



Wastewater Treatment and Climate Change Mitigation Possibilities under Kyoto

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Scope of Today's Discussion

- Overview of the NEFCO Carbon Facilities
- Application of Carbon finance to Biogas Projects
- Wastewater Treatment and Climate Change Mitigation
- Examples of JI Projects in Russia and Bulgaria
- Concluding Comments

NEFCO Carbon Finance Facilities

Baltic Sea Region Testing Ground Facility

- A regionally focused carbon purchase fund, acquiring AAUs & ERUs on behalf of its public/private investors
- Established under auspices of BASREC
 - Own governance structure: TGF Investors Committee
 - Includes Nordic countries, Germany and private companies
- Countries of operation: Russia, Ukraine, Baltic States
- Capitalised at €35 million
- A “reasonable balance” of project size, technologies & host countries

- Focus on energy related climate change projects

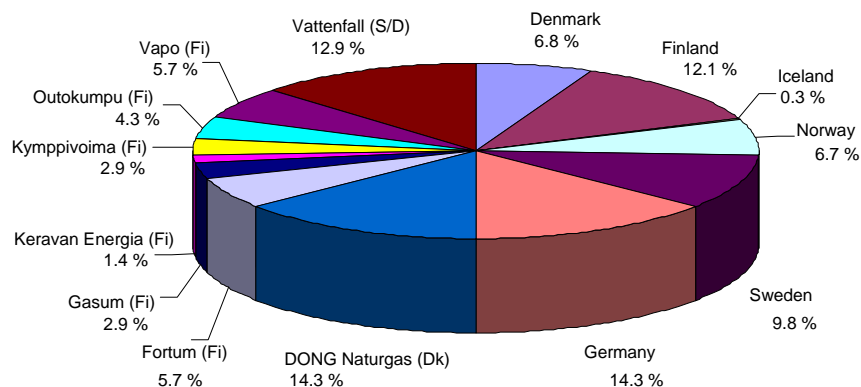
- Emphasis on renewable energy technologies, energy efficiency
- Others include fuel switching, waste (biogas), wastewater treatment

NEFCO Carbon Fund (NeCF)

- A Global fund, based on same Public Private Model as the TGF
- Capitalisation of €37 million
- Current Investors:
 - Danish Energy Agency
 - DONG Energy
 - NEFCO
- Operational focus : Russia, Ukraine, China, SE Asia and elsewhere
- No technology focus, but emphasis on larger investments

TGF Investor Base: a Public Private Partnership

Baltic Sea Region Testing Ground Facility Subscriptions
Total Fund €35 million



- JI and CDM are project based mechanisms of the Kyoto Protocol
- Carbon finance is a forward purchase contract between project developer and a carbon purchaser
- Usually at a fixed price
- Period from project commissioning up to 31st Dec 2012
- Payment schedule may vary according to delivery of ERs ie not guaranteed
- Paid only for ERs delivered to registry; may be some advance payment
- Typically 10-20% of capital invested, but can be between 40 to >100% for biogas projects
- Biogas is one of the renewable energy technologies which is applicable to JI
- The "methane kick" due to global warming potential of 21, has a significant multiplier effect on financing
- Most common types landfill gas utilisation and animal waste management, WWT projects are few
- Relatively few biogas projects in JI pipeline (almost all are landfill gas)
- Much more common in CDM (currently 78 projects)

- In many countries, a primary source of GHGs is methane released from sludge lagoons under the current business as usual scenario
- There are no legal requirements to collect or combust methane from sludge at WWTPs, hence they are directly vented to atmosphere
- Capture and destruction of methane qualifies under the JI and CDM mechanisms
- Examples exist in transitional and developing countries (e.g. India, SE Asia under the CDM mechanism)
- Two approved methodologies exist under CDM:
 - Biogas power from open anaerobic lagoons WWT systems (AM13, ACM14)
 - Methane recovery in WWT systems (AMS III.H)
- A second source of GHG reduction occurs where on-site energy production displaces fossil fuel energy consumption

Examples of Waste Water Treatment Projects in Transitional Economies

Vodokanal Wastewater Projects, St. Petersburg

- Type : Methane reduction from displacement of anaerobic digestion at sludge pits/lagoons to state of art incinerators (SW and northern)
- Financing: Own equity, IFIs (EBRD, EIB and NEFCO), grants (NDEP, TACIS) carbon finance (TGF/EBRD)
- Supplier: SUE Vodokanal of St. Petersburg
- Emission reductions : 467,000 tCO₂e over commitment period (CP) using AM0013
- PDD; determination by TÜV SÜD



Existing Sludge Lagoon for SW WWTP



Sedimentation Tanks at SW WWTP

Methane Capture and Electricity Production Project, Kubratovo, Sofia

- Type : Methane reduction from displacement of anaerobic digestion at sludge pits/lagoons by replacement of digestors and installation of CHP engines
- Financing: Own equity, EBRD, carbon finance (EBRD)
- Supplier: Sofiyska Voda (JV between City and United Utilities/EBRD)
- Emission reductions : 1.2m tCO₂e period 2006 -12
- PDD; determination by TÜV SÜD



Digestors and Pumping Station for raw sewage, Kubratovo, Sofia

(Source : PDD)

Concluding Comments

- Applies only to installations with open anaerobic lagoon systems
- Kyoto can be a significant opportunity for project owners :
 - to add to project cashflow and improve project economics
 - to co-finance with other NEFCO finance products
 - to work with creditworthy international partners and neighbours with a long term interest
- Regulatory uncertainty for JI is reducing at least for Kyoto period
 - International JI framework has been in place but slow under T2
 - Domestic approval procedures now exist in many countries
 - Good local technical capacity for development of JI documentation and auditing exists in many countries
 - Uncertainty on post 2012 regime for JI
 - Uncertainty regarding EU position on acceptability of project credits in EU ETS for period 2013-2020



For further information

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