

Acorn

Agroforestry Carbon Removal Units (CRUs)
for the Organic Restoration of Nature

Rabobank

Acorn builds on Rabobank's heritage: World's leading Food & Agribusiness cooperative bank founded by Dutch farmers

Strategic rationale Acorn and mission Rabobank



Support the livelihoods of **smallholder farmers**



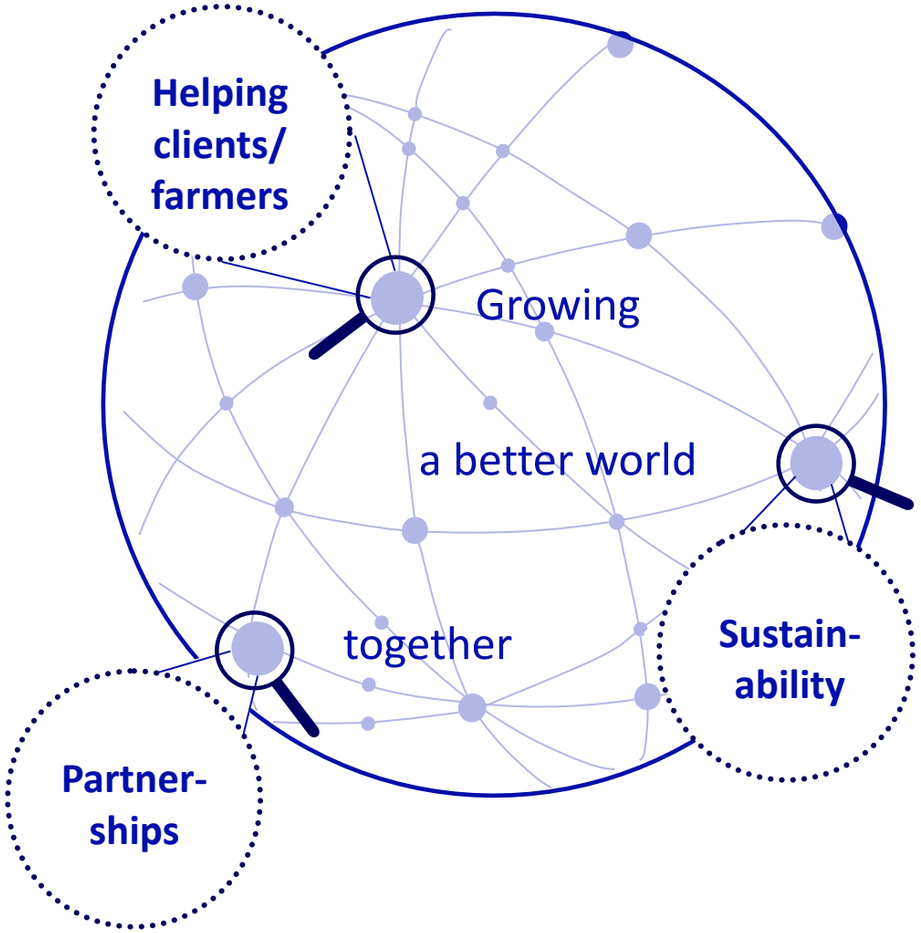
Combat climate change, land degradation, food insecurity **globally**



Provide **clients** with high integrity carbon removal units

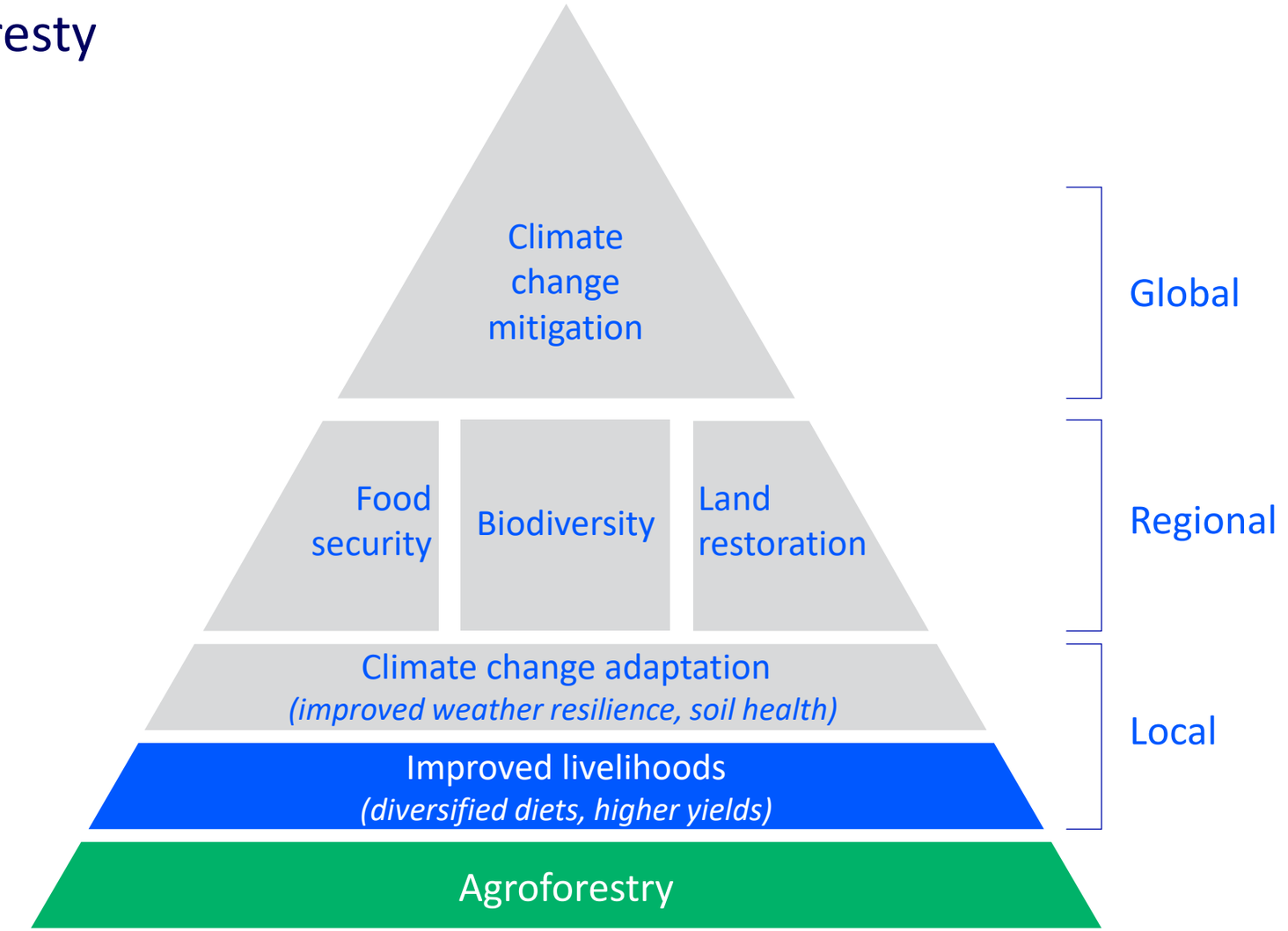


Build new **capabilities** for the bank (e.g. remote sensing)



Acorn’s vision is to improve smallholder farmer livelihoods through the transition to agroforestry

Benefits of Agroforesty



Acorn is growing rapidly with huge potential in India, because of the strong national agenda on improving the livelihood of farmers

217,125

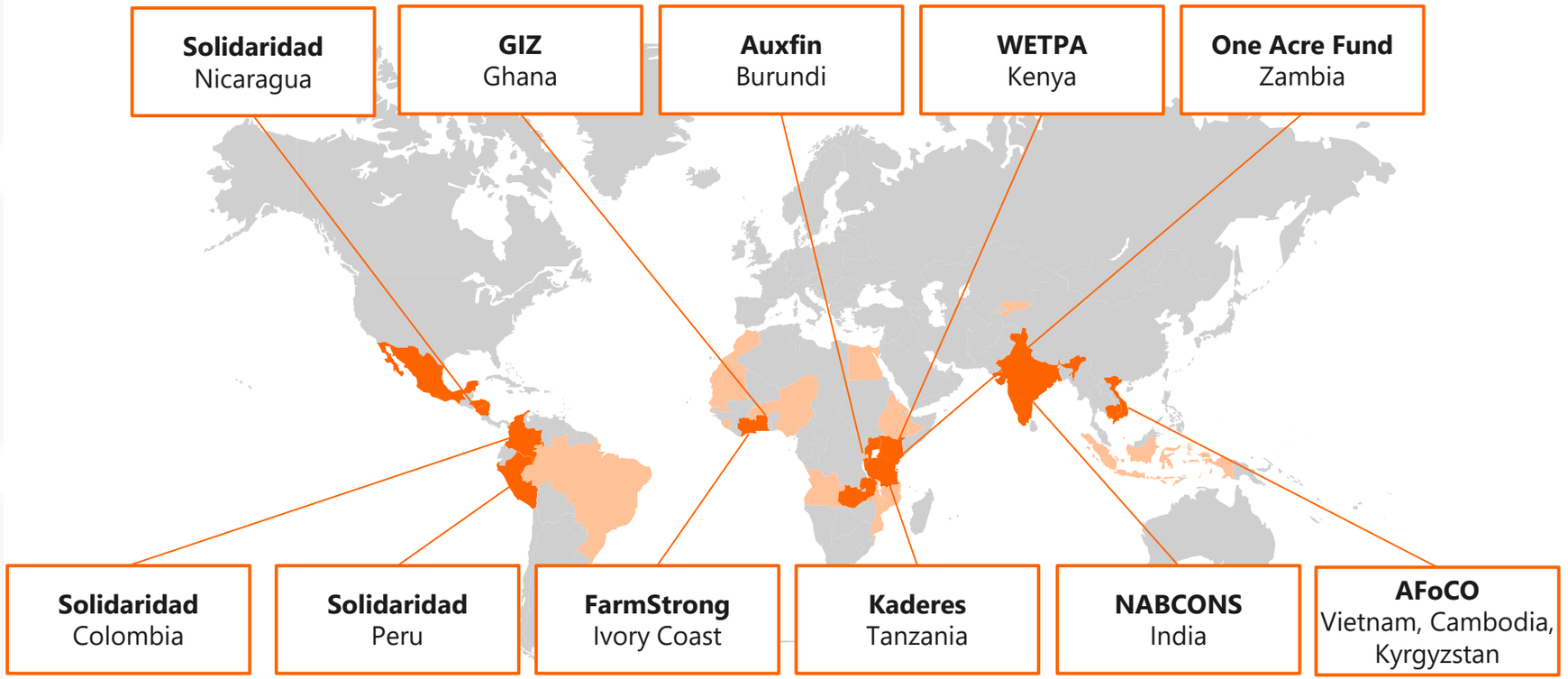
Farmers supported

255,010

CRUs issued

Standard Chartered · Microsoft · dll financial solutions partner

Anchor offtakers



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Acorn offers a fair, transparent and cost efficient way to measure, certify and sell carbon on the Voluntary Carbon Market, building upon strong local partnerships

Partnerships

Farmers (<10ha or community) plants trees







AFoCO

- Gov't alignment
- Farmer contact
- Agroforestry implementation
- Sub contractor mgt

Acorn

Satellite data calculates sequestered CO_2 and generates 1 CRU token

Market-making mechanism developed by Rabobank

Carbon Removal Unit (CRU)

Payment

Register

Global register of biomass growth and CO_2 captured by agroforestry

PLAN VIVO

Market (VCM)

Emitter buys CRU



Microsoft

standard chartered



Min. €20,- per CRU

Latest €31,- per CRU

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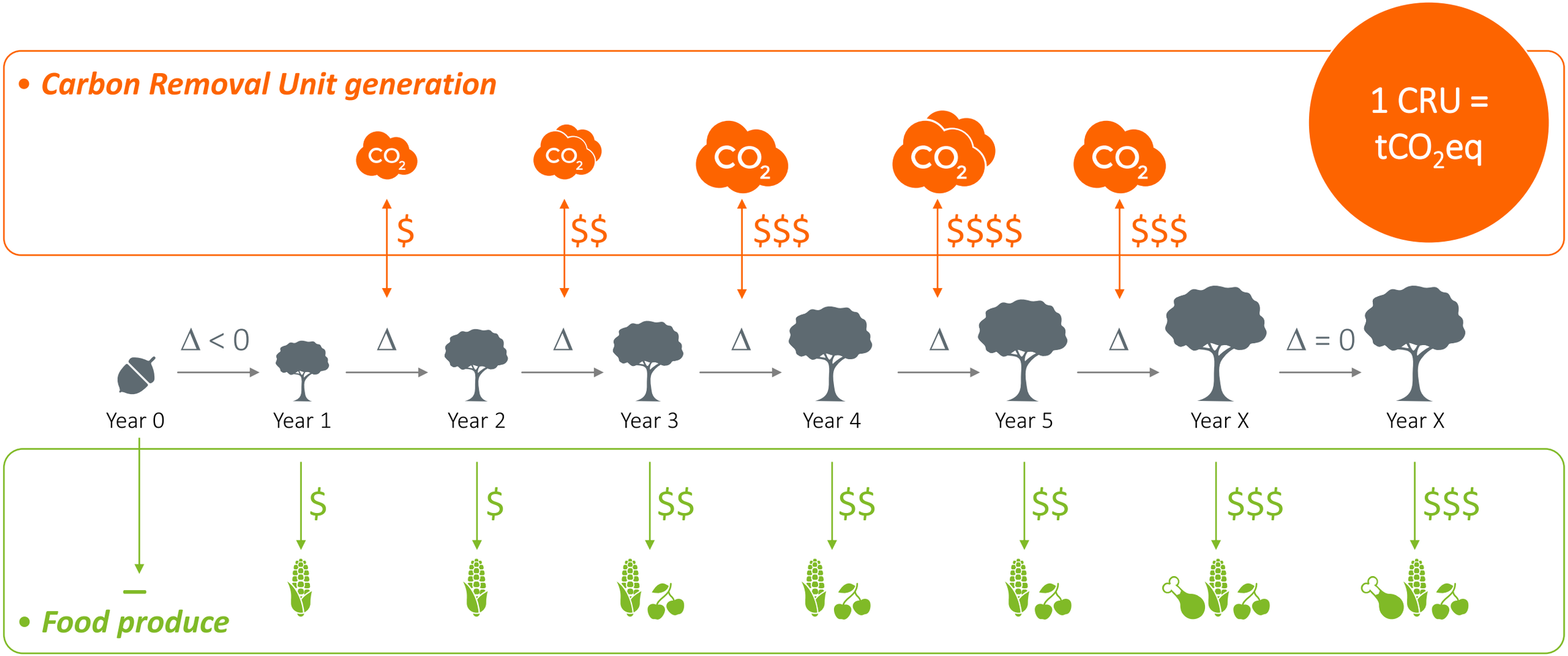
To only sell sequestrated carbon, Acorn measures biomass growth of trees every year while the farmer also benefits from Agroforestry



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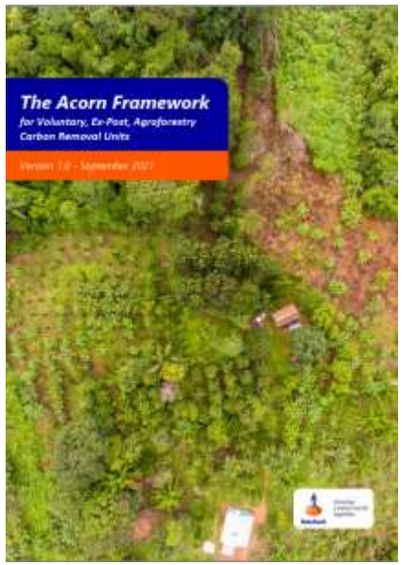
Acorn has built a global, trustworthy, technology-enabled and fair marketplace for carbon sequestration

USPs

Pragmatic and cost-efficient certification





Tailored and trustworthy

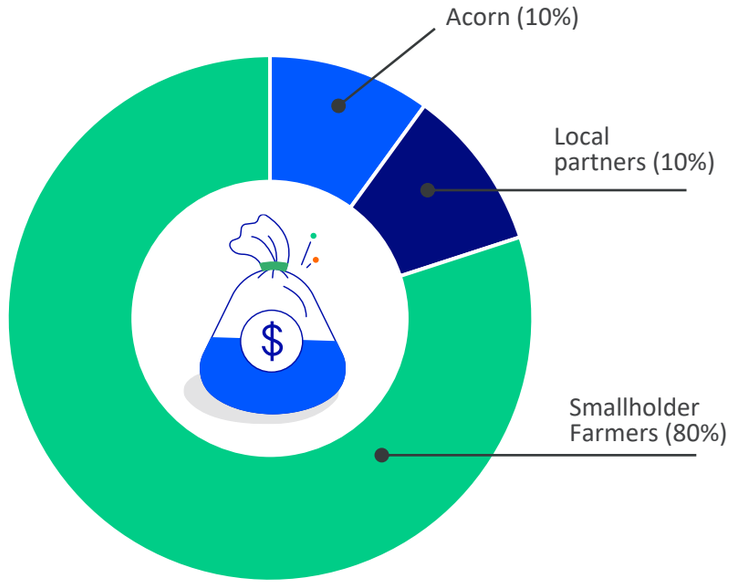
Traceable satellite based remote sensing monitoring





Technology and transparency

High quality carbon removal units



Ecosystem and fair

Fair farmer payments is what drives us

Farmer financial benefits



CRU potential: 4-6 CRU

Average a farmer can sequester per ha per year



Fair payments: 80%

The share of carbon removal unit revenues directly to the farmer



Income: EUR 80-120

Per year a farmer with 1 ha can earn by EUR 25 per CRU

Acorn's does not sell carbon *credits*, but Carbon *Removal* Units, to set the responsible standard in the Voluntary Carbon Market

Non-tradable	• All companies must buy **directly** from Acorn, allowing **80%** of all revenue can go to the benefit of the farmer
Transparent & traceable	• Carbon sequestered can be proven through data driven measurements, showing when and where carbon is removed
Certified	• Our framework, especially developed for farmers, is certified and verified external standard **Plan Vivo (ICROA endorsed)**
Nature based	• Carbon credits originating from naturally occurring ecosystems, with integrated agroforestry systems
Ex post removal	• Acorn does not sell future removal, avoidance or reduction, only **actual sequestrated** carbon from the air
Ownership	• By *not* working with private equity investments, farmers have full ownership over trees and its carbon revenue
Co-benefits	• 80% of the sale price flows directly back to the smallholder farmer, either in cash or in kind





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Acorn's project's meet the following eligibility criteria

- Presence of legal right to sell Carbon Removal Units (no restricting governmental policy)
- The project includes **new agroforestry** and/or existing agroforestry with a **maximum of 5 years** since trees were planted
- An Agroforestry design consist of at least **two different species**, of which only wooden tree species account for CRUs
- No deforestation took place in the project area in the last 5 years (more than 50% biomass loss)
- No carbon credits are being sold currently from the project, or CO2 (to be) sequestered is not yet monetized
- The area cultivated by each farmer is between 0.1 and 10 hectares
- There is local engagement and organizational capacity to undertake the project for a minimum of 20 years
- Every farmer has proof of formal or informal land tenure
- Significant project scale, plus scaling potential

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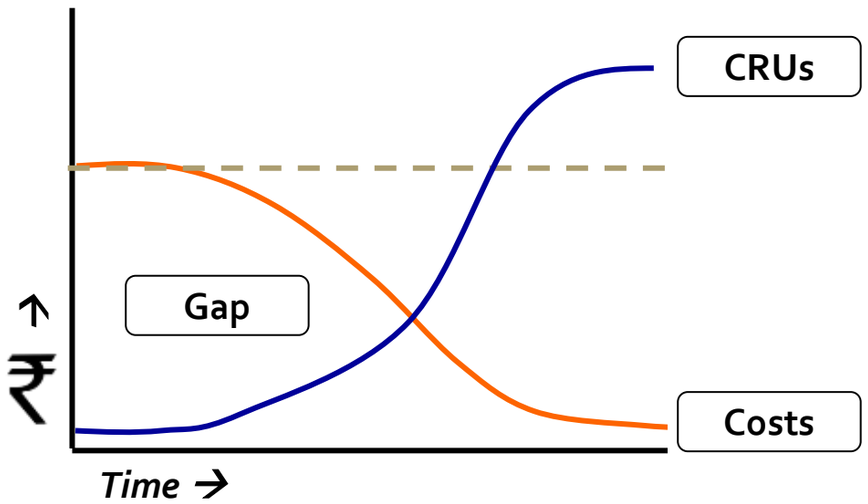
The challenge: covering the costs of planting material, while excluding private equity to ensure farmers remain the owner of the tree and receive 80% of the CRU revenue

CRU revenue flows in when trees grow



Ways to fund trees

Existing Agroforestry

Max 5 years old CRU revenue starts at +/-3 years

Subsidies and Funds

Financing seedlings and/or planting material

Smallholder Agroforestry Finance (SAF)

Pre-finance repaid solely from future CRU revenue
A Rabobank facility

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Smallholder Agroforestry Finance with carbon credits can accelerate financial inclusion in emerging markets.

Traditional finance by MFIs

- No access to cashflows for investors
- High individual farmer risk

- Short duration (weeks, months, year)
- High interest rates (15% - 25%)

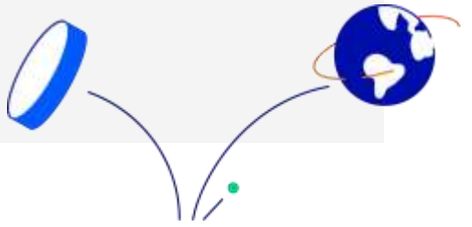
- Low scalability depending on local players & conditions

Smallholder Agroforestry Finance as gamechanger

- Carbon proceeds flow from Acorn directly to investor
- Cooperative finance reduces risk for investors

- Long tenors (up to 15 years)
- Lower, fair interest rates (8% - 10%)

- High scalability possible



We are establishing a new entity to fund the agroforestry transition together with donors and financiers.

Financiers
External financiers alongside Rabobank*

Fund Manager SAF
involvement Rabo Foundation

Portfolio
Non recourse loans

Rabo Foundation

Governance

Stichting Nieuwe Fondsen

Shareholder

Donors & Impact Funds

DFIs/MDBs & Institutionals

Donors

Capital Preservation

Junior Tranche

Senior Tranche

TA Facility

Smallholder Agroforestry Finance B.V.

Investment Policy (not exhaustive)

- Acorn smallholder agroforestry projects only in Latam, Africa and Asia
- Investment costs (seedlings, training, tree planting costs) <20% of carbon revenue in 20yr
- Extensive screening of Local Partners
- Repayments based on future carbon proceeds

Examples



Project 1
India, EUR 4.4 m

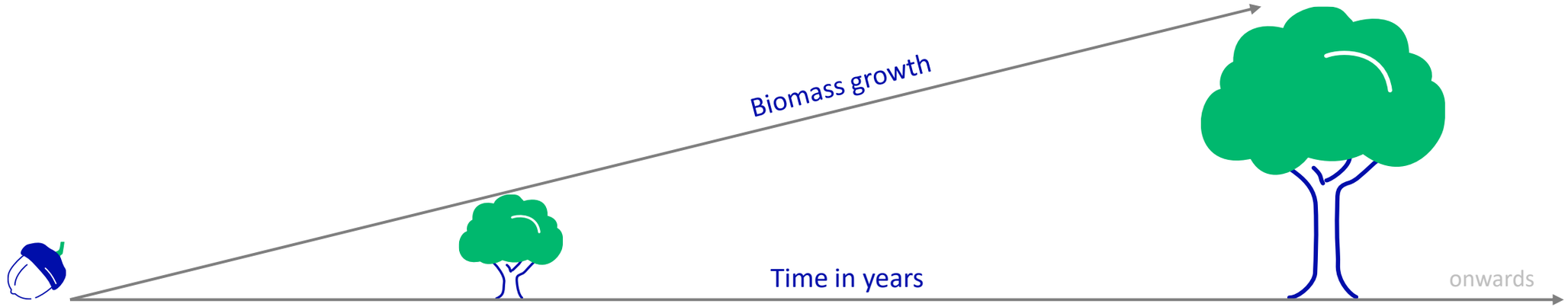


Project 2
Ghana, EUR 5 m



Project 3
Peru, EUR 2 m

Farmers repay the initial investment in tree planting over time with the cash flow from Carbon Removal Units.



Year	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
CRUs/ha	0	0	0	1	1	2	2	3	3	4	4	4	3	3	3
CRU proceeds*	-	-	-	€30	€30	€60	€60	€90	€90	€120	€120	€120	€90	€90	€90
SAF**	- €150	-	-	€12	€12	€24	€24	€36	€36	€6	-	-	-	-	-
Farmer	€0	€0	€0	€12	€12	€24	€24	€36	€36	€90	€96	€96	€72	€72	€72

Grace period | Repayment period | After debt repayment

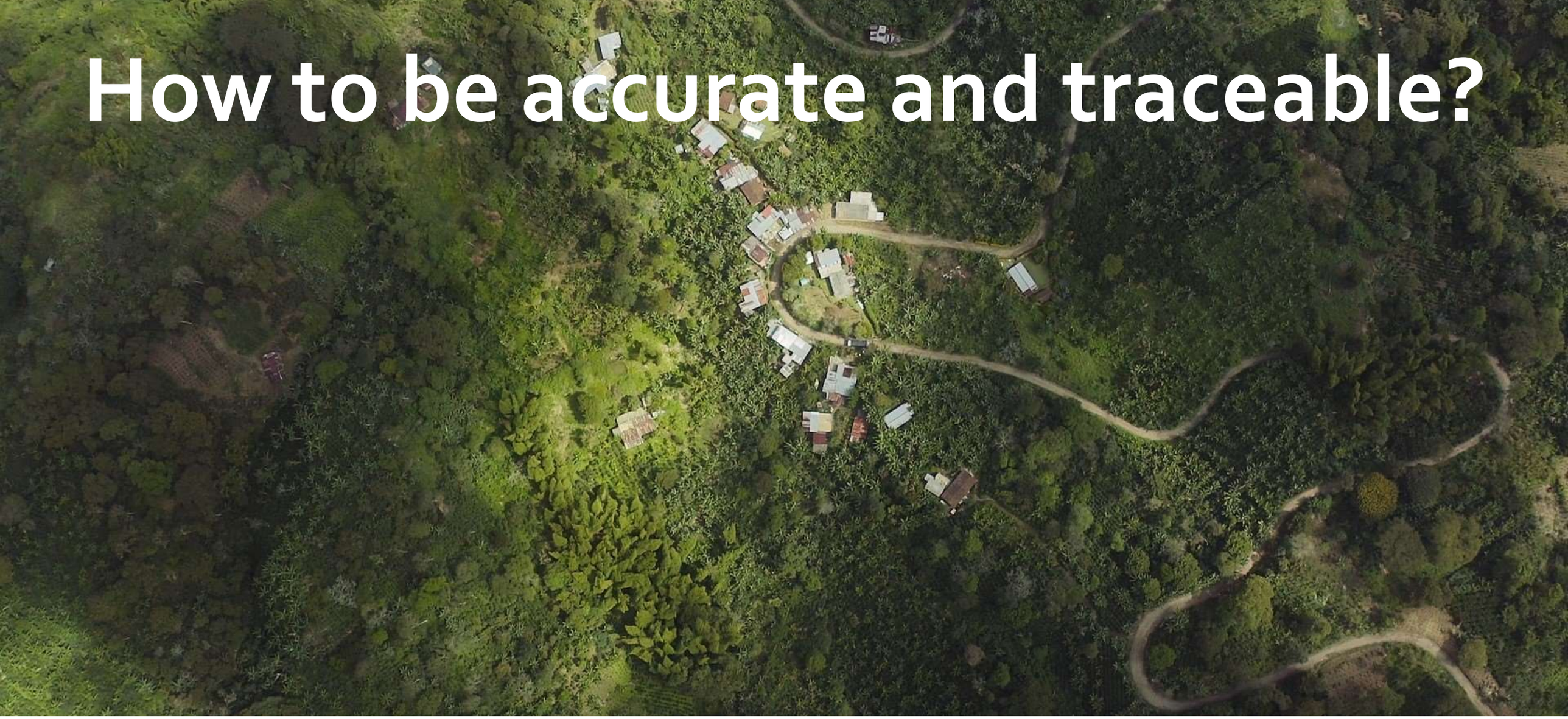
No CRU generation due to ex-post CRUs: no repayments or interest payment.

Repayments through cash sweep, increasing over time following tree growth curve.

80% of CRU proceeds and full additional yield revenues flow to farmer.

* For illustrative purposes only. Based on an illustrative CRU price of EUR 30, subject to change. ** For illustrative purposes, excluding interest, subject to change.

How to be accurate and traceable?



Acorn provides foreign investment by selling CRUs to the VCM, while the host country claims the impact of Agroforestry for the NDCs and other national objectives

SDGs supported by Agroforestry

1	Increased farmer income
2	Diversified diet & increased yield
6	Improved ground water quality
8	Higher farmer productivity
9	Better access to finance
13	Stronger farmer resilience
15	Enriched biodiversity
17	More stakeholder involvement

Acorn on Carbon Accounting in NDCs

The host country may claim Acorn CRUs as emission reduction for the NDCs. By buying CRUs, corporates agree they will *not* claim the emission reduction in their home country. Therefore, Acorn contributes to the host country's efforts to meet their conditional NDC targets.

Doubling of Farmers Income

On February 28, 2016, Prime Minister Narendra Modi shared his dream of doubling farmers' incomes in the year when India completes 75 years of Independence

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Farmers plant tree species that are native or naturalized, and draw on local and expert knowledge for agroforestry designs

End-to-end [1/6]

Farmer planted trees → Farmer and polygon uploaded → Ground truth collected → Biomass calculated → CRUs calculated → CRUs sold and registered







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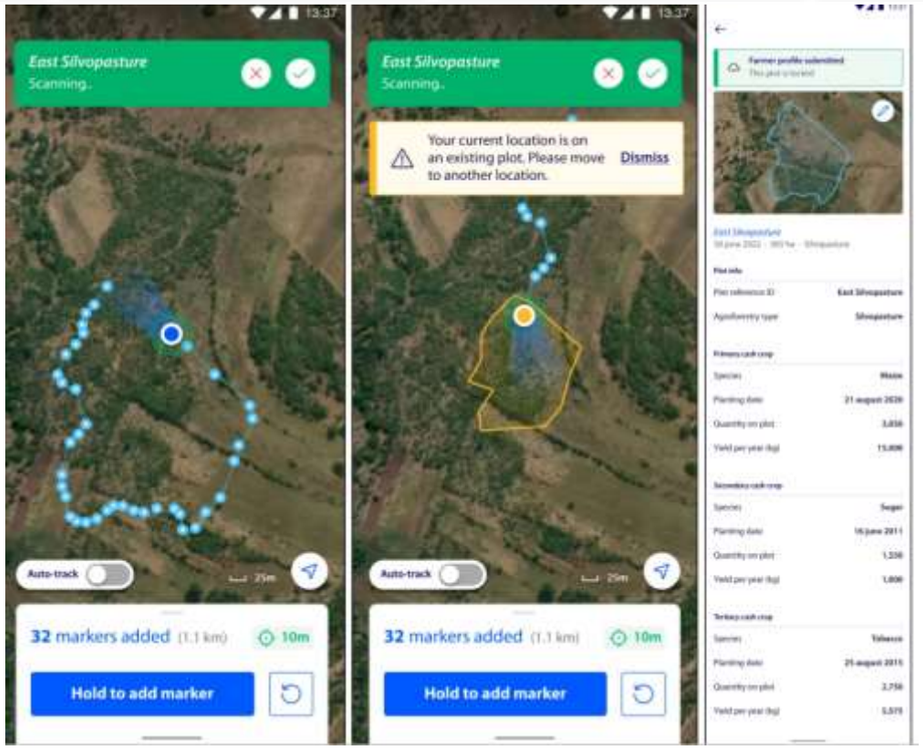
Farmer data incl. polygons are collected using Acorn's Data Collection Tool (DCT)

End-to-end [2/6]

Farmer planted trees → **Farmer and polygon uploaded** → Ground truth collected → Biomass calculated → CRUs calculated → CRUs sold and registered



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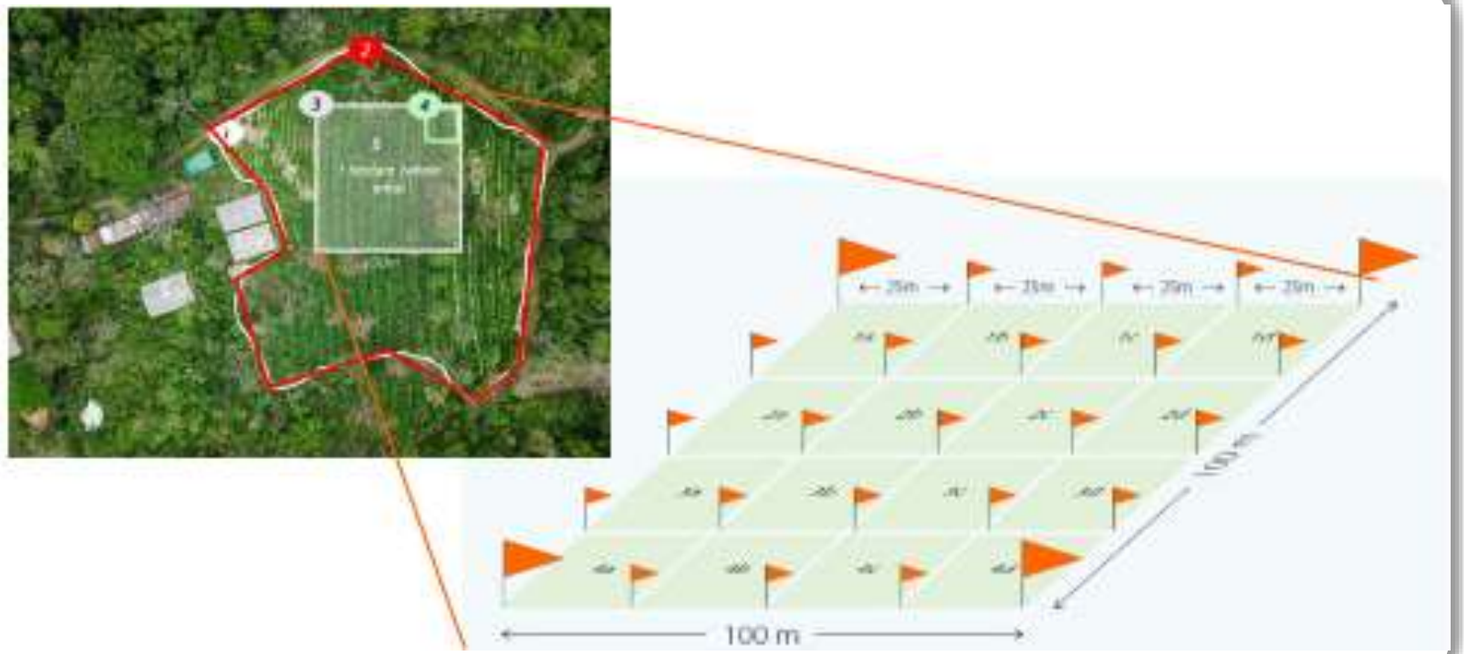
Per ecoregion within the project scope, of 100 plots Ground Truth data is collected and form the input for a model. There is one model per each Ecoregion and Agroforestry combination

End-to-end [3/6]

Farmer planted trees → Farmer and polygon uploaded → **Ground truth collected** → Biomass calculated → CRUs calculated → CRUs sold and registered

- Define sample plot (100m x 100m)
- Define subplot (25m x 25m) within the sample plot
- Measure trees per subplot
- Translate tree measurement into AGB



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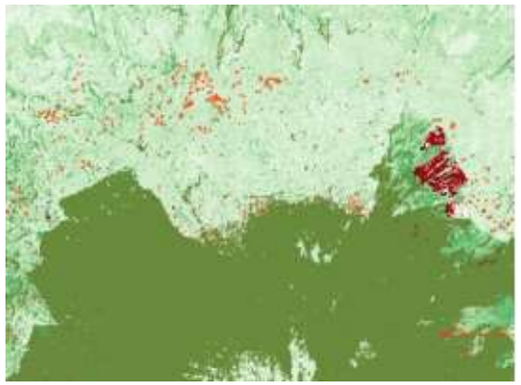
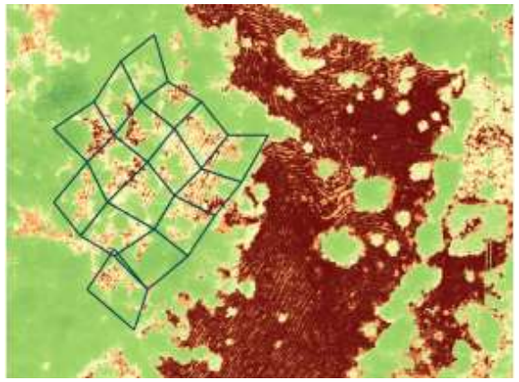
Satellite images are used to check for deforestation and our model interprets satellite pixel pictures to annually measure biomass growth

End-to-end [4/6]

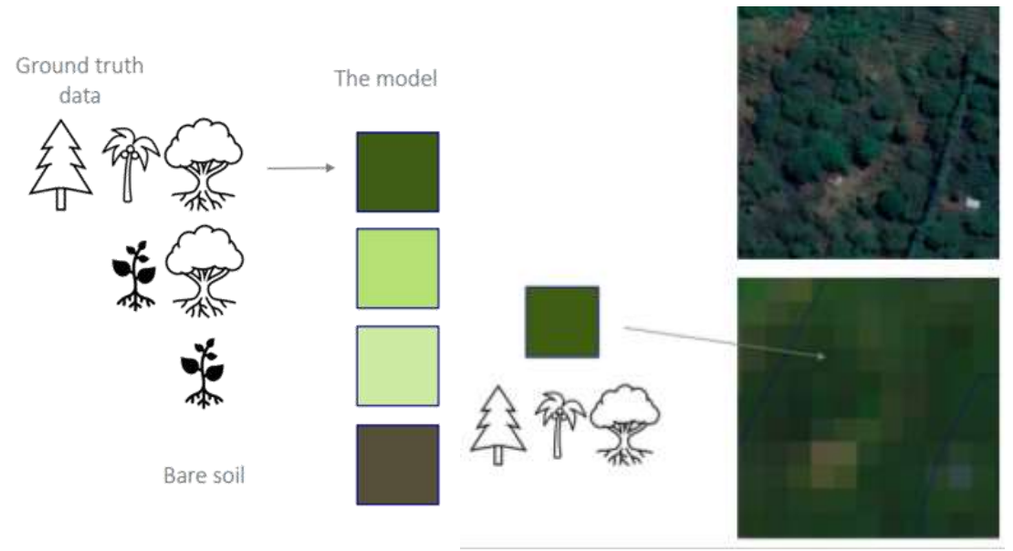
Farmer planted trees → Farmer and polygon uploaded → Ground truth collected → **Biomass calculated** → CRUs calculated → CRUs sold and registered



Checking for deforestation (t-5) check, with red being tree removal, red dots are plots



Training model based on ground truth data of the sample plot with satellite



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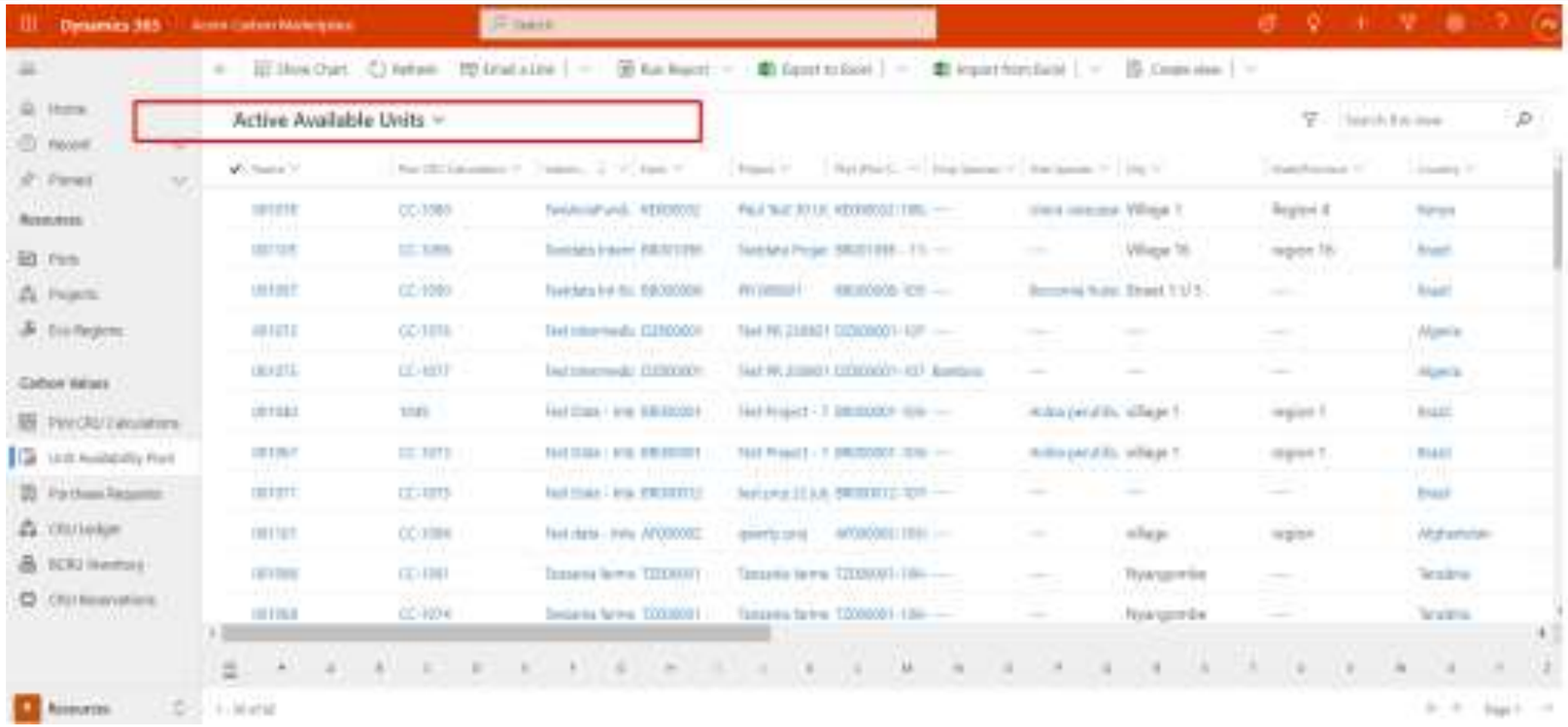
Per farmer individually, annual biomass measurements are translated into Carbon Removal Units (CRUs)

End-to-end [5/6]

Farmer planted trees → Farmer and polygon uploaded → Ground truth collected → Biomass calculated → **CRUs calculated** → CRUs sold and registered



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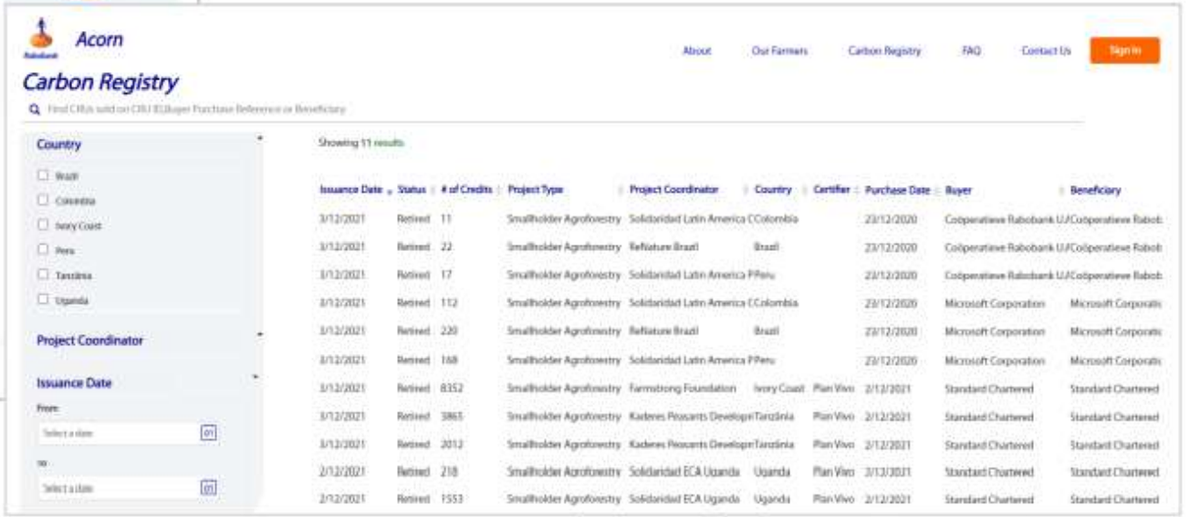
Buyers have their own portal with full transparency when, where and whom carbon sequestrated, while CRUs are registered publicly

End-to-end [6/6]

Farmer planted trees → Farmer and polygon uploaded → Ground truth collected → Biomass calculated → CRUs calculated → **CRUs sold and registered**





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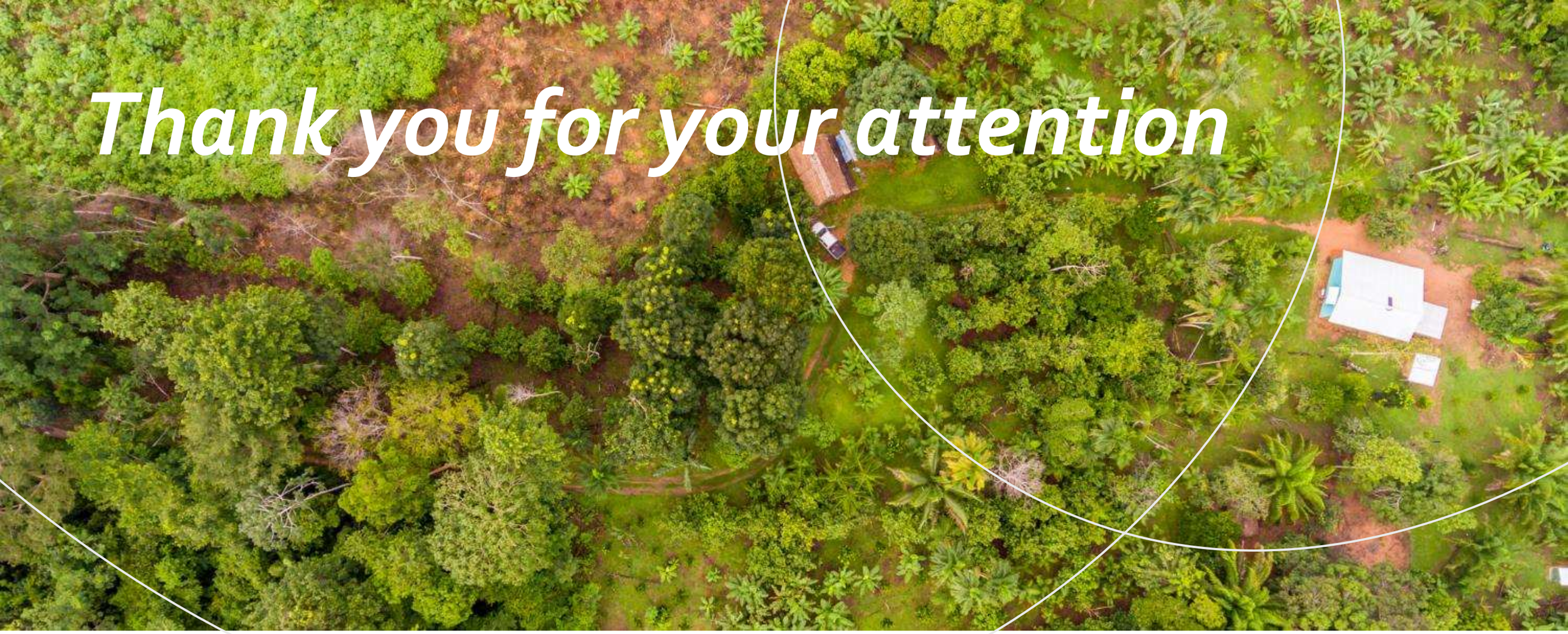

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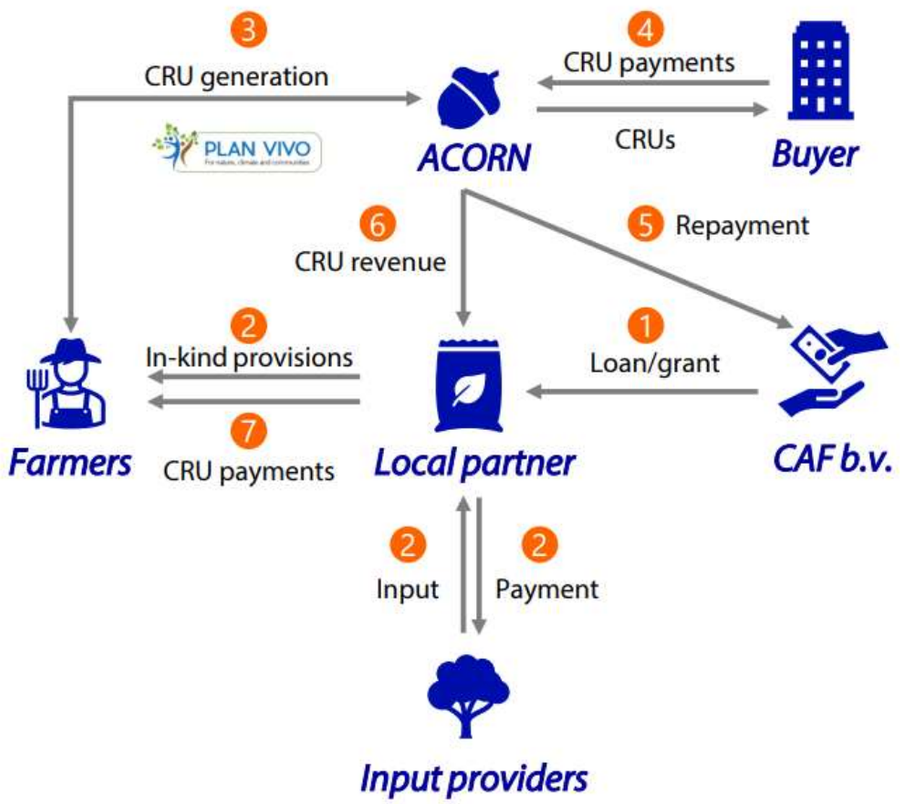
Supporting slides



Overview of the structure of Smallholder Agroforestry Finance



1. CAF provides pre-finance (e.g. grant/loan) to Local Partner to cover for upfront investment costs
2. Local Partner purchases in-kind provisions (e.g. training, seedlings) to enable farmers to start agroforestry practices and coordinates tree planting/intervention
3. Farmers generate CRUs through planting trees. Monitored, certified and sold by Acorn, certified by Plan Vivo
4. A corporate off-taker buys CRUs from Acorn against the latest market price, 100% of the CRU price flows to Acorn
5. Acorn retains 10% of the CRU proceeds and repays loan to CAF based on a certain % of CRU proceeds (e.g. 50%)
6. Acorn transfers 10% of CRU proceeds to LP and remaining part of 80% of CRU proceeds (after loan deduction) to farmers
7. Farmers receive remainder of 80% after loan deduction, either via LP or directly via digital payment solution

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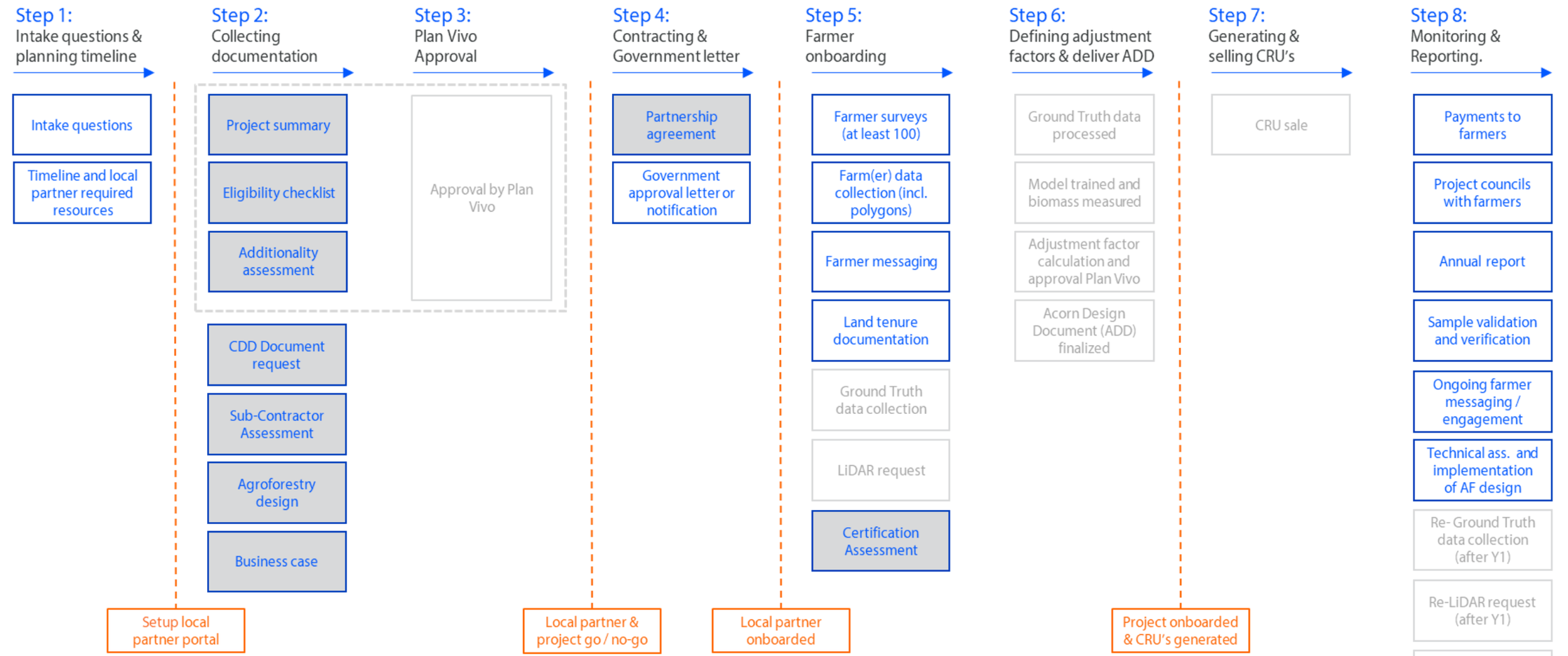
Local partner and project onboarding process



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Before starting a project, a business case is proposed to estimate the financial benefits and feasibility for the farmer and the partner

Information on Agroforestry design

- The crops generally cultivated by farmers *before* the Agroforestry intervention
- The percentage of land used for growing the main crop *before* the agroforestry intervention
- On the agroforestry design, broad estimation per tree:
  - Name species
  - Average number of trees planted per hectare
  - Survival rate of trees
  - Seedling costs per tree
  - Market price of crop from the tree per kg
  - Whether timber harvesting of this tree taking place

Impact of Agroforestry design & implementation costs Acorn

- For the farmer, expected yield and costs of Agroforestry including:
  - Transport costs per seedling
  - Ground preparation & additional inputs for planting the seedlings
- For the partner, one off project costs:
  - Engagement with farmer before farmer data collection
  - Farmer data collection, including polygon collection
  - Optional: costs of agronomist to compose the agroforestry design
- For the partner, recurring project costs:
  - Project council, once every six months
  - Reporting, once in a year
  - Farmer baseline surveys, once in three years
  - Optional: providing training to farmers on agroforestry

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