Case Study of A/R CDM Ibirá© Project in Uruguay: What is Solved, What is to be Solved

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Project Description

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Baseline Scenario

- Extensive livestock farms (of size > 2,000 ha)
  - large properties (1,156 farms over 2,000 ha cover 25% of Uruguay land territory)
  - highly-educated (46% university graduates), old-aged (36% over 60), non-resident (71%) land owners
  - low employment (1 permanent job every 448 ha)
- Dominant use of land: beef cattle/sheep grazing on low-digestibility 'native' grassland
  - Low productivity: 60 kg of meat equivalent /ha/year.
  - Gross income: US$ 20-60/ha/yr (large climate-market variability)
  - GHG emissions: 0,9 kg CH_4/kg meat and 0,04 kg N_2O/kg meat, equivalent to 32 kg CO_2/kg meat, or 1.6 t CO_{2eq}/ha/yr.

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Project Rationale (1)

- Improvement of feed quality causes reduction of CH_4 and N_2O emissions per unit of product. However, increase in total production may lead to increase in total emissions.
- Solution: close an area, improve feed quality and maintain total meat production as in the baseline, thus releasing land for other uses.
  - conservation area (not economically feasible)
  - grain crops (may cause increased emissions, and high risk of soil erosion and degradation)
  - non-ruminants such as pigs, ostriches, horses (not feasible on large scales)
  - afforestation (the only solution)

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Project Rationale (2)

- Afforestation component would become the central activity (both in terms of value of production and climate change mitigation potential).
- Carbosur developed a A/R CDM methodology for baseline/monitoring of the afforestation component.
  - first version (ARNM0004) was rejected by the CDM EB
  - a second version (ARNM0014) was prepared, taking into consideration all the comments received from the A/R WG, and undergoing a thorough QA/QC procedure.
  - ARNM0014 is currently under consideration of the A/R WG
- A methodology for the livestock component is currently being developed. However, this is not necessary to register a project (livestock component is very minor in terms of CER production potential).

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Project's Land Use

- 19,000 ha of 'Forest Priority' land, currently under extensive livestock production
  - Several farms will be purchased by the project
- Plantation of 9,700 ha with *Eucalyptus sp.*, 300 ha with native tree species, and protection of native forests and other areas
  - Forest management/tree species to be decided by project owner
- Implementation of compulsory pasture improvement over 4,000 ha, and maintenance of ca. 2,000 ha under extensive grazing.
  - Restriction: to maintain the same level of meat production as in baseline.

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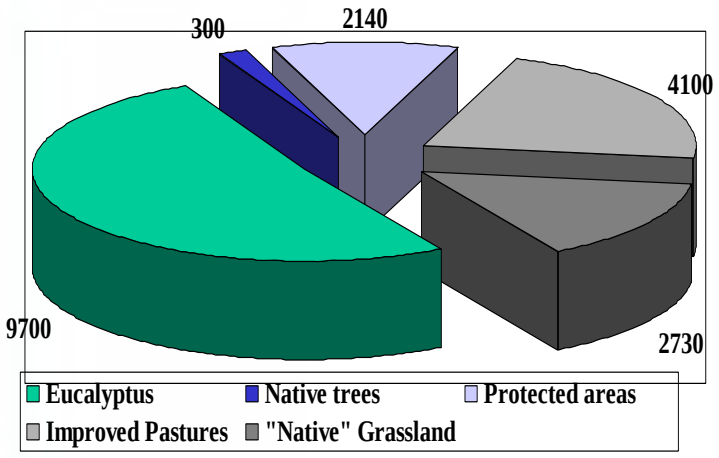
Project's Land Use (ha)



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Climate Benefits

- Reduction of CH_4 emissions by cattle
  - 6 kt $CO_{2\ eq}$/yr
- Reduction of N_2O emissions by cattle
  - 3 kt $CO_{2\ eq}$/yr
- C sequestration in soil by seeding of pastures
  - 14 kt $CO_{2\ eq}$/yr (this component is not eligible for CDM)
- C sequestration by native forests and protected areas
  - This will be a significant amount, but credits will not be claimed
- C sequestration by forest plantation
  - 3.7 Mt $CO_{2\ eq}$ over project's lifetime

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Socio-Economic Benefits

- Increased employment
  - 8-10 times more jobs per unit of land
- Improved quality of employment
  - salaries 20% higher than in baseline, improved working conditions and safety standards
- More job opportunities for women
  - improved life quality and stability of rural families
- Rural development
  - More indirect jobs, new businesses, improved local services
- Increased gross value of production
  - Forestry US$ 521/ha/yr, compared with US$ 76/ha/yr in extensive livestock
- Improved fiscal balance
  - Forestry causes increase of US$ 29/ha/yr in fiscal income as compared to extensive livestock

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Environmental Impacts

- FSC: planted forests will comply with FSC criteria and indicators
- Use of exotic species
  - there are no native species in grassland ecosystem
  - *Eucalyptus sp.* originate in similar environment
- Hydrological cycle
  - High rainfall in Uruguay, not significant negative impacts foreseen
  - Plantation design to minimize any impacts
- Biodiversity preservation
  - Protected areas in biodiversity-rich zones will be created
  - Biological corridors will be respected
- Beauty of landscape
  - Highly subjective, we consider that forest plantations add diversity to monotonous landscape.

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ARNM0014 Main Features

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Conditions of Applicability

- Land use in project site: grassland, extensive grazing. Limited number of land use alternatives.
- Low human population density in project area.
- Land property, boundaries clearly defined.
- Availability of country statistics on soils, climate, land use, socio-economic indicators, etc.
- Soils in project area with SOC<3%.
- Aboveground biomass kept low, at <200 g dry matter m^{-2}.
- Native forests within project boundaries to be protected.
- Prescribed fires not used as a management practice by project
- Low risk of forest fires in project area.
- CH_4 and N_20 emissions in project area must be less than in the baseline.

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Strengths

- Makes full use of CDM EB's Additionality Tool.
- Provides a logical sequence of steps for determination of baseline scenario
- Encourages use of official information, scientific information, IPCC reports and well-documented expert judgment.
- Has provisions for conservativeness in estimation of baseline
- Provides procedure for uncertainty (sensitivity analysis of IRR).
- BL meth. could be easily adapted for purely afforestation projects (i.e., without the livestock component)
- It guides project developers to systematic conservative assumptions (i.e., leads to overestimation of C stock changes in baseline, leakage and project emissions).
- Monitoring largely based on standard forest inventory methods
- Very comprehensive (covers all C pools and relevant sources)
- Most calculations based on simple equations.

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Weaknesses

- Project type to which the meth applies is rather complex, it can be difficult to understand. Some project developers may be reluctant to combine livestock with afforestation.
- The long list of conditions to which the methodology may apply makes it somewhat restrictive. However, there are large areas in South America and elsewhere which comply with conditions.

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Steps for BL Determination

- Definition of project boundaries, eligibility of land
- Stratification of political/administrative divisions, identification of project stratum
- Identification of any national, regional, local policies that may cause land use changes in project area.
- Analysis of potential land use alternatives for the project area (financial, barriers, common practice).
- Determination of the most likely use of the land in the project area, at the time the project starts.
- Characterize C stock changes in the most likely land use scenario.

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Determination of Additionality

- Determine IRR of proposed project activity assuming it is not undertaken as a CDM project.
- Determine a benchmark IRR for the proposed project activity using Capital Asset Pricing Model.
- Compare project with benchmark IRR
- Perform barriers and common practice analyses
- Determine whether the proposed project activity is part of the baseline scenario or not.

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Potential and Barriers

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Potential

- If approved, ARNM0014 (Ibira©) methodology could potentially be used by several project developers in vast regions of South America and elsewhere, which comply with the set of conditions of applicability.
- Both projects for pulpwood and for solid wood products could be implemented.
- In Uruguay, we foresee the possibility of developing a new forest region, with hundreds of thousands of hectares of new forests, based on Ibira© or other A/R CDM methodologies.
- An area of, e.g., 200,000 ha would produce 60-70 Mt CO_2 in CERs over the next 30-40 years.
- These A/R CERs will constitute a differenced product in the market (because of their low cost), which may be attractive to certain countries as part of the Kyoto compliance strategy.
- Japan is the Annex I country with highest allowance for buying A/R CERs.

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Strengths of Uruguay for AR/CDM

- **Abundance of suitable land, low population density (large-scale projects)**
- **High growth rates of trees**
- **CDM Institutional Development**
- **Forestry Sector developed (international companies, industrial investments)**
- **Transparent and Detailed Land Use Information**
- **Land property rights clearly defined**
- **Abscence of major social conflicts**
- **Sustainable forestry model**

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Barriers

- CDM EB has not yet approved a methodology suitable for industrial-scale A-R.
- Large-scale forest plantations may have some opposition from certain ENGOs. Some investors may not want to be exposed to criticism.
- Forest products industry has been pessimistic about the potential contribution of CDM for creating new, sustainable sources of wood/fiber, and have acted very slowly and too cautiously.
- AR-CDM CERs are complex to understand, lack market price signals, and may entail some risks for the buyer, which need to be properly addressed.
- A/R projects are typically longer than other CDM projects, and lack of definitions about post-Kyoto regime may cause uncertainties about the sale/price of CERs, thus impairing their implementation.

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Thank you very much!

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