

# Norway and the EU Candidate Countries – Plan of Action to Increase Co-operation and Contact

## Norwegian – Romanian Co-operation

### Training Programme on Financial Engineering for Greenhouse Gas Mitigation Projects

#### Completion Report

31 August 2003



Centrul de Prevenire a Poluării  
Pollution Prevention Centre

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## 1. Summary

Norway and Romania signed a bilateral Climate Change Agreement on project co-ordination for reduction of greenhouse gases in December 2001. Both countries have ratified the United Nations Framework Convention on Climate Change (UNFCCC) and agreed to undertake projects to gain experience of Joint Implementation (JI) under UNFCCC and the Kyoto Protocol.

To fulfil the agreement, projects suitable for JI must be identified, developed and implemented. The most cost-effective option is to build Romanian capacity on JI projects and hence enable development and implementation of the current Romanian project portfolio as well as future project opportunities.

The Norwegian Ministry of Foreign Affairs commissioned the Norwegian Energy Efficiency Group (NEEG) to organise and implement a programme for "Joint Implementation in Romania - Combined capacity building and project development" through the Government Plan of Action to Increase Co-operation and Contact with EU Candidate Countries.

NEEG performed the training programme "**Financial Engineering for Greenhouse Gas Mitigation Projects**" autumn 2002 and spring 2003. The achieved results are summarised below:

- 19 Romanian energy experts are educated in Financial Engineering
- 10 business plans for industrial energy efficiency projects are developed
- The developed projects represents a total investment of 89,8 million USD
- CO<sub>2</sub> reduction of 285 900 tons/year will be achieved by implementation of the projects
- The Romanian Pollution Prevention Centre (CPP) and the Romanian Energy Efficiency Centre (ARCE) have acquired knowledge on project development and financing

The training was organised as an interactive programme consisting of workshops, lectures, exercises, homework and individual consultations. Following an information seminar in December 2002, three training sessions were arranged during spring 2003.

It was clearly demonstrated that such programmes are needed in Romania and that the participants gained extensive knowledge on methodologies for business planning and project development. The interactive model of combining training and project development proved to be motivating and efficient. Between the training sessions, NEEG trainers communicated with the participants by use of Internet and provided support and guidance. This concept for "long distance training" is quite new in Romania.

All of the projects are bankable and some of them may be implemented under the Kyoto Protocol as Joint Implementation projects when the Kyoto Protocol enters into force and the Romanian institutional framework is in operation.

An outline of all projects has been presented to the Nordic Investment Bank, the Norwegian Trade Council and selected Norwegian suppliers of relevant equipment. One Norwegian contractor/equipment vendor has approached ARCE in order to evaluate two of the projects.

Some of the project developers will need professional assistance in further development of the projects prior to implementation including negotiations with financial institutions and equipment vendors. Continued Norwegian support to selected projects on such issues is strongly recommended.

## 2. Background

Countries of Central and Eastern Europe suffer from severe economic and environmental problems caused by their inefficient and polluting energy systems as well as polluting industries. Cleaner production investments, improved energy efficiency and utilisation of local energy resources are examples of viable options for addressing the environmental and social consequences of economic transition simultaneously. At the same time, some of the best opportunities for reducing global greenhouse gas emissions will come from cleaner production and energy efficiency investments as well as utilisation of local energy resources.

For the past ten years Norway has supported the new democracies in Central and Eastern Europe in their efforts to develop democratic institutions, establish a socially oriented market economy and improve the environment. In March 2001 the Norwegian Government launched a Plan of Action to Increase Contact and Co-operation with the EU Candidate Countries. Under the Plan of Action Norway finance co-operation projects in selected areas. Projects are selected on the basis of the candidate countries' own priorities and Norwegian capabilities and capacities.

Norway and Romania signed a bilateral Climate Change Agreement on project co-ordination for reduction of greenhouse gases in December 2001. Both countries have ratified the United Nations Framework Convention on Climate Change (UNFCCC) and agreed to undertake projects to gain experience of Joint Implementation (JI) under UNFCCC and the Kyoto Protocol.

To fulfil the agreement, projects suitable for JI must be identified, developed and implemented. The most cost-effective option is to build Romanian capacity on JI projects and hence enable development and implementation of the current Romanian project portfolio as well as future project opportunities.

In October 2002 the Norwegian Minister of the Environment, Mr. Børge Brende and his Romanian counterpart Mr. Petru Lificiu signed a Romanian-Norwegian co-operation protocol focusing on capacity building on cleaner production and energy efficiency in Romania, including greenhouse gas mitigation and exchange of experiences on EU legislation on environmental issues.

As one of the means to effectuate the protocol, The Norwegian Ministry of Foreign Affairs commissioned in 2002 the Norwegian Energy Efficiency Group (NEEG) to implement a training programme on "Financial Engineering for Greenhouse Gas Mitigation Projects in Romania" through the Plan of Action.

NEEG organised the programme in close co-operation with the Romanian Ministry of Waters and the Environmental Protection (MoWEP), the Romanian Agency for Energy Conservation (ARCE), and the Romanian Pollution Prevention Centre (CPP).



*Bucharest 18 October 2002:  
Ministers of the Environment Mr.  
Børge Brende and Mr. Petru  
Lificiu signs the protocol on  
capacity building on cleaner  
production and energy  
efficiency.*

### 3. Training programme

The Financial Engineering Training Programme is a combined capacity building and project development programme for training of Romanian facility managers, project developers and specialists in how to develop business plans for climate change mitigation projects suitable for Joint Implementation.

During the programme, the participants were trained on business planning and presentation skills, making them able to:

- Develop the first version of a business plan for their specific project.
- Present their business plan to a financial institutions and Romanian authorities.
- Collaborate with the financial institutions on further development of business plans and required JI project documentation.

A Business Plan Framework with the following contents was presented, and the participants trained in how to develop and present each of the chapters:

1. Executive Summary
2. Project Stakeholders
3. Project Information
4. Environmental Benefits
5. Social Benefits
6. Market
7. Financing Plan
8. Financial Projections
9. Project Implementation

The rationale behind the Kyoto Protocol, as well as the framework for development, financing and implementation of projects under the Kyoto Protocol Article 6; JI projects, were discussed in lectures, examples and exercises. Local procedures for application of JI projects, including national institutional framework and selection criteria were presented.

The programme gave the participants the required capacity to develop business plans for commercial energy efficiency projects, both through the training programme and for new future projects. At completion of the training programme, the participants achieved a good understanding of the following key issues:

- Why a business plan is needed, when and how it should be developed.
- Profitability and financial calculations.
- Evaluation of the consequences when parts of the investment/loan are given in foreign currency and future savings/sales are in local currency.
- Models, mechanisms and schemes for project financing.
- Development and implementation of JI projects.
- Procedures for application of JI projects in Romania
- Models, mechanisms and schemes for financing of JI projects.
- How to present the business plan in a professional manner.

### **Interactive Training**

The Financial Engineering training is an interactive programme comprising of 3 sessions and homework. At the workshops business planning topics are lectured, discussed and elaborated by the participants in examples and exercises.

Between the training sessions, each teams of participants carries out practical homework on a specific project. In this way they gain “hands on” experience while repeating and testing out their new knowledge, ending up with a business plan for their own specific project, ready for presentation to financial institutions.

The participants are supplied with the following training material:

- Detailed “Business Planning Manual”
- Exercises
- Examples
- Software for profitability and cashflow calculations
- Business Plan Template

The information seminar and the training sessions were carried out in Bucharest according to the following time schedule:

- Information Seminar      10 – 11 December      2002
- Training Session 1      18 – 20 February      2003
- Training Session 2      1 – 3 April      2003
- Training Session 3      13 – 15 May      2003

The following trainers were involved in implementing the programme:

Mr. Trond Dahlsveen	ENSI – Energy Saving International AS (NEEG Partner)
Mr. Jonn Øyvind Evenseth	ENSI – Energy Saving International AS (NEEG Partner)
Mr. Jonas Sandgren	KanEnergi AS (NEEG Partner)
Dr. Corneliu Rotaru	Romanian Agency for Energy Conservation





Mrs. Dana Soiman and Mr. Dumitru Miron, both CPGC CAMPINA are completing a cashflow calculation exercise at Training Session 2



Mr. Alexander Lup presents VIROMET Business Plan.



Dr. Ion Melinte, Councillor of the Minister of Waters and Environmental Protection.



Mr. Ionel Mutiu, TRANSGEX, and NEEG Project Manager Jonn Øyvind Evenseth are discussing a geothermal energy project.



Participants and trainers at Session 1 in Bucharest 18 – 20 February 2003

## 4. Participants

In total, 28 persons attended the training programme, representing 16 companies and organisations. 12 of the companies had identified projects for development under this programme. The participants and their projects were proposed by ARCE and approved by NEEG.

19 of the 28 participants, representing 14 companies and organisations, received their Professional Certificate for participation at minimum two training sessions and completion of homework. Representatives from ARCE and CPP acted as trainers and contributed to completion of Business Plans.

Title	Surname	First Name	Company, location
Mrs.	Rizea	Daniela	TERMOFICARE 2000, Pitesti
Mr.	Strigoi	Constantin	TERMOFICARE 2000, Pitesti
Mr.	Teslici	Florin	CNH, Petroşani
Mr.	Markos	Tiberiu	TECHNOSAM, Oradea
Mrs.	Mitroi	Lidia	ISPE, Bucharest
Mr.	Nistea	Ioan	SUCEAVA County, Suceava
Mr.	Miron	Dumitru	CPGC CAMPINA, Campina
Mrs.	Soiman	Dana	CPGC CAMPINA, Campina
Mr.	Lup	Alexandru	VIROMET, Victoria
Mrs.	Georgescu	Zola	SNP PETROM, Brazi
Mrs.	Tudor	Anca	SNP PETROM, Brazi
Mr.	Sekel	Dumitru	MINVEST, Deva
Mrs.	Stanciu	Angela	MINVEST, Deva
Mr.	Muţiu	Ionel	SA TRANSGEX, Oradea
Mr.	Roşu	Adrian	SA TRANSGEX, Oradea
Mrs.	Pop	Alina	RA TERMOFICARE, Cluj
Mr.	Haţegan	Doru Titus	RA TERMOFICARE, Cluj
Mrs.	Avram	Marina	PRODITERM SA, Bistriţa
Mrs.	Hurkecz	Maria	PRODITERM SA, Bistriţa
Mrs.	Bugnar	Călina	PRODITERM SA, Bistriţa
Mrs.	Istrate	Lidia	TURNU SA, Măgurele
Mrs.	Scobici	Mihaela	TURNU SA, Măgurele
Mr.	Manolescu	Horia	FAUR, Bucharest
Mr.	Sandru	Bogdan	FAUR, Bucharest
Mrs.	Răducanu	Maria	FAUR, Bucharest
Mr.	Roţaru	Corneliu	ARCE, Bucharest
Mrs.	Călugăru	Cristiana	ARCE, Bucharest
Mr.	Gheorghievici	Vladimir	CPP, Bucharest



## 5. Developed projects

Initially, 12 projects were selected for the training programme. 2 companies failed to complete business plans for their projects. The remaining 10 companies presented their business plans at Training Session 3, in the presence of representatives from the Ministry of Water and Environmental Protection. The project portfolio represents a mixture of energy efficiency projects within district heating and industry.

An outline of the 10 projects is given below.

Company, location	Project	Investm. (mill.USD)	PB (years)	CO <sub>2</sub> reduc. (tons/year)
TERMOFICARE 2000, Pitesti	Modernization of thermal power plant. Installation of 3 boilers with 9 low NOx burners each.	1	3,5	16 500
CNH SA, Petrosani	Modernization of compressed air system to reduce consumption of electrical energy and cooling water. Installation of screw compressors.	6,3	2,2	29 000
SUCEAVA County Suceava	Modernization of heating and hot water supply systems in 3 cities. Installation of CHP plants, new distribution network	59	10	130 000
CPGC CAMPINA Campina	Modernization of thermal energy generation and distribution systems for heat and drinking water. Installation of VSD pumps in hydrophor stations, micro hydro power plant, micro thermal plants in buildings, automatic temperature regulation in buildings,	4,3	4,5	19 000
VIROMET S.A., Victoria	Rehabilitation of power plant to achieve higher energy efficiency and emissions reduction. Installation of 3MW gas turbine and new boiler in CHP system.	3,8	2,9	24 000
SNP PETROM Brazi	Modernization of the coke processing plant. Installation of low NOx burners, air pre-heating system and waste water treatment system.	6,1	2,8	16 500
TRANSGEX S.A., Oreada	Supply of geothermal energy to Beius city, replacing inefficient and obsolete oil fuelled power generation and distribution system. Installation of thermal substations, replacement of distribution network, automation.	1,1	5,6	13 500
RA TERMOFICARE, Cluj-Napoca	Modernization of district heating system by a distributed system including 12 "energy islands". A pilot plant for 1 "energy island" is currently considered in the current Business Plan. Installation of CHP, boilers, heat exchangers and control system.	3	7,5	5 400
PRODITERM S.A., Bistrita	Modernization of thermal power plant. Installation of CHP.	4,2	2,6	29 000
TURNU S.A., Turnu Magurele	Modernization of nitric acid processing plant. Modification of absorption column and installation of heat exchangers	1	3,2	3 000
<b>TOTAL</b>		<b>89,8</b>		<b>285 900</b>

## 6. Results and lessons learned

The achieved results compared with the planned results can be summarised as follows:

Objective	Planned results	Achieved results
Trained facility managers and project developers	20	19
Developed first version of Business Plans	6	10

The main observations and lessons learned can be summarised as follows:

- It was clearly demonstrated that such programmes are highly needed in Romania.
- The participants gained extensive knowledge on methodologies for business planning and project development. All the participants as well as representatives from the Ministry for Waters and Environmental Protection expressed their satisfaction with the training programme, and most of them confirmed that the new knowledge gained would be useful for them in their future work.
- The interactive model of combining training and project development proved to be motivating and efficient. Between the training sessions, NEEG trainers communicated with the participants by use of Internet and provided support and guidance. This concept for “long distance training” is quite new in Romania.
- All of the projects are bankable and some of them may be implemented under the Kyoto Protocol as Joint Implementation projects when the Kyoto Protocol enters into force and the Romanian institutional framework is in operation.
- Some of the project developers will need professional assistance in further development of the projects prior to implementation including negotiations with financial institutions and equipment vendors. Continued Norwegian support to selected projects on such issues is strongly recommended.
- An outline of all projects has been presented to the Nordic Investment Bank, the Norwegian Trade Council and selected Norwegian suppliers of relevant equipment. One Norwegian contractor/equipment vendor has approached ARCE in order to evaluate 2 of the projects.
- The Romanian Production Prevention Centre (CPP) assisted NEEG in practical arrangements for the training sessions. CPP participated in the training programme and built own capacity on project development, JI projects as well as arrangement of training programmes in general.
- The Moldavian Cleaner Production and Energy Efficiency Centre (CP&EE) supported CPP and assisted NEEG in programme execution. Transfer of experiences from similar CP&EE programmes in Moldova proved to be beneficial for this programme.
- The Romanian Agency for Energy Conservation (ARCE) assisted NEEG in selection of projects, follow-up of participants, lectures on Romanian procedures for JI and liaison between project developers and the authorities. This assistance was imperative for successful programme completion.