



SYNERGY PROGRAMME Project N° 4.1041/D/01-004-SI2.327764

Training Programme on Greenhouse Gas Reducing Energy Strategies, Tools and Technologies in the People's Republic of China and in Europe

SUMMARY of the final report (August 2003)



Project fact file

In 2001 an international partnership consisting of

- Center for Environmental Training and International Consulting (CENTRIC AUSTRIA INTERNATIONAL)
- German Association for the Promotion of International Environmental Technology Transfer (ITUT)
- Chinese State Ministry of Science and Technology (MOST)

applied to the European Commission the project under the framework of the SYNERGY PROGRAMME.

Although there exists a long history of EU-Sino cooperation in the field of energy and environment, this project was one of the first attempts to start a co-operation concerning the Kyoto Protocol between Europe and China. Appropriate to the new and unexplored situation it was rational to start with training activities first. Now, more than one and a half year after project start, we are pleased to report the successful implementation.

The many activities done and results achieved are reported in detail in the final technical report. The report gives first an overview about the implementation of the operation. In the following chapters the different activities are described:

- Training courses in China
- Study tour to Europe
- Long term training in Europe

A longer part in the report is the textbook of lectures, which were included to enable studying also beside the class.

In the final chapter feedback and recommendations are summarized.

The final project costs were 621.881 €. The European Commission contributed to this amount with 283.445 € (45,58 %). Further cofinancing was done by the Austrian Ministry of Science, Culture and Education with 109.943 € (17,68 %). The rest of 228.493 € (36,74 %) was balanced by the project partners with own resources.



Aims and objectives of the project

The rapid economic development of China is expected to cause a rapid increase of energy use. The global problem of the climate change caused by greenhouse gas emissions dares to be intensified by this development. The project aimed thusfore to upgrade human skills in China, that are suitable to save energy, to raise energy efficiency and to substitute energy resources with high reference to greenhouse gas emissions.

The actual project was a follow-up activity of many years training activities between China and EU also within the framework of SYNERGY, that have been very important for both sides. The excellent experiences in this field should be continued, but focused with this project the first time on the EU's concern to implement the Kyoto Protocol even in China by in-depth addressing environmental aspects in energy training projects:

- Development of a common understanding of the Kyoto mechanism
- Energy efficiency
- Clean technologies
- Renewable sources of energy
- Capacity building by means of appropriate management tools for implementation

In total the project provided training on strategic, methodological, technical and managerial level, based on experienced tools for environmental and energy management systems from Europe.



Target groups

The project focused on individuals, who have a multiplier or policy and agenda setting function, from organisations such as: government organisations, public bodies, institutions, industry, research organisations. The final programme was used by the Chinese partners to approach individuals, who they deem to be best suitable to produce the expected results outlined in the working programme of the project application.

At least the number of

- 217 Chinese experts attended the training courses in China,
- 17 Chinese experts attended the study tour in Europe.
- 4 Chinese experts received a long term training in Europe.

As the training contents and materials were provided in printing as well as in the internet it is assumed that a quite bigger number of recipients could be reached by the project.



Milestones and Implementation Schedule

Month	Project Management	Training courses in China	Study tour in Europe	Long term training in Europe	Project web site
Dec 01	Contract signed				
Jan 02	20-21/01/02 Prep-meeting in Europe				
Feb 02	04-10/02/02 Prep-meeting in China	Preparation of training courses			Preparation of web design
Mar 02		Preparation of training courses			Preparation of web design
Apr 02		Preparation of training courses			Preparation of web design
May 02		20-30/05/02 First bloc of training courses in Tianjin and in Chongqing			Decide project web site map
Jun 02		Preparation of training courses			www. cct/ghg online
Jul 02	19/07/02 Interim meeting in Beijing	Preparation of training courses			Update web site
Aug 02		Preparation of training courses	Preparation of study tour to Europe		Update web site
Sep 02	24-25/09/02 Interim meeting in China	16-23/09/02 Second bloc of training courses in Nanjing, Shanghai and Hanzhou	Preparation of study tour to Europe		Update web site
Oct 02			Preparation of study tour to Europe		Update web site
Nov 02			25-30/11/02 First part of study tour in Europe		Update web site
Dec 02	20/12/02 Interim technical and financial report		01-09/12/02 Second part of study tour in Europe	Draft TORs for long term trainees	Update web site
Jan 03				Select and invite long term trainees	Update web site
Feb 03				Select and invite long term trainees	Update web site
Mar 03				17-31/03/03 Long term training in Austria	Update web site
Apr 03	Preparation of final meeting and reporting			01-11/04/03 Long term training in Austria	Update web site
May 03	07/05/03 EU PM visits Synergy office in Brussels				Update web site
Jun 03	Preparation of final meeting and reporting				Update web site
Jul 03	14-19/07/03 Final meeting in Beijing				Completed web site
Aug 03	Final technical and financial report to Brussels				

Contracted project duration was 24 month. Actual project duration was 19 month, due to very smooth project implementation.

The detailed agendas of the activities can be viewed in the final technical report.



EU expert team

Alltogether seven EU experts were involved. They had to proof to the project management their authentic qualification to contribute to the project as listed in the terms of reference for each expert. Experience in preparing and giving lectures in English language in a strange cultural milieu were a must.

- Project Manager - EU Energy Policy Expert - Gerhard WEIHS
- EU Kyoto Protocol Expert - Rainer AGSTER
- EU Climate Change and Energy Technologies Expert - Gerfried JUNGMEIER
- EU Energy Efficient Building Expert - Wolfgang KESSLING
- EU Facility Management Expert - Katrin STOCKHAMMER
- EU Renewables Applications Expert - Mikael HENZLER
- EU Cleaner Production Implementation Expert - Thomas DIELACHER

Their tasks of the experts consisted of homeoffice work to prepare lectures and materials and missions abroad to China to present lectures. Some of the experts were also involved in the study tour and longterm training activities in Europe.



Training contents

The training contents were organised in four moduls along a logical line: From understanding to implementation.

- MODUL A - Common understanding of climate change and the Kyoto mechanism
The first modul served as an introduction, providing the background, the challenges, the greenhouse gas emissions, the sources (related to energy use), the Kyoto-Protocol, etc. to generate a common understanding of the implementation needs and constraints.
- MODUL B - Cleaner technologies and better use of existing facilities
The second modul introduced measures, that are suitable to save energy by improving existing facilities and give an impression, how much these measures can contribute to the reduction of greenhouse gas emissions.
- MODUL C - Renewables as one main option
The third modul focused on renewables as one main option to meet the challenges of the climate change. The most suitable technologies for China were presented and it was outlined, how much these measures can contribute to the reduction of greenhouse gas emissions.
- MODUL D - Tools for implementation
The fourth module proposed managerial and technical tools, that are experienced in Europe and suitable for China for the implementation of concrete measures. Most of the tools concerned the company level according



to the professional background of the participants. But there were also outlined some tools focused to the institutional and policy level.



Textbook

To enable study beyond the seminar and outside the classroom a comprehensive textbook was put together. The lecture notes used and handed over to the training participants are reported in the final technical report in more or less totality. Most of these texts were also translated into Chinese language and can be viewed on the project web site (www.cct.org.cn/ghg/index1.htm), too.

- MODUL A - Common understanding of climate change and the Kyoto mechanism
 - Introduction on international energy policy
 - Overview on current climate change science
 - Overview on measures to reduce GHG emissions
 - Review of current climate change policy
 - Instruments of the Kyoto Protocol
 - The Clean Development Mechanism
- MODUL B - Cleaner technologies and better use of existing facilities
 - Co-generation of heat and electricity
 - Energy efficient building – Integrated Design Process (IDP)
 - Energy efficient building – Indoor air quality and comfort
 - Energy efficient building – Energy conservation in HVAC systems
 - Facility Management – Basics
 - Energy efficiency and Facility Management
 - Software Tool – EnerginInfo
 - Case study– District heating project
- MODUL C - Renewables as one main option
 - Renewables for China
 - Renewables applications
 - Case study – Planning a renewable village in China
- MODUL D - Tools for implementation
 - Cleaner production versus end-of-pipe
 - Cleaner production management strategies and systems
 - The Ecoprofit method
 - Energy audit
 - Instruments for energy policy and planning
 - Incentives for sustainable energy policy on local level



Study tour in Europe

What you have not seen, you would not believe nor understand at least. A selected number of 17 Chinese experts was invited to visit Europe to view a reasonable number of sites, that can illustrate the input of the training courses and serve as a platform to contact further European organisations and companies.

The study tour started on Monday 25th November 2002. During the tour various site visits in Berlin, Frankfurt, Munich, Graz and Vienna were conducted. The tour ended on Monday 09th December 2002 in Vienna. For the whole duration Mr. Agster as guide and Ms. Zhou as translator accompanied the delegates. Full accommodation and travelling had been organised by Ms. Kampl from CENTRIC AUSTRIA.

- The study tour commenced with a visit to the German Ministry of Environment in Berlin. The presentations at the ministry covered two main topics: international relations of Germany in regard to climate protection and national policies to reduce CO2 emissions.
- Then visit at the Bewag Hydrogen Exhibition was on the programme. The visit to the Bewag hydrogen exhibition showed the delegates, which future developments can be expected from hydrogen as a fuel.
- On Wednesday the delegates had the opportunity to learn more about German contemporary architecture and the political system in Germany during a walk around Potsdamer Platz and on a guided tour in the Reichstag.
- The afternoon was reserved for a visit to the Potsdam Institute for Climate Impact Research. PiK was founded to scientifically examine the results of climate change in the world. It consists of five different departments, which do research on climate change with their own special focus.
- The evening was used for the transfer to Frankfurt, where the most modern office building Prisma was visited the next day.
- In the afternoon of Thursday 28th of November various experts from ERM Lahmeyer's - climate protection division presented their activities and answered the questions of the delegates. ERM Lahmeyer is one of the leading German companies in sector of Climate Protection.
- For the evening another transfer to Munich was scheduled. On Friday TUEV Sueddeutschland presented its projects to the delegation. TUEV Sueddeutschland will offer important steps in the project cycle of a CDM project. Additionally FutureCamp as a project developer offers assistance during the whole process of CDM project development.
- With these presentations the delegates got a complete impression on the legal and political background of climate protection projects from the German Ministry of Environment as well as socio economic dimensions of international climate protection and emission trading from Potsdam Institute for Climate Impact Change; and finally project development and certification from ERM Lahmeyer and TUEV Sueddeutschland.
- While the first week was largely centred around the theoretical background of such projects, the second week had its focus on the practical application of



technologies. The start was made by a visit to the German Museum. The delegates visited jointly the German Museum which is the biggest technology based museum in Germany. Of special interest was an exhibition addressing climate change issues and CO2 mitigation.

- The weekend was reserved for a cultural programme with visits to Castle Neuschwanstein, Christmas market in Munich and the City of Salzburg. On Sunday 1st December Graz was reached.
- Monday offered the delegates an impression on the latest technologies to the use of biomass in energy production at Joanneum Research - Institute of Energy Reserach. In the afternoon a co-generation plant in Mellach near Graz was visited in a guided tour.
- Tuesday morning was of special interest to the delegates with a tourism industry background, since the Erzherzog Johann Hotel presented its activities in cleaner production. This was also the topic for the following two days, where cleaner production efforts of various companies were presented: Magna Steyr a car manufacturer, eoxal Heuberger a metal surface treating company, Puntigamer a brewery and Styria a printing company.
- Additionally the delegation attended a reception by the mayor of Graz in the town hall.
- The transfer to Vienna took place on Thursday, with a visit in Gleisdorf at the ARGE renewable energies, introducing the participants to low energy single family housing.
- In Vienna the visit to the Ministries of Environment and Innovation concluded the official programme. Before their departure on Monday, the delegates had the Chance to visit famous sites such as the inner City of Vienna and Castle Schoenbrunn.

The final report includes a much more detailed description of the tour.



Long term training in Europe

As last training activity a longterm training for 4 selected Chinese experts was organised. This training was implemented in 2003 in Austria and was governed by MOST, CENTRIC AUSTRIA and ITUT GERMANY. The purpose of the long term training was to provide for a small number of qualified Chinese experts a more in-depth training on selected topics to raise their skills up to the level of trainers. The method to meet this purpose was to work on very concrete project ideas, which are appropriate to sustain the activities between China and EU to develop further training activities, identify projects and further business-to-business activities.

The final report contains more detailed information about the implementation of this activity, including the selection of the trainees, the profil of the trainees, the schedules and agendas and the output of the training in form of a number of project drafts:

- Cleaner Production in the Foundry Industry of the PR of China
- Clean Coal Measures in Thermal Power Plants



- Energy Efficiency in Building - Integrated Building Planning
- Development of Renewable Energies on Chong Ming Island



Ex-post assessment

The whole project implementation was accompanied by several meetings to gather feedback and summarize lessons learned by the project.

- At the end of each training course at the five locations, the EU experts made an evaluation session with the participants. The participants of the training course were asked to write down three topics, which have been of main relevance to them and which they would like to address again by implementing it in their daily work or doing additional reading on the topic. Each participant was then asked to present his three topics. From this a qualitative and partly a quantitative evaluation has been carried out. Depending on intensity of topics handled and individual interest of participants, an interesting ranking resulted.
- Further, each project manager prepared a summary feedback on the implementation of the training courses, which were presented and discussed at the interim meeting in Hangzhou in September 2002.
- At the end of the study tour a brief survey was conducted to gather the most important impressions by the participants. Naturally a very personal response was received.
- The Chinese delegation leaders prepared a summary feedback to the study tour after their return in China.
- At least some recommendations for further training activities were given in the final report, mentioning the huge potential of cooperation between China and Europe, but also mentioning some obstacles in this respect and how to overcome these problems. At the end a number of topics were addressed, which seem to be of highest interest to be formed into concrete training activities to support common energy and environmental matters between Europe and China.

These topics are listed in the final report in more detail.

Finally we have to express our gratefulness to all donors, supporters and persons, who made this project possible and to a success.

