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Support for the Development and
Uptake of CDM projects in the
Industrial sector:
Pilot Project in Co-operation with
the Austrian Industry
US/GLO/04/096

UNIDO Project No.: US/RER/02/164

Final Report

13 March 2009

Project Manager

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Client

THE UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION



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Executive Summary

The Clean Development Mechanism (CDM), one of the mechanisms of the Kyoto Protocol, encourages legal entities in developed countries to enter into cooperative project arrangements with entities from developing countries for the benefit of both Parties. Developed countries will be able to use certified emission reductions (CERs) from such project activities to contribute to compliance with their GHG targets. Host countries achieve a number of additional benefits on top of carbon emission reductions, such as sustainable development, technology transfer. However, such projects are also expected to result in non-GHG benefits, especially furthering the national objectives of sustainable development in and technology transfer to the host countries.

To achieve this target of cooperation between host countries and developed countries in CDM projects, a number of barriers need to be overcome. High transaction costs for the preparation and approval of the required project documents, lack of knowledge and skills to develop projects in target sectors or a lack of understanding on technologies applicable for CDM projects are all barriers, which limit the success of the Clean Development Mechanism. The target of this project was to help to overcome these barriers by supporting the development of knowledge and skills in the participating host countries (Vietnam, Mexico, South Africa) and establishing contacts between the host countries and Austria.

The first phase of the project targeted to develop partnerships with Austrian business and industry. In Austria there are more than three hundred companies offering environmental technology. On an international basis, the Austrian environmental industry has generally shown itself to be very competitive, particularly with regards to water and air, but also technologies for waste avoidance, energy efficiency and renewable energies are gaining in importance.

In the last years, environmental technology has developed to become an important and highly modernised branch of industry, with correspondingly high growth rates. Austrian environmental technology manufacturers have an excellent range of products to offer in the particularly dynamic branches of energy, waste and sewage management and strong growth is anticipated in international markets. Nevertheless, there is still potential for development, especially in environmental protection equipment and service and export initiatives in this direction are constantly being undertaken by the Chamber of Commerce and the Ministry of Environment.

This first phase showed that there is limited know-how and experience with CDM among Austrian businesses. Whereas consultants active in this sector have a good understanding on the opportunities and risks, only a very small number of equipment suppliers had experience with CDM. There was interest to engage more into CDM, but also a clear need to get external support when proceeding with CDM in new markets.

As a result of this first phase, country missions to Vietnam, Mexico and South Africa were organized. Although these country missions were not mentioned in the Terms of Reference, it was concluded between UNIDO and the participating companies that this would be an excellent opportunity to directly link up Austrian equipment suppliers and service providers with project developers and investors in the host countries. These country missions were a remarkable success, with a number of concrete projects and activities to cooperate. These opportunities included for example the supply of equipment like biomass boilers or gas motors, the financing for CDM projects and the purchase of emission reductions from CDM projects.

During these country missions, the team also learnt from consultations with national stakeholder that there is a considerable need for training in the countries. Participants from ministries and other national institutions were mainly interested in some general CDM training, focusing on the Kyoto background and the CDM project cycle. Other national stakeholders, already having some experience with CDM were especially interested in detailed technical training in preparing Project Idea Notes (PINs) and Project Design Documents (PDDs) (including baseline preparation, available methodologies and design of new methodologies). Other potential participants for the training workshops asked for more support on the side of identifying potential CDM project partners and the marketing of Certified Emission Reductions (CERs).

Based on gaps identified when developing capacity building and technical assistance concepts, the team developed training material packages with focus on the national training needs for each country. In all three countries the approach was to have interactive training workshops, giving participants the opportunity to work actively on real CDM projects with focus on technical issues like the preparation of PINs and PDDs. Apart from introductory presentations, small working groups (participants with different backgrounds in one group) were set up to stimulate discussions and the exchange of ideas and different point of views when preparing different topics or CDM project samples. The workshops were backed by PowerPoint presentations, documents about approved methodologies, additionality requirements, other project information (PDDs) and flip charts. At the end of each session, Question and Answer sessions were held.

The outcome of the training sessions was very satisfying. Project participants brought their own project ideas into the sessions, learnt how to structure CDM projects, how to apply methodologies on specific project types, learnt how to investigate and argue additionality for their potential CDM projects. These training sessions were an important basis for the PINs and PDDs, which were developed at a later stage in the project.

In summary it is to be said that the project was a remarkable success. The project helped to overcome a number of barriers and assisted project owners and investors in the 3 participating host countries (Vietnam, Mexico, South Africa) to move forward with their CDM project opportunities. The project established permanent contacts between equipment and service providers from Austria and counterparties in the host countries. Finally, the project clearly showed the opportunities which lie in the Clean Development Mechanism (CDM), both from a perspective of an investor country as well as from the view of a host country.

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List of Acronyms

CBLA	Capacity Building, Leadership and Action Programme (funded by the Canadian government)
CDM	Clean Development Mechanism
CDM-EB	CDM Executive Board
CER	Certified Emission Reduction
CESPEDES	Private Sector Center for Sustainable Development Studies (Mexico)
CHP	Combined Heat and Power
CICC	Interministerial Commission of Climate Change (Mexico)
CMPL	Mexican Center for Cleaner Production
CNA	Clean Development Mechanism National Authority (Vietnam)
CNECB	CDM National Executive and Consultative Board (Vietnam)
COMEGEI	Mexican Committee for Emissions Reduction and GHG Sequestration Projects
CONAE	National commission on Energy Saving (Mexico)
DEAT	Department of Environmental Affairs and Tourism (South Africa)
DME	Department of Minerals and Energy (South Africa)
DNA	Designated National Authority
DOE	Designated Operational Entity
Dti	Department of Trade and Industry (South Africa)
EB	Executive Board
ENAC	National Strategy for Climate Action (Mexico)
ESD	Energy for Sustainable Development Ltd. (company name)
ETS	Emissions Trading System
GHG	Greenhouse Gas
GHG	Greenhouse Gas
ICD	International Cooperation Department (Vietnam)
KP	Kyoto Protocol
KWI	KWI Management Consultants GmbH (company name)
MONRE	Ministry of Natural Resources and Environment of Vietnam (Vietnam)
MW	Mega Watt
MWh	Mega Watt Hour
NCPC	National Cleaner Production Center
NEMA	National Environmental Management Act (South Africa)
PDD	Project Design Document
PIN	Project Idea Note
RCEE	Research Center for Energy and Environment (Vietnam)
SAGARPA	Ministry of Agriculture, Livestock, Rural Development, Fisheries and Food (Mexico)
SCT	Ministry of communications and Transport (Mexico)
SE	Ministry of Economy (Mexico)
SEDESOL	Ministry of Social Development (Mexico)
SEMARNAT	Ministry of Environment and Natural Resources (Mexico)
SENER	Ministry of Energy (Mexico)
SPPA	Under secretariat of Planning and Environmental Policy, SEMARNAT (Mexico)
SRE	Ministry of Foreign Affairs (Mexico)
UCAI	International Affairs Coordinating Unit, SEMARNAT (Mexico)
UNFCCC	United Nations Framework Convention on Climate Change
VCPC	Vietnam Cleaner Production Center

1 Introduction

In cooperation with the Austrian industry, UNIDO established a pilot project titled "Support for the development and uptake of Clean Development Mechanism (CDM) projects in industrial sector" that covers three countries, namely Vietnam, South Africa and Mexico. The objectives of the project were to facilitate the development of innovative partnerships (between investor and host country institutions, business and industry) that would help to unlock the potential of CDM in industrial sector of participating countries.

This final report summarizes work of the project team (KWI from Austria in cooperation with ESD from the UK) and the results achieved in the project. The structure of the final report is as follows:

- Environmental Technology Market in Austria: summary of the situation of the technology market in Austria
- Consultation with Austrian Stakeholders: outcome of the work with stakeholders, such as technology suppliers, consulting companies and financing institutions.
- Project Stakeholders Workshop: summary of the stakeholder workshop held in Vienna on 7 and 8 November 2005.
- Technology Identification: focus in technologies in the 3 participating countries and the matching of national priorities with Austrian technologies and services offered
- Country Reports, for each of the 3 participating countries, including:
 - Report on the country mission
 - Identification of training needs
 - Capacity building and technical assistance concepts
 - Training in the countries
 - Review of PINs and PDDs

2 Environmental Technology Market in Austria

2.1 Introduction

Austria developed environmental technologies and conceptual solutions from very early on. This happened mainly because of the arising environmental policies of the 1980's and 1990's and of the environmental guidelines laid down by the EU. Austria was one of the first countries in Europe that was able to make progress in air pollution policies. It was also among the first introducing the catalyser, lead free petrol and strict emission controls in the late 1980's (WKÖ 2005, p. 6).

Nowadays there are more than three hundred Austrian companies offering environmental technologies and services (see Table 1). At an international level, the Austrian environmental industry presents itself to be very competitive, particularly with regards to water and air. Nevertheless also other technologies, like **classic "end-of-pipe-technologies"** for waste gas, sewage treatment or landfill management, and **new "cleaner production"** processes, such as waste avoidance, reductions in the transportation of sewage, energy efficiency and renewable energies are getting more and more important.

Year	1993	1997	2003
Number of Companies	248	315	331

Table 1: Number of Companies in the Austrian Environmental Technology Industry

Source: WIFO-survey in 1995, 2000, 2005

2.2 Conclusions of latest research – October, 2005

At the end of October 2005 the Austrian Chamber of Commerce (WKÖ) presented a study on the *Environment Technology Industry in Austria* (conducted by WIFO - The Austrian Institute of Economic Research). According to the results of this study, this sector had above-average growth compared to the overall economic development in the country. In 2003 the Austrian Environment Technology Industry (ETI) had about 17,200 employees, which is about 3.3% of the real assets industry (see Illustration 1). Since 1993 turnover was more than doubled, the value of environmental technologies sold equalled 3.78 million Euros in 2003. This represents about 1,7% of the GNP. 65% of it was for the export market (WKÖ 2005c). In the past years, nine out of ten environmental technology companies have marketed new products and technology. Expenditures for research and development in this branch are about three times higher than the average figure for industry in general.

In the last years Austrian environmental technology has developed to become an important and highly modernised branch of industry, with correspondingly high growth rates (see Illustration 2). Since 1997 the Environment Technology Industry had an average annual increase of 7.3% in turnover (real assets plus 3.5%) and 2.3% in employees (real assets minus 0,3%). Well thought out systems and wide reaching experience allow Austrian companies manufacturing environmental technology to have sophisticated technology at their disposal.

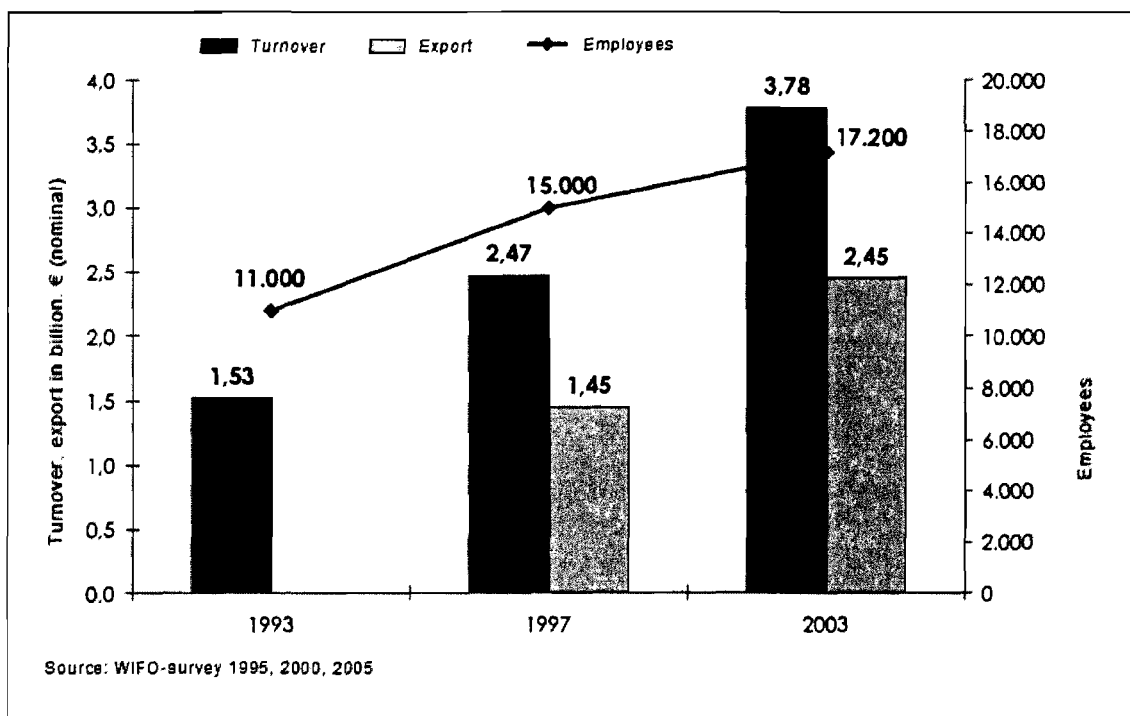


Illustration 1: Austrian Environment Technology Industry

Source: WKÖ 2005b

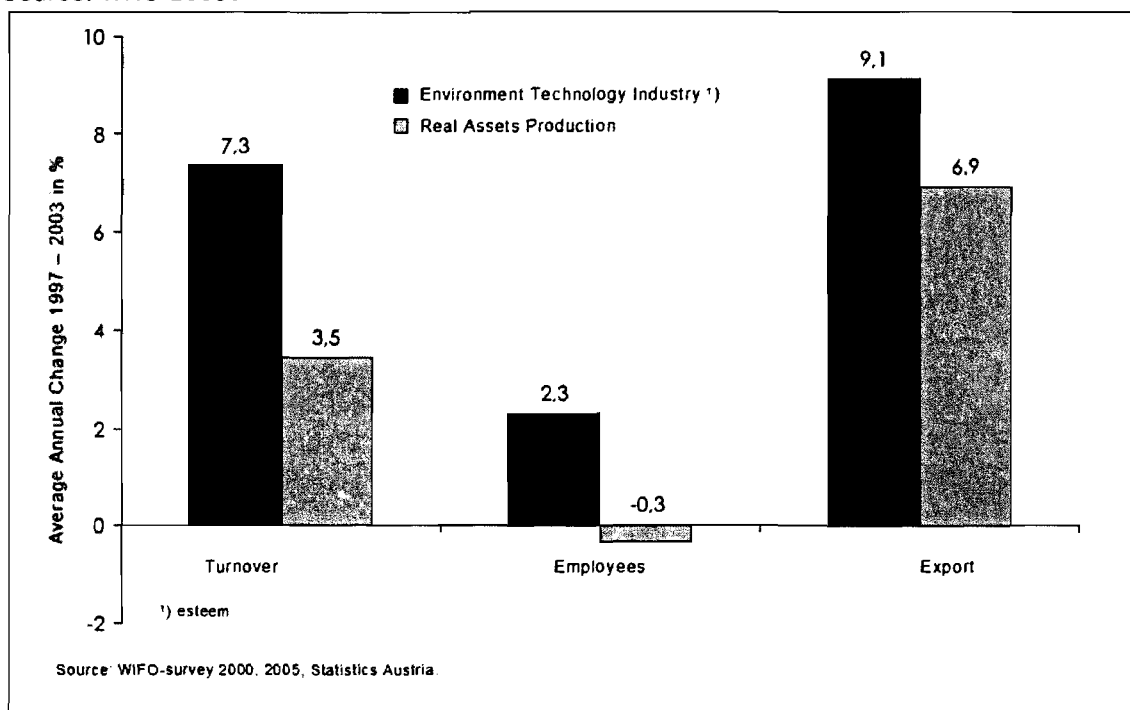


Illustration 2: Economic Indicators – Average Annual Growth Rates 1997 - 2003

Source: WKÖ 2005b

The technology area of combined heat and power (CHP) and industrial engineering have the biggest share in turnover in the clean energy technology market, followed by biomass plants and solar energy (see Illustration 3). Although by the number of companies, most of them operate in the area of biomass, solar energy and heat pumps.

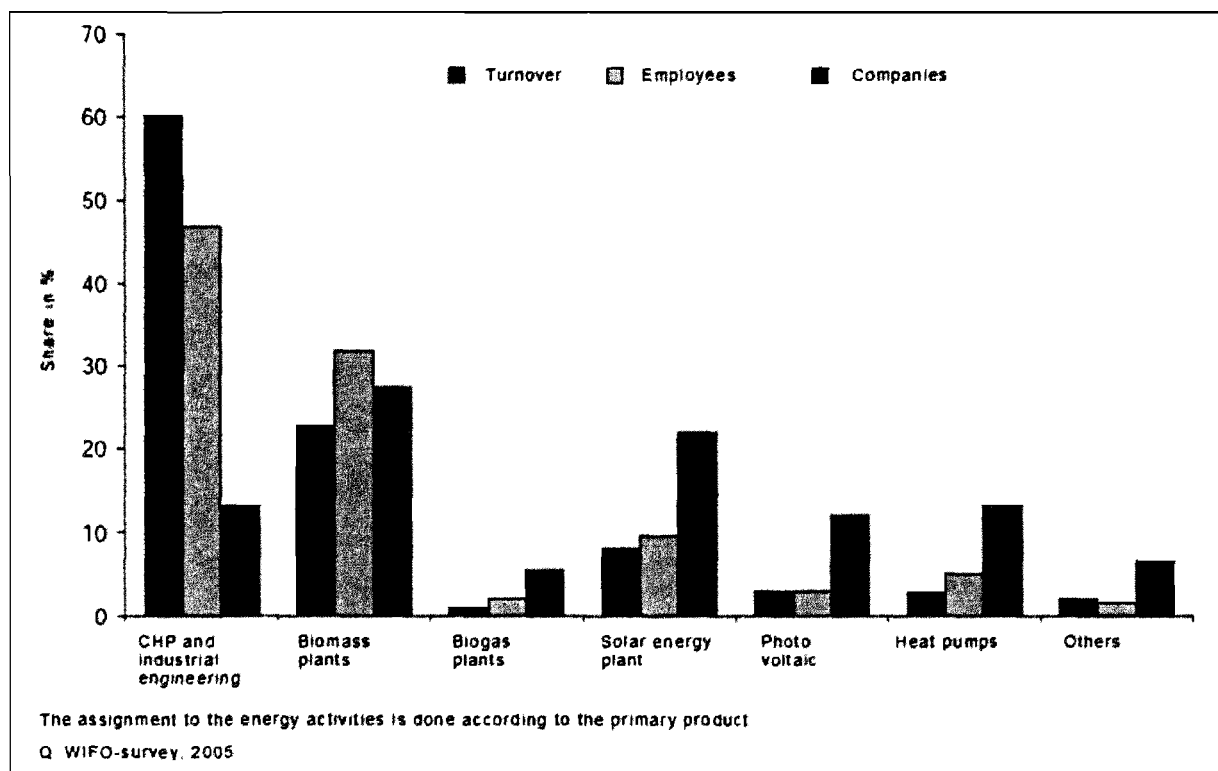


Illustration 3: Distribution of Cleaner Energy Technologies according to Technology Areas 2003
 Source: WKÖ 2005b

The study also points out that the sub-sector of “renewable energy technology” is one of or even the most important one within the environment technology industry. This sub-sector sums up to almost 50% of the total turnover. In times of increasing energy prices, experts expect this segment to be one of the most promising ones within the next years (see Illustration 4).

The umbrella organization Energy-Climate Protection (Dachverband Energie-Klima)¹, the industry’s official representation within the Austrian Federal Economic Chamber, published a brochure in March 2005 on “Renewable Energy - Technology Competence from Austria”. The brochure offers an overview of the technologies produced in Austria for the use of renewable energies. Further “Energy-Climate Protection” provides a list of company contacts in the different areas of the renewable energy technology industry and consultants operating within this field on its homepage. The brochure can also be downloaded from the organizations’ homepage².

¹ www.energieklima.at

² http://www.energieklima.at/fileadmin/user_upload/pdf/Renewable-Energies.pdf

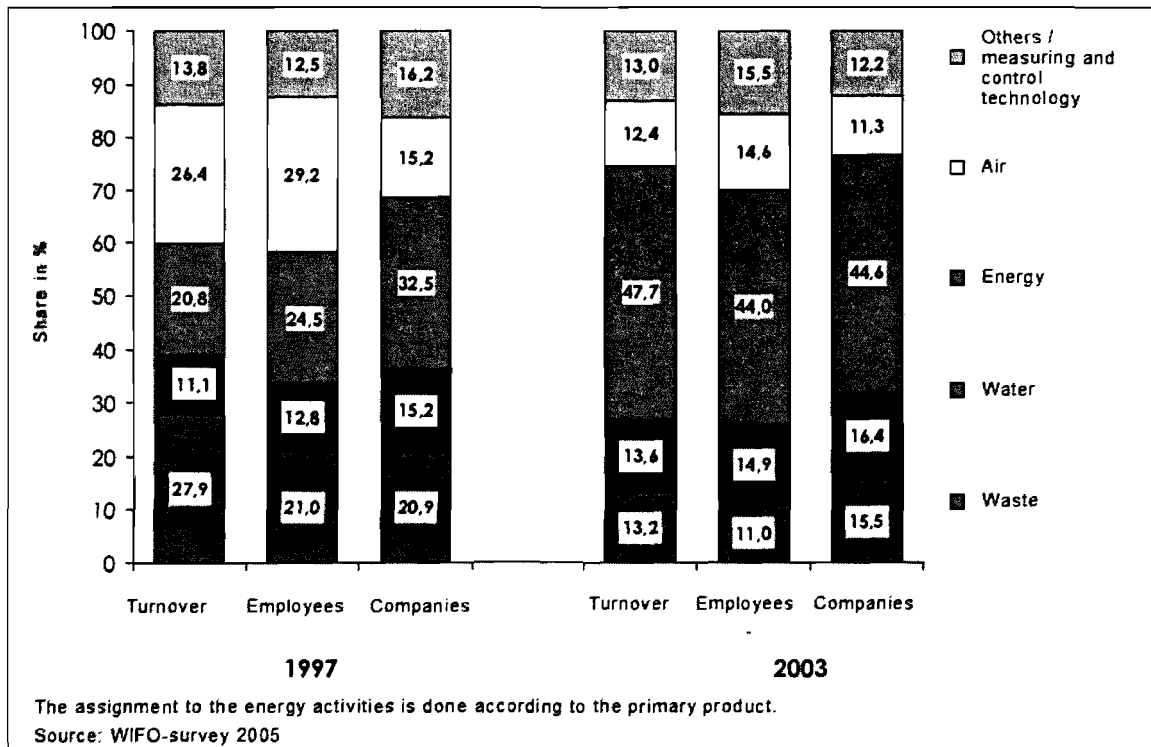


Illustration 4: Significance of Cleaner Energy Technologies 1997-2003 according to area of environmental protection

Source: WKÖ 2005b

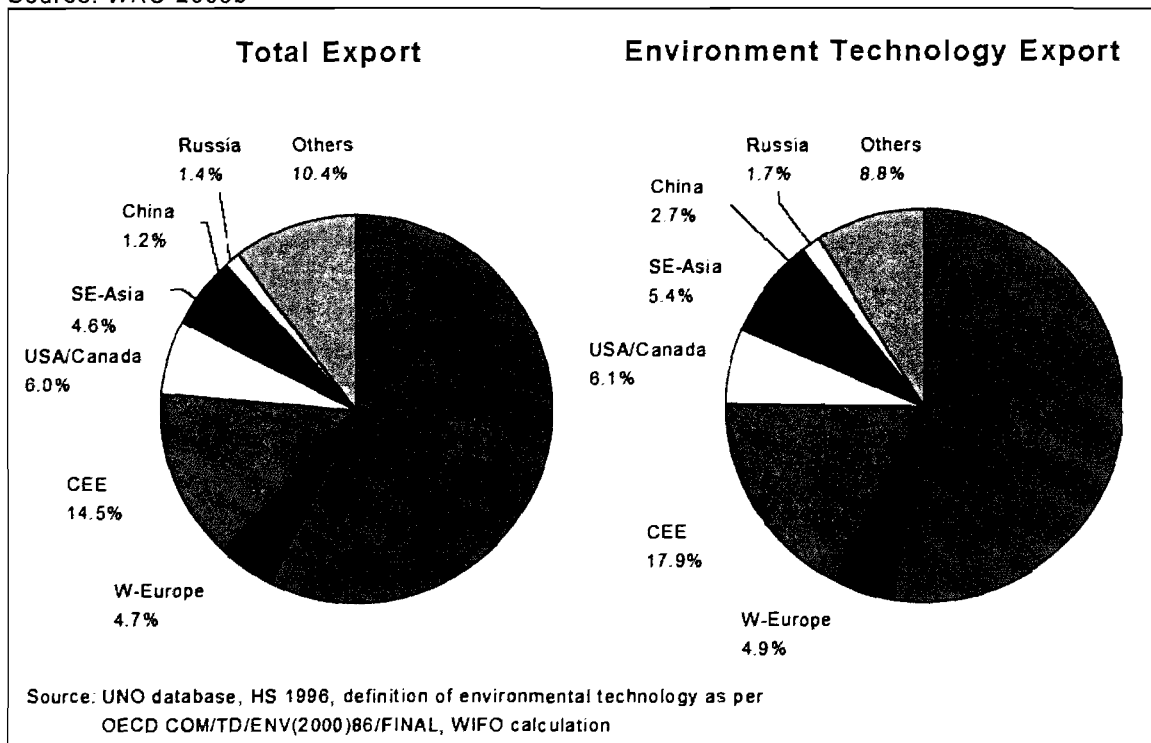


Illustration 5: Austrian Export Markets 2003

Source: WKÖ 2005b

EU15 is the most important export market for environment technology in Austria, with about 52.4% of market share (see Illustration 5). Central and Eastern European Countries (CEE) come in second with 17.9% of the market. Nevertheless also the markets in Western (W-Europe), Southern and Eastern Europe, as well as Latin America, Asia and Africa are gaining in importance. However there is still a high potential for development in these markets. Especially in countries like China and India experts predict an increase in environment technology exports for the next 5-10 years. As per Angela Köppl (Vice-Director WIFO and author of the study mentioned above) also the Central and Eastern European Countries are still emerging markets for the Austrian environment technology industry. The first reason for that is that they still need to adjust their environment standards to EU-standards and second, they are just close by and seem to be rather familiar to Austrian people (WKÖ 2005c).

The new member states of the European Union are expected to show a growth rate of between 3 and 4% per year (GDB) and more than 200 million Euros per annum and country are expected to be invested in improving the environmental situation and in redeveloping infrastructure in the new member states (WKÖ 2005a).

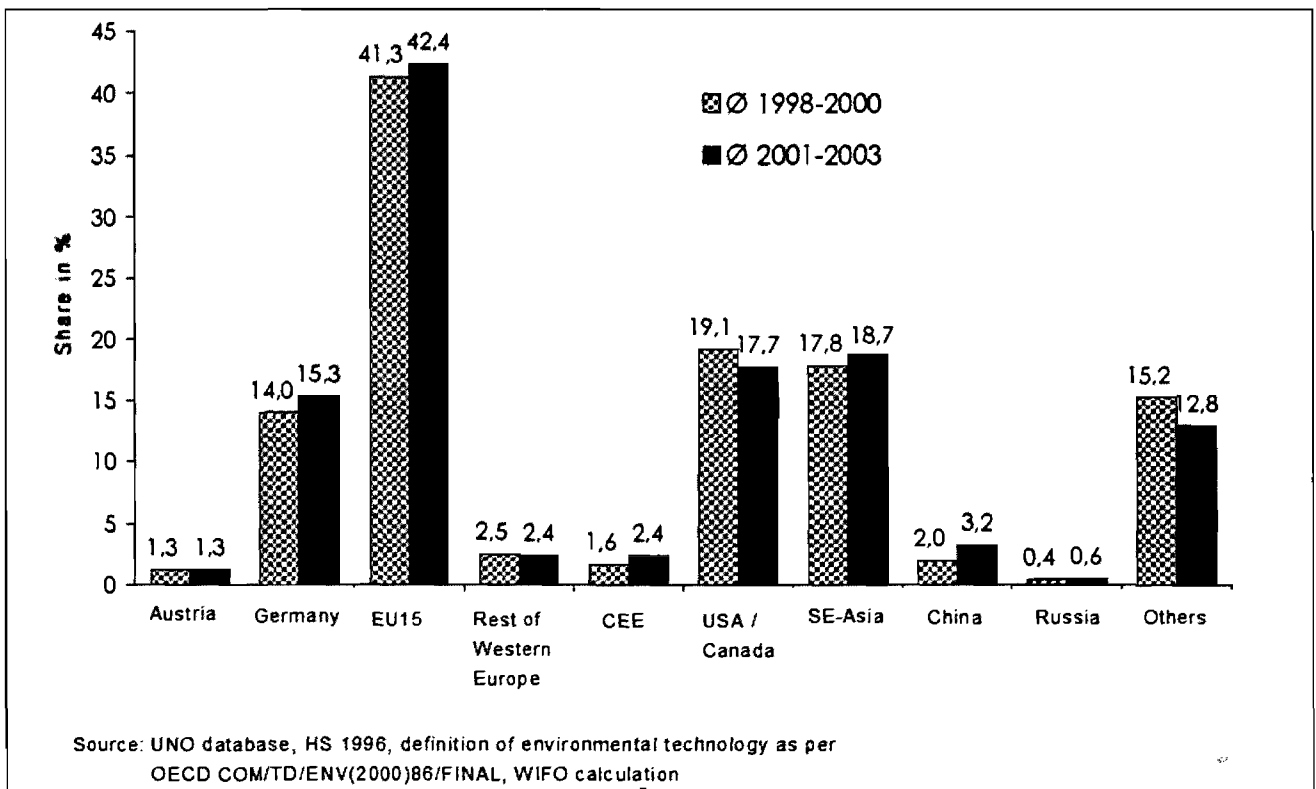


Illustration 6: Development of Share in World Trade – Environment Technology Export
 Source: WKÖ 2005b

Illustration 6 compares the development of the share in world trade of the environment technology export for the time period 1998-2000 and 2001-2003. As some 130 countries have already signed the Kyoto protocol, climate friendly technologies will be even much more in demand in future, world-wide. It will pay off to be among the technological leaders in this area from the point of view of foreign trade. Therefore it is the aim of Austria's environment technology industry to further improve their service offering and go for new export markets.

2.3 Environmental Research Centres and Institutions

In the areas of applied and pure research relating to environmental projects, Austria can offer a lot of expertise as well. The *Austrian Research Centers* have a significant presence in the area of environmental information systems. The UWEDAT system for example enables automatic recording, preparation, visualisation and archiving of meteorological and environmental data. For instance authorities and power plant operators use UWEDAT to monitor the emissions of pollutants and the ambient air situation. A modified system is being used to monitor the quality of Vienna's drinking water, and there are also reference projects in Upper Austria and Carinthia in addition to an air-quality monitoring network in Indonesia.

The Austrian *Biotreibstoff Institut* for example is the world's leading competence centre for liquid bio fuels, and it also performs research and development tasks for biodiesel (mono alkyl esters) and bioethanol in a network spanning the globe. Further it conducts analysis and quality management for biodiesel and raw materials, feasibility studies for planned biodiesel production plants, professional realisation in industrial and profit-oriented practice, successful marketing strategies and commercial exploitation of biodiesel and bioethanol, international events such as symposia, conferences, seminars, training courses and practical demonstrations of biofuels, expert support to conduct EU projects relating to alternative fuels and efficient national and Europe-wide lobbying for alternative fuels and renewable energy.

Another extremely active organization in the field on environmental research is *Joanneum Research*. It has its own competence network entitled "Water Resources and Their Management", which brings together technology companies, members of industry and water researchers in Austria and Central and Eastern European Countries. There innovative and integrative solutions are developed as a result. In the ecosystem technology sector the main focus of researchers is the catalytic characteristics of various environmental systems which can be employed in an economically sustainable manner with closed cycles for disposing of pollutants in a natural way (WKÖ 2005a).

Further, Austria plays a leading role in developing software technology for setting up registries. For the implementation of the emissions allowance market in Europe and also at an international level, all EU member states are obliged to establish and maintain updated an emissions registry for booking emissions allowances. Currently there are just two types of such software available in Europe, one of them developed in Austria (by the Austrian company "smart technologies", a subsidiary firm of Siemens) and the other one in the United Kingdom. In Austria the *UBA (Austrian Environmental Agency)*³ is entrusted with the keeping and maintaining of the national Registry under the emissions trading scheme. It is thus the registry administrator for Austria. UBA authorised *ECRA GmbH*⁴ as registry service organisation, to help perform the relevant tasks and operate and maintain the registry.

As emissions allowances are only available electronically and any transactions involving emissions allowances can only be executed by the registry, national registries play a key role in the newly created emissions allowance market.

³ <http://www.emissionshandelsregister.at/en/index.html>

⁴ <http://www.ecra.at/>

2.4 Trends and expectations

By committing themselves to the Kyoto Protocol, the international community of states is encouraging the trends towards an energy supply that reduces the importance of fossil fuels. In the coming years, the demand for further increasing efficiency in energy and resources will be clearly felt on raw material markets and energy sources. While quantity and quality of oil reserves decrease the world wide demand for energy, which is still closely linked to technological development, is increasing. This consequently leads to dramatically rising oil prices, but also to a growing demand for a long term perspective regarding energy supply. This will lead to an increase in the use of alternative energy and the development of environmental technology. Renewable energy technologies like technologies generating electricity, heat and bio fuel from biomass, solar and photovoltaic energy for heating and warm water, or for environmentally friendly cooling and refrigeration from heat and hydroelectrically generated electricity, will come to the forefront in the coming years (WKÖ 2005a).

Austrian environmental technology manufacturers have an excellent range of products to offer in the particularly dynamic branches of energy, waste and sewage management. Strong growth is also anticipated in international markets. But there is still potential for development, especially in environmental protection equipment and services and export initiatives in this direction are constantly being undertaken by the Chamber of Commerce and the Ministry for Environment.

The extend of Austria's international lead is proven by the "*Environmental Sustainability Index 2005*". This Index was developed by the universities of Yale and Columbia, using 21 parameters to compare 146 countries, and became meanwhile a global ranking system. In 2005 Austria was awarded an excellent tenth place world wide and became as high as third amongst the EU countries. This result could be seen as another indication of just how far ahead Austria remains in terms of environmental technology. It is also a commendation of the environmental awareness and depth of innovation in Austrian companies.

2.5 CDM – an additional opportunity for companies within the EU Emissions Trading Scheme

Companies within the EU Emissions Trading Scheme (EU ETS) (emissions trading is one of the mechanisms of the Kyoto protocol) get caps on their CO₂_{equ} emissions. If they top their caps they need to purchase additional CO₂-certificates for their extended emissions. So it is in the interest of Austrian companies within this scheme⁵ to, either buy CO₂_{equ}-certificates on the free market, buy certificates from JI/CDM programs or invest in JI/CDM-projects themselves and gain certificates through doing so. This seems to open quite a large capacity for JI/CDM-projects.

And really, in recent years the opportunities offered by the project-based mechanisms (JI/CDM) of the Kyoto Protocol are getting more attention by companies within the Austrian environmental technology market. However the implementation of the Linking Directive⁶ (to link JI/CDM with the EU ETS) brings not just the possibility to transfer CO₂_{equ}-certificates gained through the implementation of JI/CDM-projects (CERs, ERUs), on the accounts of installations within the EU ETS. It also brings a lot of uncertainties and

⁵ A list of the around 130 Austrian companies within the EU ETS can be found in the Austrian National Allocation Plan (NAP) 2005-2007, which can be downloaded from the homepage of the Austrian Ministry of Environment: <http://umwelt.lebensministerium.at/article/archive/7584/>

⁶ http://europa.eu.int/comm/environment/climat/emission/pdf/dir_2004_101_en.pdf

open questions for both, the installations in the EU ETS as well as developers of JI and CDM projects. For example member states plan to limit the maximum amount of CERs/ERUs transferable into the EU ETS. Most member states are contemplating limitations of between 5% and 10% in relation to the allocated certificates within their National Allocations Plans.

As the limits are still under negotiation, it is currently rather difficult for companies to execute their compliance strategies to get their missing CO₂_{equ}-certificates. However, if this limits will be imposed, this considerably reduces the amount of companies which will be interested in engaging in CDM and JI Projects. In that case only very large installations will give JI/CDM a role in their compliance strategy. On the other hand a limitation on individual installations or industries will lead to increasing purchase activities in governmental JI/CDM programs, as they will not get limitations.

Of course companies can also buy or gain CERs and ERUs in excess of any limitations and sell them on to other installations, but such limitations will make compliance even more difficult and will further increase transaction costs.

3 Consultation with Austrian Stakeholders

During the market research phase a stakeholder list, with the main players in the field of CDM and Carbon Management as well as low carbon technology providers and exporters in Austria, was elaborated (see listing below):

- Public authorities:

Company	Internet
Federal Ministry of Agriculture, Forestry, Environment and Water Management	www.lebensministerium.at
Federal Ministry of Economics and Labour	www.bmwa.gv.at
Federal Ministry of Finance	www.bmf.gv.at
Federal Ministry of Foreign Affairs	www.bmaa.gv.at

- The Austrian JI/CDM Programme:

Company	Internet
Kommunalkredit Public Consulting GmbH	www.klimaschutzprojekte.at

- Institutions:

Company	Internet
Außenwirtschaft Österreich (AWO)	www.wko.at
Austria Wirtschaftsservice GesmbH	www.awsg.at
Austrian Chamber of Commerce	www.wko.at
Austrian Development Agency	www.ada.gv.at
Kommunalkredit Public Consulting GmbH	www.klimaschutzprojekte.at
Österreichische Kontrollbank AG	www.oekb.at

- Management Consultancy and Engineering Service Companies:

Company	Internet
Allplan GmbH	www.allplan.at
CAMCO	www.camco-international.com
CARBON GmbH	n.a.
Denkstatt Unternehmensberatung und -management GmbH	www.denkstatt.co.at
IC Consulanten Ziviltechniker GesmbH	www.ic-group.org
KWI Management Consultants & Auditors GmbH	www.kwi.at
Stenum	www.stenum.at

• Industry and industrial associations:

Company	Internet	Sector / technology focus
A.S.A. International Environmental Services GmbH	www.asa.at	landfill gas
AEVG - Abfallentsorgung und -verwertung	www.aevg.at	waste management
Alstom Power Austria GmbH	www.at.alstom.com	hydro power
Andritz AG	www.andritz.com	energy efficiency, renewable energy, dryers and filters
Austrian Energy & Environment	www.aee.co.at	cogeneration, fuel switch, renewable energy, flue gas cleaning
Brantner Walter GmbH	www.brantner.com	landfill gas, waste management
GE Jenbacher	www.ge-austria.com	energy efficiency, cogeneration, fuel switch, landfill gas, renewable energy
ICS Energietechnik GmbH	www.ics-austria.at	renewable energy
Ing. Aigner Wasser-Wärme-Umwelt GmbH	www.ing-aigner.at	energy efficiency, cogeneration, renewable energy
Ing. Friedrich Bauer GmbH	http://www.bauertech.com	renewable energy
Kohlbach Holding GmbH, KCO Cogeneration und Bioenergie GmbH	www.kohlbach.at	energy efficiency, cogeneration, renewable energy, boilers
Komptech GmbH	www.komptech.com	waste management, renewable energy
Kössler Ges.m.b.H	www.koessler.com	renewable energy
Polytechnik Luft- und Feuerungstechnik GmbH	www.polytechnik.at	renewable energy, boilers
RAB Planungsbüro für Recycling und Abfalltechnische Behandlungsanlagen GmbH		MBT, renewable energy
Saubermacher Dienstleistungs AG	www.saubermacher.at	waste management
Kössler Ges.m.b.H	www.koessler.com	renewable energy
Scheuch GmbH	www.scheuch.com	energy efficiency, suction and dust removing units, fluegas cleaning systems
sirocco Luft- und Umwelttechnik	www.sirocco.at	energy efficiency, filters
stromaufwärts Photovoltaik GmbH	www.stromaufwaerts.at	renewable energy
Thöni Industriebetriebe GmbH	www.thoeni.com	waste management, renewable energy
Urbas Energietechnik	www.urbas.at	cogeneration, renewable energy
Saubermacher Dienstleistungs AG	www.saubermacher.com	waste management
VA-Tech Hydro	www.vatech-hydro.com	renewable energy
VA-Tech Wabag	www.vatechwabag.com	waste management
Windtec Consulting GmbH	www.windtec.at	renewable energy
WTI wärmetechnische Industrieanlagen GesmbH	www.wti.at	energy efficiency, cogeneration, renewable energy, boilers

- Financing institutions:

Company	Internet
Bank Austria Creditanstalt	www.ba-ca.com
Investkredit	www.investkredit.at
Raiffeisen Zentralbank Österreich AG	www.rzb.at
Austria Wirtschaftsservice GesmbH	www.awsg.at
Austrian Development Agency	www.ada.gv.at

The consultation with the above listed stakeholders was held in October 2005 by KWI via telephone interviews (main questions asked are listed as annex to this report). The result of these interviews can be summarized as follows:

The main areas of activity of industry and industrial associations comprised by the survey of KWI are in the fields of energy efficiency and cogeneration, landfill gas, waste management and renewable energy (mainly biomass plants, hydro plants and solar energy). The geographical focus of the environmental technology industry is Austria and its neighboring countries as well as the Central and Eastern European region (this also reflects the results of the WKÖ study summarized in Chapter 2). Some companies also export their technology and services to South East Europe and to countries within the European Union. As the companies in Austria are small or medium sized, there are just a few companies within the environmental technology sector operating world wide. Very active ones in this sector are for example GE Jenbacher, VA-Tech Hydro and Andritz AG.

It was also part of the survey to find out how much knowledge companies in the environmental technology sector in Austria have about the general JI/CDM framework. It was interesting to learn that just about 30-40% of companies in the environmental technology industry, contacted by KWI, have some theoretical experience or at least have heard of JI/CDM. That does not mean that all of these companies are active in the Kyoto field. On the contrary, there are just very few companies in the environmental technology sector in Austria with practical experience in JI/CDM (see table Table 2; and Table 22 in the annex).

The following table (Table 2) shows just two companies with interest in the "offered" countries and experience in JI/CDM-project development (VA-Tech Hydro and GE Jenbacher). VA-Tech Hydro is so active in the JI/CDM, that is even has a whole division dealing with JI/CDM and implementing these projects. GE Jenbacher on the other hand is also market "yes" to have experience with JI/CDM but does not offer services in this field at all. As presented by GE Jenbacher during the "project review meeting" on 7th/8th November, 2005, the company is pointing out the possibilities of JI/CDM to their clients when offering and/or selling their products but does not implement the JI/CDM project-part themselves. They recommend their clients to consult the Austrian JI/CDM Program or consultancy companies specialized in JI/CDM. Other companies (like fore example Saubermacher Dienstleistungs AG – active in the field of waste management) are admitting to have at least some theoretical knowledge about JI/CDM but are - at least on a first glance/inquiry - not interested in doing projects in countries so far away and unfamiliar to them.

Company	Ms/Mr	Name	E-Mail	Internet	Sector / technology focus	Interest in doing projects in South Africa, Vietnam, Mexico ?	Company with CDM experience?
Andritz AG	Ms.	WUENSCHÉ	maximilian.wuensche@andritz.com	www.andritz.com	energy efficiency, renewable energy, dryers and filters	yes	no
Brantner Walter GmbH	Mr.	SALZER	management.waste@brantner.com	www.brantner.com	landfill gas, waste management	no	yes
GE Jenbacher	Ms.	MASCHIK	barbara.marschik@ge.com	www.ge-austria.com	energy efficiency, cogeneration, fuel switch, landfill gas, renewable energy	South Africa, Mexico	yes
Komptech GmbH	Mr.	HEISSENBÉRGÉ	j.heissenberger@komptech.com	www.komptech.com	waste management, renewable energy	Mexico	no
Kössler Ges.m.b.H	Mr.	KÖSSLER	director@koessler.com	www.koessler.com	renewable energy	no	yes
Polytechnik Luft- und Feuerungstechnik GmbH	Mr.	HOFMANN	t.hofmann@polytechnik.at	www.polytechnik.at	renewable energy, boilers	yes	no
Saubermacher Dienstleistungs AG	Mr.	DORNAUER	R.Dornauer@saubermacher.at	www.saubermacher.at	waste management	no	yes
sirocco Luft- und Umweltechnik	Mr.	PICHLER	office@sirocco.at	www.sirocco.at	energy efficiency, filters	yes	no
stromaufwärts Photovoltaik GmbH	Mr.	KOECHLE	office@stromaufwaerts.at	www.stromaufwaerts.at	renewable energy	yes	no
Urbas Energietechnik	Mr.	ZECHMEISTER	urbas@happy.net ; urbas@urbas.at	www.urbas.at	cogeneration, renewable energy	yes	no
VA-Tech Hydro	Mr.	AUTENGRUBER	konrad.autengruber@vatech-hydro.at	www.vatech-hydro.com	renewable energy	yes	yes
WTI wärmetechnische Industrieanlagen GesmbH	Mr.	LEISCH	wti.tb@aon.at	www.wti.at	energy efficiency, cogeneration, renewable energy, boilers	yes	no

Table 2: Austrian companies with interest in doing CDM project in South Africa, Vietnam, Mexico and/or CDM experience

The main arguments from the industry side when asking about their interest in doing (JI/CDM) projects in South Africa, Mexico and Vietnam are summarized in the following table:

Pro arguments of industry	Con arguments of industry
New high potential markets	Countries are far away – difficult maintenance of technology supplied
	Business culture unknown – cautious attitude
	South Africa, Mexico and Vietnam are not in the range of the target markets of the company asked
	Long preparatory phase for JI/CDM projects
	No or very little knowledge about JI/CDM – not the core business of the industry companies

Table 3: Interest of Austrian Industry in South Africa, Mexico, Vietnam: Pro and Con Arguments

From the arguments mentioned above it can be concluded that some companies are interested in new export markets for their technology and services but do not have the resources to develop the markets themselves. Additionally, the development and implementation of JI/CDM projects is not their core business. Accordingly companies within the Austrian environmental technology industry need more external support to reach the markets in South Africa, Mexico and Vietnam.

Austrian companies that provide consultancy services in CDM have a very good knowledge about the general framework of JI/CDM. Some consultants have even specialized on JI/CDM and have gained practical experience. They know about the complexity of the JI/CDM topic and are aware of the difficulties “technology providers” would have in implementing JI/CDM projects themselves. Apart from time, knowledge and human resources “technology providers” would most probably also lack in financing possibilities.

Companies offering management and engineering consultancy services in the field of CDM /JI can offer a wide range of different services or service packages to help industry (on request they accompany the whole JI/CDM project cycle from the project idea, via recommendations for financing, development of project documents, advice for negotiation and signing of the emissions reduction purchase agreement, to the monitoring and verification of the emission reductions). Therefore, such companies see themselves as the spearhead for the Austrian industry in JI/CDM project development. A list with the contact details of management consultancy and engineering service companies with experience in JI/CDM project development and implementation is attached as annex to this report.

In Austria public authorities and other stakeholder institutions are very active in capacity building concerning the framework of “Kyoto”. Among other things they are organizing information events, workshops and release information leaflets about JI/CDM opportunities for Austrian companies. The Chamber of Commerce (WKÖ) and the Ministry for Environment (BMLFUW) are also launching a lot of export initiatives to support Austrian technologies.

4 Project Stakeholders' Workshop

The "Project Stakeholders' Workshop" was held in Vienna, by UNIDO, on 7th/8th of November, 2005. The objective of the workshop was to bring all the project stakeholders together, including those from business and industry and the relevant government programmes and institutions, as well as those from the participating countries (e.g. local experts, representatives of NCPCs and local DNAs).

4.1 Proceedings

The workshop was organized by UNIDO (taking care on the participating countries) and KWI (Austrian participants). In the preparation phase KWI had coordination meetings with UNIDO and the Austrian Chamber of Commerce. KWI elaborated a list of stakeholders in Austria. This list comprises the main players in the field of CDM and carbon management as well as low carbon technology providers and exporters in Austria (see paragraph 3). In the course of consultation with Austrian stakeholders, KWI invited industry representatives and other stakeholders to give short presentations on their portfolios and services during the workshop.

4.2 Documentation

A description of the objectives of the overall UNIDO project (project document), workshop agenda, list of participants and presentations held at the Stakeholders' Workshop are attached to this report and are also available on the webpage of UNIDO (<http://www.unido.org/doc/43943>).

4.3 Summary of the workshops' findings

The stakeholders' workshop was organized in to two sections. On the first day country representatives of Mexico, South Africa and Vietnam gave short presentations about the progress in building up their national framework for implementing CDM projects in the countries. The focus of the second day was on Austrian carbon market stakeholders.

CDM project experience:

Mexico:

Mexico ratified the UNFCCC in 1993 and the Kyoto Protocol in 2000 (entry into force 2005). So far Mexico signed 8 MoUs with other countries (including Austria) to ease implementing CDM projects.

The country has a delay in its internal preparation for CDM activities in comparison with similar developing countries, but the number of new projects presented to the Mexican pipeline has increased considerably month by month. Various Mexican stakeholders see the Austrian-UNIDO project, with its multilateral backup, as an opportunity to achieve advances in some of the barriers existing for areas like renewable energy or the need to cluster efforts on energy efficiency. Mr. De Alba, national expert, emphasised in his presentation, that there is a clear need of specialist as well as conceptual training for a large number of possible actors by awareness and divulgation activities, for example training on baseline design for projects on priority areas and also sectoral baselines (*De Alba, 2005b*).

The most recommended priorities for the action of the UNIDO-Austrian project in Mexico are (*De Alba, 2005b*):

- Cogeneration
- Methane capture and use
- Renewable energy
- Energy efficiency

According to the presentations held during the stakeholders' workshop, the Mexican DNA approved already 20 projects (mainly animal waste and wind projects). Around 30 projects are in initial stages and further 75 projects are in the preparation phase.

South Africa:

South Africa ratified the UNFCCC in 1997 and the Kyoto Protocol in 2002 (entry into force 2005).

The South African DNA was established in December 2004. Up to now there is one South African CDM project registered with the CDM board (Kuyasa project). Three more projects sent a request for approval to the DNA but are still open for public comments. According to the presentation held by Mr. Gilder during the stakeholders' workshop, the DNA received 11 PINs additionally.

In the project pipeline there is a broad variety of project types. The biggest accumulation is in landfill gas. But there are also fuel switch, wind, energy efficiency, bio fuels, coal bed and mining, cogeneration and agricultural projects. In the UNIDO-country report for South Africa, a project pipeline with 19 "officially" known CDM projects were presented by the end of January (*Gilder/Short, 2006, p.55f*).

Vietnam:

Vietnam ratified the UNFCCC in 1994 and the Kyoto Protocol in 2002.

Vietnam has a two phase medium-term development plan for the setup of the CDM in the country. Currently the country is in phase 1 (2005-2006). The objectives of phase 1 (pilot and consolidation) are to set up a framework for CDM and have it operational; to have a few core institutions for CDM projects functional; as well as to approve 10 pilot CDM projects.

Phase 2 (2007-2008) will serve to integrate the policies and broaden the sectoral scope. The objectives of this phase are to integrate CDM as a policy option in relevant sector analysis and policies, to reduce transaction and management costs by a broad mobilization of stakeholders.

Up to now the Vietnamese DNA approved four CDM projects (two hydro, one gas recovery and utilisation and one energy efficiency project) and issued six LoEs (mainly landfill projects). Additional there are around 40 projects in the pipeline.

Austrian Stakeholders:

Around 20 representatives of Austrias' stakeholders have attended the workshop. Presentations have been held by the Austrian JI/CDM program, two environmental technology companies (GE Energy Jenbacher and Polytechnik Luft- und Feuerungstechnik GmbH) and two consultants (CAMCO and KWII). As already outlined in chapter 3 of this report, there is interest in exporting Austrian environmental technology and services to Mexico, South Africa and Vietnam but the technology companies, especially smaller ones, need some more external support to reach this markets. This support could be provided through Austrian consulting

companies, which are very active in the carbon market and have quite a lot of experience in the JI and CDM project development and implementation.

Expectations and recommendations of the workshops' participants:

Mexico:

Dr. De Alba, national expert of Mexico, pointed out, that the country already has some experience in identifying and developing CDM projects. Although there have been some theoretical training sessions on CDM project development in the country (outside the UNIDO-Austrian project), he sees training needs on practical issues during the identification and development phase of CDM projects. He recommends working on living projects or realistic case studies during the training session in Mexico as the training should be as practical as possible.

Furthermore Mexico commented, that the UNIDO-Austria project should be seen as helping the participating countries to "operationalize their bilateral MOUs" with prospective buyers.

South Africa:

Although South Africa has quite some projects in the pipeline (19 projects are officially known by the end of January 2006), the emphasis of the national experts goes into the direction of more general advertisement of the UNIDO-Austrian project at an high level (e.g. embassies). Mr. Gilder asked for a general presentation on what the UNIDO-Austrian project offers to the countries' stakeholders. Therefore UNIDO agreed to update and print an already existing 3-5 pages flyer and prepare a presentation about the project that was made available to the public.

In his presentation Mr. Gilder also pointed out that there are a lot of legal and tax issues to be taken into account when setting up a CDM project in South Africa. Up to now he sees a lack of information available to stakeholders concerning these issues in his country. He emphasises that it is essential to summarize this information (e.g. legal, tax) and make it available for the public in order to ensure that it is taken into account when developing a CDM project.

Vietnam:

The representatives of Vietnam stressed the fact that already quite a lot of project identification and PIN training have taken place in the country and also a potential CDM project list is already existing. They do not want to have more training on this early stages in the CDM project cycle, but still see a need in practical training on PDDs. Similar to Mexico they asked for concrete training on 1-2 PDDs on real projects as a case-by-case training.

Austria:

KWI/ESD will take these requests into account and include them in their training materials for the country sessions, by including 1-2 projects in preparatory phase for PDD documents (in each country). *These projects can be guided and trained on special issues or questions arising from the country session/workshops participants.*

5 Technology Identification

5.1 GHG Mitigation Priorities in the Target Countries

5.1.1 Mexico

Mexico (SEMARNAT) and Austria (BMLFUW) have signed a Memorandum of Understanding (MoU) for CDM. The scope and objectives of this MoU are (KPC 2005):

- Support for realising projects under the CDM (Art. 12 of the Kyoto Protocol)
- Exchange of information on their climate change programmes and strategies, including programs for the use of the flexible mechanism of the Kyoto Protocol
- Facilitate the development and implementation of CDM projects and assist interested project developers

The prioritised project types and categories listed in the MoU are:

- Construction or retrofitting of Combined Heat and Power (CHP) installations;
- Fuel switch in energy conversion installations to renewable or from fuels with high carbon content to fuels with lower carbon content, in particular in existing distance-heating systems.
- Construction or retrofitting of power generation installations operated with renewables (in particular hydropower, wind power, biogas and biomass CHP);
- Projects leading to avoidance or energetic recovery of landfill gas;
- Waste management measures contribution to avoidance of greenhouse gas emissions in particular through energy recovery and use;
- Projects leading to reduction of final energy consumption in residential buildings, public and private services buildings as well as in industrial applications and processes (including waste heat potentials).

Project types not listed above will be eligible if the Participants (Mexico and Austria) decide jointly that this MoU also covers their realisation. Nevertheless, nuclear power projects are explicitly excluded from this MoU.

In general the Mexican energy sector stakeholders recommend cogeneration as priority for CDM activities in Mexico. Energy sector authorities in charge of CDM list energy efficiency, renewable energy and carbon capture as important CDM project activities in Mexico. Further methane capture and use (landfill gas and methane capture at pig and bovine farms) was mentioned as a priority project type for Mexico (*De Alba* 2005a, p. 4).

5.1.2 South Africa

The nature of the South African economy offers a large scope for the implementation of CDM projects. As described in the UNIDO country report (*Gilder/Short*, 2006, 47ff) the economy is highly energy intensive and industrial operations tend to be inefficient in considering matters of resource use, including energy use. However South Africa is facing an energy shortage problem (peak shortfall projected for 2007) in the near future and is therefore having to consider substantial new investments in energy generation capacity. This development is expected to lead to a dramatic increase in electricity prices.

The DNA in South Africa lists among others the following possible project types on their webpage (*DME 2005*):

Energy supply:

- Gas fired power generation
- Cleaner coal power generation technology
- Hydro-electricity to replace coal-fired power stations
- Co-generation (biomass and fossil-fuel based)
- Renewable electricity (e.g. wind, photovoltaic, biomass) and other renewable energy (e.g. biogas)
- Switch of synthetic fuel feedstock from coal to gas
- Use of forest and agricultural wastes to generate electricity and heat

Manufacturing:

- Conversion of boilers from coal to gas
- Industrial energy efficiency
- Structural change to less energy and emissions-intensive industries

Mining:

- Industrial energy efficiency
- Reducing methane emissions from coal mines

Residential, commercial and government buildings:

- Energy efficient appliances
- Solar water heating
- Fuel switching in households and commercial boilers
- Energy efficient building design
- Energy management

This project types are also reflected in the UNIDO country report for South Africa (*Gilder/Short, 2006, p. 47ff*), which lists the following project types:

- Landfill gas projects
- Fuel switching
- N₂O reduction projects
- Generation from renewable energy
- Bio-fuels
- Coal bed and coal mine methane
- Cogeneration
- Transport
- Agricultural wastes
- Energy efficiency

To sum up one may say that the biggest opportunities in South Africa for CDM are in the field of landfill gas capture and utilisation, fuel switching from coal and energy efficiency. There is also some interest in wind, but this is not a priority sector.

A Memorandum of Understanding (MoU) for CDM between South Africa and Austria is in preparation.

5.1.3 Vietnam

In Vietnam, the CDM can include projects in the following sectors (*Minh* 2005, p 10):

- Efficiency, conservation and saving of energy,
- Recovery and utilization of CH₄ from landfill and coal mining for generation,
- Fossil fuel switching,
- Renewable energy,
- Recovery and utilization of associated gas and,
- Afforestation and reforestation.

In the National Strategy Study on CDM the following GHG Mitigation Options were identified in the industrial and power sectors (*Minh* 2005, p. 6):

Industrial Sector:

- Efficiency improvement in coal fired industrial boilers
- Efficiency improvement in oil fired industrial boilers
- More efficient industrial motors
- Technological change in cement production

Power Sector:

- Development of geothermal power
- Development of solar power
- Development of wind power
- Upgrading existing coal fired thermal power plants
- Converting existing oil fired thermal power plants to burn gas
- Small hydropower development
- Biomass for electricity generation
- Biogas for electricity generation

A Memorandum of Understanding (MoU) for CDM between Vietnam and Austria is in preparation.

5.2 Matching National Priorities and Austrian Technologies/Services offered

The following matrix (see Table 4) matches the GHG mitigation priorities of the participating countries with key technologies and services Austrian companies can provide:

Austrian Environmental Technology Sectors can provide technology and services for...	Country's GHG mitigation priorities		
	Mexico ¹	South Africa ²	Vietnam ³
Co generation (CHP)	X	x	
Industrial energy efficiency improvement	X	X	X
Fuel switch (high to low carbon)	x	X	X
Fuel switch (to renewables)	x		
Landfill gas	X	x	x
Waste management (incl. MBT)	x		
Renewable Energy			
Hydro power plants	X	X	X
Wind power plants	X	X	X
Solar power plants		X	X
Biogas plants	X	X	X
Biomass plants	X	X	X

¹ Source: Memorandum of Understanding between Mexico and Austria

² Source: Homepage of DNA SA, www.dme.gov.za, Oct. 2005 and UNIDO country report SA (Gilder/Short,2006)

³ Source: Country report: CDM in Vietnam-UNIDO, Sept. 2005

Table 4: Austrian Environmental Technology Sector companies matching the country's GHG mitigation priorities

As mentioned in chapter 2 Austria's' environmental technology providers offer a wide range of technology types and services. Table 4 comprises all technology types mentioned in the reports of the countries. During the Stakeholders' workshop the country presentations focused its attention on just a few of them. They are brought out "bold".

6 Vietnam

6.1 Country mission to Vietnam

6.1.1 Participants

From the Austrian side the following representatives took part in the country mission to Vietnam:

Austria	
Mr. Thomas Hoffmann	Polytechnik Luft- und Feuerungstechnik GmbH
Mr. Peter Kögler	Austrian JI/CDM Programme, Kommunalkredit Public Consulting GmbH
Ms. Bettina Sanz	KWI Management Consultants GmbH
UNIDO	
Ms. Marina Ploutakhina	UNIDO, PTC/ECC
Mr. Philippe Scholtes	UNIDO

Table 5: List of participants

6.1.2 Time schedule and agenda

The following agenda (see Table 11) was originally provided by RCEE and adopted by KWI after the country mission. It summarizes the meetings held in Hanoi.

Date/time	Description	Speakers	Venue
Tue. 7 March	Visit at RCEE		
8.00- 10.15	<ul style="list-style-type: none"> • Welcome from RCEE • Introduction of the Delegation • RCEE Introduction • CDM Activities in Vietnam • Q&A Move to Ministry of Industry, 54 Hai Ba Trung Hanoi	Dr. Nguyen Duc Minh, Director RCEE Ms. Marina Ploutakhina, UNIDO Dr. Nguyen Duc Minh Mr. Tran Minh Tuyen (RCEE)	Lane 62, Nguyen Chi Thanh St. Hanoi
Tue. 7 March	Visit at Ministry of Industry		
10.15 –11.15	<ul style="list-style-type: none"> • Short Introduction on the visit by RCEE • Welcome from Mol • Introduction of the Delegation • Discussion Move to Ministry of Natural Resources and Environment, Nguyen Chi Thanh St. Hanoi	Dr. Nguyen Duc Minh, Director RCEE Dr. Cao Quoc Hung, Director General, International Relations Depart, Mol Ms. Marina Ploutakhina and Delegates	54 Hai Ba Trung, Hoan Kiem, Hanoi
Tue. 7 March	Visit at Ministry Natural Resource and Environment		
11.15 –11.45	<ul style="list-style-type: none"> • Short Introduction on the visit by RCEE • Welcome from DNA • Introduction of the Delegation • Discussion Move to Melia Hotel	Dr. Nguyen Duc Minh, Director RCEE Mr. Nguyen Van Hieu, Deputy Director General, International Relations Depart. MONRE, DNA Coordinator Ms. Marina Ploutakhina and Delegates	83 Nguyen chi Thanh, Dong Da District, Hanoi

Tue. 7 March	Lunch at the Austrian Embassy in Hanoi		
12.30-14.00	Lunch with the Ambassador of Austria, Dr. Johannes Peterlik	Ms. Marina Ploutakhina and Delegates	Prime Centre, 53 Quang Trung, Hanoi
Tue. 7 March	Meeting with Potential CDM Developers at Vietnam Steel Corporation,		
14.00-17.30	<ul style="list-style-type: none"> • Short Introduction on Meeting with Potential CDM Developers by RCEE • Short Introduction on the Mission and UNIDO-Austria Project • Short Introduction on the role of KWI in the Project and presentation on the outcome of the review of the "Austrian Environmental Technology Market" • Short presentation on the Austrian JI/CDM Programme • Short presentation on the Austrian company "Polytechnik Luft- und Feuerungstechnik GmbH" • Short Presentation on the preparation of the Project and the <i>Initial Draft Portfolio of 10 potential CDM Proposals</i> • Presentation on the PIN of Luu Xa CDM Proposal • Presentation on the PIN of Thai Binh Beer CDM Proposal • Presentation on the PIN of Zahung Small Hydro Power CDM Proposal • Q&A • Closing words 	<p>Dr. Nguyen Duc Minh, Director RCEE</p> <p>Ms. Marina Ploutakhina, Project Manager, UNIDO</p> <p>Ms. Bettina Sanz, KWI Management Consultants GmbH, Austria</p> <p>Mr. Peter Kögler, Kommunalkredit Public Consulting GmbH, Austria</p> <p>Mr. Thomas Hoffmann, Polytechnik Luft- und Feuerungstechnik GmbH</p> <p>Dr. Nguyen Duc Minh, Director RCEE</p> <p>Dr. Bui Huy Phung, Vietnam Academy of S&T</p> <p>Mr. Tran Minh Tuyen, RCEE and Mr. Nguyen Van Tra, Director of Thai Binh Beer Company</p> <p>Mr. Tran Minh Tuyen, RCEE and Mr. Nguyen Van Tho, Representative of Zahung JS Company</p> <p>Dr. Nguyen Duc Minh, Director RCEE</p>	91 Lang Ha Street, Hanoi

Thu. 8 Mar.	Visit at Thai Binh Beer Company. Thai Binh City		
8.00 – 17.00	<ul style="list-style-type: none"> • Departure from Melia Hotel to Thai Binh Beer Company, Thai Binh City (approx. 2.5 hours) • Short Introduction on the UNIDO-Austria Delegation Visit • Welcome from Thai Binh Beer Company • Short Introduction on the Mission and UNIDO-Austria Project • Introduction of the Delegation • Introduction of the Thai Binh Beer Company • Summary on the PIN of Thai Binh Beer CDM Proposal • Q&A 	UNIDO-Austria Delegation RCEE Representatives Mr. Tran Minh Tuyen, RCEE Mr. Nguyen Van Tra, Director of Thai Binh Beer Company Ms. Marina Ploutakhina Delegates Mr. Nguyen Van Tra, Director of Thai Binh Beer Company Mr. Tran Minh Tuyen, RCEE and Mr. Nguyen Van Tra, Director of Thai Binh Beer Company	From the gate of Melia Hotel Thai Binh City
	Lunch		
14.30-17.00	Departure to Hanoi		
Fr. 9 Mar.	Close down meeting		
	<ul style="list-style-type: none"> • Summary on the country mission • Discussion on next steps 	Ms. Bettina Sanz, KWI and Ms. Marina Ploutakhina, UNIDO and Mr. Thomas Hoffmann, Polytechnik Luft- und Feuerungstechnik GmbH and Mr. Peter Kögler, Austrian JI/CDM Programme and Dr. Nguyen Duc Minh, Director RCEE	Melia Hotel, Hanoi

Table 6: Agenda of the UNIDO-Austria mission, March 7-8, 2006

Source: following RCEE

6.1.3 Short overview on presentations held by Vietnamese institutions and companies

This chapter gives an overview on the presentations held by Vietnamese participants during the country mission. The complete presentations (if available) are annexed to this report.

- **RCEE introduction**

Dr. Nguyen Duc Minh, the director of the Research Center for Energy and Environment (RCEE), held a short presentation on the work of three organizations/institutions active in the field of energy and/or environment.

Research Center for Energy and Environment (RCEE) was established in 1998 by the Vietnam Union of Science and Technology Associations. RCEE is a non governmental organization, active in the field of research, consultancy and technology transfer in energy and environment. The main fields of activities are:

- Energy Efficiency and Energy Conservation
- Renewable Energy
- Climate Change and CDM
- Rural Energy and Poverty Reduction

In 2004 RCEE was selected as *Asian Carbon Representative Office in Hanoi (ACVN)* and established by the Hanoi Department of Planning and Investment. The task of ACVN is to promote potential CDM projects in Vietnam and assist developers to develop PDDs, get DNA approvals, register at the EB and find buyers for potential CER generated.

So far four PDDs have been developed by ACVN:

1. Hydro Power Project Song Con2 (with DNA approval)
2. Hydro Power Project Ngoi Duong (with DNA approval)
3. Wind Power Farm Project Phuong Mai
4. Hydro Power Project Nam Chim

Vietnam Energy & Technology Development JS Company (VINA ETKOM JSC) was also established in 2004 and is a subsidiary of RCEE. It is a consultancy and services and technology transfer utility especially funded for the implementation of CDM projects.

- **CDM activities in Vietnam**

The delegates got the brochure "Vietnam CDM Project Pipeline" (issued by the Ministry of Natural Resources and Environment in March 2005) with information on CDM projects in Vietnam. It contains:

- Description of the CDM project "Rang Dong Oil Field Associated Gas Recovery and Utilization Project" (approved by EB)
- List of CDM projects submitted to Vietnam CAN (DNA)
- List of CDM projects under development
- List of CDM project ideas
- CDM Project Developers in Vietnam

- **Short presentation on the initial draft portfolio of 10 potential CDM proposals (proposed for the UNIDO-Austrian project)**
 - Energy Efficiency Project in Huong Sen Brewery Plant (Thai Bin Beer Project → site visit on March 8, 2006)
 - Za Hung Hydropower Project
 - Energy Efficiency in Lu Xa Steel Plant
 - Cogeneration (CHP) Plant for Phong Khe Paper Plant
 - Advanced Vertical Shaft Brick-Kilns, Project Bundle in Hai Duong Province
 - Wind and Diesel Hybrid Electricity Project in Phu Quy Island
 - Biogas Project Phase II
 - Waste Heat Recovery in But Son Cement Plant
 - Ngoi Phat Hydropower Project
 - Public Lighting Project

- **Presentation of the PIN of the “Thai Binh Beer Factory” CDM project**

The objective of this CDM project is energy saving and CO₂ emissions reduction. The project involves the construction of a cogeneration system, a wastewater anaerobic treatment system, installation of an exhaust steam utilized system from brewer and increase of electricity capacity of the cooling system.



Illustration 7: Coal stock and charging at Thai Binh Beer Factory



Illustration 8: Building site for new brewery at Thai Binh Beer

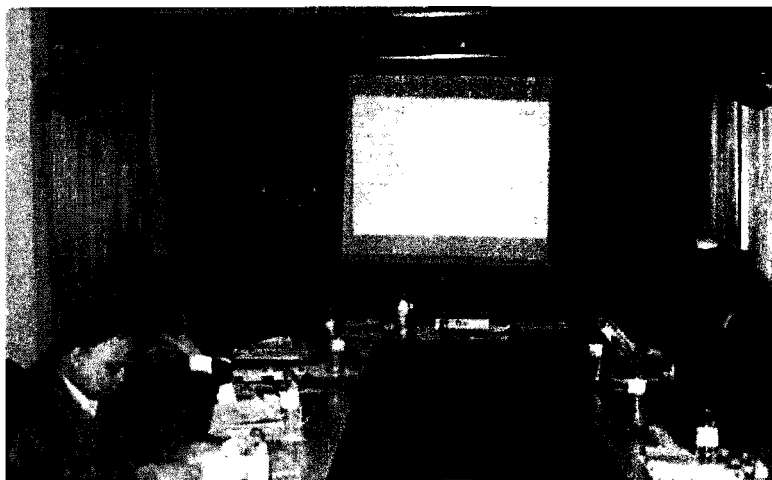
The PIN presented by Dr. Nguyen Duc Minh (Director of RCEE) and Mr. Nguyen Van Tra, (Director of Thai Binh Beer Company) is attached to this report. The presentation on the "Hung Sen Beer Factory Project" is about the same CDM project.

6.1.4 Presentations held by Austrian participants

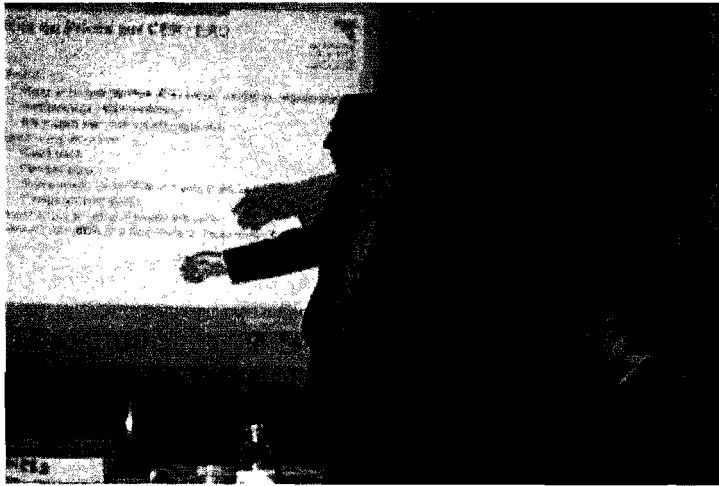
The presentations held by Austrian participants are not attached to this report, as they were similar to those held during the inception workshop in Vienna (Nov 2006). They can be downloaded from the UNIDO homepage (<http://www.unido.org/doc/43943>).

6.1.5 Snapshots made during the country mission in Vietnam

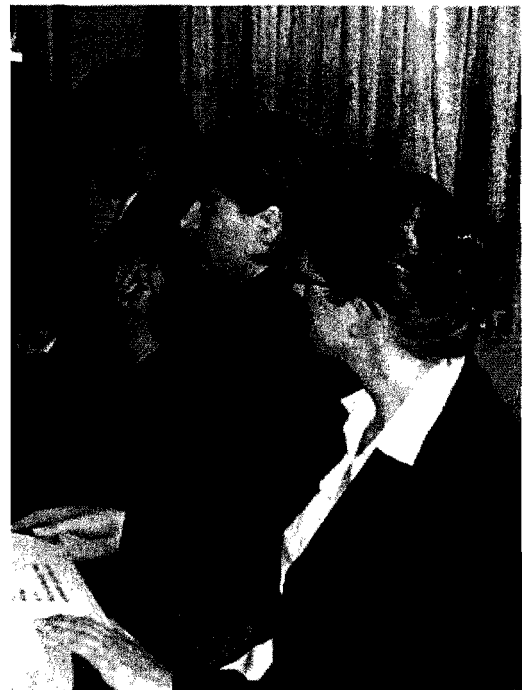
- **Introduction on the role of KWI in the project and presentation on the outcome of the review of the "Austrian Environmental Technology Market", by Ms. Bettina Sanz, KWI**



- **The Austrian JI/CDM Program, by Mr. Peter Kögler, Kommunalkredit Public Consulting GmbH**



- **Presentation on the Austrian company "Polytechnik Luft- und Feuerungstechnik GmbH", by Mr. Thomas Hoffmann**



- Lunch with representatives of the Thai Pin Beer Company



6.1.6 Conclusions of the country mission

- **In general**

The UNIDO-Austrian delegation got a very warm and friendly welcome from the Vietnamese counterparts and stakeholders. In particular, Dr. Nguyen Duc Minh (Director of RCEE) was very helpful in organizing the meetings and providing logistical and substantive support to the mission participants. The participants of the Austrian delegation express their thanks for his big effort.

- **Close down meeting, March 9, 2006 (Melia Hotel)**

The participants in the close down meeting were:

- Dr. Nguyen Duc Minh, RCEE
- Ms. Marina Ploutakhina, UNIDO
- Ms. Bettina Sanz, KWI
- Mr. Peter Kögler, Austrian JI/CDM Program
- Mr. Thomas Hoffmann, Polytechnik Luft- und Feuerungstechnik GmbH

Austrian Participants recognized a huge potential for CDM projects in Vietnam. It seems that there is a large number of project ideas already floating around just waiting to be developed, especially in the area of hydro power, energy efficiency and landfill gas.

One of the objectives of the UNIDO-Austrian project is to develop a portfolio of 10 PINs and 3 PDDs in each participating country. To realize this in a more efficient way in Vietnam, Dr. Nguyen Duc Minh and Ms. Marina Ploutakhina agreed on RCEE to develop three hydropower project PINs and the equivalent PDDs and the NCPC to develop PINs/PDDs focusing on industrial projects and in particular, on energy efficiency projects.

6.2 Identification of training needs

For the identification of the training needs KWI consulted the paper prepared by Dr. *Minh* (2005) "Clean Development Mechanism in Vietnam" for the UNIDO-Austrian project and presentations held during the Kick-Off workshop in Vienna. Further consultations with several stakeholders were held during the country mission in March 2006.

In Vietnam the Ministry of Natural Resources and Environment (MONRE) has the function of a National Focal Agency for taking part in and implementing the UNFCCC and the Kyoto Protocol. In March 2003 the International Cooperation Department (ICD) of MONRE was designated as the Clean Development Mechanism National Authority (CNA), which means it is the Designated National Authority (DNA) for CDM in Vietnam (see Illustration 9).

The CNA's functions and tasks are:

- Building national assessment criteria, regulation and guidelines on Clean Development Mechanism (CDM);
- Assessing CDM projects at the national level;

- Submitting potential CDM projects to CDM National Executive and Consultative Board (CNECB) for their evaluation;
- Receiving, assessing and submitting CDM Project Idea Notes (PINs) or Project Design Documents (PDDs) to the Minister of MONRE for issuing a formal Letter of Endorsement or Letter of Approval respectively;
- Providing CDM information for interested investors, related organizations, consultants and public;
- Managing and co-ordinating CDM activities and investment in Vietnam;

The CDM National Executive and Consultative Board (CNECB) have been established in April 2003 and is chaired by MONRE (see Illustration 9). In total it comprises 12 representatives from different Ministries and the Vietnam Union of Science and Technology Associations.

The functions of CNECB are:

- Providing consultation to MONRE on policies related to development, implementation and management of CDM activities in the country;
- Providing consultation on guidance and assessment for CDM projects in Vietnam under Kyoto Protocol and the UNFCCC;

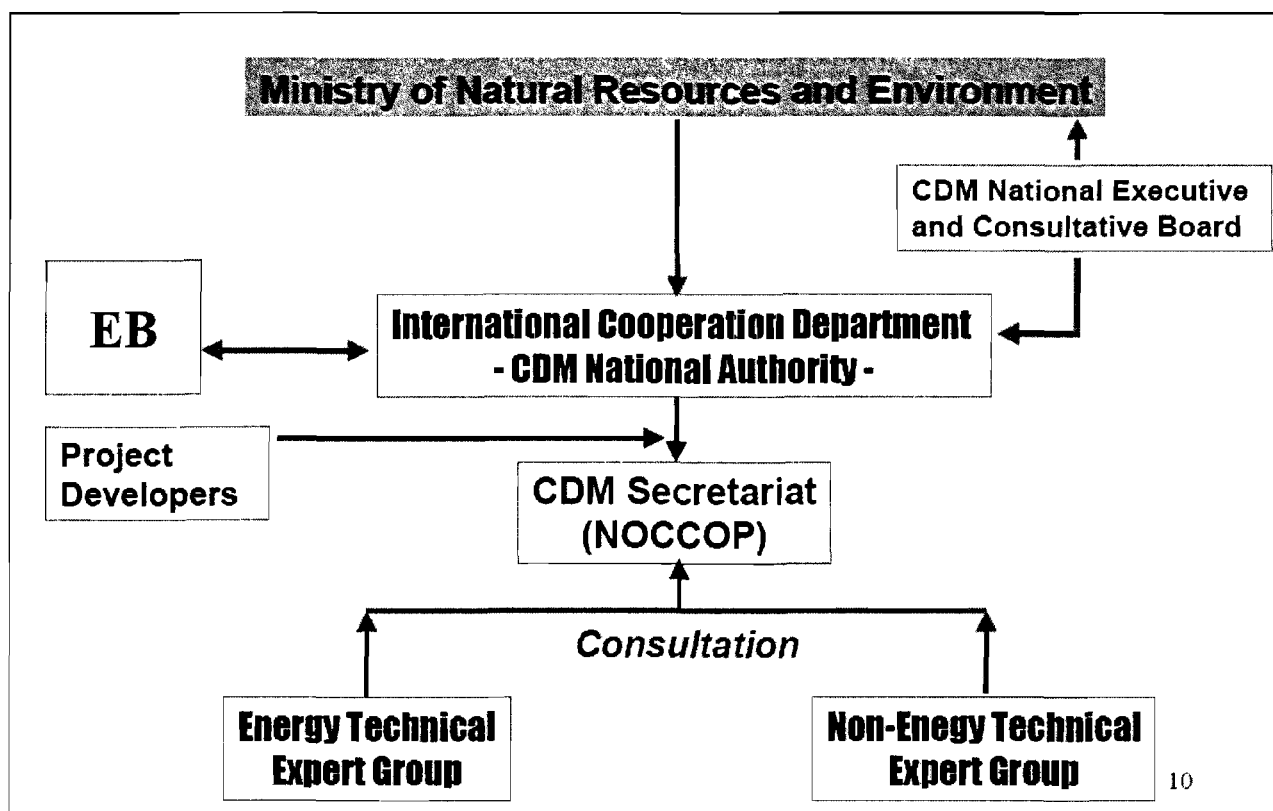


Illustration 9: CDM's Institutional Arrangement in Vietnam

Source: Hieu 2005, p. 10

The approval procedure for CDM projects in Vietnam is shown in Illustration 10. As a first step it is recommended to project developers to contact the CNA/DNA office, International Cooperation Department, MONRE, to get guiding documents about the CDM process in the country. Following this guidelines the project developer designs a Project Idea Note (PIN). The PIN is then sent to CNA/DNA for consideration. If

the PIN is successful, CNA/DNA issues a Letter of Endorsement and sends it to project sponsors and developers. Now the project developers can carry out the feasibility study and prepare the Project Design Document (PDD) following common rules. The completed PDD (with relevant documents) is then to be submitted to CNA/DNA. The PDD is then to be considered and validated by the CDM National Executive and Consultative Board (CNECB) at its meetings. If the PDD is successful CNA/DNA will issue its approval letter for project developers and related institutions. The last step is the registration of the CDM project by the CDM Executive Board.

Till March 2005, one Vietnamese CDM project has been approved by the EB.

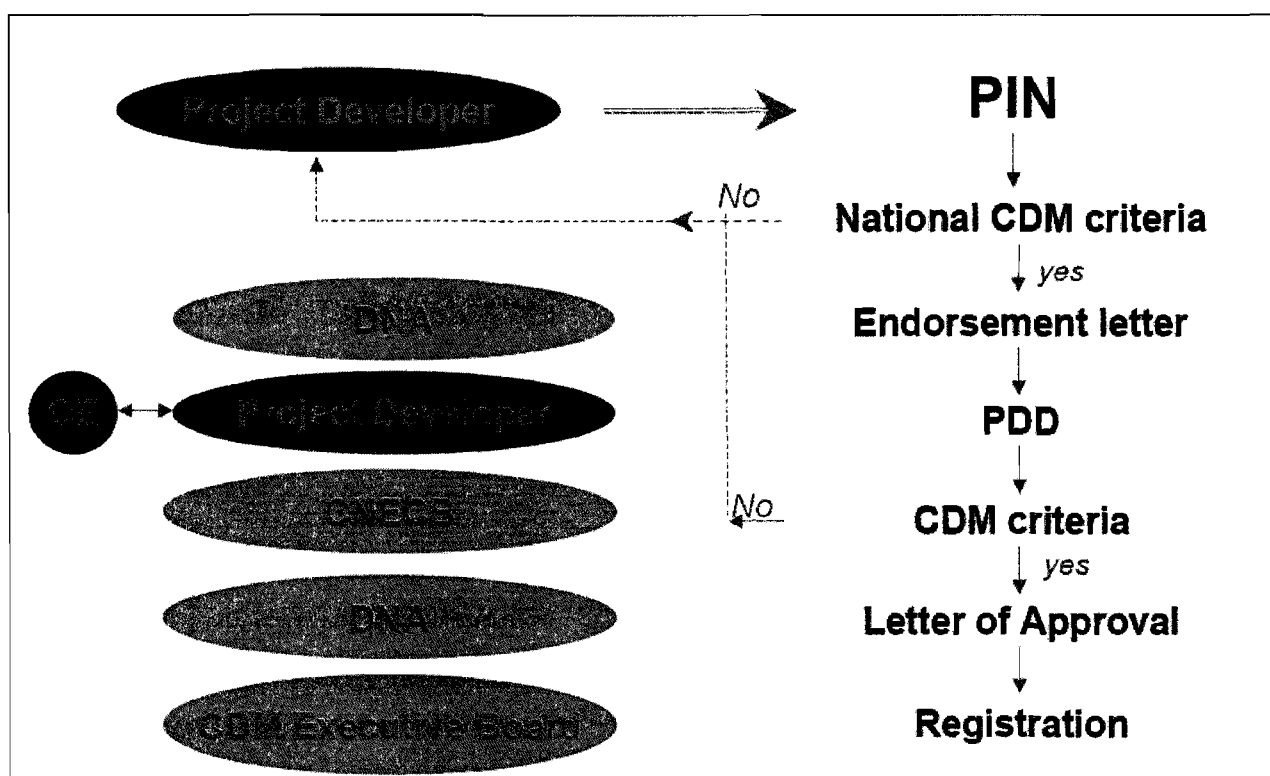


Illustration 10: Approval procedure for CDM projects in Vietnam

Source: Hieu 2005, p. 12

The following documents were identified as the main ones regarding guidelines for CDM activities:

- Document No. 465/BTNMT-HTQT, dated 2/3/2003: procedure to identify, develop and register projects under CDM in Vietnam; including exclusive and priority criteria;
- Document No. 1022/BTNMT-HTQT, dated 8/5/2003:
 - establishment of CDM National Executive and Consultative Board (CNECB);
 - prior investment fields and issues for CDM projects in Vietnam in the next period;

The main criteria (see mentioned Document No. 465/BTNMT-HTQT) for CDM projects in Vietnam are the exclusive criteria and the priority criteria.

The *exclusive criteria* are the first criteria for screening and selecting possible CDM projects which can be developed. It comprises sustainability, additionality and feasibility rules.

The *priority criteria* have been identified by consultation with selected stakeholders in the relevant

Vietnamese institutions and analysis of the Vietnamese plans and regulations related to sustainable development. They focus on contribution to the country's sustainable development and commercial viability.

In Vietnam possible sectors for CDM projects activity are (*Minh* 2006):

- Efficiency, conservation and saving of energy;
- Recovery and utilization of CH₄ from landfill and coal mining for generation;
- Fossil fuel switching;
- Renewable energy;
- Recovery and utilization of associated gas;
- Afforestation and reforestation;

In December 2005 the governments of Vietnam and Austria signed a Memorandum of Understanding (MoU)⁷ containing the following priority project categories:

- Construction (and retrofitting) of CHP installations;
- Fuel switch from high to low carbon or renewables;
- Construction (or retrofitting) of power generation installations operated with renewables (in particular hydropower, wind power, biogas or biomass CHP);
- Avoidance or (energetic) recovery of landfill gas;
- Waste management projects (energy recovery and use);
- Projects leading to reduction of final energy consumption in residential buildings, public and private services buildings and industrial applications and processes,

After comparison of the GHG mitigation priorities of Vietnam with key technologies and services Austrian companies can provide, the UNIDO-Austrian project is focussing on industrial energy efficiency improvement, fuel switch (high to low carbon), landfill gas and renewable energy technologies and projects.

In recent years a lot of capacity building activities on CDM have already taken place in Vietnam. *Minh* (2006) lists 10 programmes on CDM, the first starting in the year 1998. The youngest big capacity development programme on CDM (CD4CDM) is supported by WB/UNEP and managed by MONRE (duration 2003-2005).

Most of these programmes focus on theoretical topics, background of CDM and institutional issues. The trainings have been conducted predominantly for policy makers, managers and researchers at national and provincial levels.

As briefly summarized above there is already a lot of (theoretical) background about CDM in the country and some trainings have been done. The institutional framework has been set up and is already processing the first CDM projects.

Nevertheless KWI learnt from consultations with Vietnamese stakeholders, that there is still a need for more detailed training on the preparation of CDM Project Idea Notes (PINs) and Project Design Documents (PDDs). Because when it comes to the point of, for example, deciding on the right methodology to use (or design), additionality clause question, emission factors to use or calculation of baseline and project emissions, major uncertainties arise.

The other crucial point is the definition of the target group of the planned training workshop. *Minh* (2006) dedicated three blank spaces within CDM target groups for CDM: These are technical managers and

⁷ <http://www.klimaschutzprojekte.at/blueline/upload/legalframeworkmoubetweenvietnamandaustria.pdf>

experts of distinct industrial sub-sectors, managers and experts of financial and banking sectors and CDM service centers.

6.3 Capacity Building and Technical Assistance concepts

6.3.1 Capacity Building concept

As identified in the previous chapter, three main target groups for the training workshop have been identified:

- **Industrial sub-sectors:**

Industrial sub-sectors that are promising for CDM projects are energy, metallurgy, chemistry, machinery, construction materials, food processing, wood processing and paper production. Technology processes of these sub-sectors are quite different and it needs, on the one hand, deep knowledge of the industry in order to be able to formulate a methodology for a CDM project. On the other hand it also needs a profound knowledge about the CDM project cycle and characteristic features of PIN and PDD development process.

For promotion of CDM projects development the managers and experts of these industrial sub-sectors should know how to identify CDM project in their sub-sectors, how to collect and analyze data and how to follow the CDM procedures for CDM project application.

Training topics could be:

- How to identify promising CDM projects?
- Data collection and analyses;
- What do I need to know first about my potential CDM project?
- CDM project formulation;
- Methods for CDM project monitoring;

- **Managers and experts of financial and banking sectors:**

The role of financial and banking organisations is crucial for CDM projects promotion. Up to now experts of these sectors in Vietnam have not been trained on CDM. Nevertheless they should have a CDM general awareness.

Training topics could be:

- Basics about the Kyoto process;
- CDM project cycle;
- Basic methods how to calculate Baseline- and Project Emissions;
- Estimating price expectations on future CDM market;

- **CDM service centers:**

In Vietnam CDM service centers can play an important role in promoting CDM projects. The CDM service organisations can guide and assist project developers of or industrial sectors themselves through the whole CDM process. Services can spread from the identification of potential CDM projects, development of PINs and PDDa, assistance during the registration process as well as participation in the monitoring process.

Currently there are not many such CDM service organisations in Vietnam. NCPC as well as RCEE are willing to be such an entity for CDM services. They already have a good basic knowledge about Kyoto background and general CDM project cycle. Now they like to concentrate their training on more technical issues in context with CDM.

Training topics could be:

- CDM market formulation;
- CDM regulations;
- Identification of promising CDM opportunities;
- CDM project formulation;
- Development of project documents (PINs, PDDs, Baseline Study, Monitoring Plan);
- Methods for CDM projects monitoring;
- Marketing of emission reductions on the international carbon market;
- Logistic and infrastructure assistance for CDM service entities;

6.3.2 Technical Assistance concept

As there is just one Training Workshop planned in Vietnam participants of different target groups will be put together in one workshop. Therefore the whole range of possible training topics identified for the target groups have to be covered in two training days. Most participants will be from service centers (e.g. VCPC, RCEE) followed by participants of industrial sectors.

ESD and KWI recommend an interactive training workshop, meaning to give the participants the chance, not just to hear about the framework behind CDM and successful CDM projects already implemented, but to work actively on real Vietnamese CDM projects. In order to keep the training vitalized the training methods will change a few times during the whole workshop. Participants will also form small groups (participants with different backgrounds in one group) to stimulate discussions and the exchange of ideas and different point of views when preparing different topics or CDM project samples. The workshop will be backed by PowerPoint presentations, documents about approved methodologies, additionality tool, other project information (PDDs) and flip charts.

On the first day the focus of the training will be on the general background to Kyoto and the CDM framework of Vietnam, practical examples of international CDM projects and financial issues (e.g. Carbon Market). The second day will be devoted to technical issues like the preparation of PINs and PDDs.

Another crucial part of the training workshop will be the Question and Answer session planned after each theme block. This will allow elaborating special points arising and go into them in greater detail.

6.4 Training in Vietnam

The training in Vietnam was held in June 2006 and comprised two training-days. It included a general overview on the Kyoto framework, Kyoto Mechanisms, institutions involved and the CDM project cycle. As requested by the Vietnamese stakeholders, the training focused on the preparation of CDM project documents (PINs and PDDs).

Participants came from the NCPC, industry and government institutions, further other national experts and stakeholders took part in the training sessions.

For the training, the following material has been used:

- A set of slides, covering the following topics:
 - Brief background to Kyoto & progress of the flexible mechanisms to date;
 - The CDM Project Cycle with Practical examples of International CDM Projects & Lessons for Vietnam;
 - Understanding the Carbon Market & Carbon Finance Today – 2006;
 - The Austrian JI/CDM Programme;
 - Preparation of PINs & PDDs: Best Practices and 'How to Guides';
 - Practical examples of International CDM Projects & Lessons for Vietnam;
- Approved methodologies relevant for CDM in Vietnam (including ACM0002, ACM0006, AM0019, AM0026);
- Additionality Tool ;
- Project Design Documents and other relevant documentation on Vietnamese CDM projects:
 - Rang Dong Oil Field Project
 - Song Muc Hydro Power Regeneration Project
 - Tra Linh 3 Hydro Power Project

6.4.1 Participants

The training was held by Mike Bess, ESD and Manfred Stockmayer, KWI. The following institutions from Vietnam participated in the training:

Institution	No. of participants
Vietnam Cleaner Production Center	7
Research Center for Energy and Environment (RCEE)	2
National office for Climate change and Ozone Protection, Ministry of Environment and Natural resource (MONRE)	1
Institute of Energy (IOE)	1
Research Center of Energy and Environment, Vietnamese Academy of Science and Technology	1
The Energy Conservation Center, HCMC-VN (ECC), Department of Science and Technology, Hochiminh City	1
Cleaner Production Center, Hochiminh City Environmental Protection Agency (HEPA), DONRE	1
Department of Science and Technology, Ministry of Industry (MOI)	1
Department of Energy and Petroleum, Ministry of Industry (MOI)	1

Department of International Cooperation, Ministry of Industry (MOI)	1
Department of International Cooperation, Vietnam Cement Corporation	1
Department of International Cooperation, Vietnam Paper Corporation	1
Department of International Cooperation, Vietnam Iron and Steel Corporation	1
Department of International Cooperation, Vietnam Alcohol and Brewery Corporation	1
Huong Sen High Class Beer Company	1
Bai Bang Paper Co. Ltd	1
Thai Nguyen Iron and Steel Corporation	1
<i>Total</i>	24

Table 7: List of Vietnamese institutions participating in the training

6.4.2 Training Programme

Day 1, 26th June 2006 (Monday)	
08:00-08:15	Registration
08:15-08:45	Introductions (DNA Vietnam, UNIDO, KWI/ESD, VNCPC etc.) Vietnam's CDM activities by Mr. Nguyen Khac Hieu
8:45 - 9:15	Brief background to Kyoto and the progress of the flexible mechanisms to date <ul style="list-style-type: none"> • The UNFCCC – key actions on the road to the Kyoto commitment period, 2008-2012 • Key actions in the Kyoto process: • Ratification • The European Union Emissions Trading System (EU ETS) • Operations of the UNFCCC CDM Executive Board (EB) and its 'Methodology Panel' • Status of CDM and JI, and prospects pre-commitment period • Implications for CDM in Vietnam
9:15 – 9:45	Tea/coffee break
9:45 - 10:30	CDM Framework in Vietnam: Working groups (3) define priorities, priority sectors, priority actions for CDM in Vietnam
10:30 - 11:15	Brief Working group presentations on priorities for Vietnam CDM, plenary discussion
11:15 - 11:45	Practical examples of international CDM projects under development and lessons learned to date (Part I) <ul style="list-style-type: none"> • Normal project cycle • What is different between a 'normal project cycle' and a 'CDM project cycle'?

	<ul style="list-style-type: none"> • Roles of industry, government, NGO and international institutions & partnerships for CDM • Overview of CDM projects approved to date • Overview of CDM projects in the pipeline • Examples of CDM projects relevant to Vietnam's priorities • Industrial energy efficiency • Industrial fuel substitution/fuel-switching • Renewable energy projects in the electricity sector • Landfill gas • Key lessons learned from CDM projects relevant to Vietnam
11:45 - 12:00	Discussion, questions and answers
12:00 - 13:30	Lunch
13:30 - 14:30	Practical examples of International CDM projects under development and lessons learned to date (Part II)
14.30 - 14.45	Discussion, questions and answers
14.45 - 15.30	Understanding the Carbon Market and Carbon Finance Today – 2006 <ul style="list-style-type: none"> • Overview of the Carbon Market • Who is buying and selling at present? • What kinds of prices are buyers paying for what kinds of CDM projects now? • What is the difference between the 'long-term' CDM market and the current 'spot' market for carbon buyers, & why is this important for Vietnam CDM project developers? • What CDM project emission reductions are people buying Now • The EU ETS and its relevance to Vietnam CDM • Opportunities & interactions between Vietnam CDM projects and the EU ETS • Carbon Market dynamics for Vietnam • What should Vietnam CDM project developers look for from carbon buyers?
15:30 - 15:45	Discussion, questions & answers
15.45 - 16.00	Tea/coffee break
16.00 - 16:45	The Austrian JI/CDM Programme and other Bilateral & Institutional Purchasing Programmes (e.g., The Netherlands, Denmark, Japan, EBRD, etc.) <ul style="list-style-type: none"> • Overview • Current areas of focus – CDM project types and geographic coverage • Austrian Programme and Vietnam CDM • Kinds of Vietnam CDM projects of likely interest to Austrian Programme
16.45 - 17.00	Discussion, questions & answers
17:00 - 17:30	Wrap up of day 1 and conclusions to day 1

Day 2, Tuesday 27th June 2006 (Tuesday)

8:00 - 8:15 Welcome, summary of day 1 and introduction to day 2

8:15 – 09.15	<p>Preparation of PINs & PDDs: Best Practices and ‘How to Guides’</p> <ul style="list-style-type: none"> • What makes a good PIN • What makes a good PDD? • Who are we preparing a PDD for – who is the PDD ‘audience’? • What should a PDD achieve? • What does the Vietnam Designated National Authority (DNA) want to see in a PDD? • What does a Designated Operational Entity (DOE) want to see in a PDD? • What does the CDM Executive Board (EB) want to see in a PDD? • What do ‘carbon’ buyers want to see in a PDD? • Practical examples of PDDs • PDD ‘do’s’ and ‘don’ts’ • Key steps in PDD preparation • Key steps in PDD approval • How to improve your PDD’s chance of approval • Examples of the best PDDs • Examples of the best PDD methodologies
9:15 - 9:30	Discussion, questions & answers
09.30 – 10.30	<p>Examples of 3 Vietnamese PDDs</p> <ul style="list-style-type: none"> • Rang Dong Oil Field Associated Gas Capture and Utilisation • Song Muc Mini Hydropower Project • Tra Linh Mini Hydropower Project
10.30 – 11.00	Discussion, points and issues from the three Vietnamese PDDs
11.00 – 12.00	Working groups (3) – Practical Examples of the CDM Project Cycle - Vietnam CDM Projects (proposed and potential) Part I
12:00- 13:30	Lunch
13:30-14:15	Working groups (3) – Practical Examples of the CDM Project Cycle - Vietnam CDM Projects (proposed and potential), including presentation to plenary Part II
14:15-14:30	Discussion, questions & answers
14:30 - 14:45	Coffee/tea break
14:45 – 15.30	Working Groups (3) – Development, Sourcing and Use of Carbon Financing – Where to find it, what to use it for, and how to use it in CDM projects.
15.30 - 16:00	Presentation by working groups, with discussion on practical finance and use of carbon financing by Working Groups
16:00 - 17:00	Conclusions and recommendations from day 2 and the Training Workshop

Table 8: Training Programme (Agenda)

The training sessions were held in 3 different segments:

- Presentations from the trainers:
To give an input and insight on the topic to be covered;
- Working Groups:
The participants were broken into three Working Groups comprised of Government, non-

government organisation, industry and other participants to work on practical issues presented by the trainers. Each Working Group had a chair person and a rapporteur. Working Group topics and assignments were given according to the topic to be covered. After the Working Group sessions, the rapporteurs presented the findings, conclusions, etc. from the Working Group to the plenary (main group) for discussions.

- Questions and Answers sessions:
Each session was finalised with a Questions and Answers session to give the participant the opportunity to clarify open issues.

6.4.3 Topics discussed in the Questions and Answers sessions

In the Questions and Answers sessions, the participants had the opportunity to come up with open issues. The answers were given by the trainers, giving practical examples using the flip chart (attached in the annex). The following main questions were presented:

Q: For how many years is a CDM project generating emission reductions?

A: During the preparation of the Project Design Document (PDD), the project proponent can decide for a baseline over 10 years or over 3 times 7 years. In the 10 years case, all assumptions in the PDD will be taken as given for the next 10 years. If the project developers choose 3 times 7 years, the baseline will be revisited after 7 and 14 years. There is the risk that the baseline might be changed and emission reductions might go down after 7 or 14 years.

Purchasers of carbon credits are currently only buying for the period up to 2012. For emission reductions after 2012, there is currently no market. So, if the project is generating emission reductions after 2012, these can be sold, but the price to be expected is very difficult to assess. This is dependent among others on the decision on further commitment periods, the future of the EU Emissions Trading Scheme or the seriousness with which governments are tackling climate change.

Q: Why is there such a large price difference between the price of EU Allowances (EUAs) and Certified Emission Reductions (CERs)?

A: The price, usually referred as "the carbon price", is the spot price of EUAs in 2006. This can be checked for example at www.pointcarbon.com. Currently the EUA price is floating in a range of € 15 to € 17. The difference to the price of CERs (which is indicated to be between € 5 and € 10) is based among others things on the following facts:

- EUAs for 2006 are an existing product, CERs are traded on a forward basis.
- When CERs are bought now, the buyer takes a lot of additional risk, which leads to a discount in the price. These risks include for example technology risk, project implementation and performance risk, financing risk and monitoring risk.
- The demand of EUAs is determined by the National Allocation Plans in the EU Emissions Trading Scheme and the development of emissions in the installations covered by the Scheme. The demand of CERs is determined by the Kyoto commitments of the participating countries.

Q: How can CERs be used in the EU Emissions Trading Scheme?

A: The so-called "Linking Directive" determines how CERs can be used in the EU Emissions Trading Scheme. CERs can be used both in the first (2005 – 2007) and in the second trading period (2008 – 2012). Each member state determines the maximum level of certificates from project based mechanisms to be used by the installations. Usually, this maximum level is in a range of 5% to 20%. EU Member States will determine this level in the second National Allocation Plans, which are due mid 2006.

Q: How can I calculate the emission reduction from a fuel switch project?

A: As an example a 50 MW boiler, currently using fuel oil was given. At 5,000 full load hours per year, this boiler is using 250,000 MWh of fuel oil. At an emission factor of 0.28 tons of CO₂/MWh, CO₂ emissions are 70,000 tons per year. If this boiler is switching to natural gas (assuming constant efficiency of the burning process), total emission per year are 50,000 tons at an emission factor of 0.2 tons of CO₂/MWh. Therefore, the emission reduction is 20,000 tons per year.

The difficult question in this example is the determination of the baseline. The first question to answer would be whether the existing fuel oil boilers can be used for the next 10 years. If that is the case, then continuing with the existing boilers is one of the potential baseline scenarios. If the boilers can not be used for another 10 years, then installing new fuel boilers would be an option.

The other potential baseline option is switching to natural gas. The main question there is whether switching would be the least cost option. If that is the case, then the project would not lead to additional emission reductions.

This project would be a potential CDM project if the existing boilers using fuel oil can be used for another 10 years and switching to natural gas would not be the least cost option. If the additional effect from the emission reductions is making the switch to natural gas financially viable, then the project would have good chances to qualify as a CDM project.

6.5 Review of Project Idea Notes and Project Design Documents

Within the framework of the UNIDO-Austrian project Dr. Nguyen Duc Minh (Director of RCEE) and his team prepared 3 Project Idea Notes (PINs) and the appropriate Project Design Documents (PDDs) for three hydro power projects in Vietnam. The "*Tra Linh 3 Hydro Power Project*" is a small scale project and the "*Da M'Bri Hydro Power Project*" and the "*A Luoi Hydro Power Project*" are regularly CDM projects.

The electricity generated by the proposed projects will be supplied to the Vietnamese grid. It will replace mixed power supplied from power plants to the national grid. All three projects have a crediting period of 10 years and do not consider leakage.

The "*Tra Linh 3 Hydro Power Project*" is based on a baseline and a monitoring methodology of category I.D "Renewable Electricity Generation for a grid", according to appendix B of the simplified M&P for small scale CDM project activities.

The other two PDDs are based on the baseline methodology ACM0002 version 06 "Consolidated baseline methodology for grid-connected electricity generation from renewable sources", which was approved by the Executive Board in its 16th meeting and revised in its 24th meeting, is applied to the proposed project. It is used in conjunction with the approved monitoring methodology ACM0002 version 06 "Consolidated monitoring methodology for grid-connected electricity generation from renewable sources".

The Research Center for Energy & Environment (RCEE) is the project developer of all three projects/PDDs.

In general the PDDs make a very good impression. They are accurately prepared and understandable. Nevertheless, some English formulations are not easy to understand and there are also some typing errors in the text.

Comments:

Tra Linh 3 Hydro Power Project

(Version 1.0 / April 1, 2005)

A. General description of the small-scale project activity

- Page 5: II Reservoir: High and low water level is the same. Is this normal?
page 6: 4 Power House: Installed capacity = 6.3 MW; Should not it be 7.2 MW?

B. Application of a baseline methodology

We would recommend to add a simple calculation of the IRR (financial barrier, page 12).

- Policy barrier (page 13): What do you mean by saying "So it is only the electricity generated."

C. Duration of the project activity / Crediting period

- page 21: starting date of construction: September 1st, 2006 (bear the additionality of the project in mind when starting the construction work without having the CDM project registered)

D. Application of a monitoring methodology and plan

E. Estimation of GHG emissions by sources

F. Environmental impacts

G. Stakeholders' comments

Da M'Bri Hydro Power Project

(Version 1.0)

A. General description of the small-scale project activity

- page 4 (A.4.): the text says: ... total capacity is 70MW power plant consisting of 2 units of 25 MW each...; Should not it be 2 units of 35 MW each?

B. Application of a baseline methodology

C. Duration of the project activity / Crediting period

D. Application of a monitoring methodology and plan

E. Estimation of GHG emissions by sources

F. Environmental impacts

G. Stakeholders' comments

A Luoi Hydro Power Project

(Version 1.0)

A. General description of the small-scale project activity

- page 8 (A.4.1.4.): the text says: ... construction of 150MW power plant consisting of 2 units of 735 MW each...; Should not it be 2 units of 75 MW each?

B. Application of a baseline methodology

- page 24: Starting date of construction: 01 January 2007 (bear the additionality of the project in mind when starting the construction work without having the CDM project registered)

C. Duration of the project activity / Crediting period

D. Application of a monitoring methodology and plan

E. Estimation of GHG emissions by sources

F. Environmental impacts

G. Stakeholders' comments

7 Mexico

7.1 Country mission to Mexico

7.1.1 Participants

From the Austrian side the following representatives took part in the country mission to Mexico:

Austria	
Mr. Guillermo Barrios	GE Jenbacher
Mr. Thomas Bremstaller	Ecotherm
Mr. Sasha Eichberger	Austrian JI/CDM Programme, Kommunalkredit Public Consulting GmbH
Mr. Thomas Hoffmann	Polytechnik Luft- und Feuerungstechnik GmbH
Mr. Herwig Mostegel	Bauer
Mr. Manfred Stockmayer	KWI Management Consultants GmbH Camco International AG
Mr. Oliver Walter	VA TECH Finance
UNIDO	
Ms. Marina Ploutakhina	UNIDO, PTC/ECC

Table 9: List of Austrian participants

From Mexico, the following persons participated in the various meetings:

UNIDO	
Mr. Edmundo de Alba	Consultant
Ms. Blanca Espinosa	UNIDO
Mrs. Lilian Estrada	UNIDO
Mr. Manuel Estrada	Consultant
Ms. Florance Lecuse	UNIDO
Mr. Ramiro Magaña	UNIDO
Mr. Mauricio Trejo	UNIDO
Mexican Authorities	
Dr. Fernando Tudela	SPPA-SEMARNAT
Jose Ramon Ardavin	SFNA-SEMARNAT
Adriana Oropeza	SFNA-SEMARNAT
Dr. Adrian Fernandez	National Institute of Ecology (INE)
Julia Martínez	National Institute of Ecology (INE)
Miguel Ángel Cervantes	SEMARNAT
Lucrecia Martín	SEMARNAT
Alejandra Lopez	SEMARNAT
Dr. Juan Mata	SENER
Ubaldo Inclan	SENER
Carolina Fuentes	SENER
Palemón González	Ministry of Economy

Ma. Isabel López	Ministry of Economy
Jose Luis Roque Gayosso	SEDESOL
Mexican Enterprises	
Jorge Antonio Mora	AMDEE (wind energy association)
Ing. Raúl Ambriz	Cementos Chihuahua
Gloria Godinez	CEMEX
Dr. Jorge Pérez	Centro Mexicano para la Producción Más Limpia
Arturo Hernandez	Centro Mexicano para la Producción Más Limpia
Alonso Marban	Centro Mexicano para la Producción Más Limpia
Alejandro Lorea	CEspeDES
Rosa Ma. Jiménez Ambriz	CEspeDES
Alejandro Morales González	Comisión Federal de Electricidad
Francisco Javier	Comisión Federal de Electricidad
Vicente Solares	Colgate Palmolive
Jacobo Mekler	Comexhidro
Alejandro Morales Gzlez	Comisión Federal de Electricidad
Alejandro Sosa	COPARMEX
Yesica Gonzalez	COPARMEX
Alonso Pujol	Ecocycle Technology
Ricardo Whaley	Electricité de France, Asociación Mexicana de Energía Eólica
Francisco Marquez	Estudios y Técnicas Especializadas en Ingeniería (ETEISA)
Alex Ramirez Rivero	Genertek
Juan Carlos de León	Grupo Modelo
Cesar Cadena	Ind. Cermic, Grupo Energetics
Victor Martinez	Ind. Cermic, Grupo Energetics
Arturo Parra Castro	Indesin, SA de CV
Juan José Bortoni Garza	Luz y Fuerza del Centro
Alberto Vargas González	Mittal Steel
Marco Antonio Jiménez Atzin	Petróleos Mexicanos
Alejandro Merin	Química Wimer/Consejo Nacional de Industriales Ecologistas de México
Rogelio Lopez Lopez	State of Mexico Association of Industries
Alberto Rodriguez	Consultant

Table 10: List of Mexican participants

7.1.2 Time schedule and agenda

For the meetings held in Mexico City, there was the following agenda (see Table 11):

Tuesday May 2

Venue: Mario Molina Meeting Room. Ministry of the Environment

Environmental Sector	
10:00–10:10	Opening Dr. Fernando Tudela, Undersecretary for Planning and Environmental Policy, Ministry of Environment and Natural Resources (SEMARNAT)

10:10–10:15	Welcome back Ms. Marina Ploutakhina, ONUDI
10:15–10:30	Presentation of the participants (1 min. per person)
10: 30–10:40	Objectives of the meeting Dr de Alba, ONUDI
10: 40–10:55	The Mexican context Miguel Angel Cervantes, Head of COMEGEI and of the Technical Secretariat of the Designated National Authority (DNA) for CDM projects
10:55–11:15	The UNIDO-Austria Project presentation Ms. Marina Ploutakhina, ONUDI
11:15–11:30	Austrian Fund JI/CDM presentation Peter Kogler, Austrian JI/CDM Programme
11:30–11:45	Coffee break
11:15–12:00	Presentation of Mexican stakeholders' interests in Clean Development Mechanism
12:00–12h45	Comments from the Austrian participants
12:45–13:00	Concluding remarks Dr de Alba, ONUDI
13:00	Closure
13:00–15:00	Lunch - Restaurant San Angel Inn
15:00–17:00	One-to-one conversations
20:00–22:00	Reception offered by the Austrian Embassy at Franz Dorn's (the Austrian Embassy Commercial Counselor)

Wednesday May 3

Venue: Radisson Hotel

Industrial Sector	
10:00–10:10	Opening Ing. José Ramón Ardavín, Undersecretary for Environmental Regulation, Ministry of Environment and Natural Resources (SEMARNAT)
10:10–10:15	Welcome back Sasha Eichberger, Austrian JI/CDM Programme
10:15–10:30	Presentation of the participants (1 min. per person)
10: 30–10:40	Objectives of the meeting Dr de Alba, ONUDI
10: 40–10:55	The Mexican context Miguel Angel Cervantes, Head of COMEGEI and of the Technical Secretariat of the Designated National Authority (DNA) for CDM projects
10:55–11:15	The UNIDO-Austria Project presentation Ms. Marina Ploutakhina, ONUDI
11:15–11:30	Austrian Fund JI/CDM presentation Sasha Eichberger, Austrian JI/CDM Programme
11:30–11:45	Coffee break
11:15–12:00	Presentation of Mexican stakeholders' interests in Clean Development Mechanism
12:00–12h45	Comments from the Austrian participants
12:45–13:00	Concluding remarks Dr de Alba, ONUDI
13:00	Closure
13:00-15:00	Lunch
15:00-17:00	One-to-one conversations

Thursday May 4

Venue: Radisson Hotel

Energy Sector	
10:00–10:10	Opening Ing. Ubaldo Inclan Gallardo, Director of Renewable Energies and Environment, Ministry of Energy
10:0–10:15	Welcome back Sasha Eichberger, Austrian JI/CDM Programme
10:15–10:30	Presentation of the participants (1 min. per person)
10: 30–10:45	The Mexican context Miguel Angel Cervantes, Head of COMEGEI and of the Technical Secretariat of the Designated National Authority (DNA) for CDM projects
10: 45–11:00	CDM in the Mexican energy sector Eng. Juan Mata, Director General for Research, Technological Development and Environment
11:00–11:15	The UNIDO-Austria Project presentation Ms. Marina Ploutakhina, ONUDI
11:15–11:30	Austrian Fund JI/CDM presentation Peter Kogler, Austrian JI/CDM Programme
11:30–11:45	Coffee break
11:15–12:00	Presentation of Mexican stakeholders' interests in Clean Development Mechanism
12:00–12h45	Comments from the Austrian participants
12:45–13:00	Concluding remarks Dr de Alba, ONUDI
13:00	Closure
13:00–15:00	Lunch
15:00–17:00	One-to-one conversations

Table 11: Agenda of the UNIDO-Austria mission, March 7-8, 2006

7.1.3 Short overview on presentations

This chapter gives an overview on the presentations held by the participants during the country mission. The complete presentations (if available) are annexed to this report.

Miguel Angel Cervantes, Head of COMEGEI and of the Technical Secretariat of the Designated National Authority (DNA) for CDM projects

Mr. Cervantes started with presenting the procedure to achieve approval for CDM projects in Mexico (Letter of Approval – LoA). An Intersecretarial Commission of Climate Change (CICC) has been installed, which gives the approval for CDM projects. In the Commission, the Ministry of Environment, the Ministry of Economy, the Ministry of Social Development, the Ministry of Energy and the Ministry of Foreign Affairs are represented. The Commission checks, whether the project is in line with national regulations and is capable to deliver emission reductions. The Commission does not influence the contract (Emission Reduction

Purchase Agreement – ERPA) between the project and the carbon purchaser. The applications are dealt within a maximum of 31 days.

Up to now, 43 projects have been given a Letter of Approval. These projects were in the following sectors:

Project type	Number
Methane from pig farming	24
Methane from milk processing	5
Hydro power	4
Wind power	2
Energy efficiency	4
HFC 23	1
Transport	1
Biogas	1
Landfill gas	1
Total	43

For a total of 9 additional projects, Letters of No Objection have been issued.

In 2002, greenhouse gas emissions in Mexico totalled 541 million tons. It is estimated that CDM has a potential of 4%.

Manfred Stockmayer, KWI Management Consultants GmbH

KWI was presenting an overview on the Austrian Environmental Technology Market. Over the last years, the number of companies active in the environmental technology market has been ever increasing, with now more than 330 companies active. The sectors covered include:

- Co generation (CHP)
- Industrial energy efficiency improvement
- Fuel switch (high to low carbon)
- Fuel switch (to renewables)
- Landfill gas
- Waste management (incl MBT)
- Renewable Energy:
 - Hydro power plants
 - Wind power plants
 - Solar power plants
 - Biogas plants
 - Biomass plants

Consultation with Austrian stakeholders has shown that there is only limited experience with CDM. Only a few companies supplying technologies have active experience with JI and CDM. The majority of experience is located within consulting companies.

Oliver Walter, VA TECH Finance GmbH

VA TECH Finance GmbH has been founded in 1995 and has been the Financial Center of Competence within the VA TECH Group. Since 2006, the company provides independent financial services to VA TECH Hydro, VA TECH WABAG and third parties. VA TECH Finance is arranging export credits from various sources, secures development credits, concessional and commercial loans and works on non-recourse and structured trade finance.

VA TECH Finance focused in their presentation on the successful implementation of the Tsankov Kamak project in Bulgaria. This 80 MW hydro power plant with total investment costs of € 200 million was qualified as a JI project and the emission reductions were sold to the Austrian JI/CDM Programme. Basis for this work was a memorandum of understanding between Austria and Bulgaria, which was signed in September 2002. After the Baseline Study has been prepared by Austrian consultants, the Emission Reduction Purchase Agreement was signed with the Government of Austria, which served as a collateral for the financial transaction.

Thomas Bremstaller, Ecotherm

Ecotherm is an Austrian company, which founded a subsidiary in Mexico in 1993. Ecotherm is mainly working in the tourism industry and is offering equipment for energy efficient supply of hot water and steam. This includes not only conventional, fossil fuel based systems, but also solar collectors. Ecotherm has successfully implemented projects in Mexico in hotels, hospitals and sports clubs.

Thomas Hoffmann, Polytechnik Luft- und Feuerungstechnik GmbH

Polytechnik is a supplier of biomass fired boilers with a capacity between 100 kW and 20 MW. Combustion types include hydraulic grate furnaces, underfeed grate furnaces and underfeed stokers. Several kinds of fuels can be used in these boilers, including saw dust, wood chips, bark, sunflower husk, rice husk, etc. The technology provided can be used for cogeneration (heat and electricity), district heating, heating individual buildings as well as providing heat for industrial processes. Polytechnik provides turn key installations, including fuel discharge, fuel feeding system, furnace, boiler, flue gas dedusting unit, electro installations and buildings for boiler house and fuel storage.

Herwig Mostegel, Röhren- und Pumpenwerk Bauer GmbH

Bauer has been founded more than 70 years ago and is focusing on the supply of technology for agricultural purposes. Recently, the company has been very active in biogas technology. Bauer has developed 2 different concepts for producing biogas. Concept 1 just uses slurry as input material. This concept allows high sludge load, an intensified process and is applicable for small plants. Concept 2 uses biomass (cuttings, etc.) in addition to the slurry. In both cases, the electric generated is used to cover the energy demand of the plant and to feed electricity into the local electricity grid.

Guillermo Barrios, GE Jenbacher

GE Jenbacher is a worldwide active producer of gas motors. GE Jenbacher has its headquarters in Jenbach, Tyrol. After being taken over by the GE Group, GE Jenbacher is integrated in the world wide activities of the group. The capacity of the equipment ranges from 300 kW to 3 MW. The machines can use

different sources of gas, including natural gas, biogas, landfill gas, sewage gas, flare gas, coke oven gas and coal bed and coal mine methane. High efficiencies (39% electric, 43% thermic) secure the optimal use of the gas and support the reduction of greenhouse gases.

Sascha Eichberger, Kommunalkredit Public Consulting GmbH

Kommunalkredit Public Consulting GmbH is managing the Austrian JI/CDM Programme. This programme has been set up in order to support the achievement of the Kyoto target in Austria. With a total funding of € 288 million, 7 million tons of CO₂ emission reductions per year will be purchased in the period 2008 to 2012. There is an existing Memorandum of Understanding between Mexico and Austria, which is the basis for buying emission reductions from CDM projects in Mexico. Up to now, 15 Emission Reduction Purchase Agreements (ERPAs) have been signed, the total project pipeline includes 110 projects. There are the following priority categories:

- Combined heat and power installations
- Fuel switch to renewables or less carbon intensive fuels
- Renewable energy production plants
- Energy efficiency projects
- Avoidance or energy recovery of landfill gases
- Waste management measures

After handing in a PIN or PDD and an initial offer, the project is evaluated by Kommunalkredit. After successful negotiations, an Emission Reduction Purchase Agreement is signed.

Manfred Stockmayer, Camco International AG

Camco International AG is a world-wide active developer of carbon assets. Camco works with clients in order to assist them in qualifying their projects as JI and CDM projects and in marketing of the emission reductions. Since April 2006, Camco is listed on the London Stock Exchange. Camco operates as a partner to the project and shares the risks and rewards of carbon asset development. Currently, Camco is focusing on China and Russia as main markets.

7.1.4 Conclusions from the country mission

- **In general**

The UNIDO-Austrian delegation got a very warm and friendly welcome from the Mexican counterparts and stakeholders. All meetings have been perfectly organised by the UNIDO office in Mexico City. At all 3 days, a large number of interested stakeholders have been present at the workshops. The participants of the Austrian delegation would like to express their thanks to the UNIDO office in Mexico for their efforts in organising the mission.

- **Conclusions**

The meetings with the different stakeholders showed that there is very strong interest in CDM in Mexico. As demonstrated by the presentation by the Mexican DNA, the framework for the preparation and approval of CDM projects in Mexico is up and running. The high number of projects which have received a Letter of Approval (43 projects) indicates that the business community has realised the enormous chances for CDM in Mexico.

From the presentations and comments of the Mexican participants, the following conclusions can be drawn:

- The biggest potential for CDM projects is in the industrial sector. There is a huge number of large companies active in Mexico (e.g. cement, steel, petroleum, consumer products), many of them integrated in international company groups. Due to the high energy consumption and increasing energy costs, there is a strong interest in this group to use CDM as an additional income stream to finance investment in energy efficiency measures.
- A large number of participants in the workshops had a good understanding on CDM in general and on the requirements of the project cycle. Some participants already have experience with CDM and are currently in the phase of preparing Project Design Documents.
- Whereas project developers and investors are well advanced in the technical aspects of CDM, support is required on the side or marketing emission reductions. This is an issue where the Austrian JI/CDM Programme can be very helpful, but there also needs to be a strong focus in the training sessions, which are going to be held later this year.
- Whereas renewable energy projects in the electricity sector (mainly wind energy, but also hydro or biomass) are very prominent in other CDM countries, there is currently not much development going on in this sector in Mexico. The reason for that is that feed-in tariffs for electricity produced in these installations are currently too low to make projects financially feasible. A considerable increase in the feed-in tariff is required to build the basis for CDM projects in that sector.

7.2 Identification of training needs

For the identification of the training needs KWI consulted the report prepared by Dr. Edmundo De Alba (*De Alba 2005*) "Report to the United Nations Industrial Development Organization" for the UNIDO-Austrian project and presentations held during the Kick-Off workshop in Vienna. Further consultations with several stakeholders were held during the country mission in May 2006.

Mexico ratified the UNFCCC in 1993 and the Kyoto Protocol in early 2000. As a developing country Mexico has no legally binding obligations to reduce its greenhouse gas emissions, even though some policies, programs, standards and activities reduce such emissions. Nevertheless the country is still needing deeper and more diverse policies and programs to systematize emission inventories; implement measures for adaptation; reduce GHG emissions and increase capture; additional activities to train specialized personnel, and to broaden information systems on the matter, as well as a more profound program for public awareness and participation, all of them in a systematic and long term national strategy. The Ministry of Environment and Natural Resources (SEMARNAT) is currently involved in the elaboration of a National Strategy for Climate Change Action with a long term perspective.

National experts describes it as important for the country to participate meaningfully in the world's efforts to face the climate change problem, in particular through CDM activities, which represent an indispensable and valuable complement to the national efforts on that matter. Additionally the Mexican president called for a broader and deeper participation of the private sector in the CDM activities and in a voluntary GHG reporting system.

The "Report to the United Nations Industrial Development Organization" provides a detailed list of the main National Authorities that have authority over or are involved with decisions affecting CDM projects and affecting CDM projects and activities. The most important ones can be summarized as follows:

- **Interministerial Commission of Climate Change (CICC)**
It has the main governmental responsibilities on Climate Change and is the Mexican DNA (see Illustration 11); The Commission will convene Working Groups as required. One of the Working Groups is the (pre-existing) Mexican Committee for Emissions Reduction and Greenhouse Gas Sequestration Projects (COMEGEI),
- **Mexican Committee for Emissions Reduction and GHG Sequestration Projects (COMEGEI)**
Is the point of entry for CDM projects national approval; It is in charge of the promotion, diffusion and evaluation of CDM projects and to advice the president of CICC on the emission of Letters of No-Objection and of Approval; assuring the voluntary participation of the stakeholders and the certainty of the contribution of the projects to the national sustainable development (see Illustration 11); Since the existence of COMEGEI, Mexico has signed MOUs on CDM with 8 countries: Austria, Canada, Denmark, France, Italy, Japan, Netherlands and Spain.
Recently the Energy Sector Committee on Climate Change was established to coordinate the participation of the energy sector at the Interministerial Commission (CICC).
- **Ministry of Environment and Natural Resources (SEMARNAT)**
National Environmental Authority; Responsible for conducting the national policy on climate change; Chairs the CICC and is also the authority charged with the Environmental impact Assessments for CDM projects, when required;
- **Under Secretariat of Planning and Environmental Policy of SEMARNAT (SPPA)**
Is in charge of climate change issues of SEMARNAT and the Technical Secretariat of CICC reports to the Under Secretary; SPPA is to present the National Strategy for Climate Action (ENAC) soon and, between other activities, the Under Secretariat is also conducting actions to promote CDM activities; to create National GHG emissions reduction markets, and to promote activities to reduce methane emissions;
- **International Affairs Coordinating Unit (UCAI), SEMARNAT**
Is promoting international cooperation, including several MOUs with countries and organizations; CDM training and enabling activities;

- **Ministry of Energy (SENER)**

Is in charge of the conduction of the National Energy Policy. SENER is actively pursuing laws, regulations and promoting CDM energy programs enabling activities; Is a member of CICC;

The two most important (energy related) governmental entities interested and involved in CDM activities are:

- **National Commission on Energy Saving (CONAE)**

Is the technical institution of SENER in charge of energy saving and renewable energy utilization; In addition it has powers and functions applicable to cogeneration management; CONAE conducts several Programs, including the National Campaign for Saving and Intelligent Use of Energy.

Potential CDM areas conducted by CONAE are:

- Energy Efficiency Standards;
- Illumination in Public Buildings;
- Cogeneration;
- Domestic Solar Energy ;
- Biomass;

- **Energy Sector Committee on Climate Change**

This committee coordinates the participation of the Energy Sector at the CICC.

The Interministerial Commission of Climate Change (CICC) was created through an Executive Decree⁸ published in April 2005 and is composed by the:

- Minister of Environment and Natural Resources (SEMARNAT, Chair of the Commission)
- Minister of Energy (SENER)
- Minister of Foreign Affairs (SRE)
- Minister of Social Development (SEDESOL)
- Minister of Economy (SE)
- Minister of Agriculture, Livestock, Rural Development, Fisheries and Food (SAGARPA) and
- Minister of Communications and Transport (SCT).

Nevertheless, the Commission may also invite other government agencies and organizations to participate in their tasks.

The Commission functions include to (the most important ones for CDM are in bold):

- Formulate and propose the national policies and strategies on climate change;
- Instrument the national strategies for climate action;
- Promote actions to advance the objectives and commitments to the Framework Convention and its instruments;
- **Act as the Designated National Authority (DNA) for the purposes of Clean Development Mechanism of the Kyoto Protocol;**
- Formulate the Mexican position at the pertinent international negotiations;
- **Propose the legal framework for prevention and mitigation of climate change and the required adaptation;**
- Foment research projects of national interest in the matter;
- **Emit the Letter of Approval to projects for the reduction and capture of GHGs;**
- Follow the international events and markets for the reduction and capture of GHGs;

⁸ Acuerdo por el que se crea con carácter permanente la Comisión Intersecretarial de Cambio Climático, DIARIO OFICIAL, April 25, 2005.

- Promote, with the governmental, social and private sectors, the development and register of projects for the reduction and capture of GHGs;
- Promote MoUs and Agreements on matters related to climate change;
- Publish national information about climate change, including an annual public report of the country advances;
- Promote, systematize and make available to the public, information relevant to the Commission functions;

The Mexican DNA (CICC) and its administrative structure are presented in Illustration 11:

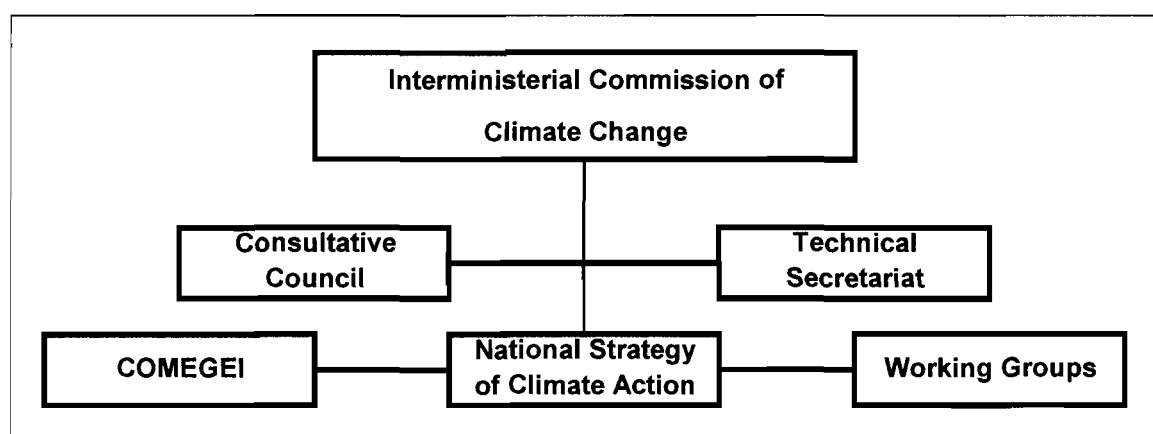


Illustration 11: DNA administrative structure in Mexico

Source: *De Alba* 2005, p. 62

CDM approval process

First of all the CICC asks for the submission of a Project Idea Note (PIN) to issues the Letter of No-Objection for a potential CDM project. For the issuance of the Letter of Approval (Official Endorsement Letter) the Mexican DNA requires the following Documents:

- Documentation showing the legally recognized existence and address of requesting party;
- The Project Design Document (PDD), in the format required by the Executive Board of the CDM;
- A document, in free format, with a description of how the project will contribute to sustainable development in Mexico;
- Approved Environmental Impact Assessment, if required by Mexican Law due to the characteristics of the project;
- A written commitment to deliver to the Mexican DNA an annual report on the results of monitoring, certification, issuance and sale of CERs;

After the submission to and acceptance by the DNA the Letter of Approval will be issued.

As Mexico did not develop CER specific national investment regulations, CDM projects need to comply with national laws and regulations applicable to all other investment projects too. A Mexican Official Standard for CDM is currently under consideration. The Commission does not influence the contract (Emission Reduction Purchase Agreement – ERPA) between the project and the carbon purchaser.

Up to now, 43 projects have been given a Letter of Approval. These projects were in the sectors listed in Table 12. For a total of 9 additional projects, Letters of No-Objection have been issued.

Project type	Number
--------------	--------

Methane from pig farming	24
Methane from milk processing	5
Hydro power	4
Wind power	2
Energy efficiency	4
HFC 23	1
Transport	1
Biogas	1
Landfill gas	1
Total	43

Table 12: CDM project types with Letter of Approval in Mexico

Source: KWI 2006a, p. 19

Criteria for CDM project selection

The Mexican DNA has established a set of criteria that has to be fulfilled in order to get the Letter of Approval:

Mexican Sustainable Development Criteria

To comply with the approval process the proponents of CDM projects have to present to the national DNA documents (in free format) showing the effects on:

Environment:

- Biodiversity;
- Water and Land use;
- Waste and emissions management, and
- No negative impacts (or an approved environmental impact study if required by law);

Economy:

The project should improve the economic and competitive situation of Mexico, through investment, wealth generation, employment and technology transfer.

Society:

The project should maintain or improve the quality of life of the communities involved by for example: providing well paid permanent jobs; promoting racial and gender equality; improving community health; creating or improving local infrastructure, and promoting capacity building.

Additionality Criteria

Another key issue for the eligibility of the project is the demonstration of additionality. Based on the "Tool for the demonstration and assessment of additionality" of the CDM-EB, CICC published a similar diagram to help the national proponents to prove the additionality of their projects (*Cervantes* 2005).

Illustration 12 shows the time sequence for the approval process of a CDM project established by the Mexican DNA:

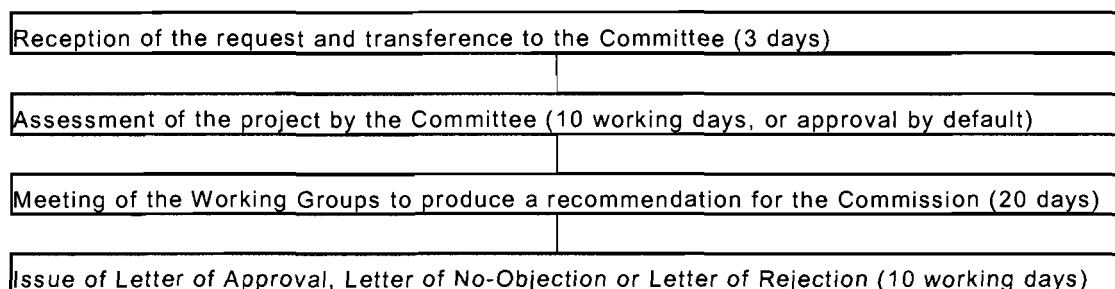


Illustration 12: Procedural sequence for project approval in Mexico

Source: *De Alba* 2005, p. 67

National Priorities for CDM Project Development

The project priorities in Mexico are summarized in the MoU⁹ between the Austrian Ministry of Agriculture, Forestry, Environment and Water Management and SEMARNET. The MoU contains the following mutually agreed project priorities:

- Combined heat and power installations (cogeneration);
- Fuel switch in energy conversion installations to renewable and from high carbon fuels to lower carbon contents in remote heating systems;
- Construction or retrofitting power generation installations using renewable sources (in particular hydropower, wind power, biogas and CHP);
- Landfill gas avoidance or recuperation;
- Waste management measures contributing to avoidance of GHG emissions through energy recovery and use;
- Reduction of final energy consumption in residential buildings, public and private service buildings and in industrial applications and processes (including waste heat potentials);

Also other types of projects could be eligible within the scope of the MOU, excluding nuclear energy.

Due to the national report (*De Alba* 2005), prepared by the Mexican partners of the UNIDO-Austrian project, the energy sector stakeholders recommend cogeneration as priority for CDM activities in Mexico. Further industrial energy efficiency, renewable energy and carbon capture were listed. Energy authorities and some private sector actors see CDM potential in municipal and farm waste emissions abatement projects. Other areas of opportunity are the water treatment plants and the waste treatment installations of the food industry.

During the country visit the Austrian delegates learnt, that renewable energy projects in the electricity sector in Mexico are currently not pushed a lot, although some future CDM potential is recognized. The reason for that is that feed-in tariffs for electricity produced in these installations are currently too low to

⁹ <http://www.klimaschutzprojekte.at/blueline/upload/9453.pdf>

make projects financially feasible. A considerable increase in the feed-in tariff is required to build the basis for CDM projects in that sector.

National stakeholders point out that the full development of the CDM potential in Mexico is highly dependent on the rapid transformation of the energy sector in relation to the rules for private generation and the rules and cost of wheeling and dispatch.

After comparison of the GHG mitigation priorities of Mexico with key technologies and services Austrian companies can provide, the UNIDO-Austrian project is focussing on cogeneration, industrial energy efficiency improvement, landfill gas and renewable energy technologies and projects.

The stakeholder-meetings during the country visit in Mexico showed that there is generally a very strong interest in CDM in Mexico. As demonstrated by the presentation by the Mexican DNA and also briefly summarized above, the framework for the preparation and approval of CDM projects in Mexico is up and running. The high number of projects which have received a Letter of Approval (43 projects) also indicates that the business community has realised the enormous chances for CDM in Mexico.

Nevertheless KWI learnt from consultations with Mexican stakeholders, that they see continuing training needs especially on practical issues during the identification and development phase of CDM projects. Experts recommend working in living projects or realistic case studies during the training sessions in the country, for example in working on real CDM Project Idea Notes (PINs) and Project Design Documents (PDDs). Special emphasis should be put on the training on baseline design for projects on priority areas and also sectoral baselines. Nevertheless there is also a clear need of conceptual training for a large number of possible actors by awareness and divulgation activities as well as the marketing of the gained emission reductions and some financial issues (e.g. Carbon Market).

7.3 Capacity Building and Technical Assistance concepts

7.3.1 Capacity Building concept

Potential participants of the planned training session in Mexico are:

- Ministries and national and private institutions (e.g. Ministry of Economy, Ministry of Energy, SEMARNAT, CESPEDS);
- Representatives from Mexican enterprises from various sectors (e.g. cement, steel, petroleum, consumer products, energy);
- Potential project developers and investors;
- Service Centers (e.g. Representatives of the Mexican Center for Cleaner Production - CMPL);
- National consultants;

As there is just one training session planned for Mexico, all the participants will get the same training materials. Considering, that participants from different backgrounds and sectors/ministries will take part in the training sessions, and that their previous knowledge about CDM will be very diverge, it is important to prepare a comprehensive and well-founded training package.

Participants from ministries and other national institutions will most likely be interested in a more general CDM training focusing on the Kyoto background and the CDM project cycle. The CMPL for example

identified almost the whole range of CDM, from the identification of potential CDM project, project design activities, preparation of PINs and PDDs (including the selection of methodologies for baselines and monitoring), stakeholders consultation, to the selection of other important project partners (e.g. DOEs), as urgently needed training topics. Other potential participants already have experience with CDM and will be especially interested in preparing PDDs (baseline preparation, available methodologies and design of new ones). Representatives from Mexican enterprises from various sectors (e.g. technical staff) will most likely be well advanced in the technical aspects of CDM, but need support on the side of marketing emission reductions.

7.3.2 Technical Assistance concept

As already mentioned there will be just one training session for all the participants, although it will comprise a few training days.

Based on experiences gained in other CDM training workshops ESD and KWI recommend an interactive training workshop, meaning to give the participants the chance, not just to hear about the framework behind CDM and successful CDM projects already implemented, but also to work actively on real CDM projects.

The training will start with a general introduction and overview on Kyoto, the national CDM framework, practical examples of international CDM projects, financial issues (e.g. Carbon Market) and the CDM project cycle, in order to bring all the participants on the same level of understanding. Further the ESD/KWI team will train the participants on the marketing of emission reductions. This will include an overview on the various purchasing options, price structures and developments and the link of CDM with the EU Emissions Trading Scheme

On the second day participants will work on living CDM projects with focus on technical issues like the preparation of PINs and PDDs.

To keep the training vitalized the training methods will change a few times during the whole workshop. It is also recommended and planned to form small working groups (participants with different backgrounds in one group) to stimulate discussions and the exchange of ideas and different point of views when preparing different topics or CDM project samples. The workshop will be backed by PowerPoint presentations, documents about approved methodologies, additionality tool, other project information (PDDs) and flip charts.

Like in Vietnam there is a Question and Answer session planned at the end of each subject area. This will allow elaborating special points arising and go into them in greater detail.

7.4 Training in Mexico

The training was held in May 2006 and started with a general overview on the Kyoto framework, Kyoto Mechanisms, institutions involved and the CDM project cycle. Emphasis was laid on working with concrete project examples in the focus sectors (industrial energy efficiency) in order to increase the ability of the participants to structure projects, prepare PINs, apply approved methodologies and write PDDs

In order to facilitate the training workshop in Mexico, training and briefing material was prepared. This material was put together by ESD and KWI, using different sources.

For the training, the following material has been used:

- A set of slides, covering the following topics:
 - Brief background to Kyoto & progress of the flexible mechanisms to date;
 - The CDM Project Cycle with Practical examples of International CDM Projects & Lessons for Mexico;
 - Understanding the Carbon Market & Carbon Finance;
 - The Austrian JI/CDM Programme;
 - The EU Emissions Trading Scheme
 - Preparation of PINs & PDDs: Best Practices and 'How to Guides';
 - Practical examples of International CDM Projects & Lessons for Mexico;
- Approved methodologies relevant for CDM in Mexico, including:
 - ACM0002 Consolidated baseline methodology for grid-connected electricity generation from renewable sources
 - AMS-III.D Greenhouse gas mitigation from improved Animal Waste Management Systems in confined animal feeding operations
 - AM0001 Incineration of HFC 23 waste streams
 - AMS-I.C Thermal energy for the user
- Additionality Tool;
- Project Design Documents and other relevant documentation on Mexican CDM projects:
 - El Gallo Hydro Electricity
 - Sonora Animal Waste Recovery & Flaring Project
 - Quimobásicos HFC Recovery & Decomposition
 - Conservas La Costena - Jugomex Waste Recovery and Cogeneration Project

All training material is attached in the Annex.

7.4.1 Participants

The training was held by Mike Bess, ESD and Manfred Stockmayer, KWI. The following institutions from Mexico participated in the training:

Institution	Name
BP EXPLORATION MEXICO	PAULINA MEIXUEIRO
CATERPILLAR	GUILLERMO GÓMEZ
CATERPILLAR	BALTAZAR HERNÁNDEZ
CATERPILLAR	ANTONIO BARAJAS
CATERPILLAR	ANDRE OLIVEIRA
CATERPILLAR	JAVIER SILVA
CMPL	ALONSO MARBÁN
CMPL	MARTÍN VARGAS
COLGATE PALMOLIVE	RAMÓN MERCADO
GAS DEL ATLÁNTICO	MARCO CALDERÓN
GAS DEL ATLÁNTICO	DAVID BALCAZAR
GAS DEL ATLÁNTICO	CÉSAR RODRÍGUEZ
GRUPO BIMBO	LUIS ANTONIO LEDEZMA M.
GRUPO BIMBO	ARMANDO GONZÁLEZ GARCÍA
GRUPO BIMBO	TANIA PÉREZ
GRUPO XACUR, S.A. DE C.V.	JUAN JOSÉ JAIME R.
GRUPO XACUR, S.A. DE C.V.	ANGEL MAYOR
GUPO MODELO	JUAN CARLOS DE LEÓN AYALA
JABON LA CORONA	MA. DE JESÚS CASTILLO S.
MEXICANA DE RESINAS	JOEL LÓPEZ MESTIZA
MEXICANA DE RESINAS	LUCIANO BECERRA COSTILLA
MINERA AUTLÁN - CORPORATIVO	ROGELIO ISSAC H.
MINERA AUTLÁN	REBECA RODRÍGUEZ
MINERA AUTLÁN TAMOS	ING. EDMAR RODRIGUEZ

MINERA AUTLAN P. TEZIUTLAN	ING. FRIKSSIA XIOMARA LARA
PEÑOLES	MARIO HUERTA
PEÑOLES	ENRIQUE ORTEGA
SICARSTA	DULCE MA. DE LOS ÁNGELES CORTÉS
SICARSTA	RAFAEL HERNÁNDEZ MORALES
CESPEDES	CARMEN CARMONA
CESPEDES	ROSA MA. JIMÉNEZ A.
CESPEDES	ALEJANDRO LOREA

Table 13: List of participants

7.4.2 Training Programme

Day 1, 16th April 2007 (Monday)	
8:00 - 8:15	Registration
8:15 - 8:45	Introductions (DNA Mexico, UNIDO, CESPEDES, KWI/ESD, etc.) Mexico's CDM activities by Mr. Miguel Cervantes
8:45 - 9:15	Brief background to Kyoto and the progress of the flexible mechanisms to date <ul style="list-style-type: none"> • The UNFCCC – key actions on the road to the Kyoto commitment period, 2008-2012 • Key actions in the Kyoto process: • Ratification • The European Union Emissions Trading System (EU ETS) • Operations of the UNFCCC CDM Executive Board (EB) and its 'Methodology Panel' • Status of CDM and JI, and prospects pre-commitment period • Implications for CDM in Mexico
9:15 – 9:45	Tea/coffee break
9:45 - 10:30	CDM Framework in Mexico: Working groups (3) define priorities, priority sectors, priority actions for CDM in Mexico
10:30 - 11:15	Brief Working group presentations on priorities for CDM in Mexico, plenary discussion
11:15 - 11:45	Practical examples of international CDM projects under development and lessons learned to date (Part I) <ul style="list-style-type: none"> • Normal project cycle • What is different between a 'normal project cycle' and a 'CDM project cycle'? • Roles of industry, government, NGO and international institutions & partnerships for CDM • Overview of CDM projects approved to date • Overview of CDM projects in the pipeline • Examples of CDM projects relevant to Mexico's priorities

	<ul style="list-style-type: none"> • Industrial energy efficiency • Industrial fuel substitution/fuel-switching • Renewable energy projects in the electricity sector • Landfill gas • Key lessons learned from CDM projects relevant to Mexico
11:45 - 12:00	Discussion, questions and answers
12:00 - 13:30	Lunch
13:30 - 14:30	Practical examples of International CDM projects under development and lessons learned to date (Part II)
14.30 – 14.45	Discussion, questions and answers
14.45 – 15.30	Understanding the Carbon Market and Carbon Finance Today – 2007 <ul style="list-style-type: none"> • Overview of the Carbon Market • Who is buying and selling at present? • What kinds of prices are buyers paying for what kinds of CDM projects now? • What is the difference between the 'long-term' CDM market and the current 'spot' market for carbon buyers, & why is this important for Mexican CDM project developers? • What CDM project emission reductions are people buying now • The EU ETS and its relevance to CDM in Mexico • Opportunities & interactions between Mexican CDM projects and the EU ETS • Carbon Market dynamics for Mexico • What should Mexican CDM project developers look for from carbon buyers?
15:30 - 15:45	Discussion, questions & answers
15.45 – 16.00	Tea/coffee break
16.00 - 16:45	The Austrian JI/CDM Programme and other Bilateral & Institutional Purchasing Programmes (e.g., The Netherlands, Denmark, Japan, EBRD, etc.) <ul style="list-style-type: none"> • Overview • Current areas of focus – CDM project types and geographic coverage • Austrian Programme and CDM in Mexico • Kinds of Mexican CDM projects of likely interest to Austrian Programme
16.45 – 17.00	Discussion, questions & answers
17:00 - 17:30	Wrap up of day 1 and conclusions to day 1

Day 2, 17th April 2007 (Tuesday)	
8:00 - 8:15	Welcome, summary of day 1 and introduction to day 2
8:15 – 09:00	Preparation of PINs & PDDs: Best Practices and 'How to Guides' <ul style="list-style-type: none"> • What makes a good PIN • What makes a good PDD? • Who are we preparing a PDD for – who is the PDD 'audience'? • What should a PDD achieve?

	<ul style="list-style-type: none"> • What does the Mexican Designated National Authority (DNA) want to see in a PDD? • What does a Designated Operational Entity (DOE) want to see in a PDD? • What does the CDM Executive Board (EB) want to see in a PDD? • What do 'carbon' buyers want to see in a PDD? • Practical examples of PDDs • PDD 'do's' and 'don'ts' • Key steps in PDD preparation • Key steps in PDD approval • How to improve your PDD's chance of approval • Examples of the best PDDs • Examples of the best PDD methodologies
9:00 - 9:15	Discussion, questions & answers
9.15 - 10:15	Review of 4 Mexican Registered CDM projects, their PINs, PDDs, and Validations <ul style="list-style-type: none"> • El Gallo Hydro Electricity Project • AWMS Methane Recovery Project • Quimobasicos HFC Recovery and Decomposition • Conservas La Costena – Jugomex Waste Recovery and Cogeneration Project
10:15 - 10:45	Discussion, points and issues from the 4 Mexican PDDs
10:45 - 11:00	Tea/coffee break
11:00 - 12:00	Working groups (4) – Practical Examples of the CDM Project Cycle - Vietnam CDM Projects (proposed and potential) Part I
12:00 - 13:30	Lunch
13:30 - 14:15	Working groups (4) – Practical Examples of the CDM Project Cycle - Mexican CDM Projects (proposed and potential), including presentation to plenary Part II
14:15 - 14:30	Discussion, questions & answers
14:30 - 14:45	Coffee/tea break
14:45 - 15:30	Working Groups (4) – Development, Sourcing and Use of Carbon Financing – Where to find it, what to use it for, and how to use it in CDM projects.
15.30 - 16:00	Presentation by working groups, with discussion on practical finance and use of carbon financing by Working Groups
16:00 - 17:00	Conclusions and recommendations from day 2 and the Training Workshop

Table 14: Training Programme (Agenda)

Based on the experiences gained in other CDM training workshops, ESD and KWI recommended interactive training sessions in order to give the participants the chance, not just to hear about the framework behind CDM and successful CDM projects already implemented, but also to work actively on real CDM projects.

The training started with a general introduction and overview on Kyoto, the national CDM framework, practical examples of international CDM projects, financial issues (e.g. Carbon Market) and the CDM

project cycle, in order to bring all the participants on the same level of understanding. Further the ESD/KWI team trained the participants on the marketing of emission reductions. This included an overview on the various purchasing options, price structures and developments and the link of CDM with the EU Emissions Trading Scheme.

On the second day participants work on concrete CDM projects (proposed by the participants) with focus on technical issues like the preparation of PINs and PDDs. Small working groups (participants with different backgrounds in one group) were formed to stimulate discussions and the exchange of ideas and different point of views when preparing different topics or CDM project samples. The workshop was backed by PowerPoint presentations, documents about approved methodologies, additionality tool, other project information (PDDs) and flip charts.

During the workshop, a number of potential projects was submitted by the participants.

- Fuel switch from fuel oil to natural gas
- Cogeneration in metal/mechanical industry
- Fuel switch in brewery with use of biomass waste material
- Improved coke production
- Use of waste gases from steel production for electricity generation
- LPG for trucks
- Replacement of drying tower for detergents
- Biodiesel based on animal waste
- Reforestation
- Fuel switch from LPG to natural gas
- Logistical optimisation in transport
- Combination of cogeneration and energy efficiency in lighting
- Replacement of firewood by LPG
- Management of solid waste with plasma technology

From these proposed projects, 4 projects were selected as case studies for the working groups. Also, potential emission reductions were calculated by the participants and the trainers.

- Fuel switch from fuel oil to natural gas (15,000 tons of CO₂/a)
- LPG for trucks (7,000 tons of CO₂/a)
- Cogeneration in metal/mechanical industry (27,000 tons of CO₂/a)
- Use of waste gases from steel production for electricity generation (82,000 tons of CO₂/a)

The training sessions were held in 3 different segments:

- Presentations from the trainers:
To give an input and insight on the topic to be covered;
- Working Groups:
The participants were broken into four Working Groups comprised of Government, non-government organisation, industry and other participants to work on practical issues presented by the trainers. Each Working Group had a chair person and a rapporteur. Working Group topics and assignments were given according to the topic to be covered. After the Working Group sessions, the rapporteurs presented the findings, conclusions, etc. from the Working Group to the plenary (main group) for discussions.

- Questions and Answers sessions:
Each session was finalised with a Questions and Answers session to give the participant the opportunity to clarify open issues.

7.4.3 Topics discussed in the Questions and Answers sessions

In the Questions and Answers sessions, the participants had the opportunity to come up with open issues. The answers were given by the trainers, giving practical examples using the flip chart (attached in the annex). The following main questions were presented:

Q: For how many years is a CDM project generating emission reductions?

A: During the preparation of the Project Design Document (PDD), the project proponent can decide for a baseline over 10 years or over 3 times 7 years. In the 10 years case, all assumptions in the PDD will be taken as given for the next 10 years. If the project developers choose 3 times 7 years, the baseline will be revisited after 7 and 14 years. There is the risk that the baseline might be changed and emission reductions might go down after 7 or 14 years.

Purchasers of carbon credits are currently only buying for the period up to 2012. For emission reductions after 2012, there is currently no market. So, if the project is generating emission reductions after 2012, these can be sold, but the price to be expected is very difficult to assess. This is dependent among others on the decision on further commitment periods, the future of the EU Emissions Trading Scheme or the seriousness with which governments are tackling climate change.

Q: Why is there such a large price difference between the price of EU Allowances (EUAs) and Certified Emission Reductions (CERs)?

A: The price, usually referred as "the carbon price", is the spot price of EUAs in 2006. This can be checked for example at www.pointcarbon.com. Currently the EUA price is floating in a range of € 18 to € 20 for EUAs from 2008 and around € 0.3 for EUAs from 2007. The difference to the price of CERs (which is indicated to be between € 8 and € 10) is based among others things on the following facts:

- EUAs for 2007 and 2008 are an existing product, CERs are traded on a forward basis.
- When CERs are bought now, the buyer takes a lot of additional risk, which leads to a discount in the price. These risks include for example technology risk, project implementation and performance risk, financing risk and monitoring risk.
- The demand of EUAs is determined by the National Allocation Plans in the EU Emissions Trading Scheme and the development of emissions in the installations covered by the Scheme. The demand of CERs is determined by the Kyoto commitments of the participating countries.

Q: How can CERs be used in the EU Emissions Trading Scheme?

A: The so-called "Linking Directive" determines how CERs can be used in the EU Emissions Trading Scheme. CERs can be used both in the first (2005 – 2007) and in the second trading period (2008 – 2012). Each member state determines the maximum level of certificates from project based mechanisms to be used by the installations. EU Member States determined this level in the second National Allocation Plans, levels are around 10% of the total allocation.

Q: How can I calculate the emission reduction from a fuel switch project?

A: As an example a 50 MW boiler, currently using fuel oil was given. At 5,000 full load hours per year, this boiler is using 250,000 MWh of fuel oil. At an emission factor of 0.28 tons of CO₂/MWh (source: 2006 IPCC Guidelines for National Greenhouse Gas Inventories), CO₂ emissions are 70,000 tons per year. If this boiler is switching to natural gas (assuming constant efficiency of the burning process), total emission per year are 50,000 tons at an emission factor of 0.2 tons of CO₂/MWh. Therefore, the emission reduction is 20,000 tons per year.

The difficult question in this example is the determination of the baseline. The first question to answer would be whether the existing fuel oil boilers can be used for the next 10 years. If that is the case, then continuing with the existing boilers is one of the potential baseline scenarios. If the boilers can not be used for another 10 years, then installing new fuel boilers would be an option.

The other potential baseline option is switching to natural gas. The main question there is whether switching would be the least cost option. If that is the case, then the project would not lead to additional emission reductions.

This project would be a potential CDM project if the existing boilers using fuel oil can be used for another 10 years and switching to natural gas would not be the least cost option. If the additional effect from the emission reductions is making the switch to natural gas financially viable, then the project would have good chances to qualify as a CDM project.

7.5 Review of Project Idea Notes and Project Design Documents

Within the framework of the UNIDO-Austrian project, 5 Project Idea Notes (PINs) and 1 Project Design Document (PDD) were developed.

The 5 PINs were:

- Vapor and Electricity Generation from Bagasse Used as Fuel
- Emission reduction through a cogeneration system at Colgate Palmolive Mexico
- GHG emission reduction by energy efficiency improvement in metal sheet lacquering operations at Envases Universales Mexico
- Generation of electricity through the combustion of waste gases from the Blast Furnace (BF) and Basic Oxygen Furnace (BOF) at Sicartsa Lázaro Cardenas Las Truchas steel mill
- GHG emissions reductions by the installation of a Coke Dry Quenching System at Sicartsa Lázaro Cardenas Las Truchas Steel mill

The analysis of the 5 PINs gave the following results:

Vapor and Electricity Generation from Bagasse Used as Fuel

The project aims at partly replace use of heavy fuel oil by bagasse residues in a steam boiler of a brewery. The annual emission reductions are estimated at 100,987 tons. The PIN mentions that an analysis of the applicability of ACM0006 and AM0036 is attached, but this document was not delivered. ACM0006 does not seem to be applicable, as there is no electricity generated and the methodology is a "Consolidated methodology for electricity generation from biomass residues".

The PIN also argues that a revision of an existing methodology is required. When doing this, it needs to be considered that a revision of a methodology takes about 6 to 12 months, depending on the work load of the meth panel and the EB.

Alternatively, the project could apply a small scale methodology, such as AMS-II.D. The benefit of applying a small scale methodology would be that there is no need to wait for a revision of a large scale methodology. The downside is that emission reductions are limited with 60,000 tons per year. However, results from verification show that projects are generating a lot less than expected (around 100,000 tons per year in this case), so it could be worthwhile to think about this opportunity.

Emission reduction through a cogeneration system at Colgate Palmolive Mexico

The project aims at installing a cogeneration system whose input is natural gas from the pipeline and whose output are electricity and heat supplied to satisfy Colgate Palmolive facility demand. The project activity avoids consumption of fossil fuel for heat generation and displaces electricity from the grid. The projected annual emission reduction is 19,000 tons. The technical description is missing in the PIN. The project plans to apply AM0014, which is correct and additionality is argued in a clear and precise way. The project looks feasible and would be a good candidate to be registered.

GHG emission reduction by energy efficiency improvement in metal sheet lacquering operations at Envases Universales Mexico

The objective of the project is to reduce GHG emissions through energy efficiency improvements by the replacement of the current equipment which in turn reduces the fossil fuel gas consumption in the plant and subsequently reduces the Greenhouse Gas (GHG) emissions.

The main problem of the project is size of the emission reductions. The annual generation is only 1,840 tons, at an estimated price of CERs of € 10 almost all revenues from the sale of CERs will be eaten up by costs for validation and verification. It does not make sense to implement this project on a stand-alone basis.

Generation of electricity through the combustion of waste gases from the Blast Furnace (BF) and Basic Oxygen Furnace (BOF) at Sicartsa Lázaro Cardenas Las Truchas steel mill

The project activity will consist of the installation and operation of a power plant for the generation of electricity by combustion of waste gases from Blast Furnace and Basic Oxygen Furnace. After in house consumption of BF waste gas, certain amount of BF gas will be available for Power generation which otherwise would have been flared. Also the BOF waste gases will be an input for power generation. The project aims to reduce 133,500 tons annually. Although there is no information on the financial aspects of the project and only a very draft analysis of additionality, the project is a clear candidate for a successful CDM project. The methodology (ACM0012) is well-proven and has been used in quite a number of CDM projects. A potential risk is that waste gas projects are understood to have a good financial performance even without carbon credits, so this is a point where arguments need to be well-prepared to convince the CDM Executive Board.

GHG emissions reductions by the installation of a Coke Dry Quenching System at Sicartsa Lázaro Cardenas Las Truchas Steel mill

The project activity aims to reduce GHG emissions through installation of a heat recovery system known as coke dry quenching (CDQ) equipment to coke ovens in a steel facility. The process happens when the red-hot coke is quenching by circulating inert gas within a closed environment, preventing discharge of coke particles, while the sensible heat of the red-hot coke is recovery into the waste heat boiler for use as process steam and power generation to grid. The project will contribute to mitigation of global warming by reducing the amount of fossil fuel consumption and is expected to generate 46,700 CERs per year. As the project above, this is a clear candidate for a successful project, based on a well-proven methodology (ACM0012).

PDD for Colgate-Palmolive Cogeneration Project

For one of the projects ("Use of Lime Kiln Dust (LKD) as a Feed Material for the Afri-Sam ULCO cement plant") a PDD has been developed. The comments on the draft are as follows:

- A.4.: a more thorough technical description would be helpful, including all technical parameters
- B.3.: a graph to show the project boundaries should be included in this section
- B.4.: in AM0014 version 4, 7 scenarios are provided which need to be analyzed to determine the baseline. These scenarios are not analyzed in the PDD.
- B.5.: the additionality test has not been done according to AM0014, version 4. The methodology requires application of a flow chart to find out whether there are technological barriers.
- B.7.2.: the description of the monitoring plan is missing.
- Section C: the information on the crediting period is not correct and a project start date needs to be given.
- Section D: descriptions of environmental effects are only verbal, no data provided.
- Section E: information on stakeholder consultations is missing.

8 South Africa

8.1 Country mission to South Africa

8.1.1 Participants

From the Austrian side the following representatives took part in the country mission to Mexico:

Austria	
Thomas Hoffmann	Polytechnik Luft- und Feuerungstechnik GmbH
Peter Kögler	Austrian JI/CDM Programme, Kommunalkredit Public Consulting GmbH
Paul de Mattos	GE Jenbacher
Michael Plechaty	VA TECH Finance
Martin Schröder	TÜV Süd Industrieservice GmbH
Manfred Stockmayer	KWI Management Consultants GmbH Camco International AG
UNIDO	
Marina Ploutakhina	UNIDO

Table 15: List of Austrian participants

From South Africa, the following persons participated in the meetings:

UNIDO	
Lorence Ansermet	UNIDO/South Africa Office
Stefano Bologna	Head of Regional UNIDO Office SA
Stefan Raubenheimer	Consultant
South African Authorities and Institutions	
Aloisia Woergetter	Minister-Counsellor
Leluma Matooane	DME
Marba Visagie	DTI
Ndivhuho Raphulu	National Cleaner Production Centre
Rachel Mosupye	Tokiso
Riana Scholtz	Lilanda
Stefan Pistauer	The Austrian Trade Commissioner
Sylvester Mokoena	Assistant Director, Cleaner Production Unit, Dpt of Environmental Affairs and Tourism
Tanya Venter	Tokiso
Tebatso Matlala	Deputy Director, Cleaner Production Unit, Dpt of Environmental Affairs and Tourism
Wiseman Khumalo	Lilanda
South African Enterprises	
Andre du Preez	Pioneer Fishing
Asanda Makanda	MaNoa Holding - DSM
Bongani Mudau	Maano Chemicals

Bushi	Themvu projects
Christian Louw/Dr Adrie van Niekerk	Nova Institute
Desmond Padiachey	Siyanda Biodiesel
Edward Volek	Holcim
Elizabeth Mathew	IST
Esmé Bluff	Manoa Holding - DSM
Grant Little	Sappi Ltd
Herman J. van der Walt	Group Air and Climate Change Advisor, SASOL
Cornelius Van Den Berg	SGS South Africa
Johan Vermeulen	Industrial & Environmental Manager, SGS South Africa
Johan Myburgh	Sappi Ltd
Kim Fraser	SASOL
Leon Grobbelaar	Managing Director, Enviro-Fill
Mandla Msimang	Lilanda
Marco Lotz	Project Engineer, Promethium
Niccita Glass	CAMCO
Pancho Ndebele	SAB
Peter Oldacre	CAMCO
Robbie Louw	Director, Promethium
Rudi Kriese	OMNIA
Rui Fragosa	GEDA
Sebacha Moletsane	Tsebo Consulting
Shaazia Bhailall	Climatology Research Group, Wits
Sipho Dube	Marketing Director, Enviro-Fill
Sipho Makhasana	Marketing Manager, Enviro-Fill
Stan Pillay	Anglo Coal
Stan Jewaskiewitz	Envitech Solutions
Tolmay Hopkins	Jones & Wagener

Table 16: List of South African participants

8.1.2 Time schedule and agenda

For the meetings held in Johannesburg, there was the following agenda (see Table 11):

Monday, October 30, 2006

Venue: Johannesburg Country Club

Time	Programme Item	
10:00 – 10:30	Introductions	Stefan Raubenheimer – SSN
	Welcome address	Dr. Stefan Pistauer – Austrian Trade Commissioner

	Project Background, Questions & Answers	Marina Ploutakhina - UNIDO
10:30 – 10:40	Overview on CDM Activities	Leluma Matookane – DNA
10:40 – 11:00	Environmental Technologies in Austria	Manfred Stockmayer – KWI
11:00– 11:20	Austrian JI/CDM Programme presentation	Peter Kögler – Kommunalkredit Public Consulting GmbH
11:20 – 11:40	GE Jenbacher (efficient engines) presentation	Paul de Mattos – GE Energy
11:40 – 12:00	Polytechnik Luft (biomass) presentation	Thomas Hoffmann – Polytechnik Luft
12:00 – 12:20	VA Tech Finance presentation	Michael Plechaty – VA TECH Finance
12:20 – 12:40	TÜV Süd / Industrial Services presentation	Martin Schröder – TÜV Süd
12:40 – 13:40	Lunch Break	
13:40 – 14:00	DOEs in South Africa	SGS South Africa
14:00 – 14:40	Camco Carbon Asset Development partnership offering	Peter Oldacre – CAMCO
14:40 – 15:00	CDM Project	Grant Little – Sappi
15:00 – 15:30	Tea Break	
15:30 – 15:50	CDM Project	Andre du Preez – Pioneer Fishing
15:50– 16:30	Questions & Answers	Stefan Raubenheimer – SSN

Tuesday, October 31, 2006

Venue: Johannesburg Country Club

Time	Programme Item	
10:00 – 10:45	Facilitated planning of informal sessions	Stefan Raubenheimer – SSN

10:45 – 13:00	Bilateral meetings	Participants
13:00 – 14:00	Lunch Break	
14:00 – 15:00	Bilateral meetings	Participants
15:00 – 15:30	Tea Break	
15:30 – 16:30	Report Back	Stefan Raubenheimer – SSN

Table 17: Agenda of the UNIDO-Austria mission, October 30 - 31, 2006

8.1.3 Short overview on presentations

This chapter gives an overview on the presentations held by the participants during the country mission. The complete presentations are annexed to this report.

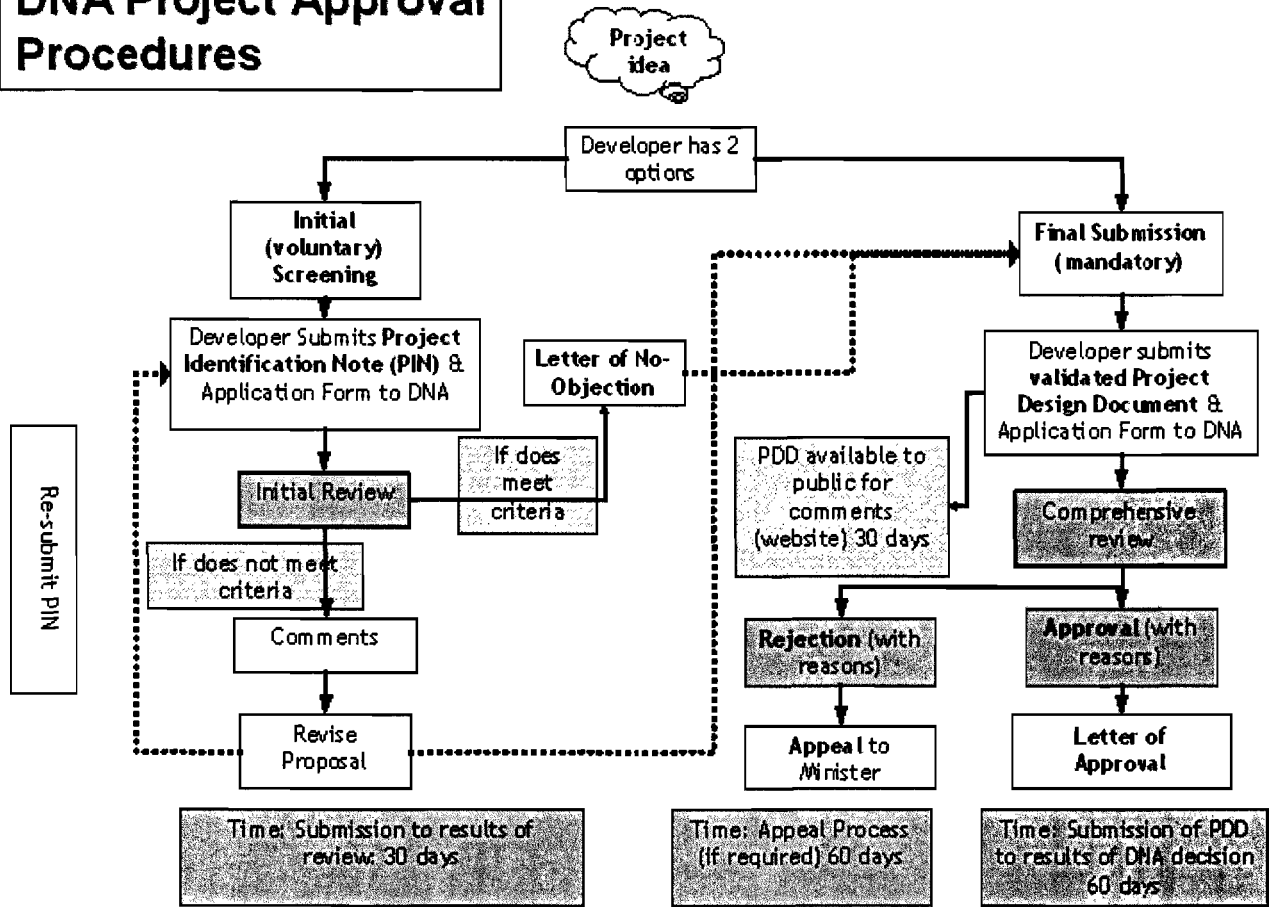
Leluma Matooane, Designated National Authority (DNA), Department of Minerals and Energy (DME)

South Africa has ratified the Kyoto Protocol in 2002. The Department of Environmental Affairs & Tourism (DEAT) has been assigned as the UNFCCC focal point. In December 2004, the Designated National Authority (DNA) has been established within the Department of Minerals and Energy (DME).

The task of the DNA is to evaluate projects and to issue Letters of Approval in accordance with the Marrakech Accords. Moreover the DNA has the function to promote and facilitate CDM projects in South Africa, to secure an adequate share of CDM investment in South Africa and to ensure that the mechanism complies with national interests.

The following graph shows the approval procedure for CDM projects in South Africa.

DNA Project Approval Procedures



Graph 1: Approval procedure for CDM projects in South Africa

The DNA sees specifically potential for CDM projects in the following sectors:

- Energy supply and demand – Energy efficiency (EE), renewable electricity & energy, cogeneration, cleaner coal for generation; fuel switch from coal to gas
- Waste sector – CH4 flaring; composting; renewable energy
- Mining – CH4 reduction from coal mines; EE
- Agriculture – afforestation & reforestation; fire controls; improved management of woodlands; biofuels
- Transport and automotive sectors – Improved public transport, urban planning & traffic management; vehicle fuel switch; vehicle efficiency, road to rail transport
- Manufacturing – industrial EE; structural changes to less energy & emissions-intensive; boiler conversion to gas
- Residential, public & commercial buildings – fuel switch, solar heating, energy management, EE building design (thermal-efficiency), EE appliances

Up to now, 37 projects have been presented to the DNA. Out of these, PDDs have been presented for 14 projects and PINs for 23 projects. Currently, there are 4 projects from South Africa registered at UNFCCC:

- Kuyasa Low-Cost Housing Energy Efficient Project (Cape Town) – July 2005; Gold Standard Award; annual emission reduction 6,500 t of CO₂
- Lawley Fuel Switch Project (Lenasia) – March 2006; annual emission reduction 19,000 t of CO₂
- PetroSA Biogas to Energy Project – September 2006; annual emission reduction 29,000 t of CO₂
- Rosslyn Fuel Switch Project (Pretoria North) – September 2006; annual emission reduction 107,000 t of CO₂

Manfred Stockmayer, KWI Management Consultants GmbH

KWI was presenting an overview on the Austrian Environmental Technology Market. Over the last years, the number of companies active in the environmental technology market has been ever increasing, with now more than 330 companies active. The sectors covered include:

- Cogeneration (CHP)
- Industrial energy efficiency improvement
- Fuel switch (high to low carbon)
- Fuel switch (to renewables)
- Landfill gas
- Waste management (incl MBT)
- Renewable Energy:
 - Hydro power plants
 - Wind power plants
 - Solar power plants
 - Biogas plants
 - Biomass plants

Consultation with Austrian stakeholders has shown that there is only limited experience with CDM. Only a few companies supplying technologies have active experience with JI and CDM. The majority of experience is located within consulting companies.

Peter Kögler, Kommunalkredit Public Consulting GmbH

Kommunalkredit Public Consulting GmbH is managing the Austrian JI/CDM Programme. This programme has been set up in order to support the achievement of the Kyoto target in Austria. With a total funding of € 288 million, 7 million tons of CO₂ emission reductions per year will be purchased in the period 2008 to 2012.. Up to now, 26 Emission Reduction Purchase Agreements (ERPAs) have been signed, the total project pipeline includes more than 100 projects. There are the following priority categories:

- Combined heat and power installations
- Fuel switch to renewables or less carbon intensive fuels
- Renewable energy production plants
- Energy efficiency projects
- Avoidance or energy recovery of landfill gases
- Waste management measures

After handing in a PIN or PDD and an initial offer, the project is evaluated by Kommunalkredit. After successful negotiations, an Emission Reduction Purchase Agreement is signed.

Paul de Mattos, GE Jenbacher

GE Jenbacher is a worldwide active producer of gas motors. GE Jenbacher has its headquarters in Jenbach, Tyrol. After being taken over by the GE Group, GE Jenbacher is integrated in the world wide activities of the group. The capacity of the equipment ranges from 300 kW to 3 MW. The machines can use different sources of gas, including natural gas, biogas, landfill gas, sewage gas, flare gas, coke oven gas and coal bed and coal mine methane. High efficiencies (39% electric, 43% thermic) secure the optimal use of the gas and support the reduction of greenhouse gases.

Thomas Hoffmann, Polytechnik Luft- und Feuerungstechnik GmbH

Polytechnik is a supplier of biomass fired boilers with a capacity between 100 kw and 20 MW. Combustion types include hydraulic grate furnaces, underfeed grate furnaces and underfeed stokers. Several kinds of fuels can be used in these boilers, including saw dust, wood chips, bark, sunflower husk, rice husk, etc. The technology provided can be used for cogeneration (heat and electricity), district heating, heating individual buildings as well as providing heat for industrial processes. Polytechnik provides turn key installations, including fuel discharge, fuel feeding system, furnace, boiler, flue gas dedusting unit, electro installations and buildings for boiler house and fuel storage.

Michael Plechaty, VA TECH Finance GmbH

VA TECH Finance GmbH has been founded in 1995 and has been the Financial Center of Competence within the VA TECH Group. Since 2006, the company provides independent financial services to VA TECH Hydro, VA TECH WABAG and third parties. VA TECH Finance is arranging export credits from various sources, secures development credits, concessional and commercial loans and works on non-recourse and structured trade finance.

VA TECH Finance focused in their presentation on the successful implementation of the Tsankov Kamak project in Bulgaria. This 80 MW hydro power plant with total investment costs of € 200 million was qualified as a JI project and the emission reductions were sold to the Austrian JI/CDM Programme. Basis for this work was a memorandum of understanding between Austria and Bulgaria, which was signed in September 2002. After the Baseline Study has been prepared by Austrian consultants, the Emission Reduction Purchase Agreement was signed with the Government of Austria, which served as a collateral for the financial transaction.

Martin Schröder, TÜV Süd

TÜV Süd presented the experience of a Designated Operational Entity (DOE) with validation and verification. The key findings can be found in the following table:

Experience	Potential solutions
General	
<ul style="list-style-type: none"> project size is too small, resulting in too small amounts of CERs no approved methodology available → time and work load for new meth. submission not considered (at least 9 months delay) project developer has the idea and the local access but insufficient capacities (economic, technical and/or methodological skills) Misunderstandings on baseline and additionality concept 	<ul style="list-style-type: none"> define minimum size of project (e.g. 15.000 CERs/year) early pre-check to assure that the project qualifies for CDM → avoidance of unnecessary development costs capacity building for project developers, combined with support by experienced consultants
Development of PDD	
<ul style="list-style-type: none"> PDD is not focussed on specific project conditions (copy - paste phenomena). unclear priorities, it is not focussed on the most important issues first 	<ul style="list-style-type: none"> again, mix capacity building of project team with external input (experienced consultants). stick to guidelines - be short, be specific. compare documentation on other projects
Validation	
<ul style="list-style-type: none"> too ambitious timetable → imperfect PDDs submitted, resulting in delayed or cost intensive validation process. Result: large number of draft-PDD versions (though only one PDD revision part of reg. validation contract) Time req. more than expected (3-9 months, although in best case only 8 weeks) 	<ul style="list-style-type: none"> Extended information and transparency on the process provided by DOEs Acceptance of only one PDD revision. Further information can be obtained in the Validation and Verification Manual (VVM).
Project description	
<ul style="list-style-type: none"> Description of the current production system / status quo is incomplete. The description of the project activities (equipment and procedures) to be applied in the project is often not detailed enough. The management structure of the project and the corresponding responsibilities are often not clearly described or missing. Risk management is considered insufficiently 	<ul style="list-style-type: none"> Focus resources / time
Baseline and additionality	
<ul style="list-style-type: none"> A consistent storyline which is applicable to the baseline scenario as well as to the additionality discussion should exist. The baseline should follow the methodology literally - in a complete manner. 	<ul style="list-style-type: none"> Stick tightly to framework documents (methodology, additionality tool) – complete these according to project setting.

<ul style="list-style-type: none"> • The additionality discussion should focus on corresponding requirements – for example in use of the add-tool. • Reasoning and background data for all assumptions made should be given 	
Local stakeholder process	
<ul style="list-style-type: none"> • The project should be presented not only to local authorities but the actual local stakeholders (neighbours). • Appropriate media should be used. • Stakeholder process should take place from early planning on 	<ul style="list-style-type: none"> • Consider stakeholder participation as a key to success, throughout entire project planning
Global stakeholder process	
<ul style="list-style-type: none"> • Stakeholders and Parties contribute rarely to the global stakeholder process. • Only accredited observer organisations / environmental NGOs make use of commenting opportunity. • 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 	<ul style="list-style-type: none"> • Lobby for constructive contributions
Letter of Approval:	
<ul style="list-style-type: none"> • DNA in the host country not installed, or feels that it does not have the necessary competence to issue a LoA. • no English version of the LoA available • different approach in major host countries 	<ul style="list-style-type: none"> • political lobbying • limited influence of DOEs • deliverance of an almost positive validation report exclusively to DNA • early contact advisable for project developers

Table 18: Experience with validation and verification

Peter Oldacre, Camco International Ltd.

Camco International Ltd. is a world-wide active developer of carbon assets. Camco works with clients in order to assist them in qualifying their projects as JI and CDM projects and in marketing of the emission reductions. Since April 2006, Camco is listed on the London Stock Exchange. Camco operates as a partner to the project and shares the risks and rewards of carbon asset development. Currently, Camco is focusing on China and Russia as main markets. Camco has an office in Johannesburg.

Andre du Preez, Pioneer Fishing

Pioneer Fishing, a producer of canned fish, is planning to implement two small-scale projects leading to emission reductions. The first project aims at modifying the process of providing steam by installing a waste heat evaporator. This project will lead to an emission reduction of 5,000 tons per year. In the second project, biodiesel will be produced from fish oil. Emission reductions will be around 1,000 tons per year.

8.1.4 Conclusions of the country mission

- **In general**

The UNIDO-Austrian delegation got a very warm and friendly welcome from the South African counterparts and stakeholders. The meetings have been perfectly organised by the UNIDO office in Johannesburg and the local subcontractors (South-South-North and Tokiso). The large number of participants showed the strong and increasing interest in CDM in South Africa. The participants of the Austrian delegation would like to express their thanks to the UNIDO office in South Africa for their efforts in organising the mission.

- **Conclusions**

The following main conclusions can be drawn from the presentations and discussions:

- There is a very positive development regarding the South African approval process for CDM projects. The DNA is well established and has received a good number of CDM projects. 4 projects have already been approved and registered with the CDM Executive Board. This shows that there is a well-structured process in getting the necessary approvals. The time required for approvals (30 working days for Letter of Endorsement and 45 working days for Letter of Approval) is very short and shows a strong commitment of the South African government in the CDM.
- About a year ago, when the UNIDO project was started and had its first meeting in Vienna, the interest in CDM in South Africa was mainly coming from large (predominantly international) companies, such as Sappi, Eskom or Holcim. During the last year, this has changed. There is a very strong interest coming from project developers and investors, who see CDM as a major opportunity to receive additional financial resources for the implementation of their projects.
- Due to the large number of companies in the industrial and mining sector, there is a very large potential for energy efficiency and methane reduction projects. Companies in this sector are starting to realise their potential to create additional income through the CDM.
- Electricity prices are currently very low in South Africa due to the fact that most of the electricity is coming from hydro power and coal fired power plants. Due to that fact, there is currently only a very limited opportunity for projects generating electricity (e.g. through cogeneration or renewables). This will change in the future, as consumption is increasing and new power capacity has to be provided to cover the demand.

8.2 Identification of training needs

For the identification of the training needs KWI consulted the paper prepared by Andrew Gilder BA LLB LLM and Rob Short "Country Report: South Africa" (Gilder/Short 2006) for the UNIDO-Austrian project and presentations held during the Kick-Off workshop in Vienna. Further consultations with several stakeholders were held during the country mission end of October 2006.

The South African national focal point for the UNFCCC is the Department of Environmental Affairs and Tourism (DEAT). The DNA is the Department of Minerals and Energy (DME). The reason for placing the DNA into the DME is that the South African government anticipates that the lion's share of CDM projects will be located in the power sector. Although the DNA has been operating since December 2004 the DNA

Regulations¹⁰ were published in the government gazette on July 22nd, 2005 and officially launched at the National Conference on Climate Change in October 2005.

The main function of the DNA is to provide written approval of voluntary participation including confirmation that the CDM project activity assists the Host country in achieving sustainable development. The above mentioned DNA Regulations provide for the establishment of a Steering Committee, consisting of 10 members from the following national government departments (see Illustration 13):

- Minerals and Energy;
- Environmental Affairs and Tourism;
- Water Affairs and Forestry;
- Foreign Affairs;
- Trade and Industry;
- Agriculture and Land: Affairs;
- Transport;
- National Treasury;
- Science and Technology;
- Health;

Further a Promotions Sub-Committee was established to support the DNA.

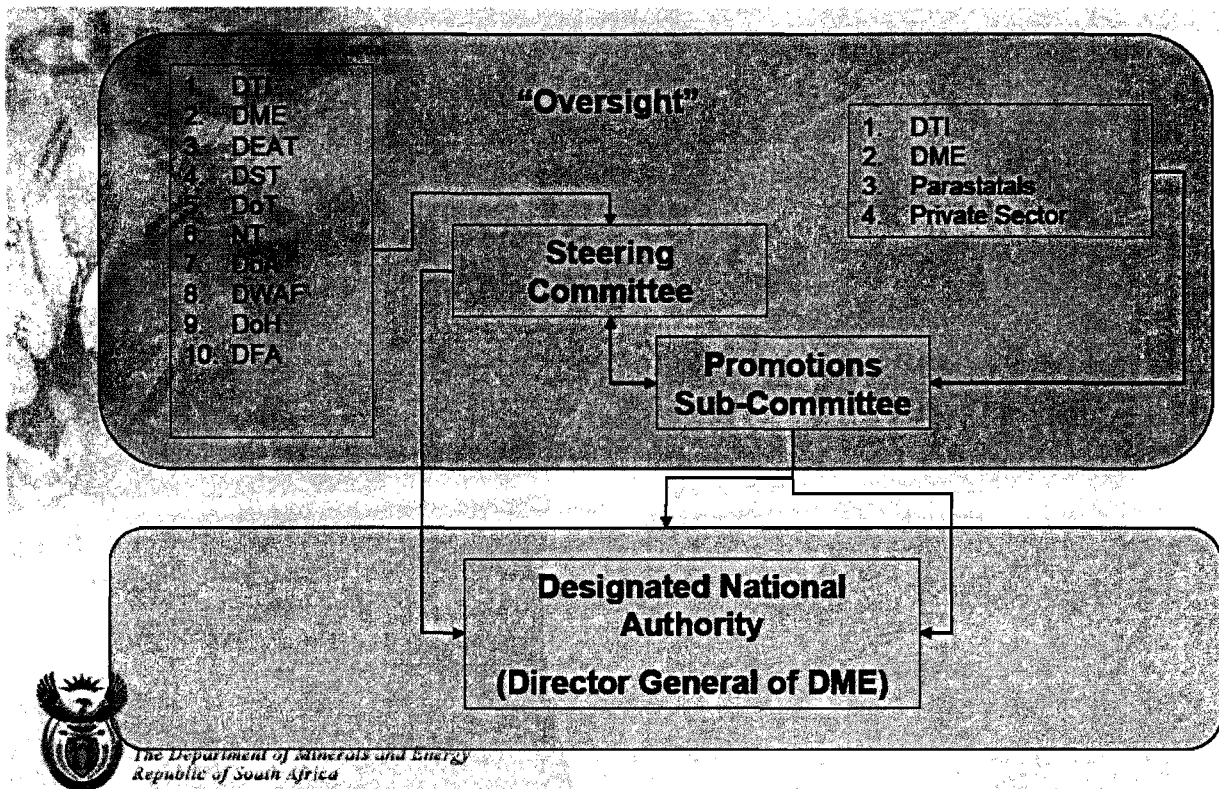


Illustration 13: Institutional Arrangement to handle CDM in South Africa

Source: *Matooane* 2006, page 11

¹⁰ National Environmental Management Act, 1998: Regulations for the Establishment of a Designated National Authority for the Clean Development Mechanism, GNR. 721, 22 July 2005.

The DNA's functions are:

- Regulation function:
 - Project evaluation and approval in accordance
- Promotion function:
 - To promote and facilitate the development of CDM projects in South Africa;
 - To secure an adequate share of CDM investment in South Africa;
 - To promote CDM projects of a developmental nature;
 - To ensure that the mechanism is in the national interest (government objectives);

The evaluation and approval procedure for CDM projects in South Africa include (see Illustration 14):

- a process for the submission of projects for approval to the DNA;
- the sustainable development criteria approved by the Minister of Minerals and Energy;
- any other document, form, template and or other guidance material that is deemed necessary by the DNA;

In South Africa project developers have two possible points of entries to the approval process for a potential CDM project (see Illustration 14). The first point of entry is voluntary and is called "initial screening" and requires the submission of a Project Idea Note (PIN). The second one is the mandatory "final submission" and requires the submission of a Project Design Document (PDD). In case the CDM project is successful in the whole approval process, the DNA issues the Letter of Approval.

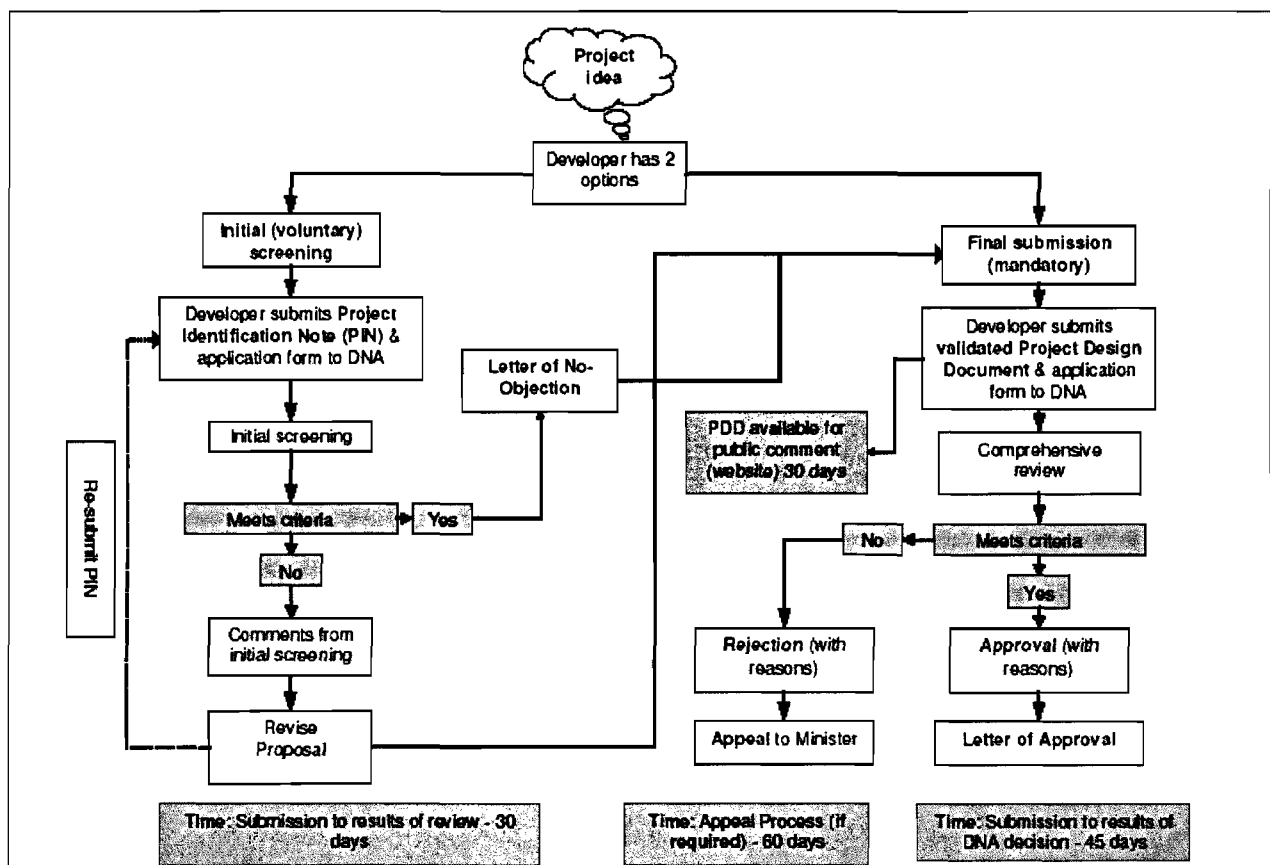


Illustration 14: The South African DNA's project approval procedure

Source: Gilder/Short 2006, page 24

Sustainable development is defined in the National Environmental Management Act (NEMA) as the integration of social, economic and environmental factors into planning, implementation and decision making so as to ensure that development serves present and future generations. This definition of sustainable development will inform the decisions of the DNA. The 3 main sustainable development criteria in South Africa are (see also Illustration 15):

- Economic:
Does the project contribute to national economic development?
- Social:
Does the project contribute to social development in South Africa?
- Environmental:
Does the project conform to the National Environmental Management Act principles of sustainable development?

Criteria	Indicator
Environmental	Impact on local environmental quality Change in usage of natural resources Impacts on biodiversity and ecosystems
Economic	Economic impacts Appropriate technology transfer
Social	Alignment with national provincial and local development priorities Social equity and poverty alleviation

Illustration 15: Sustainable development criteria in South Africa

Source: *Matooane* 2006, page 15

In the presentation held by a representative of the DNA, during the country mission in South Africa, the following sectors were presented as the ones with the biggest CDM potential (*Matooane* 2006):

- Energy supply and demand:
Energy efficiency, renewable electricity & energy, cogeneration, cleaner coal for generation, fuel switch from coal to gas;
- Waste sector:
CH4 flaring, composting, renewable energy;
- Mining:
CH4 reduction from coal mines, energy efficiency;
- Agriculture:
Afforestation & reforestation, fire controls, improved management of woodlands, bio fuels;
- Transport and automotive sectors:
improved public transport, urban planning & traffic management, vehicle fuel switch, vehicle efficiency, road to rail transport;

- Manufacturing:
industrial energy efficiency, structural changes to less energy & emissions-intensive, boiler conversion to gas;
- Residential, public & commercial buildings:
fuel switch, solar heating, energy management, energy efficiency building design (thermal-efficiency), energy efficiency appliances;

By the end of September 2006 the South African DNA had received 14 PDDs and 23 PINs with request for evaluation and issuance of Letter of Approvals. These projects cover the following types:

- Fuel switch
- Cogeneration
- Energy efficiency
- Hydro electric power
- Energy generation from renewable sources

So far, 4 South African PDDs have been registered with the Executive Board.

The energy sector is the major source of GHG gas in SA, generating between 89% and 91% of total carbon dioxide emissions. The high level of emissions from the energy sector relates to the high-energy intensity of the SA economy, which is dependent on large scale primary extraction and processing, particularly in the mining and minerals beneficiation industries. Therefore there is a very large potential for energy efficiency and methane reduction projects, especially in the industrial and mining sector. Companies in this sector are starting to realise their potential to create additional income through the CDM.

Due to the fact that most of the electricity is currently coming from hydro power and coal fired power plants, electricity prices are very low in South Africa. So there is only a very limited opportunity for projects generating electricity (e.g. through cogeneration or renewables). This will change in the future, as consumption is increasing and new power capacity has to be provided to cover the demand.

After comparison of the GHG mitigation priorities in the country with key technologies and services Austrian companies can provide, the UNIDO-Austrian project is focussing on industrial energy efficiency improvement, fuel switch (high to low carbon), methane reduction (in the mining and waste sector) as well as cogeneration projects.

Although a number of capacity building activities have been undertaken in South Africa, the CDM is still seen as a rather new concept in the industry. There is still a lack of awareness of the value, particularly financial, that the mechanism may offer to industrial operations. South African industry is generally conservative and cautious in the way it approaches project development and associated capital spending. The notion of generating emission reductions and then entering into international commercial agreements for the purchase of sale thereof is not familiar to many financial officers.

This reticence in the industry is combined by the negative CDM associations resulting from unrealistic expectations that many commentators and consultants have created around CER prices and the ease with which carbon assets can be created.

Another decision making factor for companies are the uncertainties with regard to the post-2012 regime. Companies are often unwilling to enter into a time-consuming and expensive process to generate an asset that may have no value post-2012 (Gilder/Short 2006).

Nevertheless, more recently, there appears to be increasing interest in the CDM in South Africa. A number of stakeholders have involved themselves in project development support and capacity building related activities as well as project-support for feasibility studies and related development activities.

The Canadian government-funded Capacity-Building, Leadership and Action (CBLA) Programme was one of the more successful CDM capacity development initiatives undertaken in South Africa¹¹. The objective was to mitigate GHG emissions in Southern African industry. CBLA used energy audits of industries to identify potential project opportunities and then followed these up with feasibility studies. Some 4 to 5 potential CDM projects were identified before the programme was concluded in June 2005.

The NGO SouthSouthNorth is also working in the area of CDM. It was probably the first South African organization to promote the CDM and to support project development (Gilder/Short 2006).

The South African National Cleaner Production Centre (NCPC) was launched in 2002 and is a joint venture of the South African Government, through the Department of Trade and Industry (Dti), and UNIDO. Dti has directed the NCPC to concentrate on the chemical industry, clothing and textiles, automotive industry, food and agro-processing.

The NCPCs activities are defined as follows:

- The sourcing and transfer of cleaner production tools and best practice;
- Advocacy work with regard to cleaner production;
- Analysis, advice, information and policy support;
- Project management, development and facilitation;
- Assisting projects to find financial support;
- Transfer of environmental sustainable technologies;

As explained in the South African Country Mission Report (KWI 2006b), there has been a change in the (mainly national) interest on CDM. About a year ago, when the UNIDO project was started, the interest in CDM in South Africa was mainly coming from large (predominantly international) companies, such as Sappi, ESKOM or Holcim. Meanwhile there is also a very strong interest coming from project developers and investors, who see CDM as a major opportunity to receive additional financial resources for the implementation of their projects.

As summarized above, there is a very positive development regarding the South African approval process for CDM projects. The institutional framework has been set up and is already processing the first successful CDM projects. In the discussions and consultations held with national stakeholders, KWI learnt that there is a huge gap in the knowledge of potential trainees for the planned workshop. On the one hand there is still a need for basic background information on Kyoto, its mechanisms and institutions involved. On the other hand detailed training on the preparation of CDM Project Idea Notes (PINs) and Project Design Documents (PDDs) is asked for. Further emphasis shall be on the marketing of emission reductions.

¹¹ www.cbla.org.za

8.3 Capacity Building and Technical Assistance concepts

8.3.1 Capacity Building concept

Participants in the training workshop will mainly come from industry and government institutions and financial organizations. Further potential project developers and investors as well as other national experts and stakeholders (e.g. service centers like the NCPC) will be invited to attend the workshop.

Like in Vietnam and Mexico, there is just one training session planned for South Africa. Therefore all the participants will get the same training materials. Considering, that participants from different backgrounds and sectors/ministries will take part in the training sessions, and that their previous knowledge about CDM will be very diverse, a comprehensive and well-founded training package will be prepared.

Participants from government institutions and financial organizations will most likely be interested in a more general CDM training focusing on the Kyoto background and the CDM project cycle. Project developers and participants from different industry sectors will most probably have additional interest in the identification and selection of other essential project partners (CDM networking), the preparation of PDDs (including baseline preparation, methodology selection) and the marketing of emission reductions.

8.3.2 Technical Assistance concept

Based on experiences gained in other CDM training workshops ESD and KWI recommend an interactive training workshop, meaning to give the participants the chance, not just to hear about the framework behind CDM and successful CDM projects already implemented, but also to work actively on real CDM projects.

At the beginning a general introduction and overview on Kyoto, the national CDM framework, practical examples of international CDM projects, financial issues (e.g. Carbon Market) and the CDM project cycle will be provided. Further the ESD/KWI team will train the participants on the marketing of emission reductions. This will include an overview on the various purchasing options, price structures and developments and the link of CDM with the EU Emissions Trading Scheme.

Following that, participants will work on real CDM projects with focus on technical issues like the preparation of PINs and PDDs.

In order to keep the training vitalized, the training methods will change a few times during the whole workshop. Therefore the participants will form small working groups (participants with different backgrounds in one group) to stimulate discussions and the exchange of ideas and different points of views when preparing different topics or CDM project samples. The workshop will be backed by PowerPoint presentations, documents about approved methodologies, additionality tool, other project information (PDDs) and flip charts.

A Question and Answer session is planned at the end of each subject area. This will allow elaborating special points arising and go into them in greater detail.

8.4 Training in South Africa

The training was held in April 2007 and started with a general overview on the Kyoto framework, Kyoto Mechanisms, institutions involved and the CDM project cycle. Emphasis was laid on working with concrete project examples in the focus sectors (mainly in the industrial sector) in order to increase the ability of the participants to structure projects, prepare PINs, apply approved methodologies and write PDDs (including baselines and monitoring). Another focus was to train the participants on the marketing of emission reductions. This includee an overview on the various purchasing options, price structures and developments and the link of CDM with the EU Emissions Trading Scheme.

In order to facilitate the training workshop in Mexico, training and briefing material was prepared. This material was put together by ESD and KWI, using different sources.

For the training, the following material has been used:

- A set of slides, covering the following topics:
 - Brief background to Kyoto & progress of the flexible mechanisms to date;
 - The CDM Project Cycle with Practical examples of International CDM Projects & Lessons for Mexico;
 - Understanding the Carbon Market & Carbon Finance;
 - The Austrian JI/CDM Programme;
 - The EU Emissions Trading Scheme
 - Preparation of PINs & PDDs: Best Practices and 'How to Guides';
 - Practical examples of International CDM Projects & Lessons for Mexico;
- Approved methodologies relevant for CDM in Mexico, including:
 - ACM0002 Consolidated baseline methodology for grid-connected electricity generation from renewable sources
 - AMS-III.D Greenhouse gas mitigation from improved Animal Waste Management Systems in confined animal feeding operations
 - AM0001 Incineration of HFC 23 waste streams
 - AMS-I.C Thermal energy for the user
- Additionality Tool;
- Project Design Documents and other relevant documentation on Mexican CDM projects:
 - El Gallo Hydro Electricity
 - Sonora Animal Waste Recovery & Flaring Project
 - Quimobásicos HFC Recovery & Decomposition
 - Conservas La Costena - Jugomex Waste Recovery and Cogeneration Project

All training material is attached in the Annex.

8.4.1 Participants

The training was held by Mike Bess, ESD and Manfred Stockmayer, KWI. The following institutions from Mexico participated in the training:

Institution	Name
BP EXPLORATION MEXICO	PAULINA MEIXUEIRO
CATERPILLAR	GUILLERMO GÓMEZ
CATERPILLAR	BALTAZAR HERNÁNDEZ
CATERPILLAR	ANTONIO BARAJAS
CATERPILLAR	ANDRE OLIVEIRA
CATERPILLAR	JAVIER SILVA
CMPL	ALONSO MARBÁN
CMPL	MARTÍN VARGAS
COLGATE PALMOLIVE	RAMÓN MERCADO
GAS DEL ATLÁNTICO	MARCO CALDERÓN
GAS DEL ATLÁNTICO	DAVID BALCAZAR
GAS DEL ATLÁNTICO	CÉSAR RODRÍGUEZ
GRUPO BIMBO	LUIS ANTONIO LEDEZMA M.
GRUPO BIMBO	ARMANDO GONZÁLEZ GARCÍA
GRUPO BIMBO	TANIA PÉREZ
GRUPO XACUR, S.A. DE C.V.	JUAN JOSÉ JAIME R.
GRUPO XACUR, S.A. DE C.V.	ANGEL MAYOR
GUPO MODELO	JUAN CARLOS DE LEÓN AYALA
JABON LA CORONA	MA. DE JESÚS CASTILLO S.
MEXICANA DE RESINAS	JOEL LÓPEZ MESTIZA
MEXICANA DE RESINAS	LUCIANO BECERRA COSTILLA
MINERA AUTLÁN - CORPORATIVO	ROGELIO ISSAC H.
MINERA AUTLÁN	REBECA RODRÍGUEZ
MINERA AUTLÁN TAMOS	ING. EDMAR RODRIGUEZ
MINERA AUTLAN P. TEZIUTLAN	ING. FRIKSSIA XIOMARA LARA
PEÑOLES	MARIO HUERTA
PEÑOLES	ENRIQUE ORTEGA
SICARSTA	DULCE MA. DE LOS ÁNGELES CORTÉS

SICARSTA	RAFAEL HERNÁNDEZ MORALES
CESPEDES	CARMEN CARMONA
CESPEDES	ROSA MA. JIMÉNEZ A.
CESPEDES	ALEJANDRO LOREA

Table 19: List of participants

8.4.2 Training Programme

Day 1, 16th April 2007 (Monday)	
8:00 - 8:15	Registration
8:15 - 8:45	Introductions (DNA Mexico, UNIDO, CESPEDES, KWI/ESD, etc.) Mexico's CDM activities by Mr. Miguel Cervantes
8:45 - 9:15	Brief background to Kyoto and the progress of the flexible mechanisms to date <ul style="list-style-type: none"> • The UNFCCC – key actions on the road to the Kyoto commitment period, 2008-2012 • Key actions in the Kyoto process: • Ratification • The European Union Emissions Trading System (EU ETS) • Operations of the UNFCCC CDM Executive Board (EB) and its 'Methodology Panel' • Status of CDM and JI, and prospects pre-commitment period • Implications for CDM in Mexico
9:15 – 9:45	Tea/coffee break
9:45 - 10:30	CDM Framework in Mexico: Working groups (3) define priorities, priority sectors, priority actions for CDM in Mexico
10:30 - 11:15	Brief Working group presentations on priorities for CDM in Mexico, plenary discussion
11:15 - 11:45	Practical examples of international CDM projects under development and lessons learned to date (Part I) <ul style="list-style-type: none"> • Normal project cycle • What is different between a 'normal project cycle' and a 'CDM project cycle'? • Roles of industry, government, NGO and international institutions & partnerships for CDM • Overview of CDM projects approved to date • Overview of CDM projects in the pipeline • Examples of CDM projects relevant to Mexico's priorities • Industrial energy efficiency • Industrial fuel substitution/fuel-switching • Renewable energy projects in the electricity sector • Landfill gas • Key lessons learned from CDM projects relevant to Mexico
11:45 - 12:00	Discussion, questions and answers

12:00 - 13:30	Lunch
13:30 - 14:30	Practical examples of International CDM projects under development and lessons learned to date (Part II)
14.30 - 14.45	Discussion, questions and answers
14.45 - 15.30	Understanding the Carbon Market and Carbon Finance Today – 2007 <ul style="list-style-type: none"> • Overview of the Carbon Market • Who is buying and selling at present? • What kinds of prices are buyers paying for what kinds of CDM projects now? • What is the difference between the 'long-term' CDM market and the current 'spot' market for carbon buyers, & why is this important for Mexican CDM project developers? • What CDM project emission reductions are people buying now • The EU ETS and its relevance to CDM in Mexico • Opportunities & interactions between Mexican CDM projects and the EU ETS • Carbon Market dynamics for Mexico • What should Mexican CDM project developers look for from carbon buyers?
15:30 - 15:45	Discussion, questions & answers
15.45 - 16.00	Tea/coffee break
16.00 - 16:45	The Austrian JI/CDM Programme and other Bilateral & Institutional Purchasing Programmes (e.g., The Netherlands, Denmark, Japan, EBRD, etc.) <ul style="list-style-type: none"> • Overview • Current areas of focus – CDM project types and geographic coverage • Austrian Programme and CDM in Mexico • Kinds of Mexican CDM projects of likely interest to Austrian Programme
16.45 - 17.00	Discussion, questions & answers
17:00 - 17:30	Wrap up of day 1 and conclusions to day 1

Day 2, 17th April 2007 (Tuesday)	
8:00 - 8:15	Welcome, summary of day 1 and introduction to day 2
8:15 - 09:00	Preparation of PINs & PDDs: Best Practices and 'How to Guides' <ul style="list-style-type: none"> • What makes a good PIN • What makes a good PDD? • Who are we preparing a PDD for – who is the PDD 'audience'? • What should a PDD achieve? • What does the Mexican Designated National Authority (DNA) want to see in a PDD? • What does a Designated Operational Entity (DOE) want to see in a PDD? • What does the CDM Executive Board (EB) want to see in a PDD? • What do 'carbon' buyers want to see in a PDD?

	<ul style="list-style-type: none"> • Practical examples of PDDs • PDD 'do's' and 'don'ts' • Key steps in PDD preparation • Key steps in PDD approval • How to improve your PDD's chance of approval • Examples of the best PDDs • Examples of the best PDD methodologies
9:00 - 9:15	Discussion, questions & answers
9.15 - 10:15	Review of 4 Mexican Registered CDM projects, their PINs, PDDs, and Validations <ul style="list-style-type: none"> • El Gallo Hydro Electricity Project • AWMS Methane Recovery Project • Quimobasicos HFC Recovery and Decomposition • Conservas La Costena – Jugomex Waste Recovery and Cogeneration Project
10:15 - 10:45	Discussion, points and issues from the 4 Mexican PDDs
10:45 - 11:00	Tea/coffee break
11:00 - 12:00	Working groups (4) – Practical Examples of the CDM Project Cycle - Vietnam CDM Projects (proposed and potential) Part I
12:00 - 13:30	Lunch
13:30 - 14:15	Working groups (4) – Practical Examples of the CDM Project Cycle - Mexican CDM Projects (proposed and potential), including presentation to plenary Part II
14:15 - 14:30	Discussion, questions & answers
14:30 - 14:45	Coffee/tea break
14:45 - 15:30	Working Groups (4) – Development, Sourcing and Use of Carbon Financing – Where to find it, what to use it for, and how to use it in CDM projects.
15.30 - 16:00	Presentation by working groups, with discussion on practical finance and use of carbon financing by Working Groups
16:00 - 17:00	Conclusions and recommendations from day 2 and the Training Workshop

Table 20: Training Programme (Agenda)

Based on the experiences gained in other CDM training workshops, ESD and KWI recommended interactive training sessions in order to give the participants the chance, not just to hear about the framework behind CDM and successful CDM projects already implemented, but also to work actively on real CDM projects.

The training started with a general introduction and overview on Kyoto, the national CDM framework, practical examples of international CDM projects, financial issues (e.g. Carbon Market) and the CDM project cycle, in order to bring all the participants on the same level of understanding. Further the ESD/KWI team trained the participants on the marketing of emission reductions. This included an overview on the various purchasing options, price structures and developments and the link of CDM with the EU Emissions Trading Scheme.

On the second day participants work on concrete CDM projects (proposed by the participants) with focus on

technical issues like the preparation of PINs and PDDs. Small working groups (participants with different backgrounds in one group) were formed to stimulate discussions and the exchange of ideas and different point of views when preparing different topics or CDM project samples. The workshop was backed by PowerPoint presentations, documents about approved methodologies, additionality tool, other project information (PDDs) and flip charts.

During the workshop, a number of potential projects was submitted by the participants.

- Fuel switch from fuel oil to natural gas
- Cogeneration in metal/mechanical industry
- Fuel switch in brewery with use of biomass waste material
- Improved coke production
- Use of waste gases from steel production for electricity generation
- LPG for trucks
- Replacement of drying tower for detergents
- Biodiesel based on animal waste
- Reforestation
- Fuel switch from LPG to natural gas
- Logistical optimisation in transport
- Combination of cogeneration and energy efficiency in lighting
- Replacement of firewood by LPG
- Management of solid waste with plasma technology

From these proposed projects, 4 projects were selected as case studies for the working groups. Also, potential emission reductions were calculated by the participants and the trainers.

- Fuel switch from fuel oil to natural gas (15,000 tons of CO₂/a)
- LPG for trucks (7,000 tons of CO₂/a)
- Cogeneration in metal/mechanical industry (27,000 tons of CO₂/a)
- Use of waste gases from steel production for electricity generation (82,000 tons of CO₂/a)

The training sessions were held in 3 different segments:

- Presentations from the trainers:
To give an input and insight on the topic to be covered;
- Working Groups:
The participants were broken into four Working Groups comprised of Government, non-government organisation, industry and other participants to work on practical issues presented by the trainers. Each Working Group had a chair person and a rapporteur. Working Group topics and assignments were given according to the topic to be covered. After the Working Group sessions, the rapporteurs presented the findings, conclusions, etc. from the Working Group to the plenary (main group) for discussions.
- Questions and Answers sessions:
Each session was finalised with a Questions and Answers session to give the participant the opportunity to clarify open issues.

8.4.3 Topics discussed in the Questions and Answers sessions

In the Questions and Answers sessions, the participants had the opportunity to come up with open issues. The answers were given by the trainers, giving practical examples using the flip chart (attached in the annex). The following main questions were presented:

Q: For how many years is a CDM project generating emission reductions?

A: During the preparation of the Project Design Document (PDD), the project proponent can decide for a baseline over 10 years or over 3 times 7 years. In the 10 years case, all assumptions in the PDD will be taken as given for the next 10 years. If the project developers choose 3 times 7 years, the baseline will be revisited after 7 and 14 years. There is the risk that the baseline might be changed and emission reductions might go down after 7 or 14 years.

Purchasers of carbon credits are currently only buying for the period up to 2012. For emission reductions after 2012, there is currently no market. So, if the project is generating emission reductions after 2012, these can be sold, but the price to be expected is very difficult to assess. This is dependent among others on the decision on further commitment periods, the future of the EU Emissions Trading Scheme or the seriousness with which governments are tackling climate change.

Q: Why is there such a large price difference between the price of EU Allowances (EUAs) and Certified Emission Reductions (CERs)?

A: The price, usually referred as "the carbon price", is the spot price of EUAs in 2006. This can be checked for example at www.pointcarbon.com. Currently the EUA price is floating in a range of € 18 to € 20 for EUAs from 2008 and around € 0.3 for EUAs from 2007. The difference to the price of CERs (which is indicated to be between € 8 and € 10) is based among others things on the following facts:

- EUAs for 2007 and 2008 are an existing product, CERs are traded on a forward basis.
- When CERs are bought now, the buyer takes a lot of additional risk, which leads to a discount in the price. These risks include for example technology risk, project implementation and performance risk, financing risk and monitoring risk.
- The demand of EUAs is determined by the National Allocation Plans in the EU Emissions Trading Scheme and the development of emissions in the installations covered by the Scheme. The demand of CERs is determined by the Kyoto commitments of the participating countries.

Q: How can CERs be used in the EU Emissions Trading Scheme?

A: The so-called "Linking Directive" determines how CERs can be used in the EU Emissions Trading Scheme. CERs can be used both in the first (2005 – 2007) and in the second trading period (2008 – 2012). Each member state determines the maximum level of certificates from project based mechanisms to be used by the installations. EU Member States determined this level in the second National Allocation Plans, levels are around 10% of the total allocation.

Q: How can I calculate the emission reduction from a fuel switch project?

A: As an example a 50 MW boiler, currently using fuel oil was given. At 5,000 full load hours per year, this boiler is using 250,000 MWh of fuel oil. At an emission factor of 0.28 tons of CO₂/MWh (source: 2006 IPCC

Guidelines for National Greenhouse Gas Inventories), CO₂ emissions are 70,000 tons per year. If this boiler is switching to natural gas (assuming constant efficiency of the burning process), total emission per year are 50,000 tons at an emission factor of 0.2 tons of CO₂/MWh. Therefore, the emission reduction is 20,000 tons per year.

The difficult question in this example is the determination of the baseline. The first question to answer would be whether the existing fuel oil boilers can be used for the next 10 years. If that is the case, then continuing with the existing boilers is one of the potential baseline scenarios. If the boilers can not be used for another 10 years, then installing new fuel boilers would be an option.

The other potential baseline option is switching to natural gas. The main question there is whether switching would be the least cost option. If that is the case, then the project would not lead to additional emission reductions.

This project would be a potential CDM project if the existing boilers using fuel oil can be used for another 10 years and switching to natural gas would not be the least cost option. If the additional effect from the emission reductions is making the switch to natural gas financially viable, then the project would have good chances to qualify as a CDM project.

8.5 Review of Project Idea Notes and Project Design Documents

Within the framework of the UNIDO-Austrian project, Marbek Ressource Consultants were contracted to prepare 5 Project Idea Notes (PINs) and 1 Project Design Document (PDD). The five PINs selected were developed in the industrial sector with clients who had been unable to develop PINs for their projects due to lack of understanding over the procedures for CDM or lack of funding for this kind of activity. The ability to develop a PIN at no cost to the client has helped move these projects forward in the capital planning process, and made the prospect of using carbon financing more realistic than it would otherwise have been.

The 5 PINs were:

- Interwaste Improved Composting: improved composting techniques at a new/expanded composting facility in Mpumalanga Province
- Interwaste Power/Steam Generation from Municipal Green Waste: waste incineration project in the City of Cape Town
- Pretoria Portland Cement Alternative Fuels: alternative fuels project for firing the kilns, partially replacing the large amounts of coal presently used as the main fuel
- AfriSam Ulco Cement Plant Substitution of Alternative Materials in the Raw Mix: adding lime dust to the raw mix introduced to the kiln, thus reducing the amount of carbon emissions from the calcination and clinkerisation processes
- Use of Solar Hot Water for Pre-heating of Boiler Feedwater in Industrial Applications: Programmatic approach to use to use solar hot water to pre-heat boiler feed- and make-up water in industrial boiler systems

The analysis of the 5 PINs gave the following results:

Interwaste Improved Composting:

The project aims at centralising composting facilities of currently 4 different sites (Ngodwana, Nelspruit, Belfast and Mandini) at one site (Nelspruit). The project aims at applying AMS.I.F, a small-scale methodology. There are serious issues with additionality of this project. According to the PIN, composting

is taking place at 4 different sites, which will then be centralised in one site. If there is no additional input of material (which does not seem, according to the PIN), there is no additional avoidance of methane. Transporting the waste bark to a central site could even increase emissions. Also, arguments of barriers are thin, not giving a good basis for a strong argumentation.

Interwaste Power/Steam Generation from Municipal Green Waste

Well-sized project, almost using the maximum threshold for small-scale projects (60,000 tons per annum), clear application of well-used SSC methodology (AMS.I.C). Barriers are well argued and a good basis for sound additionality arguments. Financial information is missing, so an analysis of the financial performance and the impact of carbon credits on the performance of the project was not possible.

The technical description of the boiler system is not very detailed, which leads to the conclusion that there has not been too much progress on defining the exact parameters of the boiler system. This makes it very difficult to implement the project with the intended timeline of 1 year.

The PIN is dated March 2008 and expects to generate CERs from 1 Jan 2009 onwards. A well written PDD takes at least 3 months to prepare. For validation, a minimum of 6 months should be estimated. This is due to lack of capacity with DOEs and increasing requirements during the validation process stemming from reviews and requests for review by the CDM Executive Board. Due to lack of capacity with UNFCCC, at least 6 months should be accounted for the registration process. This gives an optimal timeline of 15 months in total, leading to an earliest registration date of mid 2009.

Pretoria Portland Cement Alternative Fuels

From a technology point of view, the project is well-developed and shows the commitment and experience of the project owner. The main issue with this project is the applicability of the methodology. The consultant proposes to use ACM0003, which is correct.

The problem is the applicability of the methodology. ACM0003 requires:

- A significant investment is required to enable the use of the alternative fuel(s) and/or the less carbon intensive fossil fuel(s);
- During the last three years prior to the start of the project activity, no alternative fuels have been used in the project plant;
- The CO₂ emissions reduction relates to CO₂ emissions generated from fuel combustion only and is unrelated to the CO₂ emissions from decarbonisation of raw materials (i.e. CaCO₃ and MgCO₃ bearing minerals);
- The methodology is applicable only for installed capacity (expressed in tons clinker/year) that exists by the time of validation of the project activity.

In 2 of the 5 plants, alternative fuels are currently used, which would not allow ACM0003 to be applied. Additionally, it is not clear whether the investment of 41 million Rand (around 10 million USD) is considered as a significant investment, as requested by the applicability criteria.

The consultants propose a revision of the methodology. When doing this, it should be considered that this takes about a year according to latest information. Also, the project is only generating about 25,000 tons per year, which make the cost-benefit analysis questionable.

AfriSam Ulco Cement Plant Substitution of Alternative Materials in the Raw Mix

From a technology point of view, the project is well-developed and shows the commitment and experience of the project owner. The main issue with this project is the applicability of the methodology. The consultant proposes to use ACM0015, which seems in general a good approach. The information that ACM0015 has been consolidated from AM0033 and AM0040 is not correct, ACM0015 was developed based on NM0163 and NM0123.

ACM0015 has clear applicability criteria, which need to be checked. These criteria are:

- Use of alternative materials shall increase neither the capacity of clinker production nor the lifetime of equipment;
- The methodology is applicable to existing as well as to greenfield plants;
- Type and quality of produced clinker remain the same in both baseline and project case;
- Alternative raw materials have never been used in the clinker manufacturing facility prior to the implementation of the project activity;
- The quantity of AMC available shall be at least 1.5 times the quantity required for meeting the demand of all existing users, including other uses than in the cement industry, consuming the same AMC in the project area, i.e. the total quantity required for the project as well as other users of the alternative raw materials. Project area in this context is defined as the area defined by a radius of 200 km around the project activity including at least the ten cement plants nearest to the plant of the project activity;
- There is sufficient historical information about the clinker manufacturing facility, the raw materials used, and energy performance of the kiln.

The information in the PIN does not allow to verify all these criteria.

Use of Solar Hot Water for Pre-heating of Boiler Feedwater in Industrial Applications

The project aims at using solar panels to pre-heat water for feedwater in industrial applications. Due to the small emission reduction in each of the projects, the consultants propose to develop the project under Programme of Activities (PoA). This is in general a good idea, as it is the best possibility to achieve a decent size of emission reductions from solar thermal projects. The problem is that currently no PoA has been approved and the CDM community is unclear about the application of the PoA rules and guidelines. Until there is further guidance on the applicability of these rules and requirements, it is not recommended to continue with the proposed project.

PDD for AfriSam Ulco Cement Plant Substitution of Alternative Materials in the Raw Mix

For one of the projects ("Use of Lime Kiln Dust (LKD) as a Feed Material for the Afri-Sam ULCO cement plant") a PDD has been developed. The comments on the draft are as follows:

- A.4.4.: a table on the emission reductions over the crediting period is missing.
- Crediting period: the project selects a crediting period of 3 x 7 years. The project owners should be aware that there is a risk that after 7 years the project becomes the baseline and therefore no emission reductions are generated. This can happen if the use of Lime Kiln Dust is seen as business as usual.
- B.1.: reference should be made to the "Tool for the Demonstration and Assessment of Additionality", version 05.2, approved at EB39 and the "Tool to calculate the emission factor for an electricity system", version 01.1, approved at EB35, as these tools are referred to in ACM0015
- B.2.: the applicability criteria are listed, but it should be argued how the project meets these criteria.

- B.5.: the version of the additionality tool used should be indicated
- B.5.: there is only a verbal description of the analysis and no figures at all. All input parameters have to be indicated and the calculations should be described in an understandable way.
- B.5.: the additionality tool consists of 5 steps. None of these steps is described here at all.
- B.6.2.: the information on data to be monitored is missing
- B.6.3.: a summary of the main input data would be helpful
- B.6.4.: project emissions and leakage emissions should be mentioned as well
- C.1.: the information on the crediting period is incomplete and wrong (either 10 years or 3x7 years) project lifetime has to be longer than crediting period.
- Section D: very thin, even if there are no negative effects, it should be described in more detail why. Support with data would be helpful.
- Section E: a stakeholder consultation is required under CDM

Bibliography

- Cervantes, Miguel Angel* (2005): Opportunities for CDM at Mexico, COMEGEI, Mexico, 2005
- De Alba, Edmundo* (2005a): Mexico, Support for the Development and Uptake of CDM Projects in Industrial Sector: Pilot Project with Austrian Industry, Chapter II-Project Consultation with the DNA and other key stakeholders, Mexico City, September 12, 2005
- De Alba, Edmundo* (2005b): Presentation at the Stakeholders' Workshop: Support for the Development and Uptake of CDM Projects in Industrial Sector: Pilot Project in cooperation with Austrian industry, Vienna, November 7-8, 2005
- DME* (2005): The Department of Minerals and Energy, Designated National Authority, Project Portfolio & Promotion, [www] <http://www.dme.gov.za/home.asp?menu=main> [printed: 26.10.2005]
- Hieu, Nguyen Khac* (2005): Implementation of Clean Development Mechanism in Vietnam, Project Review Meeting, Vienna, 7-8 November 2005
- Gilder, Andrew/Short, Rob* (2006): Support for the Development and Uptake of CDM Projects in the Industrial Sector: UNIDO Pilot Project in cooperation with Austrian Industry, Country Report: South Africa, January 2006
- KPC* (2005): MoU between Mexico and Austria, [www] http://www.klimaschutzprojekte.at/images/download/mou_mexico.pdf [printed: 26.10.2005]
- Matookane, Leluma* (2006): Presentation held during the Country Mission in South Africa, "South Africa's Designated National Authority for Clean Development Mechanism", October 30-31th, 2006
- Minh, Nguyen Duc* (2005): "US/GLO/04/096 Support for the Development and Uptake of CDM Projects in Industrial Sector" Pilot Project in Cooperation with Austrian Industry, Clean Development Mechanism in Vietnam, Hanoi, Sept. 2005
- WKÖ* (2005a Hrsg.): Austrian Export No. 109, Environmental technology and alternative energy sources, Vienna, Spring 2005
- WKÖ* (2005b Hrsg.): Österreichische Umwelttechnikindustrie, Pressegespräch mit Angela Köppl, Wien, 19 October, 2005. [www] http://wko.at/presse/pdf/oekoenegeie_folien271005.pdf [printed: 30.10.2005]
- WKÖ* (2005c Hrsg.): Pröll und Schenz: Umwelttechnikindustrie mausert sich immer mehr zum Innovationschampion. [www] http://portal.wko.at/wk/format_detail.wk?AnqID=1&StID=209488&DstID=234 [printed: 30.10.2005]

Annexes

- A.) List of main questions asked during the market research with Austrian stakeholders (by telephone interviews)
- B.) Management Consultancy and Engineering Service Companies in Austria: Contact details
- C.) Austrian Environmental Technology Sector: Summary of Survey Output
- D.) Austrian Environmental Technology Sector: Contact details
- E.) Financing Institutions in Austria: Contact details

**A.) List of key questions asked during the market research with Austrian stakeholders
(by telephone interviews)**

- What kind of services / technology do you offer? Where is your technology focus in the environmental technology sector?
- Where are your main markets or geographical areas of activity?
- Are you interested in doing projects / sell products to South Africa, Vietnam and/or Mexico? Why yes / not?
- Does your company already have some experience with implementing Joint Implementation and/or Clean Development Mechanism projects? What kind of experience?
- If you don't have practical experience so far are you generally interested in this project-based flexible mechanisms of the Kyoto Protocol (JI/CDM)? Can you imagine participating in JI/CDM-projects?



B.) Management Consultancy and Engineering Service Companies in Austria: Contact details

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Allplan GmbH	Mr.	REISINGER	rek@allplan.co.at; klaus.reisinger@allplan.at	www.allplan.at	+43.1.505.3707.10
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Table 21: Management Consultancy and Engineering Service Companies in Austria

C.) Austrian Environmental Technology Sector: Summary of Survey Output

Company	Sector (public services - supply - services - investment)	Technology focus							Geographical areas of activity (Austria,...)	Interest in doing projects in South Africa, Vietnam, Mexico ?	Compa CDM experie so far?
		Energy efficiency, energy saving	cogeneration (CHP)	fuel switch	landfill gas (energy recovery and use)	waste management (energy recovery and use)	renewable energy	other			
A.S.A. International Environmental Services GmbH	services				x				CEE Austrias neighbouring countries: Slovenia, Croatia, Serbia, Montenegro, Hungary	n	n
AEVG - Abfallsorgung und -verwertung	public services, services					MBT				n	n
Alstom Power Austria GmbH	services							hydro power	CEE, Turkey	n	n
Andritz AG	supply	x						biomass	dryers, filters, ... flue gas cleaning	y	n
Austrian Energy & Environment	supply, services		x	x				biomass	world wide (focus on CEE), China Southeast Europe, Czech Republic, Romania, Bulgaria	n	n
Brantner Walter GmbH	supply	x			x		x		world wide	n	y
GE Jenbacher	supply	x	x	x	x			biogas	Poland	South Africa, Mexico	y
ICS Energietechnik GmbH	supply							biomass biomass <7MW, biogas, solar		n	n
Ing. Aigner Wasser-Wärme-Umwelt GmbH	services	x	biomass CHP						CEE, Bulgarien Eastern Europe, Germany, Brasil	n	n
Ing. Friedrich Bauer GmbH	services							biogas		n	n
Kohlbach Holding GmbH, KCO Cogeneration und Bioenergie GmbH	supply	x	x					biomass biogas, boilers	CEE	n	n
Komptech GmbH	supply					MBT		biomass	CEE, America, Japan, Russia, China, Australia	Mexico	n
Kössler Ges.m.b.H	supply, services							hydro power	Germany, Greece, Turkey, Latin America (Chile), India	n	y
Polytechnik Luft- und Feuerungstechnik GmbH	supply, services		x					biomass boilers	Korea, Japan, Russia, Poland, France, Netherland	y	n
RAB Planungsbüro für Recycling und Abfalltechnische Behandlungsanlagen GmbH	service					MBT		biogas	China, USA (Florida), Finland	n	n
Saubermacher Dienstleistungs AG	supply, services					x			Czech Republic, Hungary, Slovenia, Croatia, Romania	n	y

Table 22: Austrian Environmental Technology Sector: Summary 1 of Survey Output

Company	Sector (public services - supply - services - investment)	Technology focus							Geographical areas of activity (Austria...)	Interest in doing projects in South Africa, Vietnam, Mexico ?	com CDM expe so fa
		Energy efficiency, energy saving	cogeneration (CHP)	fuel switch	landfill gas (energy recovery and use)	waste management (energy recovery and use)	renewable energy	other			
Scheuch GmbH	supply	x							suction and dust removing units, fluegas cleaning systems	Czech Republic, Slovak Republic, Germany, Poland, Italy, Hungary, Great Britain, Canada, Mexico, Russia,	n
sirocco Luft- und Umwelttechnik	supply	x							filter	world wide (focus on Central Europe) Switzerland, Germany, France, Italy, South America, Asia	y
stromaufwärts Photovoltaik GmbH	supply									America, Asia	y
Thöni Industriebetriebe GmbH	supply, services					MBT				CEE	n
Urbas Energietechnik	supply, services		x							Germany, Eastern Europe	y
VA-Tech Hydro	supply, services								hydro power	JI/CDM aquisition/activities in: Eastern Europe, Romania, Bulgaria, Vietnam, China, Central America (Ecuador, Columbia)	y
VA-Tech Wabag	supply, services					x				CEE, China, Mittle East, North Africa	n
Windtec Consulting GmbH	services								wind	Germany, Japan, China, Canada	n
WTI wärmetechnische Industrieanlagen GesmbH	supply, services	x	x						biomass boilers	CEE (occasional experience in Near East and Far East)	y

Table 23: Austrian Environmental Technology Sector: Summary 2 of Survey Output

D.) Austrian Environmental Technology Sector: Contact details

Company	Sector / technology focus	Ms/Mr	Name	E-Mail	Internet	Tel
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AEVG - Abfallentsorgung und -verwertung	waste management	Mr.	SATTLER	w.sattler@aevg.at	www.aevg.at	+43.316.2958.98.38
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Andritz AG	energy efficiency, renewable energy, dryers and filters	Ms.	WUENSCHKE	maximilian.wuensche@andritz.com	www.andritz.com	+43.316.6902.1489.
Austrian Energy & Environment	cogeneration, fuel switch, renewable energy, flue gas cleaning	Mr.	PLODER		www.aee.co.at	+43.316.501.512.
Brantner Walter GmbH	landfill gas, waste management	Mr.	SALZER	management.waste@brantner.com	www.brantner.com	+43.2732.889.38
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Table 24: Austrian Environmental Technology Sector: Contact details (1)

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Scheuch GmbH	energy efficiency, suction and dust removing units, fluegas cleaning systems	Mr.	PUCHER	c.pucher@scheuch.com ; office@scheuch.com	www.scheuch.com	+43.7752.905.0
sirocco Luft- und Umwelttechnik	energy efficiency, filters	Mr.	PICHLER	office@sirocco.at	www.sirocco.at	+43.1.6042.605.0
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Thöni Industriebetriebe GmbH	waste management, renewable energy	Mr.	MEDERLE	anton.mederle@thoeni.com	www.thoeni.com	+43.5262.6903.0
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VA-Tech Hydro	renewable energy	Mr.	AUTENGRUBER	konrad.autengruber@vatech-hydro.at	www.vatech-hydro.com	+43.1.89100.3534
VA-Tech Wabag	waste management	Mr.	LAHNSTEINER	josef.lahnsteiner@siemens.com	www.vatechwabag.com	+43.1.25105.4314
Windtec Consulting GmbH	renewable energy	Mr.	HEHENBERGER	office@windtec.at	www.windtec.at	+43.463.444.604.0.
WTI wärmetechnische Industrieanlagen GesmbH	energy efficiency, cogeneration, renewable energy, boilers	Mr.	LEISCH	wti.tb@aon.at	www.wti.at	+43.2757.77.45.

Table 25: Austrian Environmental Technology Sector: Contact details (2)

E.) Financing Institutions (active in JI/CDM): Contact details

Company	Ms/Mr	Name	E-Mail	Internet	Tel
Bank Austria Creditanstalt	Mr.	FRANZEN	hildegard.franzen@ba-ca.com	www.ba-ca.com	+43.5.0505.50322
Bank Austria Creditanstalt	Mr.	FLEISCHMANN	robert.fleischmann@ba-ca.com	www.ba-ca.com	+43.5.0505.56901
Investkredit	Mr.	KINDLHOFFER	h.kindlhofer@investkredit.at	www.investkredit.at	+43.1.53.1.35.656
Österreichische Kontrollbank AG	Mr.	SCHMID	wschmid@oekb.co.at	www.oekb.at	+43.1.53127.240
Raiffeisen Zentralbank Österreich AG	Mr.	WALDBOTH	christoph.waldboth@rzb.at	www.rzb.at	+43.1.71707.1668

Table 26: Financing Institutions (active in JI/CDM): Contact details

Vietnam

Presentations Training Vietnam:

- Mike Bess, Manfred Stockmayer, including the following topics:
 - Brief background to Kyoto & progress of the flexible mechanisms to date
 - The CDM Project Cycle with Practical examples of International CDM Projects & Lessons for Vietnam
 - Understanding the Carbon Market & Carbon Finance Today – 2006
 - The Austrian JI/CDM Programme
 - Preparation of PINs & PDDs: Best Practices and 'How to Guides'
 - Practical examples of International CDM Projects & Lessons for Vietnam

Documents on approved methodologies:

- ACM0002: Consolidated baseline methodology for grid-connected electricity generation from renewable sources
- ACM0006: Consolidated baseline methodology for grid-connected electricity generation from biomass residues
- AM0019: Renewable energy projects replacing part of the electricity production of one single fossil fuel fired power plant that stands alone or supplies to a grid, excluding biomass projects
- AM0026: Methodology for zero-emissions grid-connected electricity generation from renewable sources in Chile or in countries with merit order based dispatch grid
- Indicative simplified baseline and monitoring methodologies for selected small-scale CDM project activity categories

Tool for the demonstration and assessment of additionality

Project information:

- Rang Dong Oil Field Project:
 - AM0009: Recovery and utilization of gas from oil wells that would otherwise be flared"
 - Request for registration of "Rang Dong Oil Field Associated Gas Recovery and Utilization Project"
 - Approval of a CDM project under the Kyoto Protocol by the Government of Japan
 - DNA Approval "Rang Dong Oil Field Associated Gas Recovery and Utilization Project" as CDM activities
 - Request for registration of "Rang Dong Oil Field Associated Gas Recovery and Utilization Project - Comprehensive list of documents
 - Request for registration of "Rang Dong Oil Field Associated Gas Recovery and Utilization Project – List of interviewees
 - PDD Rang Dong Oil Field Associated Gas Recovery and Utilization Project
 - CDM Project Activity Registration and Validation Report Form
 - Written Approval of voluntary participation from UK DNA
 - Validation Report Rang Dong Oil Field Associated Gas Recovery and Utilization Project in Vietnam
 - Approval of the Vietnamese DNA

- Song Muc Hydro Power Regeneration Project
 - Indicative simplified baseline and monitoring methodologies for selected small-scale CDM project activity categories
 - Approval of a CDM project under the Kyoto Protocol by the Government of Japan
 - PDD Song Muc Hydro Power Regeneration Project
 - Validation Report
- Tra Linh 3 Hydro Power Project
 - PIN Tra Linh 3 Hydro Power Project
 - PDD Tra Linh 3 Hydro Power Project

Mexico

Presentations Country Mission Mexico:

- Marina Ploutakhina, UNIDO: Support for the development and uptake of CDM projects in the industrial sector
- Miguel Angel Cervantes, Head of COMEGEI and of the Technical Secretariat of the Designated National Authority (DNA) for CDM projects: Perspectiva del MDL en México
- Alejandro Lorea Hernández, CESPEDES: Programa Piloto de GEI México
- Manfred Stockmayer, KWI: The Austrian Environmental Technology Market
- Manfred Stockmayer, KWI: Key Aspects of the EU Emissions Trading Scheme (EU ETS)
- Oliver Walter, VA TECH Finance GmbH: Financing Projects under the Kyoto Protocol
- Thomas Bremstaller, Ecotherm: Company Profile
- Thomas Hoffmann, Polytechnik Luft- und Feuerungstechnik GmbH: Company presentation
- Herwig Mostegel, Röhren- und Pumpenwerk Bauer GmbH: Company presentations (Bauer and FAN)
- Guillermo Barrios, GE Jenbacher: Sistemas de Generación de Energía Eléctrica y Térmica con Motores Jenbacher
- Sascha Eichberger, Kommunalkredit Public Consulting GmbH: The Austrian JI/CDM Programme – Characteristics and Features
- Manfred Stockmayer, Camco International: Assisting in Qualifying and Monetising CDM Opportunities

Presentations Training Mexico:

- Mike Bess, Manfred Stockmayer, including the following topics:
 - Brief background to Kyoto & progress of the flexible mechanisms to date
 - The CDM Project Cycle with Practical examples of International CDM Projects & Lessons for Mexico
 - Preparation of PINs & PDDs: Best Practices and 'How to Guides'
 - Practical examples of International CDM Projects & Lessons for Mexico
 - The Austrian JI/CDM Programme

Documents on approved methodologies:

- ACM0002: Consolidated baseline methodology for grid-connected electricity generation from renewable sources
- ACM0006: Consolidated baseline methodology for grid-connected electricity generation from biomass residues
- AM0019: Renewable energy projects replacing part of the electricity production of one single fossil fuel fired power plant that stands alone or supplies to a grid, excluding biomass projects

- AM0026: Methodology for zero-emissions grid-connected electricity generation from renewable sources in Chile or in countries with merit order based dispatch grid
- Indicative simplified baseline and monitoring methodologies for selected small-scale CDM project activity categories

Tool for the demonstration and assessment of additionality

Project information:

- El Gallo Hydro Power Project:
 - ACM0002: Consolidated baseline methodology for grid-connected electricity generation from renewable sources
 - El Gallo Project Design Document (PDD)
 - El Gallo Validation Report
- AWMS Methane Recovery Project:
 - AM0016: Greenhouse gas mitigation from improved Animal Waste Management Systems in confined animal feeding operations
 - AMS-III.D.: Methane recovery in agricultural and agro industrial activities
 - Sinaola Sonora Animal Waste Management Project Design Document (PDD)
 - Sinaola Sonora Animal Waste Management Validation Report
- Quimobasicos HFC Recovery and Decomposition
 - AM0001: Incineration of HFC 23 waste streams
 - Quimobásicos HFC Recovery and Decomposition Project PDD
 - Quimobásicos HFC Recovery and Decomposition Project Validation Report
 - Quimobásicos HFC Recovery and Decomposition Project Letter of Approval
 - Quimobásicos HFC Recovery and Decomposition Project First Verification Report
 - Quimobásicos HFC Recovery and Decomposition Project Request for Issuance of CERs
- Conservas La Costena – Jugomex Waste Recovery and Cogeneration Project
 - AMS-I.C. Thermal energy for the user
 - Conservas La Costena – Jugomex Waste Recovery and Cogeneration Project PDD
 - Conservas La Costena – Jugomex Waste Recovery and Cogeneration Project Validation Report
 - Conservas La Costena – Jugomex Waste Recovery and Cogeneration Project Letter of Approval

South Africa

Presentations Country Mission South Africa:

- Stefan Pistauer, Austrian Trade Commissioner: Clean Development Mechanism
- Leluma Matookane, DNA: South Africa's Designated National Authority for Clean Development Mechanism
- Manfred Stockmayer, KWI: The Austrian Environmental Technology Market
- Manfred Stockmayer, KWI: Key Aspects of the EU Emissions Trading Scheme (EU ETS)
- Peter Kögler, Kommunalkredit Public Consulting GmbH: The Austrian JI/CDM Programme
- Paul de Mattos, GE Jenbacher: Company Overview

- Thomas Hoffmann, Polytechnik Luft- und Feuerungstechnik GmbH: Company presentation
- Michael Plechaty, VA TECH Finance GmbH: Financing Projects under the Kyoto Protocol
- Martin Schröder, TÜV Süd: Experiences of TÜV Süd in CDM validation and verification
- Cornelius Van Den Berg, SGS: The role of the Designated Operational Entities (DOEs) in the CDM process
- Peter Oldacre, Camco International: Our partnership offering
- Grant Little, Sappi: Sappi Tugela Fuel Switch Project
- Andre du Preez, Pioneer Fishing: Oranjevis Project

Presentations Training South Africa:

- Marina Ploutakhina: Workshop Introduction
- Mike Bess, Manfred Stockmayer, including the following topics:
 - Brief background to Kyoto & progress of the flexible mechanisms to date
 - The CDM Project Cycle with Practical examples of International CDM Projects & Lessons for South Africa
 - Preparation of PINs & PDDs: Best Practices and 'How to Guides'
 - Practical examples of International CDM Projects & Lessons for South Africa
 - Carbon Market and Carbon Finance
 - Introduction to 'Programme of Activities'
- Leluma Matooane: South Africa's Designated National Authority for Clean Development Mechanism

Handouts:

- Practical examples of International CDM Projects – South Africa

Documents on approved methodologies:

- ACM0002: Consolidated baseline methodology for landfill gas project activities
- ACM0008: Consolidated baseline methodology for coal bed methane and coal mine methane capture and use for power (electrical or motive) and heat and/or destruction by flaring
- ACM0012: Consolidated baseline methodology for GHG emission reductions for waste gas or waste heat or waste pressure based energy system
- AM0020: Baseline methodology for water pumping efficiency improvements
- AM0022: Avoided Wastewater and On-site Energy Use Emissions in the Industrial Sector
- AMSIIC: Demand-side energy efficiency activities for specific technologies
- AMSIID: Energy efficiency and fuel switching measures for industrial facilities

Tool for the demonstration and assessment of additionality

Project information:

- Durban Landfill-gas-to-electricity project – Mariannhill and La Mercy Landfills
 - Durban Landfill PDD
 - Durban Landfill Validation Report
 - Durban Landfill LoA
- Omnia Fertilizer Limited Nitrous Oxide (N₂O) Reduction Project
 - Omnia PDD
 - Omnia Validation Report
 - Omnia LoA
- Rosslyn Brewery Fuel-Switching Project
 - Rosslyn Brewery PDD

- Rosslyn Brewery Validation Report
- Rosslyn Brewery LoA
- Mondi Richards Bay Biomass Project
 - Mondi PDD
 - Mondi Validation Report
 - Mondi LoA
 - Mondi Emission Reduction Calculation
 - Mondi Project Financials
- Sasol Nitrous Oxide Abatement Project
 - Sasol PDD
 - Sasol Validation Report
 - Sasol LoA