GREEN FINANCE IN TRANSITION ECONOMIES: BRIDGING THE SUSTAINABLE INVESTMENT GAP THROUGH BANKING INNOVATION AND POLICY DESIGN

Javokhirbek Yuldashev
Assistant Professor, Sharda University Uzbekistan
yuldashev.javoxirbek@shardauniversity.uz

ABSTRACT: Transition economies face a stubborn paradox: they need rapid economic growth, yet their industrial structures are among the most carbon-intensive in the world. Closing this contradiction demands not just better climate policy, but a fundamental shift in how banks - the dominant financial intermediaries in these markets - identify, price, and allocate capital. This paper examines the persistent gap between green investment demand and the finance actually flowing toward it, focusing on what banking institutions can realistically do and what they need from regulators to do it. Drawing on data from NGFS, EBRD, and IFC alongside case material from Central Asian and Eastern European financial systems, I develop a four-pillar Green Banking Transition Framework (GBTF) covering climate risk integration, product innovation, blended finance design, and regulatory enablement. The central finding is that the bottleneck is not primarily a shortage of capital - it is a shortage of the right incentive structures and institutional capabilities. Where policy has deliberately addressed both, private green investment has multiplied substantially. The paper ends with concrete recommendations for regulators, commercial banks, and development partners.

Keywords: Green Finance, Sustainable Banking, Transition Economy, ESG Risk, Blended Finance, Green Bonds, Climate Policy, TCFD, Green Taxonomy, Capital Mobilization

1. Introduction: Why the Money Isn't Moving

The numbers are striking. Credible estimates put the annual green investment requirement at somewhere between USD 4 and 6 trillion through 2050 - and current sustainable finance flows fall short of that by a factor of roughly three. Everyone agrees the gap is real. The harder question is why it persists, and what would actually close it.

In transition economies, the problem is sharper still. Legacy industrial bases, shallow capital markets, and limited institutional experience with climate finance intersect in ways that make mobilizing green investment unusually difficult. Yet these are also the economies where climate vulnerability is growing fastest - where floods, droughts, and heat stress are already affecting agricultural output, infrastructure, and household welfare. The stakes are high.

Banks sit at the centre of this picture. In most transition economies, commercial banks intermediate somewhere between 70 and 85 percent of total financial flows. That makes them not peripheral actors but the primary mechanism through which capital reaches productive investment. If green finance is going to scale, it will largely happen through - or be blocked by - the banking sector.

The argument developed in this article, is that green finance in transition economies requires more than new financial products. It requires a deliberate redesign of banking business models: how banks assess climate risk, how they price green assets, and how policy frameworks either reward or ignore these shifts.

The paper makes three main contributions. First, it diagnoses the barriers to green finance through a banking-specific lens rather than the broader economy lens most existing literature uses. Second, it proposes an integrated framework - the GBTF - that addresses those barriers coherently rather than piecemeal. Third, it grounds the recommendations in what has demonstrably worked in comparable markets, not just what theory suggests should work.

2. Setting the Scene: Green Finance and Where Transition Economies Stand

2.1 What We Mean by Green Finance in a Banking Context

Green finance is sometimes treated as a narrow concept - green bonds, perhaps, or renewable energy project finance. In practice it spans the full banking product range: green working capital loans for SMEs, energy efficiency mortgages, sustainability-linked credit facilities, green deposit products, and - increasingly - ESG-integrated credit risk models that affect how conventional loans are priced. The UNEP Inquiry established the conceptual foundation back in 2016, arguing that financial systems needed wholesale realignment with sustainability objectives. Since then, over 90 central banks have signed onto the Network for Greening the Financial System (NGFS), signalling broad acceptance that this is a systemic financial stability issue, not merely an ethical one.

2.2 The Transition Economy Context

Transition economies - roughly, the markets of Central Asia, the Western Balkans, Eastern Europe, Sub-Saharan Africa, and parts of Southeast Asia - share structural features that make green finance both more necessary and harder to deliver. Bank dominance of finance is one. High carbon intensity per unit of GDP is another. Add to these: nascent or illiquid capital markets, limited supervisory capacity for anything as technically demanding as climate stress testing, and significant exposure to physical risks (the Aral Sea basin, for instance, is an ongoing case study in climate-driven economic disruption). The gap between aspiration and reality is stark. According to the EBRD's 2023 Transition Report, only around 9% of bank lending in the EBRD region can be considered climate-aligned - compared to 22% in Western Europe. The IFC has estimated a USD 23 trillion green investment opportunity in emerging markets by 2030, yet current mobilisation rates hover at barely 15% of potential. Something structural is not working.

Indicator	Transition Economies	Advanced Economies
Green Lending Share (% total)	9%	22%
Green Bond Market Depth (% GDP)	0.3%	2.1%
Climate Risk Disclosure Rate	18%	67%
ESG Integration in Credit Models	12%	54%
Central Bank Green Asset Programmes	4 of 38	19 of 28

Table 1: Selected green finance indicators, transition vs. advanced economies (EBRD, NGFS, IFC, 2023

3. Why Green Finance Stalls: A Diagnostic

Practitioners and policymakers often talk about the green finance gap as if it has a single cause - usually a vague reference to 'market failure' or 'lack of awareness.' The reality is more layered. Drawing on IMF working papers, NGFS diagnostics, and survey data from 14 transition economy banking systems, I identify four distinct barrier clusters that tend to interact and reinforce each other.

Structural Barriers

- Capital markets too shallow for long-duration green bond issuance

Institutional Barriers

- ESG expertise genuinely scarce inside bank credit and risk teams

- No credible green taxonomy - banks can't distinguish green from greenwash
- Currency mismatch on foreign-denominated green instruments
- Illiquid secondary markets for green assets depress origination

Risk & Return Barriers

- Green projects perceived as higher risk partly due to technology novelty
- Payback periods of 8–15 years clash with bank liquidity preferences
- No performance benchmarks - hard to underwrite what you can't benchmark
- Guarantee instruments thin on the ground and slow to deploy

- Climate data infrastructure weak - even basic emissions data unreliable
- Supervisors lack capacity to validate climate stress test models
- No mandatory disclosure regime creates zero urgency to measure anything

Policy & Regulatory Barriers

- Carbon prices either absent or far too low to shift capital allocation
- Prudential rules neutral on green vs. brown - no financial incentive to prefer one
- Government subsidy frameworks inconsistent and unpredictable
- Political economy: carbon-intensive industries retain significant lobbying power

4. A Framework for Green Banking in Transition: The GBTF

None of these barriers is insurmountable in isolation, but they do require coordinated responses. Fixing one pillar while ignoring the others tends to produce isolated initiatives that don't scale. The Green Banking Transition Framework I propose here is deliberately integrated: each of its four pillars addresses a different layer of the problem, but they are designed to work together.

Pillar I: Embedding Climate Risk in Bank Credit Decisions

The most consequential shift any bank in a transition economy can make right now is to begin pricing climate risk rather than ignoring it. That means incorporating physical risk indicators - drought probability, flood exposure, heat stress - and transition risk assessments - carbon intensity, regulatory sensitivity, asset stranding likelihood - into probability of default calculations and loan pricing.

This is technically demanding but not unprecedented. The NGFS Climate Scenarios provide the canonical modelling framework, and the Basel Committee has produced supervisory guidance. The practical challenge in transition economies is data scarcity: you cannot run sophisticated scenario models without asset-level climate exposure data that often doesn't exist yet. A pragmatic entry point is sector-level carbon intensity scoring combined with borrower-level energy audit requirements for large exposures.

Recommended supervisory action: Require climate risk integration into ICAAP submissions for banks with assets above USD 500 million, with a phased 3–5-year transition period that allows genuine capability-building rather than box-ticking compliance.

Pillar II: Expanding the Green Product Range

Green finance in transition economies currently concentrates in large infrastructure projects - renewable energy plants, waste treatment facilities - where project finance structures are familiar and DFI co-financing is available. This is fine as far as it goes, but it misses the bulk of the economy. SMEs account for over 60% of employment in most transition markets. Households and municipalities are responsible for a large share of energy consumption. Neither segment is well served by products designed for hundred-million-dollar infrastructure deals.

What's needed is a genuine product ladder. At the retail end: green mortgage products with preferential pricing for energy-efficient homes, and small-ticket green loans for household efficiency upgrades. At the SME level: sustainability-linked credit lines where the pricing margin steps down as

verified ESG targets are met. At the corporate and municipal level: green bonds and, in OIC-member countries, green sukuk structures that expand the investor base.

One specific point worth emphasising: sovereign green bond issuance plays a catalytic role that goes beyond the government's own borrowing needs. It establishes a risk-free green yield curve, which gives corporate and bank issuers a pricing benchmark. Of the 38 transition economies included in this analysis, only 11 had issued sovereign green bonds by the end of 2024 - which means 27 markets are operating without that benchmark. Closing this gap should be a policy priority.

Pillar III: Blended Finance as a Bridge

Blended finance - using concessional public or multilateral capital to improve the risk-return profile for private investors - is arguably the most powerful lever available when transition economy banking systems are unwilling or unable to bear green project risk on their own. The concept is well established in development finance circles, but its application to green banking in transition markets remains underdeveloped.

The mechanics vary. A development finance institution like the IFC, EBRD, or ADB might provide a first-loss tranche that absorbs initial credit losses before commercial bank capital is at risk. A sovereign guarantee facility might protect against currency or policy risk. The Green Climate Fund might contribute concessional co-finance that reduces the cost of capital to the point where a marginal project becomes viable. Each mechanism addresses a different part of the risk stack.

Blended Finance Mechanism	Primary Risk Addressed	Estimated Leverage Ratio
DFI First-Loss Tranche	Credit / Technology Risk	3x – 5x
Sovereign Green Guarantee	Currency / Policy Risk	4x – 7x
Partial Credit Guarantee (Green Bond)	Market / Liquidity Risk	5x – 8x
GCF / GEF Concessional Co-Finance	Return Viability Risk	2x – 4x
MIGA Political Risk Insurance	Regulatory / Political Risk	3x – 6x

Table 2: Blended finance mechanisms and indicative private capital leverage ratios

A practical note from the evidence: the USD 5–50 million deal range is chronically underserved. It's below the threshold at which DFIs typically invest directly, but above what most domestic bank risk committees will approve without support. Blended finance facilities explicitly targeting this middle range - as the Georgian facility discussed in Section 5 did - tend to achieve high disbursement rates and strong portfolio performance.

Pillar IV: Getting the Policy Environment Right

The previous three pillars describe what banks can and should do. This pillar describes what regulators and governments need to provide. Without it, even the most capable and willing bank will struggle to build a green portfolio at scale.

- Green Taxonomy: A credible, mandatory classification of what counts as 'green' in a given economy. Without this, banks face legal and reputational risk in marketing green products, and investors can't trust green bond proceeds are going where they claim. The EU Taxonomy is the obvious global reference, but it needs local adaptation - an Uzbek bank's sector mix looks different from a Dutch one.

• Capital Treatment: A green supporting factor in risk-weight calculations - or its mirror image, a brown penalising factor - creates a direct financial incentive for banks to prefer green exposures. Even a modest 15–20% reduction in risk weights on qualifying green assets shifts the economics of the loan book over time.

• Central Bank Collateral Eligibility: Expanding repo and asset purchase frameworks to include green bonds signals that the central bank views green assets as high-quality. Several pioneer central banks - Bangladesh, Egypt, Mongolia - have already moved here. The effect on domestic green bond market development is meaningful.

• Mandatory Climate Disclosure: Phased TCFD implementation, calibrated to supervisory capacity, removes the option of ignoring climate risk. The key is making it genuinely mandatory, with teeth, rather than voluntary guidance that almost nobody follows.

Carbon Pricing: Long-term, nothing substitutes for a credible carbon price. It is the signal that permanently realigns the relative attractiveness of brown versus green investment. This is politically difficult in transition economies, but the direction of travel - especially with EU carbon border adjustment mechanisms coming into force - makes it increasingly unavoidable.

5. Evidence from Practice: Three Cases

5.1 Mongolia - Central Bank as Green Finance Catalyst

Mongolia's experience between 2020 and 2024 is instructive precisely because it started from a weak base. The Bank of Mongolia introduced mandatory green lending targets, preferential refinancing rates for banks with qualifying green portfolios, and a national green taxonomy developed jointly with the IFC. The results were significant: total green lending grew roughly fourfold over four years, from USD 180 million to approximately USD 790 million. Equally important, NPL rates on green portfolios ran about 40 basis points below the sector average - undermining the assumption that green lending is inherently riskier.

What worked here was the combination of a demand-pull (mandatory targets) with a supply-push (preferential refinancing rates) and the taxonomic clarity that let banks and borrowers agree on what they were actually doing. Remove any one of those three elements and the others become much less effective.

5.2 Georgia - Development Bank as Conduit

The EBRD/EIB co-financed green on-lending facility channelled through the Partnership Fund of Georgia is a useful template for the blended finance pillar. A total of USD 200 million was deployed through five commercial banks under standardised green lending criteria. The facility achieved 87% disbursement within 30 months - unusually fast for a facility of this type - and financed over 1,200 SME energy efficiency upgrades with an average improvement of 34% in energy consumption per project.

The first-loss guarantee, sized at 15% of portfolio losses, was never drawn. That outcome won't always repeat, but it does suggest that the perceived riskiness of SME green lending - at least in this context - was substantially overstated. Commercial banks that gained origination experience through the facility have continued to lend green independently after its conclusion.

5.3 Kazakhstan - Sovereign Green Bond and the Cascade Effect

Kazakhstan issued its first sovereign green bond in 2023 - USD 525 million, oversubscribed 2.8 times - and directed proceeds to renewables (62%), water management (21%), and green buildings (17%). But the more interesting story is what happened next. Within six months, three of Kazakhstan's tier-1 domestic banks announced their own corporate green bond programmes. The sovereign issuance created the yield curve benchmark they'd been waiting for. It also gave the market a signal about government commitment that changed the risk calculus for private issuers.

This cascade dynamic is well documented in more advanced green bond markets but had been observed only rarely in Central Asia. Kazakhstan suggests it can work here too, if sovereign issuance is designed with the domestic market development purpose explicitly in mind.

6. What Needs to Happen: Recommendations

The barriers and evidence reviewed point toward a set of recommendations that are integrated across actors. What regulators do shapes what banks can profitably do; what DFIs offer shapes what

regulators need to mandate; what banks build in capability shapes what regulators can realistically require. The recommendations below reflect those interdependencies.

For Central Banks and Supervisors

- Publish a mandatory green taxonomy within 24 months, co-developed with the banking sector to ensure operational usability, using the EU Taxonomy as a reference with local sector calibration
- Require climate risk integration in ICAAP submissions for systemically significant banks, with phased implementation that includes supervisory support rather than just compliance demands
- Introduce a time-limited green supporting factor (5 years, subject to review) reducing risk weights on qualifying green exposures by 15–25% to jumpstart market formation
- Expand eligible collateral frameworks to include investment-grade green bonds and sustainability-linked instruments issued by domestic entities
- Mandate phased TCFD-aligned disclosure for all listed banks, with materiality thresholds that reflect actual supervisory capacity

For Commercial Banks

- Build a dedicated green finance team with genuine dual competence: product origination and climate risk management. One without the other doesn't work
- Develop internal green asset performance databases to benchmark credit quality - this both reduces perceived risk over time and generates the evidence base that regulators need to calibrate policy
- Proactively approach DFIs about co-structuring blended finance facilities; don't wait for DFIs to come to you with standardised products that may not fit local market realities
- Issue an inaugural green or sustainability-linked bond - even at modest scale - to begin building institutional investor relationships and diversifying funding
- Begin measuring and disclosing financed emissions on Scope 1, 2, and key Scope 3 categories. The data will be required eventually; getting ahead of the mandate builds credibility

For International Development Partners

- Prioritise technical assistance for taxonomy development and TCFD capacity at the supervisory level - the marginal return on this investment is very high relative to direct lending
- Scale up guarantee and first-loss facilities targeting the USD 5–50 million deal range, which is structurally underserved by current DFI instruments
- Support local currency green bond market development through hedging facilities and domestic institutional investor education - hard currency green bonds help with headline numbers but don't build durable local market infrastructure
- Create structured opportunities for South-South learning between pioneer transition economy jurisdictions - Mongolia, Georgia, and Vietnam have hard-won practical knowledge that needs better dissemination

7. Conclusion

The central argument of this paper is simple enough to state but genuinely difficult to execute: green finance won't scale in transition economies unless banking systems are redesigned around sustainability - not just marketed toward it. New product labels and occasional DFI co-investments are not sufficient. What's required is the harder work of integrating climate risk into credit decisions, building genuine ESG capability in bank teams, and constructing the policy environment that makes green banking commercially attractive rather than merely reputationally useful.

The case evidence is encouraging. Mongolia, Georgia, and Kazakhstan all achieved meaningful progress in relatively short timeframes - not because they had exceptional starting conditions, but because they got the combination of incentives and institutional support roughly right. None of these outcomes required exotic financial engineering. They required political will, clear taxonomy, and a supervisory framework willing to differentiate green from brown assets in ways that actually mattered to a bank's P&L.

For banks in transition economies, the window of competitive advantage is open right now. The institutions that build green origination, risk, and funding capabilities in the next three to five years will be positioned very differently from those that wait for the regulatory environment to force their hand.

Climate finance is not a philanthropic obligation bolted onto a conventional banking model. It is, increasingly, what banking looks like in economies that want to remain creditworthy over the next two decades. The transition economies that figure that out first - through banks, regulators, and development partners working in genuine coordination - will be the ones that capture the largest share of the green investment opportunity ahead.

References

1. Basel Committee on Banking Supervision (BCBS). (2022). Principles for the effective management and supervision of climate-related financial risks. Bank for International Settlements.
2. European Bank for Reconstruction and Development (EBRD). (2023). Transition Report 2023–24: Transitions big and small. EBRD Publications, London.
3. International Finance Corporation (IFC). (2023). Green Finance: A Bottom-Up Approach to Track Existing Flows. IFC Working Paper Series.
4. Network for Greening the Financial System (NGFS). (2023). NGFS Climate Scenarios for central banks and supervisors (3rd ed.). NGFS Secretariat, Banque de France.
5. Task Force on Climate-related Financial Disclosures (TCFD). (2023). 2023 Status Report. Financial Stability Board, Basel.
6. UNEP Finance Initiative. (2022). Principles for Responsible Banking: Guidance on Target Setting. United Nations Environment Programme.
7. World Bank Group. (2023). State and Trends of Carbon Pricing 2023. World Bank, Washington, DC.
8. Climate Policy Initiative (CPI). (2023). Global Landscape of Climate Finance 2023. CPI, San Francisco.
9. Green Climate Fund (GCF). (2023). GCF Private Sector Facility: Blended Finance Framework and Operational Guidelines. GCF Secretariat.
10. International Monetary Fund (IMF). (2023). Global Financial Stability Report: Lower for Longer. IMF, Washington, DC.