

EU-China CDM Facilitation Project

EUROPEAN POLICY STUDY TOUR

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ABBREVIATIONS

APCF	Asian Pacific Carbon Fund
CASS	Chinese Academy of Social Sciences
CCS	Carbon Capture and Storage
CDIAC	Carbon Dioxide Information Assessment Centre
CDM PMC	CDM Project Management Centre
CDM	Clean Development Mechanism
CE50	Chinese Economist 50
CERBOF	Centre for Energy and Resource Efficient Construction and Maintenance
CO ₂	Carbon Dioxide
CO ₂ e	Carbon Dioxide equivalent
COP	Conference of Parties
DG ENTR	DG Enterprise
EC	European Commission
EC2	The European Clean Energy Centre
EIA	Energy Information Administration
EU	European Union
EU ETS	European Union Emissions Trading Scheme
GHG	Green House Gases
ICARE	The Euro-Chinese institute of Clean and Renewable Energy
IMO	International Maritime Organisation
JI	Joint Implementation
MOST	Ministry of Science and Technology
NDRC	National Development and Reform Committee
NZEC	Near Zero Emissions Coal

PRCEE	Policy Research Centre for Environment and Economy
REACH	Regulation on Registration, Evaluation Authorisation and Restriction of Chemicals
RoHS	Restriction of Hazardous Substances Directive
SEA	Swedish Energy Agency
SEI	Stockholm Environment Institute
SEK	Swedish Kronor
SEPA	Swedish Environmental Protection Agency
SHC	Swedish Hybrid Vehicle Centre
SICLIP	Swedish International Climate Investment Programme
SMHI	Swedish Meteorological and Hydro logical Institute
UNFCCC	United Nations Framework Convention on Climate Change
WEEE	Waste Electrical and Electronic Equipment Directive

INTRODUCTION

Under the EU-China CDM Facilitation Project, a European policy study tour for Chinese consortium partners to strengthen cooperation and information exchange between EU and China was implemented in October 2008. In the context of the rapid development of the strategic partnership on climate change between the EU and China, in particular in terms of the Clean Development Mechanism (CDM), the overall objective of the policy study tour for the Chinese consortium partners was to achieve a comprehensive understanding of the policies and regulations in the fields of international climate regimes as well as national efforts to combat climate change in member states of the European Union (EU).

Four Chinese representatives from consortium partners, the Policy Research Centre for Environment and Economy (PRCEE) of the Ministry of Environmental Protection (MEP); Chinese Academy of Social Sciences (CASS) and CDM Project Management Centre (CDM-PMC) of the National Development and Reform Commission (NDRC), participated in the tour which took place during 8 October – 17 October 2008. The Policy tour visit to Sweden took place during 8-10 October 2008 where the delegation participated in activities which provided an overview of Swedish policy, Swedish climate policy instruments and policy research into international climate change issues. The visit to the European Union headquarters in Brussels took place during 13-18 October 2008. Key discussions were led by the three main climate and energy policy decision making, implementation and monitoring bodies: the EU Commission, EU Council and European Parliament. A summary of discussion topics and descriptions of host organisations are provided in appendix I.

The policy tour consisted of visits to the key stakeholder organisations in Sweden, such as the Ministry of Environment, the Swedish Energy Agency (SEA), the Swedish Environment Protection Agency (SEPA), Stockholm Environment Institute, and The Swedish Foundation of Strategic Environmental Research as well as one of most active CDM market actors, TRICORONA. Beyond the Member State level, at the visit to DG Environment at the European Commission (EC), a four-day intensive climate policy overview was organised by the DG Environment, to discuss climate – and energy packages, EU Emissions Trading Scheme (ETS) and the role of CDM, as well as the integrated climate policy-making process, in which the EU-China Climate Partnership is addressing in a broader context, including issues related to international trade and investment, as well as competitiveness of European industries. The final stop of the policy tour was TÜV Rheinland Headquarters in Cologne, Germany, where a detailed presentation of the on-site training for the Chinese DOE applicants was given. Appendix II includes the policy tour programme.

This report drawing largely on the content of the policy tour summarises key issues and discussions in the context of developing CDM and climate change policy in China. This report includes a brief review of the international climate change policy developments at the time of the policy tour and an overview of the EU environmental governance and policy developments. This is followed by a brief case examination of the national developments of EU member state, Sweden, and finally an examination of issues relating to China. The information within this report is based on the presentations given on the policy tour. A list of the presentations is provided in Appendix III.

In recent years, annual world emissions recorded by the Energy Information Administration (EIA) and Carbon Dioxide Information Assessment Centre (CDIAC) has risen faster than ever recorded. Under current conditions, actual emissions are already unlikely to stabilise atmospheric Carbon Dioxide (CO₂) concentration at 650ppm. This kind of climate change has been linked to rising surface temperatures, increased sea levels and the rising frequency of more extreme weather conditions over the past 200 years.

In this context, and as COP 15 approaches, the delegation took part in a number of discussions on key policy issues concerning climate change. This included policy options regarding EU contributions to policy development as well as the common but differentiated responsibility approach to climate change mitigation.

The EU's current approach to environmental policy is based on the 6th Environment Action Programme (2002-2012). This addresses the EU's main priorities for action on the environment: climate change, nature and biodiversity, environment and health, and sustainable use of natural resources:

1. Climate change

EU commitments to climate change mitigation were established at the Spring Eur Council in 2007 and stipulated in the EU's Climate and Energy package 2008 which was endorsed by European heads of state in March 2007. It created a common energy policy for Europe to address issues including renewable energy, bio fuels, internal gas and electricity, nuclear and fossil fuels; achieve near-zero emissions by 2020 and form an European strategic energy technology plan. The EU aims to cut greenhouse gas emissions by 20% by 2020 (30% is an international agreement is reached). The EU is also committed to saving 20% of energy consumption through increased energy efficiency; increasing bio fuels in transport to 10% as well as boosting renewable energies by 20%.

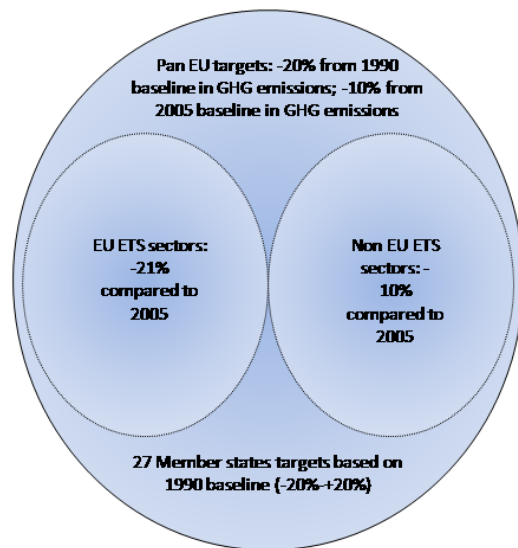


Fig 1: EU- GHG reduction targets

In line with common but differentiated responsibilities, the EU has implemented a cost-effective distribution of abatement responsibilities across different sectors and member states (see fig. 1). This includes national targets in sectors outside the EU-ETS, national renewable targets and flexible market based support instruments. As a result, poorer member states can continue to

grow in strategic sectors such as transport but the package will still stabilise the overall Green House Gas (GHG) emissions of EU member states.

Key EU initiatives on Climate change

- The "**Climate Action and Renewable Energy Package**": the European Commission's legislative proposal to achieve agreed EU objectives in the fight against climate change.
- The "**effort sharing**" decision: A proposal for a decision by the European Parliament and of the Council on the effort of Member States to reduce their greenhouse gas emissions to meet the Community's greenhouse gas emission reduction commitments up to 2020.
- Commission proposal for a **Directive on the geological storage of carbon dioxide**.
- **European Climate Change Programme II: Impacts and Adaptation**.
- EU action against climate change: **EU emissions trading** - an open scheme promoting global innovation.

The cornerstone of the EU Climate Change Programme is the EU-ETS. EU-ETS is the first international trading scheme for CO₂ emissions. It is based on an EU directive which entered into force in 2003 aiming to assist member states reaching national commitments under the Kyoto Protocol. It covers more than 11,500 energy-intensive installations across the EU including oil refineries, iron and steel plants and cement producing factories. Transaction between member states began in January 2005. In its first year, 362 million tons of CO₂ were traded on the market for a sum of €7.2 billion. The second phase began this year and will be completed in 2012.

The EU is also addressing climate change through sector policies, such as the EU transport policy. In addition to a proposed legislative framework which sets out new passenger vehicle emissions, which account for approximately 12% EU carbon emissions, from 160 g/Km CO₂ to 120 g/Km CO₂ by 2012. Under the proposed legislation, by 2012 car manufacturers must ensure that the average emissions of all newly manufactured cars registered in the EC are below the stipulated average permitted emissions. Elsewhere, the EU supports international measures to tackle policies in shipping, working closely with the International Maritime Organisation (IMO) and United Nations Framework Convention on Climate Change (UNFCCC) towards finding a suitable global solution.

The EU also provides state aid guidelines for environmental initiative through which member states can grate up to 100% of the additional net costs of investments into renewable energy, and loans to small and medium sized enterprises for investments in energy efficiency with payback of more than 3 years.

Additional policy instruments under development include non-ETS sector policies (including road transport, building and agriculture); legislation on targets for renewable energy development; proposals to create a low-carbon European economy and Carbon Capture and



Storage (CCS). CCS by developing a legal framework to manage environmental risk and remove barriers in existing legislation including provisions for ensuring integrity through the life cycle of the plant.

2. Nature and Biodiversity

The 2006 Biodiversity Communication and its Action Plan set out a detailed agenda for EU action to halt the loss of biodiversity by 2010. It proposes ten priority objectives including habitat and species protection; making regional development more compatible with nature; effective international governance; support to biodiversity in international development and reducing negative impacts of international trade. The Commission also recognises the need for four supporting policy measures relating to adequate financing, strengthening EU decision-making, building partnerships and promoting public education, awareness and participation.

In addition to the Biodiversity Action Plan 2006, the Natura 2000 network supports the EU policy on nature and biodiversity. It is a network of protected land areas throughout the member states collectively representing over 20% of EU territory, and the largest network of protected land in the world.

3. Environment and Health

As part of actions to protect health and the environment of Member State's citizens, the EU has introduced a number of initiatives. This includes development of environmental legislation on air, water and waste as well as new proposal on industrial emissions. The new Regulation on Registration, Evaluation Authorisation and Restriction of Chemicals (REACH directive), which will be fully implemented in January 2009, sets in place environmental protection against the use of hazardous chemicals in production. This directive will also facilitate international environmental protection on consumption and production as it will be enforced on all chemical imports to the EU.

4. Sustainable use of natural resources

EU efforts towards sustainable use of national resources concentrate on policies on waste products. This includes legislation on eco-efficiency, and a revision of the Waste Framework Directive, Waste Electrical and Electronic Equipment Directive (WEEE) and Restriction of Hazardous Substances Directive (RoHS), as well as new policies on better ship dismantling, for example. The Sustainable Consumption and Production Action Plan, adopted in July 2008, includes a number of mandatory and voluntary tools including the EU Ecolabel which has already contributed to Chinese legislation on energy labelling.

To facilitate smarter consumption in member states the EU is exploring fiscal incentives or green public procurement incentive instruments as well as managing awareness and education actions. To facilitate smarter production, the EU works in resource efficiency and eco-innovation,

environmental technology verification and revised EU Eco-Management and Audit Scheme. External policy includes the SWITCH-Asia Programme, Free Trade Agreement EU-ASEAN and Partnership and Cooperation Agreement with China which aim to strengthen cooperation including in the field of the environment.

DG Enterprise (DG ENTR) is also presently exploring different ways to develop policies incorporating climate change and energy security. According to DG ENTR large investments are required to improve the way global sectors operate in terms of environmental sustainability. To achieve this, new mechanisms should be developed to drive the change. The types of issues that are currently being addressed by DG ENTR include establishing proof of concept for Sectoral Approaches, incentives and barriers to implementation including monitoring systems in developing countries.

An example of national climate change policy development is the Greenhouse Development Rights Framework, devised by Stockholm Environment Institute and Eco-equity. It is an emergency climate change mitigation strategy which incorporates common but differentiated responsibilities. At the core of the framework is a "*development threshold*" (adjusted to purchasing power parity). Regardless of location and nationality, people with incomes above the threshold contribute to the global costs of an emergency programme of climate change mitigation and adaptation. Within this scenario a small portion of the population in lesser development nations, for example India and China, will be obliged to make contributions, while the opposite would apply in more developed nations such as the United States. Contributions are closely tied to the financial capability of each country, and therefore would increase as national development increases thus providing a flexible framework for common but differentiated mitigation.

The international response to these issues has, thus far, focused on mitigation policies rather than adaptation measures. However it is now accepted that adaptation is, in fact, one key method to respond to the unavoidable delayed climate change already caused by current and recent emissions. Population density, land use and water usage are key issues and less developed countries, which often suffer the most from climate change are now voicing support for greater attention to adaptation, contributing to this policy development. The Bali action plan on cooperative measures leading up to COP 14 is one such case in which addressed mitigation and adaptation issues in equal measures.

Mistra SWEdish Research Programme on Climate, Impacts and Adaptation, a research programme on adaptation measure in climate change launched in 2008, is one example of European Initiatives to support the inclusion of adaptation measures in climate change policy. Mistra-SWECIA is the cooperation between the Swedish Meteorological and Hydro logical Institute (SMHI); Stockholm Environment Institute (SEI); Department of Physical Geography and Ecosystems Analysis of Lund University; and the Department of Meteorology and Institute for International Economic Studies of Stockholm University. The programme, funded Mistra, the foundation for strategic and environmental research, aims to support global and regional models of climate and economy through climate change adaptation research.

Mistra SWECIA research combines a top-down and bottom-up research approach on climate adaptation examining current and future policy issues at the global to local. Key research objectives for phase 1 (2008-2011) include the development of climate modelling, climate economy modelling, impact modelling and testing a number of adaptation to climate change scenarios. The capacity and suitability to mainstream adaptation policies is heavily dependant on the type of adaptation, as well as what it aims to achieve. Regardless, adaptation needs to be formed within an integrated approach at the local and global level.

CLIMATE CHANGE POLICY AT THE EU MEMBER STATE LEVEL – SWEDEN

In Sweden the policy tour delegation attended seminars with key agencies on the current developments at the national level. Sweden is an integral part of the European Union and the work of the host agencies could provide key direction for European, Chinese and international policy developments. Swedish action to tackle climate change is largely channelled through the EU and the implementation of the Kyoto Protocol is a high priority for the national government. The Swedish parliament has national GHG emissions reductions by at least 4% of 1990 baseline levels by 2012 and 50% by 2050. To achieve this the Swedish government has identified the climate as one of the major priority issues newly imitative of SEK 1 billion (*“the climate billion”*) in the fields of: climate research, energy efficiency, second-generation biofuels, network for wind power, sustainable yield of bio-energy in agriculture and forestry, climate investments in other counties and program for sustainable cities. Swedish energy policy strives to create a sustainable energy supply from renewable energy sources. To date the share of renewable energy sources has increased rapidly from 22% of total energy supplies in 1994 to 28% in 2008. This is mainly the result of increases in biomass energy. Electricity production in Sweden is also largely fossil free; largely hydropower or nuclear. A summary of these initiatives is provided in appendix IV. The policy tour visited national policy development and enforcement agencies in Sweden. This included the SEPA and SEA, two key organisations at the institutional level which support the EU’s efforts to tackle climate change issues.

SEPA is a central environmental authority which coordinates and promotes national and international environmental work in Sweden. Specifically, SEPA:

- Guides coordinates, monitors and evaluates the implementation of environmental policy at the national level;
- Develops environmental codes and monitors the application of relevant legislation;
- Monitors the state of the environment at the national and international level.

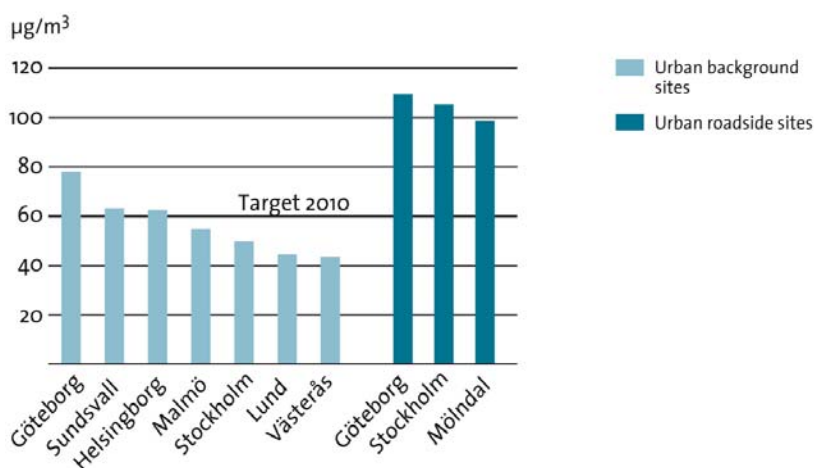
The work of SEPA is guided by the 16 national Environmental Quality Objectives which were adopted by Swedish parliament in 1999 and 2005 and ensure that SEPA follows a clear national strategy. In addition, the parliament has apodted over 70 interim targets within this framework and developed targets at the national, regional and local level to ensure divided responsibility. The progress towards these targets is monitored on an annual basis, with re-evaluation every 4 years to ensure flexibility and timely reaction to changes to the policy environment. Presently, SEPA ensures one objective is already on target for 2050, and 6 objectives are showing significant progress towards achieving targets. SEPA has been taking steps to strengthen efforts in weaker areas such as measures to improve clean air including reaching sulphur dioxide

targets in 2005; nitrogen dioxide emissions by 2010 (see Fig 2) and is currently on target to achieve 2008-2012 GHG emissions targets.

While there are still areas which require significant improvements, SEPA has already produced a number of promising results. The framework under which Sweden implements measures towards managing climate change could provide a framework for China on monitoring and developing national strategies. Sweden's development in climate change policy addresses four key sectors: energy, transport, industrial processes and waste management, as well as cross sectoral issues. The SEPA supports development in each area through different policy instruments as well as investment grants of €200 million (2003-2008).

Energy and carbon taxation has been under development since the 1950s when the Energy tax was first introduced in Sweden. In support of economic development, a number of energy intensive sectors and fuels are exempt, or pay a lower proportion of tax. For example, fuels for the production of electricity are exempted from both energy and carbon dioxide tax. As a result, oil has decreased as a proportion of energy usage, bio-energy, now the cheapest heating energy alternative, has increased and natural gas has been introduced as a new energy source. District heating has been introduced to reduce local pollution and increase the potential for efficient cogeneration of heat and power.

Fig 2 Nitrogen dioxide in urban areas in 2005 (hourly mean concentrations)



SOURCE: SWEDISH ENVIRONMENTAL MONITORING PROGRAM

Transport is one of the biggest challenges to emissions reductions in Sweden. Improved energy efficiency in vehicles has been found to result in increased demand for vehicles which are heavier with larger fuel consumption, instead of lower fuel consumption. To counteract this, the government has imposed higher fuel taxes and market prices in order to make bio-fuels more competitive. In addition, CO₂ differentiated vehicle taxes and regulation on energy supply (e.g. filling stations are obligated to provide alternative fuels) support energy efficient vehicles and encourage more sustainable purchase decisions.

Waste planning since the 1990s has included municipal waste planning and resulted in a reduction in the amount of organic materials in landfills and improved management of methane gas from landfills. As a result, in part, of new taxes on waste products, the government has succeeded in reducing the amount of household waste deposited and increased recycling and bio-gas production. With strong policy measures in place, Swedish waste emissions could decline to less than 500 CO₂e by 2020.

The Swedish Energy Agency also contributes to the work of the Swedish government as part of an integrated approach to climate change through policy and industry research. Research and development focuses on research and innovation in key policy areas, specifically: buildings as energy systems, energy intensive industry, transport, electricity generation and distribution, bio-energy and energy system studies. Table 1 below indicates some of the key R&D activities of the Swedish Government which were discussed during the policy tour. In terms of energy development, SEA supports renewable energy options, energy efficiency development and GHG reductions, all through various tax and subsidies instruments.

Table 1. Sweden’s R&D priorities and example activities

Prioritised area	Key examples of R&D in Sweden
Energy system studies	<ul style="list-style-type: none"> • Analysis of energy policy measures and their consequences
Buildings as energy systems	<ul style="list-style-type: none"> • Centre for energy and resource efficient construction and maintenance (CERBOF) • Development of district heating • Development of passive houses (houses without heating systems)
Transport Sector	<ul style="list-style-type: none"> • Second generation of fuels, mainly ethanol, from forest industry and gasification of biomass; • Hybrid vehicles and energy efficient combustion engines adapted to alternative fuels; e.g. Swedish hybrid vehicle centre (SHC), a collaboration between car and heavy vehicle industry Chalmers, the Royal Institute of Technology, Lund University of Technology and the Swedish Energy Agency.
Energy intensive industries	<ul style="list-style-type: none"> • Pilot plants for production of bio fuels; • Efforts to further reduce energy losses and utilize bio fuels more efficiently in energy intensive industry; • Process integration (overall energy analysis, mapping energy flows in factories, potentials for structuring and modifying industrial processes in order to make more efficient use of energy and reduce environmental impact)
Electricity Generation and distribution	<ul style="list-style-type: none"> • Robust and more efficient power systems; • Energy production from flowing energy sources, mainly hydro and wind power; • Create conditions for a Swedish solar cell industry; • Artificial photosynthesis; • Wave energy in Sweden.
Bio energy including Combined Heat and Power Production	<ul style="list-style-type: none"> • Strengthening the resource base for a sustainable production of bio energy; • Efforts to increase energy efficiency through effective processes, mainly from climate neutral fuels

The Swedish Joint Implementation (JI) and Clean Development Mechanism (CDM) Programme aims to contribute to the development of CDM and JI as efficiency mechanisms to tackle climate change and reduce GHG emissions. Activities go beyond the EU-China CDM project. In addition to awareness raising and business awareness, through networking, the Swedish government is also participating in project development and lending financial and legal support on CDM and JI issues. The SEA also supports these activities through private sector surveys and support networks of relevant stakeholders. This example

indicates how the deliverables of the EU-China CDM Facilitation Project can be expanded in the future to further support the implementation of CDM in China.

The Climate Policy Unit of the SEA also manages the Swedish International Climate Investment Programme (SICLIP) which supports international cooperation on CDM and JI through a number of activities including, support to private sector investment in CDM and support to the UNFCCC negotiations. Established in 2000, the €34 million programme also participates directly in CDM and JI projects, with priority given to renewable energy and energy efficiency and efforts to make a geographically balanced portfolio. Presently, the agency is involved in projects in several projects around China including waste heat recovery and wind parks as well as a variety of project types across Latin America, Africa, Asia and Central and Eastern Europe. The SICLIP programme's aims to contribute to the development of the Kyoto mechanisms and to enhance knowledge and gain experience of developing CDM and JI projects.

The Swedish government has observed that lack of investment capital is a major barrier to successful implementation which can be solved through mobilising the underlying financing and developing a more cost effective way of achieving emissions reductions. China is an important player in terms of international cooperation with Sweden, and therefore the future expansion of these financing mechanisms, and further development to overcome such barriers will benefit both countries CDM project development and implementation.

The Asia Pacific Carbon Fund (APCF) is another tool for financing CDM in developing countries. Sweden is one of the 6 EU member states, in addition to Switzerland, which participates in this \$150 million (over €118 million) financing mechanism. In line with the Swedish national policy development, the APCF gives priority to renewable energy and energy efficiency projects as well as methane capture projects. China is the largest recipient of the APCF, currently benefiting from a third of its financed development projects.

In the EU, Sweden is pressing for an ambitious climate policy development, such as the climate and energy package which, for Sweden, will result in a 17% GHGs reduction compared with 2005 level and an increase in the share of renewable energy from 39.8% to 49%. In addition, Sweden supports broadening the sectoral scope of the EU-ETS; inclusion of other GHGs as well as permitting emission trading rights to be auctioned.

Sweden aims to be a world's leading model on sustainable environmental protection, with a fossil-free, environmentally driven economy achieving rapid growth. To realise greater international climate cooperation and to establish long-term global work on climate change, key initiatives include:

- Actively on developing CDM projects: an increase in the allocation to CDM projects has been proposed, from SEK 18 million per year to SEK 50 million per year. Countries with rapidly increasing emissions have priority.
- Initiative for an international Commission for Climate Change and Development: for "climate-proof" development assistance by integrating risk reduction and adaptation to climate change in the development and poverty reduction plans for poor countries.
- An active role during the EU Presidency 2009: in persuading the world's countries to agree on a new climate treaty.

Sweden is supporting China's efforts towards a low carbon economy in a number of areas. In addition to the EU-China CDM Facilitation Project, which is lead by IVL Swedish Environmental Institute, the Stockholm Environmental Institute (SEI) works closely with the Chinese Economist 50 Forum (CE50), a collaboration of 50 Chinese leading economists which carry out an economic analysis of climate change in China. These organisations work together to provide policy thoughts for China to develop a low carbon economy. Research will consider how to develop social and development objectives alongside a low carbon economy, and explores institutional infrastructure to support this development. This initiative currently has a budget of €1.1 million (11.5 million SEK), and has secured the funding from a number of sources such as Shell China and GTZ. The project is ongoing until the end of 2009.

NATIONAL DEVELOPMENT STRATEGY – CHINA

The policy tour provided the Chinese delegation with an opportunity to gain insight into a number of national and regional policies in Europe. As a result, the delegation is equipped to inform on new policy developments in China. In addition to these cooperation programmes, the EU works closely with China to further cooperate on climate change mitigation. The policy tour discussed current and future EU-China initiatives to gain an understanding of current and future cooperation. This included high level policy dialogues; the EU-China Partnership on Climate Change; The Near Zero Emissions Coal initiative (NZEC); The European Clean Energy Centre and The Euro-Chinese institute of Clean and Renewable Energy.

There are currently two high level dialogues on energy cooperation between the EU and China. A dialogue on transport and energy, with governmental departments such as the NDRC, aims to strengthen mutual understanding on energy, promote information exchange on energy policy and technology and develop relevant cooperation. In addition, a dialogue on energy with Ministry of Science and Technology (MOST) is another example of information exchange. It is held in the context of the EU-China Energy Conference which is a biannual conference co-organised by the EU's Directorate-General for Energy and Transport and MOST.

The EU- China climate cooperation was established at the 8th EU-China Summit in September 2005 through a Joint Declaration on Climate Change, launching the EU-China Partnership on Climate Change.¹ This partnership provides a high-level political framework to further strengthen the cooperation between EU and China by setting out concrete new actions to tackle climate change. These actions are set out in the Rolling Work Plan, as agreed in Beijing on 19 October 2006. It aims to demonstrate advanced coal technologies based on CCS, to reduce the costs of key energy technologies and to promote their dissemination by 2020 through an EU-China cooperative partnership. And the research of EU-China CDM facilitation project into technology transfer has established some preliminary recommendations to the EU for improving CDM implementation in China:

- Actively promote technology transfer to China through business opportunities;
- Promote technology transfer, and remove barriers to technology transfer to China;

¹ More information available at: <http://ec.europa.eu/environment/climat/china.htm>

- Establish a support framework for technology transfer to China;
- Create bigger incentives and policy support, e.g. export credit, credit guarantees, etc.

In addition EC funding has contributed to the work on the UNDP in developing local policies, institutional frameworks and capacity in China to implement the National Climate Change Programme effectively. NZEC is made up of a number of EC funded projects including the STRACO2 and COACH projects on the developments in CCS. Through the NZEC the EC has secured €60 million funding for clean coal technology transfer cooperation with emerging economies.

The European Clean Energy Centre (EC2) initiative is a key example of EU-China cooperation. Its objective is to promote an increase use of clean energies including renewables through improved access to European policy, regulatory framework, technology experience and best practices. Established as a legally registered, non-profit entity in China it is composed of European and Chinese organisations. It will serve as a platform for capacity building on regulatory conditions for energy markets and facilitate exchange of knowledge and emerging technologies, in line with the current recommendations from the EU-China CDM Facilitation Project.

The Euro-Chinese institute of Clean and Renewable Energy (ICARE) is a cooperative initiative of the Ministry of Education and DG Research. It addresses the lack of a critical mass of Chinese engineers trained into these new technologies, and aims to fill the gap between the growing demand for specialised clean and/or renewable energy experts, and the limited expertise currently in this field. The institute will provide a Masters degree, a research platform for post-graduate students and establish a vocational training centre for existing energy professionals.

Currently, through China's National Action Plan on Climate Change, the government intends to stabilise industrial emissions at 2005 levels by 2010. Increasing hydropower, wind and biomass as well as nuclear energy generation are also emphasised as key tools in reducing GHG emissions. China supports the development of the Kyoto agreement, specifically in terms of common by differentiated responsibilities for all parties. The work of the EU described above illustrate the relevant developments of EU policy and research to develop these ideas, as well as actions which go beyond stabilising GHG emissions, including adaptation and mitigation strategies.

Future energy and climate cooperation between the EU and China is likely to come from new areas of interest such as bio-fuels. Both the EU and China recognise that it is necessary to take an integrated approach to energy and climate change research and environmental policy, and close cooperation is an important factor to development in this area.

The policy tour was considered a fruitful mutual learning experience. From the perspective of the Chinese delegation, the specific policy instrument, such carbon tax, environmental protection targets, as well as the insights of the climate policy-making and the role played by EU ETS were of great interests. The face-to-face discussion as well as the direct exchange of information, on the current development of the Chinese CDM market, as well as the on key policy issues, such as technology transfer and sustainable development, are also highly appreciated by host organisations. After the policy tour, Chinese delegation has completed a

study report including the climate change policy options in Europe and policy recommendations, and submitted it to the key Chinese policy-making authorities such as MEP and NDRC. The supports from EU-China CDM Facilitation project and European host organisations are greatly appreciated by the delegation.

SUMMARY POINTS

Key issues discussed during the policy tour:

- How the EU has developed a regional-level environment policy and how climate change has risen up the agenda.
- The role of the Council, the Parliament and the Commission in climate change policy and how the EU functions at the international (UN) negotiations.
- The EU-China climate change and energy cooperation
- The role of climate partnership on the long-term co-operation between EU and China and the key messages from President Barroso's visit to China.
- The EU climate change and energy policy including the package and info on EU action on transport emissions.
- How to ensure that climate change and energy security policies work together to ensure the competitiveness of industrial sectors and industrial enterprises in the EU.
- The review of the EU ETS: shaping the ETS to be the backbone of the global carbon market.
- How to link the domestic emissions trading schemes and the interface between EU ETS and the CDM.

Host organisations (Sweden)

- **Swedish Ministry of Environment:** The key governmental body for environmental and climate policy in Sweden.
- **Swedish Ministry of Enterprise, Energy and Communications:** the key governmental body for industrial policy making, in close co-operation with Ministry of Environment, regarding environmental and climate-related regulation that affect the industrial development and in particular the competitiveness of the Swedish industry.
- **The Commission on Sustainable Development:** A new consultancy and advisory body, which was directly managed by the Office of the Premier Minister. The Commission's work is action-oriented and focuses on themes identified as essential for creating the condition for sustainable development. Climate change is one of the main themes for the Commission.
- **The Swedish Environmental Protection Agency (SEPA):** SEPA is the national agency for environmental protection and nature conservation. Its key tasks are to present proposals for environmental policy and legislations to the Swedish Government and ensure that environmental policy decisions are implemented. In the field of climate change, the SEPA is responsible for the environmental quality objective of reduced climate impact, which signifies a key role in effort to limit climate impact and for follow-up of the trend towards reduced climate impact.
- **The Swedish Energy Agency (STEM):** STEM is the national authority for energy policy issues. The specific climate related responsibilities include, the management of Swedish Emission Trading Registry (SUS), development of the Swedish CDM/JI programme, as well as participation in international climate negotiation and the promotion of the sustainable and climate-friendly energy system
- **The Swedish Foundation for Strategic Environment Research (Mistra):** MISTRA seeks to promote sustainable development, through investing in collaboration between researchers and users- with the aim of identifying and solving environmental problems of strategic importance. In climate change related fields, MISTRA has funded large-scale research program in the fields of impact assessment of trade and adaptation, environment and trade as well as international climate policies.
- **Stockholm Environment Institute (SEI):** SEI is an independent, international research institute specializing in sustainable development and environment issues. SEI's Climate and Energy Programme address research issues that international climate regimes and innovative energy strategies that support the goals of social equity, environmental sustainability, and efficient economic development.

Key discussion topics (Sweden):

	Policy-making	Policy-implementation	Research
Host organisations	<p>Ministry of Environment</p> <p>Ministry of Enterprise, Energy and Communications</p> <p>The Commission on Sustainable Development</p>	<p>The Swedish Environmental Protection Agency (SEPA)</p> <p>The Swedish Energy Agency (STEM)</p>	<p>The Swedish Foundation for Strategic Environment Research (Mistra)</p> <p>Stockholm Environment Institute (SEI)</p>
Key discussion topics	<ul style="list-style-type: none"> • How the Swedish government works on climate issues both at the government, EU and international levels. • The role of CDM in Sweden's international climate cooperation and efforts • Environmental technology as the Swedish national industrial and climate policy. • The role of climate change in the sustainable development of Sweden. 	<ul style="list-style-type: none"> • The implementation of the Swedish climate policy and regulatory framework. • The Swedish CDM/JI and capacity building program. • The R&D activities in the Swedish energy sector. • The Swedish environmental objectives. • International cooperation in climate change and environmental protection between Sweden and China. 	<ul style="list-style-type: none"> • The new approach of burden sharing: Greenhouse Development Rights. Experiences from international climate negotiations and different approaches to deal with adaptation. • Co-benefits between climate change actions and development strategies and policy in developing countries. • China Economics of Climate Change – Co-operation between SEI and Chinese Economists 50 Forum on macroeconomic and international policy for dealing with climate change. • Some key topics on climate policy research in supporting international climate negotiation and international climate regimes, such as CCS, impact assessment of climate change and

			adaptation.
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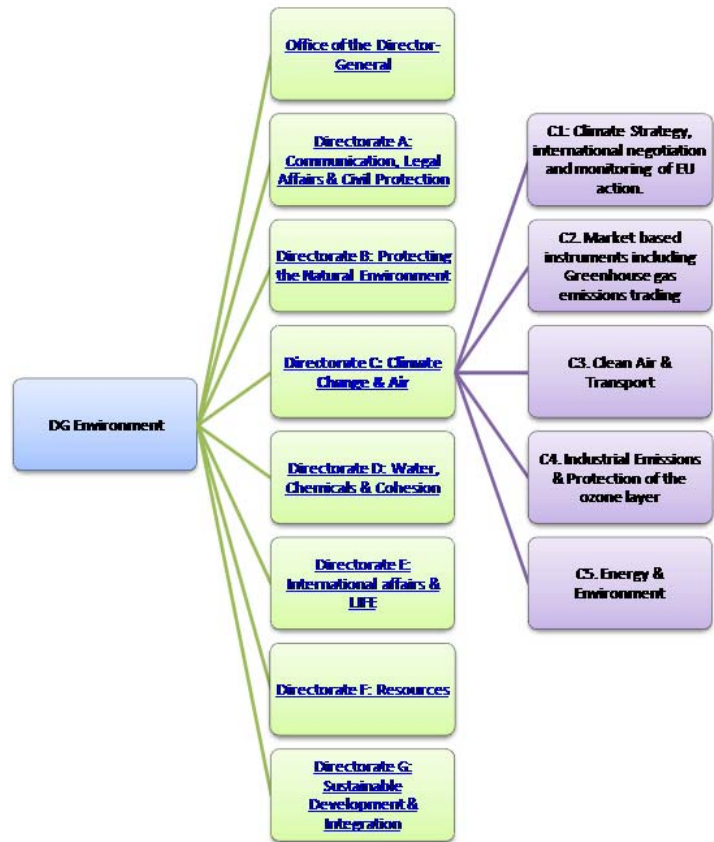
Host Institution (Brussels)

- The European Commission's Environment Directorate-General (Environment DG) is in charge of the *European Commission's* work on climate change. An organisational structure is provided below. The main responsibilities of Environment DG are:

1. To developing legislation and other new initiatives. The most recent and also the most important initiative is the “**EU Climate Change and energy package**”, which was released in February, 2008.
2. To ensure that measures that have been adopted are put into practice in the Member States by **monitoring implementation**, once proposed by the Commission.
3. To **represent the EU in international negotiations**, keeping the EU at the forefront of international efforts to combat climate change.

The ministers of the Member States meet within the **Council of the European Union**, representing the 27 EU governments. The presidency of the Council is held for six months by each Member State on a rotational basis.

The Council of the European Union passes laws, usually legislating jointly (in **codecision**) with the European **Parliament**, which is an active participant in this legislative process.² The Council is a single body, and responsible for **decision-making and co-ordination**. But for reasons relating to the organisation of its work, it meets – according to the subject being discussed – in different ‘configurations’, which are attended by the Ministers from the Member States and the European Commissioners responsible for the areas concerned. Currently there are totally 9 configurations including environment.



² European Parliament, which is made up of 785 directly elected deputies from all 27 EU Member States.

The Environment Council is composed of environment ministers who meet about four times a year. In this sector, the European Community has the task of fostering the harmonious, balanced and sustainable development of economic activities which respects the need, in particular, to ensure a high level of environmental quality.



8 October 2008	Introduction to Sweden's Environment, Energy and Climate Policy, The Swedish Energy Agency
9 October 2008	Research on climate policy and sustainable development in Sweden, Mistra: The foundation for Strategic Environmental Research, Stockholm
10 October 2008	Carbon Market actor and industrial co-operation for environment solutions, The Swedish Environmental Protection Agency (SEPA), Stockholm
13 October 2008	Introduction to the EU and the European Environment Policy, The European Commission, Brussels
14 October 2008	Presentations by EC officials, The European Commission, Brussels
15 October 2008	Presentations by EC officials, The European Commission, Brussels
16 October 2008	Presentations by EC officials, The European Commission, Brussels
17 October 2008	EU-China CDM Facilitation Project visit to TÜV Rheinland, Cologne

APPENDIX III: POLICY TOUR PRESENTATIONS

Åhman, Max, *A New Research Program on the Policy, Politics and Regulation of Carbon Capture and Storage (CCS)*, [presentation] Chinese Climate Delegation Visiting Mistra, (9 Oct 2008).

Arfwidsson, Thea Ohlander, *Swedish Climate Policy*, [presentation] Environmental Protection Agency by a delegation from China (10 Oct 2008).

Bahr Ljungdell, Josephine, *Successful Climate Policies – a Swedish perspective*, [Presentation],

Hansén, Ola, *Information and support to Swedish companies regarding CDM & JI*, [presentation] Visit by a delegation from China, Swedish Environmental Agency, (8 Oct 2008).

Klein, Richard, *International climate policy and the role of adaptation*, [Presentation] Seminar on international policy and sustainable development, Stockholm (9 Oct 2008).

Klein, Richard, *Mistra-SWECIA – Mistra SWEdish Research Programme on Climate, Impacts and Adaptation*, [presentation] Chinese Climate Delegation Visiting Mistra, (9 Oct 2008).

Lai, Li, *Economics of climate change – toward a low carbon economy in China*, [Presentation] Seminar on international policy and sustainable development, Stockholm (9 Oct 2008).

Månsson, Tommy, *CD Capacity Building Program*, [presentation] Visit by a delegation from China, Swedish Environmental Agency, (8 Oct 2008).

Möllersten, Kenneth, *CDM and JI – role and experience of the Swedish Energy Agency*, [presentation], Visit by a delegation from China, Swedish Environmental Agency, (8 Oct 2008).

Ottosson, Katrin, *Development co-operation between SEPA and the Swedish EPA*, [presentation] Environmental Protection Agency by a delegation from China (10 Oct 2008).

Pathirana, Stephen, *Climate Change – Energy Security – and Competitiveness*, [presentation] European Commission – DG Entr (Oct 2008).

Rahmstorf, Stefan, *Update of Climate Science since IPCC 2007*, [presentation] Stakeholder conference: Towards a comprehensive and ambitious post-2012 climate change agreement, Charlemagne building, Brussels (15 Oct 2008).

Rantil, Michael, *Energy R&D Activities in Sweden*, [presentation] Visit by a delegation from China, Swedish Environmental Agency, (8 Oct 2008).

Sheppard, Lynn, *EU-China energy and climate change cooperation*, [presentation] European Commission – DG Energy and Transport (14 Oct 2008).

Sheppard, Lynn, *Introduction to The EU's Climate and Energy package 2008*, [presentation] European Commission – DG Energy and Transport (Oct 2008).

Strongylis, George, *Environmental Governance and Regulation in the EU*, [presentation] European Commission – DG Env (Oct 2008).

Tian Chunxiu, *The role of CDM in China – technology transfer and sustainable development*, [presentation] Visit by a delegation from China, Swedish Environmental Agency, (8 Oct 2008).

Törner, Anna, *Environmental Technology – Swedish National Policy*, [Presentation] Visit by a delegation from China to the Ministry of the Environment, (8 Oct 2008).

Torvanger, Asjörn, *A brief presentation of CLIPORE: The Mistra Climate Policy Research Program*, Chinese Climate Delegation Visiting Mistra, (9 Oct 2008).

Wrådhe, Hans, *Welcome to the Swedish Environmental Agency*, [presentation] Visit at the Swedish Environmental Protection Agency by a delegation from China (10 Oct 2008).

Energy policy

Responsible ministry: Ministry of Enterprise, Energy and Communication.

Responsible agencies: Swedish Energy Agency (SEA) and Affärsverket Svenska Kraftnät.

Key activities:

- Swedish energy policy strives to create a sustainable energy system with a long term vision for Sweden to obtain all energy supply from renewable energy sources.
- Key characteristics of the Swedish Energy System:
- Electricity production in Sweden is basically fossil-free: 50% comes from hydropower and the remainder is provided by nuclear power.
- The share of renewable energy sources has increased rapidly, from 22% of the total energy supply in 1994 to 28% today. Biomass accounts for the greatest part of the increase.
- Sweden has an extensive district heating sector, which account for 40% of the heating market in Sweden.
- Green certificates have been implemented since 2003 as a new instrument for promoting renewable electricity production.
- Bio energy, bio fuel and wind power will be further supported and promoted by government policy.

Climate policy

Responsible ministry: Ministry of Environment

Key activities:

- The Swedish Parliament has endorsed the goal of reducing national emission of GHG by at least 4% below 1990 during the 2008-2012 commitment period. Moreover, the environmental quality objective of reduced climate impact means that the Swedish emission of GHG should decline by up to 50% from present levels by 2050.
- The Swedish action in the climate area is largely channeled via the EU, which has given Swedish efforts considerable weight in the international negotiations.
- The implementation of the Kyoto Protocol is a matter of the highest priorities for Sweden and the EU.

Key Energy and Climate initiatives:

Initiatives in the energy sector: National targets to all county administrative boards to develop regional climate and energy strategies in 2008; support for speeding up the expansion wind power since 2008 and a Programme for Energy Efficiency for energy-intensive industry since 2005.

Initiatives in buildings: Support to encourage the conversion from direct electric heating in housing; support to the installation of energy-efficiency windows in single-family homes or to the installation of biofuel heating systems in newly built single-family homes; and support to the installation of solar heating in commercial buildings.

New actions for sustainable cities to bring together the state, the business sector and local authorities in a national platform to create identify areas in Sweden that demonstrates cutting-edge technology for sustainable housing solutions. A national strategy for sustainable cities is underway.

Environmental technology initiatives: Aims to develop Swedish environment technology and to increase the opportunities for Swedish exports in the field of environmental technology with a longer term focus on small and medium-sized business.

Actions and measures in the transport sector include: A green car rebate of SEK 10,000 to stimulate demand for fuel-efficient cars and cars that run on alternative fuels; a permanent congestion charges in Stockholm from August, 2007; development of more environmentally sound cars through R&D and joint programs with the automotive industry; the continuous expansion of the number of biogas stations; tax exemption for green fuel, such as ethanol and other bio fuels and reinforcement of the development of the second-generation bio-fuel.

A climate tax package which comprises of more than SEK 3 billion in higher energy and climate taxes in the Budget Bill for 2008. Carbon dioxide tax was raised by SEK 0.06/kg CO₂ to a total of SEK 1.01/kg CO₂. For consumer, this means a total cost increase of SEK 0.297/litre petrol. Energy tax on diesel also increased by SEK 0.20, which translates to total increase of SEK 0,55/litre for diesel oil.

The climate initiative related public procurement takes forms of tightened requirements for the share of environmental cars in public procurement and leasing of cars by the central government from 75% to 85%; to improve the methods of specifying energy management requirements in public procurement and to introduce stricter environmental requirements for public procurement. Offsetting for air travel by Government offices is now required and implemented through CDM projects.

Research in the climate field: SEK 1 billion on climate and environmental research was invested by the Swedish government in 2008. Some key government-supported research programs include: 1) development of regional climate models and climate scenarios for precipitation and temperature in a 50-100 year perspective; 2) initiatives for R&D, demonstration and commercialization in e.g. biofuels, fuel cells and other energy technologies; 3) research on the importance of land use for the climate and research on carbon sinks; 4) research on GHG balance and the effects of climate change on various ecosystems, infrastructure and buildings; 5) Research on climate tools for drafting adjustment strategies ahead of climate changes.