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## Impact investment | Agroforestry case studies

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# Impact investement | definition

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“Impact investments are investments made into companies, organizations, and funds with the intention to generate a measurable, beneficial social or environmental impact alongside a financial return”

Global Impact Investing Network (GIIN)

# Deforestation | a land use challenge



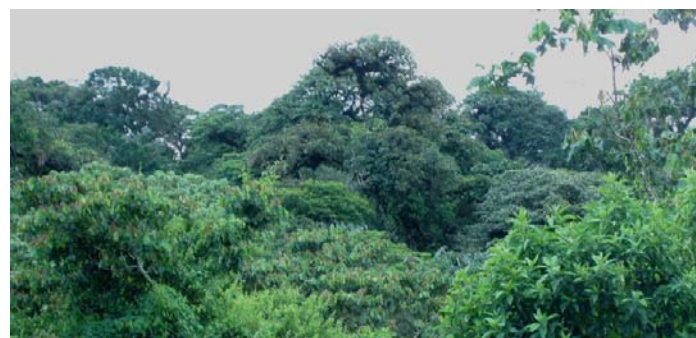
Deforestation has direct environmental impacts: climate change (17% of GHG emissions), droughts and flooding, soil erosion, biodiversity destruction



Agriculture is by far the main driver of deforestation



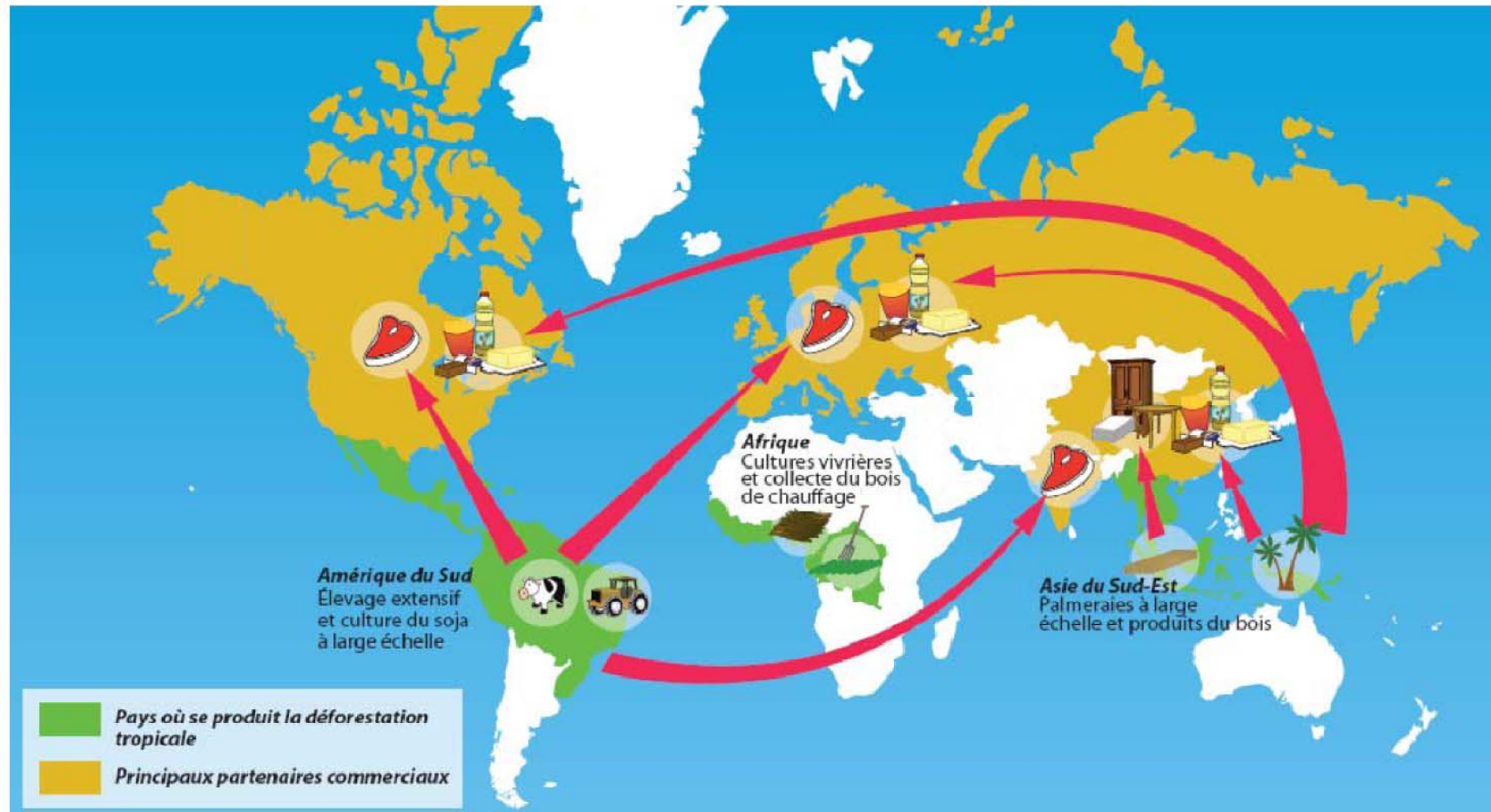
Monospecific plantations do not offer a sustainable alternative : biodiversity loss, eviction of local communities, competition with agriculture



Conservation programs do not necessarily enable economic and social development for communities

# Land | last reserves overlap with remaining natural forests

Figure 7 - Carte des principaux facteurs de déforestation



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# Agriculture | long term market trends



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## DEMAND

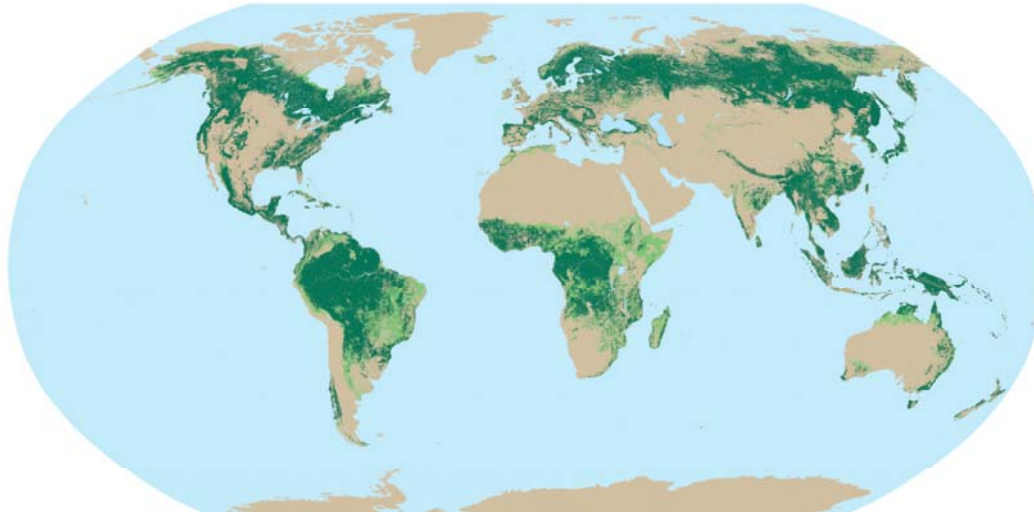
- Population growth
- Emergence of a new middle class
- Biofuel



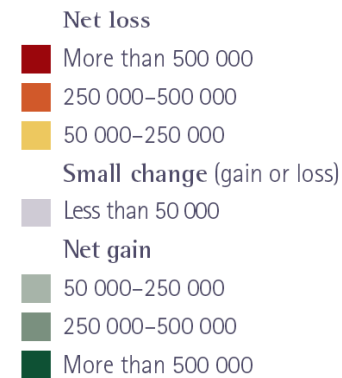
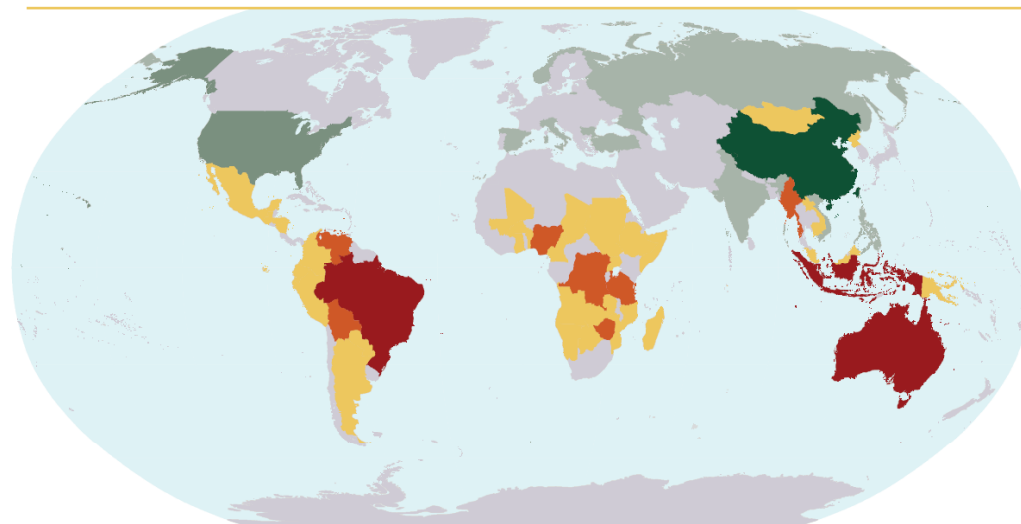
## OFFER

- Lack of investments
- Scarcity of land
- Natural hazards
- Climate change

# Land | last reserves overlap with remaining natural forests

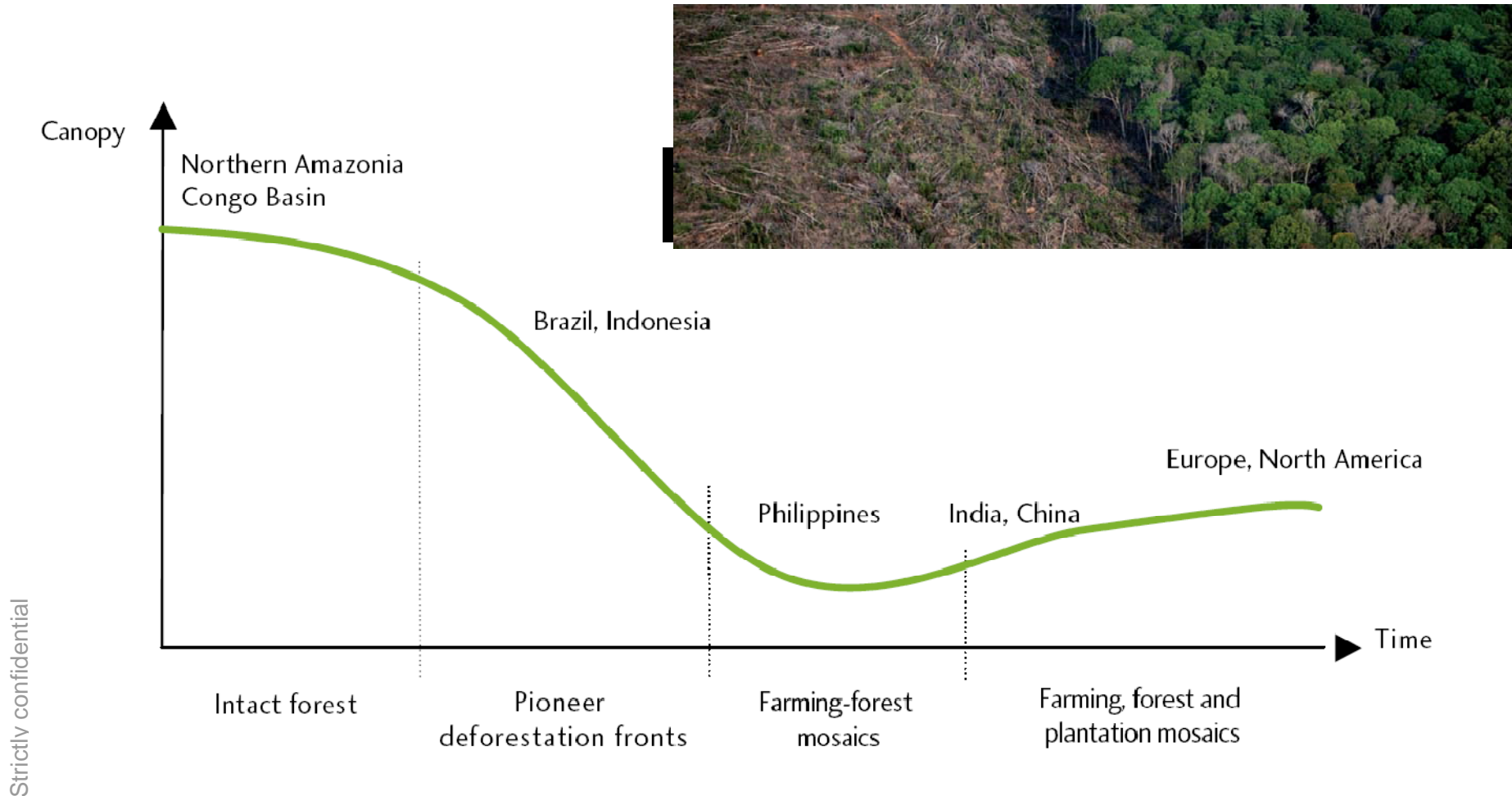


Net change in forest area by country, 2005–2010 (ha/year)



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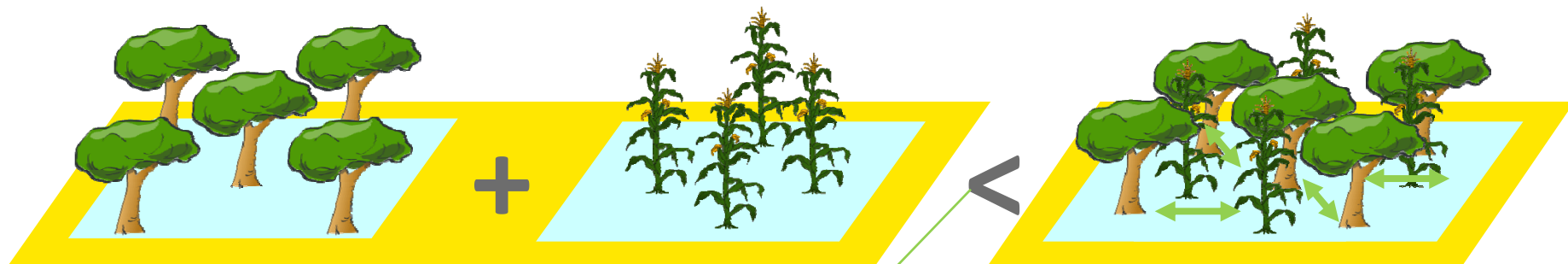
# Land | last reserves overlap with remaining natural forests



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# Agroforestry | the need to develop new and innovative land use solutions

- Agroforestry is the spatial or temporal combination of trees and crops or animals, with biological, social and economic synergies leading to higher productivity, reduced risks, a more stable income for local populations, and positive environmental impacts



Global profitability  
Social benefits  
Environmental impacts

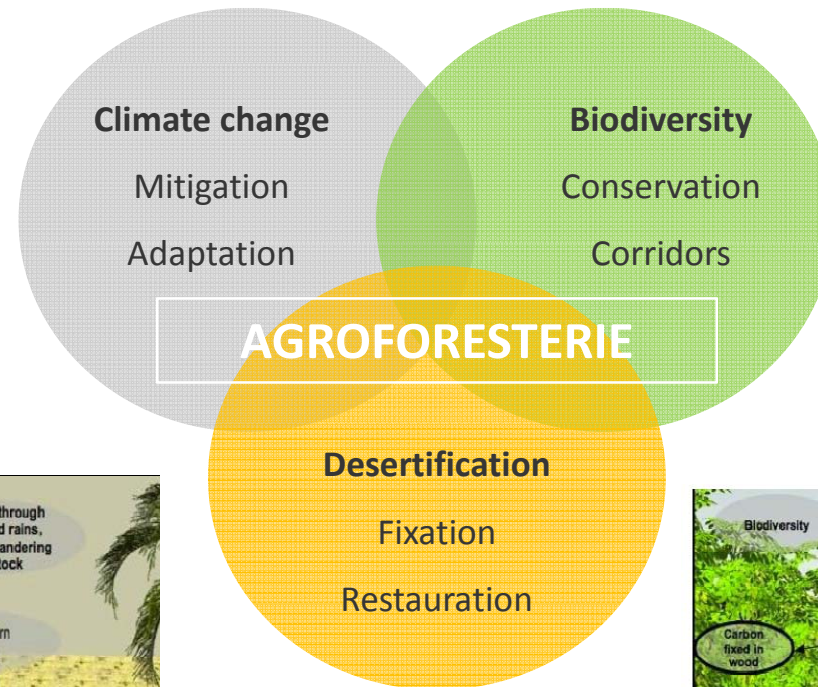
Examples of **biological interactions** :

- Better use of sun light
- Better use of water
- Biological regulation of pests

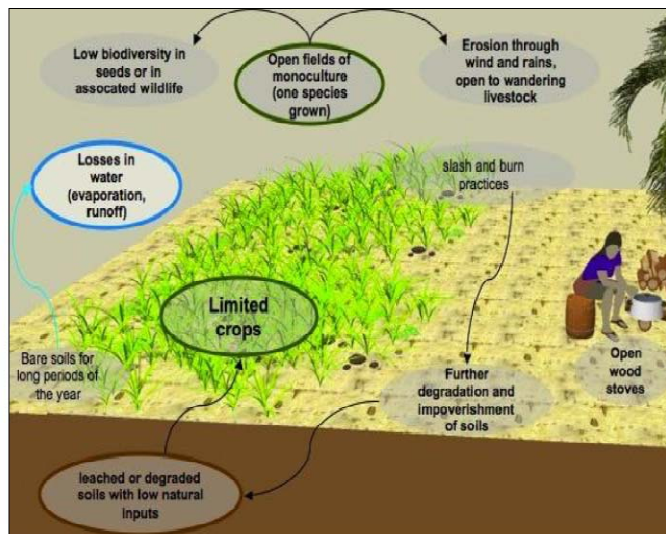


# Agroforestry | multiple benefits ...

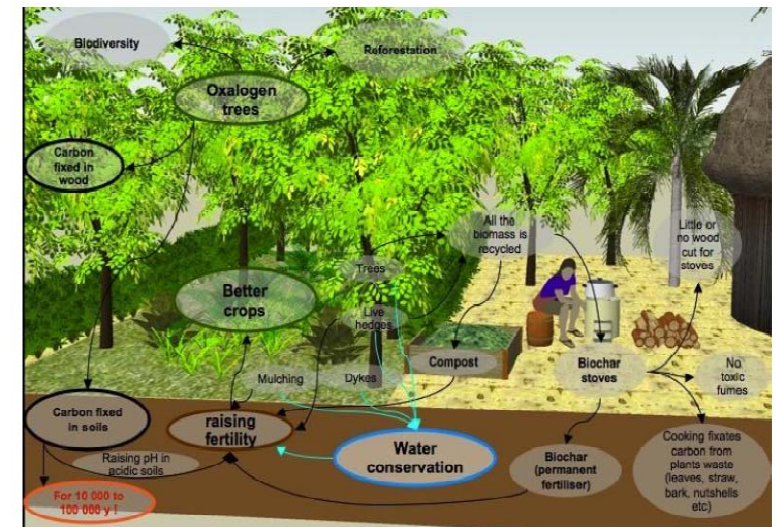
World Agroforestry Center, 2007



Monoculture

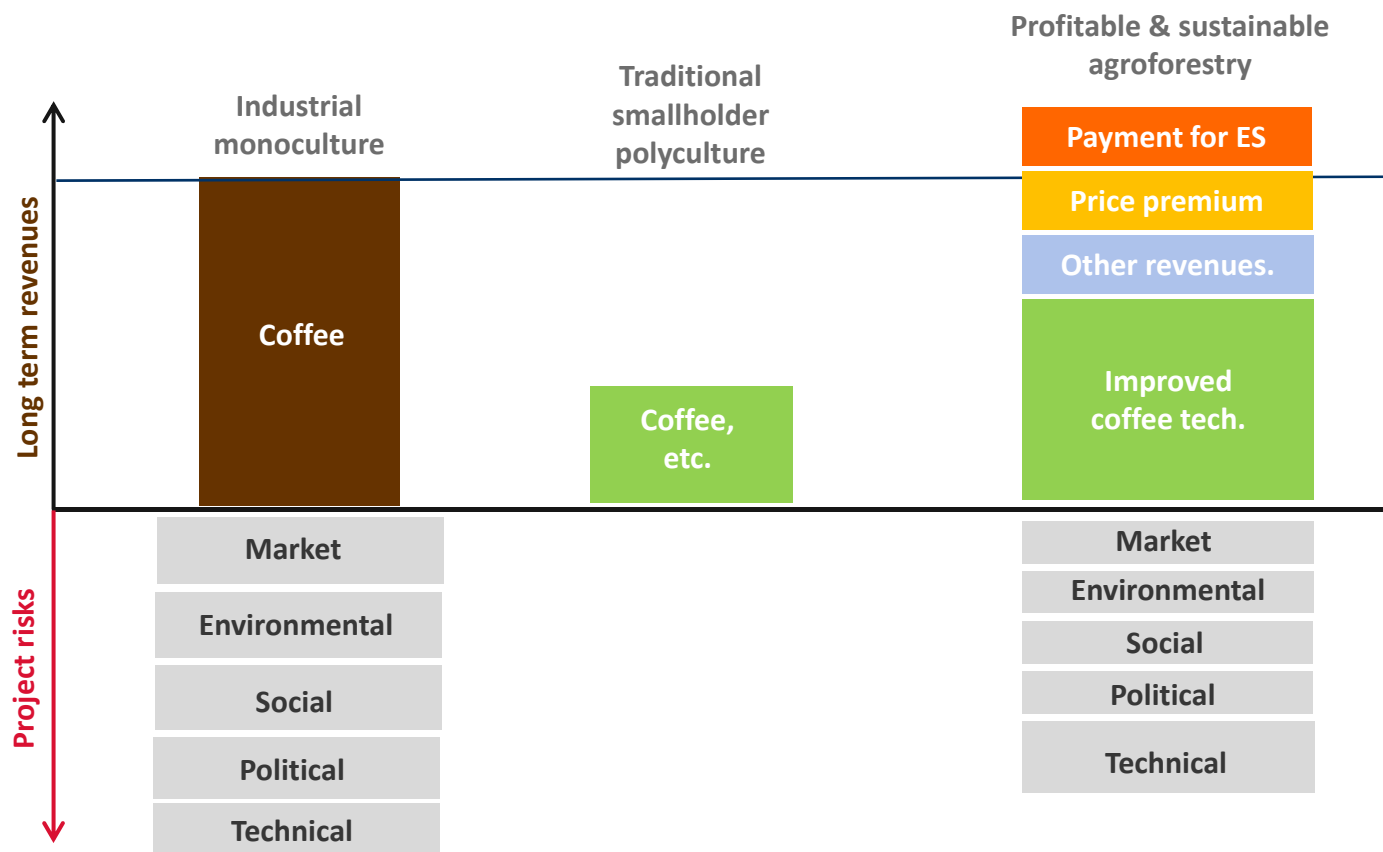


Agroforestry



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# Agroforestry | ... and major challenges



**Profitability ?**

**Complexity ?**

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# Moringa | a triple bottom line fund

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- The Moringa Fund has been established as a response to growing interest of the Financial and the Development sector in investments that provide for a financial, as well as an environmental and a social return at the same time
- By combining these goals investors expect to access projects generating greater rates of success due to an in-built emphasis on impact
- Moringa is a private equity fund that focusses on investments in agroforestry in Developing and Least Developed Countries. Its three objectives are :
  - Provide a reasonable return to its investors
  - Have a positive environmental impact (restauration of soils, climate change adaptation & mitigation, etc.)
  - Increase revenues of farmers and livelihoods of local communities

# Moringa | partnership at the fund level

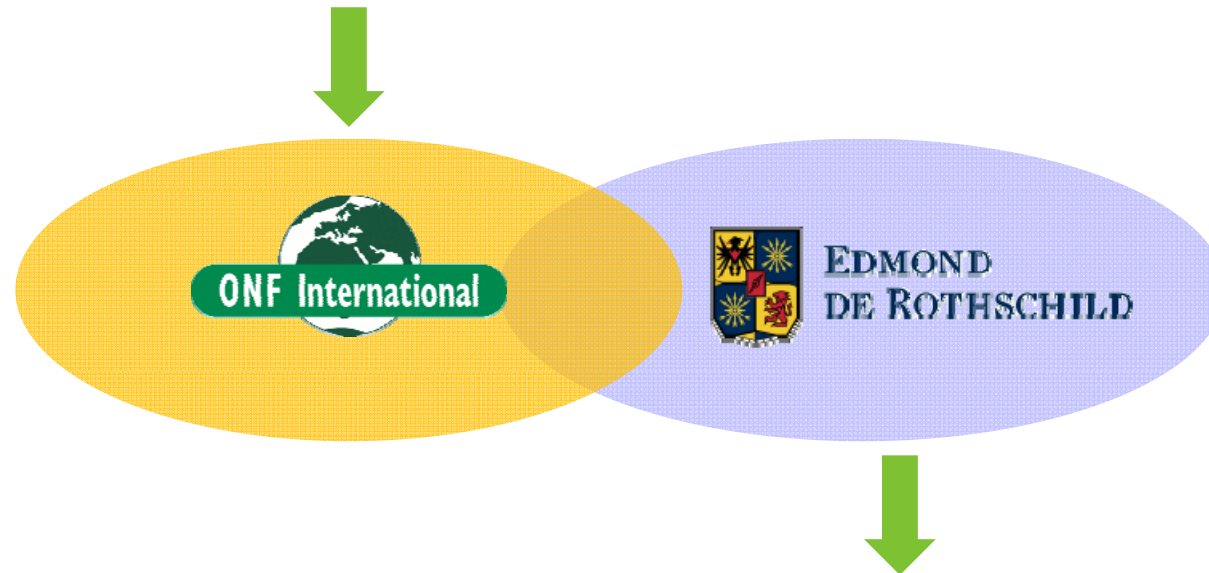


## Impact investors



EDMOND DE ROTHSCHILD

80 M€

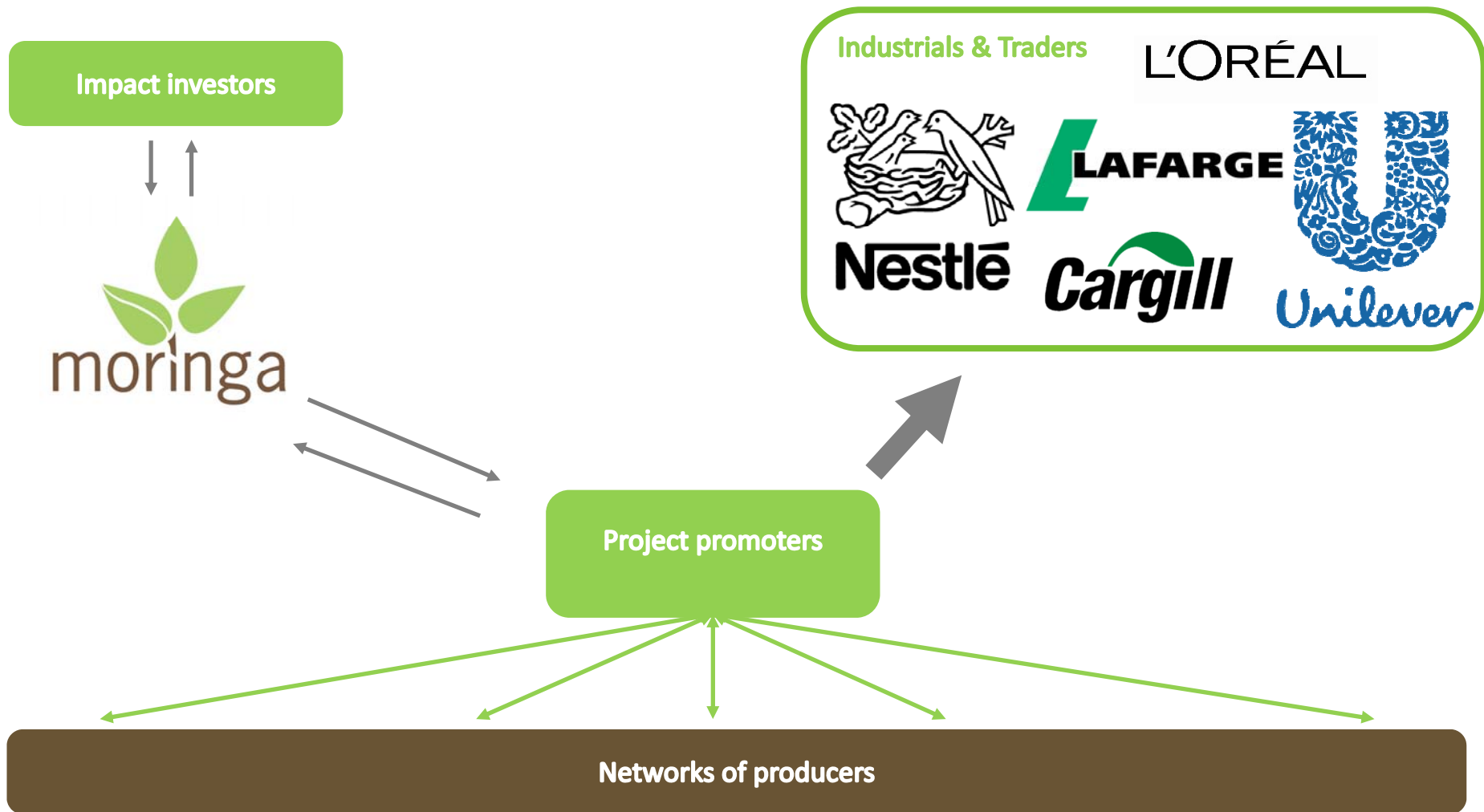


## Projects



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# Moringa | partnership at the project level



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# Moringa | meeting present and future industrial requirements



Sector	Products/ commodities	Key Firms	Perceived problems by industries where MORINGA can offer an agro forestry solution
Cosmetics	Aloe vera, jojoba, Arabic Gum	Yves Rocher, Firmenich, Body shop, Occitane	Companies will face supply shortage because of exploding demand (health + organic) and lack of industrial plantations
Agro business	Cocoa, coffee, palm oil, sorghum, nuts	Olam, Dreyfus, Bunge, Nestle, Castel, Mars, Unilever	Demand increasing for certain commodities; damages caused to cocoa plantations in RCI; imminent shortages, environmental problems;
Tropical timber companies	Melina, Teak, Ceiba	Rougier, Servant, Danzer, Faber castel, Caran d'ache...	Shortage imminent for some species in certain regions; need for plantation to replace disappearing forest harvesting
Pulp and paper	Biomass	Suzano, Storaenso, Norsk skog, Smurfit	Unsustainable mono specific plantation, social conflicts
Cement industry	Biomass	Lafarge, Holcim, Heidelberg, Argos	Ambitious objectives for substituting fossil fuel with biomass; need to improve social impact; lower costs of energy
Other industrial sectors	Latex, starch	Saph, Siph, sifca, Michelin, Roquette freres, Corn Products	Emerging market demand increase, shortages in view. Rubber competes with subsistence crops => possible social conflicts. Not enough starch.

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# Moringa | partnership at the operational level

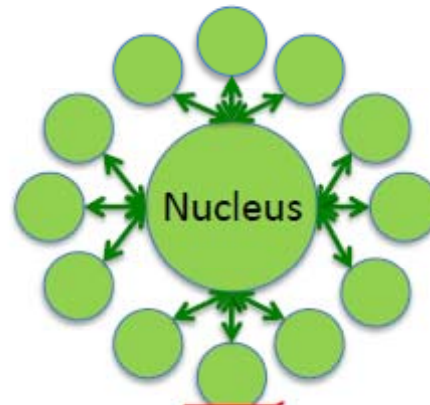


## 100% company-owned "Estate" model



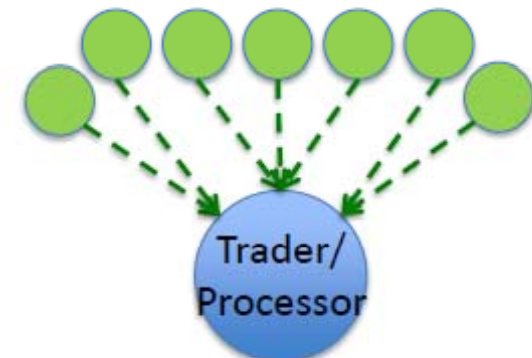
- Limited community impact
- No accumulation of capital/entrepreneurial skills
- Low productivity/motivation

## Nucleus+Outgrower model



- Nucleus ensures minimum capacity utilisation; provides test/demo facility; builds rapport
- Outgrowers benefit from, training, inputs; build equity and skills; exhibit higher productivity/motivation

## Pure Trader/Processor model



- No demonstration effect; limited training/technical assistance
- Limited understanding/help with managing local climate/pests, etc
- No "skin in the game" – just a middle man

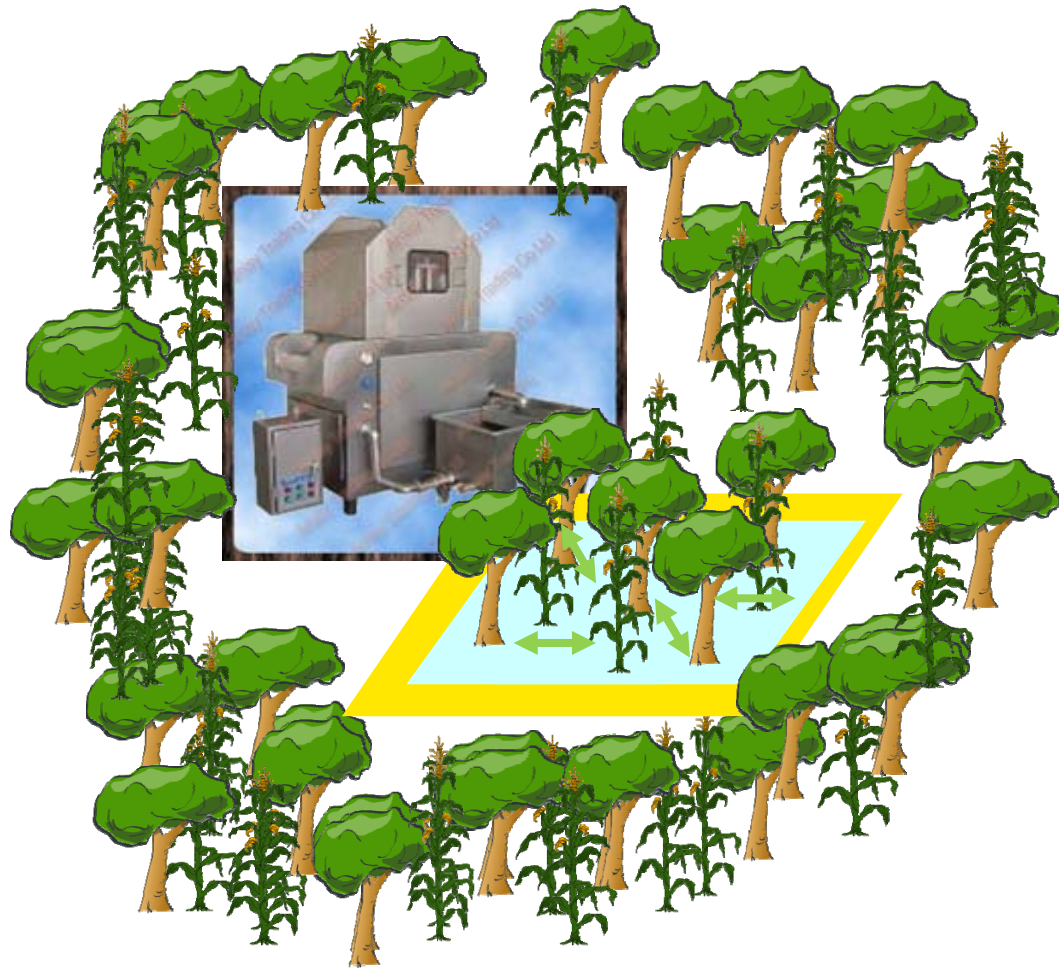
# Moringa | partnership at the operational level



Experts



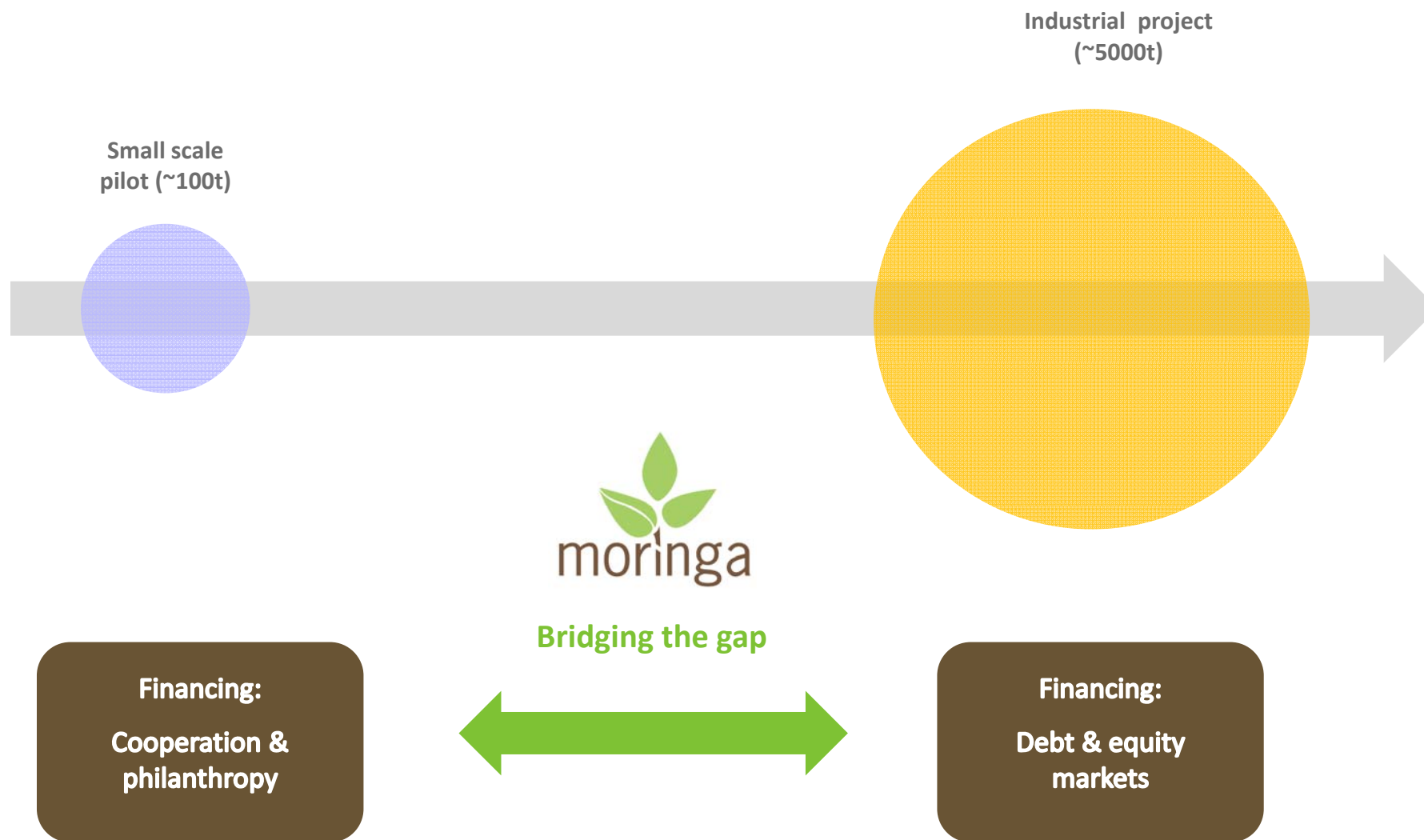
NGOs



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# Positioning | the need to scale up



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# Project Magda | an agroforestry case study



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# Project Magda | an agroforestry case study

- Project located on the banks of the Magdalena river, 120 km from the harbor of Barranquilla (Caribbean sea)
- Deforestation and unsustainable land use has taken its toll... large scale soil erosion, filling the river with sediments and causing floods
- Land for pastures have shrunk and over grazing on the remaining part has diminished food access for the cattle

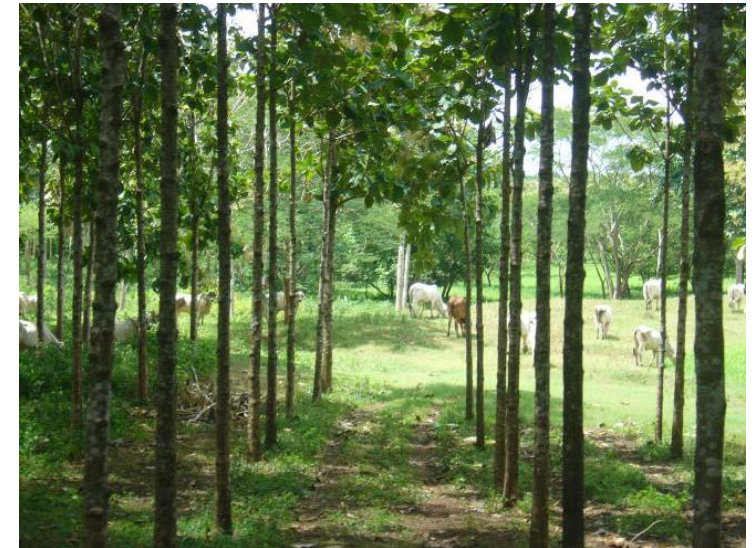


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# Project Magda | a sylvopastoralism proposal



- Commercial reforestation in a sylvopastoralism environment, in close partnership with local ranchers via “contrato de participacion”
- The project was initiated in 2000 by the public organization in charge of Magdalena river’s management, supported by ONFI
- The project of reforestation consists of a commercial plantation of Teak and Melina, 2 well-known commercial timber species, and Ceiba, a local species, for commercialization in national and international markets
- Farmers also receive technical support to improve the management of cattle, pastures and soils



# Project Magda | agroforestry synergies

Use of foliage from tree maintenance as fodder for cattle



Combining intensified cattle growing and tree plantations will increase land productivity, restore land quality, and improve farmer income



Intercropping of corn and manioc in the young plantations : reduced maintenance costs and additional income for farmers



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# Project Magda | cattle increased revenues

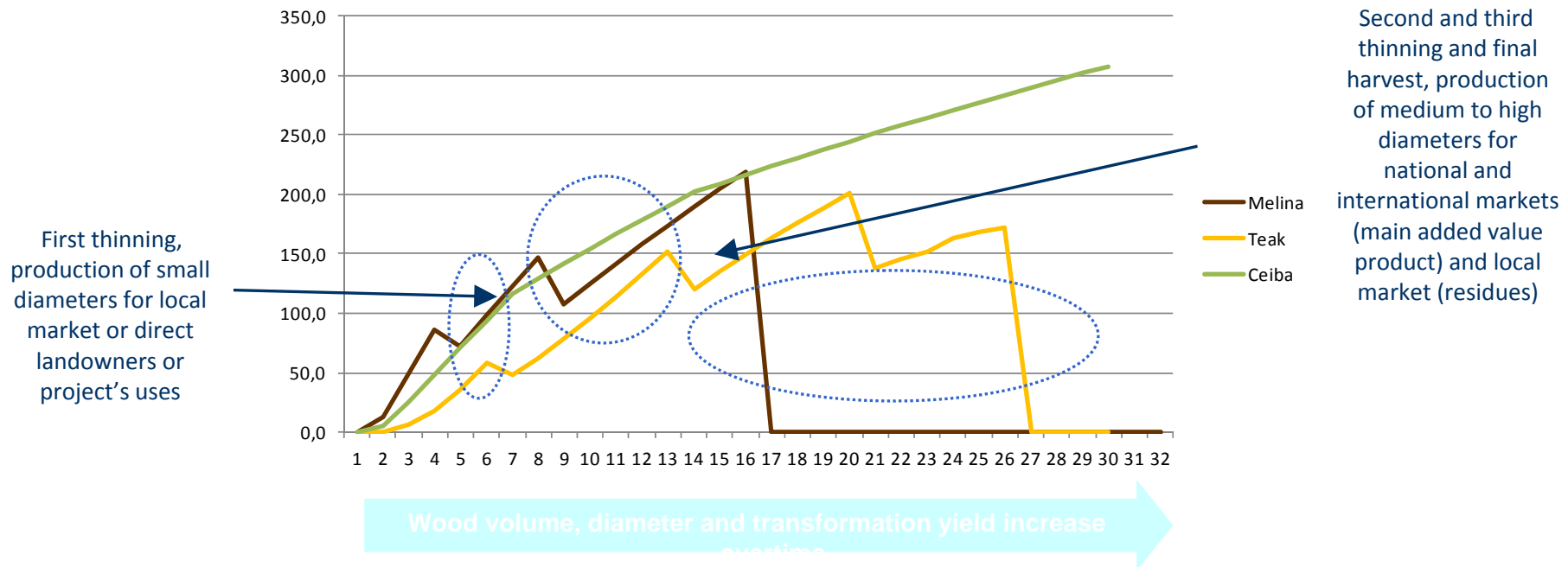


Production of “cria genetica” high quality veal : breeding of Sementhal (German) 5/8 and local species (Cebu) 3/8

# Project Magda | forestry revenues



Project tree species	Area	Density pl.	Rotation	Origin	Main uses
<b>Melina</b> : <i>Gmelina Arborea</i>	2.500 ha	1100 trees/ha	15 yr	Exotic	Pencil, furniture
<b>Teak</b> : <i>Tectona Grandis</i>	1.100 ha	1100 trees/ha	25 yr	Exotic	Furniture, floor
<b>Ceiba</b> : <i>Bombacopsis Quinata</i>	200 ha	1100 trees/ha	>40 yr	Native	Carbon credit, biodiversity

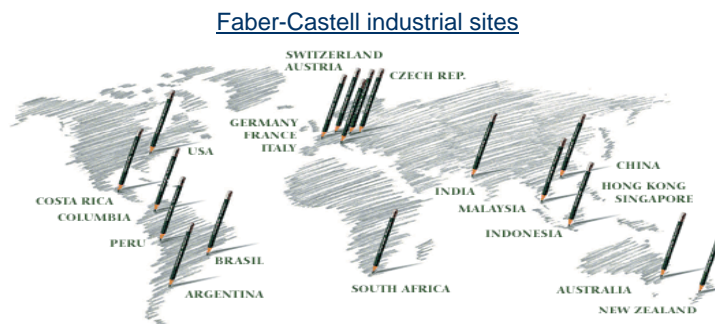


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# Project Magda | forestry revenues

Melina is a raw material for pencil

- **Melina** is a worldwide planted specie, with various possible products:
  - Biomass for energetical purposes
  - Sawnwood, veneers, for furniture making, plywood and laminated wood beams, among others
- In this project, the objective is to produce sawnwood for the pencils industry. A high value niche market



Colombian Melina sawnwood demand will remain high in the future

- Its quality is excellent for pencils transformation according to Faber-Castell
- Faber-Castell capacity of production is enormous through its 16 plants worldwide and will absorb all the production
- Faber-Castell pencils production will remain high in the future (15% Annual increase 2009-2010), because education programs in the world are increasing, especially in developing countries
- ECOLAPIZ (eco-pencil) is the new concept, and production line of Faber-Castell in various countries in Latin America *"100% renewable and contribute to carbon dioxide sequestration"*  
Matthias Hippaug





# Project Magda | revenues

**Main revenues from high quality timber wood**

- Melina and Teak have been introduced in Colombia since decades and are well adapted to local conditions. Moreover the project benefits from a 10 years local experience and a solid know-how
- Melina is currently transformed at the project's sawmill and exported to Costa-Rica and Indonesia as raw material for the pencils industry
- Teak is widely used by the wood transformation sector in the region, essentially as raw material for furniture making



**Additional revenues from environmental benefits**

**Carbon credits**

**tCERs or VCUs**  
PDD registered as a CDM. The project is eligible to CDM and VCS Reforestation activities

**Land valorization**

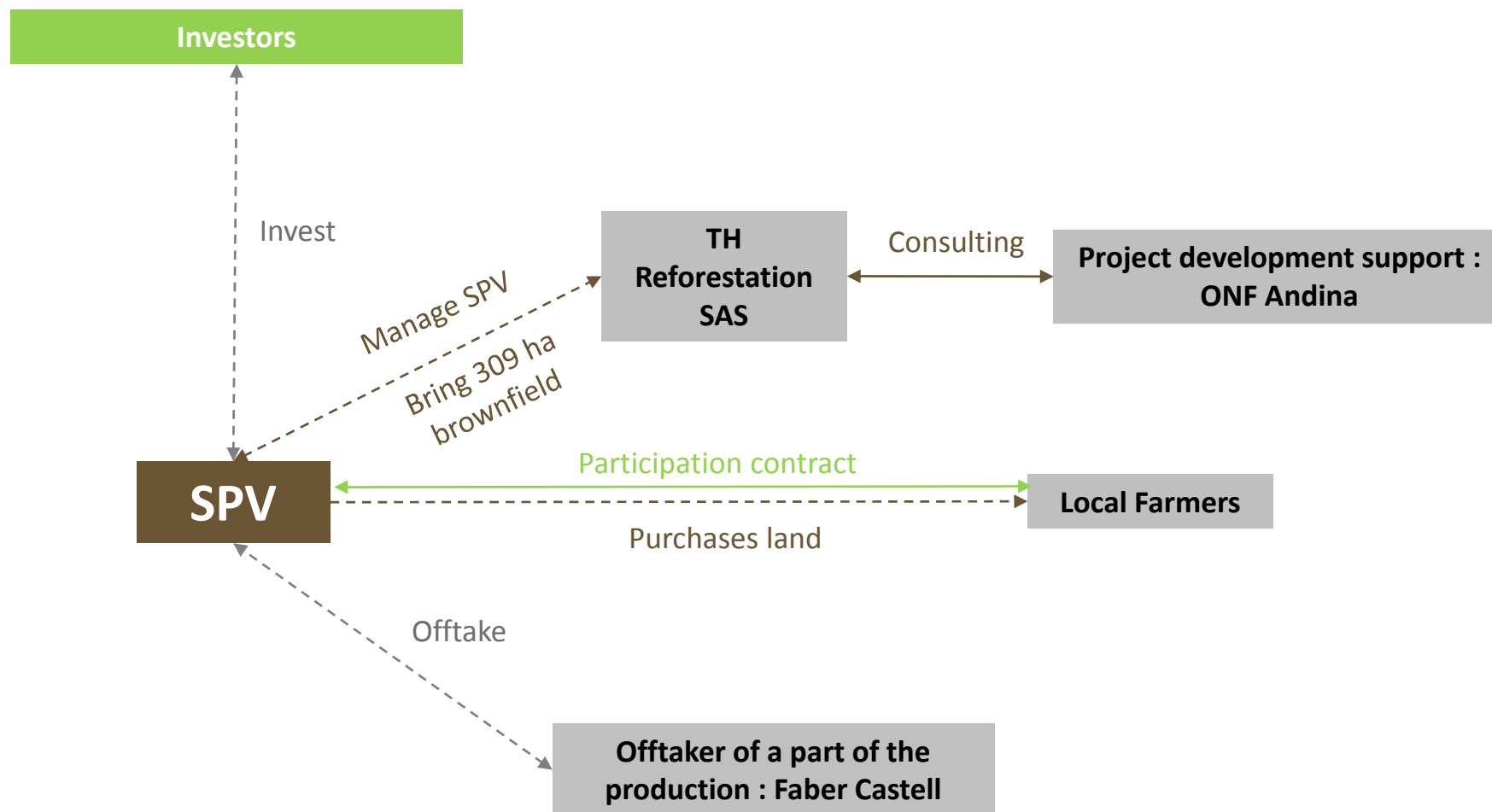
**Exit price for land rehabilitation**  
In case of land purchasing, rehabilitation in terms of fertility will add value to the land

**Agro revenues**

Cattle (milk, meat, etc.) + staple crops : till now for the benefit of the cattle ranchers. For the new investment, cattle fund activity will be developed with high quality genetically selected species

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# Project overview : Management structure



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# Project Magda | revenues split



		PARTICIPATION CONTRACTS	
		SPV	Farmers
Investment	Land sale	-	-
Moringa holding period	Wood	70%	30%
	Carbon credits	70%	30%
	Cattle	0 - 50%	50 - 100%
	Other revenues	TBD (not included yet in the BP)	TBD (not included yet in the BP)
	Plantation maintenance salaries	-	100%
Exit	Land sale	-	-
	SPV's equity exit	100%	-

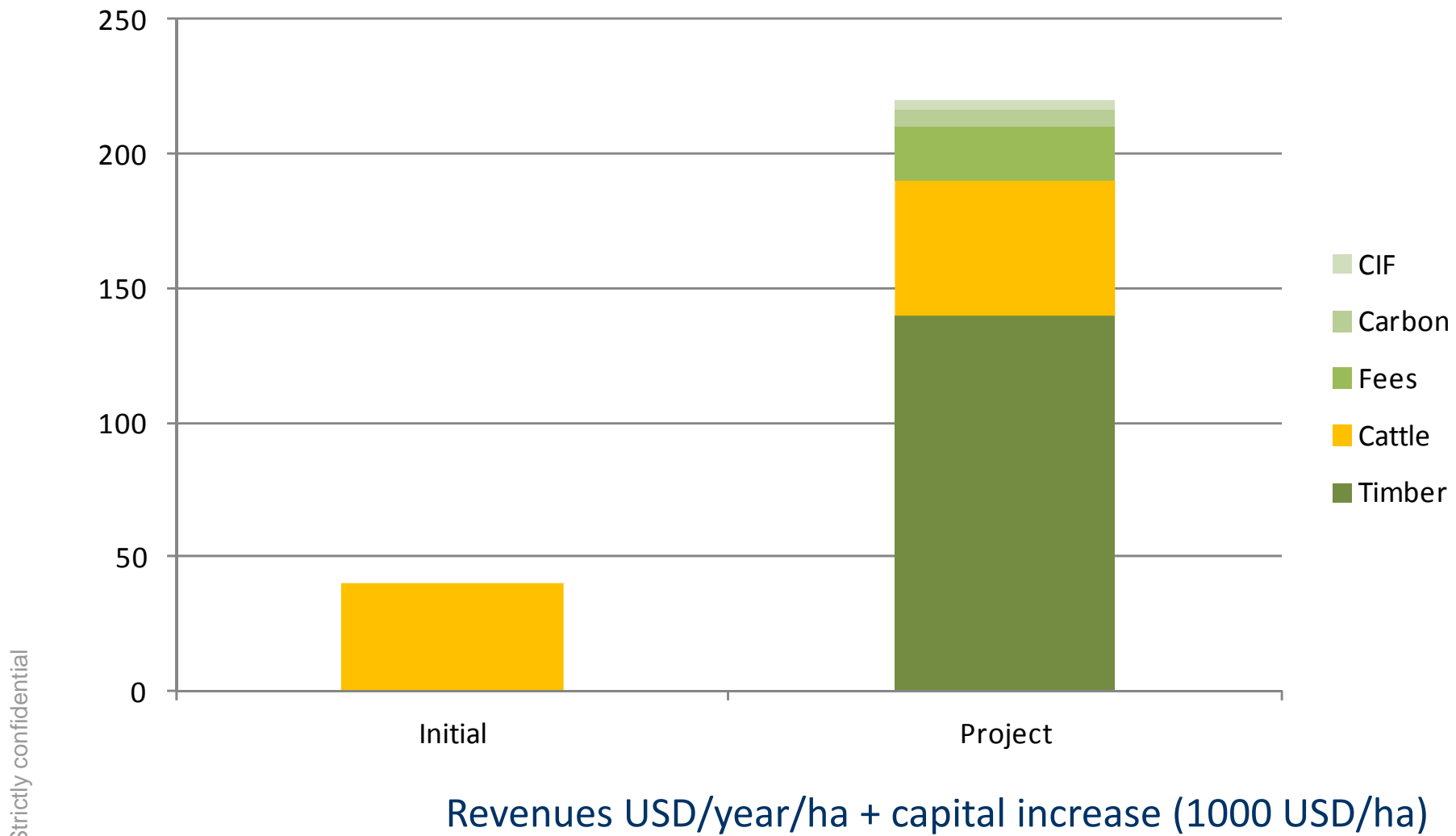
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# Project Magda | **benefits for landowners**

- Problem:
  - Cattle ranchers had land but were in poverty trap
- Results:
  - Ranchers have learned a lot (planting trees, improving ranching techniques) and increased their revenues.
  - New standing planted forests which reduce soil erosion and improve water levels
  - Dramatic improvement in land prices due to improved fertility



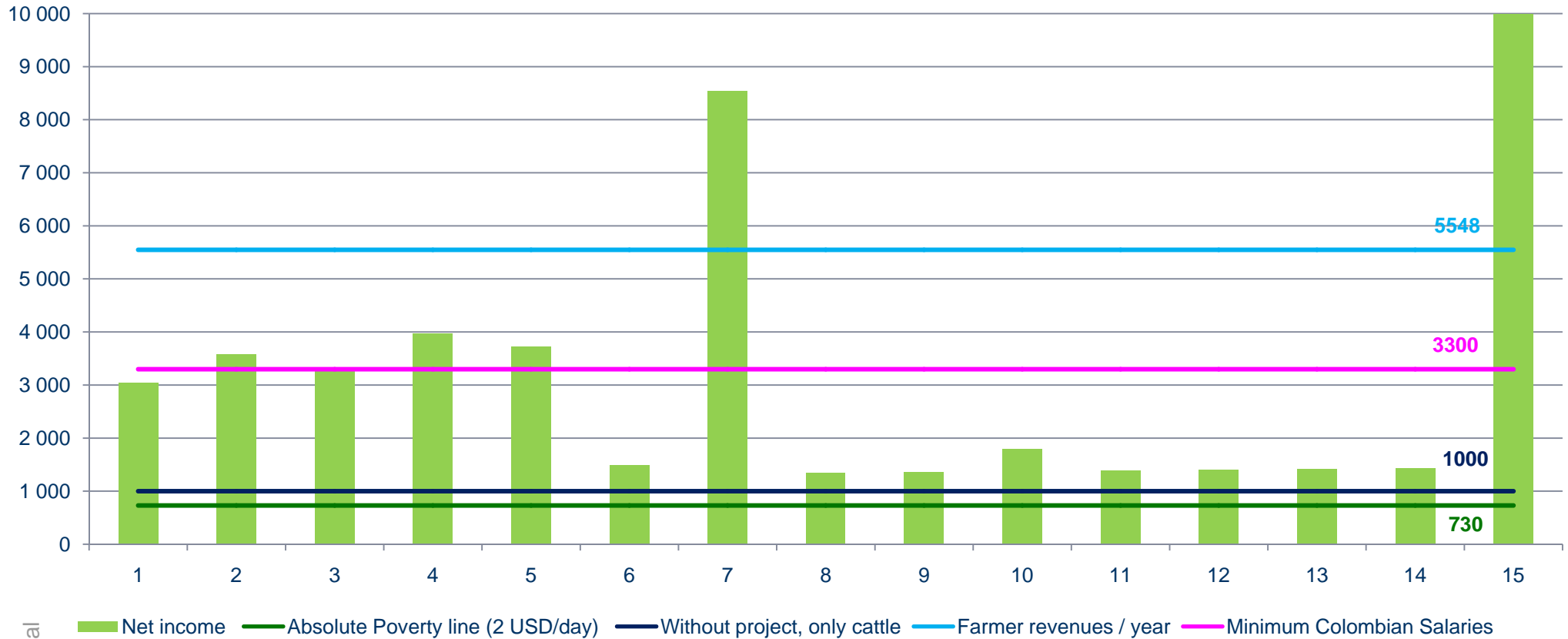
# Project Magda | benefits for landowners



# Project Magda | **benefits for landowners**

<b>Annual revenues for a 25 ha cattle rancher</b>	
With plantation project	\$5 548
Minimum Colombian Salaries	\$3 300
Without project, only cattle	\$1 000
Absolute Poverty line (2 USD/day)	\$730
+ capital increase (25000\$ after 15 years)	

# Project Magda | benefits for landowners



Revenues for a 25 ha farm, + capital increase 25000 USD

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# Project Magda | an excellent risk adjusted profitability



## Main assumptions

Thousand dollars - 1,000 USD

### General assumptions

Project duration	30
Investment year	2013
Exit year	2023
3,800 ha Greenfield plantation (2,500 ha Melina, 1,100 ha Teak)	
1,123 ha brownfield plantation (913 ha Melina, 210 ha Teak)	
2,000 ha cattle fund activities (farming contracts)	
Majority stake	

### Funding needs (in KUSD)

Equity (10 years)	10 284
Mezzanine (10 years)	1 500
Debt (10 years)	2 500
Grant (10 years)	2 432
<b>Total</b>	<b>16 716</b>

### Transaction assumptions

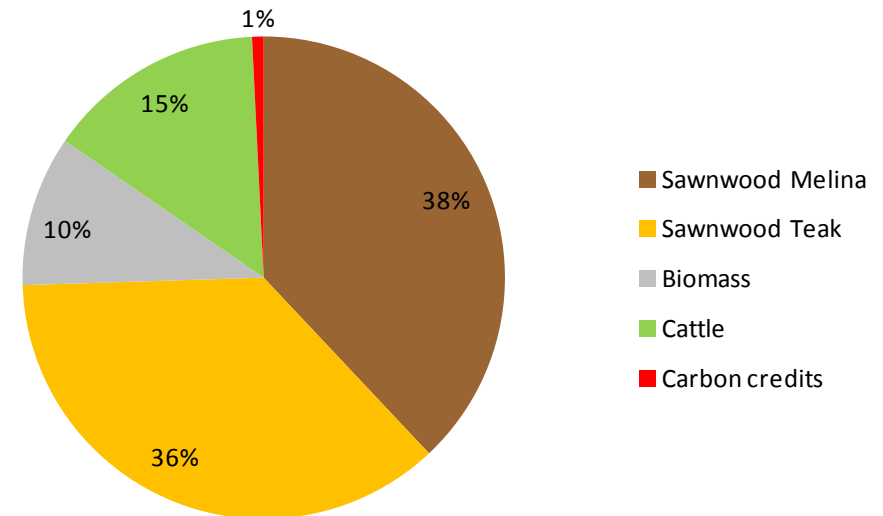
#### Shareholding structure

Developer + initiator	30%
Moringa	51%
Other investors	19%
<b>Total</b>	<b>100%</b>

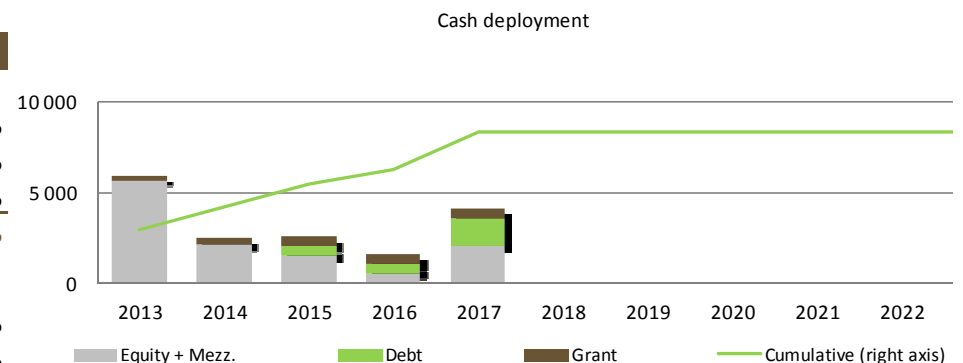
#### Internal Rate of Return

Project IRR (30 years)	17,8%
Moringa IRR (10 years)	21,5%
Moringa IRR (25% discc (10 years)	17,4%

## Revenues breakdown (30 years)



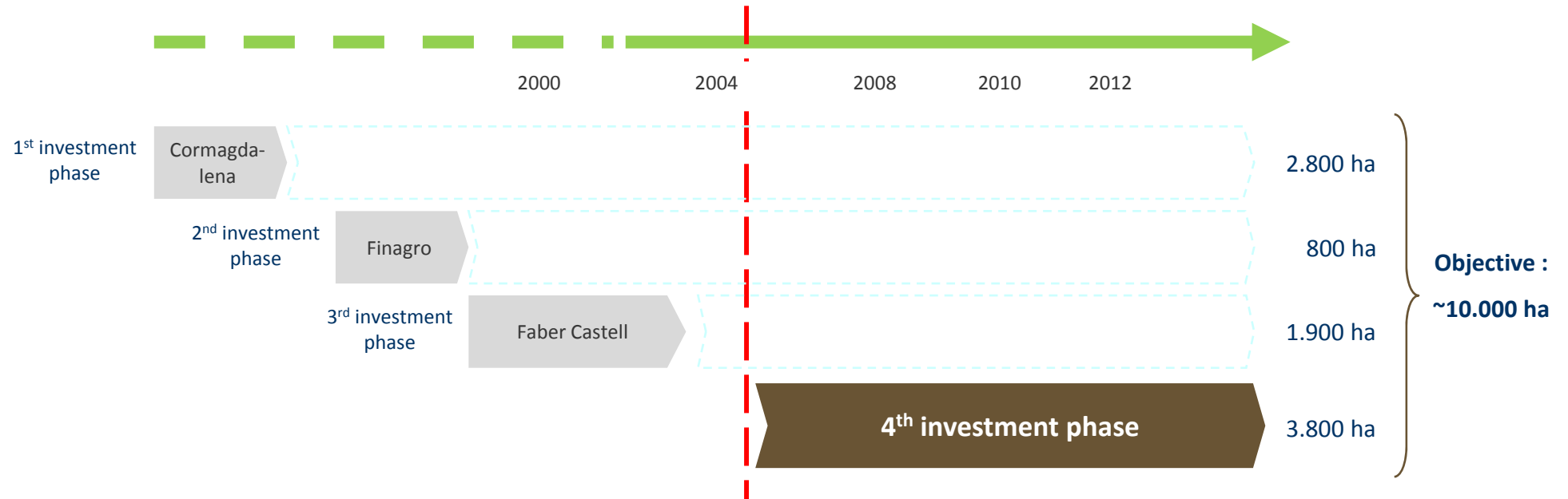
## Revenues breakdown (10 years)



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# Project Magda | a virtuous cycle



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# Project Congo | context

- DRC: one of the largest country in Africa with a population among the poorest in the world
- Main drivers of deforestation in DRC : charcoal production and consumption, non sustainable agricultural practices (slash & burn, etc.)



# Project Congo | context

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# Project Congo | context

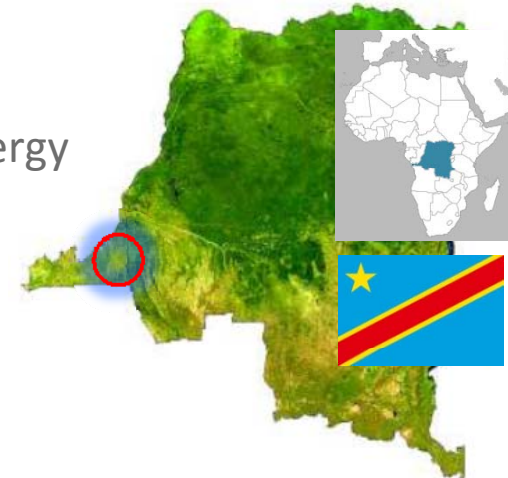
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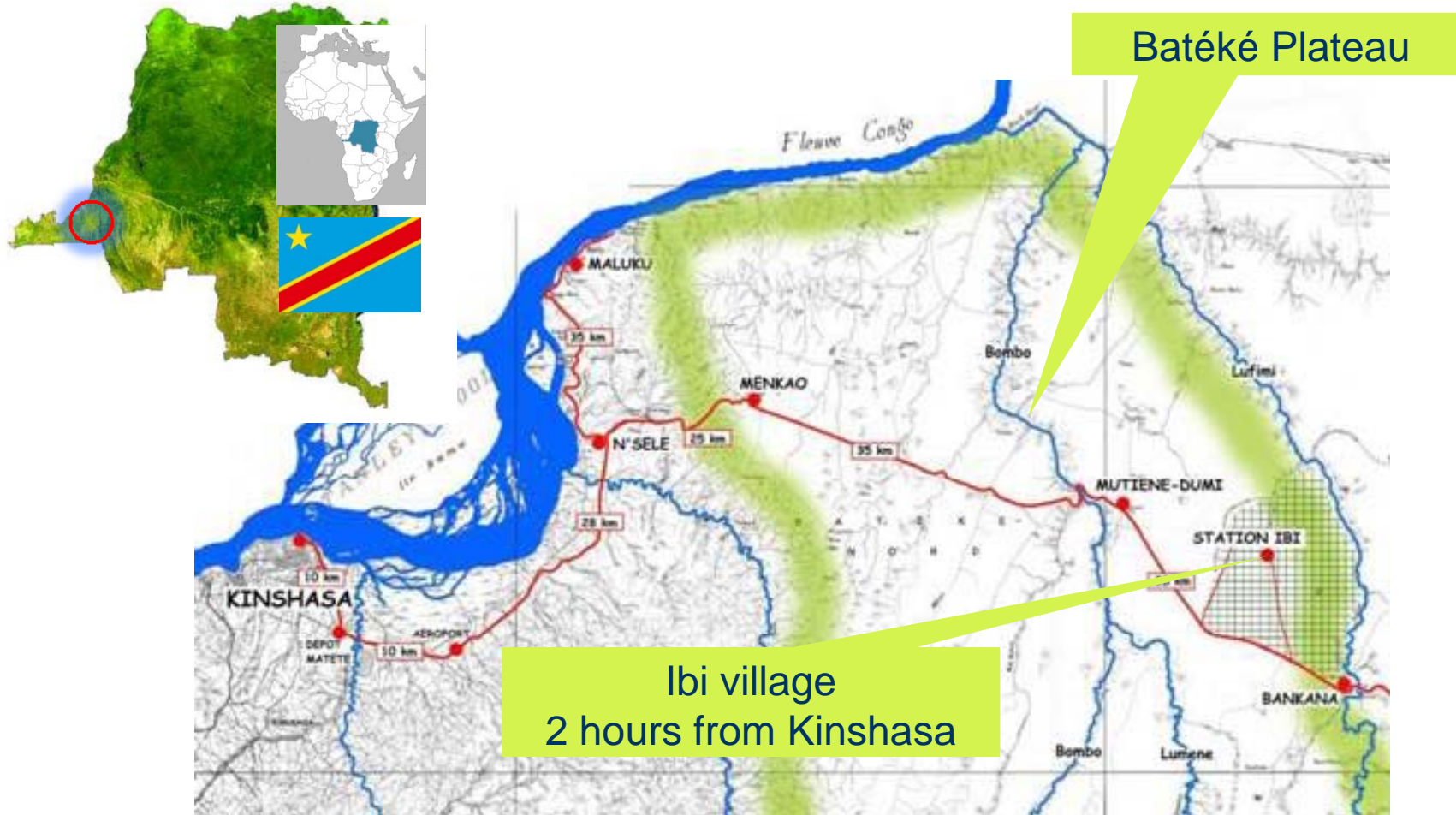
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# Project Congo | context

- Kinshasa: 12 M inhabitants
- Communities using wood as first energy source
- Demographic pressure and absence of alternative sources of energy
- ✓ Traditional cook-stoves in 95% of the kitchens
- ✓ Low energy efficiency, non-renewable biomass
- ✓ High impact on deforestation of natural forests



# Project Congo | context



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# Project Congo | context

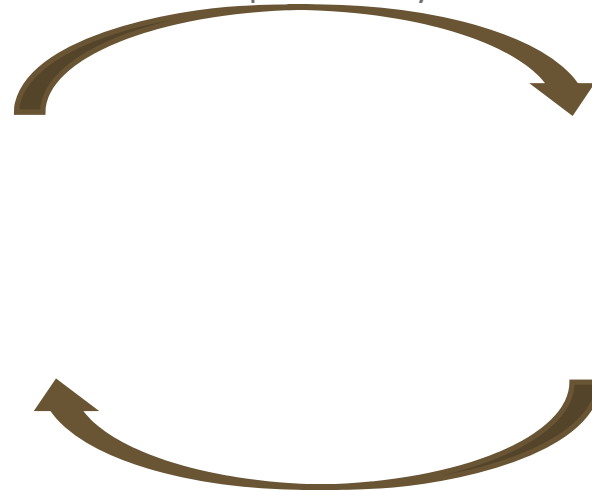
- Main drivers of deforestation in DRC : charcoal production and consumption, non sustainable agricultural practices (slash & burn, etc.)
- Large areas of unproductive and degraded savahnnas (fire events, etc.) available
- Example of the Batéké plateau near Kinshasa : savahnnas and remaining forest galleries
- A local entrepreneur (Novacel) with land rights on 8,000 ha of land



# Project Congo | context



Tree cover with nitrogen-fixing species (Acacia) improves soil fertility and food crop productivity



Intercropping of manioc in the young plantations at the beginning of each rotation : reduced maintenance costs, additional land productivity, better social acceptance of the project



# Project Congo | context

- Reforestation of 4,200 ha mainly with *Acacia sp.* intercropped with cassava
- Production and local transformation of sustainable manioc and charcoal for the markets of Kinshasa
- ERPA signed with prestigious partners : Worldbank, Orbéo, Danone (50.000 tCO<sub>2</sub>/yr)



- Financing secures through long term loans
- High social and environmental impacts

# Project Congo | revenues



## Timber commodities

### Fuelwood (charcoal)

- The main timber production is fuelwood. The harvested timber is directly used as firewood (local uses) or transform into green charcoal especially to be sold on the important Kinshasa market. The fuelwood will be harvested at the end of each rotation, e.g. as soon as year 5. Timber wood will also be produced from Wenge

## Agri commodities

### Cassava

- Intercropped plantation of manioc will produce cassava at specific stages of the project and be sold in the Kinshasa market. cassava revenues will occur when the canopy is not yet closed, e.g. at the beginning of each rotation

## Carbon commodities

### tCER and Voluntary Carbon Units (VCU)

- The project is eligible for CDM Afforestation and REDD activities (VCS). A new REDD methodology will be developed for the project. An additional CCBs validation will be sought. Through this mix of AR and REDD credits, revenues could be spread throughout the lifetime of the project

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# Project Congo | results

- Results:
  - These eroded, compacted unfertile savannah are progressively reforested, creating a carbon sink
  - Communities living nearby obtain revenues,                    schooling and health care
  - The local population has learned the benefits of agro forestry and can see how to replicate the model
  - Supply of manioc, a core component in the staple diet of the local population is more readily available in Kinshasa
  - Charcoal from a sustainable source is being supplied to Kinshasa, reducing the pressure on natural forests
  
- Local population is actively interested in attracting experienced agroforestry investors

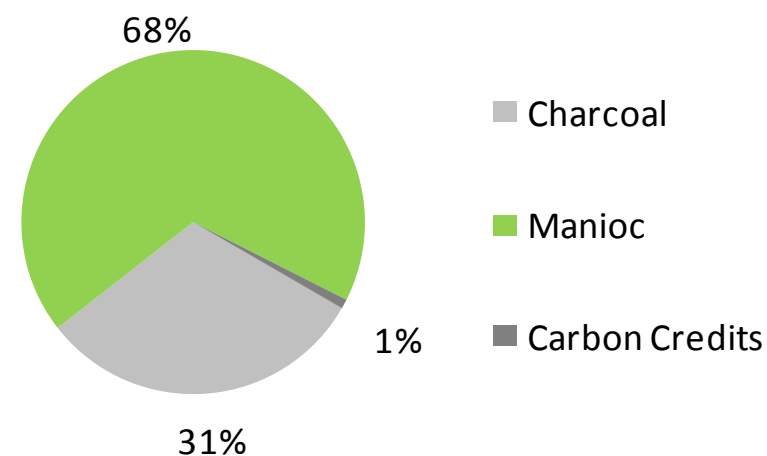


# Project Congo | results

## Main assumptions

General assumptions	
Project duration	20
Investment year	2012
Exit year	2021
7,580 ha Greenfield + 891 ha brownfield	
Majority stake	
Financial assumptions	
<u>Project financials (in K\$) - Not discounted</u>	
Total revenues	202 428
Total EBIT	87 291
<i>Ebit % Revenues</i>	43%
<u>Funding needs (in K\$)</u>	
Equity	4 469
Debt	0
PPP	2 234
Reinvestment	27 103
<b>Total</b>	<b>33 806</b>
Transaction assumptions	
<u>Shareholding structure</u>	
Developer	10,0%
Moringa	90,0%
<b>Total</b>	<b>100%</b>
<u>Internal Rate of Return</u>	
Project IRR	(20 years) 12,97%
ROE	(20 years) 17,50%

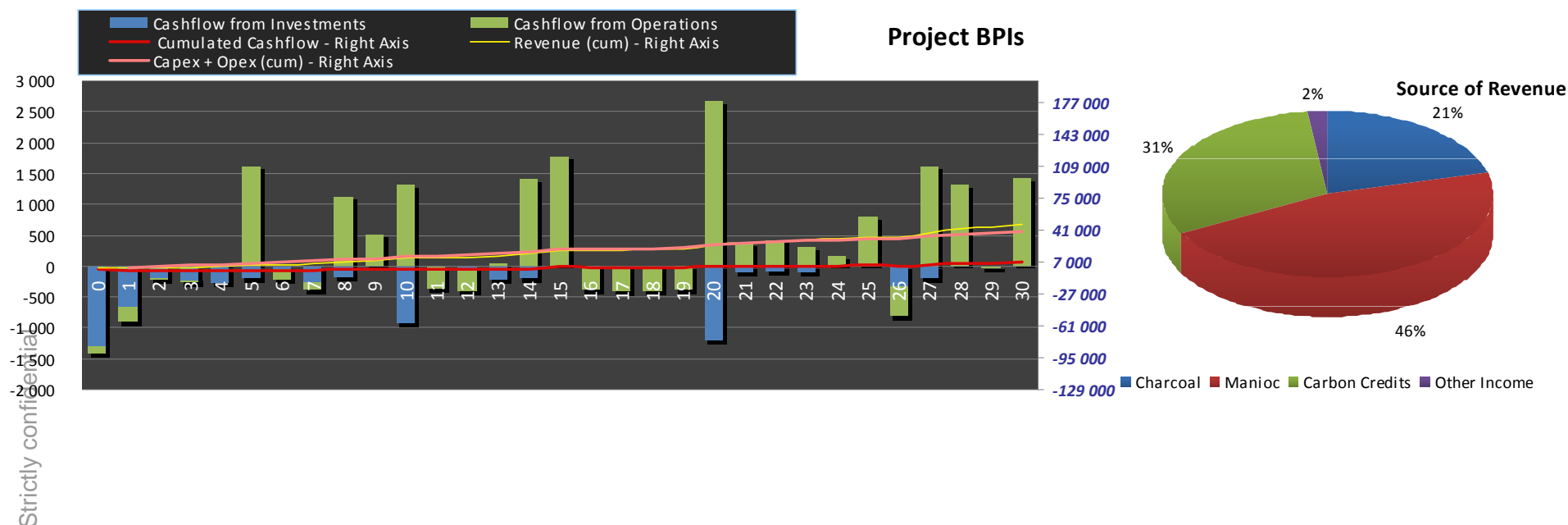
## Revenues breakdown



\* Timber revenues (Wenge) and REDD+ credits not included here (upsides)

# Project Congo | results

- Capacity of the project developer to carry on an agro-forestry project at industrial scale in the local context
- Aggregation of adequate competencies to overpass technical barriers
- A viable business model with diversified revenue streams in local and international currencies
- High and positive social & environmental impacts : strong support from local communities, national and international players





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**Thank you for your attention**

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