



# SESSION 1: Plantation In New Business Models: Investing Into Wood Production Restoring Ecosystem Services And Enhancing Livelihoods

- *Introduction*
- ***Part 1: Investment opportunities***
- ***Part 2: The business case***
- ***Part 3: Certification and Carbon markets***
- *Conclusions*



# SESSION 1: Plantation In New Business Models: Investing Into Wood Production Restoring Ecosystem Services And Enhancing Livelihoods

- ***Part 1: Investment opportunities***
  - Lessons from 30 years of investments in African commercial forestry and what this means for future investments to achieve sector transformation, **Nick Embden and Jim Heyes**
  - National Incentives Schemes for Commercial Forestry Plantations in Uganda, **Issa Katwesige**
  - Transforming African forest plantations into mainstream, globally demanded timberland investment opportunities: developing a business model that works, **Jacek Siry**
  - *Q&A and discussion*





# SESSION 1: Plantation In New Business Models: Investing Into Wood Production Restoring Ecosystem Services And Enhancing Livelihoods

- ***Part 2: The business case***

- The business case for trees on farms, **Rodney Keenan**
- The Status, Operational and Institutional Arrangements of Private Forestry in Kenya, **Sammy Letema**
- A community led bamboo charcoal enterprise development initiative in Busia, Kenya, **Selim Reza** and **Nellie Oduor**
- *Q&A and discussion*





# SESSION 1: Plantation In New Business Models: Investing Into Wood Production Restoring Ecosystem Services And Enhancing Livelihoods

- ***Part 3: Certification and Carbon markets***

- How PEFC responds the topic of forest plantations in the context of global challenges addressed through national initiatives to meet growing needs in wood products, restore forest ecosystems, and mitigate climate change, **Hubert Inhaizer**
- Challenges and enablers for landholder-supporting projects to access the voluntary carbon market and carbon credit payments, **Anna Ioannou**
- Using the carbon market to help smallholder farmers to switch to agroforestry, **Margreet Muizenbelt**
- *Q&A and discussion*





---

# Lessons from 30 years of African commercial forestry investments and what this means to achieve sector transformation



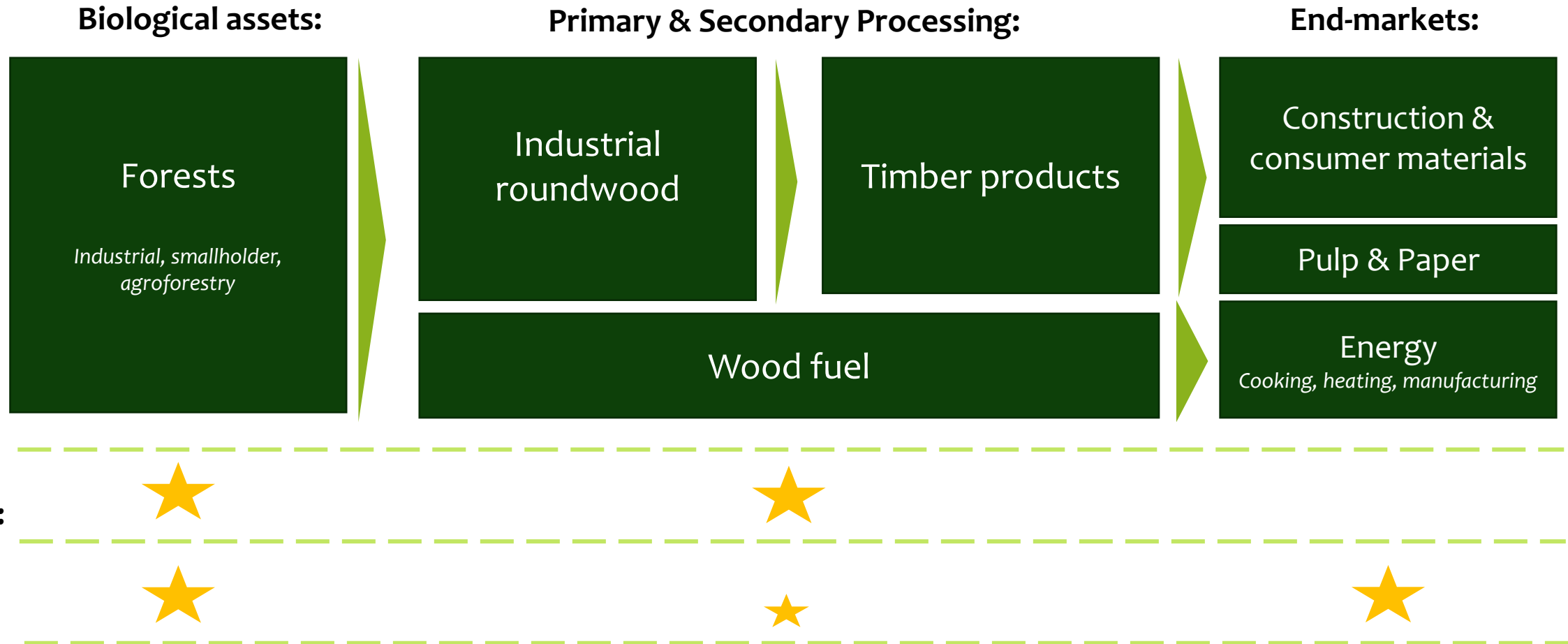
# Contents of the forthcoming paper

- Introduction, context and overall framing

- I. Lessons learned from industrial plantation investments over the past 30 years in sub-Saharan Africa
- II. Lessons learned from smallholder forestry – sub-Saharan Africa and Asia
- III. The role of carbon finance

- What does this mean: strategic implications

# Commercial forestry has an important role to play in meeting climate change targets, whilst generating jobs and providing other social & economic benefits





# The Track Record for Greenfield Forestry Investors in Africa is Very Poor

Since 1993:

- 190,000 hectares planted across 15 projects\*
- \$1.4 billion invested (so far)
- Average cost/hectare: c.\$7,000 (range: \$3k-\$10k/ha)
- Estimated current enterprise value: <\$500 million



\*Excluding South Africa, parastatal projects, tropical forestry & smallholder projects



# Greenfield Plantation Developments: Key Challenges and Lessons Learned (i)

Key Elements	Summary of key findings
<b>1. Sponsors &amp; management</b>	<ul style="list-style-type: none"><li>• Promotors with limited experience in developing forestry projects</li><li>• Limited involvement of strategic operators</li><li>• Scarcity of skilled managers in the region → high cost and high turnover</li></ul>
<b>2. Greenfield implementation challenges</b>	<ul style="list-style-type: none"><li>• Limited infrastructure (power, water, roads, suppliers, skilled labor) in rural areas; supporting assets must be developed from scratch at a high cost</li><li>• Limited data to inform species selection, site suitability, silviculture regimes</li><li>• Land acquisition is complex, uncertain, politically challenging, and comes with inherent community and stakeholder issues</li></ul>

## Greenfield Plantation Developments: Key Challenges and Lessons Learned (ii)

Key Elements	Summary of key findings
<b>3. Routes to market &amp; Industrialisation</b>	<ul style="list-style-type: none"><li>• Most projects did not focus early enough on routes to market to inform project location, species selection, and silviculture regimes</li><li>• Only 11% of \$1.4b invested to date utilized to develop industrial facilities</li><li>• Competing with informal markets is a challenge for companies with high ESG and integrity standards, higher input and overhead costs, etc</li></ul>
<b>4. Enabling environment</b>	<ul style="list-style-type: none"><li>• Unexpected export bans, transportation bans have hampered projects</li><li>• Public procurement (e.g. utility poles) subject to business integrity risks, budget cycles, donor funding, long payment cycles</li><li>• Taxation challenges: VAT refunds, carbon taxes, etc</li></ul>

## Greenfield Plantation Developments: Key Challenges and Lessons Learned (iii)

Key Elements	Summary of key findings
<b>5. Finance: Investor Base and Capital Structure</b>	<ul style="list-style-type: none"><li>• Commercial capital declined due to poor returns and lower risk appetite</li><li>• DFIs taking on a larger role in the sector, a trend which will likely continue, complemented by new generation of private climate financiers</li><li>• Many projects did not have fully funded business plan, resulting in multiple capital rounds, misalignment on equity valuation, and issuance of expensive debt</li><li>• Long leadtimes for securing capital can result in project setbacks that require additional capital later for rehabilitation</li><li>• Pressures to scale up plantation too quickly to raise capital or chase BAV</li><li>• Debt that does not align with cash flows has been a major challenge</li></ul>
<b>6. Finance: Valuation &amp; Returns</b>	<ul style="list-style-type: none"><li>• Distant cash flows (15-20+ years) discounted with high equity discount rates (average 15% real) due to country and project risks, leading to low valuations</li><li>• USD based investors face significant currency depreciation risks (e.g., 10% annual currency depreciation rate of key currencies over the last 10 years)</li></ul>



**Jim Heyes**

[jim@criterionafrica.com](mailto:jim@criterionafrica.com)



**Nick Embden**

[nick.embden@gatsbyafrica.org.uk](mailto:nick.embden@gatsbyafrica.org.uk)





# National Incentives Schemes for Commercial Forestry Plantations in Uganda

Issa Katwesige

Assistant Commissioner, Forestry

Ministry of Water and Environment, Uganda

5<sup>th</sup> International Congress for Planted Forests

7<sup>th</sup> – 10<sup>th</sup> November, 2023

CIFOR-ICRAF Campus, Nairobi

# Background



- ▶ Commercial Forestry development requires appropriate legislation and policy
- ▶ In early 2000s the then Forestry Department started to promote the development of forest plantations as a strategy to address the increasing demand for forest products and reduce the dependence on the natural forests.
- ▶ This investment has over the years been facilitated by NFA's issuance of private planting licenses in the CFRs, the innovative Sawlog Production Grant Scheme (SPGS), which provided performance-based grant subsidies and technical support to small, medium, and large investors as well as the Farm Income Enhancement and Forestry Conservation (FIEFOC) Project . Came with standards, silvicultural capacity, etc
- ▶ A number of policy and administrative reforms, including: revision of forestry policy, strengthening of CSO partnerships, adoption of FSC certification, and different models for value addition.

## Benefits



- Area of forest plantations increased from 21,300 ha in 2000 to 314,350 ha in 2019 (or 1,343% increase in area), and 42,768 hectares in nine private forest plantation management units, FSC certified by August 2022;
- Improved forest protection and management
- Increased forest cover 12.4% in 2016 to 13.3 by 2020
- Reduced management costs
- A viable environment for industrialization
- Non Tax Revenue from the licensed land



## Challenges

- ▶ Over 158,000 ha of land in CFRs allocated by NFA to over 3,800 individual private tree growers only around 102,000 have been planted to date; underlines the gaps in effective implementation of investment licences
- ▶ The commercial forestry sector is constrained by several downstream challenges, including outdated processing technologies limiting products range and informal market structures;
- ▶ Unpredictable political pronouncements, risking divestiture
- ▶ Perceived “rich man's” business





## Sustaining the last 2 decades

- The GOU through Ministry of Water and Environment currently working with a number of development partners e.g. World Bank (IFPA CD Project), KfW, SIDA, IsDB, and European Union to reduce the cost of plantation establishment in order to encourage more Ugandans to adopt tree growing; performance based woodlots;
- Partnerships with the private sector through:
- Providing seed funding to facilitate establishment of cluster based processing hubs to strengthen value addition and product diversification;
- Revising vocational training curriculum to address the value addition gaps, and promoting the export and import substitution for forest products. It is envisaged that after achieving the aforementioned, plantation forestry will be self-sufficient in the country.
- Uganda Investment Authority business incentives



## Sustainability cont'd

- Sustainable sourcing
- Fiscal incentives
- Sustainable procurements
- CoC Standard
- Market development support
- Formation and strengthening of tree growers associations
- Beyond Timber



## A photograph of a large tree trunk in a forest, with the text 'QUESTIONS &amp; DISCUSSION' overlaid in white. The tree trunk is thick and textured, and the forest is lush with green foliage. The text is centered and reads 'QUESTIONS &amp; DISCUSSION' in a bold, white, sans-serif font.



# Transforming African plantations into global investment opportunities: Developing a business model that works

Jacek P. Siry, University of Georgia, [jsiry@uga.edu](mailto:jsiry@uga.edu)

Fred Cabbage, North Carolina State University, [fred\\_cabbage@ncsu.edu](mailto:fred_cabbage@ncsu.edu)

Rafal Chudy, Journal of Forest Business Research, [rafal@forest-journal.com](mailto:rafal@forest-journal.com)

5<sup>th</sup> International Congress on Planted Forests  
7-10 November 2023  
Nairobi, Kenya



# Who are world leading investors?

- Pension funds, endowments, high-net worth individuals, investment organizations
- Timberland Investment Management Organization (TIMO)
  - brokers and managers for timberland investors
- Real Estate Investment Trusts (REIT)
  - Special tax entity investing in real estate, including timber
- C-corporations (traditional forest industry)
- Special purpose vehicles (direct investment)
- **Timberland investment includes both land and trees**

# Why invest in timberland?

- Portfolio diversification
- Inflation hedging
- Attractive risk-adjusted returns
- Return drivers
  - Biological growth
  - Land price appreciation
  - Timber price appreciation
  - Other (Carbon and ecosystem services)

# Prioritizing investment locations

- Geography (logistics and ease of management)
- Culture (tradition of contracts, ease of communication)
- Business proposition (species, products, markets)
- Exchange rates and currency for transaction, large capital expenses, daily management
- Frequency of natural disasters
- Likelihood of investment loss (expropriation)
- Land prices/growth rates/product prices  
(at least 2 out of 3)

# Investment considerations

- Commercial plantations or natural forests?
- Greenfield investment vs. established plantations
- Fee simple or lease or both?
- Size - critical for efficiency, also in placing capital
  - At a minimum 10 million US\$, preferably much more
- Existing markets or expected markets
- Time horizon
- Are competitive returns possible?
- Due diligence, acquisition, management, liquidation
- What are the risks?



# Projected Planted Forest Area (Nepal et al. 2019, from FAO Data)

	2015	2020	2025	2030
REGION	planted forest area in million ha			
AFRICA	14.79	15.59	16.42	17.33
ASIA	127.34	143.59	157.07	167.33
EUROPE	80.35	84.26	87.68	90.36
NORTH/CEN. AMERICA	43.13	44.04	45.15	46.26
OCEANIA	4.34	4.47	4.60	4.72
SOUTH AMERICA	15.02	15.76	16.39	16.96
WORLD	284.97	307.72	327.31	342.97

# Many large areas for African opportunities

## – Investment as well? (Shyamsundar et al. 2022)

	Restoration potential (km <sup>2</sup> )	Quantified NDC	Governance index	Tenure security index	Score for enabling business of agriculture	Minutes to market from reforestable areas
Brazil	843,253		-0.18	74	75	87
Congo, Dem. Rep.	809,997	✓	-1.61	NA	30	127
Indonesia	423,308		-0.17	63	NA	68
Angola	305,239	✓	-0.87	NA	27	187
Colombia	221,888		-0.14	65	82	96
Tanzania	216,290		-0.56	64	57	113
Mexico	200,519		-0.37	79	69	53
Central African Republic	147,531	✓	-1.58	NA	NA	150
Côte d'Ivoire	130,496		-0.50	59	46	44
Myanmar	124,620		-0.95	75	31	127
Venezuela, RB	116,186		-1.78	72	NA	109
Thailand	115,404	✓	-0.20	72	59	36
Cameroon	107,934		-1.12	55	22	87
Mozambique	106,571		-0.77	57	51	119
China	105,041	✓	-0.36	75	70	63
Philippines	104,861		-0.31	51	68	28
India	94,434	✓	-0.11	64	62	46
Malaysia	85,336		0.43	54	52	52
Vietnam	85,206	✓	-0.33	82	61	35
Zambia	82,834		-0.45	70	64	106

# What can be done?

- Developing reliable sources of information allowing reliable valuation of investment opportunities
  - **GROWTH RATES, LAND PRICES, TIMBER PRICES**
- International standardization
- Management and product research and development
- Marketing
- Workforce development
- Innovation
- One successful investor may attract many others



# Forest Investment Incentive Programs

- Long tradition of using incentives to promote the development of forestry sectors around the world
- Establishment of new forests
- Incentives
  - Subsidies
  - Tax breaks
  - Tax exemptions
  - Legal stability agreements
  - Industrial policies (promotion & protection programs, free trade zones, tariffs, etc.)
- Examples: Uruguay, Colombia, Argentina

- **Is it worth it?**
- **Can it be done?**
- **Will it be easy?**



# Journal of Forest Business Research



## Focus:

- ✓ Forest investment finance and business
- ✓ Forest-related industries and wood market dynamics
- ✓ Forest silviculture and management
- ✓ Natural resource economics and policy

## Key features:

- ✓ Compensation for thorough and timely reviews (**50 EUR**)
- ✓ Average review time = **2 weeks**
- ✓ Supporting forest research community via **Student Awards**
- ✓ **25% discount** on page charges for lower-middle-income and low-income countries, based on the World Bank's country income classification.
- ✓ Next submission deadline 1 March 2024
- ✓ More information: [www.forest-journal.com](http://www.forest-journal.com)



# The Business Case for Trees on Farms



Rod Keenan, Rachelle Meyer, Hugh Stewart, Alex Sinnett,  
Kaitlyn Height, Richard Eckard



Photo: Yan Yan Gurt West farm 2015, source: Hugh Stewart

# Outline



Australian situation

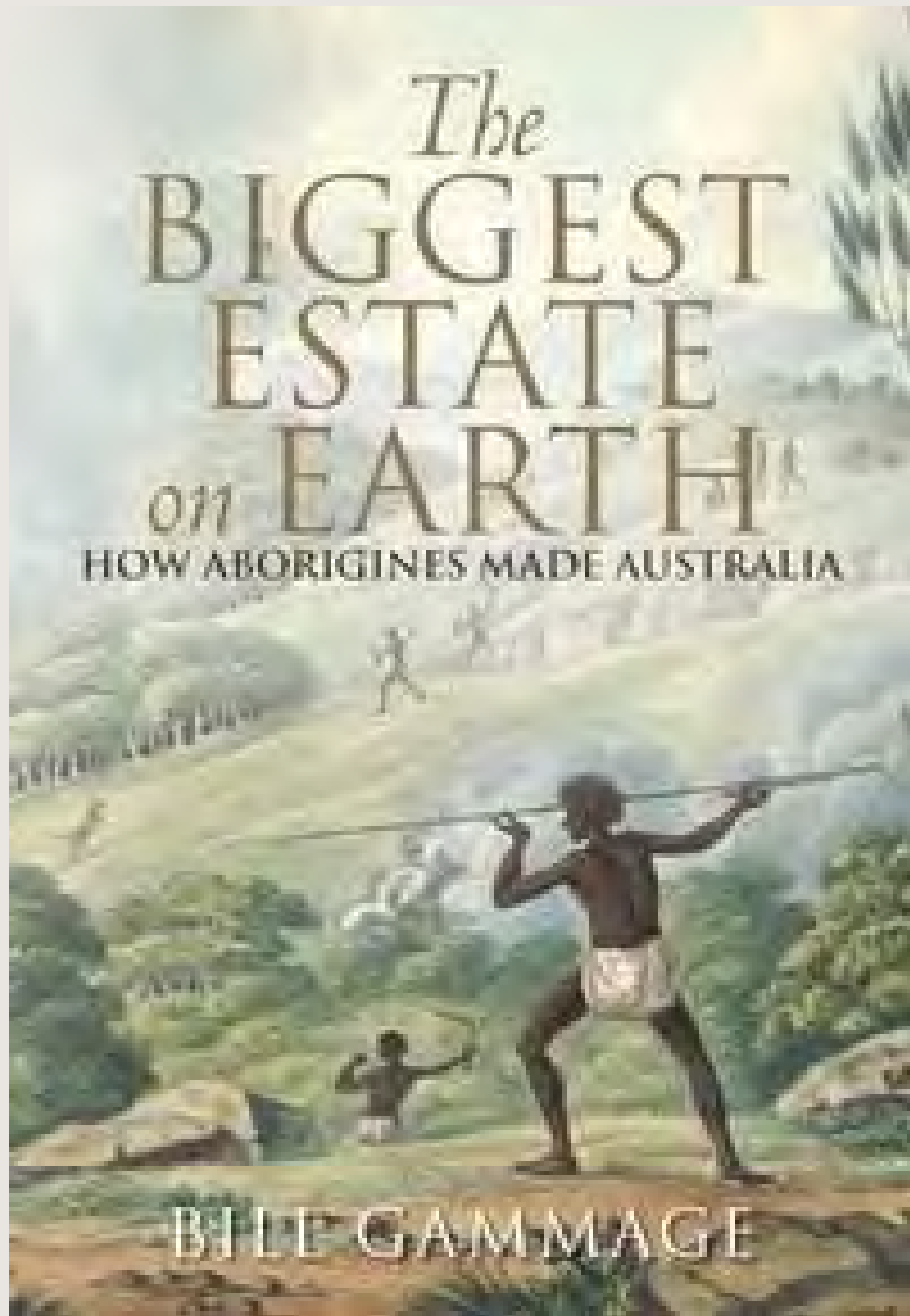


Benefits of trees for livestock producers



Case study analysis to quantify benefits of tree shelter for lamb survival





## Australian land management: a 60,000 year history



Aboriginal burning Northern Territory Michael Shawn Fletcher

# What happened?

1788 - European settlement

Rapid loss of Indigenous control and management

Extensive tree clearing

Overgrazing

Intensive cultivation and cropping

Introduced pasture species

Rabbits and feral animals

Invasive weeds

Irrigation schemes

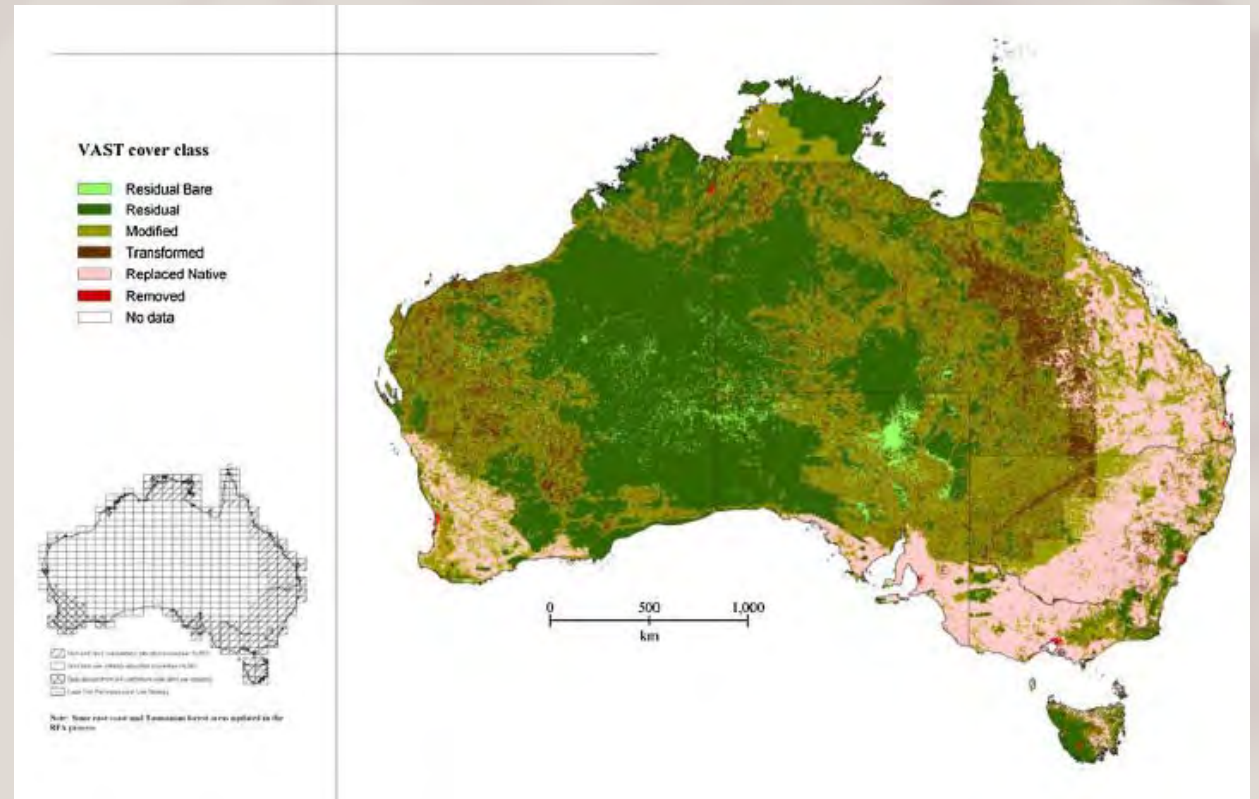
Overuse of chemical fertilisers and pesticides

Loss of soil fertility, salinity and ecosystem function



# We need more trees but...

- **farmers are reluctant because:**
  - **uncertain about how to go about planting and managing**
  - **limited time and capacity**
  - **concerns about opportunity costs of forgone pasture**
  - **whether benefits will outweigh costs**





# The opportunity

- Australian red meat producers have committed to a target of net zero emissions by 2030
- This can be achieved by:
  - Reducing herd size and increasing management efficiency.
  - Feedstock technologies to reduce methane emissions.
  - Increasing carbon stored in trees and soils
- Farmers want to plant trees to offset emissions
- What is the value of increasing carbon in trees for the farm business?
- Supported research - literature review, farmer interviews, case studies



## Interviews with farmers identified many benefits of trees

- **Animal Welfare**
- **Biosecurity – protection from neighbour’s animals**
- **Property privacy, blocking undesirable views**
- **Aesthetic benefits, staff retention and farmer wellbeing**
- **Improved animal production**

# Lamb survival increases with shelterbelts

## Examples from interviews

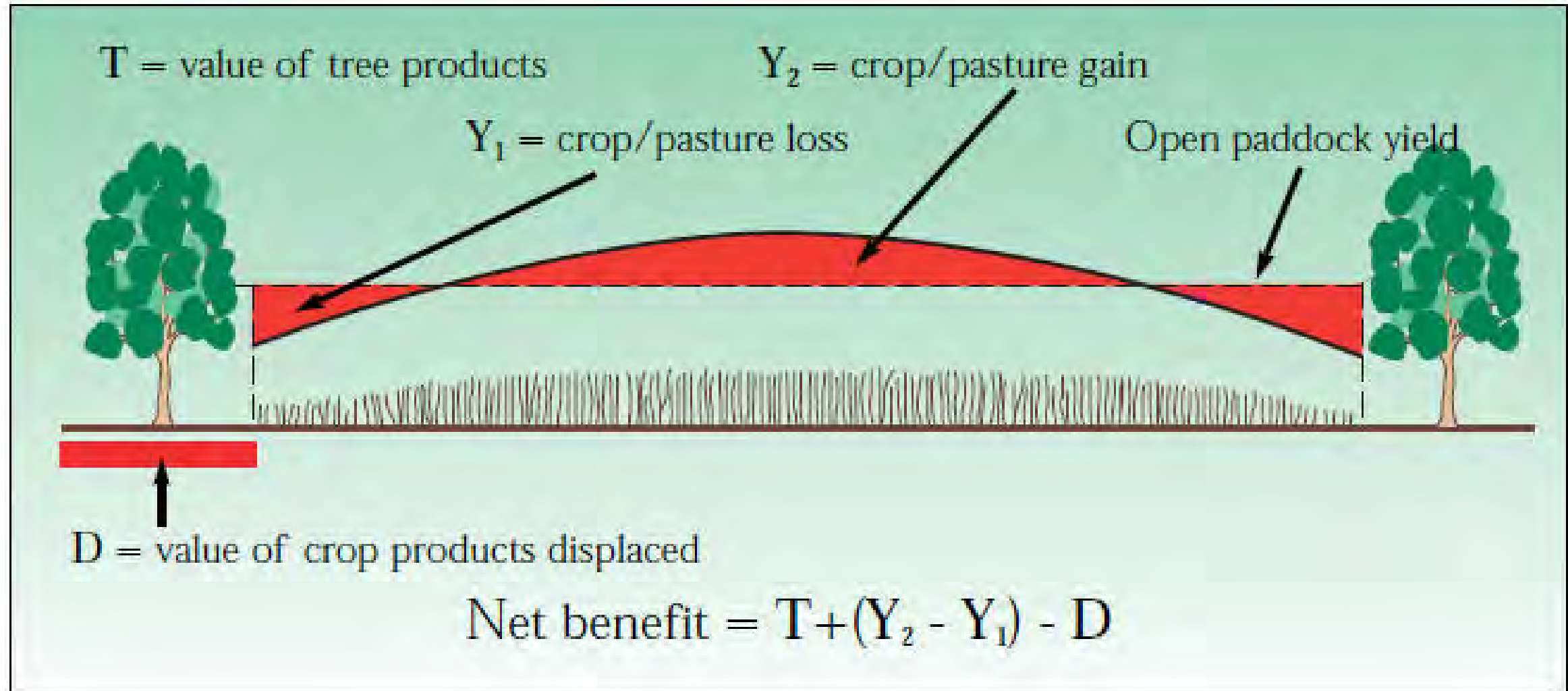
- “We select lambing paddocks based on shelter.”
- Shelter drastically improves the survival when lambing in bad weather. Fenced off treelines are useful, but nice for the sheep to be in there with the trees. ”
- “We lamb in timbered country, to provide privacy and avoid mismothering”
- “Shelter is the most important thing for any lambing ewe. A ewe in great condition with lots of food won't save lambs from a bad weather event if there is no shelter. A skinny ewe without a lot of food can still produce and bond with a lamb, if in a sheltered paddock. For twins, ... shelter and then small mobs are most important”
- “Chill factor is a big deal here. With smaller sheltered lambing paddocks get 10% increase in survival from lambing to marking; it is especially important for twins and triplets”. \_





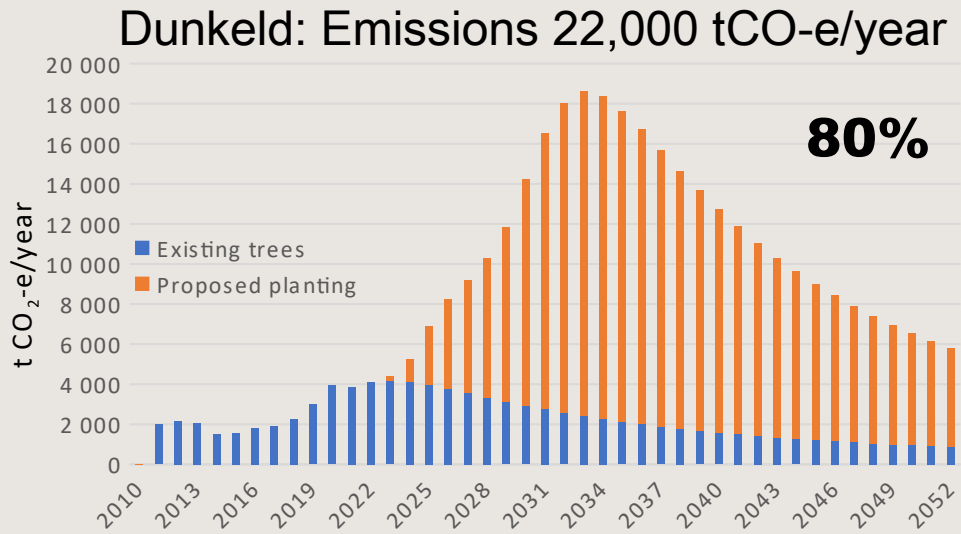


# Quantifying benefits



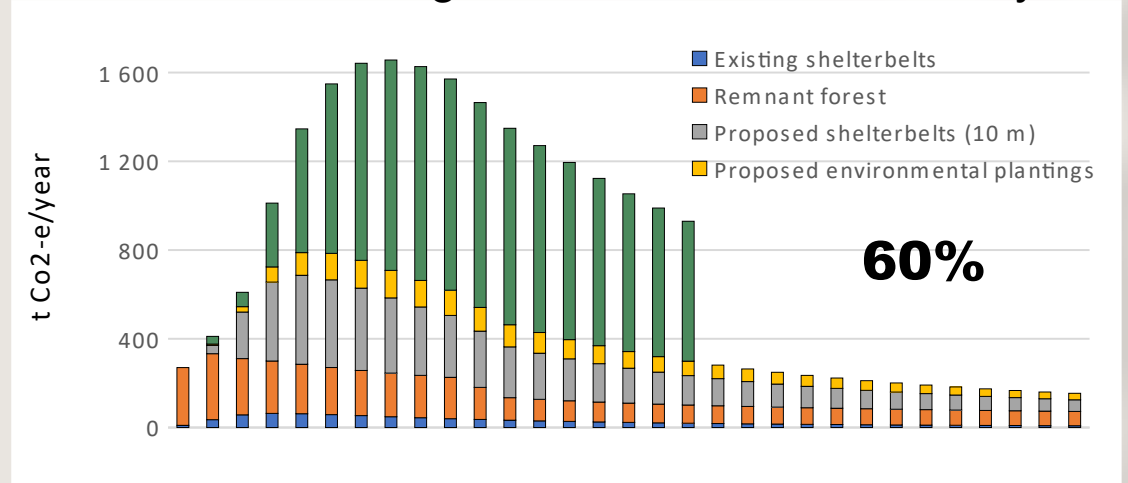


# Carbon

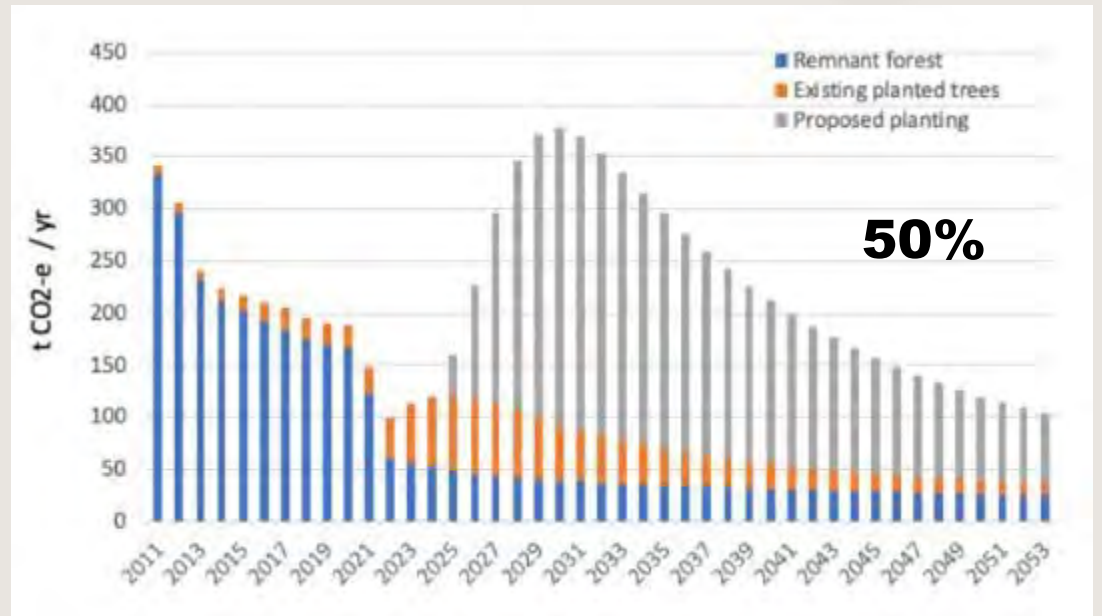


**Adding trees can offset a high proportion of greenhouse gas emissions - for a time**

**Tambo crossing: Emissions 2,731 t CO<sub>2</sub>e/year**



**Rosewhite: Emissions 758 t CO<sub>2</sub>e/ha**



# Economic analysis

**30-year horizon, Discounted costs and benefits**

**Real before tax**

**10% discount rate**

## **Costs**

Tree establishment and maintenance (capital, inc. fencing and ongoing)

Forgone production (\$35/DSE) – higher and lower productivity sites

## **Benefits (from year 7)**

Increase in lambs sold (average net margin \$45)

Carbon 'value' (either ACCUs or on farm value - \$35/tCO<sub>2</sub>-e rising to \$80/tCO<sub>2</sub>-e, less audit costs)

Timber income (Tambo only)

# Returns from investing in trees on sheep farms

<b>Property (wind reduction)</b>	<b>IRR if trees replace low production pastures</b>	<b>IRR if trees replace high production pastures</b>
<b>Dunkeld (high)</b>	<b>10%</b>	<b>5%</b>
<b>Dunkeld (low)</b>	<b>7%</b>	<b>1%</b>
<b>Tambo (high)</b>	<b>7%</b>	<b>4%</b>
<b>Tambo (low)</b>	<b>6%</b>	<b>4%</b>

**Net returns from additional lamb sales, carbon 'value' and timber income (at Tambo) minus costs of tree establishment and maintenance**

**Assumes carbon audit costs 10% of carbon value**

# Conclusions

- Tree shelterbelts increase lamb survival in cold, wind-exposed properties
- Investing in trees can generate good returns for lamb producers, particularly when trees replace low value pasture
- Carbon ‘value’ is an important component of returns
- Offsetting all livestock emissions using trees needs about 15-20% of the property
- Time span of offsets is limited as tree growth slows with maturity
- Other benefits more difficult to quantify but part of the ‘value proposition’
  - Reduced livestock heat stress and improved beef and milk production
  - Improved animal welfare
  - Improved farm aesthetics, farmer and staff well-being
  - Lower disease risk from neighbours

# A community led bamboo charcoal enterprise development initiative in Busia, Kenya

**S1: Plantation in new business models: investing into wood production restoring ecosystem services and enhancing livelihoods.**

**Presented at the International Conference on Planted Forests  
Held at CIFOR-ICRAF from 7- 10<sup>th</sup> November 2023**



Selim Reza and Nellie Oduor

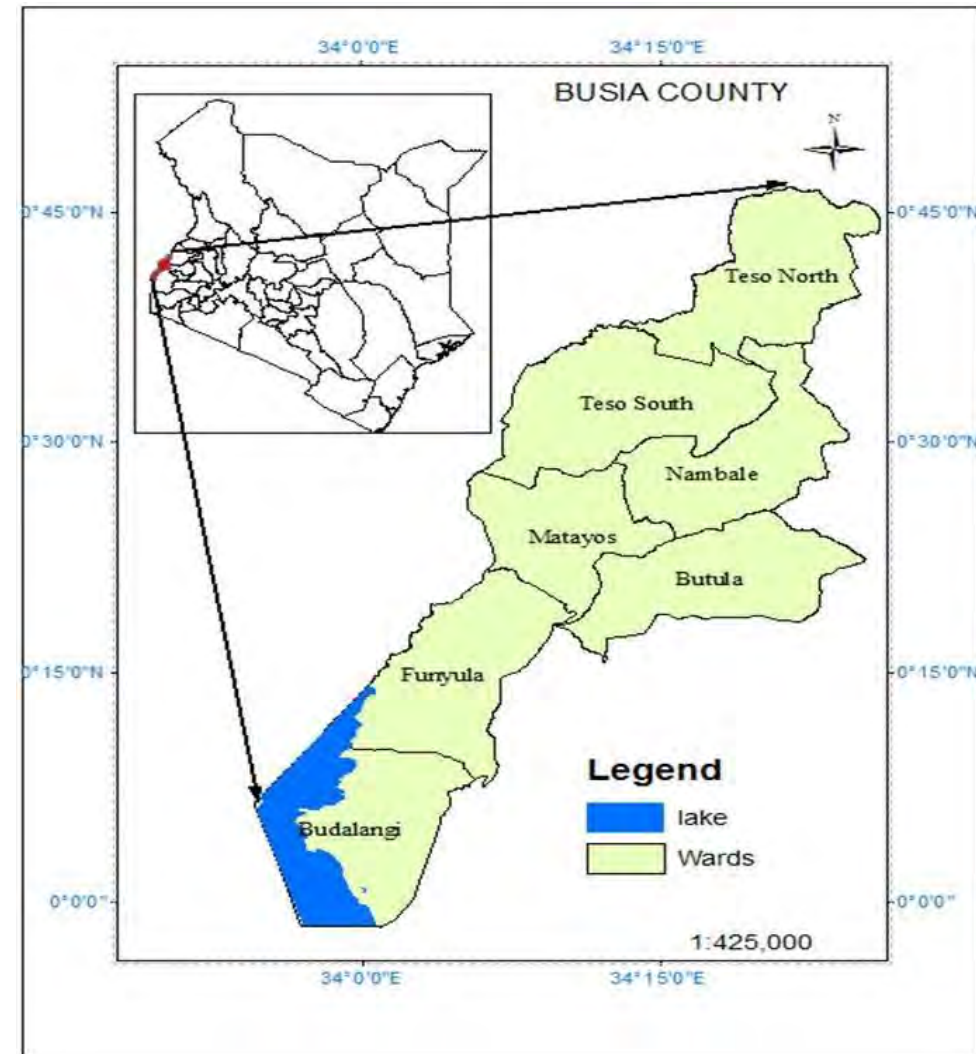




# Introduction

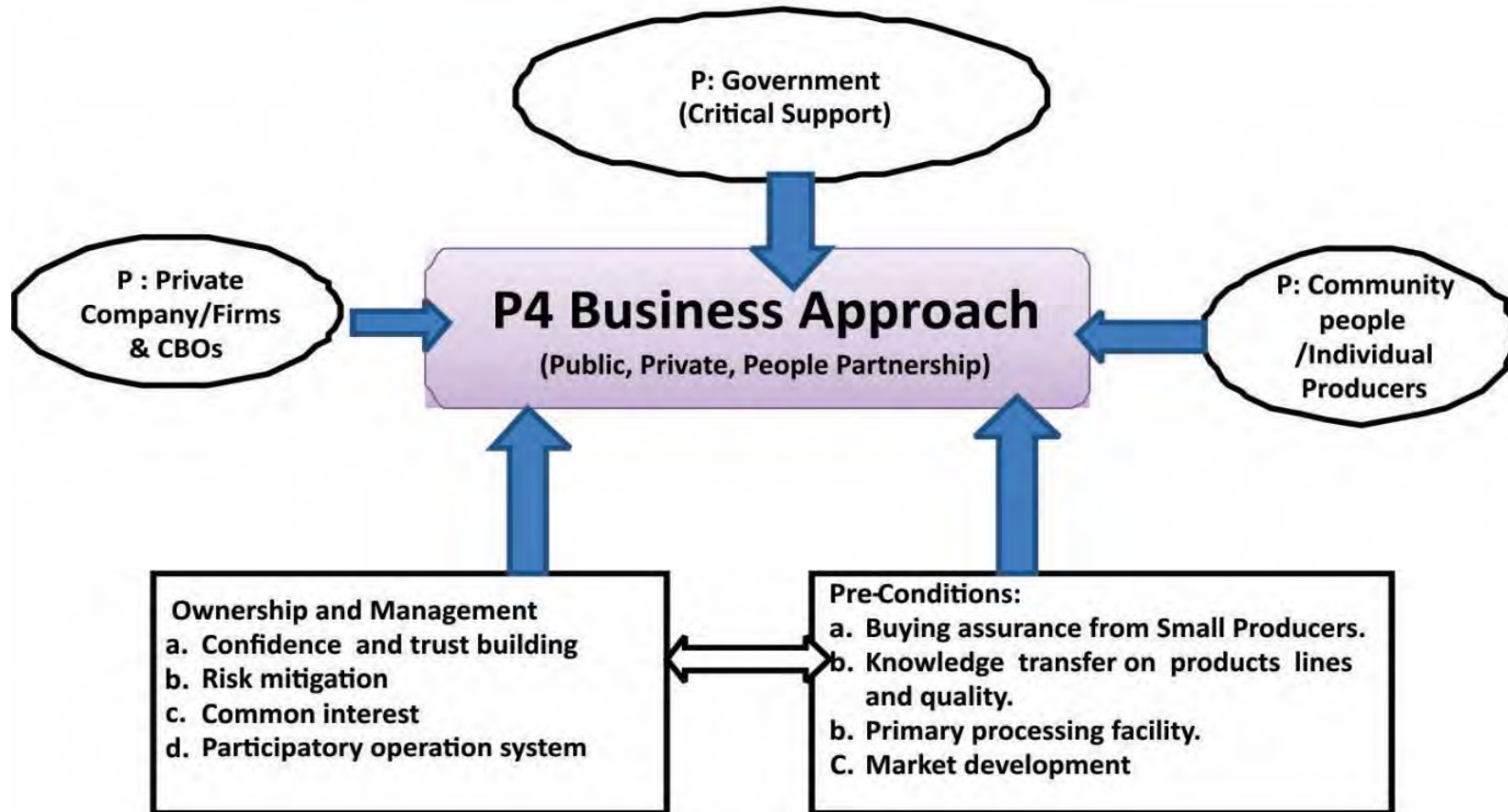
- About 3 billion in the world people are estimated to use biomass energy in its raw form on a daily basis
- In Africa , **firewood provides 75 per cent of the energy** used in sub-Saharan Africa.
- In Kenya -Biomass energy is the main source of energy and it provides about 70% of Kenya's national energy requirements
- **4 out of 5 people (80%)** in sub-Saharan Africa rely on the traditional use of solid biomass, mainly fuelwood, for cooking and heating .
- This has consequences to both environment and human health
- With the high demand, the consumption of wood for fuel exceeds the renewal of forest cover and tree planting activities on farm
- Bamboo is a fast growing resource with potential to meet this gap

- Busia County is one of the 47 counties of Kenya
- It is located in the west (bordering Uganda) with River Nzoia in Budalang'i and River Sio in Samia flowing into L Victoria
- Main livelihoods include:
  - Agriculture and Livestock
  - Sand mining,
  - Charcoal production and
  - Harvesting construction materials
- Currently over 6000 farmers growing bamboo



# Methodology

## P4 Functional Approach



- A cooperative in Butula Sub-County, Busia County established
- The **local government provided land and construction** for the infrastructure as part of its flagship program under the Kenya Micro and Small Enterprises Authority (MSEA).
- Supported by the Dutch-Sino East Africa Bamboo Development Programme
  - Capacity building in the business model, sub-cluster formation, the provision of locally produced bamboo charcoal briquette machinery and tools and product diversification.
  - the program supported the business model by deploying **Participatory Stewards (PS)** as frontline delivery team members for the program.



# Results

- The business model has grown from **297 community-based small-scale producers to 689** community based bamboo farmers
- Also mobilized **2,500 farmers** to plant and grow bamboo in subcounty
- In collaboration with local partners the project has distributed planting material, nursery establishment, bamboo establishment and management
- Mature clumps, sustainable harvesting and marketing



# Conclusion

- Bamboo charcoal is gaining in high demand as a consumer commodity in the local markets
- The community-led bamboo business has already generated additional income for 689 rural households – mainly in Busia currently
- This enterprise is not only supplying households, but hotels, small businesses, schools etc as an energy source
- Some challenges
  - Operating capital, high-end market reach and technology
  - If addressed, the business can grow and serve as a model for a successful bamboo business in other Kenyan counties.
  - The community-led enterprise prepared a business and strategic plan for future growth and development



# Thank you, Merci beaucoup,



Email: [director@kefri.org](mailto:director@kefri.org)  
[noduor@kefri.org](mailto:noduor@kefri.org)





---

# **The Status, Operational and Institutional Arrangements of Private Forestry in Kenya**

---

**5<sup>th</sup> International Congress on Planted Forests**

**By**

**Jonah Kiprop**

Sammy Letema, Cheboiwo J.K., Wekesa L., Langat D.,  
Kiprop J. and Anthony Macharia

**7<sup>th</sup> November 2023**



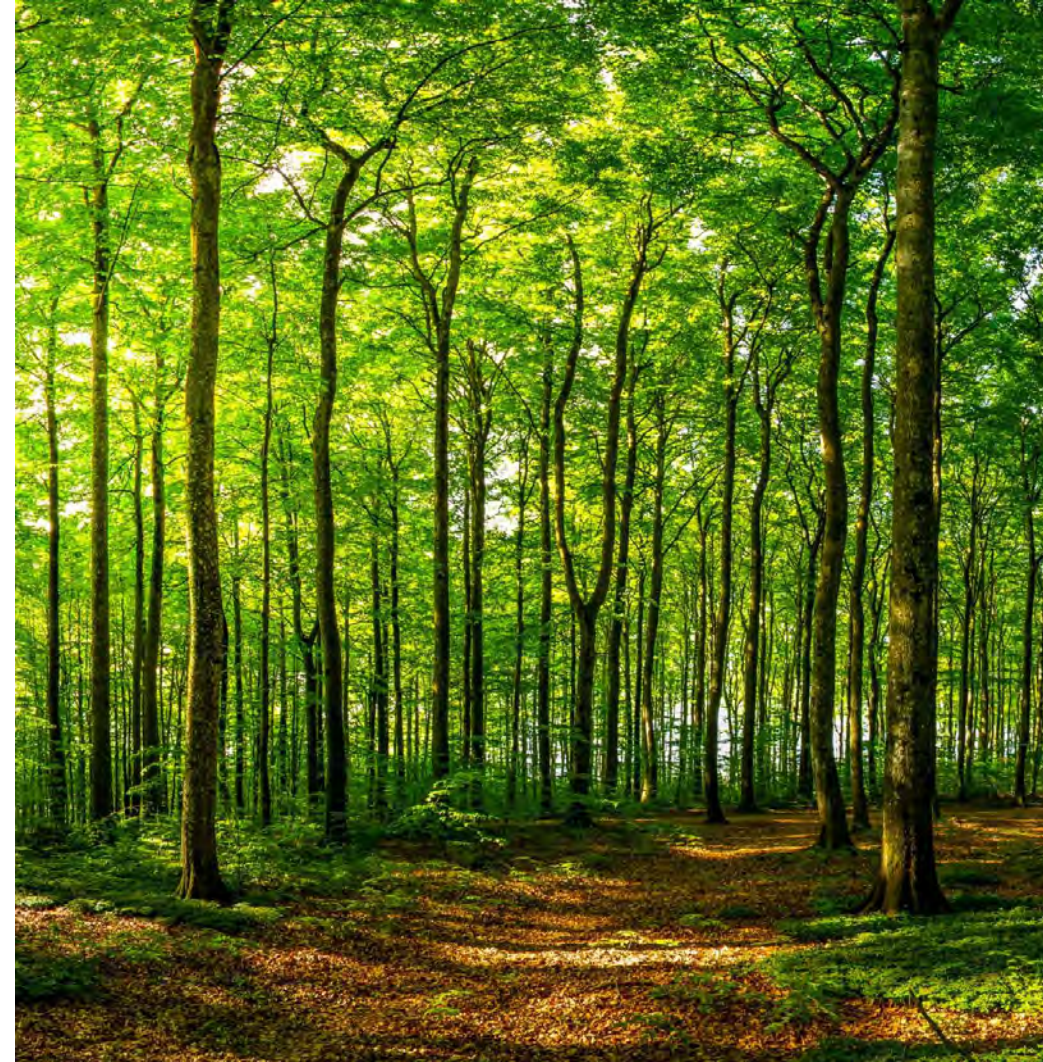


---

# Introduction

---

- 70% of the world's forests is under public ownership, 22% is privately owned, and the remainder is categorized as unknown or other (FAO, 2022)
- In Africa 99% of its estimated 624 million hectares is owned by the public sector while a small proportion of 6 million hectares is owned by private entities
- Forests ownership in Kenya is a replica of the African scenario but it has its unique characteristic of **large population of trees** within agricultural landscapes





# Evolution of Farm Forestry in Kenya

- Forestry resources on privately owned land in Kenya have undergone various phases of evolution since pre-colonial to post-colonial periods.
- Commercial tree growing started with the introduction of *Acacia mearnsii* (Black Wattle) into Kenya in 1880's
- The Kenya Forest Policy of 1968, recommended acceleration of rural tree planting activities and the Rural Afforestation and Extension Services Division (RAES) was started in 1971
- By 1990, through RAES and Local Afforestation Programmes (LAP), there were about 370 Local Chiefs Nurseries (LCN) out of 850 administrative locations in the country with a seedling production capacity of over 100 million seedlings per annum, intensive tree growing activities picked up during this period

# Current State of Private Forests

- Key commercial species grown in the country differ according to the ecological conditions with the medium and high potential areas hosting *Eucalyptus grandis*, *E. saligna*, *Pinus patula*, and *Cupressus lusitanica* whereas the coastal and some ASALs areas are dominated by *E. camuldulensis*, *E. terreticorni*, *Casuarina equisetifolia*, *Tectonia grandis* and *Gmelina arborea* among others.
- High population growth of an average of 2.8% in the 1990's and 2000's, rapid urbanization, increased construction activities increased the demand for various forest products.
- To meet the growing demand farm and private forests are becoming popular sources of wood products for furniture making and wood-based industries
- Some key industries including transmission poles treatment plants expanded from 4 in 2004 to 48 by 2015 and over 65 tea processing are reliant on fuelwood for tea curing processes providing a market niche for farm forestry investors

# Study Rationale

- Kenya's population is projected to reach 66 million by 2030 hence the high projected demand of various forestry products.
- The gazetted forests are limited by geographic scope and size hence the prospects of expanding from this source is limited.
- The opportunity for private commercial investors is dictated by commercial viability of investments.
- The participation of private sector with desired financial capital, technical and operational efficiency will complement the supply of wood products from public sources
- However, few studies (Cheboiwo, 2017, Gatsby Africa, 2019) provide limited information on the opportunities presented by social investment effectiveness, scope, character, performance and sustainability of existing commercial forestry models to inform future direction and their likely place in the future of forestry sector architecture in Kenya.
- This paper characterizes private forests in the country according to various characteristics, commercial orientation, levels of management, funding conditions and future sustainability and viability in Kenya.

# Methodology

- This study used various data sources to collate information on the status of private forestry in Kenya.
- Desktop reviews of relevant literature; consultations/ discussion with key experts and institutions; surveys; and case studies of key actors implementing forestry investments in Kenya was undertaken.
- Data was collected from 53 different key actors in the forestry sector in the Coastal, Central highlands, Rift valley and Western regions of Kenya

# Results and Discussions

## Private Forests In Kenya –Private Plantation Forests

- The private plantation forests in the country is dominated by large corporation mostly in the tea sectors and wood based industrial firms over the past decade the area under plantations has expanded marginally from 68,000 to 90,000 hectares
- The inability of the public forest plantations to meet local timber needs has attracted several investors into the sector
- Growing demand for composite wood products i.e Medium Density Boards and expanded electricity power generation and distribution in the country has created high demand for transmission poles, mostly sourced from Eucalyptus grandis trees, making it one of the leading short rotation crops grown by private investors on commercial scales.
- The large-scale forest plantations are characterised by monocrops on large blocks that deploy broader wood utilization models that include integrated utilization processing and value addition to minimize wastage and improve their operating profit margins



# Results and Discussions

## **Private Forests In Kenya –Small Holder Tree Growers**

- Smallholder tree growers form the largest category of tree growers in the country.
- The sizes of planted areas vary according to the landowners' objectives but range from less than 0.025 hectares for subsistence smallholders to over 10 hectares for commercial tree growers, mostly for production of transmission poles and sawlogs.
- However, most have joined planting groups such as Farm Forestry Smallholder Producers Association of Kenya (FF-SPAK).

---

# Results and Discussions

---

## **Social Enterprise, philanthropic Investments**

- It's a new group of investors whose philosophy revolves around the concept of non-profit organizations legally organized and operated as collective social benefit.
- Such enterprises, that have portrayed interest in forestry investment in Kenya
- They source funds from diverse sources mostly corporate and individual investors locally and overseas such as Better Globe Forestry Ltd in eastern drylands and Coast region and One Acre Fund with interest in western Kenya.
- These companies, provide seedlings and technical services whereas the landowners provide some minimum land for planting trees and woodlot maintenance.

---

# Conclusions and Recommendations

---

Private Forestry investments under different arrangements deliver both commercial and social values and present a notable tool for tackling societal and environmental challenges. However, the following actions are needed to improve the sector;

- ✓ Improvement of road infrastructure to enable delivery of trees to processing plants,
- ✓ Provision of extension services to tree growers
- ✓ Development of appropriate techniques for logging on farms and guidelines for tree volume estimation to enable farmers calculate prices more effectively.
- ✓ Encouragement of farmers to form associations or societies to facilitate marketing their products,





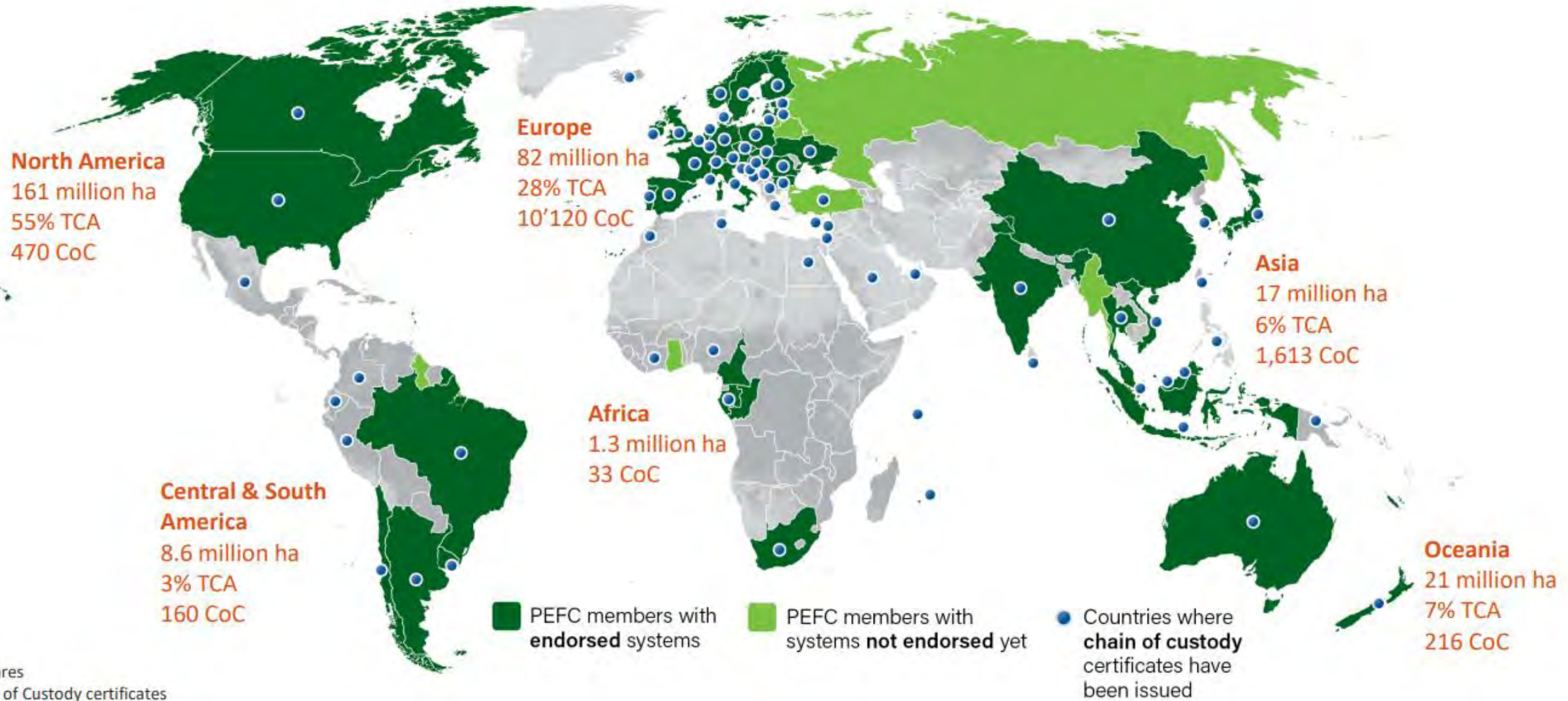


# PEFC members' initiative to meet growing needs in wood products, restore ecosystems, and mitigate climate change

Hubert Inhaizer  
PEFC International



# Global coverage



\* ha - hectares  
CoC - Chain of Custody certificates  
TCA - % of total PEFC certified area

Data: June 2023



# PEFC Sustainability Benchmark - Six Criterion

1. Maintenance and appropriate enhancement of **forest resources** and their contribution to the **global carbon cycle**
2. Maintenance of forest **ecosystem health and vitality**
3. Maintenance and encouragement of **productive functions** of forests (wood and non-wood)
4. Maintenance, conservation and appropriate enhancement of **biological diversity** in forest ecosystems
5. Maintenance and appropriate enhancement of **protective functions** in forest management (notably soil and water)
6. Maintenance or appropriate enhancement of **socio-economic functions and conditions**

Source: [PEFC ST 1003](#)

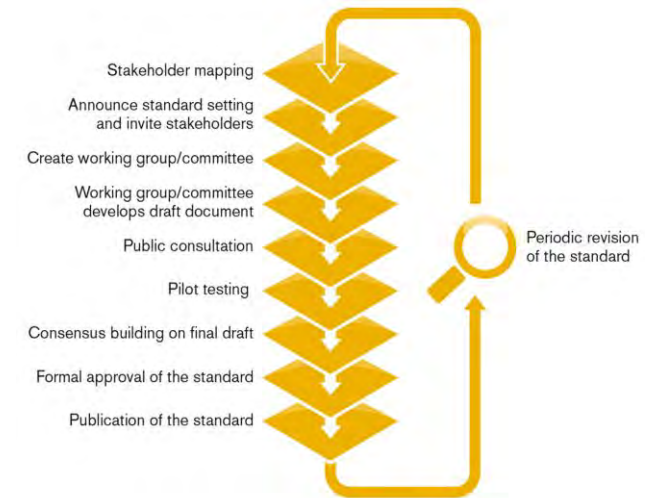
# PEFC's bottom-up approach

- **Forests are highly diverse**; as is their management, local traditions, cultural and spiritual expectations, average property sizes and support structures..
- **We work through national forest certification systems**, enabling countries to tailor their sustainable forest management requirements to their specific forest ecosystems, the legal and administrative framework, the socio-cultural context and other relevant factors.

PEFC global  
Sustainability  
Benchmark—  
over  
140 requirements



46 PEFC endorsed  
national and  
regional systems



All national standards follow robust  
standard development process and are  
assessed by third-party



## Australia



**1 SFM  
standard  
(forest)**

**20,42 mha**

## Italy



**6 SFM  
standards**

**0,96 mha**

## Uruguay



**1 SFM  
standard  
(plantation)**

**0,34 mha**

**Main  
PEFC  
figures**

Source: PEFC

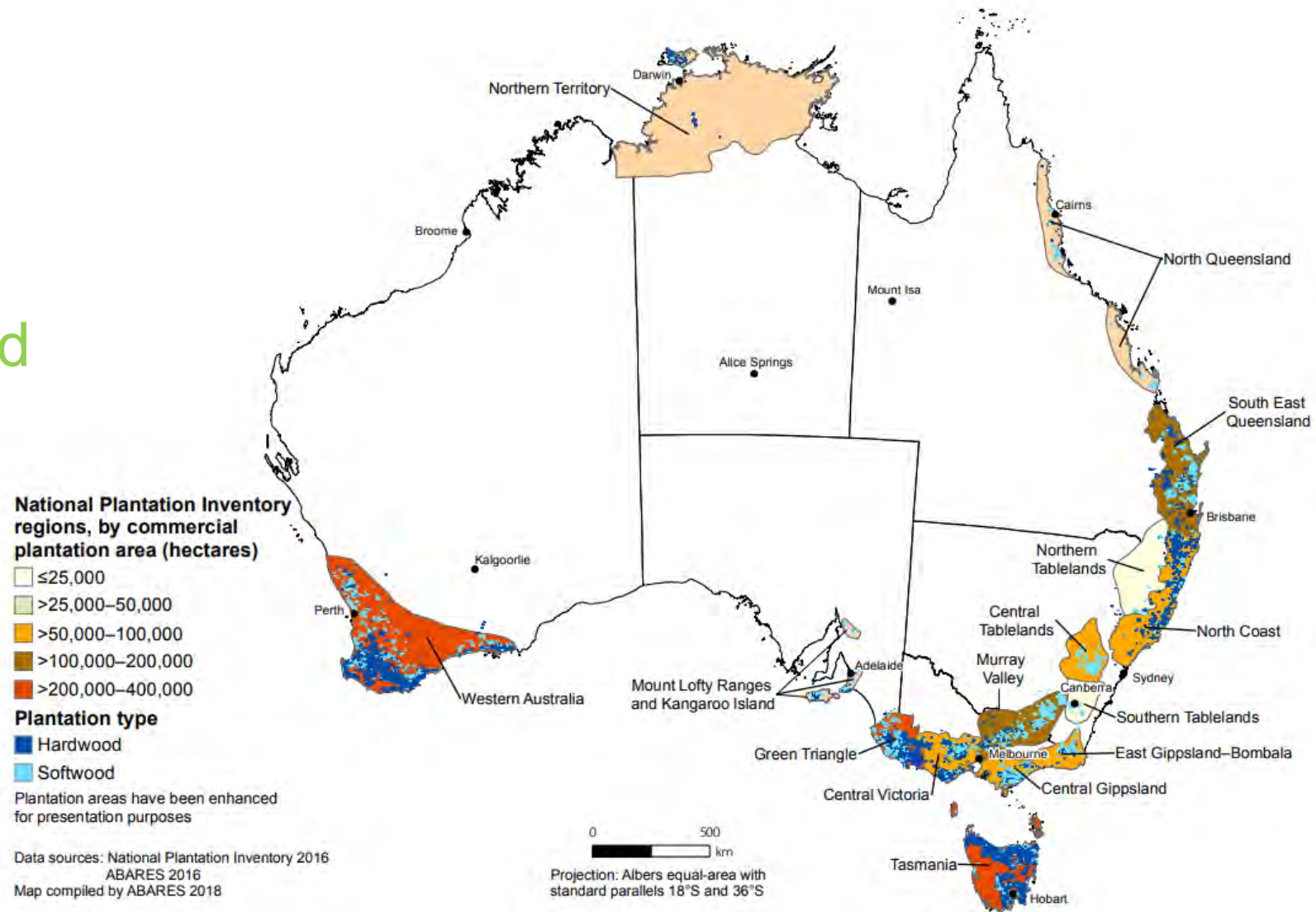




# Australia – Plantations' wood supply

~ 60% softwood  
and  
~ 40% hardwood  
plantations

~1.8 million ha



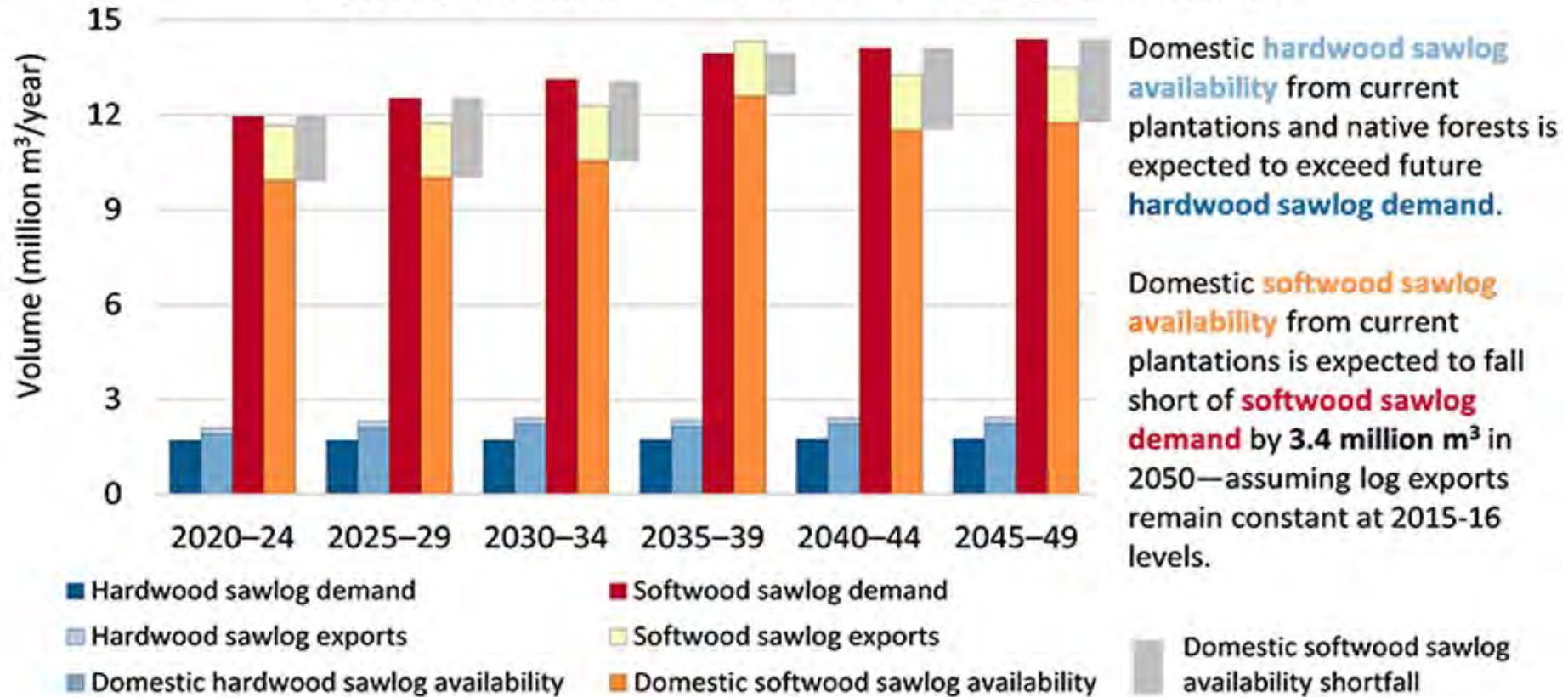
Source: Responsible Wood





# Australia – Plantations' wood supply

## Domestic demand for softwood sawlogs is growing



The national supply fall short of the demand and has challenging conditions to keep up with the increasing demand, despite the extension of the plantations.

# Italy – Biodiversity with polycyclic plantations



- The flatland areas subject to intensive agriculture, or affected by recent land reclamation, are ecologically impoverished, because their biodiversity is below their potential
- Project aims to create a system of demonstration patterns that combine three or more production cycles, of different durations, on the same plot of land



Figura 2A - Schema d'impianto misto con piante principali a ciclo breve e a ciclo medio lungo.

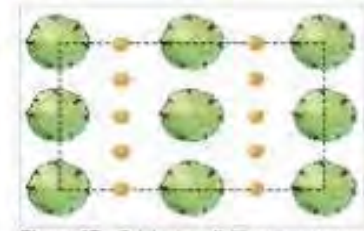


Figura 2E - Subito dopo l'utilizzazione vengono ripiantate piante principali a ciclo breve.

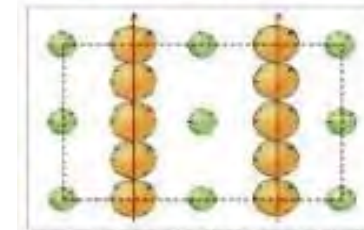


Figura 2B - Le piante a ciclo breve giungono a maturità e vengono utilizzate.

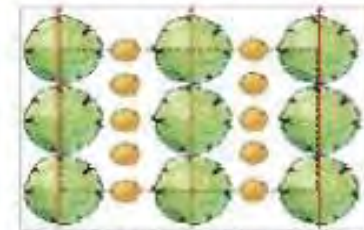


Figura 2F - Le piante a ciclo medio lungo giungono a maturità e vengono utilizzate.

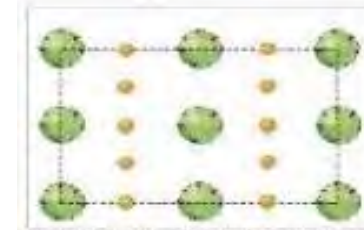


Figura 2C - Subito dopo l'utilizzazione vengono ripiantate piante principali a ciclo breve.

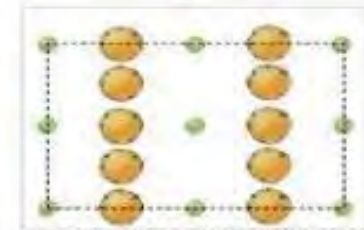


Figura 2G - Subito dopo l'utilizzazione vengono ripiantate le piante principali a ciclo medio lungo.

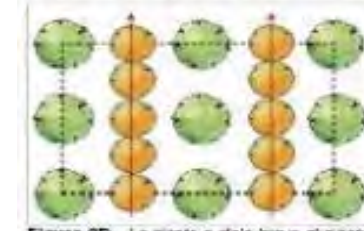


Figura 2D - Le piante a ciclo breve giungono a maturità e vengono utilizzate.

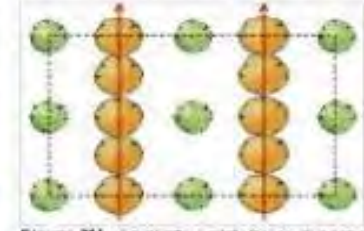


Figura 2H - Le piante a ciclo breve giungono a maturità e vengono utilizzate.



# Italy – Biodiversity with polycyclic plantations



- Permanent **Polycyclic Plantations**
- Different production cycles achieved on the same surface:
  - very short cycle (6-7 years) for **firewood**, short cycle (8-12 years) for **industry**, medium-long cycle (20-45 years), for **sawn timber**
  - improves **biodiversity and environmental conditions**, in the medium -long term, not only with respect to conventional agriculture but also in comparison to traditional monospecific plantations





# Uruguay – Mitigating livestock emissions

- Livestock systems are characterized by
  - production, **natural vegetation** is the base of food
  - **cycle of natural pastures**
  - **low utilization of fossil energy**
- Methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O) are relevant emissions
- The strategy to reduce and mitigate emissions:
  - **improve efficiency** to reduce carbon footprint
  - mitigate gross GHG emissions by **carbon sequestration**.







# Uruguay – Mitigating livestock emissions

- Case study:

## “Los Eucaliptus S.A.” (Iberpapel)

- 1,100 seedlings per hectare of *Eucalyptus globulus* on 4'691 hectares
- Distance of the trees 6 meters (50 to 60% of total area)
- Estimated on this site 3'143 kg CO<sub>2</sub>/ha/year in average over 60-years
- **0,5 hectares of this silvopastoral model compensates for all emissions generated each hectare used for beef production**



Source: Becoña, G. *La contribución de áreas forestales en el balance de gases invernadero de sistemas ganaderos extensivos en Uruguay.*



A photograph of a forest path with tall trees and sunlight filtering through the canopy. A semi-transparent dark grey text box is overlaid on the right side of the image.

PEFC Sustainability Benchmark is designed through multi-stakeholder process and is aimed to promote and support **sustainable forest management**, which is essential to unlock and improve the potential of our forests to find local solutions to global challenges.



# Raising the bar – and helping each other reach higher

Responsible Wood

Matt de Jongh

PEFC Italy

Antonio Brunori

PEFC Uruguay

Gabriela Malvarez

PEFC International

Hubert Inhaizer



# Challenges and enablers for landholder-supporting projects in Asia-Pacific to access the voluntary carbon market and carbon credit payments

**Anna Ioannou**

Associate Professional Officer - Forest and Landscape Restoration, FAO

[anna.ioannou@fao.org](mailto:anna.ioannou@fao.org)



# Carbon in the Asia-Pacific

- Asia-Pacific = 50% of global carbon dioxide
- Asia = 70% of global carbon credits (in few countries)

Momentum for whole region and small- and middle-scale landholders

Carbon sequestration – multiple benefits

- Mitigate climate change, strengthen ecosystem services, biodiversity, soil health, food security and productivity, carbon credit payments



# Purpose

Identify **challenges** and **enablers** for **projects** supporting small- and middle scale **landholders** in the Asia-Pacific to access the voluntary carbon market and obtain **carbon credit payments** as an **additional benefit** from their carbon sequestering activities



UNITED NATIONS DECADE ON  
**ECOSYSTEM  
RESTORATION**  
2021-2030



# The projects

- 21 projects, 13 countries  
Lebanon, China, India, Laos, Indonesia, Malaysia, Vietnam, Philippines, Fiji, Vanuatu, Solomon Islands, PNG, Timor-Leste
- <500 to 20 000< ha  
15 projects <5 000 ha
- Beneficiaries: 200 to 36 000 people
- Project lead: Civil society/NGO, private company/business/consultancy firm
- Forest protection, agroforestry, afforestation, improved forest/land management, reforestation






# Key challenges for accessing the voluntary carbon market

- High costs for verification (9) and monitoring (6)
- Long process/time “valley of death”
- Lack of initial funding (8)
- Collect/access sufficient data (7)
- Weak carbon/certification knowledge (staff and stakeholders) (5 and 7)
- Enabling environment (3) n=16

*“for [the] project development phase we are almost 100% donor (grant funded). For the postgrant implementation phase, almost 100% carbon credit sales funded”.*

*“The main challenge is the funding to start the activities, as the carbon credit revenues will materialise after 6/7 years.”*



# Key success factors for accessing the voluntary carbon market

- Staff's **previous experience** (7)
- **External support** (6)
- Access to external **funds** (5)


n=16



*“Even if it is the same amount of money hiring an external LIDAR specialist I would prefer a local team inhouse, rather than international work. This also allows for the knowledge staying there and providing employment locally”.*

*“We want to be as independent as we can. (...) in our programme we want to empower them and not have any reliance on someone else for charity or good will.”*

# Suggested enabling actions

- More one on one support/pool of external advisors
  - Peer-to-peer knowledge sharing/mentoring
  - Direct communication with carbon crediting standards
  - Certification process in other languages
  - Easier access to knowledge material about carbon and certification
  - Capacity building on carbon sequestration, calculations, markets and certification
  - Distribute knowledge amongst project staff
  - More validators and/or more regional verification bodies
  - More relevant data and generic carbon calculation tool to adapt to local context
  - Seed/initial phase funding and connect projects-buyers
  - Promote enabling environment
- 



# Thank you!

Acknowledgements

All the projects

Illias Animon, FAO

Suman George, Murdoch University

Otto A. Malm's fund

**Anna Ioannou**

Associate Professional Officer - Forest and Landscape Restoration, FAO

[anna.ioannou@fao.org](mailto:anna.ioannou@fao.org)

# Reasons for projects to become certified

- Prove the contribution to **ecosystem services and positive social change**.  
Additional project funds is thus not the main reason to become certified. (5)
- Get **additional funds** from ongoing (4), new (3) or modified activities (2).

*“The carbon [is] not the goal/the main focus, but rather the carbon allows for financing some of the things to get going.”*

n=15

*“All environmental Projects that are conducted should be certified to encourage donors and local stakeholders on the activities. Lack of certification means that there is a huge lag on several levels”.*



# Expressed benefits

- Some or most **project funds** (12, n=15)
- Some but irregular **extra income to landholders** (7, n=11)
- **Non-monetary communal** benefits
- **Insurance mechanisms** against tree harvesting (7, n=11)

*“When we receive, distributions are made”.*

Many would do the process again (13, n=16)

*“One benefit sharing done was to have a communal tree nursery, but with regards to payments to the whole community this didn’t happen.”.*

*“For [the] project development phase we are almost 100% donor (grant funded). For the postgrant implementation phase, almost 100% carbon credit sales funded”.*

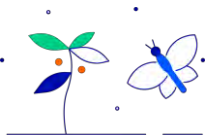


# Acorn builds on Rabobank's heritage: World's leading Food & Agribusiness cooperative bank founded by Dutch farmers

Strategic rationale Acorn and mission Rabobank



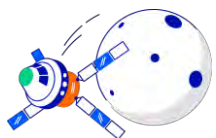
Support the livelihoods of **smallholder farmers**



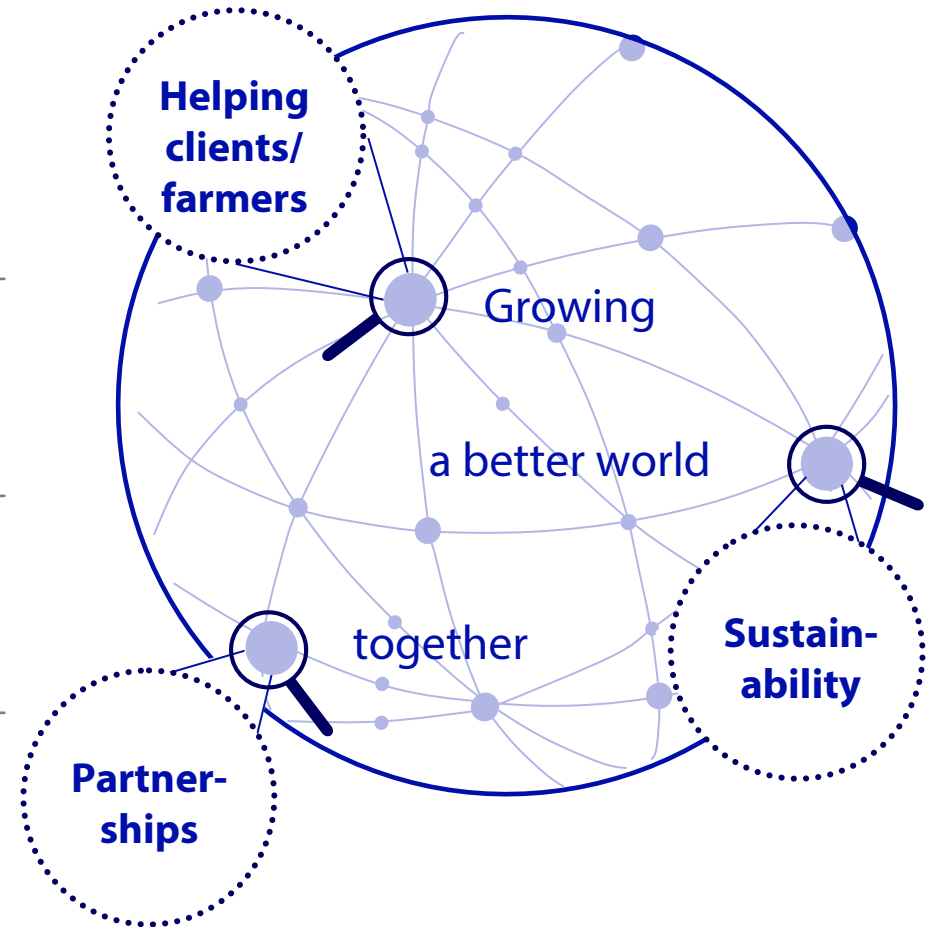
Combat climate change, land degradation, food insecurity **globally**



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



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





# The transition to agroforestry holds various benefits compared to today's monoculture

## Comparison farming method



*Monoculture*

- Depleting soil
- Sensitive to climate change
- Low nutrient diversity
- Low yield per ha
- Income depends on single crop type
- Deforestation / carbon emission



*Agroforestry*

- Improving soil health
- Climate & weather resilient
- Diverse, high-quality nutrients
- Improved yield per ha
- Income with different harvest streams
- Afforestation / carbon sequestration



# High entry barriers used to make it difficult for smallholder farmers to benefit from the carbon market

## Obstacles for smallholders to participate

### High certification costs

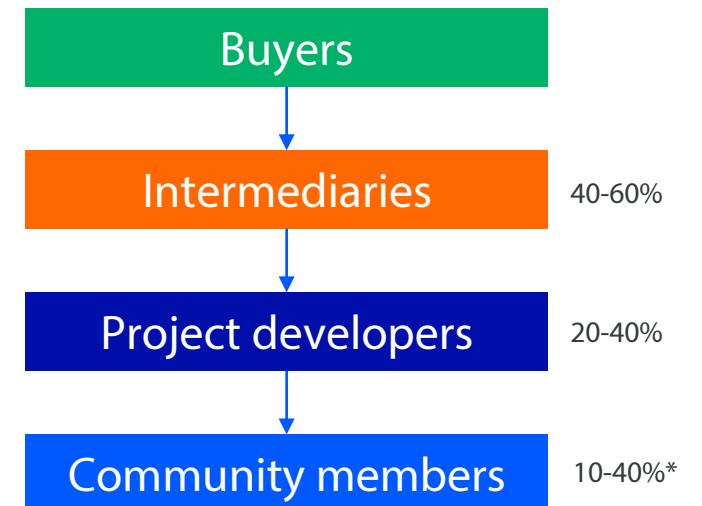
- Time consuming process
- High up-front costs for each step of application procedure
- Not viable for project developers working with smallholders

### High monitoring costs

- Manually measuring tree growth via site visits brings enormous costs
- High recurring (often annual) costs make business case unviable, especially for smallholder projects

### No access to fair payments

- Smallholders don't have access to buyers of credits
- Enormous margins end up at project developers and intermediaries
- Poor benefit sharing because of high MRV and certification costs



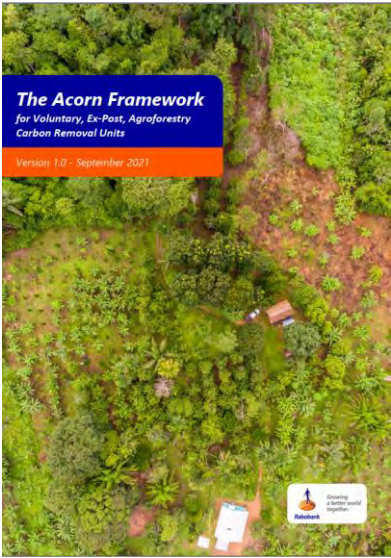
\* Source: Inclusive and Nature-based carbon markets, Cifar Alliance (2022)



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

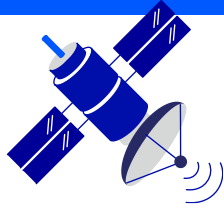
## USPs

Pragmatic and cost-efficient certification



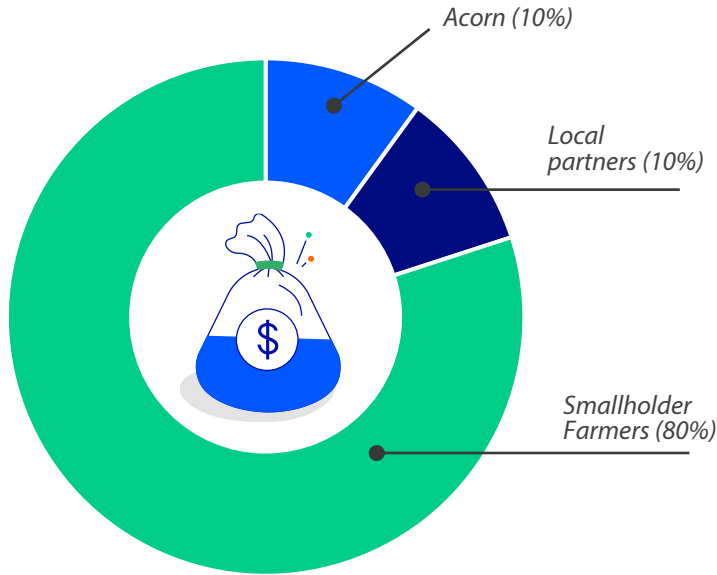
Tailored and trustworthy

Traceable satellite based remote sensing monitoring



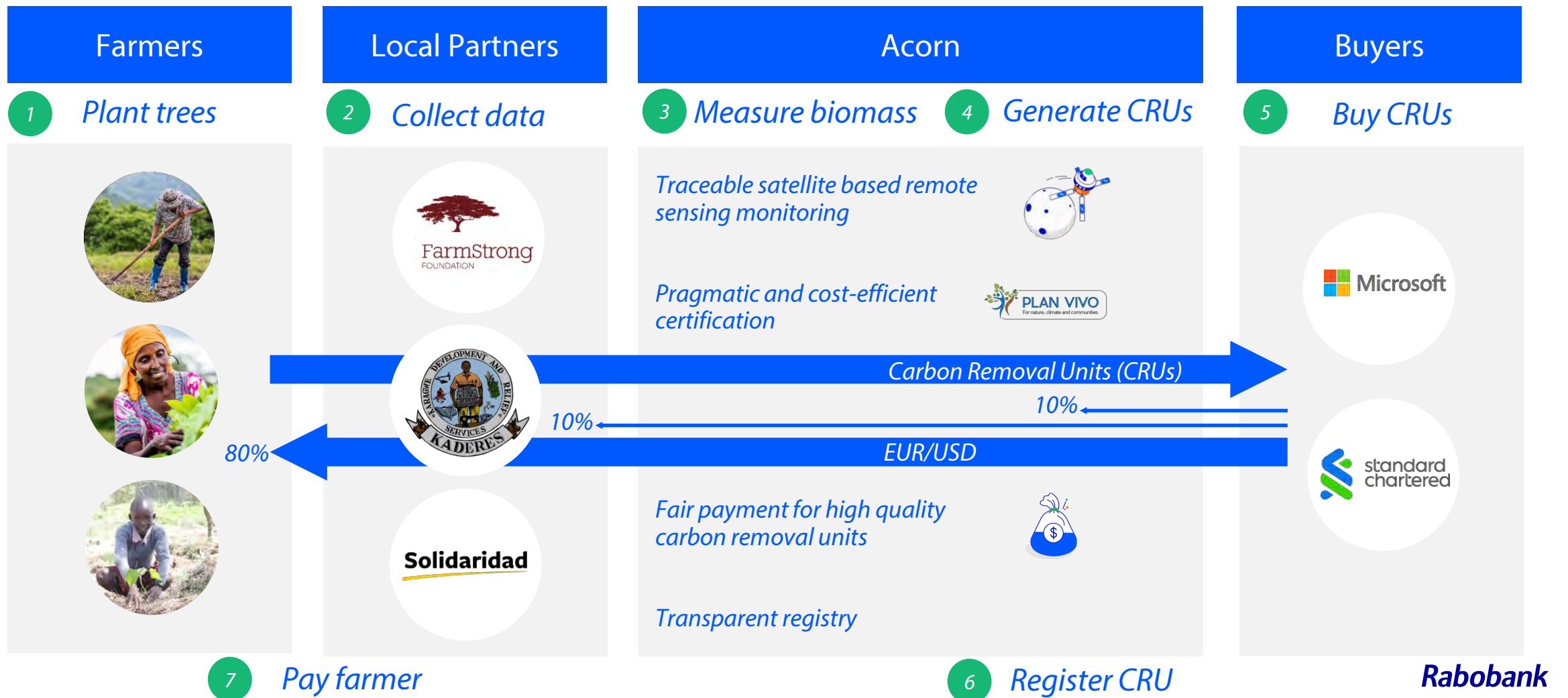
Technology and transparency

High quality carbon removal units



Ecosystem and fair

# Acorn measures remotely the sequestered carbon and sells the carbon removal units on the voluntary carbon market





# 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%*

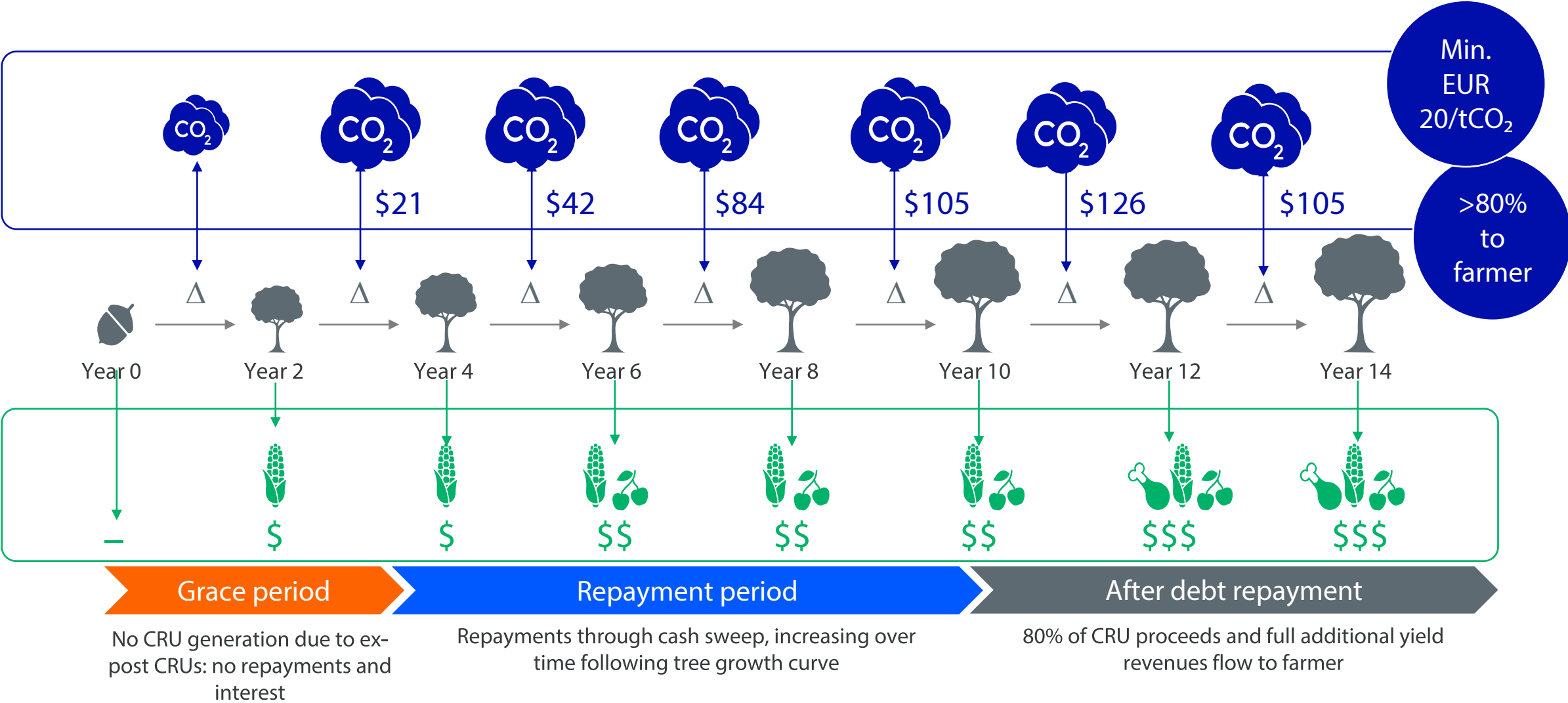
The share of carbon removal unit revenues directly to the farmer



*Income: EUR 96-144*

Per year a farmer with 1 ha can earn by EUR 30 per CRU

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



# Acorn offers high quality carbon removal units with significant co-benefits – Homogenous supply over time

## Acorn CRU characteristics

<input checked="" type="checkbox"/>	Nature based	Carbon credits originating from naturally occurring ecosystems.
<input checked="" type="checkbox"/>	Removal	CO2 sequestered from the air into nature-based systems. NOT avoidance, reduction or allowance credits
<input checked="" type="checkbox"/>	Ex post	Carbon sequestration that has already taken place, with a vintage of maximum 2 years. NOT a promise for the future
<input checked="" type="checkbox"/>	Transparent	Carbon sequestered can be proven through data driven measurements and analytics
<input checked="" type="checkbox"/>	Traceable	Complete clarity when and where carbon is removed and on payment.
<input checked="" type="checkbox"/>	Certified	Credits are certified and verified by an independent and trustworthy external standard Plan Vivo (ICROA endorsed)
<input checked="" type="checkbox"/>	Co-benefits	80% of the sale price flows directly back to the smallholder farmer







**224,341**

*farmers supported*

**255,010**

*CRUs issued*

**237,885**

*Ha covered*



*Thank you for  
your attention*

