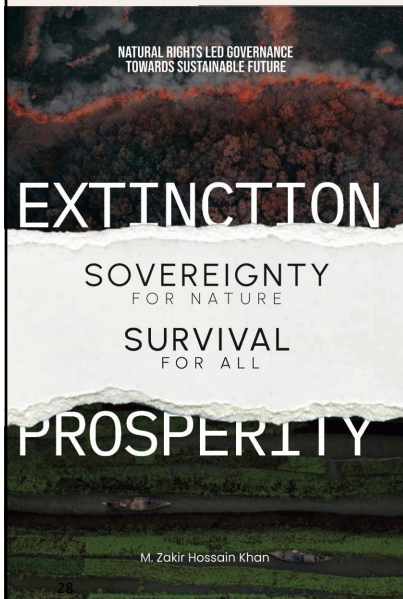
# The Neo-Colonialism of Climate Debt



# Potential Pathways for Equitable and Justice Based Climate Finance Towards Vulnerable Communities



## Natural Rights Led Governance (NRLG) Drives Equity , Justice & Prosperity



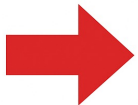
”

- The Paris Agreement focused on carbon emissions - a carbon regime that ignored what nature itself demands.
- Today's "Development" model still drains forests, rivers, and resilience.
- Shifts governance from *voluntary ambition* to moral obligation and legal accountability.
- NRLG begins where Paris Agreements ends -nature has rights; human, communities and states have duties.
- NRLG tools (e.g. CDRI, NRVI) move funds first to most at-risk people and ecosystems.
- Goal: lock in deep mitigation and justice through law, budgets, and mandates.

# Financing isn't scarce, leadership and accountability are



**REVENUES** **LDC SHARE**

**\$6.5 trillion**  **\$1.3 trillion**

Potential revenues from  
global carbon-tax for LDC

| Source                                                 | Assumption                                                                          | Annual Revenue                    |
|--------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------|
| <b>Carbon Price</b><br>(Article 6.0,<br>Paris Aligned) | \$100/tCO <sub>2</sub> e ×<br>65 GtCO <sub>2</sub> e<br>(global total<br>emissions) | <b>US\$6.5 trillion</b>           |
| <b>Arms Levy</b><br>(included in<br>total)             | 10–20% on<br>\$630B arms<br>revenues                                                | <b>\$0.06–\$0.12<br/>trillion</b> |
| <b>Total potential</b>                                 |                                                                                     | <b>≈ US\$6.0–6.6<br/>trillion</b> |

## Supply: Developed Countries

## Funding Mechanisms

## Demand: Vulnerable LDCs





**Thank You**

M Zakir Hossain Khan and Change Initiative  
have been designated as civil society active  
observer at the Climate Investment Fund (CIF)  
for the Strategic Climate Fund (SCF) Trust  
Fund Committee for the 2025–2027 term.



# Our Partners



# Annex: Methods

| Variable Name                                       | Measures/ Unit                | Description                                                                                                                                                                                            | Calculation Technique                                                                                                        | Source of Data                                  |
|-----------------------------------------------------|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|
| CRI Score (Climate Risk Index)                      | Index Score                   | Measures climate vulnerability, with an inverse relationship to the Climate Debt Risk Index (CDRI).                                                                                                    | Derived from climate impact assessments and vulnerability measures                                                           | <a href="#">Solabilitywatch</a>                 |
| Per Capita Overall Cumulative Climate Burden        | USD per capita                | Measures the financial cost of climate impacts per capita.                                                                                                                                             | Calculated by dividing total climate-related financial burdens by population size for each year and adding them cumulatively | Authors' Estimation from SEI-AID ATLAS database |
| Government Debt to GDP Ratio                        | Percentage (%)                | Represents the percentage of a country's government debt relative to its GDP.                                                                                                                          | Ratio of total government debt to national GDP                                                                               | World Bank, IMF                                 |
| Per Capita Development-Related External Debt Burden | USD per capita                | Captures the external development debt burden in relation to the population size.                                                                                                                      | Divides total external development debt by population size                                                                   | Authors' Estimation from SEI-AID ATLAS database |
| Per Capita GDP                                      | USD per capita                | Indicates a country's economic wealth, with an inverse relationship to the CDRI.                                                                                                                       | Calculated from total GDP divided by population size                                                                         | World Bank                                      |
| Population in Multidimensional Poverty              | Percentage of population (%)  | Shows the proportion of the population in poverty, indicating increased climate vulnerability.                                                                                                         | Ratio of population in poverty to total population                                                                           | MacroTrends, World Bank                         |
| Credit Rating (Moody's)                             | Rating score (e.g., Aaa, Baa) | Reflects a country's financial stability and capacity to manage debt.                                                                                                                                  | Based on Moody's financial stability and creditworthiness assessment                                                         | Moody's and Trading Economics                   |
| Natural Efficiency Index                            | Index Score                   | How effectively a country manages natural, human, and financial capital-domestic or imported-since efficient use, regardless of scarcity or abundance, determines competitiveness and national wealth. | Derived by combining per-capita resource consumption (intensity) with resource use per unit of economic output (efficiency)  | <a href="#">Solability</a>                      |

**Normalization & weights:** Each variable is normalized to 0–10 (higher value = higher risk). Inverse variables (e.g., per-capita GDP, CRI, natural efficiency) are inverted before scaling. Weighted average yields CDRI-25 with weights: CRI 15%; per-capita climate burden 25%; debt-to-GDP 5%; per-capita external debt 5%; per-capita GDP (inverted) 15%; multidimensional poverty 15%; credit rating 15%; natural-efficiency 10%.

**Governance & forecasting:** For 2028 and 2031, a Governance Score (CPI, Control of Corruption, Rule of Law) is built and normalized (0–10) and combined with updated financial variables. Per-capita climate debt is projected via compound growth from historical trends; updated values feed the index. To test robustness and refine weights, we apply multiple linear regression, PCA, and weight optimization, adjusting weights where empirical influence is strongest and diagnosing heteroscedasticity with standard tests.

The formula to calculate CDRI (2025) is:

*Country Specific CDRI (2025)*

$$\begin{aligned}
 &= 10 \\
 &\times [(0.15 \times \text{Normalized CRI Score}) + (0.25 \times \text{Per Capita Overall Cumulative Climate Burden Percentile Score}) \\
 &+ (0.05 \times \text{Normalized Debt to GDP Score}) \\
 &+ (0.05 \times \text{Normalized Per Capita Development Related External Debt Burden Score}) \\
 &+ (0.15 \times \text{Normalized Inverted Per Capita GDP Score}) \\
 &+ (0.15 \times \text{Normalized Population in Multidimensional Poverty Score}) + (0.15 \times \text{Indexed Credit Rating}) \\
 &+ (0.10 \times \text{Indexed Natural Resources Efficiency Index})]
 \end{aligned}$$

We did the normalization in 0–10 scale, but our final CDRI Index is in 0–100 scale. The scaling methodology in our report aligns closely with established approaches used in the Worldwide Governance Indicators (WGI) and Human Development Index (HDI), reinforcing the robustness of our analytical framework. Like WGI, which standardizes diverse indicators to a common scale and applies weighted aggregation, our use of PCA for weighting captures the relative importance of each parameter, followed by normalization on a 0–10 scale. The HDI's methodology further parallels ours, as it normalizes indicators and then resizes them for interpretability (0–1 scale, often presented as 0–100), a step mirrored in our final 0–100 scaling. These consistent practices validate our approach as a statistically sound and widely recognized scaling methodology.

## Supply Side: Developed Countries

### Grant-Based Funding

Prioritize grants and concessional finance for adaptation and loss & damage to ease Bangladesh's debt burden.

### Debt Relief & Reparative Justice

Support debt-for-nature swaps and reparative justice to address historical responsibilities.  
Implement 100% debt relief, Formation of Climate Action Fund was discussed in CoP29, but we do not know about any progress.

### Global North Responsibility

Provide dedicated finance via debt relief and unconditional support, rooted in natural rights justice.

### Earth Solidarity Fund (ESF): Global to Community

Establish a decentralized, bottom-up Earth Solidarity Fund that channels global and national resources into autonomous country-level funds, delivering need-based unconditional grants directly to vulnerable communities.

# Flow of Fund: Bilateral, MDBs, Multilateral

1

Grant-First Approach

- Shift to grant-based finance for adaptation and loss & damage.

2

Introduce Community Led MRV System

- Strengthen MRV and fiduciary systems at national/sub-national levels.
- Prevent misattribution by improving criteria and transparency in climate finance categorization.

3

Implement debt swaps and relief linked to resilience and nature protection

- Use debt swaps and relief mechanisms tied specifically to projects that enhance resilience and protect natural ecosystems.

4

MDB Reform Towards Natural Rights Finance

- Zero fossil fuel and unproven clean energy finance.
- Expand concessional and grant-based financing, e.g. CIF-Nature, Climate and People fund.
- Strictly maintain balance funding between mitigation and adaptation.
- Support country platforms, co-financing, and long-term systemic change.
- Create Regional Fund like SARF sourced from CIF, AF, GCF etc.

## Demand Side: Vulnerable LDCs

### Innovative Financing

- Leverage carbon pricing, pollution tax and accessing Debt-for-nature swap, bio-finance international grants through partnerships with private sector to bridge funding gaps (e.g., USD 137.5B energy sector need vs. USD 2.54B allocated).
- Reform public financial management system to include private philanthropy as sources of community climate actions.

### Community Stewardship

- Empower communities to lead both design as well as implementation and monitor nature-lead climate action efforts.
- Youth-led natural rights led governance to monitor all climate, environment and nature related actions.

### Introduce a dedicated Natural Rights Fund (NRF)

- Introduce a Natural Rights Fund (NRF) in every LDC, with the application of both public fossil fuel subsidies, using carbon/pollution taxes and philanthropy e.g. CSR, Zakat etc.