Session 4 • Kyoto Mechanisms and Capacity Building

Workshop 3 • JI and Green Investment Schemes

Workshop 4 • CDM – Lessons Learned and Future Options

The Austrian JI/CDM Programme

Alexandra Amerstorfer

Kommunalkredit Public Consulting GmbH, Vienna

Under the Kyoto Protocol the European Union has committed itself to reduce its emissions of greenhouse gases by 8% compared to the base year level (1990/95). Under the European "Burden-Sharing"-Agreement, which redistributes the European Kyoto target, Austria has a reduction commitment of –13%. Based on these facts and taking into account emission forecasts Austria will have to reduce its emissions by at least 23 mill. t CO_2e annually during the commitment period.

To fulfil this target Austria uses various domestic measures, which are elaborated and described in the National Climate Strategy. Additionally, Austria decided to use the project-related flexible mechanisms of the Kyoto Protocol, Joint Implementation and Clean Development Mechanism. These instruments allow the purchase of emission reductions from climate-protecting projects in other countries.

The Austrian JI/CDM Programme started at the end of the year 2003. Kommunalkredit Public Consulting (KPC) GmbH was appointed for the Programme Management and acts on behalf of the Austrian Ministry of Environment in this respect. The main aim of the Austrian JI/CDM Programme is to close the gap between the Austrian emission reduction target under the Kyoto Protocol and the national emission reduction potential. At the moment it is expected that this gap will amount to approximately 7 mill. t CO_2e annually during the commitment period, i.e. in total it will amount to approx. 35 mill. t CO_2e.

This aim shall be reached by directly purchasing emission reductions generated by JI/CDM projects and by investing in specific carbon funds and facilities. In this context the budget of the Programme is increasing over the years. This year it amounts to 24 mill. EUR and starting from next year, the year 2006, it will be 36 mill. EUR annually up to the end of the first commitment period in the year 2012. The total budget for the first commitment period is 288 mln EUR.

The legal basis of the Austrian JI/CDM Programme is on the one hand on the international level the Kyoto Protocol and the relevant decisions of the Conferences of the Parties, e.g. the Marrakesh Accords, on the other hand on the national level the Austrian Environmental Support Act and the Directive for the Austrian JI/CDM Programme.

In order to facilitate the handling of JI/CDM projects the Austrian Federal Minister of Environment has also already concluded several so-called Memoranda of Understanding with potential Host Countries. A few more are being prepared at the moment. These Memoranda of Understanding are framework agreements intended

to emphasise the willingness of both countries involved to co-operate in connection with Joint Implementation or Clean Development Mechanism.

The Directive for the Austrian JI/CDM Programme defines particular priority project categories, namely combined heat and power installations, fuel switch measures, renewable energy production plants, energy efficiency projects, landfill gas projects and waste management measures. But other project concepts fulfilling the basic criteria of the Kyoto Protocol and the Austrian JI/CDM Programme are eligible as well.

The Austrian JI/CDM Programme follows the international rules and regulations. In the case of Joint Implementation the general project cycle is as follows:

- The Project Idea Note (PIN) is a brief description of the project and enables a basic assessment of the project concept.
- The Project Design Document (PDD) on the other hand is a very detailed description of the project and constitutes the main step in the development of a JI project. It includes a so-called Baseline Study. The Baseline theoretically describes these emissions or emission reductions that would occur anyway in a "business as usual scenario", i.e. even without the project. It has to be proved that the emission reductions of a JI project are "additional". By comparing these Baseline emissions with the project emissions it is possible to calculate the emission reductions to be generated. Apart from the Baseline Study the PDD also contains a detailed Monitoring Plan to measure the emission reductions generated.
- According to international regulations this Project Design Document has to be validated by an independent Validator. A PDD can only be validated if the Host Country has approved the project by issuing a so-called Letter of Approval.
- On this basis an Emission Reduction Purchase Agreement can be negotiated and concluded.
- After implementation of the project the emission reductions generated have to be regularly monitored and verified by an Independent Entity before they can be transferred from the registry of the Host Country into the registry of the Investor Country.

On this basis the Austrian JI/CDM Programme regularly publishes Calls for both JI and CDM projects for the purpose of buying emission reductions. In this context Expressions of Interest for JI and CDM projects can be submitted continuously and these are also continuously assessed afterwards. At the moment a third Call for both JI and CDM projects is open for Expressions of Interest. It will be closed by the end of January of the year 2006, but it is planned to publish new Calls right afterwards. This approach, i.e. the regular announcement of Calls and the continuous assessment of the Expressions of Interest filed, is a specific characteristic of the Austrian Programme in comparison to other national procurement programmes, which are on the market at the moment. It allows on the one hand for an adjustment to new experiences and developments especially on an international level and on the other hand the continuous submission and evaluation of JI/CDM projects as well as the continuous conclusion of contracts.

The first stage of the Austrian JI/CDM Programme is the Expression of Interest, which can be submitted by any natural or legal person who can plausibly assure that he will be legally entitled to emission reductions generated by a JI or CDM project. The aim of this first stage of the Austrian project cycle is a basic pre-screening of the eligibility of the offerer and the project concerned. For this reason e.g. the financial and economic standing of the offerer is assessed as well as his technical capacity. A Letter of No Objection by the Host Country shall basically evidence the legal entitlement of the offerer to future ERUs. The project itself may not be a nuclear project, it has to comply with the Host Country regulations and it also has to be basically capable of generating emission reductions that can be used to fulfil the Austrian emission reduction target. On the basis of a positive assessment of this Expression of Interest the offerer is invited to elaborate and submit a detailed Proposal.

A very special feature of the Austrian JI/CDM Programme is the fact that it is prepared to financially support the JI-component of the further project development already at this early stage of project development. After a positive assessment of the Expression of Interest the Austrian JI/CDM Programme is prepared to financially support the elaboration of the PDD (incl. the Baseline Study and the Monitoring Plan) and the Validation. In this context the Austrian Programme reimburses 50% of the costs (with a cap of EUR 40,000). Of this amount 70% are paid out immediately, the remaining 30% after conclusion of an ERPA.

A Proposal contains the Project Design Document, a detailed technical description of the project, a comprehensive Business Plan and an indicative offer of emission reductions. This offer of emission reductions includes an offer of a certain quantity of emission reductions and a particular price per emission reduction unit. Afterwards this Proposal is evaluated in detail. This evaluation is particularly intended to increase the transparency of risks associated with the project.

On the basis of a positive evaluation of the Proposal the offerer is invited for individual contract Negotiations, another specific characteristic of the Austrian JI/CDM Programme. During this stage the exact delivery schedule of emission reductions is fixed as well as the distribution of risks. Subsequently, on this basis the price per emission reduction unit can be negotiated and fixed. According to the Directive for the Austrian JI/CDM Programme the purchase of emission reduction units has to take place on the basis of a cost-benefit optimisation and must be based on the international market price for comparable projects. On the whole, the price determined will be based on the market price, but it will also be significantly influenced by the risk distribution negotiated and the additional ecological or socio-economic benefits of the project. In this connection the Austrian Programme also has the possibility to agree on prepayments of up to a maximum of 30% of the contract value.

Based on the results of these Negotiations KPC makes a recommendation to the Commission for the Austrian JI/CDM Programme. Subsequently, the Environmental Minister finally approves the project from the Austrian side. Provided that the Host Country has also approved the project by submitting a Letter of Approval and an Independent Entity has validated it, the ERPA negotiated can be officially signed.

Up to now (October 2005) more than 100 projects were submitted to the Austrian Programme. Negotiations have been finalised or even ERPAs signed with regard to 13 projects. A number of further project offerers have been invited to submit a detailed Proposal or have already done so or are even negotiating ERPAs with the Austrian Programme at the moment.

Expressions of Interest were submitted from all over the world. 2/3 of the projects are CDM projects, 1/3 JI projects. Joint Implementation Host Countries are e.g. Bulgaria, the Czech Republic, Estonia, Hungary, New Zealand, Poland, Slovakia, Romania, Russia and the Ukraine. CDM projects were proposed from countries like Bhutan, Brazil, China, Colombia, Ecuador, India, Israel, Malaysia, Mongolia, Morocco, Paraguay, South Africa, Tanzania or Uganda.

At the beginning JI projects were dominating e.g. due to the traditionally good and close contacts of Austria to the neighbouring Eastern European countries. Another reason were the more difficult and time-consuming approval procedures for CDM projects. Later on the Austrian JI/CDM Programme experienced a phase, during which CDM projects were pushed. Especially also due to the effects of the "Linking Directive" a higher scepticism towards the implementation of JI projects could be seen in some new member countries of the European Union. In these countries it also became more difficult to proof the "Additionality" of projects, especially in connection with the adoption of the "acquis communitaire". But in the last time JI projects, particularly in the context of the ratification of the Kyoto Protocol by Russia and the Ukraine, are catching up again and the Austrian Programme expects this trend to continue.

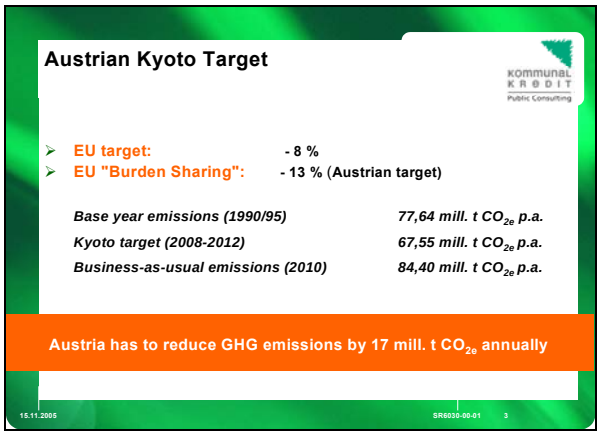
The specific features and advantages of the Austrian JI/CDM Programme can be summarised as follows:

- The Austrian Programme has established a continuous and flexible approval procedure;
- It offers the possibility of prepayments;
- It is also prepared to financially support certain project-related immaterial services like the development of the Baseline Study or the Monitoring Plan, or the Validation;
- Additional ecological or socio-economic benefits of a project are considered in the price negotiations;
- There is no minimum level of emission reductions to be offered; and
- No host countries are excluded.

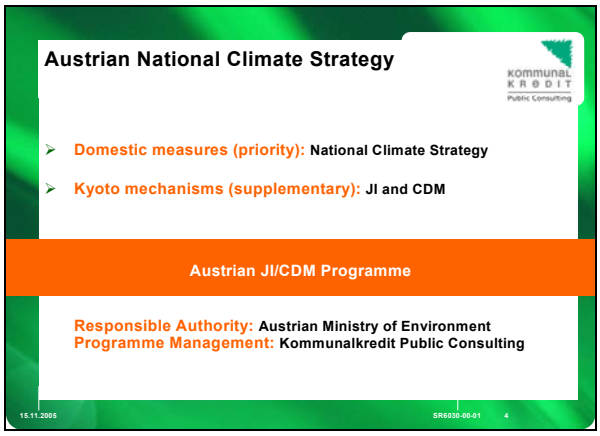
More detailed information on all stages of the Austrian JI/CDM Programme as well as all the necessary documents can be downloaded at the Programme' s web-site (http://www.ji-cdm-austria.at).

Slide 1

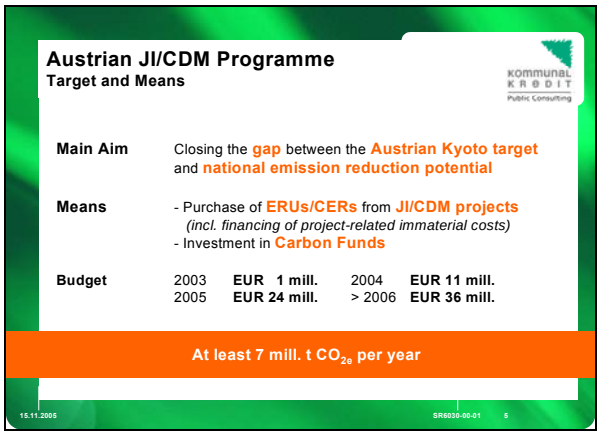
Slide 2



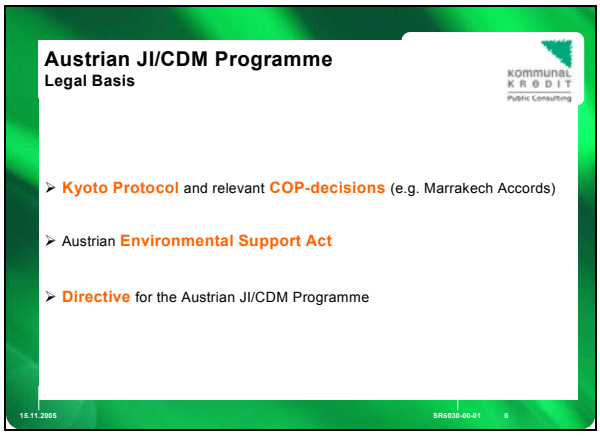
Slide 3



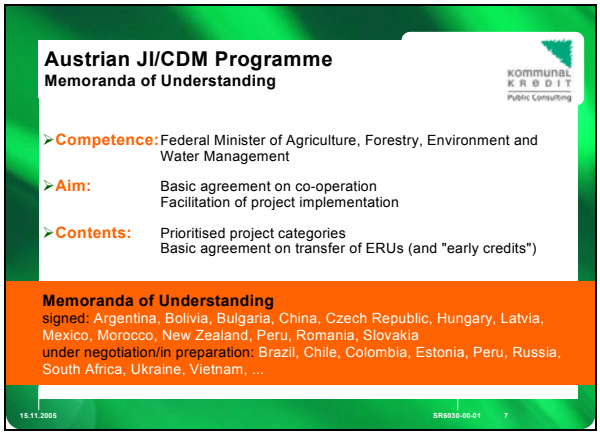
Slide 4



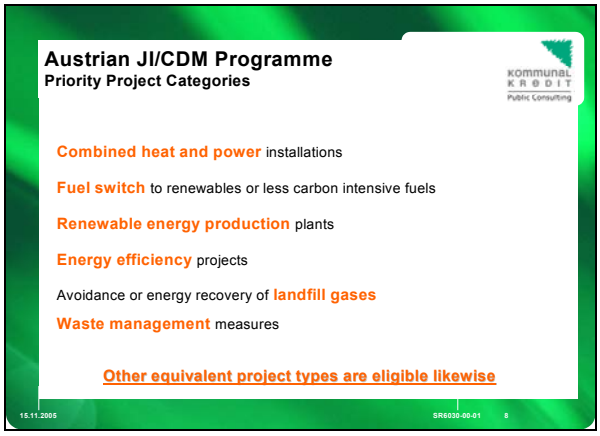
Slide 5



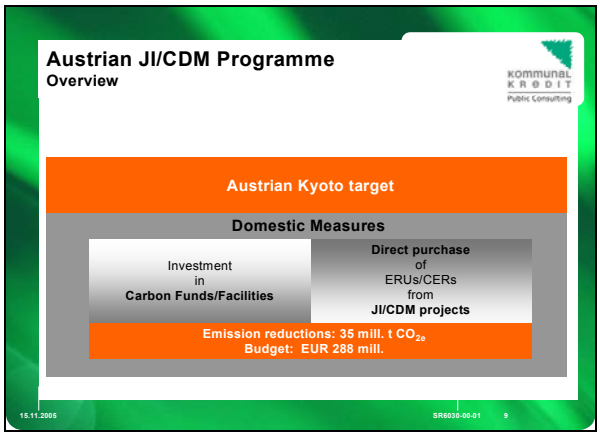
Slide 6



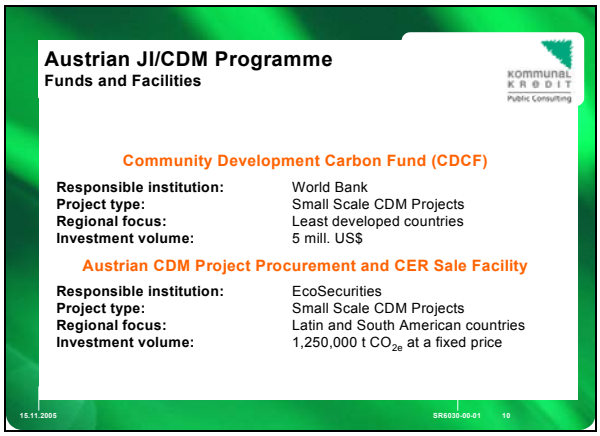
Slide 7



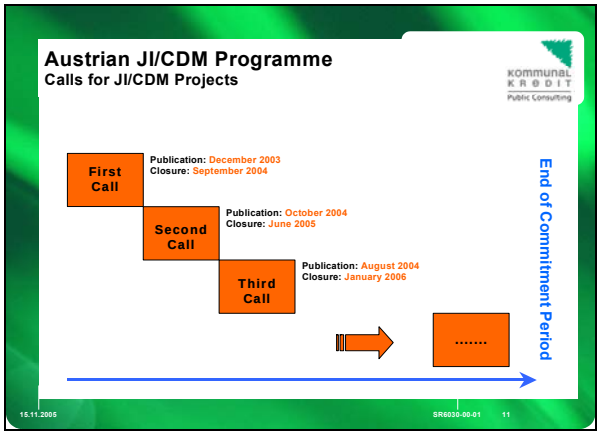
Slide 8



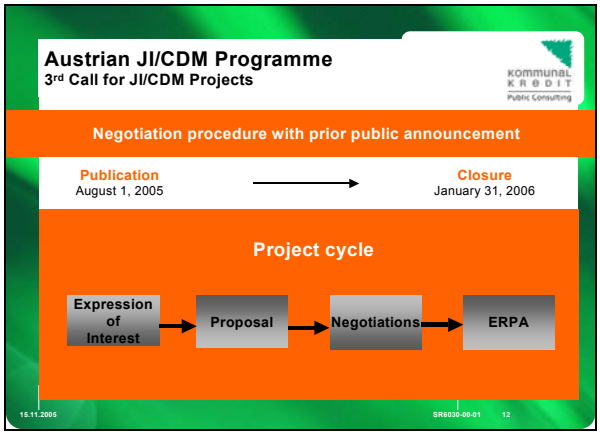
Slide 9



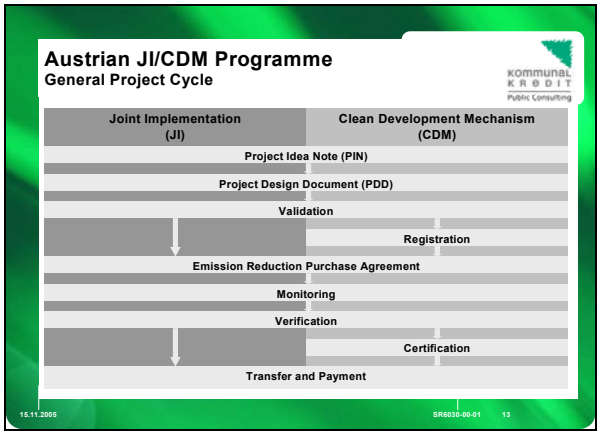
Slide 10



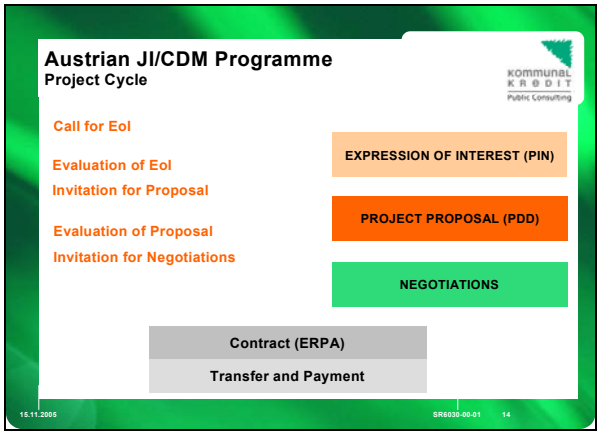
Slide 11



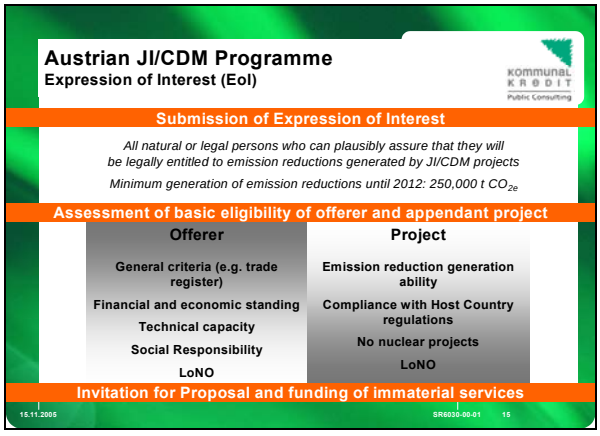
Slide 12



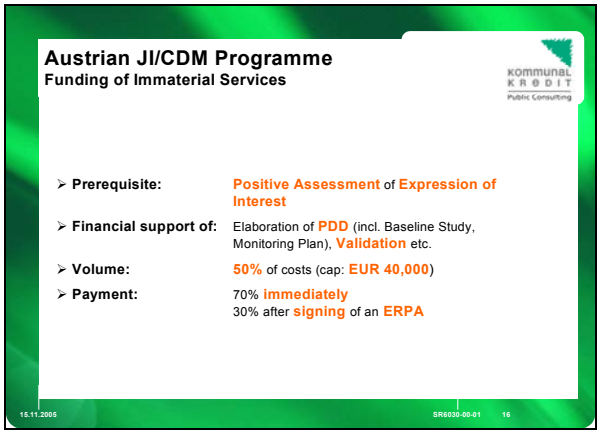
Slide 13



Slide 14



Slide 15



Slide 16

Austrian JI/CDM Programme
Proposal

Submission of Proposal

Project Design Document (PDD)
(incl. Baseline Study, Monitoring Plan and, if necessary, Environmental Impact Assessment)
Detailed **technical description** of the project
Comprehensive **Business Plan**
Indicative offer of **emission reductions**

In-depth project evaluation

- ***Kyoto** criteria* (Baseline Study, Monitoring Plan)
- ***Economic** criteria* (Applicant, project)
- ***Technical** criteria* (Applicant, project)
- ***Ecological** criteria* (construction, operation)
- ***Socio-economic** and **development** criteria*

Invitation for Negotiations

15.11.2005 SR6030-00-01 17

Slide 17

Austrian JI/CDM Programme
Negotiation of Emission Reduction Purchase Agreement

Individual ERPA Negotiations

- **Delivery of emission reductions**
  (amount, emission reductions before 2008, additional emission reductions etc.)
- **Delivery default** (incl. compensations and penalities)
- **Baseline risk**
- **Payment**
- **Price**

15.11.2005 SR6030-00-01 18

Slide 18

Austrian JI/CDM Programme
Negotiation of Emission Reduction Purchase Agreement

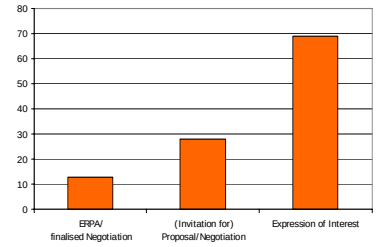
Price	
Basis	International **market price** for comparable projects
Dependence on	**Risk sharing** **Project quality** (additional ecological, socio-economic or development-related benefits)
Payment	Payment **on delivery** **Prepayment** (max. 30% of contract value)

Statement of Programme Management
Approval by Austrian JI/CDM Commission and the Minister of Environment

15.11.2005 SR6030-00-01 19

Slide 19

Experience and Expectations
Status of Project Pipeline



Project pipeline:
110 projects

ERPA/finalised Negotiation:
15 projects

Invitation for Proposal/Proposal/ Negotiation:
28 projects

Expression of Interest:
69 projects

15.11.2005 SR6030-00-01 20

Slide 20

Experience and Expectations
Specific Features of Austrian JI/CDM Programme

- **Flexibility** within the tendering procedure
- **Continuous approval procedure**
- **Additional project benefits** are considered in price negotiation
- Possibility of **prepayment**
- Possibility of **financial support** for PDD development, Baseline Study, Monitoring Plan and Validation
- **No specific country restriction**

15.11.2005 SR6030-00-01 21

Slide 21

Experience and Expectations
Lessons learned

- **Kyoto-mechanism**
  - **Clean Development Mechanism:** dominating
  - **Joint Implementation:** catching up
- **Length of project cycle**
  - Existence of **Baseline/ Monitoring methodologies**
  - **Project status** (e.g. financial closure)
  - **Know-how** of project developer
  - **Host Country:** institutional capacity
    Kyoto experience
    approval procedure
    support of project

15.11.2005 SR6030-00-01 22

Slide 22

Austrian JI/CDM Programme
www.ji-cdm-austria.at/

15.11.2005 SR6030-00-01 23

Slide 23

Thank you!

DI Alexandra Amerstorfer
Phone: ++43/(0)1/31 6 31-240
a.amerstorfer@kommunalkredit.at

Dr. Bjoern Zapfel
Phone: ++43/(0)1/31 6 31-243
b.zapfel@kommunalkredit.at

Slide 24

Lowering Transaction Costs by Project Bundling: Case Study from Bulgaria

Dr. Sven Kolmetz

eta Energieberatung GbR

Summary

By means of a fuel switch from coal, oil or gas to wood an economic and pollution free energy supply from domestic resources can be achieved. Within the scope of a world bank project eta energy consulting together with GFA terra systems accomplished a feasibility study in Bulgaria which showed very promising results. For this study an in-depth analysis several locations in Bulgaria was made. Finally a school building in Teteven and a hospital as well as two school buildings in Ardino have been chosen for a fuel switch pilot project. The financing opportunities by the use of flexible mechanisms of the Kyoto protocol (Joint Implementation) were part of the investigation.

In Bulgaria and other Eastern European countries there is a huge potential for small scale JI-projects aiming at the replacement of old, inefficient oil boilers by locally produced modern biomass boiler. Thinning wood and waste wood can replace oil and coal. The average boiler size is 300 kW. If necessary, two or more boiler modules will be used. The old boilers provide the back-up system.

The emission reduction is estimated to about 300 t CO_2 per year on average. However, the high transaction costs are definitely a problem in small scale JI-projects. Therefore, we bundle several projects into one, called umbrella project. The pilot project sites constitute the core of the umbrella project. Further sites will be found when the funding is clear. Discussions with investors are currently taking place.

Advantages

By the substitution of fossil fuels, which mainly have to be imported, the presented fuel switch project creates the basis for an expanded and efficient use of biomass. Furthermore, it demonstrates how heat can be produced by modern technology by using regional available resources.

By the substitution of fossil fuels (i) greenhouse gas emissions can be reduced and pollution caused by the disposal of waste biomass can be avoided; (ii) the efficiency of heating systems increases; (iii) the ashes can be used as natural, high-quality fertilizer; (iv) new sources of income for the rural population can be developed, and (v) the regional working situation improves and value added increases. This economically interesting project combines three different aspects.

1. Intensification of forest activity for sustainable energy supply
2. Economic generation of energy
3. CO_2-savings and sale of free CO_2-emission certificates

The payback time of a fuel switch project is normally 3 to 4 years, if the boiler design matches the heat demand. That means it is half the time usually expected in Western Europe.

An important prerequisite for an economic operation is a cheap robust technology which is easy to handle. Manpower is much cheaper in Bulgaria and Eastern Europe so there is no need for highly automated boiler and chipping systems. Provision of biomass is labor intensive. This is the reason why added value can be increased in the region and only smaller investments are necessary. Furthermore, it is recommended to use technology, which is produced locally in a joint venture with Western European know-how, to guarantee transfer of knowledge and technical skills.

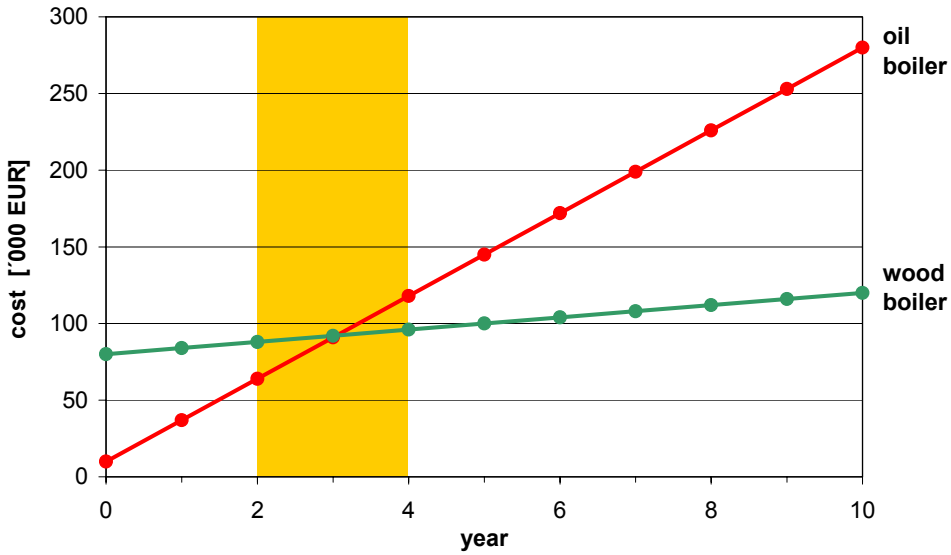
Large-scale as well as small-scale projects can be economically advantageous. Of course the absolute financial input and success for small-scale projects is significantly lower. Due to this fact a lot of small-scale projects have to be realized at the same time. A further advantage is that the financial risks will be smaller.

Especially communal buildings such as hospitals, schools, sports halls, administration offices etc. are suitable for small-scale projects. In this kind of buildings the heating systems are often more than 30 years old. The financial resources for refurbishment are rare. Consequently there is a huge demand for new boilers!

The operational costs have been increasing during the last years caused by the increasing world oil prizes and there is no end in sight – at least for the near future. This is why a fuel switch securing stable and reliable prizes is more than welcome.

A wood fired boiler is more expensive than an oil or gas fired one but the operational costs are much lower. After a few years the pay back is achieved (in the following example between 3 and four years) The interest calculation of the investment can achieve more than 15%.

Fig. 1: Investment and operational costs – comparison between wood and oil boiler



CO_2-Savings and CO_2-Emission certificates

A fuel-switch-project in Eastern Europe can achieve additional benefits by the transfer of CO_2-emission certificates to Germany or Austria.

Since 01.01.2005 an European emission trading system exists with a free allocation of emission certificates (EUA – European allowances). In Germany about 1.850 companies and in Austria about 205 companies are concerned. Because of caps implemented for the emissions these companies have to save energy or buy emission certificates. The prize for the emission of one ton of CO_2 has increased from the beginning of the trade from 7 €/t to actually 22 €/t (September 2005).

In the meantime the legal preconditions for the transferability of the emission certificates generated by the flexible Kyoto mechanism Joint Implementation (JI) or Clean Development Mechanism (CDM) have been established. In addition states can fulfill their Kyoto obligations by purchasing of external emission certificates. This is the foundation of green investment funds (GIF) which allow the greening of “hot air”. Bulgaria for example has about 40,000 t excess certificates because of the decline of the Bulgarian economy after the end of the cold war. It has been agreed that the Western European countries will not buy this “hot air” with-out any real emission reduction. By selling the certificates and depositing this money in a national GIF, Bulgaria gets the chance to modernize its energy infrastructure to decrease its emissions and to make itself more independent from energy imports.

There are already memoranda of understanding (MoU) between the host country Bulgaria and investor countries such as Austria. The German MoU is just being written.

Because Bulgaria will be admitted to the EU by 2008 at the latest, the project developer has to make sure that there are no double counting of EU emission trading projects and JI projects. This can be ensured by the bundling of a lot of small-scale-projects to one umbrella-project. Above all the transaction costs can be reduced significantly. Transaction costs appear because the expected emission reductions have to be documented compared to a baseline and must be validated and verified by an accredited expert.

Lowering Transaction Costs by Project Bundling

- Case Study from Bulgaria -

Dr.-Ing. Sven Kolmetz
eta energy-consulting
Pfaffenhofen – Germany
Tel: +49 (8441) 49 46 0

Slide 1

information on eta energy-consulting

- we are located in Germany as well as in Austria
- our team consists of engineers who are experts in different fields of energy technology
- we are offering advice in all fields of biomass utilisation

Slide 2

Fuel Switch Pilot Project Bulgaria

The Project Partners

Contracting Authority: Worldbank

Project Partner: eta Energieberatung

GFA Terra Systems

Slide 3

Example for an umbrella project

Fuel switch in Bulgaria

Starting point: feasibility-study on behalf of the world bank about utilisation of biomass in Bulgaria

results:
- huge potential for small scale JI-projects
- exchange of old, inefficient oil boiler by locally produced, modern biomass boiler (Joint Venture)
- thinning wood and waste wood replaces oil and coal
- boiler size: ~ 600 kW on average (2 boilers)
- additional benefits: jobs, healthier forests
- emission reduction ~ 300 t CO_2 per year on average

problems: high transaction costs, financing of the measures

solution: umbrella-projects, fast track-procedure if possible

Slide 4

fuel-switch-project Bulgaria

on behalf of the World Bank

Slide 5

hospital Ardino

initial situation / old steam-boilers

Slide 6

energy efficiency measures

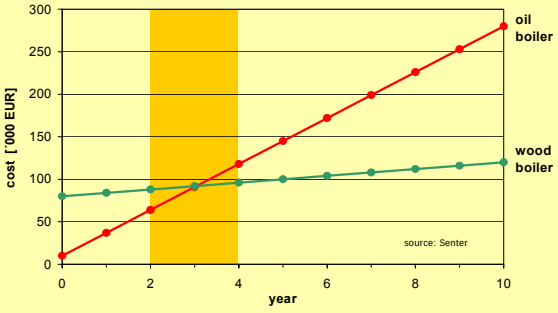
specific catalogue of measures

energy efficiency measures sorted by: priority / cost-benefit-ratio	payback period: at once	< 5 years	5 -10 years	> 10 years
1 free convection at the radiator				
2 reduced time for hot water supply				
3 reduced time for heating				
4 reduced volume flow by change down pump				
5 fixing the windows to reduce air change				
6 automatic control for optimised parameters				
7 retrofitting of thermostatic valves				
8 replacement of boilers to modern boilers				
9 insolation of flat roof				
10 insolation of saddle roofs				
11 insolation of baseplates				
13 replacement of windows by insulating glass				
12 insolation of facades / walls				

Slide 7

comparison of wood and oil boilers

cumulative costs



Slide 8

hospital Gotse Delchev
initial situation / old boilers

Source: Kara

Slide 9

hospital Gotse Delchev
initial situation / new boiler-house

Source: Kara

Slide 10

hospital Gotse Delchev
construction of a new boiler

Source: Kara

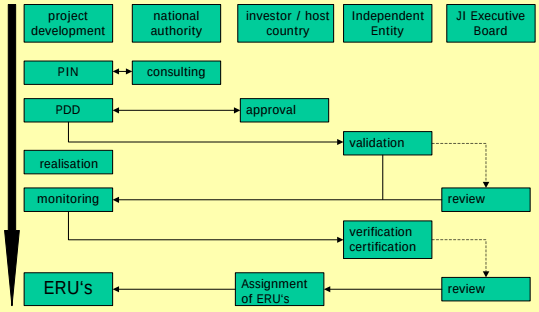
Slide 11

hospital Gotse Delchev
initial operation

Source: Kara

Slide 12

JI-projects
project cycle



Slide 13

Content of the PDD

Baseline Study including

- project description
- social and environmental assessment
- GHG sources, project boundaries and leakages
- scenarios → identification of the most likely baseline scenario
- risk analysis

Monitoring Plan

Slide 14

Transaction Costs
(umbrella project)

Baseline Study	75,000 €
Validation	25,000 €
1st verification	25,000 €
2nd to 4th verification	50,000 €
Total	175,000 €

Transactions costs single project: 30,000 € (estimated)

Total project investment: 100,000 € per project

Benefits out of Certificates: 7,500 € per project (5 €/t CO_2) (1st period 2008 – 2012)

It is necessary to bundle at least 24 projects (= 2,4 Mio. € investment) in one umbrella project in order to cover the expenses!!!

Slide 15

Minimizing transaction costs and risks

1. Bundling of as many single projects as possible with the same methodology. In our case we are thinking of 200 project sites
2. Financing of the umbrella project by a Bulgarian Green Investment Fund (GIF)

Baseline emissions of Bulgaria: 131 – 144 Mt CO_2
(depending on the inventory) refering to 1988

Remaining AAU, when KP obligations are met (8%): 120 Mt CO_2

Necessary AAU, concerning economic growth til 2012: 80 Mt CO_2

That means: "Hot Air"-AAU, which can be sold: 40 Mt CO_2

This "hot air" can be greened by selling it and feeding a GIF. This fund gives administrational and financial support for the projects, helps with capacity building and lowers the barriers for potential private investors.

Slide 16

Where are we now?

A feasibility study including baseline and monitoring plan has been finished as well as an economic and environmental assessment

Three sites were located, the pilot projects have been started

In the moment the MoU between Germany and Bulgaria is expected to be fixed, contacts with investors took place

We are confident that this umbrella project can start in near future and that we can copy the idea to other Eastern European countries sucessfully

Slide 17

Summary
advantages for the municipalities

- no additional costs for a new, efficient heating system
- new jobs in the forestry and boiler construction
- local (and global) emission reduction
- stability of energy prices and independence from imports
- thinning of the local forests (less forest fire risks)
- Joint venture / transfer of know-how

Slide 18

Summary
master conditions for economic projects

- prices for conventional fuels are increasing
- fuel prices for biogenic fuels are constant or decreasing
- selection of mature technology available on local markets
- CO_2 obligations of emission reductions force to act
- additional earnings by Emission Trading with CO_2
- regional added value and environmental protection
- **fuel switch projects can be established in most Eastern European countries (good transferability)**

Slide 19

thank you for your attention
please visit us ...




we'd like to welcome you on our homepage

www.energy-consulting.net

Slide 20

Small-Scale Project Bundling for Joint Implementation: A Biomass Energy Portfolio for The Czech Republic

Michaela Remrova

BTG Central Europe s.r.o. , Prague

John Vos

BTG biomass technology group B.V., Enschede

In the Czech Republic there is significant potential for fuel switch in the district heating sector. Investment subsidies are available from the state but financing municipal fuel switch projects remains problematic. In this project BTG secured additional funding for 14 bio-energy projects by bundling them into a Joint Implementation (JI) portfolio. The portfolio's projects concern the replacement, renewal, extension or new construction of municipal or industrial heating systems, where biomass (wood and straw) boilers replace coal or gas-fuelled boilers. The fuel switch generates greenhouse gas emission reductions, which are being sold to the Dutch Government. The thermal capacity of individual installations ranges from 0.6 MWth to 9 MWth. Their combined total thermal capacity is 65 MWth. The total emission reduction reaches 562,000 t CO_2e over the 2008-2012 Kyoto period. The portfolio concept creates flexibility, allows for gradual implementation, keeps unit transaction costs low and offers large replication potential.

1 Energy in the Czech Republic

The Czech Republic is situated in the geographical centre of Europe and has an area of 79,000 km2 and a population of 10.3 million inhabitants. The total agriculture area is 4.3 million hectares and the total area of forest is 2.6 million hectares.

The country relies for a large part (48%) on local coal and lignite for its energy production. Oil and gas are imported whereas coal and electricity are exported. The share of fossil fuels in total primary energy consumption is high - about 90%. The main energy sources used are fossil fuels (coal/lignite and natural gas).

With an excess capacity of almost 50%, the Czech Republic is the second largest exporter of electricity in Europe. Although in the 1990s 2000 MW of lignite fired plants were decommissioned these still form the basis of domestic electricity production. There are also 2 nuclear power plants in operation [1]

[1] ENVIROS/IREAS, Country Profile Czech Republic. Review of Status of Emissions Trading Activities in CG11 Countries. Working version for CG11 workshop in Zagreb, Croatia, May 2002.

District heating has a long tradition and is an important part of the energy system. Approximately 32% of households are connected to a local district heating network, providing 20% of the sector's final energy consumption. Heat also accounts for 12% of energy consumption in the service sector and 14% in the industry sector. There is a great unexploited potential for DH/CHP in smaller towns and large villages that need more ecological, economic and comfortable energy services. Introduction of district heating would support the development of the local areas, of industrial production and infrastructure [2][1].

Current renewable electricity production (2.8% in 2002) is dominated by hydro power plants. For the near future the largest growth in renewable energy generation is expected to come from wind (hardly used at present) and from biomass, with the latter contributing the most.

Renewable heat is dominated by biomass (98%). Solar thermal and geothermal/heat pumps contribute 2%. Suitable biomass feedstock include woody biomass (fuel wood, wood waste from construction and demolition), waste from agriculture (straw, livestock waste), municipal waste, fast growing and energy crops, and combustible waste from industrial production.

2 SEF support for renewables

2.1 Financial support to RES projects

There are several schemes in the Czech Republic supporting the deployment of renewable energy. The scheme that has proven extremely supportive for the development of biomass-based district heating is discussed here.

The State Environmental Fund (SEF), established by the Ministry of the Environment in 1991, and the Czech Energy Agency (CEA), established by the Ministry of Industry in 1995, provide financial support for installing equipment that saves energy and reduces the environmental impact of energy generation. SEF plays an essential role in the Czech Republic as it can make available the highest levels of financial support. Depending on the status of the applicant and the nature of the project SEF can contribute up to 80% of the investment costs (40% grant and 40% no interest loan). In 2002 the SEF budget for environmental projects was EUR 44.2 million. The capacity of SEF to subsidize renewable energy projects is around EUR 10 million per year, a significant portion of which is allocated to biomass energy projects. [2]

SEF is also designated national implementing agency for European Union funds like ISPA, Structural Funds, and Cohesion Funds that also can support renewable energy investments.

2.2 Biomass energy financing

At the municipal level there is considerable renewable energy potential as municipalities combine access to vast unused biomass resources with a high energy demand, especially for heating. However, municipalities commonly lack the required finance to invest in new bio-energy installations because of their limited annual

[1] Austrian Energy Agency (EVA), Energy Profile Czech Republic, URL: http://www.eva.ac.at/enercee/cz/

[2] State Environmental Fund, http://www.sfzp.cz

budget. Investments costs of biomass boilers are relatively high compared to fossil fuel fired units, and the type of financing needed for the investment (long-term commercial loans with low interest) are non-existent. As a consequence, despite the 80% financing available from SEF, some municipalities are unable to capture the renewable energy potential.

This financing barrier was overcome by bundling similar biomass heating projects in a Joint Implementation portfolio. The income from selling the carbon credits (reduced greenhouse gases emissions) from the JI portfolio supplements the Czech financing. At the same time, the large proportion of state-guaranteed financing increases the likelihood of project feasibility and maximizes emission reduction potential. Combining the SEF and JI funding thus leads to an increased number of implemented biomass energy projects.

3 Portfolio

3.1 Portfolio development

BTG Biomass Technology Group BV and its wholly owned daughter company BTG Central Europe s.r.o. are specialized in sustainable energy production from biomass and waste. BTG gained field experience in the Czech Republic in the late nineties where it developed, in close co-operation with local partners and with co-funding from the Dutch Government, a biomass heating demonstration project in the village of Hostetín.

The Hostetin project served to showcase the utilization of biomass waste as a renewable source of energy, and helped to generate interest among other Czech municipalities. Working closely with the Ministry of the Environment, BTG identified a whole range of new potential fuel substitution projects all over the country. These potential projects were bundled into a Joint Implementation portfolio. In 2000 the original portfolio included 28 projects with different capacities and at different levels of preparation/implementation.

3.2 Portfolio characteristics

The Joint Implementation mechanism is relevant in the countries of Central and Eastern Europe. Unfortunately, projects in this region that would qualify for JI co-financing are often small (<10,000 tons of CO_2-equivalents per year). This usually does not fit the requirements of CO_2-credit buyers who prefer contracting large projects (>50,000 tons of CO_2-equivalents per year) in order to minimize the unit transaction costs. To use the emission reduction potential of small projects and at the same time keep the transaction costs down a concept of flexible portfolio has been devised.

The concept of Portfolio involves assembling a set of projects of the same or similar type into a bundle characterized by the following features:

- Use of standardized baselines and emission reduction calculations
- Flexibility allowing failing projects to be replaced by new projects (the portfolio arrangement reducing the risk of a total failure)
- Gradual implementation allowing the set of projects to be implemented over a period of several years

- Involvement of a 'bundling facility' - a financing intermediary between the end-buyer and the individual projects.

3.3 Portfolio submission

Under the name "Biomass Energy Portfolio for Czech Republic", the portfolio was submitted to the Dutch Emission Reduction Unit Procurement Tender (ERUPT). The portfolio was one of five projects accepted by the Dutch Government under the first ERUPT tender. After completing negotiations emission reductions up to 522,320 ERUs (tons of CO_2-equivalents generated by JI in the first Kyoto commitment period 2008-2012) from the portfolio have been contracted by the Dutch government. BioHeat International BV, a newly established fund specializing on carbon finance, handles the financial transactions between the Dutch government and the individual projects included in the portfolio. The total investments cost for the now 14 projects included in the portfolio amounts to 27 million EUR. The JI contribution accounts for 10-20% of the total investment cost of each of the projects.

The portfolio projects have already pre-payments (at 60% of the total financial contribution) for the emission reductions they will achieve in the 2008-2012 period. The final payment to the project owners will be made after the final verification of reduced emissions realized in 2012.

3.4 Individual projects

Capacities of the projects in the portfolio range from 0.6 MWth to 9 MWth. Most of the projects concern the installation of biomass-fuelled heat boilers. They were commissioned between November 2001 and January 2005. All of the projects of this portfolio are of the same general design. They include a biomass boiler and some include also a steam turbine for cogeneration and/or a new heat distribution system. An automated control system is a standard component. The technologies employed are commercially proven and as such do not represent any developmental uncertainty. Technology is procured from different suppliers, mainly from the Czech Republic, Austria and Denmark. The portfolio character brings the advantage of maximizing the chance of realizing emission reductions in the commitment period.

4 Summary

The "Biomass Energy Portfolio for Czech Republic" is the first project that has fulfilled the ERUPT contractual conditions. The bundling of similar bio-energy projects in a portfolio helped to achieve a substantial level of greenhouse gas emission reduction, kept unit transaction costs within limits, created flexibility whilst reducing the risk of a total failure, and offered project owners a much-needed and at times crucial source of additional finance.

It is envisaged that the bundling approach has a large potential for replication, both in JI projects in Central and Eastern Europe as well as in CDM projects in Latin America and Southeast Asia. A number of new JI/CDM proposals using this approach are currently under development.

Presented by
Michaela Remrová
BTG Central Europe s.r.o.

Small-scale Project Bundling for Joint Implementation: A Biomass Energy Portfolio for the Czech Republic

btg carbon consultancy

Leipzig, October 2005

Slide 1

Contents

- BTG and BTG Central Europe
- Czech Republic and the environment
- Pilot project in Hostětín
- Portfolio development

2

Slide 2

BTG - your partner in bioenergy!

- Since 1987 a private company based in the Netherlands
- BTG Central Europe s.r.o. established in 2000
- More than 1500 bio-projects
- In more than 80 countries world wide

3

Slide 3

BTG`s Experience in CZ

- First experience in 2000
- Co-ordination of implementation of 732 kW biomass boiler in Hostětín (80 houses)
- Close co-operation with SEF, Dutch Ministry of Economic Affairs, ...

4

Slide 4

Czech Republic and the Environment

- CR ratified the Kyoto Protocol on 15.11.2001
  - Joint Implementation – mechanism allowing trading of reduced GHG emissions, international sharing of emission reductions
- Financial Support
  - State Environmental Fund
  - Czech Energy Agency
- Legal Framework

5

Slide 5

Portfolio Idea

- In 2000 identification of 28 fuel switch projects with different size of installed capacity and at different levels of preparation/implementation
- Emission reduction of GHG is achieved by switch fossil fuels to biomass
- Emission reduction unit (ERU) = 1 tCO_2 eq
- Small projects (< 10.000 tCO_2 eq/ year)
- CO_2 credit buyers required > 50.000 tCO_2eq/year

=> PORTFOLIO CONCEPT FOR JOINT IMPLEMENTATION

6

Slide 6

Portfolio Development [1]

- Contract with the Dutch Emission Reduction Unit Procurement Tender ERU-PT
- Contracted amount:
  520.000 tCO_2eq in 2008-2012
- JI contribution for reduced GHG emissions
  - 10-20% of the total project investment

7

Slide 7

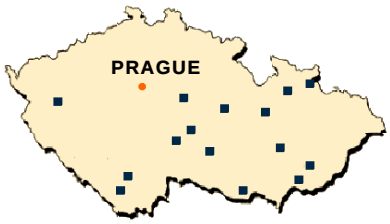
Portfolio Development [2]

- 15 bio-energy projects
- Fuel switch-biomass (woodchips/straw) replaces individual stoves or central fossil fuel boilers
- Mainly municipal owned district heating systems
- Installation from 0,6-9 MW_{th}, total installed capacity 65 MW_{th}
- Total investment is 27 million EUR

8

Slide 8

Portfolio Development [3]

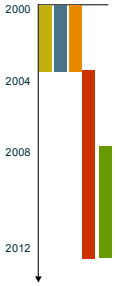


Slide 9

Portfolio Development [4]

Slide 10

Portfolio Lifetime



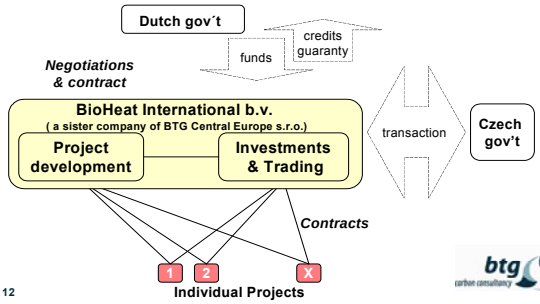
communication between buyer and seller
subprojects contracting
boilers/CHP units implemenation

annual verification
crediting period (Kyoto commitment period)

11

Slide 11

BTG`s Approach to JI projects



12

Slide 12

Portfolio News

- Projects received the pre-payment for the contracted emission reduction units in 2008-2012 at 60% of the total financial contribution

13

Slide 13

Advantages of portfolio approach [1]

- Small projects would not be attractive for carbon credit buyers
- Flexibility
- Gradual implementation
- Project costs (validation, verification etc.) are reduced

14

Slide 14

Advantages of portfolio approach [2]

- Potential of replication
  - JI projects in CEE
  - CDM in South and Latin America and Southeast Asia
- A number of new proposals are under development

15

Slide 15

Thank you for your attention!

www.btg.cz
www.carbonconsultancy.com
www.bioheat-international.com
www.btgworld.com

16

Slide 16

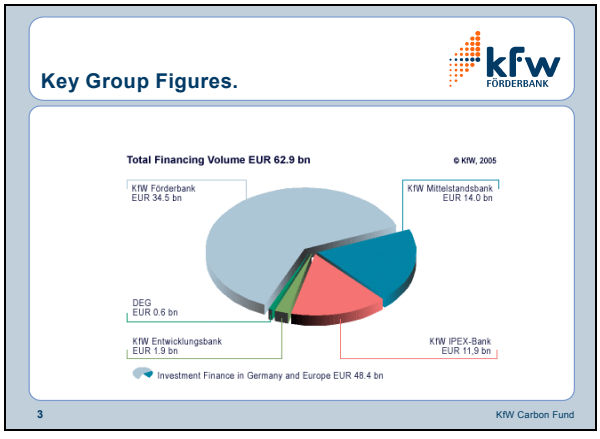
The KfW Carbon Fund: Terms, Application Process and Selection Criteria

Jutta Volmer

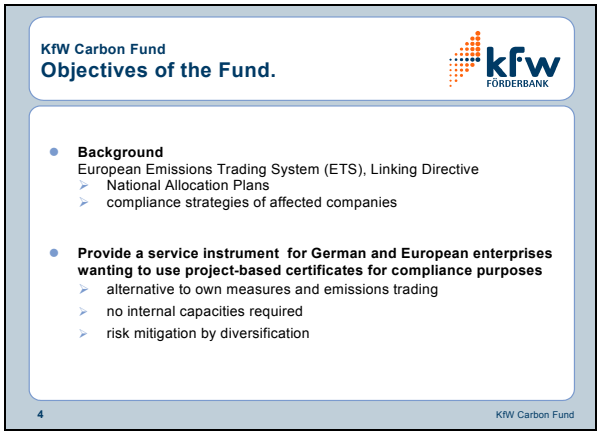
Kreditanstalt für Wiederaufbau KfW, Frankfurt/M

Slide 1

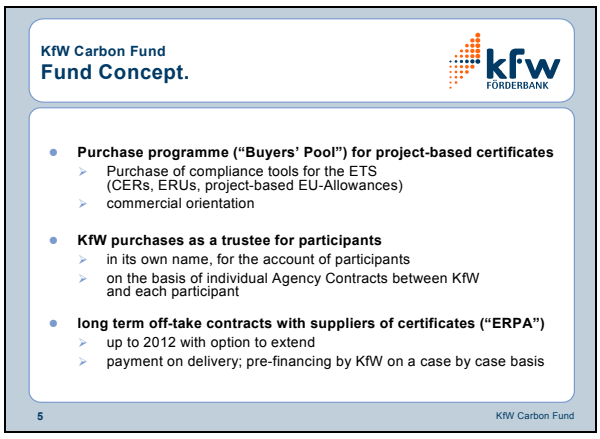
Slide 2



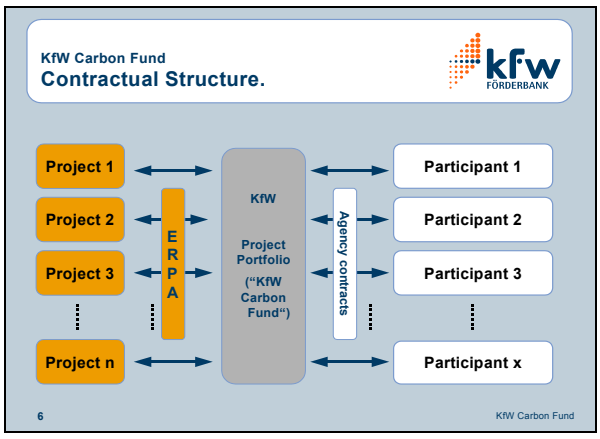
Slide 3



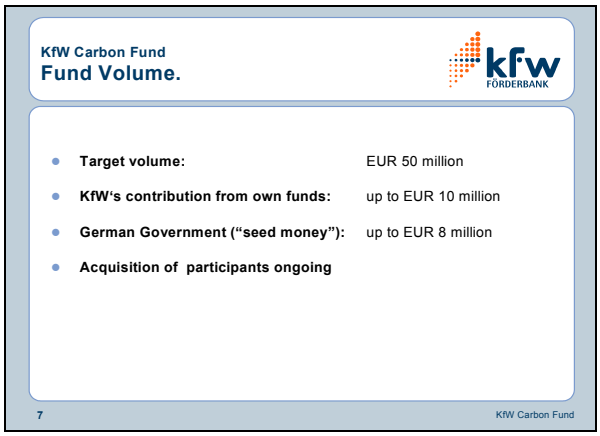
Slide 4



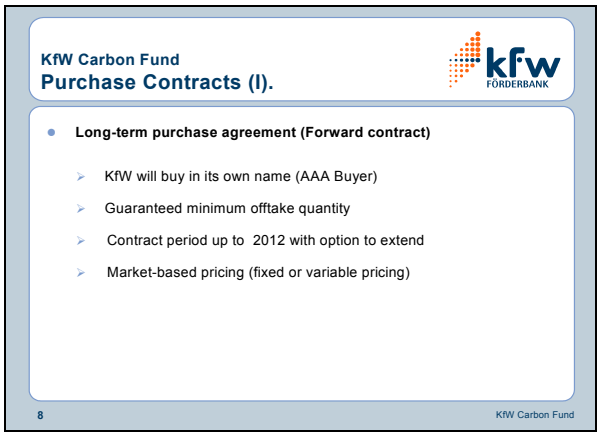
Slide 5



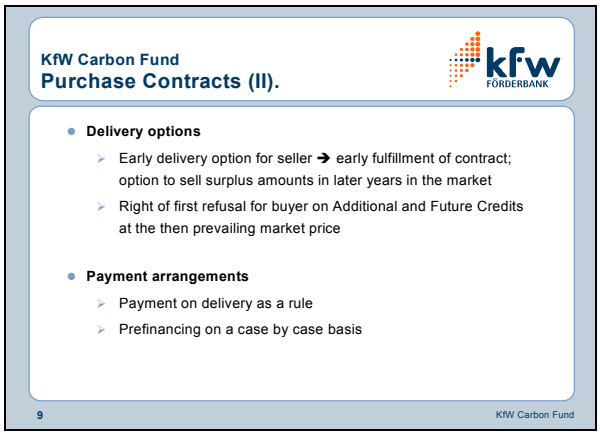
Slide 6



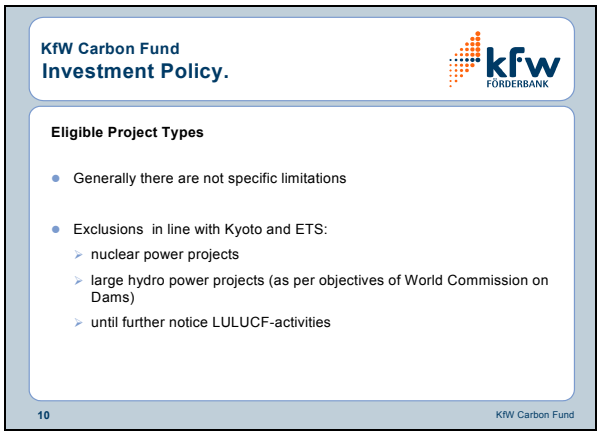
Slide 7



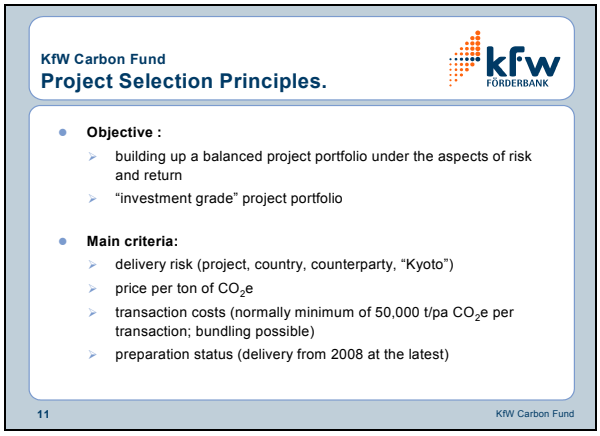
Slide 8



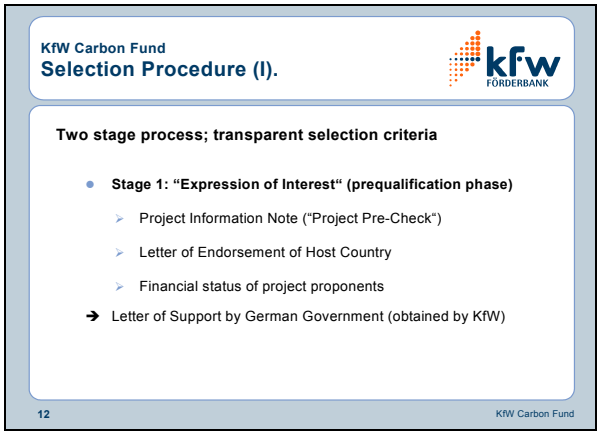
Slide 9



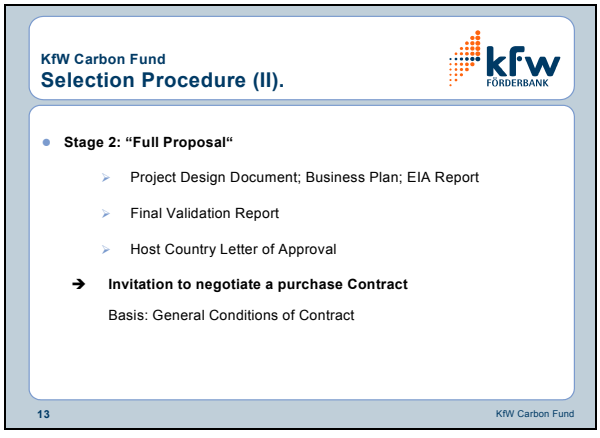
Slide 10



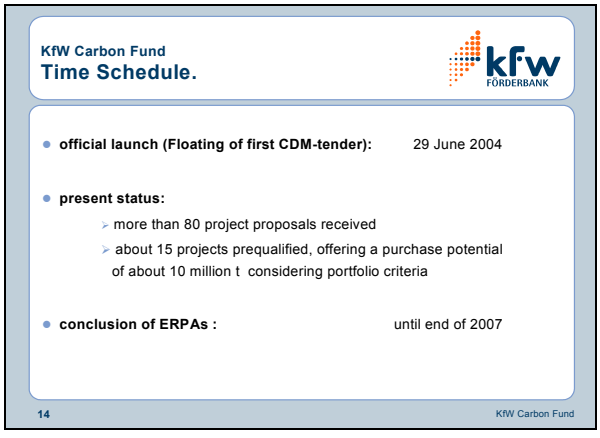
Slide 11



Slide 12



Slide 13



Slide 14

Chances and Risks of AAU Backed Green Investment Schemes

Jelmer Hoogzaad

Climate Focus, Rotterdam

CLIMATEFOCUS

Chances and Risks of AAU Backed Green Investment Schemes

Jelmer Hoogzaad
October 25, Leipzig - CTI
Climate Focus

1

Slide 1

CLIMATEFOCUS

Who we are?

- Climate Focus is a newly established Climate Consultancy with focus on assisting JI and CDM project participants and host countries.
- Credentials: Experience from ERUPT and the World Bank

2

Slide 2

CLIMATEFOCUS

Content

- AAU market potential
- AAU value
- Mobilizing the AAU potential (GIS)
- National integration of carbon activities

3

Slide 3

CLIMATEFOCUS

AAU market potential

4

Slide 4

CLIMATEFOCUS

EITs: A flury of AAUs....

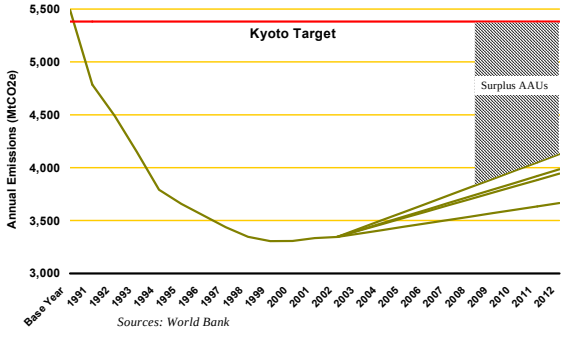
Country	Annual Headroom (MtCO2e)	Total Headroom (MtCO2e)
Russian Federation	580-876	2,900-4,380
Ukraine	351-365	1,757-1,825
Poland	81-125	405- 627
Romania	81- 97	407- 486
Bulgaria	57- 64	286- 322
Lithuania	26- 28	130- 142
Hungary	14- 23	73- 118
Latvia	14- 15	70- 78
Estonia	17- 20	86- 100
Slovakia	5- 12	29- 59
Czech Republic	9- 25	44- 127
Croatia	0- 3	(-2)- 14
Slovenia	(-5)-(-2)	(-25)- (-13)
Totals	1,230 – 1,651	6,160 – 8,265

Source: Emissions data for 2002 (all gases) compiled based on UNFCCC website (ghg.unfccc.int), projections for 2010 based on U.S. DoE (2004) International Energy Outlook 2004 Mid- and Hi- scenarios, and from International Energy Agency (2004) World Energy Outlook 2004; Projections for Russia also based on Lecocq and Shalizi (2004)

5

Slide 5

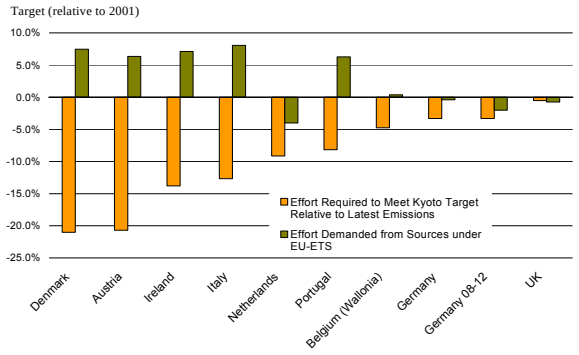
Surplus Allowances



Sources: World Bank

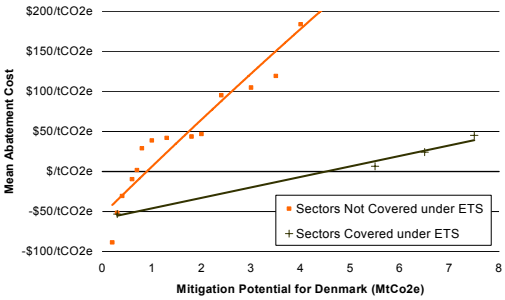
Slide 6

The EU bubble and NAPs



Slide 7

Sectors not covered under ETS face higher abatement costs



Source: DEPA

Slide 8

CLIMATEFOCUS

AAU market potential

- Supply is difficult to mobilize
  - requires governmental capacity
  - sale of AAUs might offset economic growth
  - host country risk
- Buyers are unlikely to accept AAUs without any conditionalities
- Private entities from Canada and Japan buy
- The EU private sector can not use AAUs
- Demand: Japan, Canada, and Western Europe
  - Potential demand for outside credits: 2.5 - 3.5 $btCO_2e$
  - Potential supply of CDM/JI (HFC_{23}?): 0.3 - 1.0 $btCO_2e$

⇒ **Demand for "hot air"** **1.5 - 3.2 $btCO_2e$**

Supply **6.2 - 8.2 $btCO_2e$**

9

Slide 9

CLIMATEFOCUS

AAU value

10

Slide 10

CLIMATEFOCUS

Potential value of the AAUs

Demand for "hot air" **1.5 - 3.2 $btCO_2e$**

Supply **6.2 - 8.2 $btCO_2e$**

- Supply is larger than demand
  - but there is value in holding allowances (risk-hedging, banking, monopolistic behavior).
- The price is thus very uncertain: **€8-€10** range?
  - Sale of 2.5 $btCO_2e$ could bring **12.5 – 25 b€** + 3-5 times as much in leveraged investment to EITs

Source: World Bank

11

Slide 11

CLIMATEFOCUS

Mobilizing the AAU potential (GIS)

12

Slide 12

CLIMATEFOCUS

Greening of AAUs

Mobilizing demand requires a credible system with greening

Different buyers have different greening needs/expectations:
- Buyer 1: JI – but newly defined
- Buyer 2: Backed 1:1 with "real" Emission Reductions
- Buyer 3: Dept for AAU
- Buyer 4: Flexibility in the use of AAUs, but rigorous accountancy rules

- Securitizing Bank: Sovereign to sovereign transfers only

- Seller: Full Flexibility – mechanism to achieve Acquis
- Seller: Funds for institutions and capacity
- Seller: Funds for the general budget

How to combine the different needs? ? Green Investment Schemes (GIS)

13

Slide 13

CLIMATEFOCUS

Existing Proposals

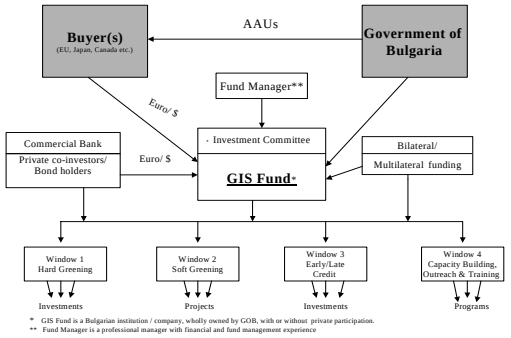
- JBIC Japan Bank for International Cooperation
  - Project-based/Fund-based GIS
  - Buyer can decide on project eligibility (greening) throughout fund decision-making process
  - Focus on demand
- World Bank
  - Based on study in Bulgaria
  - Including an inventory of possible projects
  - Focus on supply managed by the host country government
- EBRD, Canada, NL,
  - Are evaluating options

14

Slide 14

Example:

Generic Structure of a AAU Green Fund



Source: World Bank

Slide 15

CLIMATEFOCUS

National integration of carbon activities

16

Slide 16

CLIMATEFOCUS

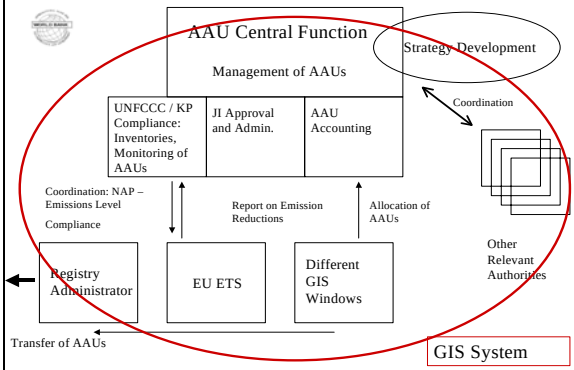
How to combine the different mechanisms, approaches, ideas?

Solution:
A general AAU management system covering also JI/ETS/etc

- GIS would be established as AAU management scheme.
- Coordination of accounting and management.
- Coordination of emissions, assets and liabilities.
- Coordination of all mechanisms.

17

Slide 17



Source: World Bank

Slide 18

CLIMATEFOCUS

Challenges

- GIS allows for use and coordination of all mechanisms and all flexibility
  - But requires smart management to maximize resources.
- Limited capacity for UNFCCC, art. 17 delegation: 1-3 people
  - More responsibility/capacity required from host countries (no EB, SC)
- Still some legal questions (state aid, procurement, liabilities)
- Lack of knowledge in host countries
- Lots of misunderstandings (and fears)

19

Slide 19

CLIMATEFOCUS

Opportunities (1)

- Varity of buyers and interests can be optimized for the benefit of the country
- Potential to channel funds into critical areas
  - Negotiate up-front payment under GIS to strengthen national capacity (also for GIS itself)
  - "Soft" greening funds can also help to establish broader national institutional capacity (ETS, JI etc., sustainable dev.)
  - Allows to exploit areas difficult for JI (transport, construction)
  - Use GIS to facilitate investments (e.g. for co-financing obligations)
  - Cross-support between mechanisms (proceeds and fees from one supports the institutional set up of the others)
- early movers will be rewarded (market is developing)

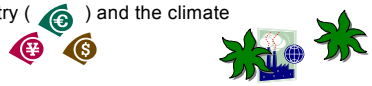
20

Slide 20

CLIMATEFOCUS

Opportunities (2)

- One coordinated management system
- Coordinated use of the mechanisms to the benefit of the country ( ) and the climate



21

Slide 21

CLIMATEFOCUS

Questions?

Jelmer Hoogzaad
J.Hoogzaad@climatefocus.com

Charlotte Streck
C.Streck@climatefocus.com
www.climatefocus.com

22

Slide 22

JI Capacity Building in Ukraine (Tacis Project)

Dr. Mykola Raptsun

Agency for Rational Energy Use And Ecology (Arena-Eco), Kyiv

Country and project background

Ukraine is a Party to the UNFCCC since August 1997 and a Party to the Kyoto Protocol (ratified by Ukraine in February 2004). Ukraine intends to make full use of Kyoto Protocol flexibility mechanisms and is currently in the process of fulfilling eligibility requirements as formulated by COP7 decisions. Having experienced deep economic recession in mid-90s, Ukraine is projected to have some surplus in assigned amount over the commitment period, which could be used for economic recovery through international emissions trading mechanism. Besides, due to the prevalence of energy intensive and obsolete technologies in utility and industrial production sectors, Ukraine possesses a huge potential for JI projects, in particular in the area of energy efficiency.

EU/TACIS Project "Technical Assistance to Ukraine and Belarus With Respect to Their Global Climate Change Commitments" started in May 2004, shortly after Ukraine's ratification of Kyoto Protocol. Its objective is to assist Ukraine and Belarus in building institutional and technical capacity for participation in the UNFCCC and Kyoto Protocol. This should be done through addressing existing capacity gaps by developing and enhancing technical, institutional, and human resources capacity in Belarus and Ukraine to measure, monitor, and report GHG emissions and to apply measures, policies, and international mechanisms to reduce these emissions according to national targets. The project is scheduled for two and a half years until October 2006 and is implemented by an international consortium headed by ICF Consulting. The consortium also includes Ukrainian Agency for Rational Energy Use and Ecology (ARENA-ECO), Hammonds (United Kingdom) and Belarusian Joint Institute of Power Engineering and Nuclear Research.

The project is planned to achieve the six following major results for Ukraine:

- Established technical and institutional components of Kyoto Protocol GHG inventory national system in Ukraine (05/2004 - 07/2006)
- Completed Action Plan on setting up the JI Infrastructure in Ukraine (07/2004 - 11/2005)
- Ukrainian experts and officials trained in GHG inventory, JI, and mitigation issues (01/2005 - 06/2006)
- Completed feasibility study for institutional and technical requirements for the establishment of national GHG registry in Ukraine (09/2004-03/2006)

- Completed draft of the Ukraine's Second National Communication (01/2005 - 01/2006)
- Key Ukrainian stakeholders from public administration, industry, NGO sectors and general public are fully aware about Kyoto Protocol conditions and requirements and have efficient effective means of public communication based on national climate change website (07/2004 - 10/2006).

Setting up national inventory system

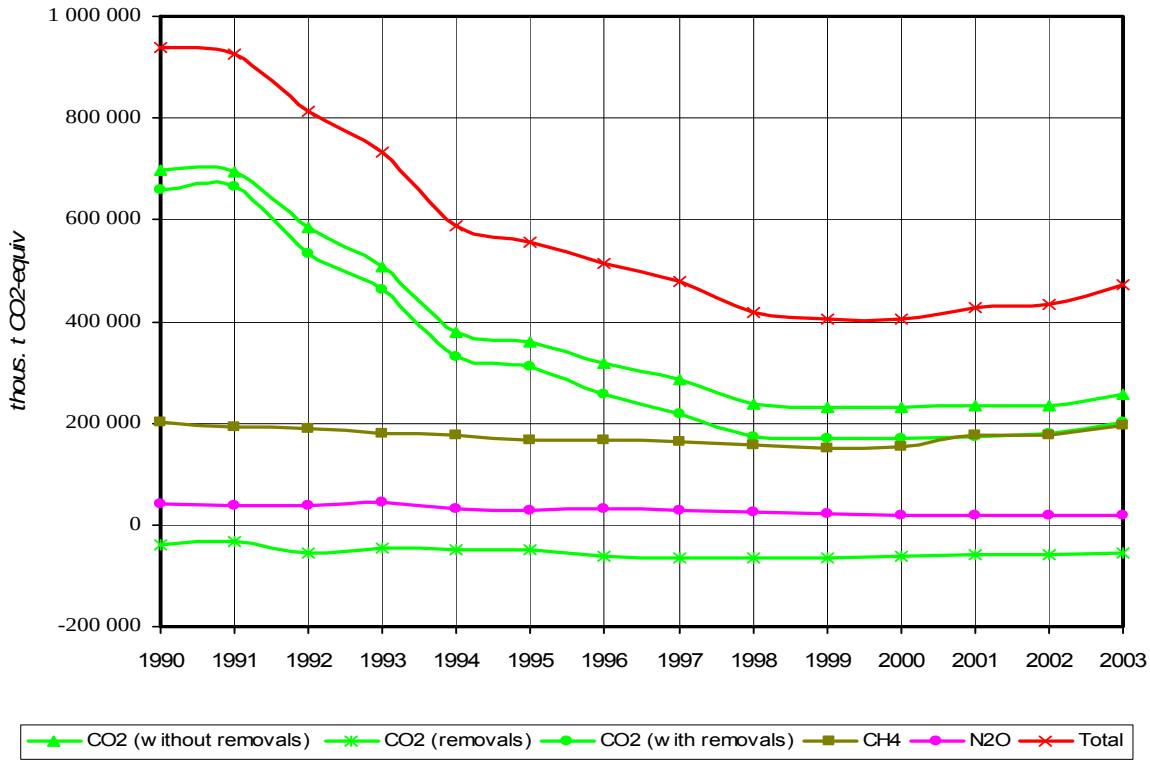
Availability of sufficiently advanced inventory system is a cornerstone of all country's activities under the Kyoto protocol. This system enables correct calculation of the national assigned amount and verification of the country compliance status. Without such system, participation in international emissions trading is impossible. With respect to JI, a good quality national inventory opens the way for application of the Track 1 procedures governed by the country itself rather than by external bodies. As shown by the CDM experience, application of the Track 2 approach is not a realistic way to realizing Ukrainian JI potential.

The EU/TACIS project as a priority objective supports setting-up of the National Inventory Office as a permanent inventory developer. A draft action plan for the national inventory system was developed, and a National Inventory Office established within a scientific research institute of hydrometeorology in the system of the Ministry of Environment. Under the process of preparing 2005 inventory submission the project provided initial training and software support for the national inventory team.

Apart from capacity building for the national inventory office, several important results were achieved. Full inventory time series was created for the first time, covering the required period 1990-2003. To fulfill this, three new annual inventories for 2003 and 1999-2000 were developed and existing inventories for 1990-1998 were converted to CRF format. The Land Use and Land Use Change and Forestry sector inventory was developed for the first time for the lacking 13-year period 1991-2003. Also, the project developed country-specific methodology and software for estimating GHG emissions from fuel combustion.

Major further tasks for inventory-related capacity building activities include developing regulatory framework for inventory system and strengthening National Inventory Office. In its inventory development work the office should become capable of meeting all necessary requirements of the IPCC Good Practice Guidance such as higher-tier methodologies for key emission sources, quality assurance and quality control procedures, uncertainty assessment, retrospective recalculations for the full time series etc. Also, the project provides consulting support for involvement of Ukrainian research institutions in calculating national emission factors, developing accurate methodologies and collecting necessary activity data for the key emitting sectors of the economy.

Fig. 1: Summary results of the 2004 inventory are presented on the diagram



Creating national GHG emissions registry

This is a crucial task being a pre-condition for JI activities under both Track 1 and 2. Aiming to be eligible for JI Track 2 and international emissions trading transactions since the beginning of the first commitment period, Ukraine plans to complete installation of the national GHG emissions registry by September 2006. To support achievement of this goal, the project carried out overview of international experience on all important registry issues. Also, comparative technical and cost analysis for different available supply options (GRETA, SERINGAS, ECRA and own development) was performed. The project provided specific recommendations with respect to institutional, legal, regulatory, procedural and software aspects of the registry establishment. Currently, Ukrainian registry administrator has been appointed and the government conducts an open tendering procedure for procurement of the registry system.

It should be noted that the national GHG registry being created in accordance with COP7 and following decisions will be also capable of supporting domestic emissions trading activities. Ukraine is currently considering introduction of such a system as a likely option for two major reasons: (i) providing incentives for industrial enterprises to better energy/fuel efficiency and thus reducing the country's dependence on external fuel supplies, and (ii) introducing concrete internal policy measures to limit GHG emissions in accordance with general UNFCCC and Kyoto Protocol requirements to Annex I countries. Besides, introduction of such a system would improve effectiveness of Ukraine's participation in JI mechanism under the Kyoto Protocol. At this moment, the concept of Ukraine's domestic trading system is being developed together with draft regulations to support it.

Establishing JI infrastructure in Ukraine

Participation in JI mechanism is very important for Ukraine from the viewpoint of attracting external investment resources and modern technologies for the national economy. Ukraine aims to intensify investment activities in the sectors suffering from underfinancing due to low financial returns, high risks and other factors. First of all it concerns socially important sectors like municipal district heating or coal bed methane projects. Establishing JI infrastructure implies solving relevant institutional, procedural and methodological issues in accordance with COP7 decisions. Apart from general pre-conditions like registry and inventory, JI-specific issues include determining a national focal point (and other organizations taking part in the projects review and approval process) and developing national guidelines and procedures. Accordingly, the project has already assisted in developing the following priority outputs:

- Provisional regulation on review, approval and implementation of JI projects;
- Draft letters of endorsement and approval (LoE and LoA);
- Project idea note (PIN) and project design document (PDD) formats;
- Procedures for obtaining LoE and LoA;
- Draft requirements, criteria and selection rules for JI projects;
- Methodological guidance on developing PDDs for JI projects.

These documents were widely disseminated for discussing with and getting the comments from government organizations, project owners, developers, potential investors, NGOs etc. The comments received in this way enabled formulating necessary adjustments for harmonizing the interests of different stakeholders in the JI activities in Ukraine. After half a year projects suspension period connected with the government transformations, the Ministry of Environmental Protection started again issuing letters of endorsement and approval. Relevant authority was assigned to the ministry by the President's Decree #1239/2005 of September 12, 2005.

Next important step envisioned by the project is to assist in building up national projects validation/verification capacity necessary for application of JI Track 1 procedures. Recommendations on relevant accreditation requirements and procedures for expert organizations will be developed, together with the guidelines on validation, monitoring and verification of JI projects. The project also aims to support development of projects pipeline, primarily by disseminating relevant information and formats among potential project hosts, and processing and formatting already developed project proposals. The project pipeline will be marketed for potential investors using the national climate change web-site and workshop-based activities.

Project approach to JI training in Ukraine

Starting point of the project training activities is a thorough review of capacity building modules in other technical assistance programs received by Ukraine over the recent years. Close integration with other activities in the area ensures avoiding redundancy and duplication of efforts. In particular, the EU/TACIS project considered and built upon existing training modules developed for the NIS under previous training projects sponsored by US AID (Ukraine and Central Asia); CIDA (Ukraine and Central Asia), and WB/GEF (Belarus).

The EU/TACIS project includes conducting detailed analysis of training needs for establishing fully functional JI infrastructure in Ukraine. Under the training needs analysis, significant input is provided by the project partners from government, as well as by discussions with industrial plant managers, JI project developers etc. Such analysis allows to identify remaining gaps after the previous capacity building activities and better focus the training support provided by the project. Selected training approaches (e.g., on-the-job or workshop-based trainings) and methods (e.g. construction of project examples and in-class discussions of real projects) are tailored to specific needs and conditions of each target group identified in the analysis. Various forms of post-training evaluation are used to find out the effectiveness of training and identify further targets for follow-up training events.

Previous information and training activities

In 2003 ARENA-ECO completed USAID/UNECE project "Energy Efficiency Investment Projects Business Plan Development for Climate Change Mitigation". The project was aimed at developing quality business plans and providing other support to local authorities in their energy efficiency efforts under the general framework of sustainable economic and environmental development. A series of seven information and training workshops and ongoing consulting support from ARENA-ECO enabled local partners to develop 12 business plans in four Ukrainian cities, addressing priority investment needs in key municipal infrastructure sectors, including district heating, municipal lighting, public buildings.

Also, systematic information and training efforts in climate change area were conducted by USAID-supported Climate Change Initiative. Out of nine developed training modules, four were related with JI issues and included economic aspects of climate change, project-oriented baselines development and investment projects development issues. Training workshops were conducted in different cities for different audience, which hampered continuity and effectiveness of trainings. However, the workshops were useful for raising general awareness about new JI-related investment opportunities. Besides, several investment projects were identified and respective business plans developed, including baseline scenarios and emissions reduction estimates.

Key factors for JI success in Ukraine

Given that Ukraine is now in the situation of practical Kyoto Protocol implementation, JI training activities should be very much result-oriented, that is, contributing, to the extent possible, to maximizing revenue inflow through JI projects. To focus the trainings correctly, key factors for JI success in Ukraine should be considered. One of the key factors is available capacity for good quality preparation of project documentation. In Ukraine, such capacity is not sufficient and average quality of investment projects preparation for financial institutions is not very high. For JI projects, this factor is even more important because project documentation is assessed not only by financial institutions but also by the national JI Projects Secretariat and authorized validators.

Another key factor is the correspondence between the growing demand for JI projects on the side of potential investors and availability of identified projects on the side of Ukraine. Currently, there is a significant gap between the two, and it becomes the more evident as more foreign investors are coming to the country. Apart for project preparation capacity shortage, this gap is largely due to the lack of general awareness of what can be considered as a probable JI project.

Next, even in the presence of sufficient internal supply of potential JI projects, achievable national revenues essentially depend on the efficiency of national policy and procedures. That is, restrictiveness of JI procedures should have certain optimum measure maximizing approval rate for all genuinely additional projects and minimizing this rate for non-additional or fraudulently additional projects. In case if the national JI regulations are too restrictive, there will be missed revenues from rejected projects with additional emissions reduction potential. On the other hand, if JI regulations are too liberal, non-additional projects (that is, implemented even without JI financing) will be approved, thus reducing tradable part of the national assigned amount and leading to losses vis-à-vis international emissions trading mechanism.

And finally, a very important factor is domestic capacity for JI projects validation and verification. This mostly refers to Track 1 option. However, Track 1 should be strategic priority for Ukraine because, as shown by CDM experience, Track 2 has little chance of realizing any significant part the country's JI potential. Capacity requirements evidently correlate with JI regulations as, for example, eligibility of small-scale projects and no restrictions on the activity area may inflate such requirements to financially and technically unacceptable levels. However, if only very large-scale projects are allowed, there will be unrealized potential as described above. So, there is an optimally required JI validation and verification capacity corresponding to the optimum restrictiveness of the national JI regulations.

Identification of major target groups and training topics

Based on the key JI success factors discussed above, the following three major target groups for capacity building activities were identified. The first and most numerous group is formed by enterprises -- potential project hosts. In usual situation, due to the lack of qualification they will not try to develop full JI project documentation on their own. However, they may be quite able to formulate initial idea and identify potential JI project. Hence, with respect to this group the efforts should be aimed at disseminating knowledge about the prospects of JI mechanism and restrictions applied to JI projects.

Another target group is constituted mainly of specialized research and development or design organizations, and so far not very numerous energy service companies. Their envisioned functions would be development, validation and verification of JI projects. Representatives of these organizations should receive more detailed knowledge in the area of project analysis, financial planning, baselines development and monitoring and verification of GHG emission reductions. This knowledge is required for getting national accreditation and conducting expert activities on JI projects.

With respect to this group, it is important to note its already commenced and growing involvement in national GHG inventory activities. The issues like national GHG emission factors estimation, activity data structuring, statistical figures interpretation and uncertainty assessment all require participation of organizations with research background in specific industry sectors. In the context of JI projects eligibility, project results in emissions reduction must be adequately reflected in the national inventory, and there should be a reasonable balance between higher costs of a more detailed inventory and missed benefits from the projects rejected as non-compliant with this eligibility requirement. Also, with a view to establishing a domestic emissions trading system the government started development of plant-level GHG emissions accounting and reporting forms. Such reporting will be supplemented by independent plant-level emissions verification, naturally overlapping with JI monitoring and verification activities.

The third group includes relevant ministries and other government bodies engaged in formation of industry-specific research and development and investment policy. Provided that they possess adequate information, these bodies can actively contribute to identifying many more potential JI projects at enterprises in their relevant sectors, and to developing more efficient national policy for practical implementation of Kyoto mechanisms. With respect to this group the task is not about the training as such but about ensuring regular information on COP decisions, current status and trends of carbon markets, identity and position of external investors, and cross-cutting issues for development of national and sectoral JI policies.

Project training activities

Trainings in a wider sense are reasonable to conduct in various forms, taking into account that for intensifying JI activities different stakeholders need different knowledge by its scope and depth. Critical point for JI process development still is the low awareness of plant managers and decision-makers in local and central governments. Need in better JI project development skills is undoubtedly high but, evidently, it is secondary with respect to awareness raising problem. That is why the EU/TACIS project focuses first on workshops and conferences as preferred training forms for decision-makers due to their short duration (connected with the opportunity to engage higher-level officials), information intensity and opinion exchange opportunities. Hand-out materials should cover all relevant JI topics and be suitable for local application in identifying potential JI projects. Also, an efficient method to promote the process is creating and continuous updating of a national climate change web-site containing relevant COP decisions, approved baseline methodologies, means for interactive consultations on JI project development issues etc.

Within the period March-September 2005, the EU project organized and conducted four major JI workshops and conferences both in Kiev and regions. Target audience included representatives from government, donors/investors, industry (project owners), and project development/ validation organizations. The number of participants ranged from 40 to 200 for each event. Relevant training materials were developed and disseminated among the participants. They included training modules/presentations or information sheets by the following general areas and target groups:

A. General requirements and Ukrainian context for JI activities (for officials and project hosts):

- UNFCCC/Kyoto Protocol/Kyoto mechanisms;
- key issues for JI mechanism implementation in Ukraine;
- the role of the host country in JI process;
- outline and key issues of the JI Action Plan in Ukraine;
- JI investment opportunities in Ukraine;
- legal issues and carbon transactions;

B. Procedural and methodological guidance for project development (mostly for project developers and validators):

- draft procedures, criteria and requirements for projects selection and approval in Ukraine;
- JI project life cycle;
- methodological guidelines for JI projects development;
- structure and requirements of Project Idea Note (PIN) and evaluation of PINs by international carbon funds;
- requirements and structure of Project Design Document (PDD);
- baseline, additionality, boundary and leakage issues;
- estimating GHG emission reduction from a JI project and financial analysis;
- monitoring and verification methodologies;
- financing JI projects and the impact of carbon revenues;

C. Carbon market situation and potential sources of finance (for all three target groups - officials, project developers/validators and hosts):

- overview of carbon market developments;
- potential financing sources for JI projects;
- available resources to support project development;

D. JI projects experience (mostly for project developers and hosts):

- introduction to GHG emission abatement projects and technologies;
- actual JI projects development experience in Ukraine;
- evaluation of PINs in Ukraine.

The project also used every opportunity to participate in information dissemination and stakeholder discussions in Ukraine, including parliamentary hearings, government roundtables, investor-sponsored workshops, discussions with project developers, meetings with public etc. Information and training materials were distributed as relevant. Also, a dedicated climate change web-site was launched at the address: http://www.climate-change-ukraine.info/ and is being regularly updated to ensure maximum information outreach to potential JI process stakeholders. After completion of the project, the web-site, will be handed over to the Ministry of Environmental Protection of Ukraine to ensure continuity of information activities.

AGENCY FOR RATIONAL ENERGY USE AND ECOLOGY

JI CAPACITY BUILDING IN UKRAINE (TACIS PROJECT)

MYKOLA RAPTSUN, PRESIDENT,
AGENCY FOR RATIONAL ENERGY USE AND ECOLOGY, KYIV, UKRAINE

Contact information:
P.O. Box 36, Kyiv, 02140, Ukraine
tel.: (380 44) 585 15 60, fax: (380 44) 585 15 61, e-mail: arena@arena-eco.com,
http: //www.arena-eco.com

CTI Capacity Building Seminar.
Climate Technology and Energy Efficiency – Sustainable Pathways for Climate Change Mitigation Policies and Management.
Leipzig, Germany, October 22-26, 2005

Slide 1

AGENCY FOR RATIONAL ENERGY USE AND ECOLOGY

EC/TACIS PROJECT "Technical Assistance to Ukraine and Belarus With Respect to Their Global Climate Change Commitments"

- **Objective:** To assist Ukraine and Belarus in building institutional and technical capacity for participation in the UNFCCC and the Kyoto Protocol
- **Project duration:** 30 months (May 2004 - October 2006)
- **EC Consultant:** Consortium composed of:
  1) ICF Consulting Ltd. (United Kingdom)
  2) Hammonds (United Kingdom)
  3) Agency for Rational Energy Use and Ecology (ARENA-ECO), Ukraine
  4) Joint Institute of Power Engineering and Nuclear Research (Belarus)
  5) Climate Change Coordination Center (Kazakhstan)

Slide 2

AGENCY FOR RATIONAL ENERGY USE AND ECOLOGY

EC/TACIS PROJECT "Technical Assistance to Ukraine and Belarus With Respect to Their Global Climate Change Commitments" (2)

Planned Results for Ukraine:

1. Established national GHG inventory systems in Ukraine and Belarus
2. Developed JI Infrastructure in Ukraine
3. Necessary training provided on GHG inventory, JI, and mitigation issues
4. Developed feasibility study for national GHG registries in Ukraine and Belarus
5. Completed Ukraine's Second National Communication
6. National climate change websites and other information support

Slide 3

AGENCY FOR RATIONAL ENERGY USE AND ECOLOGY

COMPLETED TASKS FOR 1990-2003 INVENTORY

- Developed draft action plan for national inventory system
- Supported setting-up of the National Inventory Office as an inventory developer
- Prepared inventories for 2003 and 1999-2000
- Converted existing inventory results for the period 1990-1998 to CRF format
- Prepared LULUCF sectoral inventories for 1991-2003
- Developed methodology and software for estimating GHG emissions from fuel combustion

Slide 4

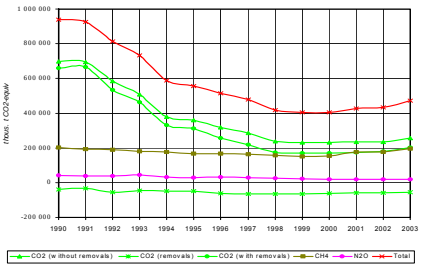
KEY SOURCE CATEGORIES OF GHG EMISSIONS IN UKRAINE (2003)

Category ranking	Source/category	Emission level in 2003, million tones CO_2-equivalent	Portion in the overall emissions,%
1	Fugitive emissions from natural gas production, transit and distribution	132159	25
2	Iron and steel production	96277	18
3	Fuel combustion in public electricity and heat production	89228	17
4	Fuel combustion in residential sector	44193	8
5	Fugitive emissions from underground mining activities	25796	5
6	Fuel combustion in industry and construction	15022	3
7	Solid waste disposal sites	15286	3
8	Fuel combustion on transport	10026	2
9	Enteric fermentation of dairy cattle	7286	1
10	Ammonia production	7178	1
11	Cement production	3744	1
12	Other key sources	80234	15
	Total of Ukraine	526431	

Slide 5

AGENCY FOR RATIONAL ENERGY USE AND ECOLOGY

1990-2003 GHG EMISSIONS IN UKRAINE



Slide 6

AGENCY FOR RATIONAL ENERGY USE AND ECOLOGY

NATIONAL REGISTRY SUPPORT

- Overview of international experience on all important issues
- Cost analysis for different options available
- Specific recommendations with respect to institutional, legal, regulatory, procedural and software aspects
- Domestic emissions trading issues

Slide 7

AGENCY FOR RATIONAL ENERGY USE AND ECOLOGY

GOAL AND BENEFITS OF JI ACTIVITIES IN UKRAINE

- JI activity is aimed at the attraction of the external investments into economically viable GHG reduction projects, which can not be implemented in the current conditions due to low return on investments, high risks or regulatory barriers

JI projects should

- Contribute to national economic development
- Raise general technological level
- Improve local environmental conditions

Slide 8

AGENCY FOR RATIONAL ENERGY USE AND ECOLOGY

MAIN RISKS OF JI ACTIVITIES FOR UKRAINE

1. Risk of financial losses of the state
   - caused by possible future necessity to purchase AAUs in the amount of previously sold ERUs to meet country's commitments on GHG emission reduction;
   - caused by assumed rise in price for all types of GHG emission reductions in the future;
2. Risk of compensation claims to Ukrainian government in case when the JI project fails to produce the contracted ERUs.

Slide 9

AGENCY FOR RATIONAL ENERGY USE AND ECOLOGY

BENEFITS AND RISKS FOR CARBON INVESTORS IN UKRAINE (1)

BENEFITS

- **The potential for JI projects is large due to energy intensive economy, obsolete equipment, limited financing availability**
- **There are possibilities to find significant amount of medium and large scale JI projects and thus reduce transaction cost**
- **Good prospects for quick projects approval (practically all procedures developed and are to be confirmed soon)**
- **Existing wide infrastructure of scientific research and design organisations can provide high quality projects and thus mitigate non-registration risks**
- **Ukraine as Annex 1 Party is interested in the projects that really are additional, thus lowering non-registration risk**
- **Ukraine will not become a member of the EU anytime soon that otherwise could reduce the additionality of a large number of potential JI projects**

Slide 10

BENEFITS AND RISKS FOR CARBON INVESTORS IN UKRAINE (2)

RISKS

- JI project rejection risk
- Non-registration risk
- In case of project delays the risk of profit losses due to rising ERU prices
- Non-performance (non-delivery) risks

Slide 11

AGENCY FOR RATIONAL ENERGY USE AND ECOLOGY

ADVISORY SUPPORT FOR JI MECHANISM: COMPLETED OR ONGOING ACTIVITIES

- Provisional regulation on review, approval and implementation of JI projects
- Draft letters of endorsement and approval (LoE and LoA)
- Project idea note (PIN) and project design document (PDD) formats
- Procedures for obtaining LoE and LoA
- Draft requirements, criteria and selection rules for JI projects
- Methodological guidance on developing PDDs for JI projects

Slide 12

AGENCY FOR RATIONAL ENERGY USE AND ECOLOGY

KEY FACTORS FOR JI SUCCESS IN UKRAINE

- Quality project documentation
- Sufficient projects pipeline
- Efficient national policy and procedures
- Local capacity for projects processing (Track 1)

Slide 13

AGENCY FOR RATIONAL ENERGY USE AND ECOLOGY

PROJECT APPROACH TO TRAINING

- Overview of the previous trainings
- Training needs analysis
- Identification of target groups
- Group-specific training activities
- Post-training assessment

Slide 14

AGENCY FOR RATIONAL ENERGY USE AND ECOLOGY

MAJOR TARGET GROUPS IDENTIFIED

- Potential project hosts (enterprises)
- Local project developers and validators
- Relevant ministries and other government bodies

Slide 15

AGENCY FOR RATIONAL ENERGY USE AND ECOLOGY

AREAS OF TRAINING PROVIDED

- General requirements and Ukrainian context for JI activities
- Procedural and methodological guidance for project development
- Carbon market situation and potential sources of finance:
- JI projects experience

Slide 16

POTENTIAL JI PROJECTS WITH OBTAINED LETTER OF ENDORSEMENT

- Number of projects – 17
- Sectors: Energy- 1; District heating – 4; Coal mining – 3; Biomass utilization – 1; Landfill methane - 5; Energy efficiency in industry 1; Non-traditional fuel -1; Liquid waste treatment - 1
- Cost range: $0.29- 54.2 million
- Emission reduction range in the period of 2008-2012: 0.077 – 15.2 million t CO_2-e

Slide 17

NATIONAL CLIMATE CHANGE WEB-SITE: http://www.climate-change-ukraine.info

Slide 18

Verification, Monitoring and Reporting – from a Designated Operational Entity's Perspective

Werner Betzenbichler
Thomas Kleiser

TÜV Süd Group, Munich

TÜV SÜD Carbon Management Service

Verification, Monitoring and Reporting – from a DOE's perspective

Leipzig – October 25, 2005

Werner Betzenbichler
TÜV Industrie Service GmbH
TÜV SÜD Group

Slide 1

Reference List (CDM/JI)

Project types:
- renewable energy
- energy efficiency
- fuel switch
- landfill gas
- afforestation

Locations:
- Albania
- Argentina
- Brazil
- Bulgaria
- Chile
- China
- Columbia
- Czech Republic
- Ecuador
- Egypt
- Estonia
- Fiji
- Hungary
- India
- Indonesia
- Latvia
- Marocco
- Mexico
- Moldawia
- Nicaragua
- Panama
- Paraquay
- Peru
- Poland
- Romania
- Russia
- Slovakia
- South Africa
- Tansania
- Trinidad
- Uganda
- Ukraine

Slide 2

Project identification

Experiences:

- project size is too small resulting in to small amounts of CERs or ERUs
- no approved methodology available ? not knowing what this means regarding time and work (at least 9 month delay)
- no knowledge about the baseline and additionality concept

Potential solutions:

- minimum size of projects (15.000 CERs/year)
- early pre-check to assure that the project qualifies for CDM ? avoidance of unnecessary costs
- support with experienced team/consultant

Slide 3

development of PDD

Experiences:

- project developer has not the necessary know how (economic, technical and methodological skills)
- stressing not the major issues first (Example: doing the stakeholder process before assuring that the project is additional)
- too ambitious timetable ? non perfect PDDs to be submitted

Potential solutions:

- Project team should be selected with care
- Compare with other projects already in the process

Slide 4

Validation

Experiences:

- Limited knowledge about the process and the requirements on the project developers side
- Result: large amount of revised PDD versions
- Timing: more than expected (3-9 month, although in the ideal case only 8 weeks)

Potential solutions:

- More transparency and information in advance
- higher requirements for acceptance of draft PDDs
- more information can be obtained in the Validation and Verification Manual (VVM) – www.vvmanual.info

Slide 5

Deficits in the project description

In brown-field projects the description of the current delivery system is often too limited.

The description of the technical equipment to be applied in the project is often not detailed enough or missing.

The management structure of the project and the corresponding responsibilities are often not clearly described or missing.

Risk management tools in case of unintended developments affecting the projects' success but also the generation of carbon credits could be defined more precisely.

Slide 6

Deficits in Baseline and Additionality

A storyline which is applicable to the baseline scenario as well as to the additionality discussion should exist. The baseline discussion and the additionality discussion should not contradict each other.

The baseline should not reflect the reality but literally follow the methodology – in a complete manner.

The additionality discussion should focus on the requirements set – for example in the add-tool. Comprehensive elaborations should be avoided.

Reasons for the assumptions made should be given.

One issue remains:
Validation has to assess a "risk dilemma": Project developers try to show that the project has low risk. At the same time barriers and/or unfavourable economic conditions should be shown.

Slide 7

Observations: Global Stakeholder Process

Stakeholders and Parties contribute rarely to the global stakeholder process.

The chance to comment on projects is mainly only taken by accredited observer organisations as environmental NGOs.

Most comments given are negative. The number of comments for JI projects is lower than for CDM projects.

TÜV SÜD welcomes all comments and takes them in its conclusion into account.

Slide 8

Letter of Approval

Experiences:

- respective department in the host country is not installed, or has not the necessary competence / knowledge to issue a LoA
- no English version of the LoA is available
- different approach in major host countries: India, China, Brazil, R, Russia, Ukraine

Potential solutions:

- political lobbying
- limited influence of DOEs
- early contact in most cases advisable

Slide 9

Implementation and verification

Outlook:

- Will implementation be as planned? JI experiencnes indicate: No!
- What will happen if not? To what extent the project can change?
- What happens if it becomes obvious that the additionality discussion is no longer valid? - Example: LFG project starts feeding electricity to the grid.
- First results: 30% and 96% of prognosis figures in CER production

Slide 10

Next steps

- Registry and transfers feasible and business oriented
- Ability of the CDM EB and JI-SB to stabilize process and make it more efficient
- Quality standard applied in verification process, requirements by DOEs, IEs, CDM EB and JI-SB
- Option to establish a supply programme rather than "supply projects" (see AgCert, RAO, etc)

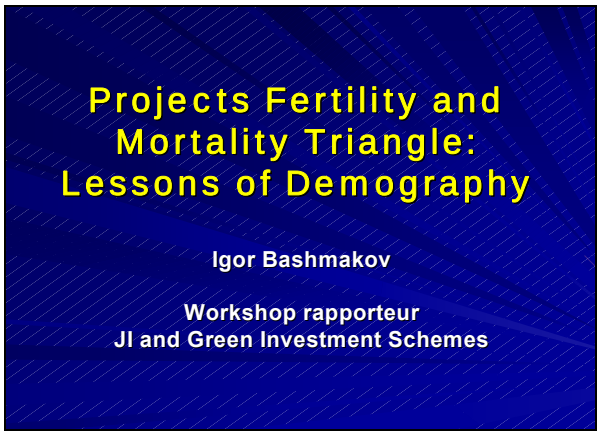
Slide 11

Slide 12

Workshop 3: JI and Green Investment Schemes

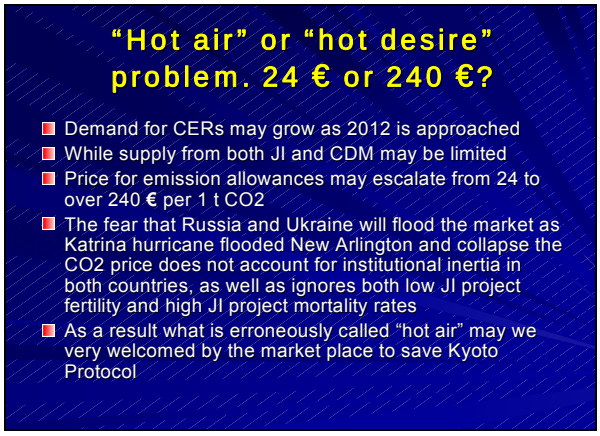
Rapporteur: Dr. Igor Bashmakov

Center for Energy Efficiency CENEf, Moscow



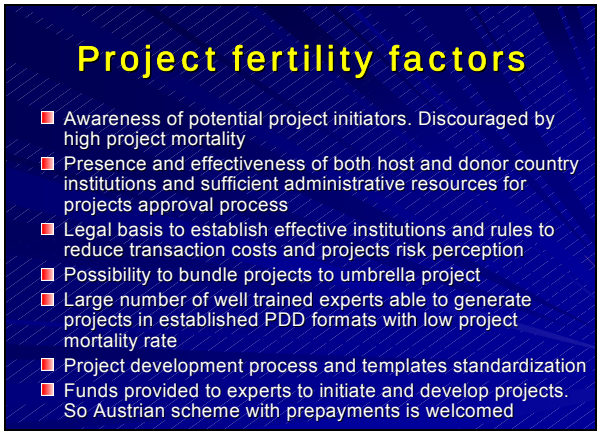
Slide 1

Slide 2

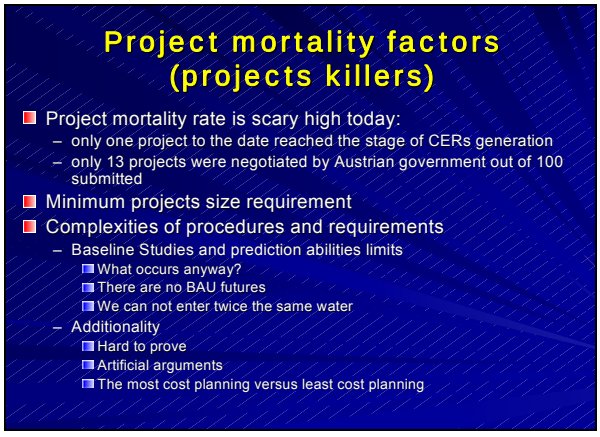


Slide 3

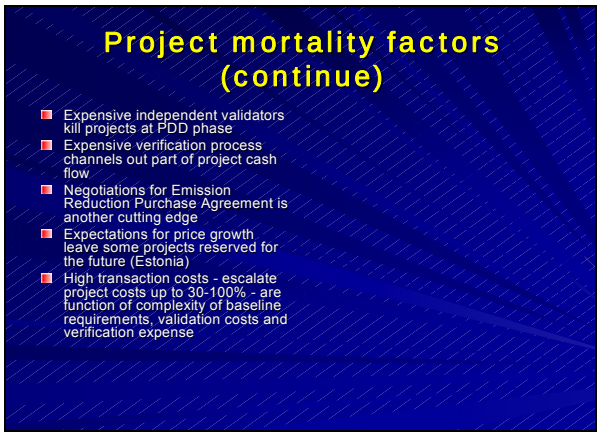
Slide 4



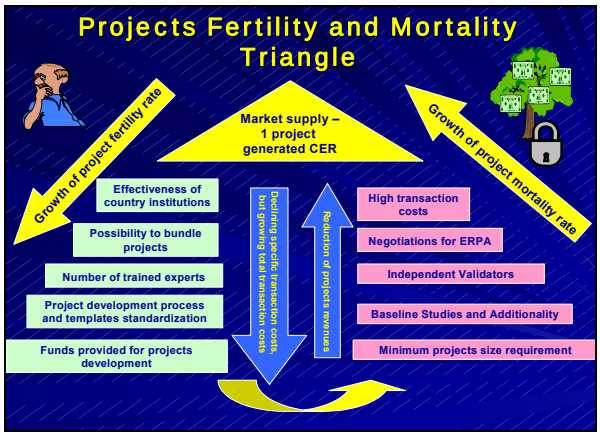
Slide 5



Slide 6



Slide 7



Slide 8

Slide 9

Unilateral Financing as a Way to Survive on the CDM Market

Dr. Liliya Zavyalova

Technology Transfer Agency, Uzbekistan

A. Introduction

Clean Development Mechanism (CDM) is commonly regarded by developing countries as a tool for attraction of additional foreign investments and advanced technologies for solving of their economic issues. For developed countries it is the cheapest option of GHG emission reduction purchase for fulfillment of their commitments. All of them criticize complicated bureaucratic procedures and unreasonable stringency of CDM project approval and registration process. Thus, by 1 August 2005 only 12 CDM projects were registered. According to Mr. C.J.Jepma, JIQ Chief Editor "considerable blame for this little progress is put on the unnecessary project additionality test and its stringent interpretation by the MethPanel, sanctioned by the CDM EB".

CDM game is being played by rules, which in some cases are ambiguously interpreted by different experts. For instance, it is not specified by the Marrakech Accords whether it is compulsory for an Annex I Party to be involved in the entire CDM project cycle or not. Some experts consider that unilateral CDM projects are eligible under the Marrakech Accords; their opponents hold the contrary opinion. Their major concern is that CERs generated under unilateral CDM projects cannot be used in future as developing countries are not involved in emission trading.

This argument was settled in February 2005 upon the adoption of a principal decision on unilateral CDM project registration. At its 18th meeting the Executive Board agreed that the registration of a project activity can take place without an Annex I Party being involved at the stage of registration. However, it was also mentioned that "Before an Annex I Party acquires CERs from such a project activity from an account within the CDM registry, it shall submit a letter of approval to the Board in order for the CDM Registry administrator to be able to forward CERs from the CDM registry to the Annex I national registry". The present analytical paper represents an attempt to make an analysis of the following: how application of unilateral financing model can encourage CDM activity in Central Asian countries.

B. Background

Idea of unilateral financing was suggested for the first time in the framework of a pilot phase of the Activity Implemented Jointly (AIJ). A national umbrella finance fund was established in Costa Rica. It purchases from project developers only a part of emis-

sion reductions, the so-called Certifiable Tradeable Offsets (CTOs). International investors could simply buy the CTOs, not bearing project risks. And Costa Rica was able to choose priority fields of project implementation according to its own economic necessities and political preferences, not being orientated towards potential investors' interests.

Latin-American countries proposed to use unilateral financing model for CDM as well. Notwithstanding the on-going theoretical debates about legitimacy of unilateral CDM projects, they started to develop such projects and submit them to the Executive Board for registration. By 1 August 2005 four projects out of 12 registered ones (3 in Latin America / 1 in India) were developed without involvement of western partners.

For the time being unilateral CDM financing is more the exception rather than the rule. In most cases CDM project implementation implies alliance between a CDM investor and a host country. Their cooperation starts at the early stage of a project cycle – preparation of Project Design Document (PDD). Most of carbon funds and programs reimburse for any costs related to PDD development and validation, however, this is not done on a free basis. Prepayment is to be deducted from carbon revenues. In other words, with the existing CERs prices carbon revenues, especially in case of small-scale projects, will be minimized by transaction costs.

C. What is the main difference of unilateral financing?

As mentioned above, unilateral financing is not a rigid concept. Those experts, who proposed this financing model for CDM purposes proceeded from the following postulate: "not forbidden means allowed". As the Marrakech Accords do not specify whether an Annex I Party must be involved in the entire CDM project cycle or not, a non-Annex I country may also take the initiative of CDM project development. Main distinctions of unilateral financing are given in Table 1.

Table 1: Distinctions of different forms of CDM project financing

	Bilateral and multilateral CDM financing	Unilateral financing
Sources of CDM financing	Carbon funds, CDM/JI programs of Annex I countries, individual companies	non-Annex I host country
CDM project type	Projects beneficial for a CDM investor	Projects beneficial for a host country
CERs cost	Project risks reduce CERs actual cost	Actual CERs will be more expensive
Transaction costs	They are high mainly due to high daily rates of Western experts	They are 10-30 times lower if PDD is prepared by local experts
Host country private capital involvement	Limited	Wide opportunities for private capital attraction
CDM institutional building in host country	Disappointingly slow process due to the lack or limited number of CDM projects.	Bias in favor of infrastructure development for CDM project implementation, including institutional and legal issues.

C.1 CDM project financing

CDM projects are normally financed by different carbon funds or CDM/JI programs established in most of developed countries. According to estimation made by Prof. M.Grubb, a CDM project will become financially attractive if CERs cost amounts to $40/per ton at the least. To date CERs price level in the world carbon market is significantly lower ($3-7). Forecasts of further CERs price level are rather contradictory; nevertheless, none of analysts does not predict any jump in prices till the end of the first period of commitments.

CDM project developers are faced with the following dilemma: how to find additional financial sources, as carbon revenues can cover only a part of investment costs. This is not a simple task, taking into consideration that the projects with short payback period may fail to pass additionality test and financially inferior projects are of little interest to investors. Complicated financial schemes proposed for project financing, e.g., loans granted by local banks and attraction of financial resources owned by another foreign investor (not CDM) may scare off potential foreign investors as in this very case risk of project failure will increase.

In case of unilateral financing a CDM game is being played only on one side of the ground. In the present state of affairs those developing countries, which insisted on inclusion of the clause: “state financing of CDM projects by Annex I Parties should not lead to withdrawal of official development aid” into decision 17/CoP7, may shift their ground and leave to their own discretion the following issue: whether to attract such assistance, if so, to what extent. Besides, the government can somehow encourage CDM project activity, for instance, through introduction of preferences into tax and customs legislation.

C.2 CDM project type

Through analysis of projects submitted to different carbon funds it might be concluded that very often only those CDM projects, which are to produce emission reductions at least amounting to about 1 Mt of CO_2-eq. before the end 2012 may expect to be selected, with the exception of special development funds, e.g. WB’s Community Development Carbon Fund (CDCF). Analysts expect that with such a tendency most part of CERs (around 70%) will be purchased in India and China. In other words, those countries, where major part of a CDM potential is comprised of small-scale projects proved to be noncompetitive in the CDM market.

With the existing severe competition unilateral financing is one of possible options for attraction of CDM resources. The key element of this financing model is that CDM activity is initiated by a host country and CDM project portfolio is formed proceeding from national economic and social development priorities. For instance, most of developing countries face a problem related to power supply of rural and remote areas. RE use (solar, wind, small hydropower) is often the only and rather expensive solution. Renewable energy development is either not financed from the budget at all or such financing is extremely scanty, i.e. through CDM investment attraction to this economic sector, the government can kill two birds with one stone- to solve its social problems and receive CERs, which might be sold to a foreign CDM investor. These projects might be financed through a national CDM fund established in the framework of unilateral financing.

C.3 CERs cost

Low level of CERs prices on the international CDM market is determined by numerous factors, key of them are given below:

- Supply-and-demand ratio;
- Ultimate purpose of purchased volumes of GHG emissions (fulfillment of commitments under the Kyoto Protocol, national trading systems, voluntary markets);
- Buyers' willingness to pay.

Issues related to sharing of project risks are also of utmost importance. Since CDM investors bear most of these risks, consequently, it affects ultimate price for the product, i.e. CERs.

In case of unilateral CDM projects a host country bears most part of project risks. In that case it is quite logically to assume that price for CERs generated under unilateral projects will be higher than those produced under conventional CDM projects. There are no such precedents so far, as 4 registered unilateral CDM projects have not issued any CERs.

C.4 Transaction costs

One of major disadvantages of CDM projects is high transaction costs. In case of small-scale projects they may sometimes even exceed carbon revenues. As a result there will be no point in CDM project participation. The lion's share of transaction costs accounts for remuneration of consultants hired for: a) PDD preparation; b) validation of CDM projects; and c) CERs verification and certification. Much of the work in this field is done by expensive European consultants with daily rates over $1,000. For reference, their colleagues from the developing countries are much cheaper (their daily rates are 10-30 times lower).

According to the Marrakech Accords validation, verification and certification procedures can be carried out only by those auditing companies, which are accredited by the CDM Executive Board (by 1 August 2005 -8 companies from Annex I countries). Only highly qualified companies involved in environmental audit and certification can meet the requirements set by the Executive Board for bidders. Besides, not all of the companies from developing countries are committed to pay a non-reimbursable accreditation fee at the rate of $15,000. Even the decision of COP 8 specifying that companies from developing countries should pay this fee in two stages (50% upon accreditation) failed to be a powerful incentive. For the time being only 5 applications were submitted by the companies registered in developing countries. Auditing companies from developing countries acknowledged at the international level most likely will require payment for implementation of similar activities (validation, verification and certification) comparable with that of the western companies.

At the same time, it is not specified whether only western consultants are entitled to develop PDD and all associated documents. Theoretically, any company may participate in tenders announced by carbon funds. In practice, experts from developing countries have nearly the same chance to win tender as if they play roulette. Their traditional role is to collect necessary information for analysis, which will be made by a western expert.

The existing situation may be changed in case of unilateral CDM projects. For PDD development it is possible to attract local specialists, thus, reducing respective costs from $30,000-50,000 down to $4,000-5,000. It is also important that professionals engaged in the CDM project cycle are gradually learning “how to get through Bonn”.

C.5 Involvement of host country private business

Unilateral financing is a real chance to involve private business from developing countries into CDM project implementation. This primarily applies to SME, which could receive carbon revenues from CERs sale, for example, through introduction of RE or energy saving measures to their enterprises. So far private companies’ involvement in CDM project implementation is limited because due to the lack of legal and regulatory framework private business is reluctant to invest money in such a dubious venture as a CDM project. In their turn CDM investors also want to have guarantees that a CDM project will be implemented, preferring to choose public organizations as CDM partners.

Private business might make an important contribution to creation of a national CDM fund for provision of support to unilateral CDM projects.

C.6 CDM Institutional development in host countries

One of constituents of successful CDM development is a well-organized CDM project implementation infrastructure in host countries. Modalities and procedures of CDM project selection and approval should be credible and transparent. Creation of such an infrastructure will substantially depend on initiative of CDM Designated National Authority (DNA) in charge of CDM issues in the specific country. Infrastructure is normally formed along with preparation of potential CDM projects. A proportional dependence will most likely take place here. The stronger interest taken by CDM inventors in the particular country, the more active will be DNA’s measures aimed at creation of legal and regulatory framework, development of modalities and procedures of CDM project selection, expertise and approval. If a host country is just theoretically aware of CDM projects, process with the CDM will remain disappointingly slow.

The decision to apply unilateral financing model in a specific country will be a good incentive to creation of efficient CDM infrastructure. For instance, a host country DNA prepares a portfolio of potential CDM projects. It depends on local conditions how this will be done. One of the alternatives is to declare tender. In this case tenders should be informed about CDM project selection, expertise and approval modalities and procedures. It is necessary to establish a Roster of experts under the DNA, which will carry out project pre-assessment. On its basis DNA will make a decision whether to approve or reject a specific project. CDM PDD may be developed either by project proponent or hired consulting company. Another advantage of unilateral financing is the following: national experts will have to improve their qualification if they want to have their projects registered by the Executive Board. It is possible to start searching for potential CERs buyers upon project registration.

D. Why unilateral CDM is beneficial for Central Asian countries?

Central Asian countries are somewhere at the initial stage of CDM market development. In the framework of the EuropeAid Project "Technical Assistance to Central Asian Countries with Respect to Their Global Climate Change Commitments" development of CDM project implementation modalities and procedures was started, CDM training seminars are held and first PINs are being prepared.

D.1 Background

The most advanced country in terms of CDM is Uzbekistan. PCF's portfolio includes two projects aimed at heating system improvement in Andijan and Tashkent. Andijan project is currently at the stage of approval by the Executive Board. Nowadays implementation of two CDM projects related to introduction of energy efficient measures into chemical industry is being negotiated with the Danish Carbon Fund. To date a Letter of Endorsement (LoE) is signed and potential projects, which will be implemented in the CDM framework, are selected. Japanese companies are taking a keen interest in CDM project implementation in Uzbekistan. By commission of NEDO, Shimizu Company is currently involved in PDD development for a CDM project on methane recovery at Akhangaran landfill. However, there is still lack of a DNA in the country, due to which CDM projects from Uzbekistan cannot be registered by the Executive Board.

CDM investors are also keeping an eye on Kirgizstan. At the beginning of 2005 it signed MoU with the Danish Carbon Fund; two project proposals were selected for subsequent PDD preparation. Here the same scenario is possible as in Uzbekistan, i.e. lack of DNA will prevent projects to be registered by the Executive Board.

As for position of Tajikistan and Turkmenistan, these countries are to be placed at the end of the regional CDM project rating. Thus, Tajikistan hasn't ratified the Kyoto Protocol so far, though it makes certain attempts in the field of CDM PIN development. Turkmenistan does not attract CDM investors most likely due to political reasons. Nevertheless, national experts continue to prepare projects hoping to submit them to the WB's carbon funds at least. However, a DNA hasn't been established in this country either.

D.2 Access to CDM resources

As discussed above, despite existing declarations about equal involvement of all non-Annex I countries in CDM project implementation, there is a bias in favor of large projects and resource-rich host countries. At present only Latin American countries can really compete with China and India on the CERs market.

In case Central Asian countries' CDM rating was assessed by PointCarbon, for sure they would not have entered into ten leading countries. Major reasons: (i) none of them has established DNA; (ii) basing on results of overall investment climate assessment they are considered as countries with high level of risk; (iii) CDM infrastructure development is in embryo; (iv) there are no examples of CDM project registration so far. Potential CDM investors showing most likely theoretical interest in the region will retreat if the existing situation is not radically changed at least as regards items (i) and (iii).

Slow progress with the CDM might be determined by the fact that high-rank officials are simply not aware of CDM potential. Apparently, it seems to them that there is no point in execution of extensive preparatory work for implementation of one or two projects. The current situation might be changed if it would be demonstrated to Central Asian governments that the CDM is not a temporary phenomenon, CDM projects may be implemented on a regular basis and through CDM project implementation it is possible to attract private business' financial resources for solving of national economic and social problems.

Unilateral CDM projects could become a powerful engine to get the CDM machinery really going in Central Asian countries. Firstly, a CDM project portfolio may be formed irrespectively of a potential western partner. This will allow to include projects beneficial, e.g., for Uzbekistan, rather than a CDM investor. Secondly, unilateral CDM projects will encourage prompt development of legal and regulatory framework – a foundation stone of CDM infrastructure. And, finally, Central Asian countries' private business, showing a strong interest in CDM project implementation, might actively participate in unilateral projects. This primarily applies to SME, for which expected CDM revenues would be a sound argument for project implementation.

D.3 Local experts' capacity building

As discussed above, involvement of local experts in PDD preparation for a unilateral CDM project will substantially reduce respective transaction costs. In case of attraction of local consultants there will be no problem of translation. In addition, they are better informed about the situation in their home countries.

Position of a CDM consultant requires a high level of proficiency. It opens up a promising window of opportunities for ambitious business and consultants in Central Asian countries. CDM training seminars held in Central Asian countries have shown that local experts are committed to take part in CDM project preparation. In practice, their level of skills is not sufficient for preparation of a valid PDD, even in case of a small-scale project. Undoubtedly for training and upgrading of local specialists on a level with the highest world standards it is desirable to second them to western consulting companies involved in CDM/JI projects. It should be mentioned that baseline and monitoring plan preparation guidelines overloaded with information are not always clear to local experts. Obviously for those countries with Russian-speaking population it would be useful to have Russian version of the Guidelines.

D.4 Unilateral CDM projects prospects in Central Asia

Today it is very difficult to predict whether unilateral CDM project financing will develop in Central Asian countries or not. Among its advantages are the following:

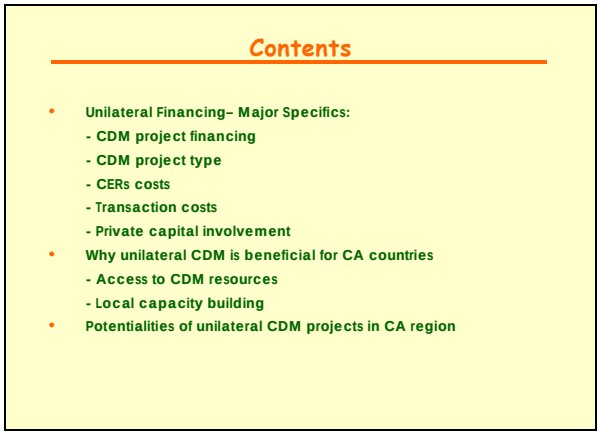
- Reduction of transaction costs covered from carbon revenues;
- Encouraging of CDM activity in the country;
- Availability of host country CDM experts of the international level;
- Private business involvement in CDM activity.

Major disadvantage is the following: it is not quite clear what will happen upon registration of a CDM project and generation of the first CERs. What if a CDM investor willing to buy the CERs will not be found by this moment? Whether there will be problems related to CERs issue in case a real CDM investor is lacking? And,

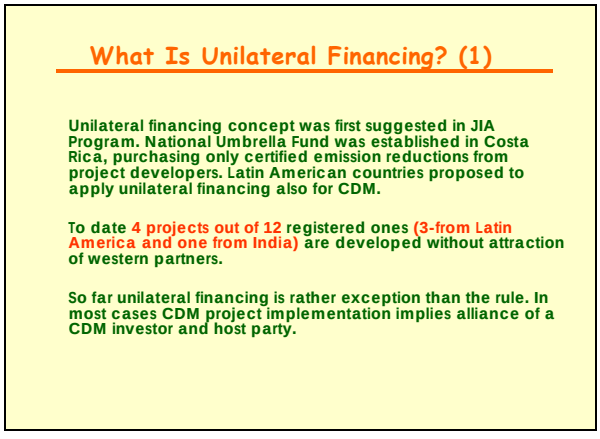
finally, what to do with the issued CERs if a potential buyer is not found? Apparently, all these questions can be answered once the CERs have been produced by registered CDM projects.

National carbon fund could act as a liaison office between CDM project participants of host country and western CDM investors willing to buy CERs in this particular country. Founders of such a fund might include government, private business, banks and western investors. The fund could partially (up to 50%) cover project investment costs to be repaid from future revenues gained from CERs sale. The fund will finance only the projects approved by the DNA. Generated CERs are to be subsequently sold to a western investor/ broker.

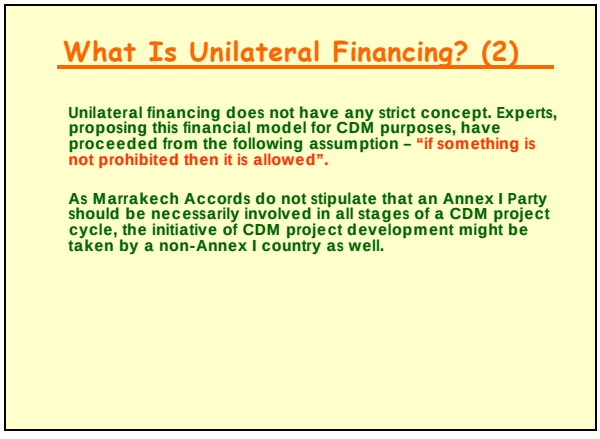
Slide 1



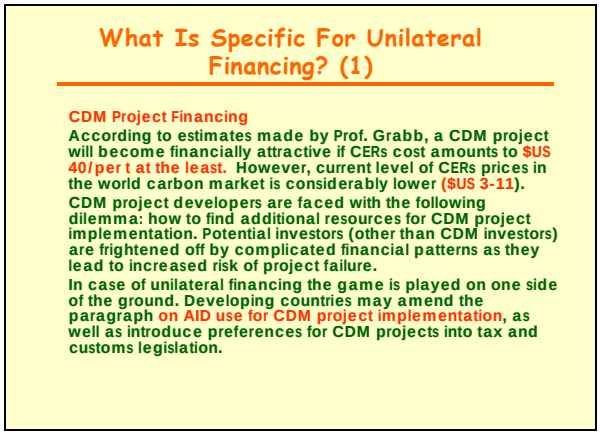
Slide 2



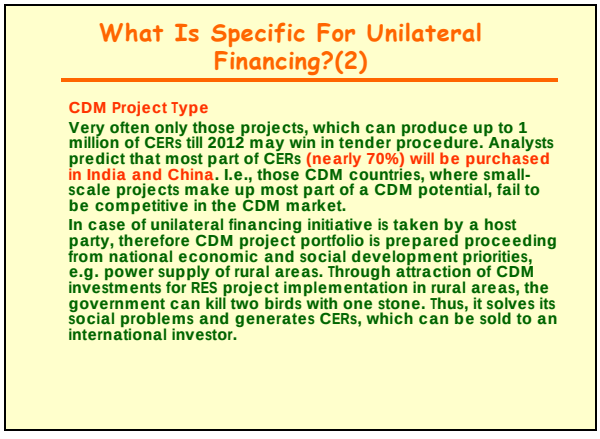
Slide 3



Slide 4



Slide 5



Slide 6

What Is Specific For Unilateral Financing?(3)

CERs Costs

Low level of CERs prices in the international market can be explained by several factors. Key of them are the following:

- Supply and demand ratio;
- Ultimate purpose of Kyoto units;
- Buyers' readiness to pay;
- Sharing of risks related to project preparation and implementation.

In case of unilateral CDM projects a host party takes upon itself most part of project risks. It is quite logically to assume that CERs generated under a unilateral project will be more expensive than those of an ordinary project. At present cost of CERs produced under registered projects amounts to $US 7-11 with average market prices equal to $US 3-5.

Slide 7

What Is Specific For Unilateral Financing?(4)

Transaction Costs

The lion's share of transaction costs accounts for remuneration of consultants hired for:

- PDD preparation;
- CDM project validation;
- CERs verification & certification.

Western experts normally act as consultants with per diem rate exceeding $US 1,000.

Fees of their colleagues from developing countries are 10-30 times lower.

In case of unilateral projects it is possible to cut expenses related to PDD and accompanying documents preparation down to $US 4-5 ths. (instead of $30-50US ths.) through attraction of local consultants.

Slide 8

What Is Specific For Unilateral Financing?(5)

Host Country Private Capital Participation

Developing countries' private capital contribution to CDM projects is rather limited as in the lack of legal and regulatory framework businessmen are reluctant to invest their money in such a dubious activity as CDM projects.

In their turn CDM investors also want to have guarantees of successful CDM project implementation, therefore they choose public institutions as CDM partners.

Private capital could make an important contribution to creation of a CDM National Fund, aimed at facilitating unilateral financing project implementation.

Slide 9

What Is Specific For Unilateral Financing?(6)

CDM Institutional Development in a Host Country

The decision to apply unilateral financing model will be a good incentive for establishing efficient CDM infrastructure. First of all, credible CDM project selection and preparation modalities and procedures should be developed at national level. PDD may be developed either by a project proponent or hired consulting company.

National experts will be forced to raise level of their skills if they want their projects to "go through Bonn".

Slide 10

Why Unilateral CDM is Beneficial for Central Asian Countries?

Background

Central Asian countries are currently somewhere at the initial stage of CDM market development.

Uzbekistan. Two projects on heating sector's energy efficiency improvement were included into PCF pipeline. Baseline and monitoring plan methodology for these projects was sent back for revision twice. Ultimately, it was decided to withdraw these projects from PCF portfolio.

Implementation of two CDM projects is being currently negotiated with the Danish Carbon Fund.

Japanese companies are extremely active in this field. Thus, a PDD for domestic waste utilization project was prepared.

Major problem is a lack of DNA and well-developed CDM infrastructure.

Slide 11

Why Unilateral CDM Is Beneficial For Central Asian Countries? (2)

Kyrgyzstan. Negotiations with the Danish Carbon Fund for implementation of two CDM projects are under way now. Due to the recently established DNA Kyrgyzstan's rating in the CDM market has been greatly improved.

Tajikistan. Kyoto Protocol is not ratified so far, though certain attempts are being made in the field of PIN development for CDM projects. Most likely that upon KP's ratification a DNA will be shortly established.

Turkmenistan: is not attractive for CDM investors mainly for reasons of policy. DNA is also lacking. Nevertheless national experts are dealing with PIN preparation for CDM projects.

Slide 12

Why Unilateral CDM Is Beneficial For Central Asian Countries? (3)

Access to CDM Resources

Despite declarations about equal CDM project participation there is an explicit bias towards large-scale projects and host countries rich in natural resources. For the time being only Latin American countries may be real competitors for India and China in CERs market. If Central Asian countries' rating is built on PointCarbon methodology, no doubt that they won't be among ten top countries.

Main reasons:

- None of them has established a registered DNA;
- Basing on assessment of overall investment risk they are being considered as high-risk countries;
- CDM infrastructure development is currently at the initial stage;
- Not a single CDM project has been registered so far.

Slide 13

Why Unilateral CDM Is Beneficial For Central Asian Countries? (4)

Access to CDM resources (2).

Disappointingly slow CDM progress might be determined by a low level of high-rank officials' awareness about CDM potential. Perhaps, it simply makes no sense for them to carry out a huge amount of preparatory work for implementation of a couple of projects.

The existing situation can be changed through demonstration that:

- CDM is not a temporary phenomenon;
- CDM projects can be implemented on a regular basis;
- By means of CDM projects it is possible to attract private capital for implementation of national economic and social programs.

Slide 14

Why Unilateral CDM Is Beneficial For Central Asian Countries? (5)

Local Capacity Building

CDM consultant's activity requires a high level of proficiency, opening up attractive opportunities for ambitious representatives of CA business circles and consultants.

In practice, local experts' qualification is not sufficient for preparation of a valid PDD even for a small-scale CDM project. Time and money are required in order to prepare specialists of international level, including their secondment to western consulting companies, acting in this field.

Slide 15

Potentialities of Unilateral CDM Projects in Central Asia (1)

For the time being it is rather difficult to predict whether unilateral CDM financing will develop in CA countries or not.

Advantages of unilateral financing are obvious:

- Reduction of transaction costs paid from carbon revenues;
- Stimulation of CDM activity in a specific country;
- Emerged pool of local world-class CDM experts;
- Private capital involvement in CDM activity.

Slide 16

Potentialities of Unilateral CDM Projects in Central Asia (2)

Disadvantages:

- It is not quite clear what will take place after CDM project registration and generation of first CERs. What will happen in case a CDM investor, willing to buy CERs, is not found?
- Whether there will be any CERs issue related problems in the lack of a real CDM investor;
- How to deal with CERs if they are issued and potential buyer is found.

Slide 17

Potentialities of Unilateral CDM Projects in Central Asia (3)

National Carbon Fund could become a connecting link between local CDM project participants and western CDM investors, willing to buy CERs in a specific country.

Its founders could include: state, private business, banks and western investors.

Fund could partially (up to 50%) cover project investment costs on account of revenues expected from CERs sale.

It finances only projects approved by DNA.

After that generated CERs are sold to a western investor/broker.

Slide 18

Nubarashen Landfill Gas Capture and Power Generation Project in Yerevan

Dr. Diana Harutyunyan
Artem R. Kharazyan

Ministry of Nature Protectio, Armenia

Project background

Since 2001 Shimizu Corporation, a Japanese construction and engineering firm, has conducted a series of studies oriented to implementing CDM projects in several sectors of Armenian economy. Among the three chosen projects on pre-feasibility assessment stage was: “Introduction of co-generation system into district heating system in Yerevan”, “Small scale hydropower plant” and the one which proposes collection of landfill gas (LFG) from Nubarashen landfill site in Yerevan and its further combustion in a gas engine generator. The later appeared to be the most promising and to that end the draft of a feasibility study for utilization of methane gas at landfill disposal sites in Yerevan was developed by the request of NEDO in 2002. The study presented overview materials on the Republic of Armenia, solid waste management utility in Yerevan, environmental legislation, outline of the implementation site etc. Later on after a series of consultations with the key ministries and officials this research served as a basis for the development of the project design document (PDD).

Description of the project

The Nubarashen landfill site has been handling the solid waste of Yerevan City ever since its establishment on the outskirts of the city in 1960. The landfill site is divided into three sections, A, B and C, each covering an area of 20 ha. Site A started service in 1960 and became full in 1985; Site B has been in service from

1986 until the present day; and Site C has been set aside for future use. Having said that, since use of the site in reality has been rather unregulated, the partitions between the three sections are fairly ambiguous and it is not clear when each section was filled either.

Nubarashen landfill site receives almost all the solid waste of Yerevan City, which has a population of approximately 1,280,000. Almost all the waste going to Nubarashen is composed of domestic waste discharged by citizens, whereas currently the industrial waste accounts for only a small proportion. The amount of

waste carried into Nubarashen landfill site is roughly estimated as 420-450 tons/day and, even taking the most conservative estimate, 149,100 tons/year (assuming daily operation except for year end and New Year, 420 x 355 days, as of 2004). However, since incoming waste is only managed according to the number of trucks entering the landfill site, there are no accurate data concerning the quality and quantity of the waste.

Due to a lack of funds, site operation and heavy machinery maintenance cannot be carried out according to the prescribed manuals (landfill standards), and many machines are in a state of disrepair following breakdowns. Landfill gas (LFG) from the site is released into the atmosphere unchecked and current conditions on the site are detrimental to the local environment. This is because LFG is a source of odor when emitted in low concentrations and is a potential cause of explosion or ignition when emitted in high concentrations.

Moreover, since the main constituent of LFG is methane, which has a global warming potential (GWP) of 21, it also has a negative impact on the global environment. Yerevan city tried to collect LFG in the past, however, this attempt failed due to the lack of funds and also insufficient technical capacity.

It is assumed that the capacity of gas engine generator (GEG) is 1.7MW, but the capacity will be reconsidered according to the real amount of generated LFG after installing LFG collection system and confirming the amount of LFG. When the real amount of generated LFG is found to be too small or too unstable, it is possible that the project participant will give up installing GEG and will use only flaring. In addition, after studying feasibility of introducing co-generation to supply heat for local customers, the decision will be made to install co-generation at the landfill or not.

LFG collection system is composed of vertical collection holes, horizontal gas drains, gas collection pipes, airtight sheet, gasholders, measuring instruments, and blowers. This applies technology adopted in cases where ground containing high water content is improved by the vacuum consolidation method. It is a high-efficiency system in which an LFG collection efficiency of 60% or more can be anticipated.

Biogas small-scale GEG technology is composed of a gas engine capable of realizing stable operation using even a rarefied LFG like methane, generators, control panels, grid connection lines, and measuring instruments. The gas engine has generating efficiency of 30~40%. In addition, high-level technology is required for a gas engine that can stably operate on a rare gas fuel such as LFG.

The main characteristics of the project are presented in the Table 1. The project crediting period is 16 years, and the aggregate reduction of emissions during this period is estimated as 2.16*106 ton-CO_2. It is also expected to contribute to the appropriate running of the landfill site and have other environmental benefits.

Table 1: Characteristics of the project parameter according to PDD

Project number	0069
Project Title	Nubarashen Landfill Gas Capture and Power Generation Project in Yerevan
Host Party Authorized Participant	Republic of Armenia Municipality of Yerevan City
Other Project Participants	Shimizu Corporation, a Japanese general construction and engineering firm; Hokkaido Electric Power Company, Incorporated, a power company; Mitsui & Co., Ltd., a Japanese general trading company.
CER recipient	Japan According to the Statement of CERs allocations signed by the all four participants involved, 100% of the CERs issued from the CDM project must be forwarded to Shimizu Corporation's account in the Japan registry.
PDD Developer	Shimizu Corporation
Activity Sector	Fugitive gas capture and alternative / renewable energy
Activity Scale	Large
Methodologies Used	ACM0001 Consolidated methodology for landfill gas activities AMS-I.D Renewable electricity generation for a grid (for small-scale projects)
CO_2 emissions intensity of the electricity displaced	0.1539 t-CO_2 / MWh
Amount of Reduction	135 000 metric tonnes CO_2 equivalent per annum (2.16x106 ton of CO_2 e during crediting period of 16 years)
Proposed Crediting Period	16 years
Total Initial Costs (construction costs)	3.463.500.000 AMD
Project Stages	1st stage Construction of landfill gas collection system 2nd stage Construction of gas engine generation system
Project Timing (rough schedule)	01/01/2006: Starting date of construction works on LFG collection system 01/01/2007: Starting date of the first crediting period (operation of LFG col. syst.) 01/06/2008: Starting date of construction works on GEG 01/01/2009: Starting date of operation of GEG
Landfill Territory	The landfill site is divided into sections A, B, C (each covering an area of 20 ha) Site A has been used from 1960 to 1985 Site B has been in service from 1986 until now
Gas Engine Generator Capacity and Efficiency	1.7 MW, 30% could be reconsidered according to the real amount of generated landfill gas LFG
LFG Collection System Technology	Vertical collection holes, horizontal gas drains, gas collection pipes, airtight sheet, measuring instruments and blowers. LFG collection efficiency is about 60%
Project Economic Indicator	CER = 5 USD/t-CO_2 the IRR (before tax) = 7.96% and after tax IRR = 5.75% CER = 10 USD/t-CO_2 the IRR (before tax) = 18.59% and after tax IRR = 14.93%

Project status

A series of meetings in the Ministry on Nature Protection of RA as the Designated National Authority (DNA) for CDM under the Kyoto Protocol as well as on-site visits preceded the development of the final version of the PDD which was submitted for approval to the DNA on January 21, 2005. Shimizu Corporation, Hokkaido Electric Power Company, Mitsui & Co., Ltd. and Municipality of Yerevan stood as project participants.

The project document has been reviewed by the DNA in terms of its contribution to Armenia's sustainable development and was approved on February 16, 2005. A week later the project was approved by the Japanese Government. Later the project was validated by Japan Quality Assurance Organization as the Designated Operational Entity and submitted to the CDM Executive Board for registration.

The project was expected to be registered within 8 weeks upon its submission to the CDM EB according to official procedure. However, since three members of the EB made request for review mainly concerning the project validation, the second consideration of the project by EB was postponed till the next session of EB which will take place on September 28-30, 2005 (see details of events Table 2).

Table 2: Steps related to the Nubarashen landfill CDM project development and approval

Mar 2002	Study for Utilization of Methane Gas at landfill Disposal Sites in Yerevan, Armenia. NEDO-IC-OOER. Entrusted to Shimizu Corporation
January 21,2005	Official submission of the "Nubarashen Landfill Gas Capture and Power Generation Project in Yerevan" CDM project PDD to the Ministry of Nature Protection of RA as the Designated National Authority for CDM under KP
Jan 24, 2005	Site-visit Report for Validation (prepared by Japan Quality Assurance Organization)
Feb 16, 2005	CDM project approval by the Designated National Authority of Armenia
Feb 23, 2005	CDM project approval by the Government of Japan
Mar 31, 2005	The project validation (conducted by JQA)
Apr 21, 2005	Statement on CERs allocation at issuance (signed by four project participants)
May 23, 2005	Submission to the CDM Executive Board for registration
Jul 17, 2005	Expected date of project registration
Jul 19, 2005	Requests for review received from three members of the EB
Sep 28-30, 2005	The second revision of the project by the EB on its 21st session

Expected project outcomes

Along with the positive environmental outcome of the Project, the following benefits are expected:

- Odor prevention
- Wastes explosion and ignition prevention
- Replacement of exhausted energy generating sources
- Energy utilization
- Human development at innovative technology introduction
- Employment within the Project implementation

The stakeholder consultations and project endorsement procedures conducted at national level

At present Armenia is embarked on development of CDM projects under Kyoto Protocol. The Ministry of Nature Protection of the Republic of Armenia, as a national authorized body for Clean Development Mechanism considers the importance of national capacity building for efficient cooperation in the frames of Kyoto Protocol. The Nubarashen Landfill Gas Capture and Power Generation Project as the experience of cooperation and learning by-doing process was ultimately important for creating confidence between national stakeholders both on governmental and municipal level, as well as with private sector. That is why the Ministry of Nature Protection took the leadership on all stages of project document development including: organization of stakeholder consultations, awareness raising on the objectives of Kyoto Protocol and particularly on the CDM projects with Armenian project participant – the Municipality of Yerevan City. For that purpose a series of round tables were organized by the initiative of the UNFCCC Focal Point and the Environmental Department of the Municipality.

The Approval of Nubarashen Landfill CDM project document was time to date of Kyoto Protocol entering into force, on February 16, 2005. On this occasion the Round table was organized in the Ministry of Nature Protection with broad participation of stakeholder ministries, international organizations, private sector, as well as media representatives. After presentations on the Kyoto Protocol objectives, as an important international treaty, aimed at climate change mitigation and particularly the CDM as an opportunity for securing cooperation and sustainable development the Minister of Nature Protection as the DNA signed the Approval Letter of the project.

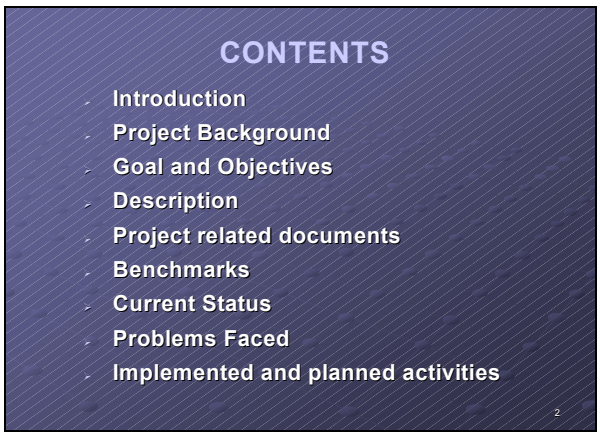
Considering as relevant the approach of ‘unique window’ for providing investors and local project participants with transparent and quick procedures for investment decisions, the DNA with support of technical assistance provided by the EuroAid project is currently developing regulations and procedures for evaluation and approval of CDM projects, which will be formally approved after stakeholder comments. National approval of CDM projects has a twofold purpose: to formally indicate that the country is voluntary participating in the specific project activity and the project is assisting in achieving national sustainable development goals and is consistent with the national legal system, including environmental regulations.

It is proper to mention also the other perspective cooperation frameworks developed in Armenia. Among those the Memorandum of Understanding signed between Danish and Armenian Governments in November 2004 (approved by President of Republic on March 2005) for implementation of Kyoto Protocol has an important role for identification and development of potential CDM activities.

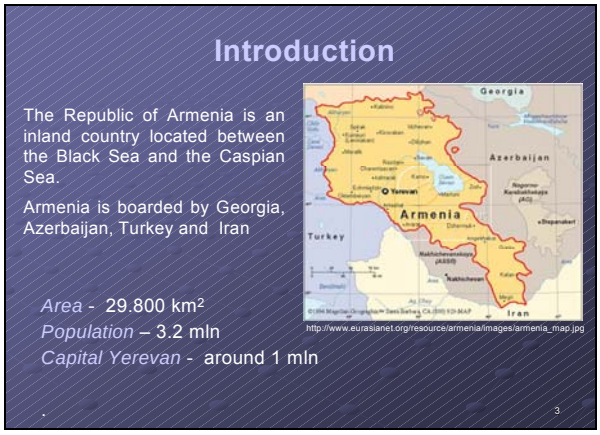
Currently four CDM project feasibility studies (1 PDD and 3 PINs) are developed and submitted for revision to DNA, including one hydro energy, one biogas and two industrial energy efficiency projects.

Besides the evident environmental benefits the CDM projects implementation opens up new perspectives for Armenia in establishing international cooperation in a number of spheres of the economy aimed at mitigation of climate change.

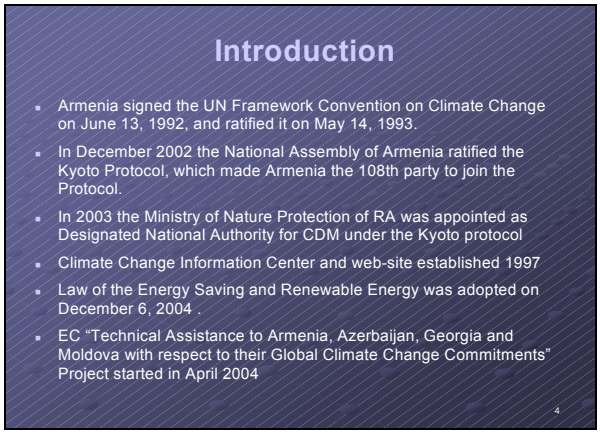
Slide 1



Slide 2



Slide 3



Slide 4

Studies conducted for identification of potential CDM projects in Armenia

- Arpachi micro hydropower plant project *(Hydro Energia Co., Ltd / Armenia and Ecofys BV / Netherlands)*
- Introduction of Co-generation System to the District Heating System in Yerevan *(GoA, NEDO, Shimizu Corporation)*
- Feasibility Study on Development of Hydro Power Plant Project in Republic of Armenia *(GoA, NEDO, Shimizu Corporation)*
- Feasibility Study on Utilization of Methane Gas and Power Generation of Municipal Wastes in Yerevan *(GoA, NEDO, Shimizu Corporation)* - most promising

5

Slide 5

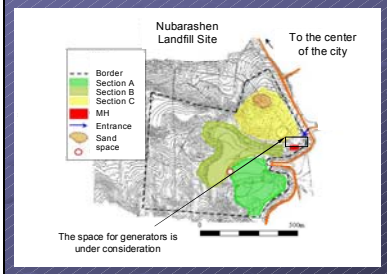
Project Site

The Nubarashen landfill site has been handling the solid waste of Yerevan City ever since its establishment on the outskirts of the Yerevan in 1960. The landfill's total area is 60 ha.

6

Slide 6

Map of the Nubarashen Landfill Site



The landfill site is divided into three sections, A, B and C, each covering an area of 20 ha.

Site A started service in 1960 and became full in 1985.

Site B has been in service from 1986 until the present day.

Site C has been set aside for future use.

Source: Project Design Document, Shimizu Corp.

7

Slide 7

Landfill waste

Almost all the waste is domestic waste discharged by citizens

Amount of the waste is estimated as 420-450 tons/day or 149.000 tons/year

The calculation methodology is based on number of tracks and their load

8

Slide 8

Landfill current environmental impact

- Air pollution (odor and waste spontaneous ignition)
- Impact on sanitary conditions in surrounding urban areas
- Contamination of underground waters
- Landfill gas (LFG) from the site is released into the atmosphere unchecked

9

Slide 9

Summary of basic conditions

- ✓ LFG collection is not carried out on Nubarashen landfill site.
- ✓ No legislation requiring collection of LFG on landfill disposal sites in Armenia, and no such legislation is planned.
- ✓ No legislation on waste mandatory recycling
- ✓ Absence of technical know-how and resources to implement LFG collection and utilization on the landfill disposal site.
- ✓ Absence of proper management and control at landfill site

10

Slide 10

Project Goal

To collect landfill gas from Nubarashen landfill site in Yerevan and to burn methane, a combustible gas contained in LFG in a gas engine generator (GEG) with a view to generating electricity.

Source: PDD

11

Slide 11

Project Objectives

Stage 1: **Construction of landfill gas collection system and supplying heavy equipments for landfill management**

- ✓ Construction of vertical extraction wells
- ✓ Construction of air tight seat
- ✓ Construction of lateral piping
- ✓ Construction of blowers
- ✓ Construction of gas treatment facilities
- ✓ Construction of gas reservoir facilities
- ✓ Construction of flare facilities
- ✓ Construction of safety system
- ✓ Construction of monitoring instruments regarding above system

12

Slide 12

Project Objectives

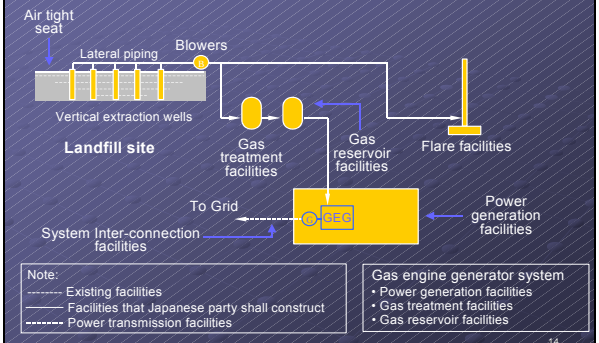
Stage 2: **Construction of landfill gas engine generator system**

- Construction of power generation facilities
- Construction of gas treatment facilities
- Construction of gas reservoir facilities
- Construction of monitoring instruments regarding above system

13

Slide 13

Project 1st and 2nd stages



14

Slide 14

Contribution to Sustainable Development

- Environmental benefits
  - Odor and spontaneous ignition prevention
  - Prevention of groundwater contamination
  - GHG emission prevention
- Economical benefits
  - Attraction of FDI
  - Power generation system substitution
  - Energy effective utilization effect
  - Additional income from power generation
  - Technology transfer
- Social benefits
  - Effect in terms of enhancing human resources through introduction of new technology and trainings
  - Employment creation effect (construction and operation)

15

Slide 15

Parties Involved

Host Party – Republic of Armenia
City/Town/Community – Yerevan City
Authorized Participant – Municipality of Yerevan City

Other Parties Involved – Japan (CERs recipient)

Authorized Participants:
Shimizu Corporation
Hokkaido Electric Power Co., Inc.
Mitsui & Co., Ltd

16

Slide 16

Project Participants

Municipality of Yerevan City
(Host Country Project Participant)
http://www.yerevan.am/eng/index.php

Shimizu Corporation *(PDD Developer)*
Japanese general construction and engineering firm
http//www.shimiz.co.jp

Hokkaido Electric Power Co., Inc.
Japanese *power company (Project Participant)*
http//www.hepco.co.jp

Mitsui & Co., Ltd. *(Project Participant)*
Japanese trading company - http//www.mitsui.co.jp

17

Slide 17

Project Description

CDM Activity Sector

Fugitive gas capture and alternative / renewable energy

Sectoral Scopes

- 1: Energy industries (renewable - / non renewable sources)
- 13: Waste handling and disposal

Methodologies Used

- AMS - I.D.: Renewable electricity generation for a grid
- ACM 0001: Consolidated methodology for landfill gas activities

Activity Scale – Large

18

Slide 18

Project Data

- **Proposed crediting period – 16 years**
- **Estimated capital investments – 7 mln USD**
- **Total GHG emission reduction – 2.16 mln t CO_2 eq**
- **Gas engine generator capacity – 1.7 MW**
- **CO2 emissions intensity of the electricity displaced – 0.1539 t CO_2/MWh**
- **Proposed project timing**

01/01/2006: Construction works on LFG collection system
01/01/2007: Beginning of the first crediting period
01/06/2008: Construction works on GEG
01/01/2009: Operation of GEG

19

Slide 19

Project Related Documents

Study For Utilization Of Methane Gas at Landfill Disposal Sites in Yerevan, Armenia. *NEDO, Shimizu Corporation – March 2004*

Project Design Document
Shimizu Corporation – January 21, 2005

Letter of Approval issued by the Armenian DNA – *February 16, 2005*

Approval by the Government of Japan *February 23, 2005*

Modalities of Communication with CDM EB and the Secretariat and Statement on CERs Allocation at Issuance. *All project participants – April 21, 2005*

20

Slide 20

Project Related Documents (*cont.*)

Modalities of Communication with CDM EB and Secretariat: *"…Shimizu Corporation alone shall communicate with CDM EB and the Secretariat with respect to any matter concerning the CDM project..."*

Statement on CERs Allocation at Issuance : *"… 100% of the CERs issued from the CDM project *... be forwarded to Shimizu Corporation's account in the Japanese registry"*

Protocol of Understanding:** *"… Share of Proceeds from 1% of CERs to be withheld for the provision of activities of the Designated National Authority for CDM in Armenia."*

**) except shares of procceds to be allocated according to the P.8 of Article 12 of KP*

***) currently is under revision of the project participants and DNA*

21

Slide 21

Project Benchmarks

2001 - 2002	Prefeasibility study. NEDO, Shimizu Corp.
2004	CDM-PDD development, consultation with stakeholders
2004 Dec. 2005 Jan.	Desk Review Report and Site-visit Report for Validation (DOE - Japan Quality Assurance Organization - JQA)
21 Jan. 2005	Official submission of PDD to Host Country DNA
16 Feb. 2005	Project approval by the Designated National Authority
23 Feb. 2005	Project approval by the Government of Japan
31 Mar. 2005	Project validation (conducted by JQA)
21 Apr. 2005	Submission of «Modalities of Communication with EB and Secretariat» and «Statement on CERs allocation at issuance»
23 May 2005	Submission of the PDD to the EB for registration
19 Jul 2005	Request for review received from three members of EB
1 Sep. 2005	Letter of Clarification sent to the project participants
30 Sep. 2005	Project revision on the EB 21st meeting
Pending	Project revision on the EB 22nd meeting

22

Slide 22

Current Status

Members of EB requested a review of the proposed CDM project activity

Scope of review relating to the following issues:

a) Lack of clarity of EIA and need for evidence regarding the quoted text ;

b) Definition of the project boundary;

c) Problems in completion of the CDM-PDD (incorrect quoting and paraphrasing, no complete answers to headers etc.)

Review Team *composed of 2 Board members has to; supervise review and outside experts work, provide inputs, prepare requests for clarification and further information to the DOE and PP, and analyse information received during the review.*

DOE and PP *shall submit relevant corrections within 12 weeks to the secretariat.*

23

Slide 23

Problems identified during project development

- Low awareness of both the Host country participant and stakeholders on specificity of CDM and requirements
- Lack of expertise in CDM legal, procedural and financial aspects
- Absence of worked out DNA procedures for revision, evaluation and approval of CDM project activities in the Republic of Armenia
- Absence of clear sustainable development criteria for CDM project evaluation
- Inconsistency of the PDD content for conducting comprehensive EIA according Host country procedures
- Uncertainties related to the procedure for receiving and allocation of a share of proceeds from 1% of CERs which is to be withheld for the provision of activities of the DNA in Armenia.

24

Slide 24

Main activities conducted by the Host country DNA

- *Organization of meetings and discussions among project participants,*
- *Stakeholder consultatations on PDD*
- *Business correspondence , consultancy and information update.*
- *On-site visits*
- *PR actions including publications in local newspapers, TV broadcast*
- *Development of the Letter of Approval for the CDM project activity.*
- *Development of the Letter of Clarification for CDM EB*

The DNA was supported by the Climate Change Information Center and EU-TACIS Armenian project team

25

Slide 25

Main activities envisaged

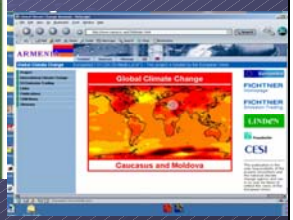
- Communication with DOE and Review Team
- Signing of Protocol of Understanding between the involved parties for defining cooperation framework on the project realization
- Signing of the Agreement on detailed terms and conditions of cooperation in accordance with the principles of the Protocol
- Development of project technical documentation
- Development of Project Work Plan
- Signing of Emission Reduction Purchase Agreement (ERPA)
- Construction
- Project monitoring, verification, certification and CERs issuance
- Allocation of a share of proceeds.

26

Slide 26

Climate Change and CDM/EU-TACIS Web Site

www.nature-ic.am



www.nature-ic.am/CDM/index.html

27

Slide 27

CDM Capacity Building for Armenia, Azerbaijan, Georgia and Moldova (TACIS Project) [1]

Johannes Laubach

Fichtner GmbH & Co. KG, Stuttgart

The project provides support for setting up the institutional procedures for CDM on a national level and, for each country, potential CDM projects will be identified and developed, including development of CDM action plan, recommendations for CDM infrastructure, technical capacity building on CDM, on-the-job training for CDM, and capacity building for GHG emission inventories. The project comprises also an exchange of experience among the four beneficiary countries and, additionally, with similar projects running in parallel for The Ukraine and Belarus as well as for the Central Asian countries. The project runs over 2.5 years from April 2004 to September 2007. This paper gives a survey on the project activities so far with emphasis on CDM.

1 Project specific objectives and project activities

The objectives of the project are:

- To build capacity for hosting CDM projects in the beneficiary countries, including assistance in forming the institutional infrastructure required to support CDM projects and to develop a portfolio of possible CDM projects.
- To enhance awareness among key-policy makers, the business community and the general public on the issues related to the UNFCCC and the Kyoto protocol, and of the development opportunities and issues with respect to CDM and GHG mitigation.
- To develop local capacity in GHG emission forecast modeling and assessment of sectoral GHG mitigation potentials and options.
- To assist the beneficiary countries in developing their national climate change strategies, including mitigation and adaptation measures.

The main activities of the project to date are:

- Assistance to the host countries in the implementation of the Designated National Authorities (DNAs) and the adaptation of a transparent and streamlined CDM host. country approval structure.

[1] Fichtner (Germany) in a Consortium with Fraunhofer ISI (Germany), Linden (UK) and CESI (Italy) carries out the project EuropeAid/111523/C/SV/Multi- Lot No.2 “Technical Assistance to Armenia, Azerbaijan, Georgia and Moldova with respect to their Global Climate Change Commitments”, on behalf of the Tacis Program of the European Commission.

- Workshops on national and regional level, emphasizing in the training of local experts in the development of CDM projects
- Development of CDM projects on PIN and PDD levels.
- Public outreach on Climate Change in the host countries.

2 DNA structure and host country approval criteria

After the awareness raising workshops in the four countries in September 2004, recommendations were developed for the institutional structure of the CDM. The Action Plan showed an indicative time table for the realization of the structure taking into account the different steps needed to be implemented in the beneficiary countries.

From October 2004 till February 2005, the project proposals have been actively discussed with the project partners. Several rounds of meetings in the countries were used to discuss in detail the recommended structure and adapt it to the local conditions and procedures.

2.1 Structure of the Designated National Authority (DNA)

The proposed structure for the DNA in all four countries focuses on the core legal tasks of the DNA and not on any additional functions, such as promotion of the CDM, development of CDM projects etc. The reason for this is simply that budgetary constraints exist in all countries. The ministries have little chance to set up a full-fledged DNA because of lack of budget.

The core legal tasks of the DNA under the Kyoto Protocol consist of evaluating the contribution of proposed CDM projects to the country's sustainable development and to issue the Letter of Approval as one of the conditions for further CDM project development.

2.2 Steps to establish an operational Designated National Authority (DNA)

In the four countries, the starting point was different. In Armenia and Azerbaijan, only a letter of the ministry of foreign affairs existed that simply nominated the Ministry of Nature Protection in Armenia and the Ministry of Ecology and Natural Resources in Azerbaijan as the DNA and without adequate mandate and procedures. In this case, an additional Government decree or resolution is needed for a proper mandate. The draft-resolution in Azerbaijan has already been prepared and submitted to Government. For Armenia such a draft is proposed to the Ministry of Nature Protection.

In Moldova exists a Government Decision that nominates a special committee to deal with all issues related to UNFCCC, Climate Change and the Kyoto-CDM. The Minister of Ecology is the Chairman and the State Service on Hydro-meteorology (Project Partner) is the deputy chairman and secretariat.

In Georgia, also a Government Decree is required in order to establish the mandate for the Ministry of Environment who can then adopt the procedures for its DNA.

2.3 Evaluation criteria for sustainable development

Sustainable development criteria are widely used, but not always in a consistent way. Either there are too many criteria and/or the criteria cannot be measured or scored in a meaningful way. One of the drawbacks is that often the criteria are used to select a

project from several others, while the CDM deals with single projects of which the contribution to sustainable development must be evaluated. One of the ways to deal with this problem is to use the method of Multi-Criteria Analysis (MCA).

2.4 DNA procedures

CDM host countries are operating a competitive market. Potential donor countries or organizations can choose from a range of countries (China, Brazil, India etc.) that have usually bigger economies and therefore bigger opportunities for emission reductions. Relatively small economies (as in the current project) with a lower potential (an exception may be Azerbaijan due to its oil and gas sector) need to create an attractive environment for potential buyers of emission reductions. One way of doing this is to create a transparent and simple procedure for issuing a Letter of Approval in order to minimize administrative barriers. The recommended procedures have been discussed with the project partners and adapted to the actual situation.

3 Training activities

The training needs assessment finalized in January 2005 after receiving the questionnaires which were distributed among the principal ministries and other stakeholders. These allowed determining previous training activities and acquired skills among the principal ministries and other stakeholders. A final training program was then developed and was concluded in October 2005. The series of training workshops cover the following topics:

1. Basic information on Kyoto Protocol
2. GHG emission inventories and projections
3. Basic information on CDM
4. CDM project types and technologies
   a) Energy efficiency (Heat, Electricity, Transport)
   b) Renewable energy (Hydro, Wind, Biomass, Geothermal, Solar)
   c) Fuel switch (Coal-to-gas, Oil-to-gas)
   d) Methane capture (Landfill, Waste incineration, Wastewater handling, Gas and oil exploitation, Gas distribution, Pit gas)
   e) Industrial processes (Mineral products, Chemical industry, Metal production)
   f) Agriculture (Enteric fermentation, Manure management, Filed burning)
   g) Carbon sinks, sequestration (Afforestation, Forest protection and reforestation)
5. CDM project cycle and PIN, PDD
6. CDM additionality tests
7. Development of baselines
8. CDM validation, monitoring and verification

Local experts that follow the entire training program will receive an official certificate. These experts will not only be involved in the formal training sessions but also in the case study exercises as on-the-job training. They will assist in the development of project PINs and PDDs once the final decision has been taken which project ideas will be further developed. This allows applying the formal training immediately to practical issues concerning the development of CDM projects.

4 CDM project pipeline and development of PINs and PDDs

The aim of the project is to develop a minimum of two Project Idea Notes (PINs) and one possible Project Design Document (PDD), if possible mainly by local experts. There is already a dynamic environment of CDM project development due to the activities of potential carbon credit buyers (such as EBRD, Danish Carbon, other governments).

A special format has been developed according to which an inventory can be made of all existing project ideas, PINs and partially developed PDDs (if any). It contains basic project information and allows screening of the projects in order to determine the most suitable ones for further development. This CDM project pipeline will be continuously updated. None of the project has yet (October 2005) achieved registration by the CDM Executive Board, but some projects (eg Nubarashen Landfill) are in an advanced stage.

5 Climate change outreach and project websites

The Consultant initiated the development of a climate change outreach campaign through TV and printed media based on a questionnaire to the Project Partners and Local Project Offices. Previous public awareness activities concerning climate change and the Kyoto protocol were discussed as well as the ideas and preferences regarding the different media. Each country developed a general plan for specific activities and their costs. When the Kyoto Protocol entered into force, the Armenia office sponsored some of the TV costs in order to promote the project. In Moldova, also attention was given to the Kyoto Protocol and the current Tacis project. Georgia launched an initiative for a joint Climate Change/CDM calendar.

The bilingual project websites are operational and will be continuously maintained and updated. They will be used as a channel for the dissemination of project materials and documents for the public, and for the public participation in CDM project developments. [1]

6 Remaining project activities

The project will run until early October 2006. The remaining project activities include:

- Finalize DNA procedures for approval
- Specific CDM high-level workshop on legal issues of CDM (ERPAs, credit sharing)
- Complete CDM PINs and PDDs
- Complete CDM Hand Book
- Continue information campaign

[1] Armenia: www.nature-ic.am/CDM/index.html
Azerbaijan English: www.eco.gov.az/v2.1/en/projects/Climat/index.html
Georgia: www.climatechange.telenet.ge/cdm_web/index.html
Moldova: www.meteo.md/cdm/index.html
Fichtner: www.co2-info.com

FICHTNER

CTI Capacity Building Seminar
for CEE/CIS Countries

CDM Capacity Building for Armenia, Azerbaijan, Georgia and Moldova

Johannes Laubach, Tacis Project, Fichtner GmbH & Co. KG, Stuttgart/Germany
(e-mail: Laubachj@fichtner.de)

Leipzig, October 25, 2005

Slide 1

FICHTNER

Table of Contents

Slide 2

FICHTNER

1. Project Specific Objectives and Project Activities

Slide 3

FICHTNER

Project Specific Objectives and Project Activities

The objectives of the project are:

(a) To build capacity for hosting CDM projects

(b) To enhance awareness on UNFCCC, Kyoto and CDM

(c) To develop local capacity for GHG emission forecast modeling and GHG mitigation potentials and options

(d) To assist beneficiary countries in developing climate change strategies

Slide 4

FICHTNER

Project activities & CDM project cycle

Slide 5

FICHTNER

2. DNA Structure and Host Country Approval Criteria

Slide 6

FICHTNER

Support to the DNA

- Development of Government Decree and/or Ministerial resolution for legal establishment of the DNA
- Development of DNA procedures
- Development of sustainability check

Slide 7

FICHTNER

Focus DNA support

- As smaller countries, the DNAs need to operate in competitive CDM market
- Therefore the institutional process for a Letter of Approval becomes more important
- Transparent and simple procedures needed
- Separate entity as DNA, or part of a Ministry?
- The project is actively supporting the DNAs on concrete CDM projects

Slide 8

FICHTNER

Check of Project Sustainability

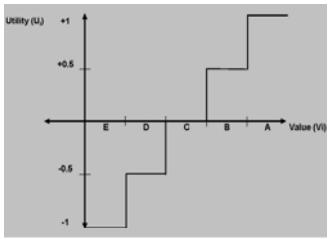
- Social Criteria
  - Stakeholder participation
  - Improved services availability
  - Capacity development
- Environmental Criteria
  - Fossil energy resources
  - Air quality
  - Water quality
  - Other environmental effects
- Economic Criteria
  - Regional economy
  - Employment generation
  - Sustainable technology transfer

➔ Each criterion is quantitatively evaluated by utility function

Slide 9

FICHTNER

Example: Utility Function Stakeholder Participation



A = stakeholders can participate in the decision process
B = stakeholders are invited to give inputs / raise concerns
C = stakeholders are informed
D = stakeholders are only informed upon request
E = stakeholders are not involved at all, no access to data is possible

Slide 10

FICHTNER

3. Training Activities

Slide 11

FICHTNER

Training of local experts

- General workshops on CDM for government, ministries and industry/energy sector representatives (awareness raising)
- Specific workshops on CDM project development
- Application of acquired skills in concrete CDM projects

Slide 12

FICHTNER

Training Program

1. Basic information on Kyoto Protocol
2. GHG emission inventories and projections
3. Basic information on CDM
4. CDM project types and technologies
   a) Energy efficiency (Heat, Electricity, Transport)
   b) Renewable energy (Hydro, Wind, Biomass, Geothermal, Solar)
   c) Fuel switch (Coal-to-gas, Oil-to-gas)
   d) Methane capture (Landfill, Waste incineration, Wastewater handling, Gas and oil exploitation, Gas distribution, Pit gas)
   e) Industrial processes (Mineral products, Chemical industry, Metal production)
   f) Agriculture (Enteric fermentation, Manure management, Filed burning)
   g) Carbon sinks, sequestration (Afforestation, Forest protection and reforestation)
5. CDM project cycle and PIN, PDD
6. CDM additionality tests
7. Development of baselines
8. CDM validation, monitoring and verification

Slide 13

FICHTNER

4. CDM Project Pipeline and Development of PINs and PDDs

Slide 14

FICHTNER

CDM project development

- The aim is to develop minimum of two PINs and one PDD
- Dynamic environment due to activities of potential carbon credit buyers (such as EBRD, Danish Carbon, other governments)
- List of potential CDM projects regularly updated

Slide 15

FICHTNER

CDM Project Pipeline Armenia

Project	Location	CDM Methodology	Status
Nubarashen Landfill Gas Capture and Power Generation Project in Yerevan	Yerevan	ACM001 + AM0005	PDD
Windfarm Zod in Armenia	Gegharkunik	ACM002	PIN under development
Energy efficiency in cement industry	Yerevan	?	PIN
Poultry farm waste utilisation	Lusaker	AM0016+AM0005	PDD
Energy efficiency in chemical industry	Yerevan	?	PIN
Small-scale hydro power	Yeghegihis	?	PDD
Hydro power plant	Loriberd	ACM0002	PIN under development
Small-scale hydro power stations	Argichi, Megri, Gegharot	AM0005	PIN under development
Afforestation/reforestation	Lori marz	?	PIN under development

Slide 16

FICHTNER

CDM Project Pipeline Azerbaijan

Project	Location	CDM Methodology	Status
Hydropower station	Gilanchay Ordubad, Nakchivan	ACM002	PIN
Rehabilitation of Azerbaijan GRES	Mingechaur	n.a.	PIN
Rehabilitation of Sumgait TES-1	Sumgait	n.a.	PIN
Baku landfill	Baku	ACM0001	PIN
Sumgait landfill	Sumgait	ACM0001	PIN
Associated Gas Capture from Gushkhana Oil Field	Gushkhana	AM0009	PIN/PDD
200 MW Wind Farm in Khizi	Khizi	ACM0002	PIN/PDD
14 MW Wind Farm in Khizi	Khizi	AM0005	PIN/PDD
Capture of gases from Grifons at Bottom of Caspian Sea	Offshore	AM0009 ?	PIN

Slide 17

FICHTNER

CDM Project Pipeline Georgia

Project	Location	CDM Methodology	Status
Azoti N_2O capture		new methodology	PIN
Tkibuli mine gas	Tkibuli	e.g. NM0075	PIN
Landfill gas	Tbilisi	ACM0001+ACM0005	PIN
Gas transport and distribution losses	country-wide	new metholdology	PIN
Methane capture from wastewater sewage plant	Gadabani	NM0038	
Increase of energy efficiency in Water Supply Tbilisi	Tbilisi	AM0020	PIN
Energy efficiency in cement industry	?	?	
Small-scale hydropower plants	?	AM0005	

Slide 18

FICHTNER

CDM Project Pipeline Moldova

Project	Location	CDM Methodology	Status
Methane Capture and Biogas-to-Energy Project for Poultry Farms	Floreni, nn (Chisinau region), Pirlita	AM0016+AM0005	PDD
Leak Reduction from Natural Gas Pipeline Compressor and Gate Stations	Moldova country-wide	NM0091	PDD meth review
Landfill Gas Capture and flaring at Chisinau Landfill	Chisinau Region	AM0011	PDD DOE validation
Methane Gas Capture and Electricity Production at Chisinau Wastewter Treatment Plant	Chisinau	NM0038	PDD meth review
Moldova Soil Conversation Project	Molodva country-wide	n.a.	PDD meth review
Moldova Biomass Heating in Rural Communities Project	Molodva country-wide	AMS-I.C. AMS-II.E AMS-III.B	PDD DOE validation

Slide 19

FICHTNER

5. Climate Change Outreach and Project Websites

Slide 20

FICHTNER

- Climate Change Calendar
- Brochures
- TV spot Armenia at entry into force of Kyoto Protocol
- Climate change websites
  - Armenia: www.nature-ic.am/CDM/index.html
  - Azerbaijan English: www.eco.gov.az/v2.1/en/projects/Climat/index.html
  - Georgia: www.climatechange.telenet.ge/cdm_web/index.html
  - Moldova: www.meteo.md/cdm/index.html
  - Fichtner: www.co2-info.com

Slide 21

FICHTNER

6. Remaining Project Activities

Slide 22

FICHTNER

- Finalise DNA procedures for approval
- Specific CDM high-level workshop on legal issues of CDM (ERPAs, credit sharing etc.)
- Complete CDM PINs and PDDs
- Complete CDM Hand Book
- Continue information campaign

Slide 23

Workshop 4:
CDM – Lessons Learned and Future Options

Rapporteur: Dr. Kanat Baigarin

Climate Change Coordination Center, Kazakhstan

Unilateral Financing As a Way To Survive in the CDM Market

Slide 1

Unilateral Financing– Major Specifics:
- CDM project financing
- CDM project type
- CERs costs
- Transaction costs
- Private capital involvement

Why unilateral CDM is beneficial for CA countries
- Access to CDM resources
- Local capacity building

Potentialities of unilateral CDM projects in CA region

Slide 2

Why Unilateral CDM is Beneficial for Central Asian Countries?

Background

Central Asian countries are currently somewhere at the initial stage of CDM market development.

Uzbekistan. Two projects on heating sector's energy efficiency improvement were included into PCF pipeline. Baseline and monitoring plan methodology for these projects was sent back for revision twice. Ultimately, it was decided to withdraw these projects from PCF portfolio.

Implementation of two CDM projects is being currently negotiated with the Danish Carbon Fund.

Japanese companies are extremely active in this field. Thus, a PDD for domestic waste utilization project was prepared.

Major problem is a lack of DNA and well-developed CDM infrastructure.

Slide 3

Why Unilateral CDM Is Beneficial For Central Asian Countries? (2)

Kyrgyzstan. Negotiations with the Danish Carbon Fund for implementation of two CDM projects are under way now. Due to the recently established DNA Kyrgyzstan's rating in the CDM market has been greatly improved.

Tajikistan. Kyoto Protocol is not ratified so far, though certain attempts are being made in the field of PIN development for CDM projects. Most likely that upon KP's ratification a DNA will be shortly established.

Turkmenistan: is not attractive for CDM investors mainly for reasons of policy. DNA is also lacking. Nevertheless national experts are dealing with PIN preparation for CDM projects.

Slide 4

Potentialities of Unilateral CDM Projects in Central Asia (2)

Disadvantages:
- It is not quite clear what will take place after CDM project registration and generation of first CERs. What will happen in case a CDM investor, willing to buy CERs, is not found?
- Whether there will be any CERs issue related problems in the lack of a real CDM investor;
- How to deal with CERs if they are issued and potential buyer is found.

Slide 5

Nubarashen Landfill Gas Capture and Power Generation Project in Yerevan

ARMENIA

EC "Technical Assistance to Armenia, Azerbaijan, Georgia and Moldova with respect to their Global Climate Change Commitments" Project

Slide 6

CONTENTS

- **Introduction**
- **Project Background**
- **Goal and Objectives**
- **Description**
- **Project related documents**
- **Benchmarks**
- **Current Status**
- **Problems Faced**
- **Implemented and planned activities**

Slide 7

Project Goal

To collect landfill gas from Nubarashen landfill site in Yerevan and to burn methane, a combustible gas contained in LFG in a gas engine generator (GEG) with a view to generating electricity.

Source: PDD

Slide 8

Project Data

- **Proposed crediting period – 16 years**
- **Estimated capital investments – 7 mln USD**
- **Total GHG emission reduction – 2.16 mln t CO_2 eq**
- **Gas engine generator capacity – 1.7 MW**
- **CO2 emissions intensity of the electricity displaced – 0.1539 t CO_2/MWh**
- **Proposed project timing**

01/01/2006: Construction works on LFG collection system
01/01/2007: Beginning of the first crediting period
01/06/2008: Construction works on GEG
01/01/2009: Operation of GEG

Slide 9

Problems identified during project development

- ✓ Low awareness of both the Host country participant and stakeholders on specificity of CDM and requirements
- ✓ Lack of expertise in CDM legal, procedural and financial aspects
- ✓ Absence of worked out DNA procedures for revision, evaluation and approval of CDM project activities in the Republic of Armenia
- ✓ Absence of clear sustainable development criteria for CDM project evaluation
- ✓ Inconsistency of the PDD content for conducting comprehensive EIA according Host country procedures
- ✓ Uncertainties related to the procedure for receiving and allocation of a share of proceeds from 1% of CERs which is to be withheld for the provision of activities of the DNA in Armenia.

Slide 10

1. Project Specific Objectives and Project Activities
2. DNA Structure and Host Country Approval Criteria
3. Training Activities
4. CDM Project Pipeline and Development of PINs and PDDs
5. Climate Change Outreach and Project Websites
6. Remaining Project Activities

Slide 11

- Finalise DNA procedures for approval
- Specific CDM high-level workshop on legal issues of CDM (ERPAs, credit sharing etc.)
- Complete CDM PINs and PDDs
- Complete CDM Hand Book
- Continue information campaign

Slide 12

Demand Side Management, Leverages Large Scale Energy Efficiency

Hans Nilsson

International Energy Agency, Paris

Demand Side Management, leverages large scale energy efficiency

Hans Nilsson

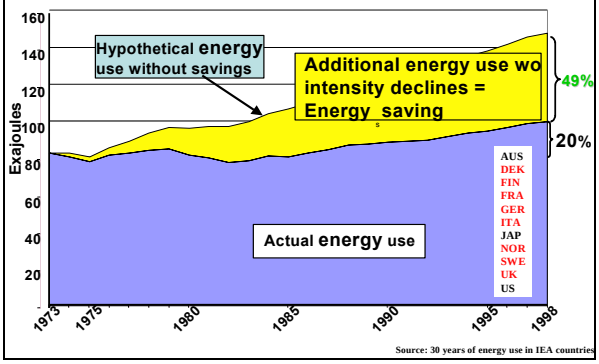
Chairman of the IEA DSM-Programme

Slide 1

Growth and its implications

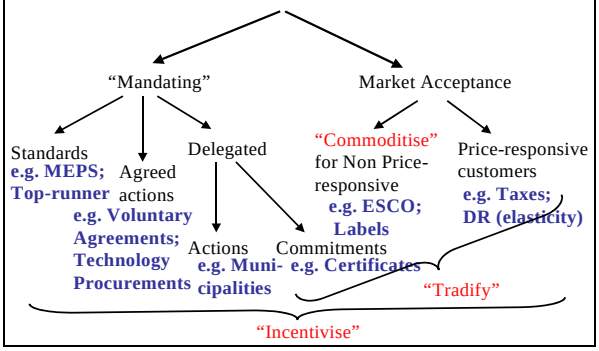
Slide 2

Energyuse in the IEA-11



Slide 3

LARGE-SCALE ENERGY EFFICIENCY



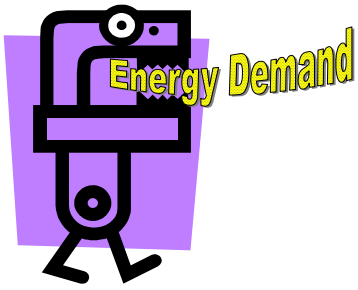
Slide 4

The imperative logic of Demand Side Management

- A better use of resources equals **lower cost** for service
- A balanced use of resources means more **secure and reliable** energy supply
- An expansion for products/services using less energy is an injection for **future business**
- A step change in improved energy efficiency is the only way to achieve wide-spread **welfare** without resources depletion

Slide 5

DSM is a tool to make large scale energy efficiency possible



Slide 6

The IEA DSM-Programme

Slide 7

The IEA DSM Programme

- Work begun in 1993
- With 17 OECD Countries (but open to all countries in the world)
- Influenced by, but not limited to, the Monopolised Utilities role on the market
- Basically an issue of "least cost" application to make best use of resources

Slide 8

The strategy of the IEA DSM Programme

- *Vision:Demand side activities should be **active elements and the first choice** in all energy policy decisions designed to create more reliable and more sustainable energy systems.*
- Mission:*Deliver to its stakeholders, materials that are **readily applicable** for them in crafting and implementing policies and measures…….*

Slide 9

What is DSM?

- The **planning and implementation** of those utility activities designed to **influence the customer use** of electricity in ways that will produce **desired changes** in the utilitiy´s **load shape** - i.e. changes in the pattern and magnitude of a utility´s load.
- DSM encompasses the entire range of management functions (**planning, evaluation, implementation and monitoring**)

Slide 10

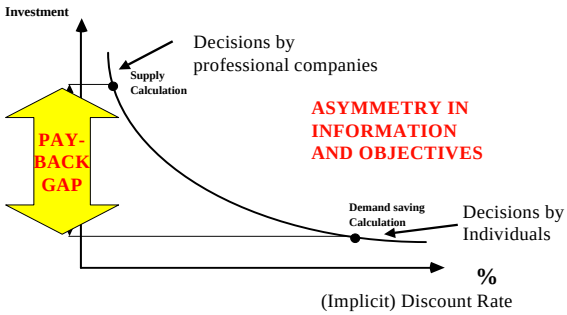
But DSM is universal and does not only apply to utilities, electricity or monopolies!!

- DSM still make sense when the word **utility** is either taken away or replaced with some other entity, such as "**Government/country**", "**Municipality/community**" or "**Company**"
- And **electricity** could be replaced with "**energy**" thus including, gas, oil, heat etc.

*"The planning and implementation of those (**utility**) activities designed to influence the customer use of **electricity /energy** in ways that will produce desired changes in the (**utilitiy´s**) load shape - i.e. changes in the pattern and magnitude of a (**utility´s**) load."*

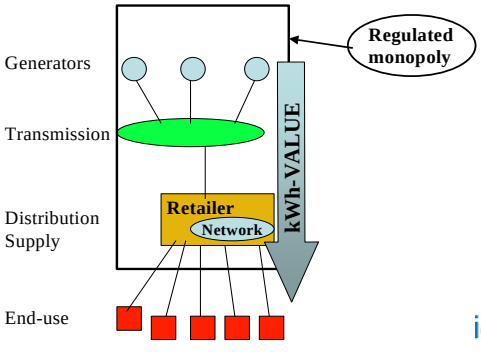
Slide 11

Demand Side decisions are different



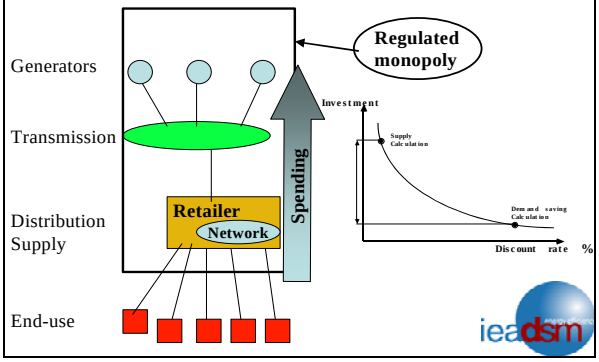
Slide 12

The value chain used to be vertical..



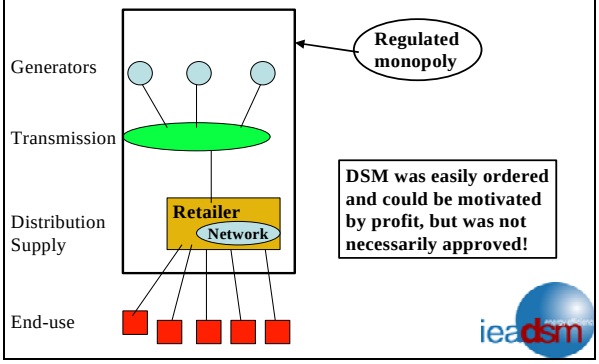
Slide 13

..but the spending in systems reversed



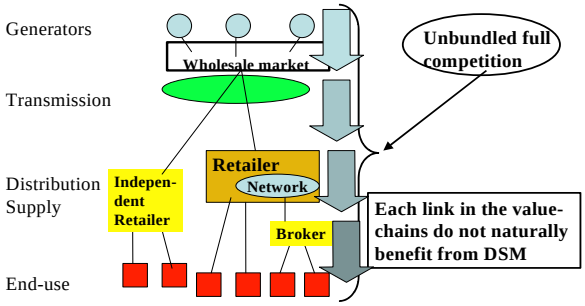
Slide 14

The value chain used to be vertical



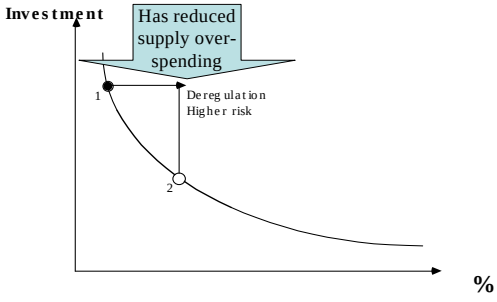
Slide 15

…but with liberalisation the value chain is fragmented



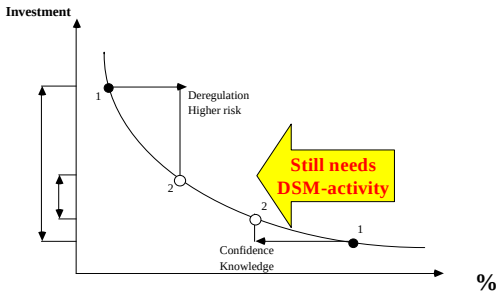
Slide 16

Liberalisation of markets



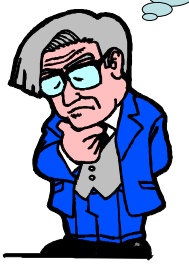
Slide 17

CLOSING THE GAP



Slide 18

What is hol-ding us back?



Energy Efficiency is not a Product, but a characteristic with a product.

6

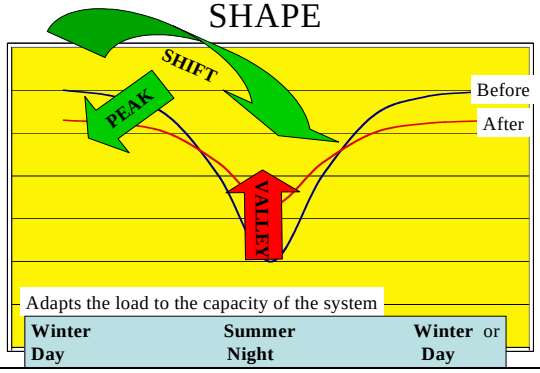
Slide 19

The Mechanics of DSM

7

Slide 20

DSM can Change the LOAD SHAPE



Slide 21

The DSM work on LOAD SHAPE

FINALISED
- II. Communication Technologies
- VIII. Demand-Side Bidding in a Competitive Electricity Market

ACTIVE
- XI. Time of use pricing
- XIII. Demand response Resources, DR
- XV. Network driven DSM

IN PREPARATION and DISCUSSED
- DRR Valuation and approbation (XIII)
- Integration of DSM, Renewables and Distributed Generation

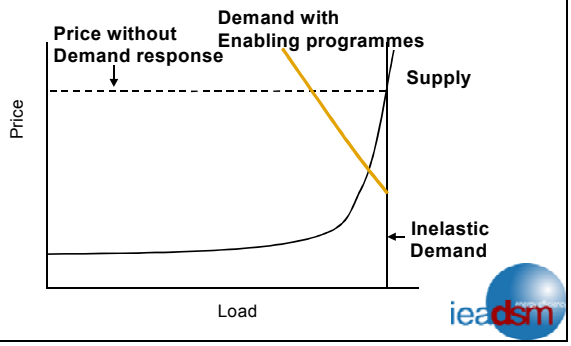
Slide 22

Why do we want Demand Response, DR?

- Reduce **Price Volatility** (**by improving short term price elasticity**)
- Improve **System Reliability** (**by reducing peaks and adding to safety margins**)
- Enhance **System security** (**by reducing dependency on vulnerable supply resources**)
- Improve **Restoration capacity** (**by dispatching in/after emergency situations**)

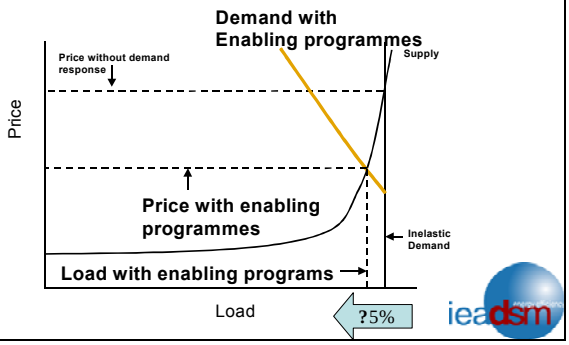
Slide 23

DR and price volatility



Slide 24

DR and price volatility



Slide 25

DSM Policy for load shape

- Countries should develop a regulatory regime that appoints responsibility for resource adequacy in the electric systems and, when the regime so allows, makes demand side balancing service the prioritised option.

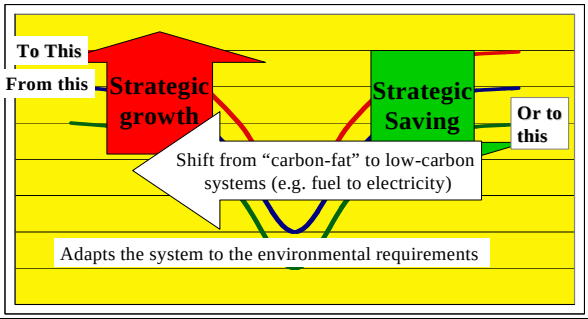
Slide 26

…will deliver

- **Less Price Volatility** by improving short term price elasticity
- Improved **System Reliability** by reducing peaks and adding to safety margins
- Enhanced **System security** by reducing dependency on vulnerable supply resources
- Improved **Restoration capacity** by dispatching in/after emergency situations
- **Less costly network reinforcements** since energy efficiency measures will be active alternatives
- **Distributed generation** as alternative to transmission lines.
- Improved **operation and use of flowing renewable** sources
- **Elastic response** as complement to competition (lack in number of companies and excess in market concentration)

Slide 27

DSM can change the LOAD LEVEL



Slide 28

The DSM work on LOAD LEVEL

FINALISED
- III. Cooperative Procurement
- IV. Methods for Integrated Resource Planning
- V. Implementation of DSM in the Market Place
- VI. DSM in a changing Electricity Business environment
- VII. Market Transformation
- IX. The role of municipalities in a liberalised system
- X. Performance Contracting (ESCO)

ACTIVE
- I. Database on DSM (INDEEP) + Evaluation Handbook for Kyoto-related projects
- XII. Standards and labels (Pending)
- XIV. White Certificates

IN PREPARATION and DISCUSSED
- Advanced lighting programmes
- Up-dating and development of INDEEP (I)
- Joint Procurements (III)
- Up-dating and development of ESCO-work (incl. projects) (X)
- Positive incentives (a look on behavioural aspects)

Slide 29

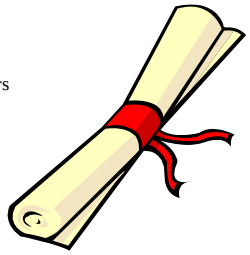
Some roles of municipalities in a liberalised system

- Promote energy efficiency where the market finds that it is not sufficiently profitable for themselves.
- Use a local utility as a tool
- Maintain local energy efficiency activities
- Play a leading role in the development of total energy production systems (e.g. CHP)

Slide 30

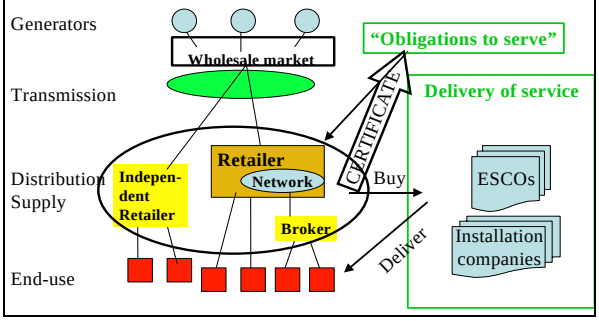
White Certificates (Commitments)

- To mobilise the energy supply and/or distribution
- To reach the un-engaged customer with favourable offers



Slide 31

Creating a certificates market (Commitments)



Slide 32

DSM Policy for load level

- Countries should have a system for assessment of the least-cost delivery of energy services that includes both the demand and supply side.
- Based on this it should be decided how market actors should be engaged in delivery of the services, promoting e.g. both utility obligations and independent ESCO deliveries

Slide 33

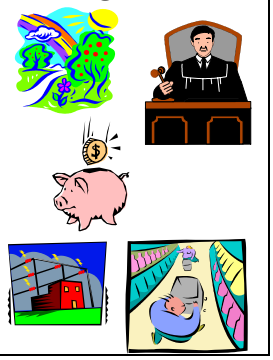
…will deliver

- Development of **markets for energy service companies** and performance contracting
- **Allocation of commitments and obligations** that mobilises the better set of actors for large scale energy efficiency actions, e.g. use of "White Certificates, Public sector procurement, municipality initiatives, etc
- **Organisation and targeting of support programmes** for energy efficient products
- Improved allocation of **obligations for reduction of GHG-emissions** between sectors and countries
- Improved use of **market communication mechanisms**, e.g. standards and labels
- The assessment should also give input to how further **research and support** mechanisms should be distributed among actors.

Slide 34

New concerns on the agenda

- **Environment and Climate** (codified in the Kyoto-Agreement)
- **Governance** (who has the responsibility?)
- Can we **make business** out of these concerns? (ESCOs, emissions trading)
- **Systems reliability** (e.g. black outs)
- **Customer market role** (price taker or player)



Slide 35

Is sustainable growth possible…

..without DSM?

Slide 36

http://dsm.iea.org

Slide 37

The Twinning Programme in the Framework of the German Advising Assistance and the EU Wider Europe Policies

Bettina Fellmer

Gesellschaft für Technische Zusammenarbeit (GTZ), Berlin

Role of GTZ

The Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) is an international co-operation enterprise for sustainable development with worldwide operations acting on behalf of the German government. Within the organization the Twinning office belongs to the department for "*Programmes of the Public Sector*". It provides support for several German ministries in the implementation of the EU *Twinning Programme* amongst others the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit, BMU).

German environmental policy co-operation with Central and Eastern Europe

Germany is supporting the transition process in Central and Eastern Europe both through its bilateral co-operation with the accession countries and in the framework of EU community programs. Main objective of the co-operation is to improve the environmental situation and to extend the EU's high environmental standards to the new Member States (MS). Therefore Germany concluded bilateral environmental agreements with nearly all new EU Member States and accession countries. The co-operation in the area of environmental protection also includes the "Environment for Europe" process within the framework of the UN ECE and the bilateral government agreements that the German federal government concluded with the Russian Federation and Ukraine.

One of the key instruments to prepare accession countries for EU membership are Twinning Partnerships. Within these partnerships representatives of Member States' and accession countries' administrations and institutions work together in precisely defined projects, toward precisely defined aims. In the process, know-how and experience is transferred from the Member States – especially from their agencies involved in implementation and application of European law – to the accession countries.

Programs and instruments

- TRANSFORM: In 1992 the German federal government established the program "Advising assistance for establishment of democracy and social market economies - TRANSFORM" in order to provide technical assistance for central and eastern European countries and the Newly Independent States. Between 1992 and 2000, some 150 environmental projects were carried out via the TRANSFORM program.
- Advising Assistance Program (BMU): As of 2000, the BMU established its own program of advising assistance for environmental protection in the countries of central and eastern Europe, the Caucasus and central Asia. In its framework, EU accession countries are being supported especially in adopting and implementing the EU's environment acquis.
- Participation in *Twinning Programme* (EU): The BMU is participating actively in the European Union's *Twinning Programme*. The environment is a central focus of Germany's participation. Since 1998, Germany has participated in 58 twinning projects in the environmental sector, and in 32 such projects as the project leader.
- Programs of the Deutsche Bundesstiftung Umwelt (DBU): The national environmental foundation supports environmental projects in central and eastern Europe covering three major funding emphases: environmental protection technology, environmental research/nature conservation and environmental awareness.
- Investment support: BMU also supports investment projects, so-called "pilot projects for environmental protection" especially in the fields of waste-water treatment, air-quality control and environmentally friendly heating and power supply systems.

The *Twinning Programme*

Idea of Twinning

Twinning aims to help the candidate countries in their development of modern and efficient administrations, with the structures, human resources and management skills needed to implement the acquis communautaire to the same standards as Member States. The idea of Twinning is to provide support for institution building in the partner country through learning from the experience of an EU Member State by common activities (benefiting from EU wide best practices). This includes a close partnership with active involvement and exchange of special expertise of both partners and the provision of money of the EC for financing the assistance of Member State functionaries. The partner countries mainly contribute through the provision of manpower of experts from the involved institutions.

Instruments

- PHARE Twinning since 1998
- CARDS Twinning since 2002
- TACIS since 2003
- MEDA and Transition Facility since 2004

More than 1000 projects have been realized since Twinning has been launched in 1998. Taking into account the experience gained from the implementation of the projects a common Twinning manual for all Twinning instruments was published in

May 2005. Normal project duration is about 1-2 years The average budget per project amounts 0.5 – 2 Mio €.

Topics

Main topics of Twinning projects are:

- Enforcing the EU Aquis Communitaire
- Continued support for the reinforcement of the administrative capacity of the new member states
- Support the Stabilization and Association Process with focus on institutional/legal reform
- Encouraging institution building by means of partnership co-operation
- Accelerate the process of administrative reform
- Facilitate the design and implementation of public policies

Actors

The following actors are involved in the implementation of a Twinning project:

Partner Country	European Commission	EU Member States
Involved institutions (project leader and experts)	Task manager from Europe Aid Brussels Delegation of the country involved	Project leader from Ministry Long term expert, short term experts Project management (eg. GTZ)

Activities

Possible Activities during a Twinning project are:

- Personal advice, inspections, evaluations
- Workshops, seminars
- Assistance in tender preparation
- Trainings, study tours, internships
- Development of software
- Simulation and modeling of administrative procedures
- Guidelines and handbooks worked out
- Public Information campaigns

Ongoing projects co-ordinated by the BMU	
Bulgaria	Air monitoring, Water Framework Directive, Chemical Law,
Czech Republic	Environmental Information
Estonia	Fuel Quality
Malta	Waste Management
Romania	IPPC, Air Monitoring, Noise, Institution Building, Preparing Structural Funds, Strengthening of the Regional Level
Slovenia	IPPC
Turkey	Natura 2000, Waste Management, Air Quality, Noise

Steps to initiate a project

Several steps have to be undertaken to initiate a Twinning project. First the beneficiary country (BC) develops the project fiche together with the EC. After circulation of the project fiche several Member States (MS) apply for the realization of the project and present their proposal to the BC. Afterwards the EC and the BC jointly select the future partner. The chosen MS and the BC work out the Twinning contract and wait for approval by the EC. If this occurs the project is to be implemented.

Re-structuring of the third country programs

In 2004 the European Commission submitted a framework for a new and simplified political and administrative structure for the delivery of the Community's assistance and co-operation programs with third countries. In place of the existing range of geographical and thematic instruments six instruments are proposed, three of which are designed to implement particular policies, and three to provide the necessary response to particular needs.

Political instruments:	Instruments for humanitarian aid:
Pre-accession Assistance (IPA) European Neighborhood and Partnership Instrument (ENPI) Development Co-operation and Economic Co-operation Instrument (DC&ECI)	Stability Instrument Instrument for humanitarian aid Macro-financial aid

The basis for the proposed structure of the Commission is the concept of concentric circles, i.e. there will be a program for each sphere of countries surrounding the EU (IPA for the candidate countries, ENPI for the neighboring countries, DC&ECI for other third countries).

Program IPA

Beneficiary countries of the instrument for Pre-Accession will be divided into two categories, depending on their status as either Candidate Countries (CC) or potential Candidate Countries (as recognized by the Council). IPA will replace a range of existing instruments (PHARE, ISPA, SAPARD, CARDS etc.) and will focus on Institution Building, Regional and Cross-border co-operation, Regional Development (only CC), Rural Development (only CC) and Human Resources Development (only CC). The implementation of IPA will be realized through the Decentralized Implementation System (DIS) or the Extended Decentralized Implementation System (EDIS).

Program ENPI

The beneficiary countries will be the neighboring countries of the future enlarged EU (Western Newly Independent States (TACIS countries) and countries of the southern and eastern Mediterranean (MEDA countries) as well as the countries of the southern Caucasus). ENPI focuses on the promotion of economic development and democracy and especially cross border co-operation with EU Member States.

The Twinning Programme in the framework of the German Advising Assistance and the EU Wider Europe Policies

Climate Technology and Energy Efficiency – Sustainable Pathways to Climate Change Mitigation Policies and Management
October 22-26, 2005 Leipzig
Bettina Fellmer, GTZ

Bettina Fellmer Folie 1

Slide 1

Role of GTZ

- GTZ is a company owned by the German German Government, in charge of implementing a big part of German Technical assistance
- But here: representing **GTZ Twinning office** supporting several German ministries in the implementation of the EU Twinning Programme
- Especially BMU

Bettina Fellmer Folie 2

Slide 2

Environmental Policy Co-operation with Central and Eastern Europe

- Special Focus on Co-operation
- Main objective: improving the environmental situation
- Bilateral Environmental Agreements with nearly all New EU Member States and Accession Countries, RF and UA
- Supporting the "Environment for Europe Process"
- Twinning Partnerships

Bettina Fellmer Folie 3

Slide 3

Programmes and instruments

- The „Transform Programme" (from 1992- 2000, almost finished) (German Government)
- The Advising Assistance Programme (BMU)
- Participation in Twinning Programme (EU)
- Programme of the Deutsche Bundesstiftung Umwelt (DBU)
- Investment support

Bettina Fellmer Folie 4

Slide 4

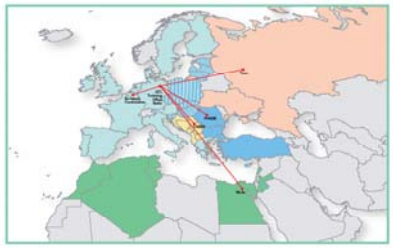
Examples for climate relevant projects

- Improvement of air quality in the Erzgebirge region CZ-D
- Air Quality Control in the black triangle region PL-CZ-D
- Preparing use of wind energy in EE
- Intensification of use of Renewable Energy in LI
- EIA on energy supply conversion in SK
- Support for conversion of the energy system in UKR

Bettina Fellmer Folie 5

Slide 5

The Twinning Programme



Bettina Fellmer Folie 6

Slide 6

Idea of Twinning

Twinning = Administrative partnerships

♦ Institution building in Partner Country through learning from the experience of an EU Member State by common activities (benefitting from EU wide best pratices)
♦ Close partnership with active involvement and exchange of special expertise of both partners
♦ Provision of money of the EC for financing the assistance of Member State functionaries
♦ Contribution of Partner Country mainly through provision of man power of experts from the involved institutions

Bettina Fellmer Folie 7

Slide 7

Instrument

The instrument

♦ Phare Twinning since 1998
♦ Cards since 2002
♦ Tacis in 2003
♦ Meda and Transition Facility since 2004
♦ More than 1000 Project so far, 1.15 Bio €
♦ common manual since 2005
♦ duration 1-2 years
♦ avarage budget per project 0.5 – 2 Mio €

Bettina Fellmer Folie 8

Slide 8

Twinning Projects per sector in the NMS/CCs 1998-2004

Sector	BG	CZ	CY	EE	HU	LV	LT	MT	PL	RO	SK	SI	TR	Total
1. Agriculture & Fisheries	17	7	0	10	14	5	17	7	35	26	10	10	5	163
2. Environment	18	12	0	7	11	5	2	3	17	16	12	2	6	111
3. Structural Funds	6	6	0	3	4	3	3	1	19	24	4	7	1	81
4. Consensus & Social Policy	7	20	0	10	9	5	7	1	15	15	9	3	0	101
5. Public Finance & Internal Market	30	18	1	12	13	17	20	1	42	38	13	12	9	226
6. Justice & Home Affairs	31	24	1	16	13	15	16	1	23	42	18	11	16	227
7. Transport, Energy & Telecom	9	5	0	2	4	1	8	1	6	7	4	3	5	55
8. Standardisation	1	0	0	0	0	4	0	0	1	0	0	2	7	15
9. Others	3	6	0	1	1	3	3	3	13	11	4	1	2	51
Total	122	98	2	61	69	58	76	18	171	179	74	51	51	1030

Bettina Fellmer Folie 9

Slide 9

Twinning Projects per sector 1998-2004

Sector	1998	1999	2000	2001	2002	2003	2004	Total
1. Agriculture & Fisheries	24	17	21	24	31	13	33	163
2. Environment	16	8	16	14	17	16	24	111
3. Structural Funds	14	1	25	10	19	11	1	81
4. Social Policy	0	26	13	10	24	16	12	101
5. Public Finance & Internal Market	23	32	31	32	45	32	31	226
6. Justice & Home Affairs	25	22	26	24	47	35	48	227
7. Transport, Energy & Telecom	0	8	6	14	10	10	7	55
8.Standardisation certification	0	0	0	0	0	6	9	15
9. Others	1	8	8	5	2	15	12	51
Total	103	122	146	133	195	154	177	1030

Bettina Fellmer Folie 10

Slide 10

Topics

- Enforcing the EU Aquis Communaitaire
- Continued support for the reinforcment of the administrative capacity of the New MS
- Support the Stabilisation and Association Process with focus on institutional/legal reform and others
- Encouraging Institution Buliding by means of partnership co-operation
- Accelerate the process of administrative reform
- Facilitate the design and implementation of public policies

Bettina Fellmer Folie 11

Slide 11

Actors

- Partner Country
  - Involved institutions (project leader and experts)
- European Commission
  - Task manager from Europe Aid Brussels
  - Delegation of the country involve
  - or national authority
- EU Member States
  - Project leader from Ministry
  - longterm expert, short term experts
  - project management (eg. GTZ)

Bettina Fellmer Folie 12

Slide 12

Activities

Possible Activities during the Projects:

- Personal advice, inspections, evaluations
- Workshops, seminars
- Assistance in tender preparation
- Trainings, study tours, internships
- Development of software
- Simulation and modelling of administrative procedures
- Guidelines and handbooks worked out
- Public Information campaigns

Bettina Fellmer Folie 13

Slide 13

Ongoing projects co-ordinated by the BMU

Bulgaria:	Air monitoring, Water Framework Directive, Chemical Law,
Slovenia:	IPPC
Romania:	IPPC, Air Monitoring, Noise, Institution Building, Preparing Structural Funds, Strengthening of the Regional Level
Turkey:	Natura 2000, Waste Management, Air Quality, Noise
Estonia:	Fuel Quality
Czech Republic:	Environmental Information
Malta:	Waste Management

Bettina Fellmer Folie 14

Slide 14

Climate relevant topics

- acquis communautaire: several directives about climate change and energy saving
- but: no priority so far for accession countries beside air quality
- other countries: wider range to define project titles

Bettina Fellmer Folie 15

Slide 15

Steps to initiate a project

- Development of the project fiche (Beneficiary with EC)
- Application (several MS)
- Presentation (several MS)
- Selection of partner (EC with Beneficiary)
- Working out the contract (MS and Beneficiary)
- Approval by EC
- Implementation of the project

Bettina Fellmer Folie 16

Slide 16

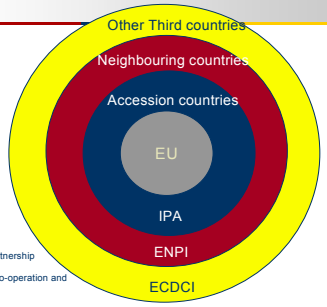
Re-structuring of the
third country programmes:

The proposed structure by the
European Commission

Bettina Fellmer Folie 17

Slide 17

Concept of concentric circles



+ Stability instrument
+ Humanitarian aid
+ Macro-financial aid

IPA = Pre-accession Instrument
ENPI =European Neighbourhood and Partnership Instrument
DC&ECI = Instrument for Development Co-operation and Economic Co-operation

Bettina Fellmer Folie 18

Slide 18

Overall 6 financial instruments

- Political instruments:
- Pre-accession Instrument (IPA)
- European Neighbourhood and Partnership Instrument (ENPI)
- Instrument for Economic Co-operation and Development Co-operation (DC&ECI)

- Instruments for humanitarian aid:
- Stability Instrument
- Instrument for humanitarian aid
- Macro-financial aid

Bettina Fellmer Folie 19

Slide 19

Programme: IPA

- Beneficiary countries: Accession countries (AC) and potential accession countries
- Focus: Transition aid and institution-building
- Regional and crossborder co-operation
- Regional Development (only AC)
- Development of human resources (only AC)
- Development of rural areas (only AC)
- Implementation: Decentralised Implementation System (DIS) or Extended Decentralised Implementation System (EDIS)

Bettina Fellmer Folie 20

Slide 20

Programme: ENPI

- Beneficiary countries: Neighbouring countries of future enlarged EU (TACIS and MEDA countries including Southern Caucasus)
- Focus: Promotion of economic development and democracy, crossborder co-operation with EU member states

Bettina Fellmer Folie 21

Slide 21

Thank you very much !

Bettina.Fellmer@gtz.de

Bettina Fellmer Folie 22

Slide 22

Panel discussion: The Future of the Kyoto Mechanisms beyond 2012

Chair: Dr. Hans-Joachim Ziesing

German Institute for Economic Research (DIW), Berlin

DIW Berlin

Deutsches Institut für Wirtschaftsforschung

www.diw.de

Panel discussion:
The future of the Kyoto Mechanisms beyond 2012

Panelists: Alexandra Amerstorfer
Hans Nilsson
Dr. Mykola V. Raptsun
Franzjosef Schafhausen
Chair: Dr. Hans-Joachim Ziesing

CTI Capacity Building Seminar for CEE/CIS Countries, October 25, 2005, Leipzig, Germany

Slide 1

DIW Berlin

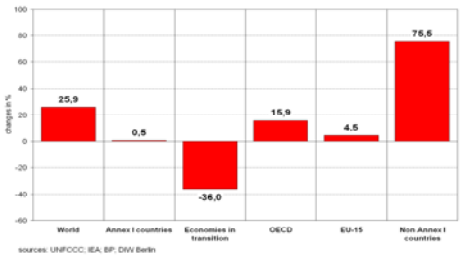
Some findings

- **Regarding the development of greenhouse gas emissions since 1990 we see a widening gap compared with the agreed Kyoto targets for 2008 to 2012**
- **and the same is true concerning the huge gap between the expected development of greenhouse gas emissions and the reduction targets.**

Slide 2

DIW Berlin

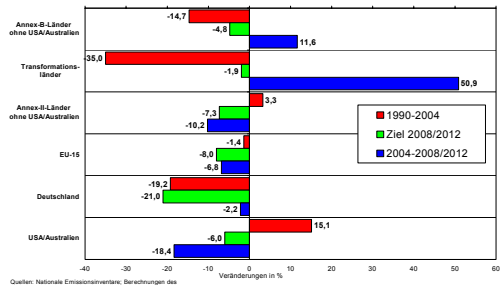
World-wide development of CO_2 emissions 1990 to 2004



Slide 3

DIW Berlin

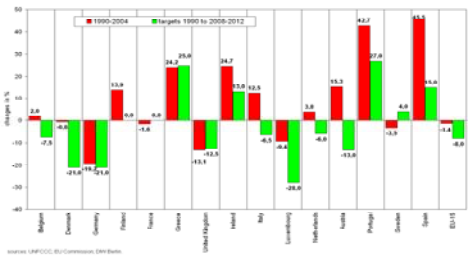
Greenhouse gas emissions in Annex B countries 1990-2004 and targets for 2008-2021



Slide 4

DIW Berlin

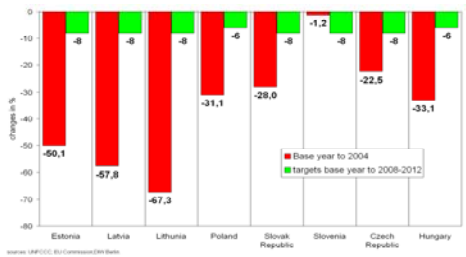
Greenhouse gas emissions in the EU-15 member states 1990-2004 and targets for 2008-2012



Slide 5

DIW Berlin

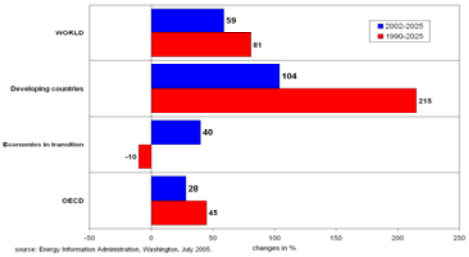
Greenhouse gas emissions in the EU accession countries 1990-2004 and targets for 2008-2012



Slide 6

DIW Berlin

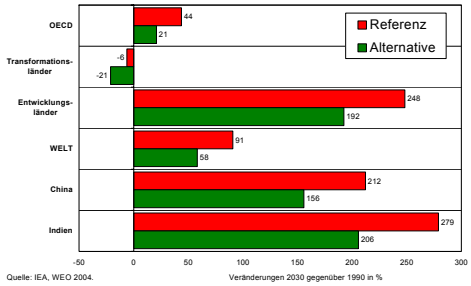
Forecast of CO_2 emissions by 1990 to 2025 according to the EIA 2005



Slide 7

DIW Berlin

Forecast of CO_2 emissions by 1990 to 2030 according to the IEA World Energy Outlook 2004



Slide 8

DIW Berlin

Some basic prerequisites

- **The future of Kyoto Mechanisms beyond 2012 strictly depends on further commitments to reduce greenhouse gas emissions.**
- **I.e. without concrete and binding emissions targets Kyoto Mechanisms will not have any future.**
- **So first of all a common understanding of the required targets as well as a binding commitment concerning the concrete targets are indispensable.**

Slide 9

DIW Berlin

Some findings and questions

- **To meet these targets we need the USA as well as countries like China to join the Kyoto II (Kyoto beyond 2012).**
- **Do we still need all Kyoto Mechanisms beyond 2012?**
- **Is there any idea which of the Kyoto Mechanisms should be strengthen beyond 2012 especially and if other mechanisms should be introduced?**
- **Will there be any need to improve the Kyoto Mechanisms and what has to be done to do so?**

Slide 10

DIW Berlin

.

Thanks for your attention

hziesing@diw.de

Slide 11