Carbon Finance – Perspectives for Financial Institutions

Training Session #2

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The Clean Development Mechanism – Reminder of the “Basic Mechanics”

Sellers: Developing (Non-Annex I) Countries

Buyers: Industrialised (Annex I) countries

⇒ Non-Annex I emission reductions “on behalf of” Annex I buyers…
CDM - Institutional Architecture under the Current Regime

Lots of actors, lots of interactions....
The Executive Board (EB)

- Ten members (fixed) and ten alternating all with specialized technical expertise.
- Key responsibilities:
  - Review & approve new methodologies related to baseline and monitoring plans.
  - Accreditation of Designated Operational Entities (DOEs).
  - Develop and maintain a CDM Project Registry.
  - Issue CERs.
  - Establish panels.

⇒ The “regulator” of the CDM.
**Key responsibilities:**

- Prepare Project Design Document (PDD).
- Propose/select baseline methodology and ensure additionality criteria.
- Obtain all permits and approvals from DNA.
- Secure project financing.

⇒ The very core of every CDM project.
Designated Operational Entities (DOE)

• Third party mandated by EB. Project developers choose the DOE they wish.
• Key responsibilities:
  – Validate proposed CDM projects on basis of set criteria.
  – Verify emission reductions in GHG from CDM projects.
  – Medium of communication between EB and project developer.

⇒ The independent validators and verifiers of the CDM.
Designated National Authority (DNA)

- Mostly based in Ministry of Environment, Energy, or other relevant institution.
- Responsibilities include:
  - Issue Letter of Approval to project.
  - Help link domestic project developers and owners to international carbon market.
  - Establish national CDM regulations, strategy, and criteria for sustainability and approval.
  - In some countries, promote CDM projects.

⇒ The country-level focal point for the CDM.
The CDM Project Development Cycle - Comparison w/ conventional project

<table>
<thead>
<tr>
<th>Planning Phase</th>
<th>Construction Phase</th>
<th>Operation Phase</th>
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<tbody>
<tr>
<td>Feasibility studies — project design, technical, financial</td>
<td>Negotiate contracts</td>
<td>Construct infrastructure</td>
</tr>
<tr>
<td>Prepare business plan, identify partners &amp; project vehicle</td>
<td>Apply for permits</td>
<td>Install and test plant &amp; equipment</td>
</tr>
<tr>
<td>Arrange finance</td>
<td></td>
<td>Ongoing operation and maintenance</td>
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<table>
<thead>
<tr>
<th>Conventional Project Cycle</th>
<th>CDM Project Cycle</th>
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<tbody>
<tr>
<td>Host Country Approval</td>
<td>CDM feasibility assessment</td>
</tr>
<tr>
<td>Project validation</td>
<td>CDM project development (PDD)</td>
</tr>
<tr>
<td>Project registration</td>
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<tr>
<td>Sale of Carbon Credits</td>
<td>(PIN)</td>
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High risk capital (equity and/or grants) | High to moderate risk capital (debt and equity) | Revenue

PIN
Carbon Project Finance – Analysis of conventional project

\[
\Rightarrow IRR > \text{Min rate}\? \ NPV > 0? \\
\]

- revenues
- coûts d'exploitation
- capital

\( T_0 \) \( t_1 \) \( t_2 \) \( ... \) \( t \) (années)
Carbon Project Finance – Analysis of CDM project

Do additional layers result in (risk adjusted) improvement of IRR and NPV?
CDM Transaction Cost – Empirical Values

- Feasibility study, Compilation of PIN: $20,000-$60,000
- Finalisation PDD, DNA validation: $5,000-$40,000
- DOE Validation: $15,000-$40,000
- ERPA Negotiation: $10,000-$40,000
- Registration with CDM-EB: $5,000-$30,000
- Monitoring & verification: $3,000-$15,000
- Brokerage fees, participation of host country, etc. not included!

$60,000-$200,000
CDM Revenues – Empirical Values

⇒ HFC, NO2, Methane destruction as “low hanging fruits”.

Source: Ecossecurities (2008)
Carbon Asset as Security - Tool to leverage commercial debt

⇒ ER payments often used to amortize commercial loans.
Challenges for financing a CDM project

• Project size
  – 48% of projects in CDM Pipeline are small-scale
  – Typical financing <$20 million

• Uncertainty post-2012
  – Less than 6 years of reliable CER revenue
  – Every 7 months delay = 10% reduction in reliable revenue

• High risk
  – Country risk, technology risk, CDM-specific risks (etc)

• New market
  – Awareness & methods take time to develop

⇒ The key challenge for almost any CDM project.
Challenges for financing a CDM project

Preferences of financial sector:
- Banks, equity investors, insurers prefer large scale projects to maximise absorption of transaction cost
- Carbon funds focus on compliant CERs
- ECA focus on “export benefits”

Needs of SMEs/project developers:
- Flexible and risk tolerant sources of capital
- Up-front carbon buyers
- Funding for small-scale projects

Large gap b/w supply and demand for funding.
The Carbon Project Financing Challenge - The SME’s Perspective

“Intellectual” Challenge

- Understanding what investors and lenders are looking for in a “bankable” project
- “Thinking like a banker”, investor or buyer of CERs

“Sourcing” Challenge

- Seeking financing from a variety of local and international sources

“Packaging” Challenge

- Finding the right risk/reward balance for every financier

Cost of raising capital 20-30% higher compared to traditional project finance.
The Carbon Project Financing Challenge - The Financier’s Perspective

- **Investment environment concerns**
  - Traditional country risk + additional concerns about institutional/监管 exposure

- **Project viability concerns**
  - Traditional project risk + additional concerns about new technologies, non-traditional feedstock, non-traditional purchasers, new stakeholders

- **Carbon revenue concerns**
  - Enhancement of revenue stream and ROI, but how volatile? How long into the future?

*Traditional Risk/Return Analysis insufficient.*
**Sources and types of finance available**

- **Planning phase**
  - Carbon funds (equity, advance on purchase)
  - Private sector CDM developers (equity, advance on purchase)
  - Project hosts (equity, public sector budgets)
  - Government/donors (grants, technical assistance)

- **Construction phase**
  - Lenders (debt – secured or unsecured)
  - Investors/private sector CDM developers/project hosts (equity)
  - Mezzanine finance providers (hybrid debt/equity)
  - Equipment suppliers (lease or credit)
  - CER buyers (advance on purchase)

⇒ Few of these sources available in Sub-Saharan Africa.
## Typical approaches to financing

<table>
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<tr>
<td><strong>Third party CDM project developer</strong></td>
<td>- Equity/advance on purchase for project development</td>
</tr>
<tr>
<td></td>
<td>- May also be able to provide equity for construction (or arrange other finance)</td>
</tr>
<tr>
<td></td>
<td>- (Advance) purchase of CERs: contract may facilitate other financing</td>
</tr>
<tr>
<td><strong>Project host</strong></td>
<td>- Own equity/public funds for project development</td>
</tr>
<tr>
<td></td>
<td>- Own equity/public funds or secured loan for construction</td>
</tr>
<tr>
<td><strong>Conventional non-recourse project financing</strong></td>
<td>- Not applicable to project development</td>
</tr>
<tr>
<td></td>
<td>- Bank debt + equity (e.g. project host, developer or other investors) for construction</td>
</tr>
<tr>
<td></td>
<td>- Large projects only</td>
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⇒ Reality in Sub-Saharan Africa: No project w/o significant equity contributions from project sponsor.
UNEPA approach to mobilising the finance community

- Project development support provided in close cooperation with leading carbon buyers
- Delegates of local financial institutions present at all capacity building activities
- Sponsoring of deal making opportunities to enhance interaction between investors and developers
- Supporting developers in providing sound financial data and analysis
- 3 major African events addressing the African banking community (May 07 - Anglophone Banker’s workshop; January 08 - Francophone Banker’s workshop); Sept. 08 African Carbon Expo.

⇒ Financial sector engagement key part of CDM capacity building approach.
## Challenges and opportunities for the Carbon Finance in Africa

<table>
<thead>
<tr>
<th>Strengths</th>
<th>Weaknesses</th>
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<tbody>
<tr>
<td>Rich in energy sources</td>
<td>Low average of energy consumption</td>
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<tr>
<td>– the world’s best solar resources</td>
<td>• energy consumption</td>
</tr>
<tr>
<td>– huge wind potential (1.2 TW)</td>
<td>– 1.5 koe / day in Africa (50% biomass)</td>
</tr>
<tr>
<td>– big geothermal energy potential (2.5–6.5 GW)</td>
<td>– 10.6 koe / day in EU-15</td>
</tr>
<tr>
<td>– large hydropower capability (0.1 TW)</td>
<td>• electricity consumption</td>
</tr>
<tr>
<td>– traditional biomass &amp; charcoal</td>
<td>– 515 kWh / year in Africa</td>
</tr>
<tr>
<td>– Africa holds: oil (9.5%), coal (5.6%) and NG (8%) of the world’s proven economic recoverable reserves</td>
<td>– 2,326 kWh / year world average</td>
</tr>
</tbody>
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### Agriculture
- cereals, coffee, fruits, edible oils, livestock, fish

### Minerals
- phosphates, gold, diamonds, copper, uranium, manganese, iron, cobalt, bauxite, zinc

### Unequal energy consumption
- 70% of oil consumed in 4 countries (Egypt, Algeria, Libya, and South Africa)
- 60% of the NG consumed in Algeria, Libya, Egypt, and Nigeria
- 93% of the coal produced on the continent consumed in South Africa
### Challenges and opportunities for the Carbon Finance in Africa

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<tr>
<td><strong>DNAs Status</strong></td>
<td></td>
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<tr>
<td>• 35 African Countries have created their DNAs</td>
<td>• Most of African DNAs are not operational</td>
</tr>
<tr>
<td>• Modalities and procedures are in place</td>
<td>• M&amp;P are not implemented</td>
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<td></td>
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<tr>
<td><strong>CDM Prospects in Africa</strong></td>
<td></td>
</tr>
<tr>
<td>Africa will capture CDM benefits if it takes advantage of opportunities:</td>
<td>Africa will capture CDM benefits if it succeeds in developing capacities</td>
</tr>
<tr>
<td>• Programmatic CDM – to leverage small size projects</td>
<td>• Lack of capacities both institutional &amp; individual</td>
</tr>
<tr>
<td>• Voluntary Carbon Market</td>
<td>• Risky political and economic environment</td>
</tr>
<tr>
<td>• Post Kyoto Regime</td>
<td></td>
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<tr>
<td>• International cooperation</td>
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Why should you love Carbon Credits?

Carbon Credits are...

- Issued by supranational entities or governments
  - Sovereign assets – AAA quality

- Exchange of hard currency
  - Euro, US$, JPY...

- Easily transferable
  - Non-physical asset transferred via International Transaction Log

- Exchangeable on a growing number of marketplaces
  - EU ETS, US CCX, Japan...

- Purchased by creditworthy counterparts
  - Mostly big industrials, multinationals, governments

Safe, sound, sexy...
What’s in it for you?
Opportunities for Financial Institutions

• Opportunity for new services and revenue generation opportunities, spin-off businesses.

• Complement/Strengthening of Bank’s engagement in infrastructure projects.

• Cash flow enhancement: Carbon revenues can lift unattractive projects in viability zone.

• Corporate Social Responsibility: Put your mouth where your mouth is...

⇒ A wealth of new products and opportunities...
What’s in it for you?
Financial Innovation & New Products

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<tr>
<td>Carbon Markets</td>
<td>Structured emission products, carbon funds, emission price indexes, EUA/CER swaps, voluntary credits, avoided deforestation/REDD, synthetic portfolios, carbon securitisation</td>
</tr>
<tr>
<td>Equities</td>
<td>Portfolio screening, SRI funds, Low-carbon technology stocks, index products</td>
</tr>
<tr>
<td>Bonds</td>
<td>Portfolio screening, forestry bonds</td>
</tr>
<tr>
<td>Private Equity / Venture Capital</td>
<td>Carbon venture capital, carbon-driven principal investing</td>
</tr>
<tr>
<td>Real Estate</td>
<td>Energy efficiency/green building real estate investment trusts</td>
</tr>
<tr>
<td>Hedging Instruments</td>
<td>Weather derivative products, catastrophe bonds, insurance products</td>
</tr>
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</table>

Source: Merrill Lynch (2008)

⇒ Participate in creating the next generation of carbon-related products for your clients.
Thank you!
For more info: www.cd4cdm.org