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Why adaptation finance stops short of the Indian village — and the institutional architecture that would carry it there

A white paper on demand, supply and translation in sub-national adaptation finance

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Executive summary

India's adaptation finance problem is usually described as a shortfall. That description is incomplete. Money nominally directed at climate resilience already moves through the Indian fiscal system in substantial volumes. What doesn't exist is the mechanism that reads a village's climate needs, characterises them economically, and routes each one to the family of capital that can finance it. The chain between national policy and village reality breaks there — not at the top, for want of money.

Three claims organise the argument. Adaptation demand is not one category but three, separated by whether the value an action creates carries a price. Each family of capital stops at a boundary set by that same fact, and those boundaries are structural rather than negotiable. Between segmented demand and bounded supply sits a translation gap that no instrument in India's current architecture is designed to close.

The gap has two halves, and they fail differently. The epistemic half is that value carrying no price is unreadable to instruments built to read price and flow, so the resilience that matters most on the frontline registers as worthless on a term sheet. The institutional half is that nobody between the Gram Sabha and the state treasury is obliged to decompose a stated need across segments and route each component to the capital family that can carry it. Neither half closes without the other.

The remedy is assembled almost entirely from instruments that already exist. A Community-led Landscape Character Assessment Tool (LCAT) renders local value legible upward. A climate-coded Gram Panchayat Development Plan decomposes that value into sequenced cost lines with named owners. Climate budget tagging makes public money legible downward. What is new is joining the three into a single ledger — and the recommendation that follows from doing so: finance the stock, not only the flow.



KEY TAKEAWAYS

- ♦ Adaptation demand is not one category but three, separated by whether the value an action creates carries a price.
- ♦ Between segmented demand and bounded supply sits a translation gap that is epistemic and institutional at once.
- ♦ Each family of capital stops at a boundary set by that same fact — and those boundaries are structural, not negotiable.
- ♦ The remedy joins three existing instruments — LCAT, a climate-coded GPDP and budget tagging — into a single ledger.

1 Introduction

1.1 The national adaptation finance architecture, and where it stops

India's adaptation architecture is strong where it was designed to be strong: at the top. National co-ordination runs through the Prime Minister's Council on Climate Change and the Ministry of Environment, Forest and Climate Change. Sub-national planning is guided by State Action Plans on Climate Change, revised since 2019 against a Common Framework requiring alignment with India's Nationally Determined Contributions.³ Finance arrives through Central Sector Schemes, Centrally Sponsored Schemes and state schemes. Below the state, no comparable architecture exists. Nothing systematically aligns investment with local need, and nothing carries a village's diagnosis upward into a budget line. Four consequences follow.

Planning proceeds without a community-driven evidence base. Plans drawn at state and district resolution overlook micro-level variation, and panchayat planning routinely begins without disaggregated data on gender, livelihoods or hazard history.⁴ Plans are designed for communities rather than with them.

Adaptation is insufficiently integrated into local development planning. India's climate response is distributed across ministries that plan within their own sectoral mandates; research on the institutionalisation of climate policy in India finds many institutions pursuing the same goal under different mandates, with few mechanisms for convergence.⁵ Because states apply different assumptions to heat, flood, drought and health risk, priorities cannot be compared across jurisdictions.⁶ And the GPDP — the one planning instrument that reaches every village⁷ — is not used to embed resilience inside the schemes already operating there.

Institutional weakness becomes a financing problem. The Climate Policy Initiative puts the collective annual adaptation investment requirement of six states alone at ₹444.7 billion a year over 2021–

2030, against state finances already constrained by borrowing limits, debt pressure and competing priorities.⁸

Finance remains centralised, fragmented and hard to trace. Local governments lack both the autonomy and the resources to access funds directly. Of thirty-seven state, district and city heat action plans, only two cite a specific source of finance for their interventions.⁹ Without predictable pathways, local action stays ad hoc.

DEFINITION · GPDP

The Gram Panchayat Development Plan is the annual, constitutionally grounded village plan prepared by every Gram Panchayat under the 73rd Amendment and consolidated through the People's Plan Campaign. The Gram Sabha — the assembly of all adult residents of a village — approves it.

1.2 The structural diagnosis: a failure of translation

The World Bank's Locally Led Climate Action framework, grounded in the eight Principles for Locally Led Adaptation, binds these problems together, and each of its three design features names a distinct translation failure.^{10,11} The first is institutional. Subsidiarity holds that authority and resources should sit at the lowest level capable of addressing the risk; in practice both concentrate at the centre. The second concerns knowledge. Participation is meant to ground decisions in what people actually experience and to address the gender gap — this is where distributive equity enters, since a fair allocation of costs and benefits requires removing structural barriers rather than adding consultation to a finished plan.¹² Where local knowledge has no formal standing, participation slides into the tokenistic.

The third failure is informational: decisions cannot be informed by local climate data that does not exist in usable form.

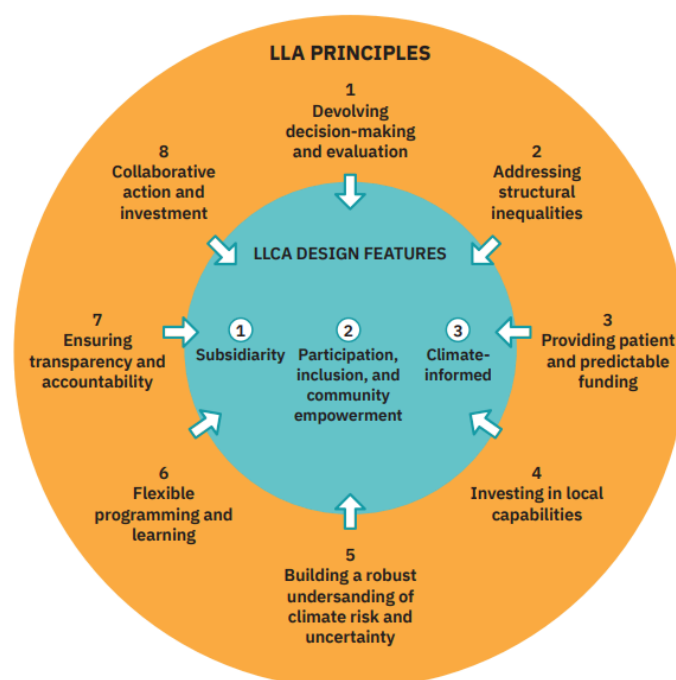


Figure 1. Design features of Locally Led Climate Action, grounded in the Principles for Locally Led Adaptation.

1.3 A problem of legibility, not only of scale

Legibility, as this paper uses the term, is the informational failure. A legible need is one a financing system can see in the terms by which it allocates money: located, dated, costed, attributed to identifiable beneficiaries, and characterised by whether the value it creates carries a price. A need can be perfectly well understood in the village and still be illegible in this sense — and what is illegible cannot be budgeted, tagged or audited.

Read as a problem of scale, the four consequences above call for more finance. That reading is incomplete. A significant share of adaptation-relevant expenditure already exists sub-nationally and is simply invisible, embedded inside large public schemes rather than identified as adaptation. Spending under the rural employment guarantee, the National Rural Livelihood Mission, PM-KUSUM, the Jal Jeevan Mission and the crop insurance scheme all contribute to adaptation. None of it is managed as climate action.

The Institute of Social Sciences study of gram panchayats in three climate-stressed north-eastern districts makes the gap concrete. Disaster risk reduction appears in district plans and disappears from panchayat planning. Health, agriculture and infrastructure are not screened for climate risk. Where livelihood and infrastructure themes do get attention, they are treated as funding opportunities rather than as platforms for resilience. Finance that cannot be seen cannot be steered or held to account. Solving the legibility problem is a precondition for any serious sub-national adaptation strategy, not a refinement to be added once the money arrives.

What follows decodes the translation gap between community-articulated adaptation needs and investable finance and sets out an architecture that closes it on the demand side and the supply side at once.

2 Demand architecture

◆ KEY TAKEAWAYS

- ◆ Raw demand becomes investable demand only after description, characterisation, segmentation and routing.
- ◆ The value–price matrix resolves into three demand segments: non-viable, partially viable, commercially viable.
- ◆ Two lenses govern the work: value versus price, and stock versus flow.
- ◆ Real interventions contain several segments at once — decomposition is the missing institutional function.

2.1 What communities ask for

Everything in this chapter turns on one distinction. Raw demand is a need as a community states it: a pond that no longer holds water through March. Investable demand is the same need after it has been described, characterised, segmented and routed — the same pond, now carrying a beneficiary count, a scale of investment, a phasing of capital across establishment and mature years, a value profile for the benefits expected, a judgement about whether those benefits are excludable, the timing of any cash flows they generate, an institutional arrangement for implementation, and a named capital family. The demand architecture set out below is nothing more than the work of turning the first into the second. Every failure this paper traces is a failure of that conversion, not of articulation.

Communities do not present projects. They present lived problems: a failing borewell, a degraded common, a crop calendar that no longer matches the rains. Those problems are recorded through Gram Sabha deliberation consolidated in the GPDP and, where a Community-led Landscape Character Assessment has been conducted, through a structured reading of the village's landform, hydrology, land cover, biodiversity, infrastructure, culture and governance.¹³

The GPDP is the constitutionally mandated, bottom-up planning instrument through which Gram Sabhas prepares comprehensive plans for economic devel-

opment and social justice across twenty-nine subjects. In principle it is the single existing institutional surface on which local adaptation needs are already recorded. TRI's field experience — drawn from LCAT pilots across more than seventy panchayats in Uttar Pradesh, Madhya Pradesh, Chhattisgarh and Jharkhand — indicates that the binding constraint is not a community's inability to name its needs. It is the absence of the step that comes next: reading each named need in its landscape and human context, characterising it economically, placing it in a financial segment, and only then determining the funding mechanism that fits.

DEFINITION · LCAT

The Community-led Landscape Character Assessment Tool is Transform Rural India's participatory adaptation of landscape character assessment methods to rural India. A village scores itself, across two facilitated community sessions, on eight 'life-elements' (*Jeevan Tatva*): landform; hydrology; land cover and agriculture; wildlife and biodiversity; infrastructure and economics; cultural and historical features; visual and sensory experience; and community and governance.

2.2 Two lenses before the ledger

A climate-integrated GDPD should perform four operations on every line it carries.

1. **Legibility.** Describe the need's landscape and human context, with geotags and beneficiary detail.
2. **Characterisation.** Attach an economic character — who benefits, over what horizon, and whether the benefits are excludable or public.
3. **Segmentation.** Place the need in an economic segment or decompose it across segments in space and time.
4. **Routing.** Match each component to a capital family, with an indicated instrument, ticket size and sequence.

Two lenses govern the middle two operations.

Value versus price. What an action is worth is not what a market will pay for it.¹⁴ The gap between the two is the organising fact of adaptation finance. Three cases exhaust the field: high value with high price, which draws commercial capital unaided; high value with low price, the classic case for concessional and blended capital; and high value with no price, which offers no market signal at all. No framework yet explains how adaptation creates value and converts it into cash flows, so investment cases get built as ordinary debt or equity instead.¹⁵ Price stands in for value across the asset class, and that substitution deletes the two cases where most frontline resilience lives. A check dam on a village common may avert crop losses across dozens of farms in a drought year and still generate no revenue stream a lender can appraise. On a conventional term sheet, an asset of demonstrable value registers as worthless.

Stock versus flow. Markets invest in flow, and public programmes often do too: quintals procured, hectares insured, works completed. Both neglect the stock on which every future flow depends — soil health, aquifers, forest cover, biodiversity, human skills, and the social capital of functioning community institutions.¹⁶ The Dasgupta Review's central finding is that economies run down natural assets because national accounts measure income flows while omitting depreciation of the natural-capital stock producing them.¹⁷ What is missing is the village-level application. Financing that attends only to flows depletes stocks; financing that recognises stock-building treats early-year costs as investments whose returns compound. Every plan entry should declare whether it finances stock, flow or both.

A corollary runs through both lenses. Every budget line silently answers a question: is this a cost to be minimised, or an investment whose returns compound as resilience? Communities across TRI's geographies aspire to shift to natural and organic farming for better food, health and landscapes — value in their own ledger — while planning and credit systems record the same transition as a cost with no return line against it. A finance system that cannot tell its costs from its investments will always economise on the wrong one.

2.3 From community need to three demand segments

Given Indian village content, the value–price matrix resolves into three demand segments. The table below runs the characterisation and segmentation steps in sequence: from the activities communities ask for, through their economic character, to the segment each falls into. The stock–flow distinction cuts across all three.

ILLUSTRATIVE COMMUNITY DEMAND	ECONOMIC CHARACTER	SEGMENT
Soil and water conservation on commons and degraded land; sustainable rice with negligible price premium despite carbon and water benefits	Real social value, no market price; no recoverable return to the investor	Non-viable (public good)
Natural and organic farming during transition years; agroforestry, viable long-term but slow to mature	Genuine returns exist but sit below commercial thresholds; long gestation, thin markets, weak awareness	Partially viable
FPO loans for drip irrigation; solar cold storage; post-harvest infrastructure	Market-priced, recoverable returns, but under-served by existing lenders	Commercially viable

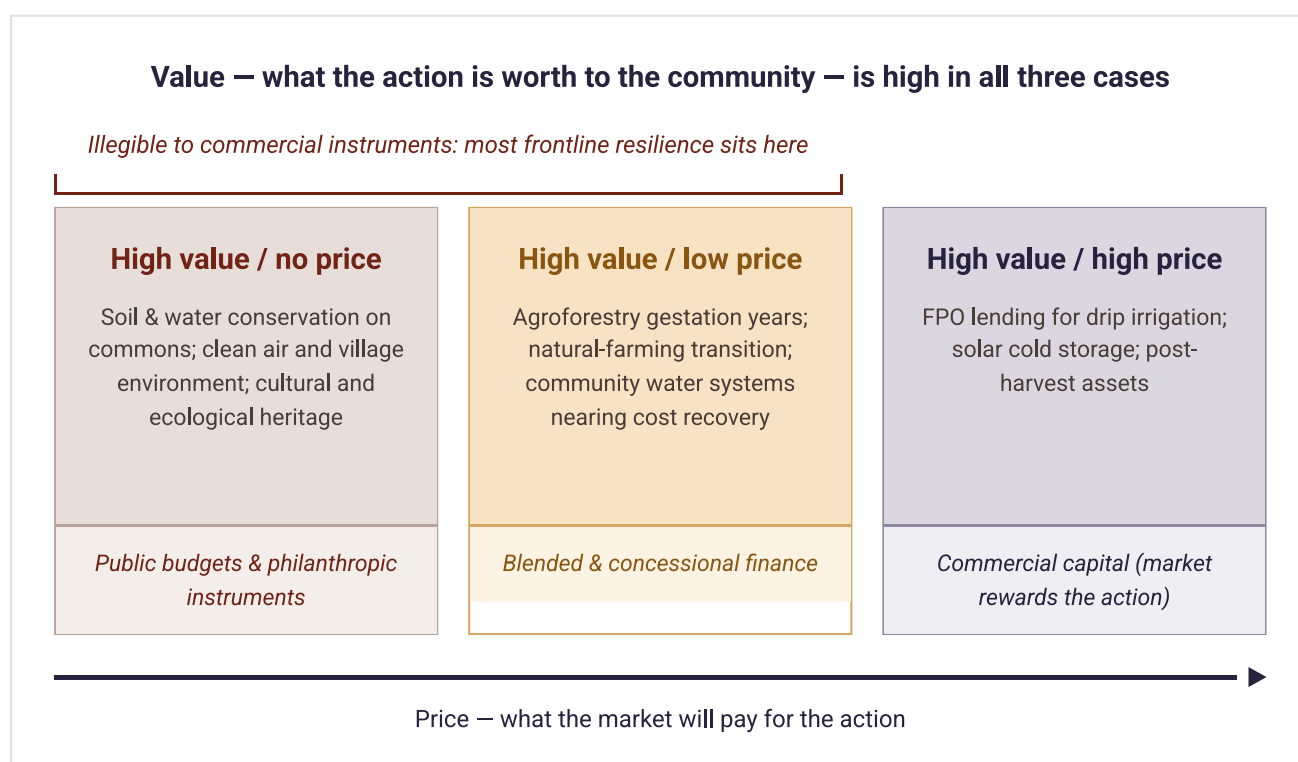


Figure 2. The value–price spectrum of frontline adaptation and the capital that responds to each case (schematic rendering of the matrix above).

Each segment rests on evidence. TRI's field analysis in Jharkhand finds that soil and water conservation works do not clear even a 10 per cent internal rate of return in the absence of an explicit payment for conservation.¹⁸ Yet ICRISAT's meta-analysis of 636 micro-watersheds reports a mean internal rate of re-

turn of 27.4 per cent and a benefit–cost ratio of roughly two.¹⁹ Both findings hold at once. Watershed development can be socially remunerative in aggregate while remaining privately non-financeable at any individual site, because the returns are diffuse and accrue as avoided losses rather

than as recoverable revenue. This is stock building in its purest form: soil, water and biodiversity gains are the return, and they never convert into a price signal.

Agroforestry is the clearest case in the partially viable band. It is viable over a full rotation, yet of the nearly ₹20 lakh crore in institutional agricultural credit available annually, less than five per cent reaches it — held back by tenure complexity, collateral norms and gestation periods of five to thirty years.²⁰ Andhra Pradesh's community-managed natural farming programme shows net incomes averaging 49 per cent higher on a full-cost-accounting basis, alongside an 11 per cent yield increase.²¹ But the transition years are precisely when markets are immature and the farmer carries the risk before any gain arrives. This is the one segment where blended finance is the right answer, and it is also where stock and flow are hardest to separate: the establishment years build stock, the mature-year harvests are flow.

Segmentation, then, is not an exercise in classifying whole projects. It is the identification of distinct economic functions within them — which matters because real interventions rarely sit in a single segment.

2.4 Real interventions contain several segments

Most real interventions are not in a segment; they contain several. A community-managed solar micro-grid is one asset with three financially distinct com-

ponents. The distribution backbone behaves like a public good, because ability to pay sits below cost recovery. Grid-distance economics sharpen the point: where the existing grid lies within roughly 10–15 km, extension is often cheaper than a mini-grid, while extension costs rise steeply beyond roughly 30 km — so the hamlets where microgrids make technical sense are precisely those where paying capacity is thinnest.²² The productive anchor loads — solar mills, cold storage, irrigation pumps — form the commercially viable core. And the operating transition, a technician cadre and a tariff collection habit, sits in the partially viable band.

An agroforestry plot decomposes across time rather than space. For three to five years the farmer bears sapling, protection and watering costs while returns stay thin. In mature years the plot yields fruit, fodder and timber at market prices: the flow. Throughout, it produces an unpriced layer of soil moisture and microclimate regulation that belongs with grants — the stock on which that flow depends.

Decomposition, and the layered capital-stacking it implies, is the essential institutional function. It is performed nowhere in India's planning chain. That absence, rather than any failure of articulation at village level, is the central problem this paper addresses. Which capital family can respond to each segment, and where each one stops, is the subject of the chapter that follows.

3 Supply architecture

₹1,092 bn

Tracked finance for adaptation-related sectors a year in 2021–22 (USD 15 billion), up nearly threefold.

99%

Of on-farm adaptation financed by public sources; domestic private finance contributed ₹0.7 billion.

58%

Of on-farm adaptation finance absorbed by crop insurance — a single ex-post instrument.

Tracked finance for adaptation-related sectors rose nearly threefold, to ₹1,092 billion (USD 15 billion) a year in 2021–22.²³ That sounds substantial until the composition is examined. Public sources financed 99 per cent of on-farm adaptation; domestic private finance contributed ₹0.7 billion (USD 0.01 billion) to the entire sub-sector. Crop insurance, a single ex-post instrument, absorbs 58 per cent of on-farm adaptation finance — a system paying for interrupted flow after the fact rather than building the stock that would have prevented the interruption.

The supply side of adaptation is the state, exactly as the demand analysis predicts. And the pattern of public spending favours flow extraction over protection of stock. Since demand is segmented, no single source of capital can serve all of it; the question is which source matches which segment. What follows sets out where each capital type reaches and where it stops, the institutional rails through which each is delivered, and the band that none of them serves.

3.1 Where each capital type reaches, and where it stops

Commercial capital funds activities producing excludable, monetisable returns, and stops where recoverable cash flows do not exist. It will finance an FPO's solar cold store, because the electricity savings and the reduced spoilage are recoverable. It will not finance a soil bund on a common. This is a wall, not a slope.

Concessional and blended capital belongs in the partially viable segment and is bounded at both ends. Used where commercial finance would have

gone anyway, it wastes subsidy and distorts the market; ADB states the discipline plainly in its blended-finance guidance, holding that concessional funds should be the minimum necessary to mobilise a transaction and should not be deployed where commercial capital would have arrived unaided. Used on pure public goods, concessional capital has no eventual return to bridge to.²⁴ The record bears the constraint out. Only 6.5 per cent of roughly USD 76 billion in climate blended-finance deal value between 2013 and 2023 went purely to adaptation, and adaptation remained the smallest market segment at 19 per cent of transactions and 13 per cent of flows in 2019–2024, against mitigation's 56 and 64 per cent. Blending cannot manufacture a return the underlying activity does not produce.

Grants and public budgets are the only instrument for the non-viable segment, and the correct one for nascent interventions where an evidence base must be built before any return can be demonstrated. This is not a residual category. With public sources financing 99 per cent of on-farm adaptation, grants and budgets are the adaptation finance system for the segment that matters most to the most vulnerable.

3.2 Vehicles for each segment

The public rural-finance rails. The Rural Infrastructure Development Fund, created in NABARD in 1995–96, is the workhorse, with an annual corpus of roughly ₹35,000 crore under its 2025–26 tranche.²⁵ RIDF can build the public assets of the non-viable segment — check dams, percolation tanks, conservation structures on commons —

but it lends to state governments against sovereign guarantee, and its funds flow through state finance departments rather than to Gram Panchayats. The National Adaptation Fund for Climate Change, established in 2015 with NABARD as National Implementing Entity, sanctioned thirty projects across twenty-seven states and union territories at a total cost of ₹847.48 crore.²⁶ For practical purposes it is now dormant, and no architecture should assume otherwise.²⁷

The FPO, infrastructure and carbon-plus rails. For the commercially viable segment the relevant institutions are NABKISAN and NABSamruddhi, the ₹1,000 crore Credit Guarantee Scheme for FPOs, and the Agriculture Infrastructure Fund — a ₹1 lakh

crore facility offering a 3 per cent interest subvention on loans up to ₹2 crore, operational to 2032–33, under which ₹66,310 crore has been sanctioned for 1.13 lakh projects.²⁸ These are functioning rails for drip irrigation, solar cold storage and post-harvest assets. They reach FPOs and agri-entrepreneurs, not the poorest households. Alongside them sit blended and carbon-plus vehicles: state climate funds, structures meeting additionality tests, and platforms such as the Intellecap–Transform Rural India carbon finance initiative, intended to help more than a million smallholder farmers access carbon and climate finance. These work only where a monetisable outcome exists. Carbon finance operates where sequestration is verifiable; it cannot operate where the benefit is a functioning aquifer.

○ THE FINANCING VACUUM

Between them lies a vacuum. Under the RBI's 2022 framework, a microfinance loan is a collateral-free loan to a household with annual income up to ₹3 lakh, with repayment obligations capped at half of monthly household income. Actual ticket sizes are far smaller — the average stood at ₹45,124 at end-September 2023 — so the practical ceiling for adaptation investment is around ₹1 lakh.²⁹ Above it, collateral-based lending begins; the collateral-free agricultural limit reached ₹2 lakh only in January 2025. A shared solar pump, a farm pond, a household contribution to a microgrid: each of these falls in the gap that no supplier is structured to serve. Microfinance is too small and too short-tenor, commercial banks want collateral, RIDF lends to states, and the Agriculture Infrastructure Fund starts at FPO scale.

Each rail serves one segment competently. What none of them is built to do is read a need that spans several. The scarcest supply-side element is not

capital but the vehicle that converts a segmented need into a proposition each capital type can recognise.

4 The broken chain between demand and finance

◆ KEY TAKEAWAYS

- ◆ Supply fails twice: allocatively, by funding flows over stocks; architecturally, by lending to sectors and borrower categories rather than to adaptation need.
- ◆ Community narratives carry information no sensor holds — and formal finance discards them as testimony.
- ◆ Climate impact and adaptation need are not uniform even within a single administrative block.
- ◆ The demand side can name its needs. It cannot package them.

4.1 Supply-side institutional failures

Adaptation is, as the Climate Policy Initiative puts it, largely a sub-national issue, because states are responsible for the core adaptation-relevant sectors and account for more than 60 per cent of general government expenditure. What constrains adaptation finance is therefore not only the volume of capital available but the way institutions allocate, deliver and organise it. Two failures dominate.

The first is allocative. Public spending targets near-term flows: a significant share of adaptation finance supports procurement, input subsidies and ex-post compensation rather than the ecological and social stocks that underpin resilience. Vulnerability persists even as flows are maintained. Public spending is also the only instrument capable of investing in value over price, since by definition no other player can enter the non-viable segment — which makes the allocative bias doubly costly.

The second is architectural. Financing institutions lend by sector and borrower category, not by adaptation need, and the principal rails capable of stock-building are not village-facing by design. RIDF lends to states. The Agriculture Infrastructure Fund and the credit-guarantee schemes channel capital to FPOs and entrepreneurs. Blended vehicles are constrained by the requirement for monetisable outcomes and by the additionality discipline. And the microfinance-to-commercial vacuum leaves household- and hamlet-scale investment unserved. A public-dominated supply landscape is neither automatically pro-poor nor automatically oriented to preserving stock.

4.2 Demand-side institutional failures

TRI's field evidence shows the mirror-image failure: demand identification at village level is uneven, fragmented and largely illegible to supply institutions. The most consequential finding is that climate impact and adaptation need are not uniform even within a single administrative block. The Kanker cluster in Chhattisgarh demonstrates this decisively.³⁰

FIELD EVIDENCE · KANKER BLOCK

Sidesar

Sidesar — 1,132 people, 227 households, six kilometres from the district headquarters — has zero forest land, which is unique across all LCAT clusters. Its groundwater has fallen from 45 feet to between 200 and 250 feet, reaching 330 in places. Thirteen of its fourteen ponds have been dry since late February. Its livestock base has collapsed to 30 or 40 of 227 households holding cattle. Its governance, by contrast, is the cluster's strongest: twenty active self-help groups and a Gram Sabha that meets weekly. Its ranked priorities are water conservation and ponds, tree plantation, youth employment, cold storage and crop diversification, and waste management.

FIELD EVIDENCE · KANKER BLOCK

Barchegondi

Barchegondi, nineteen kilometres away and 86 per cent Scheduled Tribe, is the mirror image. Its traditional name, *Van-char Kinare*, means village at the forest edge. It holds 698 hectares of forest and 120 Forest Patta holders. Its groundwater has fallen from 150 feet to 500 in a decade, and three borewell attempts are now needed for one success. Its distinctive stresses are the 'Polythene Paradox', in which households burn plastic as a fire-starter and breathe the consequences, and the smuggling of teak. It also carries the cluster's highest institutional density: a 95-member youth group, a near gender-balanced Community Forest Resource Management Committee, a PESA Justice and Peace Committee,³¹ a fishery cooperative, eight self-help groups and 91 planned natural-resource-management works.

Two villages in one block need opposite interventions. A district-level instrument cannot see the divergence, because an instrument calibrated on district averages allocates to the statistical mean — and in Kanker block the mean village, with moderate forest and moderate water stress, does not exist.

Community narratives carry information no sensor holds. Elders in Barchegondi and Margaon, two districts apart, independently reported the loss of the earthy fragrance of first rain on dry soil. Residents of Daspur observed that when there was forest, the committee existed; now that the forest is gone, the committee is no longer active. An elder in Sukhedi reports water at 800 feet. In Naharpura, the tank stands built and no water comes.³² These accounts date ecological change, attribute it, and rank what

a community would restore first. They arrive as testimony rather than time series, which is why formal finance discards them.

Even well-articulated priorities rarely become bankable propositions. GPDPs record needs as lists, without the characterisation finance requires, and local institutions often lack the aggregation, and fiduciary capacity lenders need. The demand side can name its needs. It cannot package them.

4.3 The translation gap

Communities identify adaptation needs but cannot convert them into economically characterised investment demand. Financing institutions deploy several forms of capital but cannot interpret heterogeneous adaptation demand or assemble layered

solutions to meet it. The gap sits between those two capabilities, and it is what this paper means by the broken chain.

CPI's macro diagnosis identifies the informational shortfall on the supply side: India cannot finance what it cannot see. TRI's field work supplies the complementary piece. Without sub-panchayat, geotagged, time-phased demand data, a tagging exercise will misallocate, because tags applied at district granularity cannot capture village heterogeneity. A single tag on a district scheme in Kanker would underfund restoration in Sidesar and misdirect enforcement resources in Barchegondi, simultaneously.

The gap is epistemic and institutional at once. Epistemically, adaptation value in the no-price and low-price cases remains illegible to instruments that read price and flow rather than stock and social value. Institutionally, neither public finance machinery nor blended vehicles hold a routine last-mile mechanism that accepts community evidence, decomposes an intervention across segments and time, and routes each component to the capital family that fits. CPI's macro levers are individually valid and collectively inert without the village-level feed; TRI's village plans stay unrealised unless state mechanisms can read them. The instruments that allocate money and the planning units that generate need do not share a common ledger.

5 The solution

◆ KEY TAKEAWAYS

- ◆ Reform the supply side so finance can be targeted and accounted for; reform the demand side so priorities become legible and sequenced.
- ◆ Odisha's Climate Budget is the operating precedent for tagging; extending it to the GPDP is the remaining step.
- ◆ The Sixteenth Finance Commission created no dedicated climate grant — but half of the ₹4,35,236 crore basic grant is untied and available today.
- ◆ Reforming the GPDP rather than building a parallel instrument is cheaper and more durable. The chassis exists.

The diagnosis points to a threefold remedy: reform the supply side so finance can be targeted and accounted for, reform the demand side so community priorities become legible and sequenced, and demonstrate the integrated model through instruments already operating.

5.1 Supply-side reforms

Public capital and Finance Commission architecture: correcting the allocative failure. Public finance carries the structural burden of adaptation and will continue to carry it across the non-viable segment and much of the partially viable one. Correcting the allocation bias requires line departments to reorient employment guarantee programmes, rural infrastructure funds and sectoral subsidies away from flow extraction and toward stock-building: soil and water conservation, aquifer recharge, agroforestry establishment, ecosystem restoration. The non-viable segment should be read not as a failed investment opportunity but as public investment in resilience and rural livelihoods — green jobs delivered through employment-guarantee convergence. In Mandla district, treatment of a two-kilometre seasonal stream enabled second-crop irrigation on approximately 31 acres, an illustration of how decentralised planning and public employment programmes generate rural livelihoods and climate resilience in the same works.³³ Public investment funds and state facilities — the Rural Infrastructure Development Fund and the Compensatory

Afforestation Fund Management and Planning Authority among them — should adopt explicit adaptation screens that prioritise non-viable public goods and early-phase partially viable actions where private finance cannot enter.

On intergovernmental transfers, the immediate window has closed, and the argument must shift accordingly. The Sixteenth Finance Commission's award for 2026–31 created no dedicated climate grant for panchayats.³⁴ What it did leave is usable fiscal space: rural local bodies receive ₹4,35,236 crore over the award period, and half of the basic grant is untied. That untied portion is available for adaptation today. States can direct vulnerability-weighted transfers downward now, using a certified climate-integrated GPDP as the directing instrument, while positioning for the Seventeenth Finance Commission begins immediately with panchayat-tagged climate expenditure as the evidence base.

State-level intermediation: translating village demand into finance. The state is the natural translator between dispersed village adaptation demand and the capital families that could serve it. Individual village-scale propositions are too small, too heterogeneous and too thinly documented for any financier to appraise. A state-level intermediation entity can aggregate propositions from certified climate-integrated GPDPs, standardise their economic characterisation, and stand as a counterparty that finance can read. The Tamil Nadu Green

Climate Company, established in January 2022 and now the implementing agency for a World Bank-approved coastal resilience programme, demonstrates that a sub-national public entity can serve as counterparty for both domestic and international climate finance.³⁵

An aggregated pipeline of this kind will carry a mix: partially viable propositions needing private capital plus de-risking, commercially viable propositions private capital can finance on its own, and non-viable propositions that only grants and public budgets can carry. That mix extends the state's role beyond streamlining funds and implementing activities. It makes the state a participant in de-risking private capital, and so in enlarging the flow of concessional funds. The Credit Guarantee Trust for Micro and Small Enterprises is the precedent: state guarantee coverage of 75 to 85 per cent of the credit facility pooled in private capital that would not otherwise have moved. Translator and risk-taker are the state's two jobs on the supply side, and both are currently vacant below the state capital.

Budget tagging: correcting the epistemic failure.

Existing finance systems cannot systematically distinguish expenditure that builds stock from expenditure that sustains flows. Budget tagging converts planning visibility into fiscal action.³⁶ Applied to GPDP line items and rolled up into block, district and state budget documents, it makes explicit whether an expenditure finances stock or flow, and which segment it belongs to.

Odisha is the operating precedent. Its Finance Department issues annual Climate Budget documents using a phased Climate Change Impact Appraisal built on Climate Change Relevance and Sensitivity Shares, and its climate-tagged budget reached ₹36,065 crore in 2025–26, up from ₹31,317 crore, with more than 70 per cent of allocations in agriculture, energy and disaster management identified as climate-relevant.³⁷ A proposal under discussion with Chhattisgarh's Finance Department sets out a two-track design: universal three-tier tagging of all major schemes, scoring each scheme's climate relevance as principal (100 per cent weight), significant (40 per cent) or not targeted, alongside

deep-dive appraisals for high-value schemes.³⁸ Custody sits with the Finance Department, line departments self-tag through nodal officers, and an independent panel assures quality.

Both precedents operate at state level. Extending the same architecture down to the GPDP is the remaining step. And the step after that is audit: tagging without audit is decorative, while tagging with audit generates the information needed to reallocate.

5.2 Demand-side reforms

A landscape assessment that captures village-level heterogeneity.

LCAT's two-session, eight-theme protocol converts community narrative into structured, geotagged data without stripping it of meaning. By time-stamping change and eliciting local valuation, it produces the evidence needed to prioritise interventions, justify stock-oriented investment and support non-economic loss accounting. Institutionalising it within GPDP cycles — through facilitation budgets, SHG-led data generation and digital templates feeding the eGramSwaraj platform — creates the raw material every supply-side reform requires.

Climate-coded GPDP action planning: converting community priorities into investment demand.

This is the translation function performed at panchayat level. It decomposes community priorities into sequenced interventions, assigns institutional owners, estimates costs, and classifies every line by segment and by stock-or-flow designation. Where current practice produces a list, the climate-coded plan is programmatic. Tier 1 actions are community-led, low-cost and immediate. Tier 2 actions require facilitation and small concessional inputs. Tier 3 actions require scheme convergence, public grants, or blended and commercial capital. That sequencing is what prevents over-subsidisation of commercially viable phases and underfunding of establishment periods, and the certified plan becomes the eligibility instrument for vulnerability-weighted grants and departmental convergence.

Climate budget tagging at village level: joining local planning to higher-level fiscal systems. The state-level tagging architecture set out above needs a village-level counterpart. Panchayat coding must be structured so that GPDP line items translate directly into state budget classifications and SAPCC monitoring indicators, with Tier 1 tags rolling up into district and state ledgers without manual re-entry. This inverts the present situation, in which state tagging cannot be decomposed to the village and village expenditure cannot be aggregated to the state.

Reforming the GPDP rather than building a parallel instrument is both cheaper and more durable. As of March 2026, 2,54,604 of India's 2,64,211 gram panchayats and equivalent bodies had uploaded GPDPs to eGramSwaraj.³⁹ The chassis exists. Climate integration is the upgrade.

5.3 Proof of concept

Four pieces of evidence follow. Three show the pathway working at a different point in the chain: one at village scale, one re-reading an existing public programme through the framework, and one shaping a new state scheme from the outset while aggregating demand at state scale. The fourth follows a single need along the entire length of the chain.

DWEEPTI — Decentralised Women Empowerment on Energy and Policy for Transformative Inclusion — is a Chhattisgarh women-led decentralised renewable energy scheme for 2026–2031, and the clearest demonstration that the community-evidence-to-policy pathway can run end to end.⁴⁰ Between 2020 and 2026, TRI supported community-managed distributed renewable energy across 79 villages in Jharkhand and Chhattisgarh, reaching 4,012 households, seeding 72 women-led enterprises, installing 1.12 MW of capacity and bringing 18,000 acres under community-managed solar irrigation for 17,000 farmers.⁴¹ In Simdega, women-led Village Energy Committees accumulated ₹92 lakh in maintenance funds while member families saved ₹246 a month on kerosene against roughly ₹130 paid for electricity. In Machiaghat, a community-led 8 kW system

ended seventy-seven years without electricity for 35 households and generated some ₹40,000 a year for flourmill and rice-huller entrepreneurs.⁴²

The decisive step was translating that field base into standardised evidence. Locality Compact consultations across four districts in September 2025 surfaced a consistent set of women-articulated barriers: unreliable access; safety and lighting deficits in Anganwadis, health centres and panchayat buildings; an operations-and-maintenance crisis captured in the recurring question of who will fix this when it breaks; and the absence of both local financing and local ownership structures. The scheme's design pillars answer those barriers almost one to one — a 'Solar Didi' cadre of trained local women operators, SHG and cluster-level federation vendor registration, state bulk procurement, and dedicated maintenance networks.

Birsa Harit Gram Yojana in Jharkhand shows how an existing public programme reads as a climate stock-building instrument once viewed through this lens. A plantation and rural employment scheme covering roughly 1.45 lakh acres and 1.6 lakh households across all 264 blocks, with about ₹5,000 crore invested since 2020–21, it builds soil, water, biomass and livelihood assets.⁴³ Every element the community values is a named cost line in the five-year estimate — site preparation, the compost pit, the cattle-proof trench, the water-harvesting structure, even the worksite creche — each with an explicit labour-material split, 72.8 per cent labour overall. The estimate routes all three segments at once: public wages build the unpriced asset base, intercropping bridges the gestation years, and carbon finance, with more than 45,000 farmers registered through a platform run with Intelicap and Rabobank, funds maintenance after scheme support ends. What the lines do not yet carry is a climate code. That is precisely the increment tagging adds.

Barchegondi's climate-integrated GPDP demonstrates the tiering in practice.⁴⁴ Tier 1 deploys the 95-member youth group as a forest-monitoring team, mobilises the fishery cooperative to desilt all six community ponds, and passes a Gram Sabha

resolution regulating new borewells against recharge capacity. Tier 2 executes ridge-to-valley natural-resource-management works through employment-guarantee convergence⁴⁵ and equips eight self-help groups with mahua cleaners and amla dryers. Tier 3 maps each remaining demand to a named scheme: solar irrigation expanded from four to twelve systems, 698 hectares of forest canopy, non-timber forest produce processing, cold storage, piped water and youth skilling. Funding gaps become visible line by line.

Read together, these cases invert the conventional sequence. Communities are not the beneficiaries at the end of the adaptation finance chain but its origin — evidence generators whose observations, given an institutional route upward, become policy. Adaptation projects fail so often because fragmented demand never becomes a coherent pipeline. What the three cases do not yet show is a single need travelling the full length of the route at once.

One need, end to end: desilting the ponds at Sidesar

The claim that assessment, plan and tag join into a single ledger is only as good as a trace that follows one need along the whole of it. Sidesar supplies the cleanest one. Thirteen of the village's fourteen ponds have stood dry since late February, and pond desilting is the first of its five ranked priorities.

Landscape assessment

The LCAT entry records the ponds under the hydrology and land-cover themes: thirteen of fourteen dry, groundwater fallen from 45 feet to between 200 and 250, a livestock base collapsed to 30 or 40 of 227 households. The entry is dated, geotagged to the pond, ranked first by a Gram Sabha that meets weekly, and attributed by elders to lost recharge rather than to rainfall alone. That attribution is evidencing no district dataset holds.

Characterisation

The beneficiaries are the revenue village rather than a defined set of users. The benefit is recharge and livestock water, accruing as avoided loss over five to fifteen years. It is non-excludable, and no user charge is collectible against it.

Segmentation

The desilting itself is non-viable: real value, no price. But the entry decomposes, as most do. Silt lifted onto adjacent degraded fields is a stock transfer with a priced return in the following kharif. A pond-fed cluster of nutrition gardens run through the village's twenty active self-help groups sits in the partially viable band — viable once established, unfinanceable before.

GPDP tier

Desilting enters the climate-integrated plan as a Tier 2 line, executed through employment-guarantee convergence with a named owner and a five-year cost. Silt application enters as Tier 1 community self-provision. The nutrition-garden cluster enters as Tier 3, seeking a small concessional tranche through the state intermediation vehicle.

Climate tag

Each line carries two markers rather than one. Relevance is scored principal for the desilting and the silt application, significant for the gardens; the stock-or-flow declaration reads stock, stock and both respectively. That second marker is what distinguishes these lines from the ex-post compensation that would follow the same drought.

State ledger rollup

Because the panchayat codes are structured to the state's own budget classification, the Tier 2 line appears in the block's climate-tagged expenditure without manual re-entry, aggregates into the district's water-sector allocation, and surfaces in the state Climate

Budget as principal-relevance, stock-building expenditure in a panchayat that the 2021 sub-district vulnerability assessment already ranks as exposed. One record then answers three questions at three levels: what Sidesar needs, what the block spent, and whether the state's adaptation spending built anything that will still be there in a decade.

Nothing in that sequence requires an instrument that does not exist. It requires the three that do — landscape assessment, climate-coded plan, budget tag — to share a single identifier for the pond. That is the whole of the proposal, and the reason the recommendations in this paper amend existing instruments rather than propose new ones.

6 Ecosystem enablers: best practice from the states

Sidesar shows the mechanism working in one village: assessment feeding a climate-coded GPDP, tagged and routed through a state intermediation vehicle. Scaling from pilot to national system needs

something else — an enabling ecosystem of replicable practices. Their absence is why promising pilots stall. Five constraints matter, and each already has a state precedent.

Mandate

Integration of Village Poverty Reduction Plans into GPDPs, made mandatory through joint ministerial advisories under the People's Plan Campaign, shows that GPDP processes can be reoriented by policy instruction.⁴⁶ Requiring Gram Sabha certification of climate-integrated plans as a precondition for performance grants converts untied fiscal space into programmatic leverage.

Data protocol and training cadence

Scale needs a nationally standardised, locally adaptable protocol run by cadres that already exist — Gram Rozgar Sewaks, NRLM community resource persons, SHG federation staff — rather than specialist civil-society facilitation for every panchayat, which does not scale to 2.64 lakh of them.⁴⁷ Chhattisgarh's Mor Gaon Mor Pani campaign shows the achievable cadence: launched in April 2025, it divided the state into 626 clusters and trained 56,112 villagers, elected representatives, officials and field workers in water conservation.⁴⁸

Finance windows and intermediation

State special purpose vehicles aggregate demand, underwrite early-stage costs, host blended facilities and act as counterparty for multilateral and private finance. State climate funds providing first-loss capital, concessional tranches or guarantee pools can co-finance partially viable establishment phases.

Devolved control and panchayat mandate

Kerala offers the longest-running precedent: since 1997–98, under its People's Planning Campaign, the state has devolved a large share of plan resources to local governments as an untied Development Fund, following a 1996 decision to devolve 35 to 40 per cent of plan funds.⁴⁹ The Haritha Keralam Mission, launched in December 2016, operates as a convergence platform across water conservation, waste and agriculture. Uttar Pradesh supplies the panchayat-level climate mandate, launching climate-smart action plans for 43 gram panchayats identified through multi-criteria vulnerability assessment, alongside a standard operating procedure for scaling.⁵⁰

Gender as structural design

Women carry disproportionate adaptation burdens and are the primary members of the self-help groups through which community planning flows. The Deendayal Antyodaya Yojana had mobilised 10.05 crore women into 90.91 lakh self-help groups by December 2025, making it India's largest standing community-evidence infrastructure.⁵¹ States that institutionalise women's collectives as procurement vendors or certified implementation agents find that female leadership increases local uptake and asset sustainability.

Each level of the chain carries a distinct facilitation role, sequenced from the gram panchayat upward rather than parachuted from the state down.

LEVEL	WHAT MUST BE FACILITATED	SEQUENCING ROLE
Gram Panchayat	Landscape assessment feeding a climate-coded GPDP; Gram Sabha certification; Tier 1 self-provision works	First — the plan originates here
Block	Facilitator training and quality assurance; aggregation of panchayat plans; convergence of employment-guarantee and livelihood-mission resources	Second — aggregation and support
District	Climate finance reporting; departmental convergence committees; assembly of village propositions into investable pipelines	Third — convergence and pipeline
Bioregion / landscape	Ecosystem-scale instruments: nature-based solutions finance, carbon and biodiversity credits, CAMPA flows	Cross-cutting — between district and state, no current instrument facilitates this level
State	SAPCC monitoring; budget tagging and public disclosure; finance windows and SPV intermediation	Fourth — accounting and finance

One scale in that table is unaddressed by any current instrument: the landscape or bioregion, where ecosystem services, forest-dependent livelihoods and indigenous adaptation knowledge concentrate. The flows at that scale exist, and they are large. By March 2023, ₹55,292.40 crore had been transferred to 34 states and union territories under the

Compensatory Afforestation Fund.⁵² India's Carbon Credit Trading Scheme moved into operation over 2025–26, placing compliance obligations on entities in energy-intensive industrial sectors, and the Green Credit Programme incentivises voluntary plantation and eco-restoration.⁵³ Both mobilise private finance. Neither allocates it to adaptation.

The difference between them is instructive. Under the trading scheme the money is private on both sides — obligated entities that beat their emission-intensity targets sell credits to those that do not — and it is a transfer between industrial firms, with no authority standing between them holding discretion over where the proceeds land. The state sets the obligation, the unit of account and the registry; it does not direct the flow. Under the Green Credit Programme, the flow is directional: corporate money pays for plantation and eco-restoration on degraded land, and the allocation decision sits with the programme administrator and the state forest department, which determine where planting occurs and against which entity's obligation it is credited. In neither case does a gram panchayat appear as allocator, counterparty or recipient of record. The two schemes qualify nothing in the argument here; they illustrate it. Private capital can be mobilised at scale once the state defines an obligation and a unit of account — and what determines whether any of it reaches a village is who holds the allocation decision, not whether the money exists.

That question is not only fiscal. Adaptation finance is redistributive in its founding logic, and where it is designed without the working principles of environmental justice — distributive fairness in who receives resources, procedural fairness in who decides, and recognitional fairness in whose knowledge and loss count as real — it does not merely underperform. Distributive fairness is inseparable from the distributive equity that the second Locally Led Adaptation design feature, on participation, inclusion and community empowerment, treats as a prerequisite. Absent these, a second layer of harm follows: cultural and heritage loss, procedural disenfranchisement, psychological toll, and maladaptation that redistributes risk rather than resolving structural inequity. Each of those failures has an instrumented answer in this architecture. Recognition comes through the landscape assessment's cultural and sensory themes. Procedure comes through the Gram Sabha whose approval a certified plan requires. Restoration comes through the non-economic loss record set out in §7.2. And decomposition-and-routing acts as the structural check against funding the wrong thing well.

○ THE SAFEGUARD

The field record and the review evidence both suggest such losses are the default rather than the edge case. A 2026 systematic review of 132 documented conflicts over land-use projects pursued under green credentials found reported human-rights violations in 85 per cent of cases, threats to cultural and spiritual rights in 46 per cent, direct financial gains to private developers in 70 per cent against direct benefit to the wider local population in 5 per cent, and negative environmental trade-offs in 45 per cent.⁵⁴ Landscape-scale finance arriving without a community-scale counterparty does not stay neutral; it acquires the risk profile the green-grabbing literature documents. A certified, Gram Sabha-approved receiving instrument is the safeguard that separates landscape finance from landscape appropriation.

7 From use cases to a national framework

◆ THREE OPEN QUESTIONS

- ◆ Can the pathway become a standing norm rather than an exception?
- ◆ Can it capture losses that carry no price?
- ◆ Can it connect to international adaptation finance that currently stops far above it?

The architecture assembled so far runs from community evidence to finance: a landscape assessment that renders local climate value legible, a climate-coded GPDP that decomposes that value into sequenced, costed lines with named owners, and climate budget tagging that makes public money legible downward. The proof-of-concept cases show that the pathway can work — so long as finance and governance stay inside the national system. Three questions remain. Can the pathway become a standing norm rather than an exception? Can it capture losses that carry no price? And can it connect to international adaptation finance that currently stops far above it?

7.1 Making the community-to-finance pathway routine

DWEEPTI and Barchegondi's climate-integrated GPDP show that structured community evidence can be translated into financeable demand in specific cases. An instance is not yet a system. Unless the pathway is institutionalised, translation stays exceptional, and three institutional changes would turn DWEEPTI's sequence into a repeatable norm.

First, formal recognition of community institutions as climate-evidence actors. This would give the structured observations of self-help groups, village organisations and cluster-level federations standing in GPDP preparation and SAPCC monitoring, as Village Poverty Reduction Plans already have. Recognition should extend to the landscape itself — acknowledgement within scheme guidelines of the locally valued species and ecosystem services that underpin local energy use and livelihood — and be

accompanied by strengthening of panchayats' own-source revenue, so that certified plans rest on a local fiscal base rather than on transfers alone.⁵⁵ Recognition of this kind closes the epistemic half of the translation gap. It gives community observations standing in the same planning chain that allocates Finance Commission grants and SAPCC resources, so that adaptation finance can originate in village-level evidence instead of treating communities as downstream beneficiaries.

Second, a state protocol for community climate evidence. The protocol supplies standardised methods, trained facilitators drawn from existing cadres, quality assurance, and a defined route into the climate-integrated GPDP. It is the operational bridge between LCAT and the climate-coded plan, and what it guarantees is that segmented, stock-or-flow classified demand enters the state's fiscal system in a form finance can read.

Third, a national framework anchored in locally led adaptation. The design features already exist, in the Principles for Locally Led Adaptation and the World Bank's operational approach. What is missing is the Indian instrument that operationalises them at village scale. Embedding the framework in the Indian context means treating the certified climate-integrated GPDP as that instrument.

7.2 Translating non-economic loss into financed restoration

The translation gap does not concern economic value and cash flows alone. The most under-recognised evidence communities hold concerns losses

that resist monetary valuation. The UNFCCC technical paper identifies eight categories: life, health, human mobility, territory, cultural heritage, indigenous knowledge, biodiversity and ecosystem services.⁵⁶ The first two deserve emphasis in the Indian account, since morbidity and premature mortality from extreme heat remain intangible costs — absent from income-loss estimates, unrecorded in any budget line — even though they fall most heavily on the informal, outdoor and rural workforce.

This paper's field record already contains such data. The lost fragrance of the first rain. The committee that dissolved when the forest did. The vanished wildlife of Mor. These are community-articulated non-economic losses, invisible to finance because no instrument records them, and what is unrecorded cannot be compensated, restored, or even mourned in public accounts. LCAT's cultural and sensory themes capture exactly this information; communities know what they have lost and what they would restore first. The missing step is translation into planning, and a climate-integrated GDP is the only instrument positioned to convert that articulation into restoration priorities with expenditure lines against them.

At global scale the pattern repeats. The Fund for responding to Loss and Damage was operationalised at COP28, but no community-level direct-access modality has been defined.⁵⁷ Without a village-level instrument, even loss-and-damage finance stops far above the community that holds the evidence: non-economic loss remains invisible stock rather than a recognised object of finance, and the certified village plan is the missing ledger in both cases.

COP30 in Belém narrowed that gap at the top of the chain without closing it at the bottom. Parties endorsed the Barbados Implementation Modalities for the Fund, which establish grant-based access for both extreme events and slow-onset processes, prioritise small island developing states, least developed countries, Africa and Asia, and locate the Fund's governance in equity, common but differentiated responsibilities and respective capabilities, and the polluter-pays principle. Pledges are reported to have passed USD 700 million since COP28, with ac-

cess modalities, eligibility criteria and proposal routes now being made operational.⁵⁸ The modalities draw explicit links to early warning, risk pooling and non-economic loss under Article 8 — the connection this section argues matters most.⁵⁹

Three features of that settlement bear on the argument here. Grant-based access removes the debt objection that makes loss-and-damage finance unusable for households already bearing the loss. Recognition of slow-onset processes matches what the field record actually contains: the forest that receded across two decades, the spring that stopped, the vanished wildlife of Mor. And the Fund's eligibility design, calibrated to the least developed and most exposed, leaves large federal states such as India in an ambiguous position — able to demonstrate acute need at sub-national resolution, but obliged to present it through a national channel that has no instrument for reading village evidence. India's difficulty is not that its losses are small. It is that they are recorded nowhere in a form the Fund can accept. Every advance at Belém therefore raises the value of the missing link rather than supplying it. The modality now exists. The counterpart still does not.

7.3 The international dimension

The vertical architecture of international adaptation finance runs into the same translation failures this paper has traced within India. Funds nominally designed for climate resilience rarely reach village institutions — not because local adaptation needs do not exist, but because no recognised community-scale ledger exists through which those needs can be expressed, sequenced and financed. The bureaucratic translation of international funds mirrors the domestic chain from NAPCC and SAPCC down to the gram panchayat. At both scales, finance stops at the level of governance that lacks a formal mechanism for reading village-level evidence.

Vertical funds are largely inaccessible below national level. NABARD is a Green Climate Fund direct access entity and India's sole Adaptation Fund national implementing entity; the Small Industries Development Bank of India also holds direct access

status. The Adaptation Fund has raised its ceilings, doubling the country spending cap to USD 40 million and raising the single-country project cap to USD 25 million in April 2025, and it offers a locally led adaptation window of up to USD 5 million per project outside the country cap.⁶⁰ Even so, direct access lands at a national entity, with no modality reaching a panchayat. Just as domestic scheme finance stops at state departments for want of an instrument that reads certified village plans, direct access stops at the national entity for want of a modality that recognises a certified climate-integrated GPDP, or a cluster of panchayats, as an eligible counterpart.

The Green Climate Fund's Enhanced Direct Access pilot was designed precisely to devolve decisions sub-nationally, and it has been chronically under-used. Its pioneering project, Namibia's 'Empower to Adapt', devolved grant decisions to community conservancies and exceeded its targets, reaching approximately 109,000 beneficiaries against a planned 76,500 and bringing 7.1 million hectares under improved management through 54 community-based organisations.⁶¹ The modality can reach the community level. India has not used it.

The measurement architecture agreed at Belém sharpens the same point. COP30 adopted an indicator set for the Global Goal on Adaptation — reported as fifty-nine indicators spanning water, agriculture and food, health, ecosystems, infrastructure and human settlements, livelihoods and poverty, and policy processes, together with cross-cutting elements covering finance, capacity-building, technology transfer, gender and human rights. The set advances the UAE Framework for Global Climate Resilience and the Baku Adaptation Roadmap, and is designed to be read against National Adaptation Plans rather than reported in isolation. Its methodological ambition is the part that matters here: the indicators privilege impact, such as vulnerability reduction, over output, and expect disaggregation by vulnerable groups.⁶²

That is a legibility requirement, and it is the same one this paper has made of the Indian village. An indicator asking whether vulnerability fell, disaggre-

gated by who bore it, cannot be answered from scheme-expenditure data. It can only be answered from a ledger that records condition at the point where condition is experienced. The risk acknowledged in the negotiations themselves is that a framework of this kind disadvantages data-constrained countries, since a state that cannot produce disaggregated evidence will be assessed on what it can produce rather than on what it has done. India's exposure to that risk is avoidable, because the evidence exists; what is absent is the route upward. A certified climate-integrated GPDP, with an LCAT assessment behind it and a non-economic loss record inside it, generates precisely the impact-level, disaggregated, stock-aware data the indicator set asks for. Read this way, the village ledger is not only a domestic financing instrument. It is also the reporting infrastructure for a measurement obligation India has already accepted, and the cheapest one available.

Finance was committed on the same terms, and with the same unfinished edges. Parties agreed to work toward tripling adaptation finance, to a figure reported as approximately USD 120 billion a year by 2035, situated within the New Collective Quantified Goal of USD 300 billion agreed at Baku, with a stated preference for grants and public sources over the expiring Glasgow doubling pledge.⁶³ Two qualifications travel with that number. It carries no firm sub-targets or timelines for the adequacy of means of implementation, so the tripling is an intention rather than a schedule. And it remains well below the assessed need, which UNEP places at approximately USD 310–365 billion a year by 2035 — a range this paper reports as approximate and recommends verifying at source.

The counting problem runs the full length of the chain, and it is the international analogue of the domestic legibility problem. For 2022 the OECD reported USD 115.9 billion in climate finance flowing from developed to developing countries, while Oxfam's grant-equivalent estimate for the same year was USD 27.9–34.9 billion — a gap attributed to counting commitments rather than disbursements, and loans at face value rather than at grant equivalents. A system that cannot agree how to count its flows is, a

fortiori, not counting its stock. Against a global adaptation shortfall UNEP place between USD 187 billion and USD 359 billion a year, versus public flows of roughly USD 27.5 billion, the imbalance is difficult to justify.⁶⁴ It is the same failure to see and value unpriced resilience that this paper documents at village level, operating at planetary scale.

Whatever the true figure, that distance will be closed, if at all, by instruments that can absorb the money at the point where adaptation happens — which makes the international shortfall a problem of legibility and absorption before it is a problem of volume. An asymmetry at the two ends of the chain deserves naming here. At the top, finance-ministry-grade tooling now models national climate-financing strategies for roughly a hundred countries.⁶⁵

At the bottom, no comparably standard instrument exists to plan, receive and account for finance in a single village.

Three design propositions follow: a restructured national adaptation facility, or an adjacent NABARD window, with direct eligibility for certified panchayats; an Enhanced Direct Access pilot routed through a state entity, for which the Tamil Nadu vehicle is the obvious candidate; and blended-finance pipeline generation, aggregating the Tier 3 items of certified plans into investment-ready portfolios. These are not an international annex to a domestic argument. They are the final links of the same translation architecture, and the recommendations that follow give them actors and sequence.

8 Where the argument lands

Three findings hold across the domestic and international halves of this paper. Adaptation demand is not one category but three, separated by whether the value an action creates carries a price. Each family of capital stops at a boundary drawn by that

same fact, and no amount of blending moves it. Between segmented demand and bounded supply sits a translation gap that is epistemic and institutional at once — value the instruments cannot read, and no institution obliged to read it.

Finance the stock, not only the flow.

One recommendation follows from all three, and it deserves its own beat before the detail arrives. India's adaptation spending is weighted heavily toward flow: quintals procured, hectares insured, compensation paid after the fact, of which crop insurance alone absorbs 58 per cent of on-farm adaptation finance. The soil, the aquifer, the forest, and the health and skill of the people who work them are what determine whether any of those flows survives the decade. They are also precisely what no instrument is currently required to declare, cost or count. A certified climate-integrated GPDP, tagged for stock as well as relevance and rolled into the state ledger, is the cheapest available way to make that declaration compulsory.

On paper, India's adaptation finance looks well provisioned. The instruments are numerous, the volumes are growing, and the architecture reaches from the national budget down to state missions. What it doesn't do is match the instrument to the work. That is a category error about what each kind of capital can be asked to carry, and it is compounded by a second absence: no institution is presently obliged to correct it. Adaptation finance today runs in separate verticals — international funds and bilateral flows at the top, national and state budgets in the middle, village planning instruments at the bottom — each with its own logic and metrics, and none of them under any obligation to translate community-

articulated need into economically characterised demand, or to route capital by segment and stock-or-flow designation. The practical consequence is that money nominally dedicated to climate resilience rarely reaches the Indian village as finance whose purpose and performance can be traced against local climate realities.

What follows addresses both absences. Four rules govern which capital does which work. Five moves put those rules into effect, each with an actor's name attached.

8.1 Four rules for assigning capital

Assign capital by economic segment, deliberately.

Concessional and public capital belongs in the un-priced and partially priced segments.⁶⁶ Blended finance should be confined to the narrow band where it demonstrably bridges a project to viability — and that band is narrower than current practice assumes. Commercial finance cannot serve, and should stop being asked to serve, the large class of interventions whose value is real but carries no price.⁶⁷

Disaggregate adaptation finance by whom it protects.

Community adaptation finance is a public good. It belongs with public budgets, Finance Commission transfers and grant windows, routed through the certified plan. Corporate adaptation finance protects private supply chains and should sit on corporate balance sheets. When a sugar mill funds capacity enhancement for cane-belt extension workers, it is buying raw-material security in a warming climate — a sound commercial decision, and not philanthropy. Counting such spending as community adaptation finance overstates what has actually reached the village.

Require every instrument to declare stock or flow.

Adaptation finance follows the flow, because flows are what lenders and markets can see: quintals procured, hectares insured, works completed, loans disbursed. Adaptation itself lives in the stock — the soil, the water, the forests, and the health and skill of the people whose condition determines whether any flow survives the decade.⁶⁸ A system that funds the flow while the stock depletes is consuming its own base.

Build the pipeline where stock and flow genuinely meet.

Four candidates stand out. Sustainable rice, where water and emissions savings are becoming monetisable. Decentralised renewable energy, where the field record set out in this paper demonstrates viability. Agroforestry, where carbon platforms can carry the establishment years before trees yield. And biochar, where carbon-removal markets may come to price soil-carbon services — may, not will.⁶⁹ These are the Tier 3 items a certified plan

surfaces village by village. Aggregating them into investable portfolios answers the absent-pipeline barrier from below, with community-originated propositions rather than top-down project design.

8.2 Five moves to put them into effect

Rules assign capital. They do not move it. Five institutional moves, taken in order, convert a demonstrated pathway into a standing system.

First, certify the plan. The Ministry of Panchayati Raj pilots a Climate-Integrated GPDP across five states, with a formal evaluation reporting by 2027. Gram Sabha certification of the climate-integrated plan then becomes a precondition for release of performance-linked grants — the same lever applied when Village Poverty Reduction Plans were folded into GPDP preparation under the People's Plan Campaign.⁷⁰ This amends an existing instrument rather than creating a new one; certification is a new field on a form that 2.54 lakh panchayats already file. Certification should also fix what the plan must contain: an LCAT-type landscape assessment as a standard input, with facilitation budgets for SHG federations and existing cadres, and a dedicated record of non-economic losses using the UNFCCC categories, ranked by the community as restoration priorities and classified by segment and stock-or-flow. Community priorities, including those that carry no price, then become the auditable content of the ledger rather than narrative background.

Second, make the plan legible to finance. State governments mandate climate budget tagging to block and panchayat level as part of SAPCC reporting,⁷¹ structured so that village line items roll up into district and state ledgers without manual re-entry. Each tag carries two markers rather than one: a climate-relevance score, and the stock-or-flow declaration. This creates the common language through which village adaptation priorities become visible to line ministries and funding agencies, and the second marker is the one that changes behaviour. A district that cannot see what share of its spending builds the asset base, as against maintaining throughput, has no way to distinguish adaptation from deferred depletion.

Third, open a financing window the certified plan can draw on. Certification without eligibility is paperwork. A sub-panchayat adaptation finance window under NAFCC, restricted to certified panchayats, converts the certificate into a claim on capital.⁷² Alongside it, the Department of Science and Technology's 2021 sub-district vulnerability assessment should enter the criteria governing local body grants,⁷³ so that panchayats which are both fiscally weak and climatically exposed are not asked to fund adaptation from the thinnest base. Because Finance Commission architecture is revisited on a fixed cycle, the sequence of the ask follows: vulnerability as grant conditionality now, as a devolution variable at the next opportunity.⁷⁴ The same eligibility logic should extend upward. NABARD and SIDBI's direct-access facilities should develop a window that accepts certified climate-integrated GPDPs, or clusters of certified panchayats, as counterparts for the Adaptation Fund's locally led adaptation grants and a Green Climate Fund Enhanced Direct Access pilot; and internationally funded projects should be required to demonstrate how they read GPDP and LCAT data, so that global finance strengthens the domestic ledger rather than building parallel pipelines beside it.

Fourth, build the state vehicle that carries community-originated pipelines. Access is constrained less by the volume of capital than by the absence of vehicles that can carry it to villages and frontline institutions at the right ticket size and tenor. States should establish or repurpose intermediation entities on the Tamil Nadu Green Climate Company model to aggregate the Tier 3 items of certified plans into investable portfolios — hosting guarantee pools, first-loss capital and patient concessional tranches targeted at the partially viable segment

— so that FPOs, SHGs and community enterprises can reach financing otherwise structured out of their reach.

Fifth, carry the village ledger into India's international reporting and access. The domestic instrument and the international obligation now fit each other, and the fifth move is to connect them. The Ministry of Environment, Forest and Climate Change should convene a standing taskforce with the Ministry of Panchayati Raj, the Ministry of Finance, the Ministry of Rural Development and the states, to map the Global Goal on Adaptation indicator set against what a climate-integrated GPDP already records and to specify the small number of additional fields needed to close the difference. India's next adaptation communication under Article 7 should then carry that evidence rather than restate national programme totals: smallholder exposure, flood and heat burden, and the non-economic losses recorded in certified plans, presented at the resolution at which they occur. On the loss-and-damage side, India should seek an early pilot under the Barbados Implementation Modalities in which a certified plan, or a cluster of certified panchayats, is the unit of assessment for a slow-onset or extreme-event claim — a request for a modality, not only for money. Alongside these, the adaptation content already carried inside the employment guarantee, the crop insurance scheme and allied programmes should be tagged and reported as such, so that India's own contribution is counted rather than assumed.⁷⁵ The declaratory language issued alongside the negotiations, which treats social protection and smallholder resilience as adaptation instruments, gives that reclassification a ready international vocabulary.⁷⁶

8.3 Policy asks by lane

LANE	ACTOR	SPECIFIC ASK
Supply	Ministry of Finance / Finance Commission architecture	DST 2021 climate vulnerability recognised in the criteria governing local body grants in the current award period, and as a devolution variable in the subsequent cycle
Supply	NABARD	Sub-panchayat adaptation finance window under NAFCC for GPDP-certified panchayats
Supply	NABARD / SIDBI	Direct-access window accepting certified climate-integrated GPDPs, or clusters of certified panchayats, as counterparts for Adaptation Fund locally led grants and a GCF Enhanced Direct Access pilot
Supply	State governments	Intermediation vehicles on the Tamil Nadu Green Climate Company model, aggregating Tier 3 items of certified plans with guaranteed pools and first-loss capital
Supply	MoEFCC / NABARD	Pilot request under the Barbados Implementation Modalities taking a certified plan, or a cluster of certified panchayats, as the unit of loss-and-damage assessment for slow-onset and extreme-event claims
Demand and data	Research institutions and think tanks	Joint sub-national adaptation-finance tracking dashboard aligned to the GPDP tagging framework
Demand and data	Ministry of Finance and line ministries	Adaptation content of the employment guarantee, crop insurance and allied schemes tagged and reported as adaptation expenditure, without counting reclassified spending as new finance
Enabling ecosystem	Ministry of Environment, Forest and Climate Change	Revised SAPCC guideline requiring GPDP linkage and sub-district vulnerability data as a condition of endorsement; standing taskforce mapping the Global Goal on Adaptation indicator set to climate-integrated GPDP and LCAT records, reporting ahead of India's next adaptation communication under Article 7
Enabling ecosystem	Ministry of Panchayati Raj	National pilot of Climate-Integrated GPDP across five states, with formal evaluation by 2027
Enabling ecosystem	Ministry of Panchayati Raj	LCAT-type landscape assessment and a non-economic loss record recognised in GPDP guidelines, with facilitation budgets
Enabling ecosystem	State governments (CG, JH, UP, MP)	Climate budget tagging to block and panchayat level as mandatory SAPCC reporting

The architecture set out in this paper compresses to a single sentence. Public and concessional capital builds and holds the stock; corporate and commercial capital secures the flow and pays its fair share of the stock it depends on; and the certified climate-integrated GPDP is the ledger on which both are planned, tagged and accounted for.

These are testable propositions, not settled conclusions. The domestic architecture is designed, and the international modalities exist on paper. What has not been tested is whether the connection between them holds at scale. The five-state pilot is the

instrument that would establish it, and its evaluation should be free to find that it does not. That evaluation should judge the chain on three criteria: the volume and composition of adaptation finance actually reaching panchayats; the shift in stock-versus-flow

spending patterns that tagging makes visible; and community-reported outcomes, including the restoration of non-economic loss, read where the data permit against the Global Goal on Adaptation indicators that the same village records are capable of feeding. As finance ministries and international coalitions refine ever more sophisticated climate-finance models, those tools should also incorporate

community-level data structures — LCAT outputs, climate-coded GDPs, non-economic loss ledgers — so that future strategies are judged not only on aggregate volumes but on whether they correct the translation failures this paper identifies.

What the field record here supports is narrower and firmer than any of that. The evidence exists at village level, and no route currently carries it upward.

Notes

- 1 Authors are affiliated with the Climate Action team at Transform Rural India.
- 2 Authors are affiliated with Sambodhi Research.
- 3 Ministry of Environment, Forest and Climate Change, Government of India, *Common Framework for Revision of State Action Plans on Climate Change* (New Delhi, 2019).
- 4 Institute of Social Sciences, 'Climate Resilience Must Start with Communities and Gram Panchayats' (New Delhi: ISS). The study covered gram panchayats in three climate-stressed districts of north-east India.
- 5 A. Aggarwal and others, 'The Limits of Opportunism: The Uneven Emergence of Climate Institutions in India', *Sustainable Futures / Regulation & Governance*.
- 6 World Resources Institute India, *Climate and Heat Vulnerability Assessment* (New Delhi: WRI India, 2023).
- 7 The Gram Panchayat Development Plan (GPDP) is the annual, constitutionally grounded village plan prepared by every Gram Panchayat under the 73rd Amendment and consolidated through the People's Plan Campaign. The Gram Sabha — the assembly of all adult residents of a village — approves it. Ministry of Panchayati Raj, Government of India, *Guidelines for Preparation of Gram Panchayat Development Plans* (New Delhi, 2018).
- 8 A. Sikka, L. P. Jena, M. Chakravarty and U. Pal, *Financing Adaptation in India* (New Delhi: Climate Policy Initiative, 2024). The figure covers the collective annual adaptation investment needs of six states over 2021–2030.
- 9 Centre for Policy Research, *Finding the Finance: A Guide to Identifying Centrally Sponsored Schemes to Fund Heat Resilience Solutions* (New Delhi: CPR, working paper).
- 10 World Bank, *Locally Led Climate Action: An Operational Approach* (Washington, DC: World Bank, November 2024).
- 11 International Institute for Environment and Development, *Principles for Locally Led Adaptation* (London: IIED, 2021). The principles were launched at the 2021 Climate Adaptation Summit by an initial forty governments and institutions; endorsements had reached 153 organisations by June 2026.
- 12 See 'Assessing the Distributive Equity of Adaptation Finance: A Framework', *Climate Policy* (2025).
- 13 The Community-led Landscape Character Assessment Tool (LCAT) is Transform Rural India's participatory adaptation of landscape character assessment methods to rural India. A village scores itself, across two facilitated community sessions, on eight 'life-elements' (Jeevan Tatva): landform; hydrology; land cover and agriculture; wildlife and biodiversity; infrastructure and economics; cultural and historical features; visual and sensory experience; and community and governance.
- 14 Price is what a market will pay for an action. Value is what the action is worth to those who benefit from it, including benefits that are diffuse, deferred or non-excludable. Where the two diverge, the gap is not a measurement error; it is a statement about which instruments can respond.
- 15 S. Barrett and R. S. K. Chaitanya, 'Getting Private Investment in Adaptation to Work: Effective Adaptation, Value, and Cash Flows', *Global Environmental Change* 83 (2023): 102761.
- 16 A flow is throughput measured over a period — quintals procured, hectares insured, works completed, loans disbursed. A stock is the asset base that produces those flows and is drawn down or built up over time: soil, aquifers, forest cover, biodiversity, human skills and health, and the community's own institutions. The terms are borrowed from national accounting, where the distinction between income and capital does the same work.
- 17 P. Dasgupta, *The Economics of Biodiversity: The Dasgupta Review* (London: HM Treasury, 2021). On the macroeconomic modelling tradition, see W. Godley and M. Lavoie, *Monetary Economics: An Integrated Approach to Credit, Money, Income, Production and Wealth* (Basingstoke: Palgrave Macmillan, 2007), and Y. Dafermos, M. Nikolaidi and G. Galanis, 'A Stock-Flow-Fund Ecological Macroeconomic Model', *Ecological Economics* 131 (2017).
- 18 Transform Rural India internal field analysis, Jharkhand. The approximately 10 per cent internal-rate-of-return threshold is a programme-design estimate and has not been independently published.
- 19 P. K. Joshi, A. K. Jha, S. P. Wani, T. K. Sreedevi and F. A. Shaheen, *Impact of Watershed Program and Conditions for Success: A Meta-Analysis Approach*, Global Theme on Agroecosystems Report No. 46 (Patancheru: ICRISAT, 2008). The companion ICRISAT/GTZ meta-analysis of 311 case studies found 68 per cent of watershed projects performing below average on economic, efficiency and sustainability parameters.
- 20 Down To Earth, 'India's Agroforestry Starved of Finance Despite Ambitious 50 Million Hectare Target by 2050' (2026); Government of India, Ministry of Agriculture, *National Agroforestry Policy* (New Delhi, 2014).

- 21 GIST Impact and Global Alliance for the Future of Food, *Natural Farming Through a Wide Angle Lens: True Cost Accounting Study of Community-Managed Natural Farming in Andhra Pradesh, India* (2023). Findings are reported on a full-cost-accounting basis; the underlying survey covered 2020–2022.
- 22 Field observations from TRI microgrid sites in Jharkhand.
- 23 M. Chakravarty, U. Pal, J. Kaur, A. K. Samal, A. Sikka and V. Sen, *Landscape of Green Finance in India 2024* (San Francisco and New Delhi: Climate Policy Initiative, December 2024).
- 24 Blended finance uses concessional public or philanthropic capital to alter the risk-return profile of a transaction so that commercial investors will participate. Its two governing disciplines are additionality — the concession must mobilise capital that would not otherwise have moved — and minimum concessionality, meaning no more subsidy than is required. OECD, *OECD DAC Blended Finance Guidance 2025* (Paris: OECD Publishing, 2025), <https://doi.org/10.1787/e4a13d2c-en>.
- 25 NABARD, *Rural Infrastructure Development Fund* (State Projects Department). Tranche figures vary across secondary sources; RIDF XXIX for FY2024 was reported at ₹40,474.6 crore.
- 26 Ministry of Environment, Forest and Climate Change, Government of India, 'Status of Projects under NAFCC', Press Information Bureau, 5 August 2024.
- 27 In November 2022 the Ministry of Environment, Forest and Climate Change reclassified the National Adaptation Fund from a 'scheme' to a 'non-scheme', moving it to the ministry's secretariat budget head without a clear outlay. The head has received no allocation since 2022–23, when actual spending was ₹21.95 crore.
- 28 Press Information Bureau, Government of India, 'Agriculture Infrastructure Fund'; NABARD, *Credit Guarantee Scheme for Farmer Producer Organizations (FPOs) Financing*.
- 29 Reserve Bank of India, *Master Direction — Reserve Bank of India (Regulatory Framework for Microfinance Loans) Directions, 2022*; Microfinance Institutions Network data reported in Press Trust of India, 'No. of MFI Loans Extended by Lenders Dips in Q2, Average Ticket Sizes Grow', *Business Standard*, 5 December 2023. The approximately ₹1 lakh practical ceiling is Transform Rural India internal analysis anchored to the RBI framework and MFIN ticket-size data.
- 30 Transform Rural India internal field records, Kanker district, Chhattisgarh. All quantitative figures in this passage are community-reported through the LCAT process.
- 31 Panchayats (Extension to Scheduled Areas) Act, 1996 — the statute extending panchayat provisions to Fifth Schedule areas and vesting the Gram Sabha with authority over local resources and dispute resolution.
- 32 Community-reported through LCAT in Chhattisgarh and Madhya Pradesh. *Sondhi-sondhi khushbu* denotes the earthy fragrance released by the first rains on dry soil.
- 33 TRI field observations from Madhya Pradesh.
- 34 Sixteenth Finance Commission, *Report for 2026–31* (submitted 17 November 2025; tabled in Parliament 1 February 2026); Ministry of Finance, *Explanatory Memorandum as to the Action Taken on the Recommendations Made by the Sixteenth Finance Commission* (New Delhi, February 2026); PRS Legislative Research, 'Report of the 16th Finance Commission for 2026–31' (2026).
- 35 Government of Tamil Nadu, *Tamil Nadu Green Climate Company*; Tamil Nadu Infrastructure Fund Management Corporation; World Bank, press release on the SHORE Program, 10 September 2025.
- 36 Climate budget tagging attaches a classifier to each line of expenditure recording its climate relevance, so that spending distributed across many schemes can be counted, compared and audited as adaptation.
- 37 Finance Department, Government of Odisha, *Odisha Climate Budget 2025–26*, with Climate Change Impact Appraisal annexure (Bhubaneswar, February 2025).
- 38 Transform Rural India, introductory note to the Finance Department, Government of Chhattisgarh, on Green Budgeting and Green Budget Tagging. This is a proposal under discussion, not adopted state policy.
- 39 Ministry of Panchayati Raj, eGramSwaraj platform statistics as of 11 March 2026. Platform counts are updated continuously, so the figures cited are a snapshot at that date, accessed in July 2026.
- 40 Transform Rural India internal field-to-policy documentation on DWEEPTI; Chhattisgarh Panchayat and Rural Development Department. Scheme approval is reported in secondary sources, including News Riveting, 'Chhattisgarh Launches Dweepti Yojana to Empower Rural Women in Clean Energy Sector' (May 2026).
- 41 Transform Rural India programme records, community-managed distributed renewable energy portfolio, 2020–2026.
- 42 Transform Rural India programme monitoring records for the Simdega and Machiaghat sites, 2020–2026, as reported in the DWEEPTI scheme documentation cited above.
- 43 Government of Jharkhand, Birsa Harit Gram Yojana estimates and scheme documentation; Transform Rural India Foundation–Intellicap–Rabobank carbon

finance platform records.

- 44 Transform Rural India, Kanker Climate-Integrated GPDP pilot documentation (Sidesar, Daspur, Dhanelikanhar and Barchegondi).
- 45 The Viksit Bharat — Guarantee for Rozgar and Aajeevika Mission (Gramin) Act, 2025, assented in December 2025, replaces the Mahatma Gandhi National Rural Employment Guarantee Act, 2005. It raises the guarantee to 125 days of wage employment per rural household per year, introduces a 60:40 Centre–state funding share, and requires gram panchayats to plan works across four thematic domains, two of which — livelihood-related infrastructure and mitigation of extreme weather events — make it a directly climate-relevant convergence instrument.
- 46 Joint Ministry of Panchayati Raj — Ministry of Rural Development advisories issued in 2018–19 and 2019–20 under the People’s Plan Campaign, requiring integration of the Village Poverty Reduction Plan into the GPDP.
- 47 Data as per the Ministry of Panchayati Raj’s Local Government Directory.
- 48 Chhattisgarh Panchayat and Rural Development Department, Mor Gaon Mor Pani campaign, launched on Panchayati Raj Day, 24 April 2025.
- 49 Kerala State Planning Board, *Economic Review* chapters on Local Self Governments and Decentralised Planning. The frequently cited figure of about 25 per cent is the minimum floor recommended by the State Finance Commission, not the devolved share.
- 50 Vasudha Foundation, ‘Climate Smart Gram Panchayat Action Plan’; see also S. Solanki, R. Dutt and S. Gupta, ‘Financing Climate Action at Local Level’, in M. Mohanty and R. Sarkar (eds), *Financing Climate Action: India in a Global Context* (London: Routledge India, 2025), <https://doi.org/10.4324/9781003589709-13>.
- 51 Ministry of Rural Development, Government of India, ‘Deendayal Antyodaya Yojana — National Rural Livelihoods Mission’, Press Information Bureau; membership figures as of December 2025.
- 52 Ministry of Environment, Forest and Climate Change and National CAMPA, transfers to states reported through parliamentary replies and the Press Information Bureau. The Comptroller and Auditor General has flagged diversion and under-utilisation of CAMPA funds in several states.
- 53 The Carbon Credit Trading Scheme operates under the Energy Conservation (Amendment) Act, 2022, with the Bureau of Energy Efficiency as administrator, a national registry, and the Central Electricity Regulatory Commission regulating trading; compliance targets are set for obligated entities by the responsible ministry on the recommendation of the inter-ministerial steering committee for the Indian carbon market. The Green Credit Programme was notified by the Ministry of Environment, Forest and Climate Change in 2023 under the Environment (Protection) Act, with the Indian Council of Forestry Research and Education as administrator; plantation is executed on degraded forest land identified by state forest departments. Neither scheme prices adaptation. The trading scheme prices emission intensity; the Green Credit Programme prices plantation area, not the resilience outcome it may incidentally produce.
- 54 C. Esteve-Jordà and A. Scheidel, ‘Green Grabbing Implications for Human Rights, Equity and the Ecological Transition’, *Sustainability Science* 21, no. 4 (2026): 1829–1845.
- 55 Own-source revenue refers to funds a panchayat raises itself — property and profession taxes, fees, user charges, and income from common assets — as distinct from devolved transfers. Even modest own-source revenue gives a Gram Panchayat discretionary capacity to maintain climate assets between scheme cycles.
- 56 Non-economic loss and damage covers harms that resist monetary valuation. UNFCCC, *Non-Economic Losses in the Context of the Work Programme on Loss and Damage*, technical paper FCCC/TP/2013/2, identifies eight categories: life, health, human mobility, territory, cultural heritage, indigenous knowledge, biodiversity and ecosystem services.
- 57 The Fund for responding to Loss and Damage was operationalised at COP28 (2023), with the World Bank as interim host and trustee and the Philippines hosting the Board. Start-up disbursements proceed under the Barbados Implementation Modalities; no community-level direct-access modality has been defined.
- 58 COP30 outcomes on the Fund responding to Loss and Damage, including endorsement of the Barbados Implementation Modalities and cumulative pledges since COP28.
- 59 Article 8 of the Paris Agreement (2015) addresses averting, minimising and addressing loss and damage, and operates through the Warsaw International Mechanism. The Belém outcome links Fund activity to early warning, risk pooling and anticipatory action, and to the Sendai Framework for Disaster Risk Reduction — the point at which loss-and-damage finance and India’s existing disaster management architecture already touch, and therefore the least costly place to attach a village-level record.
- 60 Adaptation Fund, decisions of the 44th Board meeting (Bonn, 10–11 April 2025) and Locally Led Adaptation single-country grants window; Adaptation Fund Board decision B.45–46/10 on the regular re-accreditation of NABARD (19 January 2026).

- 61 Green Climate Fund Board decision B.10/05 authorised a USD 200 million Enhanced Direct Access pilot window. The pioneering project, Namibia's Environmental Investment Fund 'Empower to Adapt' (FP024, approved 2016, USD 10 million), devolved grant decisions to community conservancies and community forests.
- 62 COP30 decision text on the Global Goal on Adaptation, adopting an indicator set built on the UAE Framework for Global Climate Resilience (COP28) and the Baku Adaptation Roadmap (COP29). The indicator count and sectoral split reported here are as described at the close of the session; operational guidance, including methodology for aggregation across countries, was left for further elaboration.
- 63 The Belém adaptation finance language sits within the New Collective Quantified Goal agreed at COP29 (USD 300 billion a year by 2035, with a call to scale toward USD 1.3 trillion). Figures in this paragraph are approximate. The UNEP range cited here is not directly comparable with the shortfall figures given later in this section, which are drawn from a different reporting year and a different definitional base.
- 64 United Nations Environment Programme, *Adaptation Gap Report 2024: Come Hell and High Water* (Nairobi: UNEP, 2024).
- 65 S. Valdecantos and E. Espagne, *FSMAT: Incorporating Climate Finance into a Stock-Flow-Consistent Disequilibrium Framework* (Coalition of Finance Ministers for Climate Action, 2025).
- 66 Concessional capital is finance provided on terms better than a market lender would offer — below-market interest rates, longer tenors, subordinated claims, or an outright grant element — because the provider seeks a partly social rather than purely financial return. On the mechanics of using such capital to shift a transaction's risk-return profile, see the note on blended finance in §3.1.
- 67 The distinction between adaptation that creates value and adaptation that generates a monetisable cash flow is developed in S. Barrett and R. S. K. Chaitanya, 'Getting Private Investment in Adaptation to Work: Effective Adaptation, Value, and Cash Flows', *Global Environmental Change* 83 (2023): 102761. See also the notes defining value against price, and stock against flow, in §2.2.
- 68 As defined in §2.2: a flow is throughput measured over a period; a stock is the asset base that produces it. The case for treating natural and human capital as stocks that national accounts should track is set out in P. Dasgupta, *The Economics of Biodiversity: The Dasgupta Review* (London: HM Treasury, 2021).
- 69 Carbon-removal markets for soil carbon and biochar remain early-stage, and price discovery is unsettled. Biochar is listed here as a candidate for pipeline development, not as an established revenue line; no projected price underpins any recommendation in this paper.
- 70 The same joint Ministry of Panchayati Raj — Ministry of Rural Development advisories under the People's Plan Campaign, cited in §6, required integration of Village Poverty Reduction Plans into GPDP preparation. On the GPDP itself, and on the powers of the Gram Sabha in Fifth Schedule areas, see the notes in §1.1 and §4.2.
- 71 Climate budget tagging is defined in §5.1. The reporting vehicle proposed here is the State Action Plan on Climate Change, revised under the Ministry of Environment, Forest and Climate Change's Common Framework. Odisha's climate budget, cited in §5.1, is the closest existing state-level precedent.
- 72 The National Adaptation Fund for Climate Change. Its status and disbursement record are discussed in §3.2; the November 2022 reclassification from 'scheme' to 'non-scheme' bears directly on whether a new window can be capitalised.
- 73 Department of Science and Technology, Government of India, with IIT Mandi, IIT Guwahati and IISc Bengaluru, *Climate Vulnerability Assessment for Adaptation Planning in India Using a Common Framework* (New Delhi, 2021).
- 74 The Sixteenth Finance Commission submitted its report for 2026–31 on 17 November 2025; it was tabled in Parliament on 1 February 2026, with the Explanatory Memorandum recording the action taken on its recommendations. Because the award period is fixed, the near-term lever is the conditionality attached to local body grants rather than the devolution formula itself.
- 75 Tagging is a counting reform. Making the adaptation content of existing programmes visible is a precondition for steering it, but reclassification adds no new money, and presenting reclassified expenditure as an increment would repeat at national scale the overstatement this paper warns against at corporate scale in the second rule above.
- 76 The Belém Declaration on Hunger, Poverty and Human-Centred Climate Action, issued alongside the COP30 negotiations, frames social protection, smallholder resilience and food security as adaptation instruments and urges their integration into National Adaptation Plans and Nationally Determined Contributions. Its status is declaratory rather than binding; the list of endorsing parties should be confirmed before the paper relies on it.



References

- Adaptation Fund. *Locally Led Adaptation: Single Country Grants*; 'Adaptation Fund Doubles the Amount of Funding Countries Can Access', 17 April 2025; Board Decision B.45–46/10, 'Regular Re-Accreditation of NABARD', 19 January 2026. <https://www.adaptation-fund.org>
- Asian Development Bank. *Landscape of Blended Finance and the Role of Public Finance*. Manila: ADB, 2024.
- Barrett, Sam. 'Local Level Climate Justice? Adaptation Finance and Vulnerability Reduction.' *Global Environmental Change* 23, no. 6 (2013): 1819–1829.
- Barrett, Sam, and Raghav S. K. Chaitanya. 'Getting Private Investment in Adaptation to Work: Effective Adaptation, Value, and Cash Flows.' *Global Environmental Change* 83 (2023): 102761.
- Bureau of Energy Efficiency and International Carbon Action Partnership. *Indian Carbon Credit Trading Scheme*. ETS factsheet and news updates, 2025–2026.
- Centre for Policy Research. *Finding the Finance: A Guide to Identifying Centrally Sponsored Schemes to Fund Heat Resilience Solutions*. New Delhi: CPR.
- Chakravarty, Malini, Uma Pal, Jaspreet Kaur, Anup Kumar Samal, Aanandita Sikka, and Vivek Sen. *Landscape of Green Finance in India 2024*. San Francisco and New Delhi: Climate Policy Initiative, 2024.
- Convergence. *State of Climate Blended Finance 2025*. Toronto: Convergence Blended Finance, 2025.
- Dafermos, Yannis, Maria Nikolaidi, and Giorgos Galanis. 'A Stock-Flow-Fund Ecological Macroeconomic Model.' *Ecological Economics* 131 (2017).
- Dasgupta, Partha. *The Economics of Biodiversity: The Dasgupta Review*. London: HM Treasury, 2021.
- Department of Science and Technology, Government of India, with IIT Mandi, IIT Guwahati and IISc Bengaluru. *Climate Vulnerability Assessment for Adaptation Planning in India Using a Common Framework*. New Delhi, 2021.
- Down To Earth. 'India's Agroforestry Starved of Finance Despite Ambitious 50 Million Hectare Target by 2050.' 2026.
- Eriksen, Siri, et al. 'Adaptation Interventions and Their Effect on Vulnerability in Developing Countries: Help, Hindrance or Irrelevance?' *World Development* 141 (2021): 105383.
- Esteve-Jordà, Clàudia, and Arnim Scheidel. 'Green Grabbing Implications for Human Rights, Equity and the Ecological Transition.' *Sustainability Science* 21, no. 4 (2026): 1829–1845.
- Finance Department, Government of Odisha. *Odisha Climate Budget 2025–26*, with Climate Change Impact Appraisal annexure. Bhubaneswar, February 2025.
- GIST Impact and Global Alliance for the Future of Food. *Natural Farming Through a Wide Angle Lens: True Cost Accounting Study of Community-Managed Natural Farming in Andhra Pradesh, India*. 2023.
- Godley, Wynne, and Marc Lavoie. *Monetary Economics: An Integrated Approach to Credit, Money, Income, Production and Wealth*. Basingstoke: Palgrave Macmillan, 2007.
- Government of India, Ministry of Agriculture. *National Agroforestry Policy*. New Delhi, 2014.
- Government of Tamil Nadu. Tamil Nadu Green Climate Company and mission documentation, including G.O.(Ms) No. 225 of 29 December 2022.
- Haritha Keralam Mission, Government of Kerala. <https://haritham.kerala.gov.in>
- Institute of Social Sciences. 'Climate Resilience Must Start with Communities and Gram Panchayats.' New Delhi: ISS.
- International Institute for Environment and Development. *Principles for Locally Led Adaptation*. London: IIED, 2021.
- Joshi, P. K., A. K. Jha, S. P. Wani, T. K. Sreedevi, and F. A. Shaheen. *Impact of Watershed Program and Conditions for Success: A Meta-Analysis Approach*.

- Global Theme on Agroecosystems Report No. 46. Patancheru: ICRISAT, 2008.
- Kerala State Planning Board. *Economic Review*, chapters on Local Self Governments and Decentralised Planning.
- Khan, Mizan, Stacy-ann Robinson, Romain Weikmans, David Ciplet, and J. Timmons Roberts. 'Twenty-Five Years of Adaptation Finance Through a Climate Justice Lens.' *Climatic Change* 161 (2020): 251–269.
- Ministry of Environment, Forest and Climate Change, Government of India. *Common Framework for Revision of State Action Plans on Climate Change*. New Delhi, 2019.
- Ministry of Environment, Forest and Climate Change, Government of India. 'Status of Projects under NAFCC.' Press Information Bureau, 5 August 2024.
- Ministry of Environment, Forest and Climate Change, Government of India. *Green Credit Rules, 2023*. Notified 12 October 2023.
- Ministry of Finance, Government of India. *Explanatory Memorandum as to the Action Taken on the Recommendations Made by the Sixteenth Finance Commission*. New Delhi, February 2026.
- Ministry of Panchayati Raj, Government of India. *Guidelines for Preparation of Gram Panchayat Development Plans*. New Delhi, 2018.
- Ministry of Rural Development, Government of India. 'Deendayal Antyodaya Yojana — National Rural Livelihoods Mission.' Press Information Bureau.
- Mohanty, Manoranjan, and Runa Sarkar, eds. *Financing Climate Action: India in a Global Context*. London: Routledge India, 2025.
<https://doi.org/10.4324/9781003589709>
- NABARD. *Credit Guarantee Scheme for Farmer Producer Organizations (FPOs) Financing*; Rural Infrastructure Development Fund, State Projects Department.
- OECD. *OECD DAC Blended Finance Guidance 2025*. Paris: OECD Publishing, 2025.
<https://doi.org/10.1787/e4a13d2c-en>
- Press Information Bureau, Government of India. 'Sixteenth Finance Commission Submits Its Report for the Award Period 2026-27 to 2030-31 to the President of India.' 17 November 2025.
- PRS Legislative Research. 'Report of the 16th Finance Commission for 2026-31.' New Delhi, 2026.
- Reserve Bank of India. *Master Direction — Reserve Bank of India (Regulatory Framework for Microfinance Loans) Directions, 2022*.
- Sikka, Aanandita, Labanya Prakash Jena, Malini Chakravarty, and Uma Pal. *Financing Adaptation in India*. New Delhi: Climate Policy Initiative, 2024.
- Sixteenth Finance Commission. *Report for 2026–31*. Government of India, submitted 17 November 2025; tabled 1 February 2026.
- 'Three Injustices of Adaptation Finance: A Relational Egalitarian Analysis.' *Journal of Agricultural and Environmental Ethics* 37 (2024): art. 15.
- United Nations Environment Programme. *Adaptation Gap Report 2024: Come Hell and High Water*. Nairobi: UNEP, 2024.
- UNFCCC. *Non-Economic Losses in the Context of the Work Programme on Loss and Damage*. Technical paper FCCC/TP/2013/2.
- Valdecantos, Sebastián, and Etienne Espagne. *FSMAT: Incorporating Climate Finance into a Stock-Flow-Consistent Disequilibrium Framework*. Coalition of Finance Ministers for Climate Action, 2025.
- Vasudha Foundation. *Climate Smart Gram Panchayat Action Plan; Pilot Initiatives for Localisation of Climate Action in Uttar Pradesh*.
- World Bank. *Locally Led Climate Action: An Operational Approach*. Washington, DC: World Bank, November 2024.
- World Resources Institute India. *Climate and Heat Vulnerability Assessment*. New Delhi: WRI India, 2023.

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