CLIMATE CHANGE AND MANAGEMENT OF CARBON AND OTHER ECOSYSTEM SERVICES WITHIN A GREEN ECONOMY CONTEXT – STUDY CASE GREEN FARM CO2FREE, ITAQUIRAÍ, MS, BRAZIL

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December/2012
Agenda

• Introduction
  – Green Economy and Ecosystem Services
  – Biodiversity in Brazil
• Project Green Farm CO2FREE
• Harpia Eagle Biodiversity Bank
• Registering and Selling of Credits
  – Environmental Compensation
  – Certification
• Perspectives
• Conclusion
Green Economy

- Green Economy: Incorporating Natural Capital Value to GDP

- Projected to become the largest GDP contributor by 2050 (51% - today 1%)
## Environmental Goods and Services

### Payments for Ecosystem Services

<table>
<thead>
<tr>
<th>Voluntary</th>
<th>Regulatory</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Marketing</td>
<td>• Compliance, Licencing, Compensation, fees, tickets and others</td>
</tr>
<tr>
<td>• Brazilian goals of emissions reduction</td>
<td>• European, Australian, California etc</td>
</tr>
</tbody>
</table>
Brazil

• 1,8 million species
  – 15% of World Total

• 1099 species of Fauna & Flora
  – 395 mammals, birds, reptiles etc
  – 232 Fish
  – 472 Flora
Projeto Green Farm CO2FREE

Bacia do Paraná
Aquífero Guarani

Parana River Biodiversity Corridor Priority Conservation Area (6)
Green FARM CO2FREE Project

• Start – Nelore genetic bank
• 08 (eight) Ecosystem Services (2012)
  – 250 companies candidacy
  – 25 enrolled companies
• 1st Brazilian Biodiversity Bank:
  – Meth Proposal: **(public consultancy until 12/2012)**

Private Project Income from Ecosystem Services is key
<table>
<thead>
<tr>
<th>Stratum</th>
<th>Description</th>
<th>Area (ha)</th>
<th>Factor</th>
<th>Current Stock</th>
<th>Sequestration</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infrastructure</td>
<td>Headquarters, houses, storages, nursery, roads, fences etc</td>
<td>35</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Pastures</td>
<td>man-made pasture land in good conditions</td>
<td>800</td>
<td>2</td>
<td>0</td>
<td>1600</td>
<td>1600</td>
</tr>
<tr>
<td>Reforestation</td>
<td>Eucalyptus spp. plantation with 2 years</td>
<td>15</td>
<td>15</td>
<td>450</td>
<td>225</td>
<td>675</td>
</tr>
<tr>
<td>Natural Forest I</td>
<td>Forest of river influence in relatively good shape</td>
<td>830,92</td>
<td>200 and 5</td>
<td>232857.6</td>
<td>4154.4</td>
<td>236812.2</td>
</tr>
<tr>
<td>Natural Forest II</td>
<td>Stationary semideciduous forest in secondary stage</td>
<td>800,14</td>
<td>180 and 10</td>
<td>144025.2</td>
<td>9001.4</td>
<td>153026.6</td>
</tr>
<tr>
<td>Swamp</td>
<td>Flooded area with isolated trees</td>
<td>2173,50</td>
<td>50 and 1,5</td>
<td>2223</td>
<td>3259.5</td>
<td>5482.5</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>4054,06</td>
<td></td>
<td>379355.8</td>
<td>17240.5</td>
<td>396596.3</td>
</tr>
</tbody>
</table>

**CO2 FREE Project**

**Carbon Estimates for PIN (2012)**

**CARBONO**

- Área Alagada: 2,583,1113 ha
- Floresta Influência Fluvial: 154,5862 ha
- Floresta Estacional terra Alagada: 1,034,0817 ha
- Pastagem: 750,4453 ha
- Reforestamento Eucalyptus spp.: 26,6207 ha
- Sedes, Casas, Barracos, CCASC etc.: 4,4592 ha
- Estradas: 3,6491 ha
- Campo de Pousos: 2,0064 ha
- Lagos: 59,7661 ha
- Canais: 27,9543 ha
- Cana: 11,1322 ha
Biodiversity Bank

- Complementary strategy for CUs and other protected areas
- Balance between business and biology
- Business environmental and habitat must be favorable from the start
- Regional environment allowing conservation scale justifying bank
- Entrepreneurial environment and market conditions allowing developing credit transaction business
Companies are responsible for identification, prevention, mitigation and compensation of business impacts within licensing process. If some damage not previously identified and mitigated is discovered, additional compensation is required as a percentage of investment.

Before

Companies were responsible for paying environmental compensation.

After

Companies may choose to directly execute compensation. Companies can hire 3rd partners (Biodiversity credits). They still can choose to pay environmental compensation.
Governance – Biodiversity Bank

Company / business under licensing

Company

Company

License Office
Federal Chamber for Environmental Compensation

Regulation
Monitoring (MRV)
(Transparency and control)

Bank Manager
(Private, public, PPP etc)

Investments
Maintenance

Fund Manager (specie)
NGO (local, regional, national, international etc)

Conservation Easement

Transaction cost is minimum

$
MRV

- Evaluation criteria: objective and verifiable (quantitative and qualitative)
  - Parameters under observation
  - Observation period
  - Responsible
  - Monitoring reports contents
  - Frequency of monitoring reports
- Based on sound science and practical on the field
- Regulation: legislation
Service Area

- Geographical limits of impacts that can be compensated by credits from biodiversity bank
- Justifiable by species geographical distribution, viable populations, natural safety conditions, plagues and diseases etc
- Large service areas increase business opportunities, but can also generate large offers
Credit Type

Conservation (Habitat)
- Rehabilitation credits
  - Complete
- Preservation credits
  - Pre-existing
- Creation credits

Biodiversity (species)
- Species credits
- Genetic variability credits

<table>
<thead>
<tr>
<th>Classificação</th>
<th>Tipo</th>
<th>Composição</th>
<th>Estrutura</th>
<th>Funcionalidade</th>
<th>Espécie</th>
<th>População</th>
<th>Comunidade</th>
<th>Melhoria</th>
<th>Recuperação</th>
<th>Completa</th>
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</thead>
<tbody>
<tr>
<td>Habitat (Conservação)</td>
<td>Recuperação</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
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<tr>
<td></td>
<td>Preservação</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Criação</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biodiversidade</td>
<td>Espécie</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>Variabilidade Genética</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
Credits – Ammount and Value

- **Habitat:**
  1 hectare = 1 credit

- **Species:**
  1 introduced specie = 1 Credit
  1 reproducing couple if species – 1 credit

- **Programs and credit determination**

- **Regional value at credit table (official)**
Selling Time - Credits

• Ideal is to have a bank managed in perpetuity
• Credits can become available in different project stages, since the previous phase is approved:
  – Approved project;
  – Infrastructure implemented;
  – Monitoring.
  – Population increase etc
• Specific demands of particular species within biodiversity bank:
  – Well stablished, reproducing;
Biodiversity Mitigation Value

Flooded areas biodiversity banks:
- Since the 70’s;
- valued at more than US$ 3 billion/year;
- Public Private Partnership:
  - Government regulates and oversees;
  - Private finance and management

Biodiversity markets within the USA (species and conservation banks):
- 113 banks in 12 states;
- 78 banks for 30 species;
- US$ 12,000 / ha (US$ 3,000/ acre) fox habitat;
- US$ 500,000 / ha (US$ 125,000 / acre) regulatory habitat for species threatened of extinction
- Fly (Delhi-sands):
  - US$ 400-600,000 / ha (US$ 100-150,000/ acre)

KATOOMBA, 2010  USDA, 2005
Plataform

- Regulation
- Meths
- Consultors / Auditors
- GHG inventories
- PIN, projects and credits
- Monitoring
- Certification
- Independent registry
Results

- Over US$ 500,000 on business already performed – Carbon credits

- Infrastructure delivered to beneficiary communities – 125 families already, 300 families with resources secured
- 19 companies participating (2011) and 50 projected for 2012

- Recognized by FAO as model for global mitigation of climate change at agriculture (FAO/MICCA)
Perspectives

The IPBES is the ultimate forum at global level responsible for organizing and supplying information on the theme of biodiversity and ecosystem services to all governments on the planet.

It will provide a mechanism of support for decision-making around the theme and identify tools and methodologies relevant for governments.
Conclusion

Investment Opportunity:
Biodiversity bank can be used to compensate Environmental impacts with more effectiveness for threatened species; lower costs
Opportunity for private sector participation at high impact conservation activities
Opportunity for generating income for public sector (fees, register etc)
Promote economic valuation of biodiversity and of rural properties
Thank you!
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