

# World Bank Carbon Finance

Experience, Strategy and  
New Products



**Helmut Schreiber**

The World Bank, Europe and Central Asia Department

**Global Greenhouse Gas Emissions  
Trading Conference**

Prague, April 15, 2004

This presentation has been prepared by the World Bank's Carbon Finance Business Unit

## Climate Change and the World Bank Mission



- What we work for: **poverty alleviation and sustainable development**
- We accept IPCC conclusions that
  - least developed countries stand to lose most
  - the poorest have the least capacity to adapt to climate change, especially in rural areas
- JI and CDM offer an unprecedented opportunity to **increase private and public investment in clean technologies in developing countries**, thus contributing to sustainable development

# World Bank Carbon Finance Products

Total funds under current management: \$400-450 million



**Prototype Carbon Fund. \$180 million. Multi-shareholder**



**Community Development Carbon Fund. \$40 million >\$100 million; Multi-shareholder**



**\$30 million > \$60 million; Multi-shareholder**



**\$125 million > \$180 million: Dutch Government**

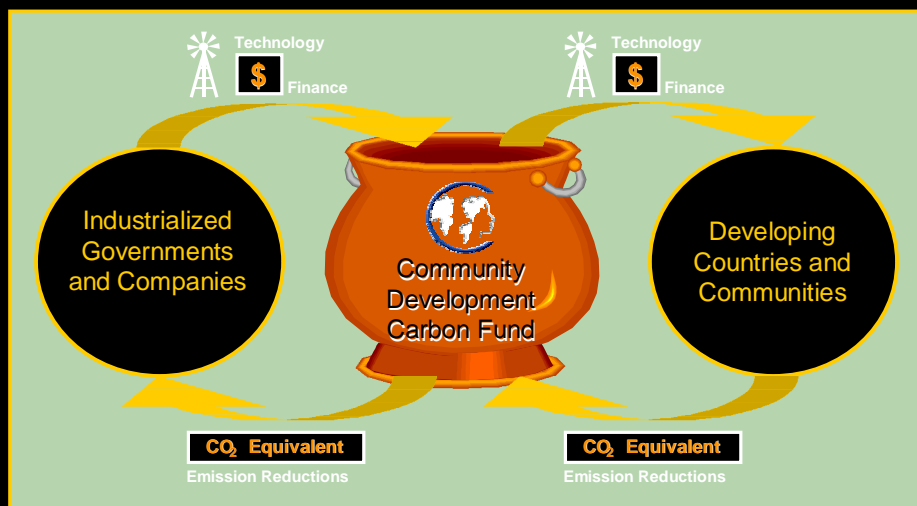


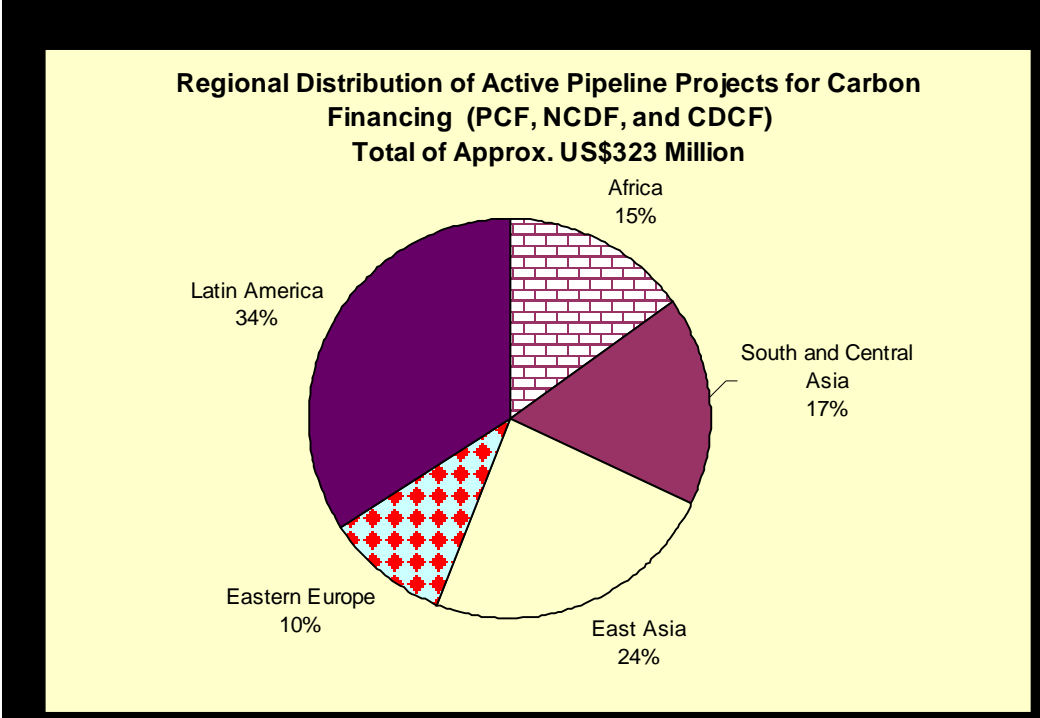
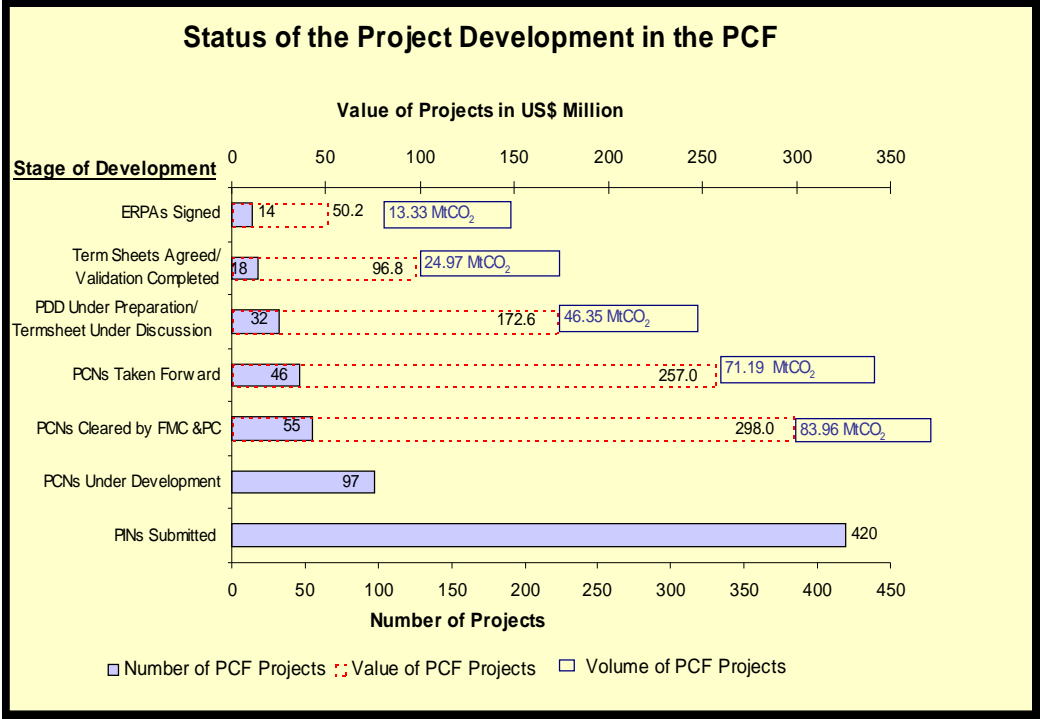
**\$95 million > \$200 million; Italian Multi-shareholder**

Staff Climate  
Protection  
Program

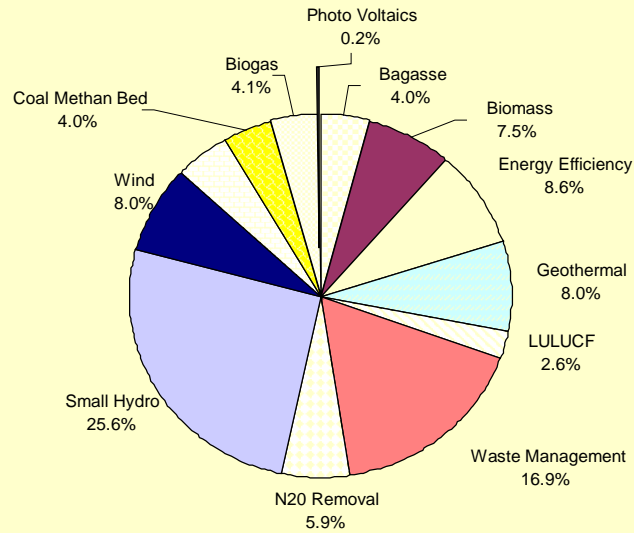
**\$80,000-100,000 per year; voluntary/internal**

## How the Funds Work



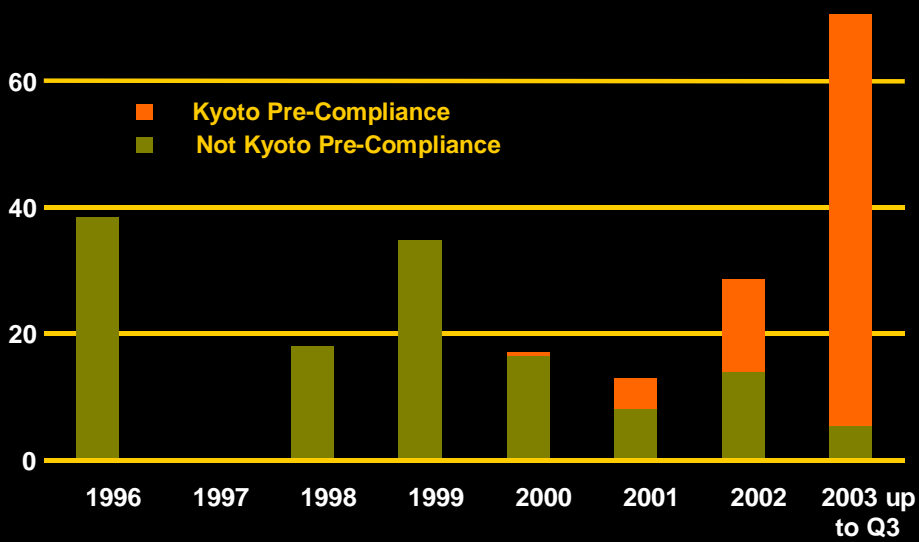


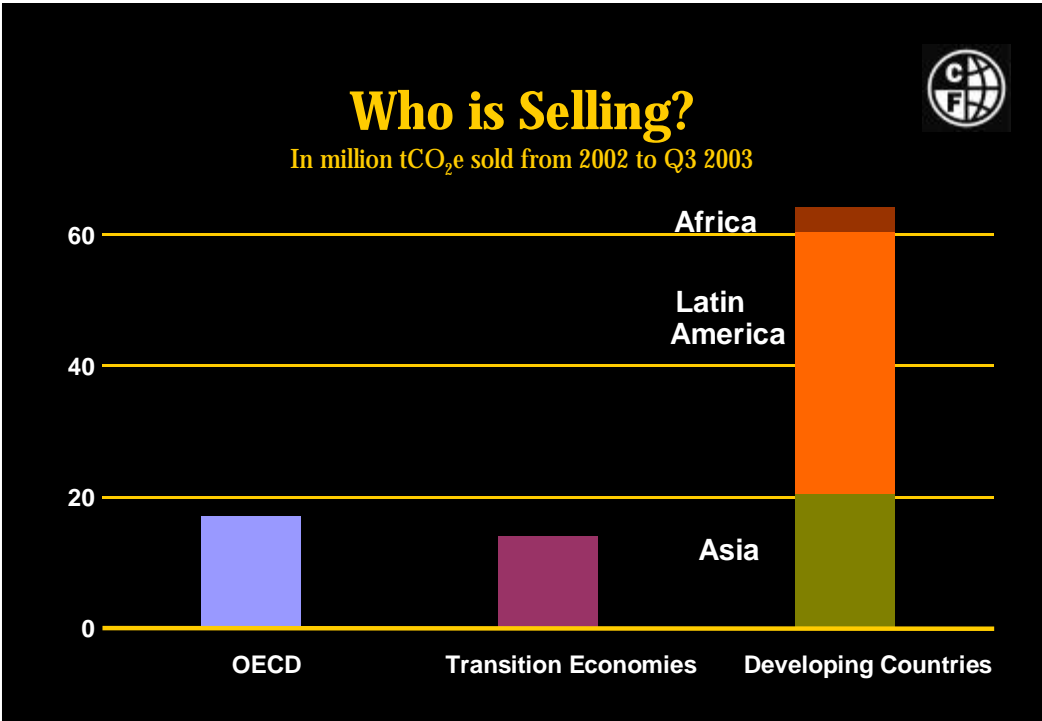
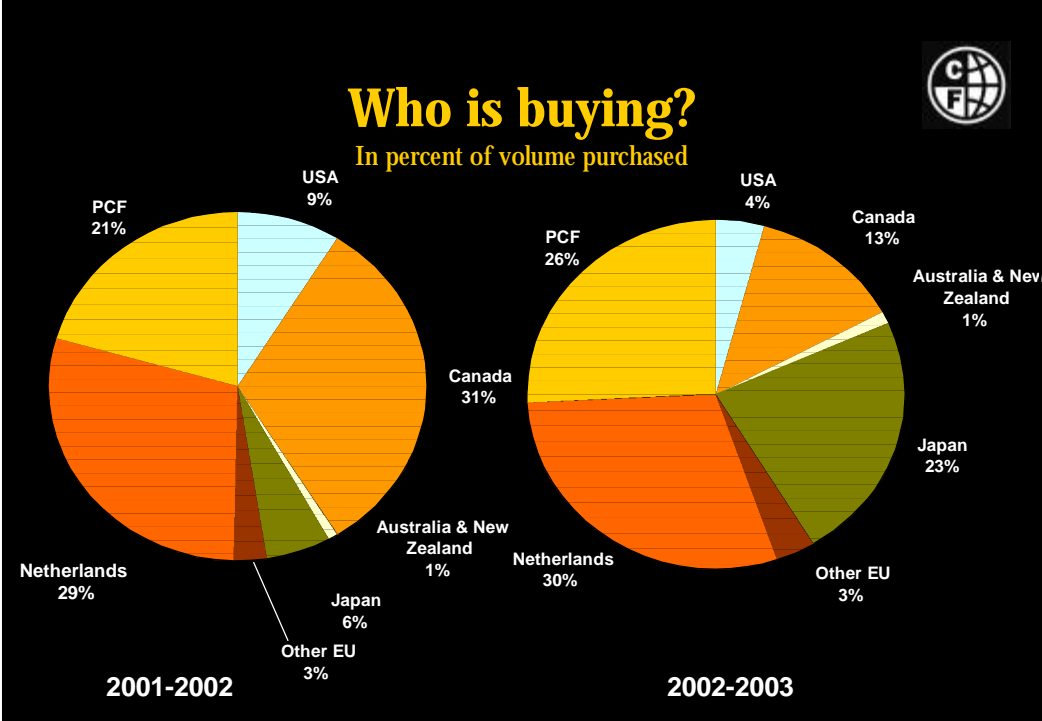
**Technological Distribution of Active Pipeline Projects for Carbon Financing (PCF, NCDF, and CDCF)  
Total of Approx. US\$323 Million**

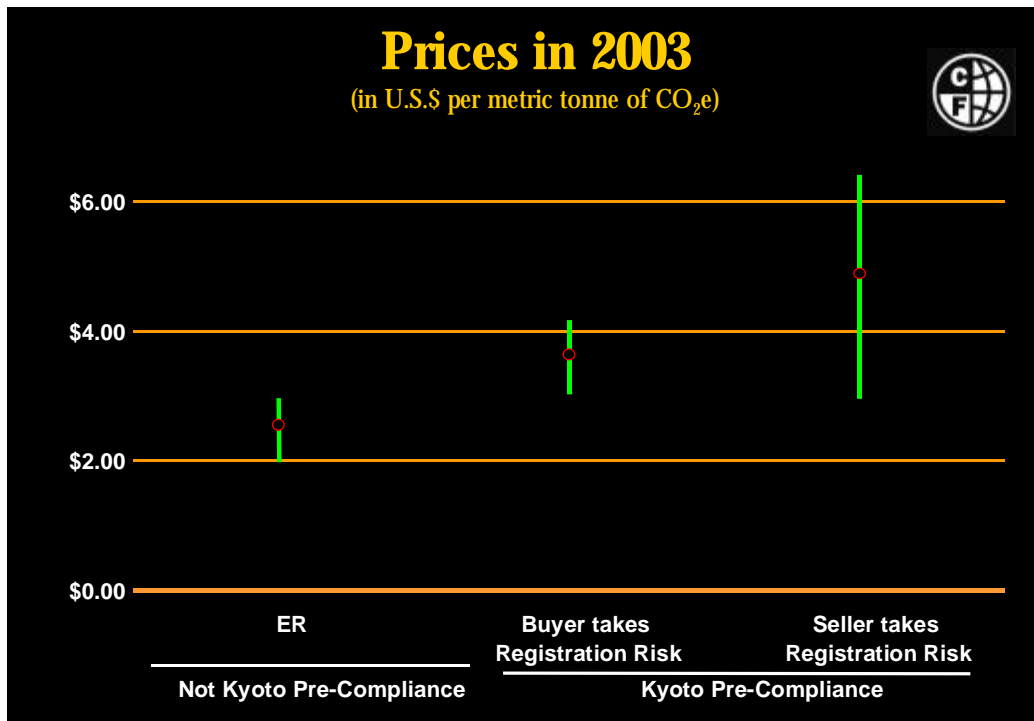


**Main Driver: Compliance**

Volume traded in project-based transactions, million tCO<sub>2</sub>e







- ## What to Expect of the Market in 2004
- **Contracted value is likely to double ( ~ 150 million TCO<sub>2</sub>e)**
  - **EU ETS will**
    - create enormous potential carbon liabilities for European firms
    - drive the carbon market in 2004
  - **Current institutional buyers (like PCF and the Dutch) will lose dominant position**
    - European corporate buyers will finally enter the market
    - Japanese activity in the market will further strengthen
    - Spain and Italy will enter the market
  - **Large sellers (China, India, Brazil, Indonesia and Mexico) will start shaping the market**
  - **Long term viability of the market will be questioned if Russia does make moves to ratify the Kyoto Protocol in 2004**



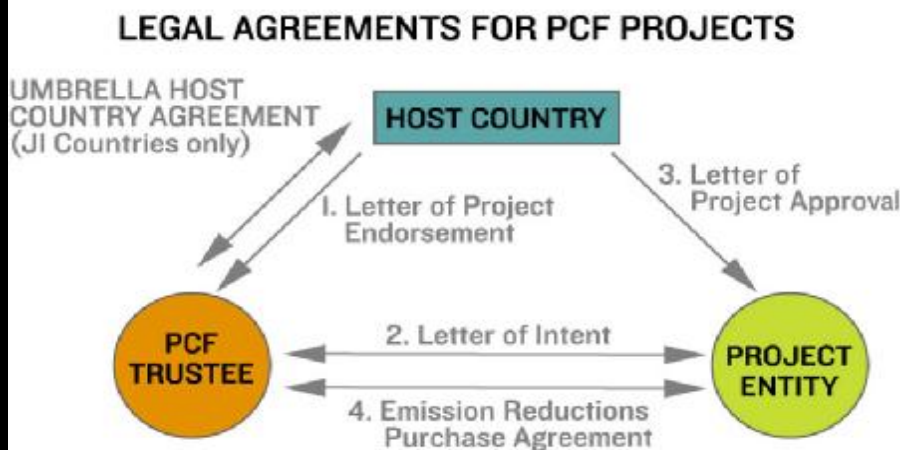
## Key Price Determinants

- Guarantee of delivery of registered ERs
- Creditworthiness of project sponsor
- Viability of underlying project, and liabilities of seller in case it under-performs
- ER vintage: pre or post 2012
- Cost of validation and potential certification
- Host country support
- Additional environment and social benefits

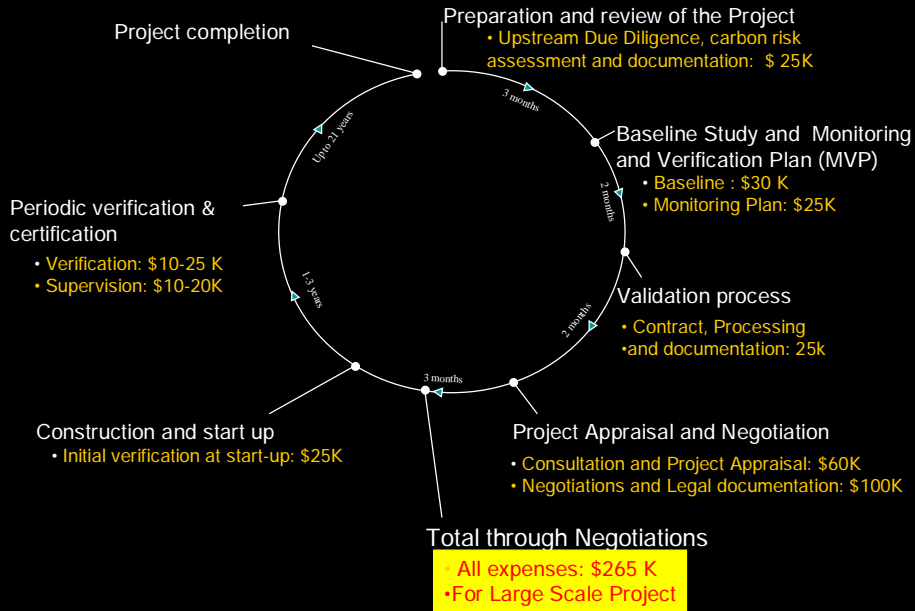


## Legal documentation for projects pioneered by the World Bank

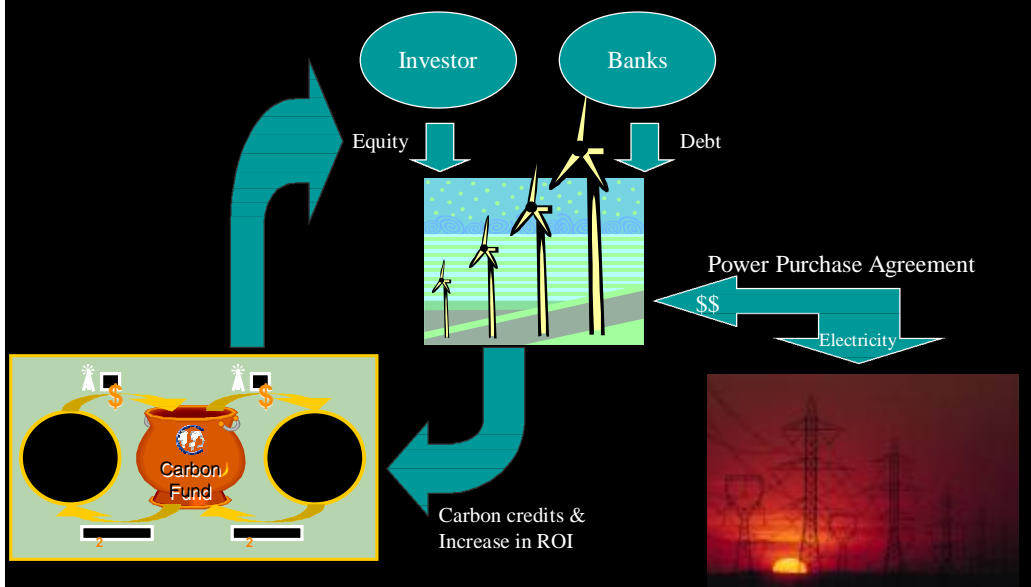
figure 3.1



## Carbon Asset Creation and Maintenance Manufacturing Process and Costs based on Bank experience



## Nature of Carbon Financing Contract





## Impact of Carbon Finance on FIRR (\$3/tCO<sub>2e</sub>)

Technology	DIRR
Hydro	0.8-2.6%
Wind	1.0-1.3%
Bagasse	0.4-3.6%
Energy Eff.-District Heating	~ 2.0%
Gas Flare Reduction	2.0-4.0%
Biomass	2.0%-7.0%
Municipal Solid Waste	5.0%-10.0%



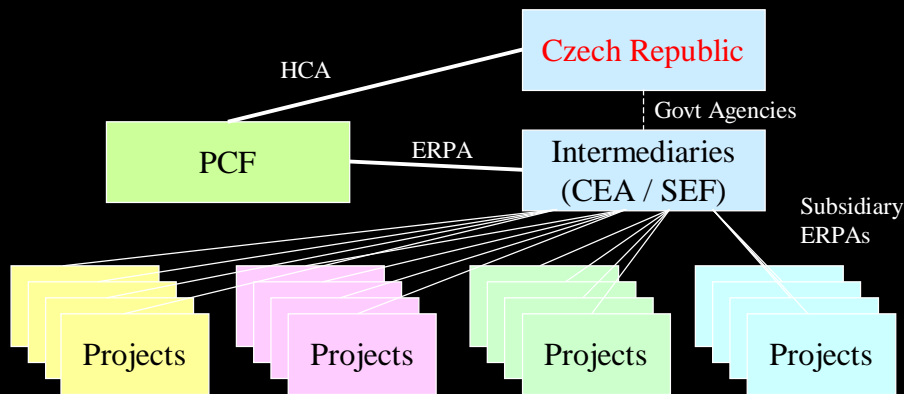
## Impact of Carbon Finance: Quality and Quantity (at \$3/t CO<sub>2e</sub>)

- **Methane-capture projects:** carbon finance can turn marginal projects into bankable ones
- **“Traditional” renewables:** boost return by 0.5-2.6%
  - Makes some marginal deals bankable
  - Increases profitability and reduces investor risk
- **Improves project’s access to capital markets** through:
  - **Secure contracted flow of foreign resources** from reliable counterparty
  - **Improved Quality of cash flows** as well as volume
  - **Payment of CF in hard currency (\$/€/Yen)** to lender mitigates country risk

☉ Sponsor can borrow against contract (like PPA)



## Czech Umbrella Project: An example of intermediary agreement frameworks



## CEA Intermediary Agreement

- PCF buys 500,000 tonnes through 2012 from small scale projects at \$4.00/tonne
- Czech Energy Agency acts as an Intermediary for PCF
  - Identifies and carries out due diligence on sub-projects
  - prepares project baseline studies and monitoring plans using standardized methods prepared by the PCF
    - Standardized methods for District Heating, Energy Efficiency and Grid Connected Renewable Energy have been prepared
  - negotiates “sub-ERPAs” with projects
  - supervises implementation and monitoring
  - Transfers payments for ERs from PCF to project sponsors

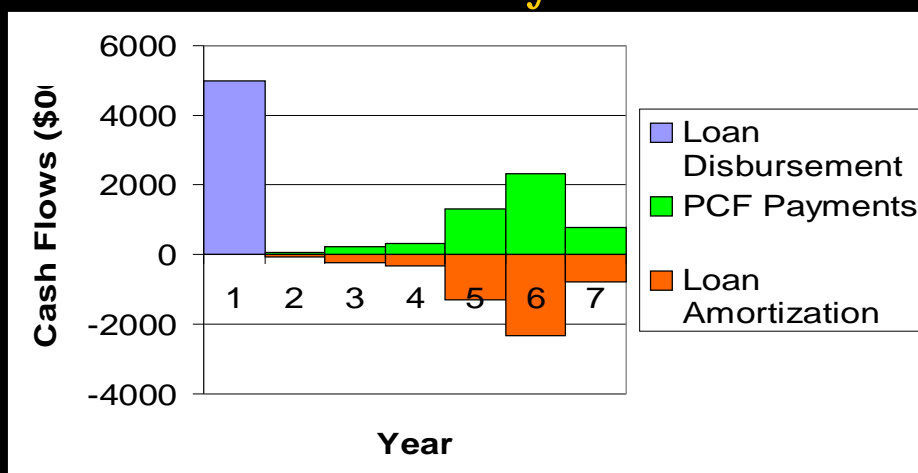
## Projects under CEA Intermediary Agreement



- Approved by CR and validated:
  - Decin District Heat: 250,000 tCO<sub>2</sub> through 2012
  - Rozmital District Heat: 12,000 tCO<sub>2</sub>
- Approved by CR, not validated yet:
  - Benatky Small Hydro: 45,000 tCO<sub>2</sub>
- Under preparation by CEA:
  - Bundle of other small hydros: ca. 160,000 tCO<sub>2</sub> through 2012

21

## Structuring Loan Amortization to Match ER Payments



## **Certifying Sustainable Development Outcomes** **“Deep Green Carbon”**



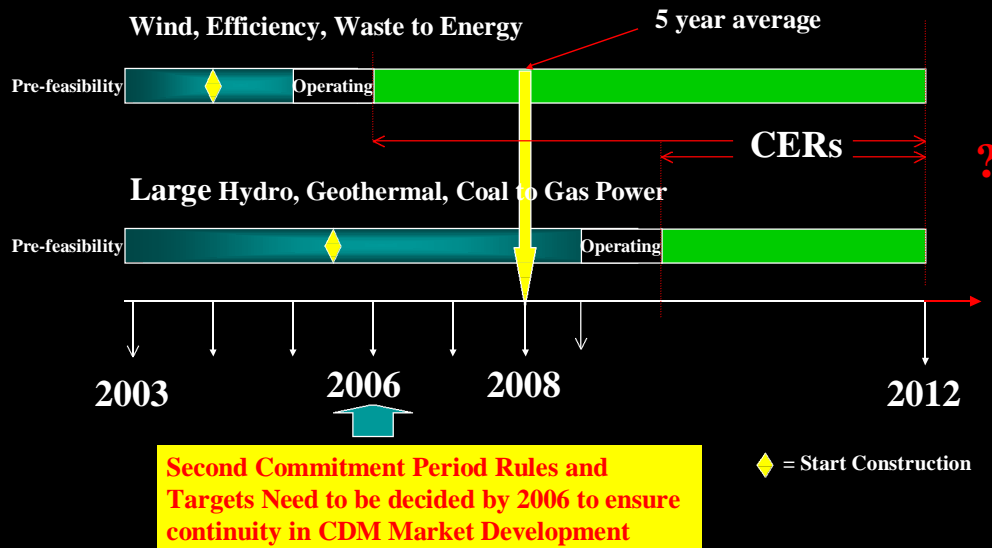
- **Feasible and cost effective to certify local environmental and community development benefits along with carbon**
- **Examples from PCF:**
  - **Colombia Jeparachi Wind Power Plant (19MW) also certifies:**
    - potable water,
    - electricity for schools/clinics and
    - small fishing port for local indigenous peoples;
  - **Plantar Project in Brazil (23,400ha fuelwood plantation) also certifies:**
    - Worker health improvement
    - ABRINQ certification of no child labor or exploitation
    - Biodiversity benefits
    - FSC certification of improved forest management

## **Most Important Findings of Bank Carbon Finance Business to Date**



1. **Regulatory uncertainty remains post-Marrakesh**
2. **CDM/JI Carbon Asset Creation remains complex and difficult with lead times of 3-7 years from project identification through delivery of first ERs.**
3. **These and other factors severely limit direct private investment CDM/JI**
4. **The first commercial carbon purchase transaction is key CDM/JI capacity building – governments and private sector (OECD and Local private sectors)**
5. **Carbon finance and TA for capacity building must go hand in hand to support carbon market development**
6. **small projects, hence smaller countries and poorer communities will lose out**

## Lead Time and Uncertainty Constraints on Project-Based Mechanism (esp. CDM)



## World Bank Carbon Finance Strategy: Carbon Finance Beyond PCF



1. **Expand Carbon Market Development (PCF Expansion, Dutch-VROM, other OECD Governments and industry consortia on demand)**
  - **Provide First-of-a-kind opportunities:** Introduce more countries and companies to carbon market
  - **Benchmark carbon asset creation:** Increase certainty and lower entry barriers for private capital ("crowd-in private sector")
  - **Expand access to CDM/JI assets:** Bank intermediation is critical to expand supply
2. **Integrate and strengthen TA/Capacity Building**
3. **Demonstrate credible forestry/agriculture "sinks" activities: BioCF**
4. **Open Markets for small projects and small countries: CDCF**



## Basic Terms



- **Initial Term**
  - 17/18 years
- **Minimum contributions**
  - \$ 2.5 million
- **Contracted Prices**
  - CDCF: \$4-\$5/tCO<sub>2</sub>e
  - BioCF: \$3-\$4/tCO<sub>2</sub>e
- **Open-ended Structures**
  - Additional tranches possible once 1st tranche is contracted

## Benefits to New Funds Participants



- n **High quality ERs** for compliance and trading
- n **Cheaper:** expertise of established carbon finance team at incremental cost
- n **Risk mitigation** via diversification, hedge future costs
- n **Knowledge** of carbon asset creation, market intelligence: internships, training, advice
- n **Marketing:** Corporate social responsibility
- n **Origination Options:** Bring projects to fund
- n **Parallel Purchase:** Access to additional CO<sub>2</sub>e to grow carbon portfolios at low risk and effort



**World Bank Carbon Finance  
Experience, Strategy and  
New Products**

April 2004

[www.carbonfinance.org](http://www.carbonfinance.org)