TERRAFIRMA ADVISORS

How a Biochar Outcome Bond Works

Who does what and how the money flows in biochar and agroforestry carbon deals.

WHO WE ARE

TerraFirma structures deals and does not hold the risk

What we do

Find and vet biochar and agroforestry projects in Latin America. Connect those projects with buyers of carbon removals, investors and grant or guarantee providers. Design the financing, model expected output (P50 and P90), and coordinate every party through closing and reporting.

Why developers work with us

We bring relationships with buyers, investors and development finance institutions that a single project team rarely has. Developers stay focused on building and operating, while TerraFirma coordinates the financing and the parties.

WHY THIS STRUCTURE EXISTS

Developers need capital now; buyers pay after results

Project developers

Must buy equipment and secure feedstock before earning a single credit. Forward credit sales rarely cover the full build.

Buyers and funders

Will pay for verified tonnes, not promises. Buyers do not want to carry construction or delivery risk.

Investors

Will fund the gap if independent measurement drives repayment and the deal ranks investors by risk.

An outcome bond connects developers, buyers and investors: investors fund the build today, and an outcome funder pays a set price per verified tonne later.

WHY A BOND

A bond reaches investors who would never buy credits

For buyers

Pay only for verified tonnes, at a known price, with no construction risk. Buyers can use the credits as offsets or as supply-chain insets.

For investors

Fixed-income exposure to carbon removal, ranked by risk, without trading credits. Returns rest on independent verification.

For developers

Full upfront capital instead of a partial forward sale, so the developer’s team builds rather than fundraises.

Pension funds and impact bond funds already buy notes whose returns depend on verified carbon credits. The next slide shows three examples.

PRECEDENTS

Investors already buy returns tied to verified carbon

$225M

World Bank Amazon Reforestation-Linked Bond, 2024

The World Bank protects principal; part of the coupon tracks carbon removal units from Mombak's reforestation in Brazil. Microsoft buys the credits. Nuveen and Rathbone invested.

$50M

World Bank Emission Reduction-Linked Bond, Vietnam, 2023

Investors gave up regular coupons to fund a private project; the World Bank pays investors per credit Verra issues, up to a cap. Velliv Pension led; Impax and Nuveen joined.

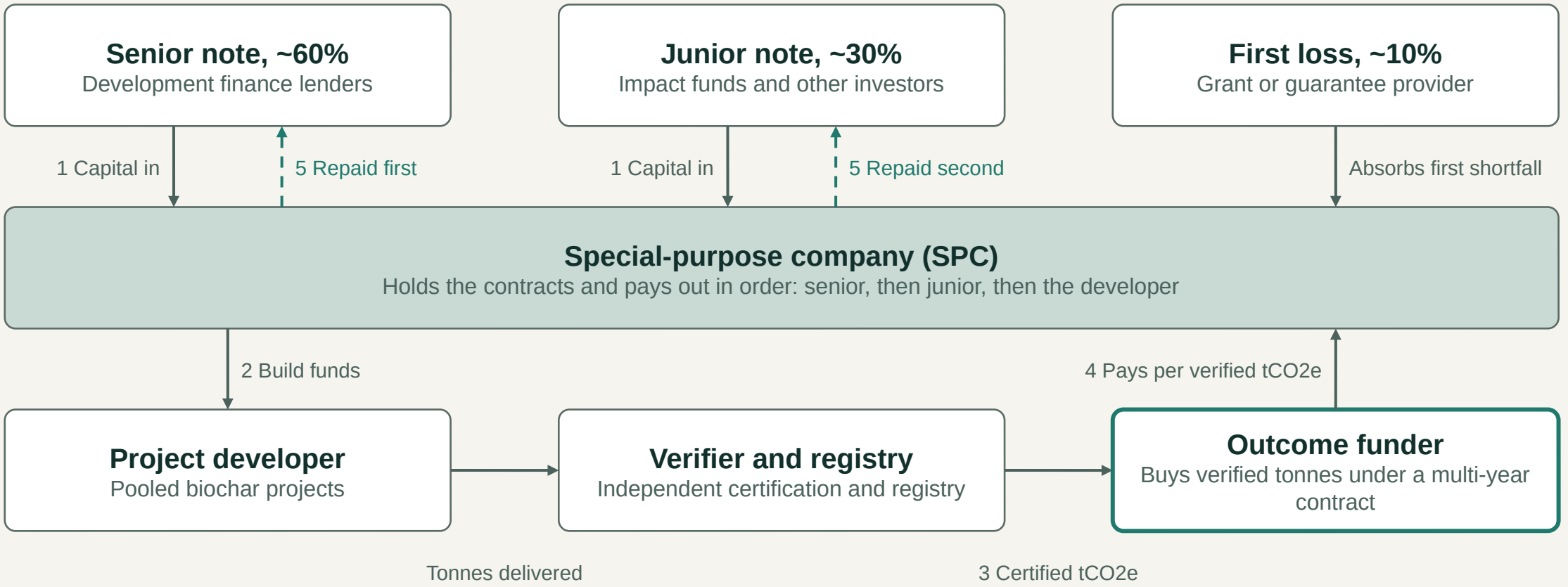
$60M

Responsible Commodities Facility, Brazil, 2025/26 loans

Tranched green bonds listed in Vienna and on Brazil's B3 fund low-interest loans to farmers. Tesco, Sainsbury's, Rabobank and IDB Invest are investors.

HOW THE MONEY FLOWS

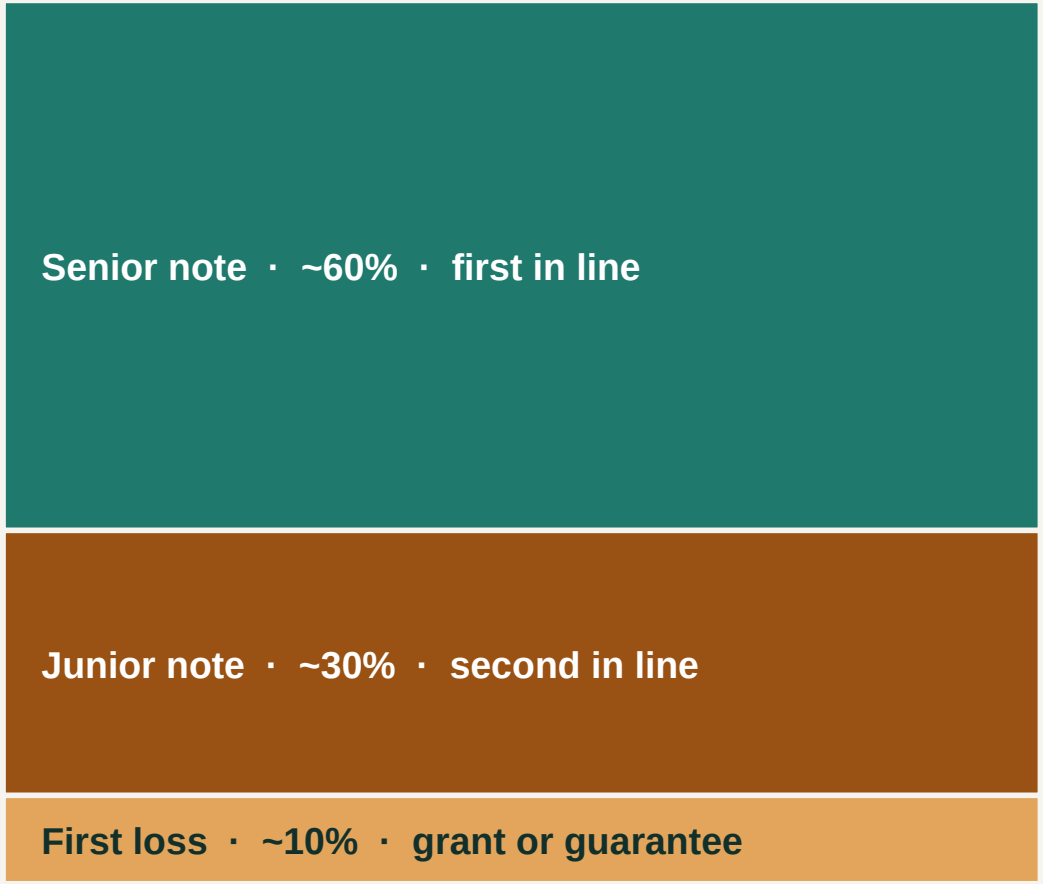
Payment for verified tonnes repays investors, senior first



Dashed lines show repayment. If the developer delivers fewer tonnes, the first-loss layer covers the gap first, then the junior note, and the senior note loses last.

PROPOSED STRUCTURE

A private tranched note, backed by an offtake



Private placement, not a listed bond. Fixed costs (counsel, trustee, verification, second-party opinion) are too high for a rated, listed issue at this scale.

A signed offtake repays investors. Investors lend against a multi-year contract at a fixed price per verified tCO2e.

Several projects in one pool. Pooling projects reaches a workable size and spreads delivery risk.

TerraFirma sizes the note to the conservative case. The senior investors can be repaid from verified tonnes even in the conservative case (P90).

PLANNING FOR SHORTFALLS

P50 and P90 tell buyers and lenders what to count on

P50: expected output

The level that output is as likely to beat as to miss. Outcome funders use the P50 to budget how many tonnes to buy.

P90: conservative output

The level that output exceeds nine years in ten. TerraFirma sizes senior debt so the SPC can repay senior investors even at P90.

Why outcome funders care

The P90 tells a buyer how many tonnes the buyer can rely on for climate claims, and keeps the price per tonne grounded.

The junior note and the first-loss layer absorb the gap between P50 and P90.

Who puts money in and who pays for results

Role	What the role does
Outcome funder (offtaker)	Signs a multi-year contract to pay a fixed price per verified tCO2e; the source of repayment
Senior lender (~60%)	Lower risk and lower return; the SPC repays this note first
Junior investor (~30%)	Higher risk and higher return; absorbs shortfalls before senior lenders
First-loss grant or guarantee (~10%)	Covers the first shortfall in verified tonnes; lowers the cost of capital

THE ACTORS, PART 2

Who builds, verifies and administers

Role	What the role does
Project developer	Builds and runs the projects; carries delivery risk
Issuer (SPC)	Special-purpose company that holds contracts and pays out in order
Verifier and registry	Certifies tonnes, independent of developer and funder
Trustee or paying agent	Holds funds and runs the payment order
Placement agent	Places the notes with investors
Second-party opinion	Confirms the green credentials
Counsel	Advises on securities, issuer and local law
Structuring adviser	Designs the deal and coordinates every party

LOOKING AHEAD

Carbon tonnes first; regenerative outcomes next

Now: verified tCO2e

Demand is clearest for carbon removal credits. Puro.earth, Isometric, Verra or Gold Standard verify the tonnes.

Next: regenerative outcomes

Outcome funders pay for hectares under regenerative agroforestry, tonnes of biochar applied, or farmers adopting climate-smart practices. Buyers: coffee, cacao, cashew and avocado companies seeking insets in their own supply chains. Verifiers: Rainforest Alliance, GLOBALG.A.P., SGS and others.

The same structure works for any outcome a buyer will pay for and an independent party can verify.