



Amazonia Yield Bond

A securitized, asset-backed vehicle bridging the 20-year liquidity gap for Brazilian smallholders. The AYB transitions communities from survival deforestation to sustainable agroforestry, generating competitive, risk-adjusted returns through blended finance.

The Soil Trap & Liquidity Crisis

The primary driver of deforestation in the Brazilian Amazon is a crisis of soil fertility compounded by a lack of financial liquidity. Smallholder farmers operate in a Soil Trap: they clear primary forest to access the temporary fertility of the ash, but within three years, the nutrient-poor tropical soil degrades. Without access to long-term capital to finance land restoration, farmers are forced to abandon degraded plots and clear new forest just to survive - a cycle known as Survival Deforestation.

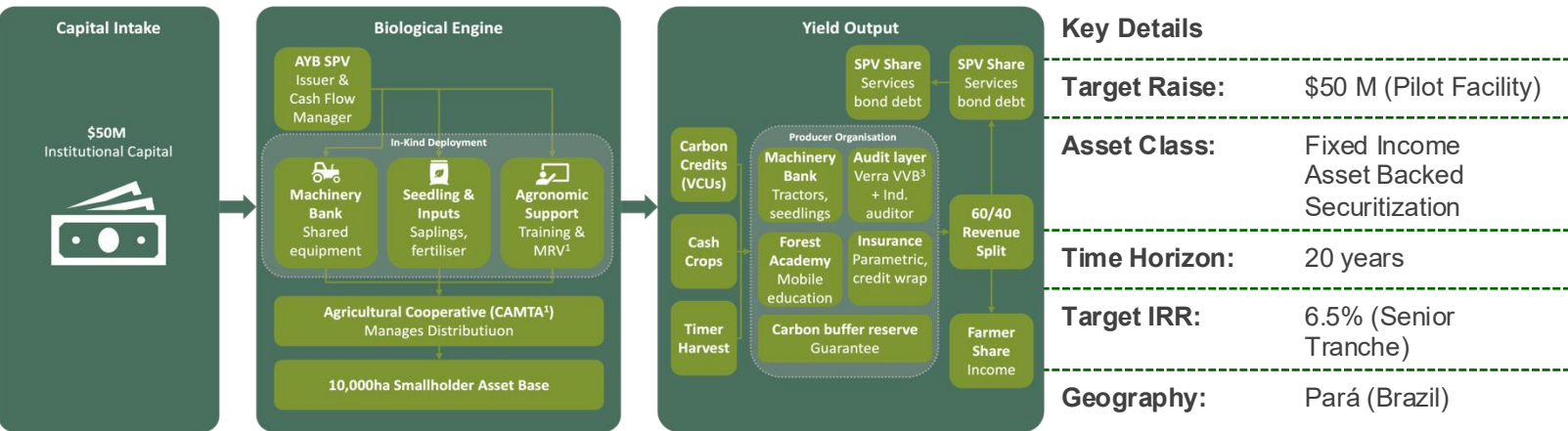
Agroforestry Systems (SAFs) offer a proven biological solution to restore soil health and result in a better water cycle. However, these systems require 20 years to reach commercial maturity. Local capital markets lack the depth to offer the long-term credit needed to bridge this gestation period, leaving a critical market failure.

Our Solution: A Securitised Bridge

The AYB solves this market failure via securitization. By aggregating thousands of hectares of smallholder land in Pará into a unified SPV, the AYB transforms the biological growth of the rainforest into an institutional-grade fixed-income asset. The bond monetizes three distinct revenue streams - carbon sequestration (VCUs), sustainable cash crops (Cacao & Açai), and high-value timber, ensuring cash-flow stability while the forest matures.

Government Schemes

- The COP30 Catalyst: Capitalizing on the post-summit, state-backed ecological transition mandates established during the Amazon climate summit
- Concessional Capital: Securing the 10% First-Loss Junior Tranche via BNDES (Fundo Clima & Amazon Fund)
- Subsidized Co-Financing: Leveraging RenovAgro (Plano Safra ABC+) for cooperative machinery bank credit pathways
- FX De-Risking: Utilizing Eco Invest Brazil to mitigate exchange rate volatility for international institutional investors



Target Geography & Addressable Market:

Pará state hosts over 400,000 smallholder farmers responsible for a lot of Amazon deforestation, and the largest untapped pool of restorable land in the world. AYB enters through established agricultural cooperatives, securing usufruct contracts under Brazil's SISA framework at zero land-acquisition cost.

Scalability & The FFPO Model:

The FFPO model turns scale from a challenge into a structural advantage. Rather than building farmer networks from scratch, the SPV plugs directly into organizations like CAMTA - established cooperatives that already aggregate land, enforce compliance, and coordinate input delivery across thousands of smallholders. Each new FFPO partnership adds hectares without adding operational complexity.

Tech-Enabled MRV Architecture

The AYB operates a fully in-house MRV stack built on freely available public data and open-source models, with no dependency on costly third-party providers. All model outputs are ground-truthed, uncertainty-bounded, and independent.

Measurement: Sentinel-1 SAR, Sentinel-2 optical, and NASA GEDI LiDAR ingested continuously. Prithvi foundation model (NASA/IBM, open-source) classifies land cover; Bayesian biomass regression estimates tCO₂e with 90% confidence intervals. Target uncertainty: <20% (Verra threshold: 30%).

Ground-Truth Calibration: Annual rotating plot sampling by cooperative agronomists calibrates models. Farmer data submission is a contractual condition of payment, creating a feedback loop that continuously tightens confidence intervals.

Reporting - Investors receive annual disclosures via live MRV dashboard: forest integrity, biomass accrual trend, alert feed, VCU pipeline forecast, and coupon status. Alert latency: <24h from event to notification.

Verification & Certification: All data audited by accredited VVB every 5 years under Verra VM0047 v1.1 + CCBS Triple Gold. Carbon credits (VCUs) issued only after independent sign-off. MRV cost: ~\$0.25/ha/yr vs. ~\$3/ha/yr industry standard.

Capital Structure & Tranching

To optimize the risk-return profile, the AYB utilizes a blended finance capital stack:

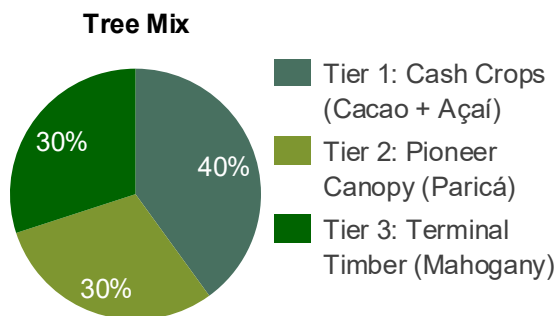
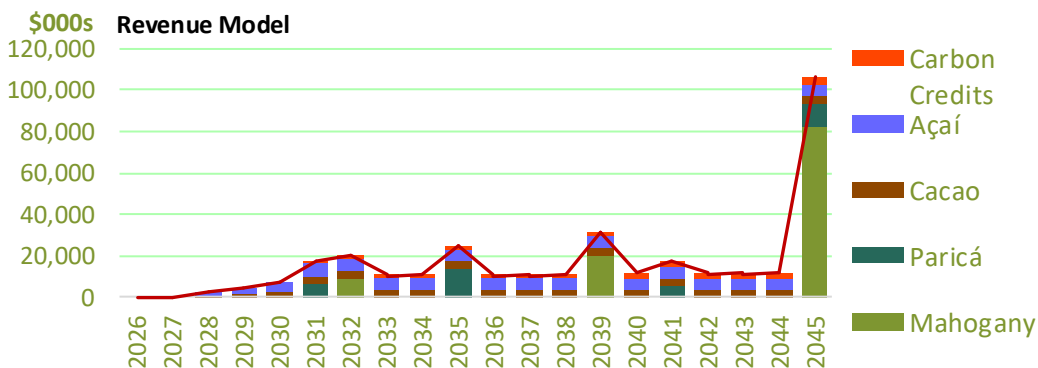
Tranche	Total Size	Target IRR	Investor Profile
Senior (65%)	\$32.5M	6.5%	Pension funds, insurers - long-duration, ESG mandate
Mezzanine (25%)	\$12.5M	8%	Impact investors - moderate risk, subordinated
First-Loss (10%)	\$5M	Catalytic	BNDES, GCF, Bezos Earth Fund - de-risks senior tranche

Returns, Cash Flow & Incentives

Triple Revenue Stream: Coupons are serviced by three sequential income sources, cash crop sales (cacao/açaí, from Year 3), verified carbon credits (VCUs, from Year 6 post first Verra verification), and selective sustainable timber harvesting underpinning principal repayment at Year 20.

Incentive Alignment: : A 40/60 Revenue Sharing Agreement allocates 40% of net revenues to farmers and 60% to the Bond SPV. Combined with access to Shared Machinery Banks and agronomic training, this ensures that maintaining standing sustainable forest is consistently the farmer's most lucrative economic choice.

Financial Analysis



The AYB generates cash flow from three distinct revenue streams with staggered maturity: Cash crops, carbon credits (following VCU registration and first Verra verification), timber thinning every few years and a terminal harvest at year 20. Carbon revenue ramps from ~\$1.5M in Year 6, growing at 5% per year as biomass accrues and confidence intervals tighten. Carbon price range: \$15-25/tCO₂e. Total Planting Capex: \$5.8M. 400 Farmers manage 8,000 effective hectares. Annual coupon: \$3.1M. Average Operating costs: \$3.3M/yr. The Parametric Insurance amounts to \$0.15M/yr. The Year-20 timber harvest (Mahogany, validated 20-year rotation) generates the principal repayment. IRR evolution (Pilot): 6.5% Senior Coupon, Mezzanine Coupon 8.0%. IRR evolution (Growth Case): 8.5% Senior Coupon and 10.0% Mezzanine Coupon at scale (fully commercial).

Risk Factor	Mitigation Strategy
Physical Destruction (Wildfire / Drought)	Parametric Insurance Wrapper: A satellite-verified, automatic-trigger policy pays out upon confirmed fire or severe drought events, no claims process, no insurer discretion. Principal protection activates the moment the satellite event threshold is crossed.
Farmer Dropout	Standing Forest Economic Model: The program is structured so that standing forest consistently pays more than clearing. A 40/60 net revenue split (farmer / SPV), combined with access to Shared Machinery Banks and structured agronomic education, creates a durable financial incentive to stay enrolled, addressing dropout at the root cause rather than through penalties.
Carbon Market Volatility	Forward Offtake Agreements: Price floors are locked with corporate buyers prior to bond issuance, removing spot-price exposure from the base-case return. The model never assumes a single carbon price, all projections use a \$15-25/tCO ₂ e range to reflect real-world volatility; coupon coverage is stress-tested at the floor.

SDG Impact Assessment

	No Poverty - Eliminates survival deforestation by bridging the smallholder liquidity gap, providing parametric insurance safety nets, and building generational wealth via a 40/60 revenue split
	Gender Equality - 100% of farmer revenue routed directly to female heads of household, empirically proven to reduce dropout risk, increase household reinvestment rates, and strengthen community resilience.
	Decent Work & Economic Growth - Secures long-term agricultural employment and elevates baseline rural incomes through the cooperative-managed Shared Machinery Bank and cash crop (Cacao/Açaí) integration.
	Climate Action - Drives measurable, AI-verified atmospheric carbon removal (2.5 Mt CO ₂ avoided over 20 years, Verra VM0047 ARR / CCB-certified) while building financial resilience against climate shocks via satellite-triggered parametric insurance