



El *BioCarbon Fund* del Banco Mundial y el caso del Proyecto Ibirá de Uruguay

**Daniel Martino
Carbosur**

**II Seminario Forestal Bi Regional Latino Americano
“Estrategias para el MDL forestal en América Latina”
Montevideo
28 de octubre de 2004**

Contenido

- **Presentación de Carbosur**
- **El BioCarbon Fund**
- **Potencialidad de América Latina para AR-MDL**
- **Proyecto Ibirá de Uruguay**



CARBOSUR



- **Primera empresa uruguaya especializada en cambio climático (fundada en 2000)**
- **Actividades principales:**
 - **Consultoría a empresas, gobiernos, ONGs, organismos internacionales**
 - **Desarrollo de proyectos MDL y similares**
 - **Implementación de GIS en actividades de uso de la tierra**
- **Alianzas estratégicas:**
 - **Natsource (USA): comercio de certificados de C**
 - **FRI (New Zealand): GIS y bioenergía**
 - **CINCS (USA): red de proyectos de secuestro de carbono y bioenergía en Africa y América Latina**
 - **Pike & Co. (Uruguay): forestación**

Antecedentes (1)

- Consultoría:
 - **UNFCCC Secretariat** (2004): Paquete de entrenamiento para la preparación de inventarios nacionales de GEI, sector Agricultura, en países No-Anexo I
 - **Colorado State University-EPA-USA** (2004-2005): Mejora de inventarios nacionales de GEI, sector Agricultura, en siete países de América Central.
 - **SGS Uruguay** (2004): Cursillo de entrenamiento en forestación en el MDL
 - **Pike & Co.** (2003-2004): Desarrollo de Timber Locator, un SIG del sector forestal de Uruguay
 - **OECD** (2003): Proyecto “Mainstreaming Climate Change in Development Policies”, capítulo sobre Uruguay
 - **INIA, Uruguay** (desde 2004): Desarrollo e implementación de proyectos de investigación relacionados al cambio climático
 - **DINAMA, Uruguay** (2003): National Strategy Study for CDM
 - **Weyerhaeuser, USA** (2002-2003): desarrollo de sumideros de carbono en Uruguay



Antecedentes (2)

- Trabajo en IPCC (D. Martino):
 - Climate Change Fourth Assessment Report, WG III (Mitigation), Chapter 8 (Agriculture) (2004-2006): Coordinating Lead Author
 - 2006 Revised Guidelines for National GHG Inventories (AFOLU), Chapters “Agricultural Soils” and ‘Harvested Wood Products) (2004-2006): Lead Author
 - Good Practice Guidance for LULUCF, Chapter 4.3 (LULUCF Projects) (2002-2003): Lead Author
- Trabajo para la Secretaría de la UNFCCC (D. Martino):
 - Technical Paper on Harvested Wood Products (2003): Invited Expert
 - Review of National GHG Inventories of Canada, Finland, Sweden, The Netherlands, Denmark, USA, France, Portugal, Austria, Poland, Italy (2002-2003): Member of Expert Review Teams





Los fondos del Banco Mundial para Forestación

Insertar aquí la presentación del Banco Mundial

Fortalezas de América Latina para el MDL



CARBOSUR

El BioCarbon Fund del Banco Mundial y el Proyecto Ibire de Uruguay, Octubre 2004

El Mercado del Carbono para la Forestación

- **Estimación del IPCC: potencial de fijación de 100 Pg C (270 Pg CO₂) en 50 años**
- **MDL (Kyoto): hasta 2012 permite un máximo de 150 Mt CO₂ (Japon, EU, Canada)**
- **Anexo I + MDL: 0,1 % del potencial**
- **Sumideros forestales tienen un rol muy importante en la mitigación del cambio climático: opción “barata” mientras se desarrollan tecnologías para sustituir combustibles fósiles.**

Fortalezas de AL para AR-MDL

- **Abundancia de tierras aptas, baja densidad de población (proyectos de buena escala)**
- **Altas tasas de crecimiento de los árboles**
- **Desarrollo institucional del MDL**
- **40% de los certificados comercializados en 2001-2003 provino de AL**
- **Sector forestal desarrollado**
- **Buen nivel de información sobre uso de la tierra**
- **Modelo de manejo forestal sostenible**



Certification

	Asia (excl. Japan)	Africa (SubSaharan)	South America	Uruguay
Plantations (Mha)	111	6.2	10.5	0.75
Plantations (Mha/yr)	5.9	0.00	0.7	0.04
Certification FSC (Mha)	0.2	0.00	2.1	0.15
Certification FSC (%)	0.2	--	20	20



IBIRA

*Livestock Intensification
Combined with Afforestation*



**Project selected for the first round of
The World Bank's BioCarbon Fund**



Project Description

Baseline Scenario



- Extensive livestock farms
 - 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 (figures in parentheses correspond to farms over 2,000 ha)
 - low employment (1 permanent job every 448 ha) (same comment as above)
- Dominant use of land: beef cattle/sheep grazing on low-digestibility 'native' grassland
 - Productivity: 60 kg of meat equivalent per hectare per year.
 - Gross income: US\$ 20-60/ha/yr (large climate-market variability)
 - GHG emissions: 0,9 kg CH₄/kg meat and 0,04 kg N₂O/kg meat, equivalent to 32 kg CO₂/kg meat, or 1.6 t CO₂ eq/ha/yr.
- GHG mitigation option: improvement of quality of animal diet by seeding forage legumes into native sod.
 - well-known technology, only modestly adopted so far due to barriers to investment and high variability of prices and climate (rainfall).

Project Rationale



- Improvement of feed quality causes reduction of CH₄ and N₂O 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)**
- Livestock intensification as a means of reducing GHG emissions is very costly (monitoring costs estimated at US\$ 4-5/t CO₂ eq).
 - Forestry component would “subsidize” production of CERs from livestock, since monitoring costs would be much lower.

Project Description



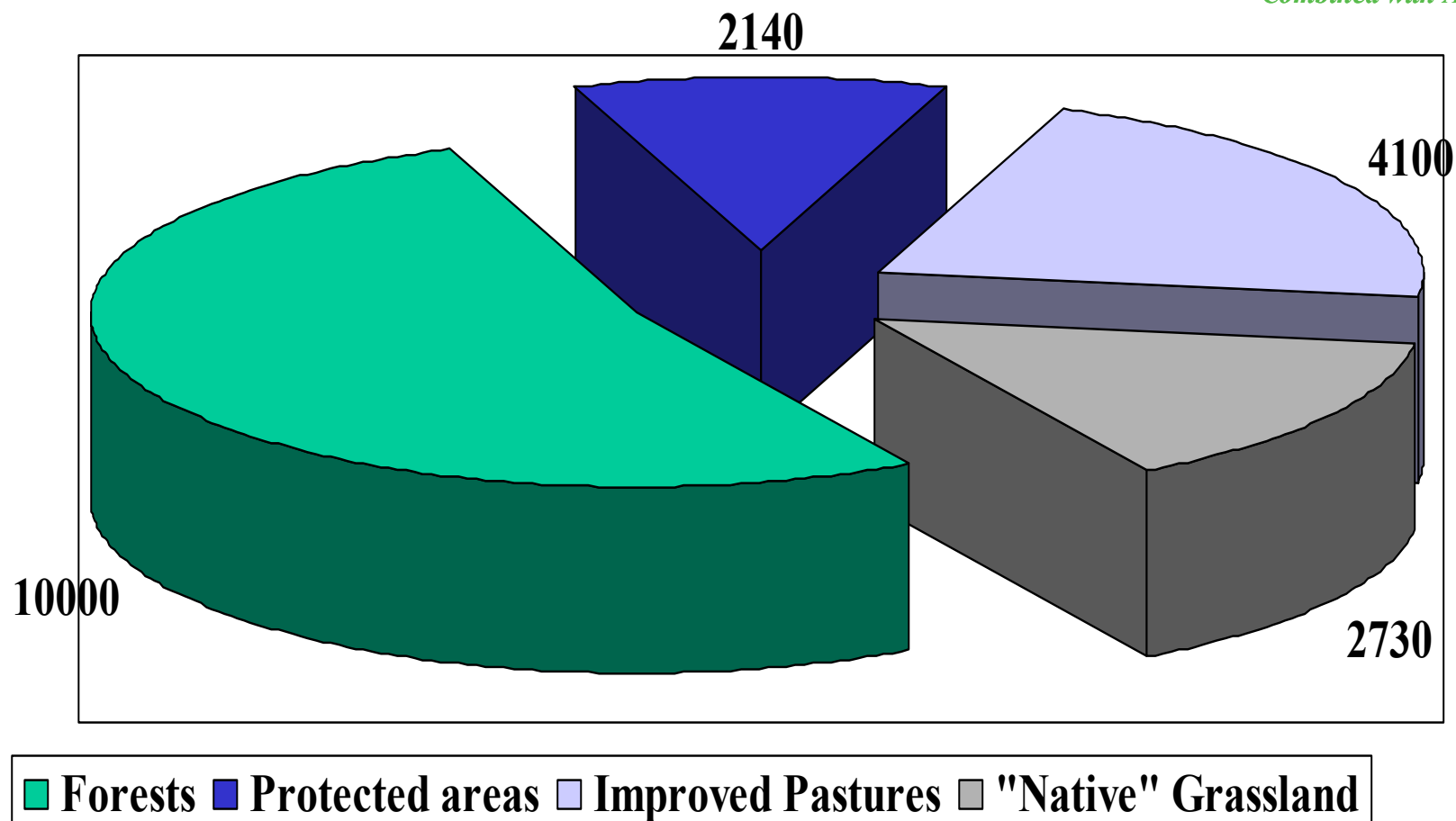
- 19,000 ha of 'Forest Priority' land, currently under extensive livestock production
 - Several farms will be purchased by the project
- Plantation of 10,000 ha of *Eucalyptus sp.*, and protection of native forests and other areas
 - Forest management and tree species still to be decided
- Implementation of compulsory pasture improvement over 5,000 ha, and maintenance of ca. 2,000 ha under extensive grazing.
 - Restriction: to maintain the same level of meat production as in baseline.
- Project duration
 - Livestock component: one crediting period of 10 years
 - Forestry component: one crediting period of 30 years

Land Use under Project



IBIRA

*Livestock Intensification
Combined with Afforestation*



Climate Benefits



- Reduction of CH₄ emissions by cattle
 - 6 kt CO₂ eq/yr
- Reduction of N₂O emissions by cattle
 - 3 kt CO₂ eq/yr (this component may not be used for claiming credits)
- C sequestration in soil by seeding of pastures
 - 14 kt CO₂ eq/yr (this component is not eligible for CDM, and carbon credits from this activity may be purchased by BioCarbon Fund)
- 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 CO₂ eq over project's lifetime**

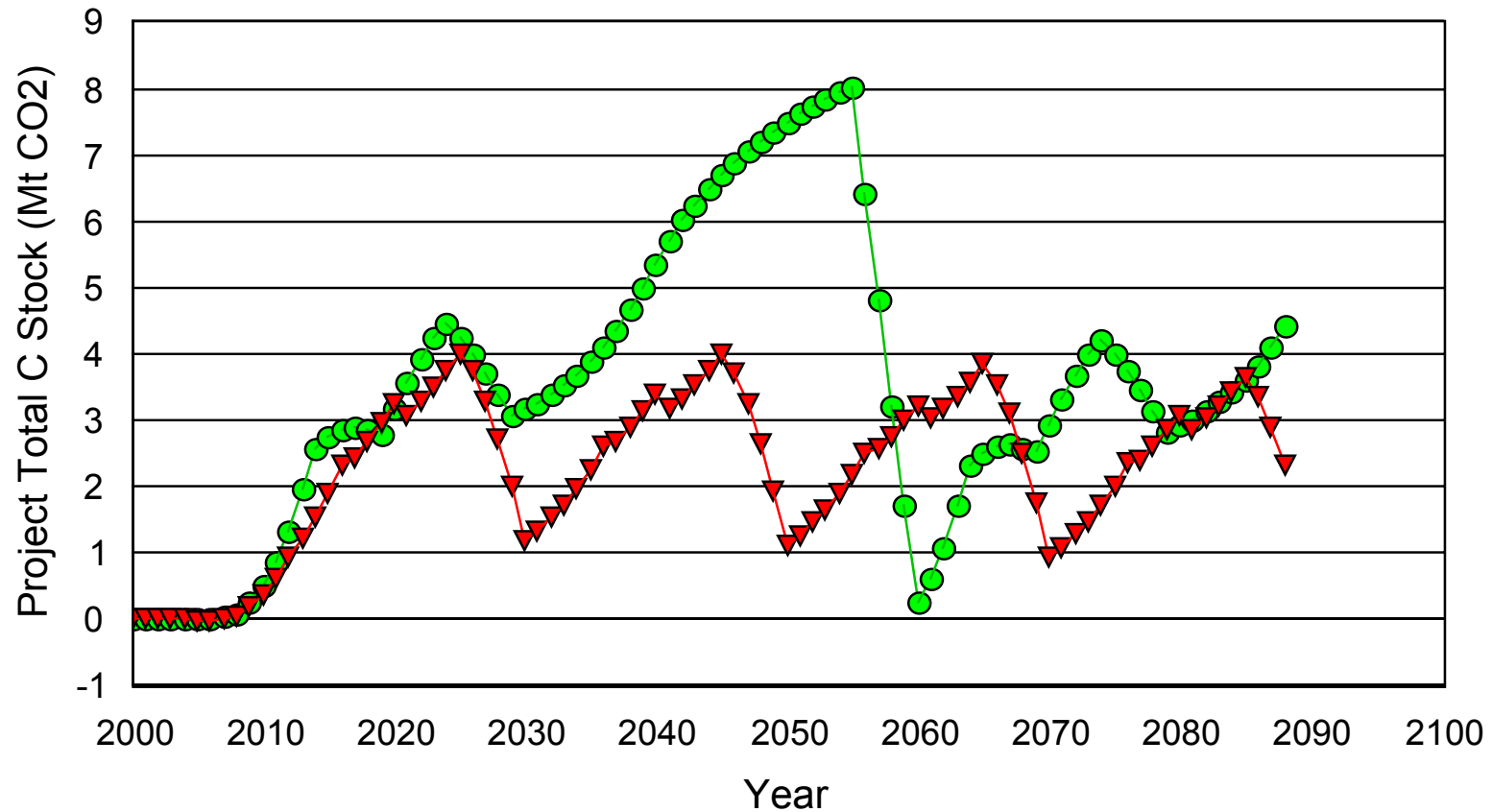


Type of CER

New types of CER (COP-9)

	tCER	ICER
Expiry	End of Commitment Period	End of crediting period
Verification	Every 5 years	Every 5 years (report enforced)
Certified removals	Since start of project	Since last verification
Price discount	Up to 70%	Variable (0-70%)

Project Examples (from Martino and Reali, 2004)



● Tropical (*Tectona grandis*) ▼ Temperate (*Eucalyptus grandis*)

Project Examples (from Martino and Reali, 2004)

Commitment Period	Temperate Forest (Uruguay)		Tropical Forest (Central America)	
	tCER	lCER	tCER	lCER
2005-2012	948	948	1313	1313
2012-2017	2437	1489	2912	1599
2018-2022	3273	836	3933	1021
2023-2027	3740	467	3708	-225
2028-2032	0	0	3387	-321
2033-2037	0	0	4348	960
2038-2042	0	0	6016	1669
2043-2047	0	0	6485	469
Total	10,398	3,740	32,102	6,485



Socio-Economic and Environmental Impacts

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

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
- 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.

Thank you!

Daniel Martino

carbosur@adinet.com.uy

