United Nations Development Programme

National Development and Reform Commission
Government of China

Ministry of Foreign Affairs of Norway

Joint Evaluation of UNDP Projects: Provincial Greenhouse Gas Emissions Inventory Capacity Building and Greenhouse Gas Emissions Accounting Methodology for Enterprises of Key Industries (GHG Project)

and

Establishment of National Registry System for Domestic Emissions Trading Scheme and Voluntary Carbon Emission Reduction (ETS Project)

Mid-Term Evaluation Report

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ABBREVIATIONS

Acronym	Meaning
APR	Annual Progress Report
CAF	Chinese Academy of Forest
CAS	Chinese Academy of Sciences
CCA	Climate change adaptation
CCM	Climate change mitigation
CDM	Clean Development Mechanism
CICETE	China International Center For Economic And Technical Exchanges
CNCCP	China's National Climate Change Program
CO_2	Carbon dioxide
COP	Conference of Parties
EA	Executing agency
ETS	Emission Trading Scheme
EU	European Union
GDP	Gross domestic product
GEF	Global Environment Facility
GHG	Greenhouse gas
GoC	Government of China
GWP	Global warming potentials
HFCs	Hydrofluorocarbons
IPCC	Intergovernmental Panel on Climate Change
Klif	Norwegian Climate and Pollution Agency (since renamed the Norwegian Environmental Agency or NEA)
LFA	Logical framework analysis
LULUCF	Land use, land use change and forestry
MDGs	Millennium Development Goals
MFA	Norwegian Ministry of Foreign Affairs
MRV	Monitoring, reporting and verification
MTE	Mid-term evaluation
NAI	Non-Annex I Countries
NAMA	Nationally appropriate mitigation action
NC	National Communication
NCSC	National Center for Climate Change Strategy and International Cooperation
NDRC	National Development and Reform Commission
NEX	National Execution
NGO	Non-governmental Organization
NLGCC	National Leading Group on Climate Change
NPD	National Project Director
NPM	National Project Manager
NPC	National Project Coordinator
NPD	National Project Director
PC	Project Coordinator
PIR	Project Implementation Report
PMO	Project Management Office
PRC	People's Republic of China
PSC	Project Steering Committee

Acronym	Meaning
QPR	Quarterly Progress Report
R&D	Research and Development
SCII	Sin-Carbon Innovation and Investment Company
SMART	Specific, measureable, attainable, relevant and time-sensitive
SNC	Second National Communication
ToR	Terms of Reference
UNDP	United Nations Development Program
UNFCCC	United Nations Framework Convention on Climate Change
USD	United States Dollar

EXECUTIVE SUMMARY

Brief Description of the Project

On December 2, 2011, a Contractual Service Agreement was signed by the Ministry of Foreign Affairs (MFA) of Norway and UNDP, where MFA has contributed funds to UNDP on a cost-sharing basis for the implementation of two climate change related projects with the Government of China (GoC):

- The "Provincial GHG Emissions Inventory Capacity Building and GHG Emissions Accounting Methodology for Enterprises of Key Industries", referred to in this report as the "*GHG Project*" that is designed to assist the GoC with capacity building and building up of guidelines for GHG emission accounting methodology and reporting at the enterprise level for carbon trading; and
- The "Establishment of National Registry System for Domestic Emissions Trading Scheme and Voluntary Carbon Emission Reduction", referred to in this report as the "*ETS Project*" that is designed to contribute to the development of measures aimed at reducing the carbon intensity in the Chinese economy as set in China's 12th Five-Year Plan.

The GHG and ETS Projects have been operational since July 2012. Given the similarities in funding sources, implementing agencies, and interlink between the two projects, it was agreed at Annual Consultation Meeting on 15 May 2013 at the Norwegian Embassy that a joint independent Mid-Term Evaluation (MTE) on the ETS and GHG Projects would be conducted late 2013.

Context and Purpose of the Evaluation

The purpose of this joint mid-term evaluation (MTE) for the ETS and GHG Projects is to determine if both Projects are on track to achieve their objectives and therefore sustain their current activities, or if revisions are needed to keep it on track. The MTE will also determine and report on the experiences and lessons learnt during Project implementation so as to provide guidance in determining the targets and strategies for the remaining time of the two projects. This MTE should also serve as an agent of change and plays a critical role in supporting accountability.

Key issues addressed by this MTE include:

- Whether there is an effective relationship and communication between and among outputs so that data, information, lessons learned, best practices and results are shared efficiently, including cross-cutting issues;
- Whether the use of technical experts (both domestic and international) has been successful in achieving component outputs; and
- If communication between the Chinese technical teams with the Norwegian technical assistance teams has been adequate.

Evaluation of Project

*Both GHG and ETS Projects are performing at a **Satisfactory (S)** level based mainly on:*

- *Timeliness and quality of outputs:*

⇒ GHG Project: The delivery of GHG accounting methodologies and reporting formats for 6 key industrial sectors has been substantially completed as of November 2013, ahead of schedule. These outputs have undergone reviews by industry experts, and personnel from the National Environment Agency of Norway (NEA) and the National Development and Reform Commission (NDRC) of the Government of China. This has resulted in a quality of output that is satisfactory to all stakeholders;

⇒ ETS Project: Outputs delivered to date include the software design and a demonstration version of the registry system in November 2013. While this has been a satisfactory achievement for the ETS Project at the mid-point of the ETS Project, the description of the intended outputs of the ETS Project does not describe the expected quality of new registry system at the end of the project with indicators that are specific and measurable.

Timeliness and cost-effectiveness of activities taken:

⇒ GHG Project: Completion of the formulation of GHG accounting methodologies for 6 priority industrial sectors is ahead of schedule with only 59% of the NDRC-managed budget expended, and 35% of the NEA-managed budget. NDRC and NEA are now in discussion on utilizing the remaining budget to complete GHG accounting methodologies and reporting formats for another 8 industrial sectors. This is a highly satisfactory outcome;

⇒ ETS Project: The work completed to date on the ETS Project includes reviews of the designs of other ETS setups in other domestic and international jurisdictions, draft and final design of registry system, registry software architecture, development and demonstration of registry system, and hardware platform design. With the ETS Project expenditure of USD 2.9 million against a budget of USD 4.9 million (59%), there is cost-effectiveness of budget expended to date. However, there is a similar disparity of expenditures with 68% of the NDRC-managed budget and only 30% of the NEA-managed budget expended to the mid-point of the ETS Project.

- *Quality and quantity of outputs produced:*

⇒ GHG Project: The number of industrial sector GHG accounting methodologies completed after 15 months of operation will exceed the original number of 6 sectors. Although there are ongoing improvements being made to all the GHG accounting methodologies through informal discussions between all stakeholders, the quality of the GHG accounting methodologies for the 6 industrial sectors completed to date has been satisfactory with more methodologies to be completed with the remaining budget. Furthermore, the quality of inventories and reporting systems being developed under the project has been strengthened by contributions from Norwegian experts who provide an outside perspective based on best international practices, and on topics where there is little expertise within China*;*

⇒ ETS Project*:* The design and demonstration of a consolidated ETS system combining the voluntary ETS with the national ETS system has been delivered. While the quality of outputs is satisfactory, there is insufficient descriptive wording of the level of quality of the ETS registry that is to be delivered at the end of the Project. For example, ETS Project targets can include indicators for the level of fraud detection and prevention, and stress testing for transaction volume spikes in the ETS log-frame.

- *Achievement of outcomes:*

⇒ GHG Project: While the outcomes are expressed as objectives in the Project documents, the objectives to support provincial GHG emission inventory capacity building and

developing a set of GHG emission accounting methodologies for key industrial enterprises have been achieved for 6 key industrial sectors. This can be considered a highly satisfactory outcome;

⇒ ETS Project: Similar to the GHG Project, outcomes are expressed as objectives. The objectives of "establishing a registry for a national emission trading scheme" have been partially achieved with the availability of a demonstration of the registry software for centralized information disclosure and trading of emission reduction units and allowances. The objective of "building capacity to enhance the ability of all users of the registry system to record their transactions on an ETS market", however, has not been achieved pending the completion of the ETS system, both hardware and software. In addition, the descriptions of the ETS Project objectives are not specific, leaving the desired outcomes of the project (such as "establishing an emissions reduction project registry system" or "building capacity by carrying out education and training activities") open to interpretation in terms of "to what extent" establishing or building capacity has been achieved, and making it difficult for an evaluation to assess the successfulness of the outcomes achieved.

- *Financial review against the Project budgets.*
  ⇒ GHG Project: After 16 months of operations, the GHG Project budget is 61% expended with all original targets (6 industrial sectors) achieved);
  ⇒ ETS Project: After 16 months of operation, the ETS Project is 59% expended with the Project poised to deliver an ETS system (complete with software and hardware platform designs) that is functional and can be tested for use and operation during the remaining period of the Project.

The impact of the Project outputs to date is significant:

- For the GHG Project, the ongoing development of GHG accounting methodologies and reporting formats for 6 industrial sectors accompanied by capacity building will have the impact of strengthening the quality of GHG accounting methodologies and reporting formats generated in China. The impacts are further augmented by Norwegian contributions that validate the approaches with best international practices to generate GHG inventories for the various industrial sectors. These will provide long-term guidance to all enterprises and provincial GHG authorities in the dissemination of GHG emissions data to a national ETS registry system;
- For the ETS Project, the outputs consisting of the design and demonstration of a consolidated ETS registry system (combining the voluntary ETS with the national ETS system) sets a solid foundation towards developing a functional national ETS market, a target of the 12th and 13th Five-Year Plan of the Chinese government.

Progress towards the achievement of results has been highly satisfactory with a moderate likelihood of timely completion by June 2014. The reason for these ratings is two-fold:

- On the GHG Project, the target for GHG accounting methodologies and reporting formats for enterprises for 6 sectors and building the capacity of provincial stakeholders for reporting GHG emissions will be achieved with an expenditure of slightly more than 60% (USD 2.985 million against a budget of USD 5.076 million);
- On the ETS Project, progress to setup a national ETS registry has been satisfactory with an expenditure of 61% (USD 3.017 million against a budget of USD 4.922 million). The issue with regards to the moderate likelihood of timely completion is that the intended outcomes and

outputs of the ETS Project are difficult to measure as the Project log-frame does not have any tangible or measurable outcomes or outputs.

Critical issues that will affect progress towards achievement of results mainly involve the ETS Project:

- Sustaining the current collaborative efforts of NEA and NDRC that improves Project planning activities through joint AWP preparation exercises and increased communications. The overall benefit of these efforts is improved Project planning functions that result in better use of time resources of all Project personnel;
- The uncertainty of the extent of ETS registry testing to be done under the current Project budget;
- The type of ETS hardware to be purchased depends on the rollout date of the ETS. State Council approval of the ETS rollout date is reportedly 2016 or later;
- The uncertainty of addressing security issues of the ETS registry until the registry is operational. Security issues by their nature cannot be dealt with until the system is operational;
- The uncertainty of effectiveness of ETS capacity building to be provided in 2014 given that the State approval for an operational ETS may not be until 2016 or later. As such, there is a high risk that there will be "corporate memory loss" from the 2014 training to the time the system is operational in 2016 or later.

These Projects are forging strong collaborative ties between NDRC and NEA in GHG inventory and capacity building work (GHG Project) and in the ETS design where NEA serves as a window to EU expertise in ETS design and operation. NDRC-NEA collaboration should strengthen when testing of ETS registry system is underway. Long term collaboration between NDRC and NEA may:

⇒ involve capacity building during the actual operations of the ETS registry system;
⇒ be strengthened due to an anticipated need by the Chinese-based managers of the ETS for technical assistance to prepare user and training manuals for ETS managers and users.

Project issues mainly involve the ETS Project including:

- The extent to which current budgetary resources is able to provide robust testing of the ETS registry system and adding new functionalities for efficient roll-out of the ETS registry system;
- The need for highly qualified technical assistance from outside of China for ETS fraud detection and prevention in the registry system;
- Questionable effectiveness of current ETS capacity building activities if operationalization of ETS system is delayed until 2016 or later.

Conclusions

- The Projects are proceeding at a satisfactory rate but with some uncertainty on the desired outcomes and the extent of work required to deliver a functional and robust ETS system;

- The GHG Project has been highly effective in delivering outputs for GHG accounting and reporting formats that will enhance the quality of enterprise GHG reports and GHG inventories to the ETS system;

- The ETS Project has made satisfactory progress in building a strong foundation for a national ETS registry system. Moreover, the Project has taken pragmatic approaches that include the consolidation of the voluntary and national ETS systems in the country into one ETS system. An issue for consideration by the Project Managers, however, is the necessity of having a specific targeted final outcome of the activities that would include the *intended state of the ETS system* to be handed over to NDRC when all Project expenditures are exhausted;

- The benefits of NEA participation on these Projects are significant including their inputs and validation of NDRC's approach to the design of enterprise-GHG guidelines, GHG inventories and ETS designs and operations.

Recommendations

Recommendation 1: Consider addressing the lack of specific desired outcomes and outputs of the ETS Project in the 2014 Work Plan. While the Evaluators understand that this may have been intentional, the use of SMART indicators to describe the desired outcomes (or objectives) and outputs of the ETS Project will provide a clearer picture of the expected results of the Project at its conclusion. More importantly, it can improve the ability for project managers to monitor their effectiveness in utilizing remaining resources for the remaining period of the Project. If there is a realization that targets or outcomes cannot be achieved during the course of the Project, project managers can reset these targets and outcomes through adaptive management and implementing changes to attain new targets and outcomes:

- The work plan can improve its definition on the duration and extent of the ETS registry testing phase that would include debugging software errors, introducing new functionalities, and changing software versions. The benefit to having a "measure" of the work remaining in the ETS system is to provide a target for project managers to manage remaining resources (e.g. how many times the system will be debugged or how many functionalities would be introduced). The lack of such measures may lead to difficulties in optimizing the use of remaining resources to needed actions to achieve targets, and in measuring the effectiveness of Norwegian technical assistance in subsequent project evaluations;

- Similar to providing measures of the ETS registry testing phase, the work plan can improve its definition of work required to strengthen ETS registry operational issues. This should include various approaches for dealing with fraud detection and prevention, stress testing for transaction volume spikes, and a control plan to maintain system integrity. Examples of measures for improving the operational aspects of the ETS may include:
  - ⇒ a quantity of fraud detection measures made during the remaining period of time; or
  - ⇒ a definition of stress tests on the ETS system that may include a certain volume of transactions over a one-day period (which has the potential to occur according to EU experience where enterprises could delay acting on trades until a deadline day for compliance such as April 30, a target date of EU compliance to ETS permits for a year);

  Setting of targets needs to be discussed and set with the relevant experts to ensure that the targets can be attained within the remaining budget and an appropriate time period. With the current terminal date of both GHG and ETS Projects being June 30, 2014, there will be

new activities planned to meet new targets for the ETS Project that will provide justification for an extension of the terminal date beyond June 30, 2014;

- The work plans should make provisions for the ETS Project to target specialized assistance in the area of fraud prevention and system security. While there is good experience within China of such protection within the financial sector and government websites, the benefits of sourcing the best global expertise in this area are significant, especially in consideration of the potential value of a Chinese carbon market and the fiscal consequences of fraudulent transactions or security breaches into the system. Analogous to the constant efforts to eradicate malaria, a solution to prevent all fraud and security breaches against an ETS is also a long-term effort as past human behaviour indicates that there will always be an evolution of new ideas and approaches for breaching the system;

- Sufficient resources should be availed for NEA assistance to prepare an ETS user manual based on NEA experience in managing ETS systems in Norway and the EU. The provision of this assistance is significant with the understanding that there will not be any access to existing user manuals from other ETSs;

- The ETS work plan should acknowledge the uncertainty of when the State Council will authorize operationalization of the ETS system, and adjust their expectations of capacity building activities that would secure "corporate memory" of the ETS knowledge provided from these activities. Two actions are proposed:
    - ⇒ Formation of an "ETS Management Cell" housing all personnel with ETS operational knowledge. In comparison with other countries, the risk of loosing Chinese Government personnel in specific positions is lower; hence, provisions could be made to retain and secure personnel with ETS corporate memory until 2016 or later when the ETS is operational;
    - ⇒ Proceed with the current procurement process for ETS hardware as efficiently as possible considering the need of testing with a real system but with a provision that the system can be upgraded at a later date (this is related to Recommendation 3). This will allow future ETS operations personnel to be trained in 2014. A postponement of the procurement process of the ETS system will cause substantial delays to the ETS operation start-up date, increase the time delay between capacity building activities, and reduce the effectiveness of capacity building activities;

- While the experience of the Evaluators is not sufficient to provide specific recommendations on the allocation of remaining resources to the GHG and ETS Projects, they do recommend serious consideration for the extension of the GHG and ETS Projects from the end of June 2014 to the end of December 2014 or later. As such, a 2014 work plan with specific targets for the ETS testing phase and the strengthening of the ETS operational issues can provide the basis for an extension of the ETS project to the end of December 2014 or later. The additional time for an extension can be justified on the amount of time, effort and fiscal resources required to achieve newly defined outcomes, notably on security issues with the ETS Project, which could only be resolved once the testing phase is completed in April 2014 (or later if deemed appropriate);

Recommendation 2: Other complementary ETS assistance to NDRC including the "Partnership for Market Readiness" Project of the World Bank should be documented in NEA progress reports. This will provide confidence to MFA and external reviewers of a minimization of overlap

between NEA technical assistance and ETS development with other donors, and that the effectiveness of MFA resources is being maximized;

Recommendation 3: If possible and for reasons of cost-effectiveness, NDRC should consider flexibility clauses in their current procurement process for ETS hardware to ensure that the best possible equipment is available when the State approves operationalization of the ETS system. The Evaluation team was informed that NDRC procurement of the ETS hardware is underway, and that any recommendation of delaying or halting of the process is not feasible. With an expected delay in ETS operationalization until 2016 or later pending State Council approval, there is a risk that the 2014 technology may be superseded by 2016 hardware improvements. By introducing flexibility in the procurement process of ETS hardware, NDRC can implement one of the following actions:

a) proceed with procurement as currently scheduled considering the need of testing with a real system with the provision that the system can be suitably upgraded when the system is operational and at a reasonable cost; or
b) proceed with procurement with a delayed delivery date to enable procurement of "next-generation" hardware in 2015 or later.

The advantage of a system that can be upgraded is that the hardware can be setup at an early date allowing the training of operations personnel for the ETS system to commence at an earlier date. Regardless, the impact of implementing one of these actions will allow NDRC to maintain the desired momentum in its current procurement process (which may take until late 2014 or later to complete) and to procure the best hardware technologies available on the market;

Recommendation 4: NEA and NDRC will need to setup a new disbursement modality where NEA are managing previously-led NDRC managed activities. This may include NEA "outsourcing" direction of these specific activities to NDRC, and providing its own oversight to these activities prior to approving the reimbursement of these activities.

Lessons Learned and Best Practices

Lessons learned include:

- Strong high level support of a project is essential for its successful and timely implementation. In the case of the GHG and ETS Projects, the drivenness of NDRC to meet the specific targets of the 12th and 13th Five-Year Plans demonstrates the high level support of the Chinese Government to appoint a project implementation partner that is strongly linked with climate change policy making. The involvement of NDRC has allowed the Project to access a wide range of China's best specialists from various government departments and agencies to compile and share information for the formulation of GHG accounting methodologies and the setup of an ETS registry system;

- A project with a strong domestic implementing agency or partner that sets policy will experience minimal obstacles amongst project participants (including subcontractors and other institutions) in the sharing of information. This will have the impact of improving efficiency of delivery and the quality of outputs. In the case of the GHG and ETS Projects, NDRC in collaboration with NEA have demonstrated the benefits of effective management leading to substantial project implementation progress. NDRC also has the support of the

Chinese Premier, and has excellent managerial and coordination capacity for undertaking the development of a national emission trading scheme. The NPDs and NPMs appointed by NDRC and the personnel appointed by NEA to source expertise external to China are providing excellent direction and have taken responsibility for its outputs and outcomes. They have also provided a conducive working and collaborative environment for a wide range of specialists from various government departments and agencies and external assistance for the outputs delivered to date;

Best practices that can be cited from this Project include:

- Research institutes need both autonomy and stakeholder feedback for the proper preparation of GHG MRV protocols and ETS registry systems. This has resulted in greater ownership by the research institutes and greater acceptance by stakeholders who will use the protocols and registry systems;
- Both the GHG and ETS Projects have employed sub-contractors for numerous outputs where there has been an abundance of efforts between them to coordinate their own outputs. The cooperation to coordinate outputs between Tsinghua University, SCII and NCSC has been excellent that has led to the efficient delivery of outputs within a 15-month period.

1. INTRODUCTION

China has become the country with the largest aggregate emissions of CO_2 emissions. While its annual CO_2 emissions per capita is only 42% of the levels of the United States, its CO_2 emissions per capita are steadily growing with a 9% increase in 2011[1]. The Chinese government has been undertaking various measures to reduce GHG emissions and mitigate climate change. Among these measures, China is committed to cut the CO_2 emission per unit of GDP by 40–45% by 2020 against the 2005 level.

China's National Development and Reform Commission (NDRC) have played a key role in coordinating climate change efforts since 1998 and also has broad administrative and planning control over the Chinese economy. In 2011, the NDRC launched carbon trading in seven pilot regions of Beijing, Tianjin, Shanghai, Chongqing and Shenzhen, as well as the provinces of Guangdong and Hubei. These regions with a total population of 240 million and a collective GDP of USD 2 trillion, were chosen to gain experience in carbon related market mechanisms in advance of a proposed launch of a national CO_2 market by 2020. These pilots comprise key endeavours in China's 12th Five-Year Plan (2011-2015) to roll out a carbon market or carbon emissions trading schemes (ETS) to other regions. China hopes to extend its pilot ETS across the nation under the 13th Five-Year Plan (2016-2020).

China will need to meet a number of challenges to construct and implement a complex ETS within this time frame:

- The quality of GHG emissions data needs to be improved to bring confidence to what are the caps for emissions and creating the need for trades in an ETS;
- With large sums of money potentially being transacted, ETS pilots will need to functional and secure;
- Emissions data for cap and trade will require the introduction of new measuring, reporting and verification (MRV) guidelines.

Provincial GHG inventories are sources of information on trends in GHG emissions and removals within the provinces. This informs China's policy makers on measures to be adopted to reduce emissions and increase removals in a more effective and reliable manner. Non-Annex I (NAI) Parties under the United Nations Framework Convention on Climate Change (UNFCCC) are required to prepare GHG inventories as part of National Communications (NCs) to be periodically submitted to the Conference of the Parties (COP) under the UNFCCC (Articles 4 and 12). At the COP13 (Bali) in December 2007, the importance of measurable, reportable and verifiable (MRV) nationally appropriate mitigation actions (NAMAs) taken by the developing country Parties has been recognized in the implementation of the Convention (Decision 1/CP.13, 1 (b) (ii)). Subsequently, the G8 Environmental Ministers Meeting held in Kobe in May 2008 stated in its Chair's Summary that setting up and running GHG inventories in developing countries is of fundamental importance to enhance the NAMAs of NAI Parties in Asia.

Under this context, the Norwegian-supported UNDP project, Provincial Greenhouse Gas Emissions Inventory Capacity Building and Greenhouse Gas Emissions Accounting Methodology for Enterprises of Key Industries ("the GHG project") has been designed and implemented to assist the Government of China to meet the challenges of constructing and implementing a complex ETS

[1] http://edgar.jrc.ec.europa.eu/news_docs/CO2_emissions_until_2011.pdf

within the time frames of its 12th and 13th Five-Year Plans. On December 2, 2011, a Contractual Service Agreement was signed by the Ministry of Foreign Affairs (MFA) of Norway and UNDP, where MFA has contributed funds to UNDP on a cost-sharing basis for the implementation of two climate change related projects with the Government of China (GoC):

- The "Provincial GHG Emissions Inventory Capacity Building and GHG Emissions Accounting Methodology for Enterprises of Key Industries", referred to in this report as the "*GHG Project*" that is designed to assist the GoC with capacity building and building up of guidelines for GHG emission accounting methodology and reporting at the enterprise level for carbon trading; and
- The "Establishment of National Registry System for Domestic Emissions Trading Scheme and Voluntary Carbon Emission Reduction", referred to in this report as the "*ETS Project*" that is designed to contribute to the development of measures aimed at reducing the carbon intensity in the Chinese economy as set in China's 12th Five-Year Plan.

The GHG and ETS Projects have been operational since July 2012. Given the similarities in funding sources, implementing agencies, and interlink between the two projects, it was agreed at Annual Consultation Meeting on 15 May 2013 at the Norwegian Embassy that a joint independent Mid-Term Evaluation (MTE) on the ETS and GHG Projects would be conducted late 2013.

1.1 Project Objectives and Expected Outcomes and Outputs

The objective of the GHG Project is to assist the GoC to better address climate change through capacity building and formulation of guidelines for GHG emission accounting methodology and reporting at the enterprise level for carbon trading.

The objectives of the ETS project are three fold: 1) Establish national voluntary emission reduction project registry system to maintain a common voluntary market with centralized information disclosure and standardized trading commodities; 2) Establish a national registry for regional and nationwide emissions trading schemes to materialize the national objective to build carbon market gradually; and 3) Capacity building by carrying out education and training activities to build and enhance the capacities of stakeholders in the voluntary project market, and regional and national emissions trading market.

1.2 Mid-Term Evaluation

1.2.1 Purpose of the Evaluation

The purpose of this joint mid-term evaluation (MTE) for the ETS and GHG Projects is to determine if both Projects are on track to achieve their objectives and therefore sustain their current activities, or if revisions are needed to keep it on track. The MTE will also determine and report on the experiences and lessons learnt during Project implementation so as to provide guidance in determining the targets and strategies for the remaining time of the two projects. This MTE should also serve as an agent of change and plays a critical role in supporting accountability. As such, the MTE can:

- Strengthen the adaptive management and monitoring functions of the two Projects;
- Enhance the likelihood of achievement of Project objectives through analyzing strengths and weaknesses and suggesting measures for improvement;

- Enhance organizational and development learning;
- Enable informed decision-making;
- Identify and validate proposed changes to the ProDoc to ensure achievement of all objectives of the two Projects; and
- Assess whether it is possible to achieve the objectives in the given timeframe, taking into consideration the speed, at which the project is proceeding.

A Mid-Term Joint Evaluation mission comprising of two evaluation experts, Mr. Roland Wong and Dr. Hongwei Yang was completed during the October 28 to November 5, 2013 period.

1.2.2 Key Issues to be Addressed

Key issues to be addressed by this MTE include:

- Whether there is an effective relationship and communication between and among outputs so that data, information, lessons learned, best practices and results are shared efficiently, including cross-cutting issues;
- Whether the use of technical experts (both domestic and international) has been successful in achieving component outputs; and
- If communication between the Chinese technical teams with the Norwegian technical assistance teams has been adequate.

Outputs from this MTE are to be used to chart future directions for the GHG and ETS Projects.

1.2.3 Evaluation Methodology and Structure of the Evaluation

The methodology adopted for this evaluation includes:

- Review of project documentation (i.e. project documents, APRs/PIRs, inception meeting minutes) and other pertinent background information;
- Interviews with key project personnel including the Project Manager, past Project personnel, Project consultants, and relevant UNDP staff; and
- Interviews with relevant stakeholders.

A detailed itinerary of the Mission is shown in Appendix B. A full list of documents reviewed and people interviewed is given in Annex C.

This evaluation report is presented as follows:

- An overview of project implementation from the commencement of operations in March 2011
- Review of project results based on project design and execution;
- Conclusions and recommendations that can increase the probabilities of a successful conclusion; and
- Lessons learned from implementation of the project to date.

The Evaluation also meets conditions set by the UNDP Document entitled “Handbook on Planning, Monitoring and Evaluating for Development Results”, 2009:

http://www.undp.org/evaluation/handbook/documents/english/pme-handbook.pdf

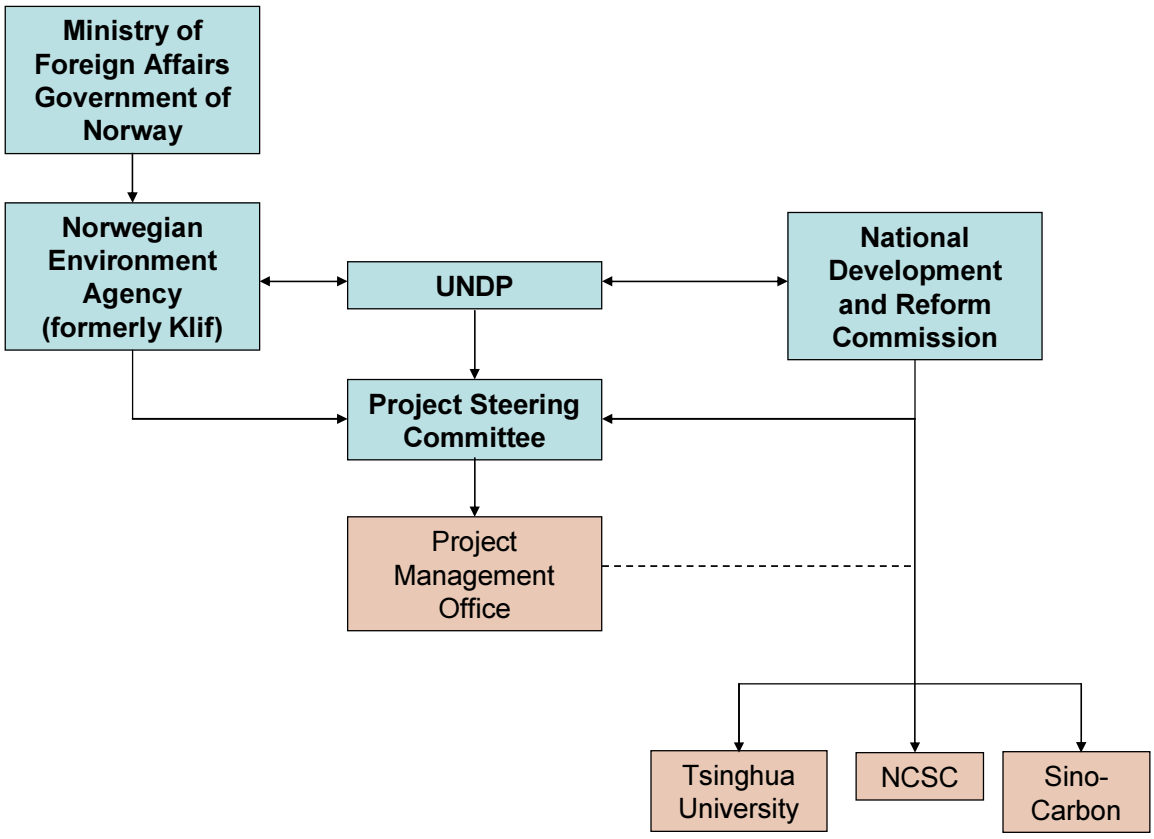
and the "Addendum June 2011 Evaluation":

http://www.undp.org/evaluation/documents/HandBook/addendum/Evaluation-Addendum-June-2011.pdf

1.3 Project Implementation Arrangements

UNDP is the Executing Agency (EA) for both the GHG and ETS Projects. As EA, UNDP provides oversight to the implementation of both Projects with NDRC, who manage subcontracts directly with the 3 domestic teams: Tsinghua University, the National Center for Climate Change Strategy and International Cooperation (NCSC), and Sino-Carbon Innovation and Investment Co. Ltd (SCII). UNDP also manages sub-contracts directly with the Norwegian Environmental Agency (NEA and previously referred to earlier in the projects as the Climate and Pollution Agency or Klif), which reports to MFA. The implementation arrangements are depicted on Figure 1.

Figure 1: Implementation Arrangements for GHG and ETS Projects



2. KEY FINDINGS

2.1 Project Design

The design of the GHG and ETS Projects are evaluated from the following perspectives:

- Are the project approaches and strategies sound?
- Are the immediate objectives and outputs properly stated and verifiable in the Project logical frameworks;
- Are the timeframes of the Projects are feasible and practicable; and
- Are there other Project design considerations that affect the current pace and quality of implementation?

The overall approach of both the GHG and ETS Projects has been to provide assistance to the Government of China in meeting its targets in its "National Economic and Social Development 12th Five-Year Plan", the key target being the reduction of its CO_2 emission intensities in 2015 by 17% from 2010 levels through "building a sound system of GHG statistics and accounting, and the establishing a carbon emissions trading market. To meet the 2015 target of 17% carbon intensity reduction, the Projects adopt the approach of building the capacities of a range of relevant stakeholders who would be instrumental in the reduction of CO_2 emissions, and to concurrently assist in the design of carbon market registries that would facilitate market-based transactions for measures to reduce carbon emissions from large emitters.

The designs of the GHG and ETS Projects are closely related:

- The GHG Project is designed to increase the credibility of GHG accounting and inventories at the provincial level. With national policies set by the central government, provincial governments are responsible for implementing these policies; in the context of GHG emissions, provincial governments are enforcing these policies with emitters, mainly in the industrial sector. It is well known that the knowledge and capacity of industrial enterprises needs to be bolstered to report GHG emissions in a credible manner. In addition, the capacity of provincial level authorities needs strengthening to ensure there is sufficient knowledge to enforce compliance to the GHG reporting standards set by the central government;
- The ETS Project is designed to strengthen the architecture of a national emissions trading scheme and provide a system that can be used for efficient, secure emission reduction transactions with a centralized system for transaction disclosure. Such a system will improve the confidence of a wider spectrum of Chinese society to participate in GHG reduction activities but will depend heavily on credible emission reports from provincial level stakeholders. Credible emission reports are a key output from the GHG Project.

The logical framework analysis (LFA) for each of the Projects is expressed in terms of outputs and associated activities with no indicators provided in each LFA. Comments on the LFAs for both Projects are as follows:

- The GHG Project has two outputs, one of which does not meet all criteria for SMART indicators[2]. Though the activities of both outputs are time-bound, one could argue that Output 1 ("Provincial GHG emissions inventory, training conferences and summary reports")

[2] Specific, measurable, attainable, relevant and time-bound

does not have a specific quality descriptor attached to it, leaving Project Managers to interpret what the final quality of the Provincial GHG emissions inventory should be before the work is complete. An example of a specific quality descriptor for Output 1 could have been a Provincial GHG inventory of sufficient quality for use in an emissions trading scheme. The same can be said for Output 2 where "Research of GHG emissions accounting, reporting contents, and format for enterprises of key industries and its application" is not specific. The Project Managers as such are exposed to a wide interpretation of what would constitute the completion of the "research". An example of a "SMART" Output 2 would have been "GHG emissions accounting and reporting contents and format for enterprises of key industries that can be accepted by emissions trading schemes";

- The ETS Project also has output with few descriptors that can be more specific such as Outputs 1 and 2 with regards to the registry system for the emissions trading schemes. While the objective is to setup a registry that has been tested to ensure functionality, a descriptor concerning the state of readiness for the registries for use in the real trading scheme would have been useful; for example, a "national registry system for an ETS that is ready for ETS operators to register trades" would be a useful output with a number of caveats that would describe the end point of the work required to meet the Project objectives. Output 3, "Building Capacity" is not an "output" per se and is not specific, measurable or attainable. A more useful output would be, for example, "ETS managers with knowledge of the operations of the ETS registry system".

The common issue for both LFAs is the lack of specificity of the outputs with the absence of SMART indicators that casts some doubt as to what is exactly expected by the end of the Projects.

2.2 Project Performance

Tables 1 and 2 provide a tabular summary of the financial and physical progress of the GHG and ETS Projects respectively:

- The budgets were divided into NDRC-managed activities and NEA-managed activities;
- There are slight differences between the ProDoc budgets and budgets approved for use during the 2012-2014 period due to three reasons:
  - NEA-managed activities were not fully utilized during the first half of the Project;
  - Changes in the exchange rate of between the Norwegian Krona (NOL) and the US Dollar (USD) during 2012 and 2013, resulting in a difference of USD 30,000;
  - Actual funds that are sent from Norway to UNDP differ from the ProDoc amounts as these are the funds actually available for both projects. For example, the difference in the GHG Project funds sent and the ProDoc amounts, is in the order of USD 110,000;
- Budget breakdowns were not provided for all activities. NEA provided some budgets and expenditures that were broken down into activities; these expenditures are provided in Tables 1 and 2 wherever available. These amounts should only be taken as indicators or progress for a particular activity. No activity expenditures were provided from NDRC;
- Tables 1 and 2 in general reflect the low utilization of NEA-managed budgets:
  - For the GHG Project, 35% utilization of NEA budget versus 59% utilization for NDRCs budget;
  - For the ETS Project, 30% utilization of NEA budget versus 68% utilization for NDRCs budget.

Table 1: Activity and Fiscal Progress of the GHG Project

Planned (GHG Activities according to AWP)	Actual Physical Progress of GHG Activities	As per GHG ProDoc (NOK)		As per GHG ProDoc (USD)		approved 2012-2014 GHG budget (USD)		Actual Exp. as of Sept. 2013 (USD)		% of GHG Project Budget	
		NDRC	NEA	NDRC	NEA	NDRC	NEA	NDRC	NEA	NDRC	NEA
Activity 1.1 (NDRC-managed): Develop Provincial Level GHG Inventory Guideline Training Textbook	The development of a textbook had been completed of which NEA has been responsible for one chapter, in 2013. The textbook has also been receiving constant feedback from participants after each provincial workshop. During September 2013, a revised version of the textbook was issued to all users.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Activity 1.2 (NDRC-managed): 6 Workshops on provincial level GHG inventory guideline	All 6 workshops were completed by October 30, 2013 with the last workshop being held in Fujian. The workshops focused on inventory development and how the provinces report on their progress to central authorities. NEA has participated in these workshops including Heilongjiang Province with their unique expertise in forestry and inventory work.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Activity 1.2 (NEA-managed):	First version of Norwegian part of textbook (translated into Chinese) was developed in Sept/Oct 2012 with a revised version issued in the winter of 2013	N/A	N/A	N/A	N/A	N/A	N/A	15,333	N/A	N/A	N/A
Activity 1.3 (NEA-managed): Workshops and executive report	The first version of workshop presentations was completed in October 2012 and has undergone a revision before each workshop. NEA has participated in 5 training sessions (2 in 2012 and 3 in 2013 up to September only). Each workshop had one or two Norwegian expert that included one consultant from Statistics Norway for two workshops and	N/A	N/A	N/A	N/A	N/A	N/A	326,876	N/A	N/A	N/A

Planned (GHG Activities according to AWP)	Actual Physical Progress of GHG Activities	As per GHG ProDoc (NOK)		As per GHG ProDoc (USD)		approved 2012-2014 GHG budget (USD)		Actual Exp. as of Sept. 2013 (USD)		% of GHG Project Budget	
		NDRC	NEA	NDRC	NEA	NDRC	NEA	NDRC	NEA	NDRC	NEA
	one from the Forest and Landscape Institute on for one workshop. Nine trips by Norwegians were made up to September 2013. Expenditures also included translators and interpreters, commissioned by UNDP and paid by Norway.										
Activity 1.4 (NDRC-managed): Training feedback reports	Feedback from participants was collected after each workshop, and was used to improve the delivery of subsequent workshops.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total Output 1:		**3,654,000**	**3,800,000**	**623,337**	**648,243**	**400,000**	**522,773**	**324,952**	**247,171**	**81%**	**47%**
Activity 2.1.1 (NEA-managed): Contribute with examples and methodology from EU ETS and other relevant ET and regulation schemes.	Norwegian expert provided to write to reports on experiences from EU ETS and other ETS.	139,500	N/A	23,250	N/A	N/A	N/A	8,458	N/A	36%	N/A
Activity 2.1.2 (NEA-managed): Contribute with comments on draft methodology and report format	The budget was raised in 2013	290,099	N/A	48,350	N/A	N/A	N/A	56,209	N/A	100%	N/A
Activity 2.1.3 (NEA-managed): Planning and contribution on expert consultation workshop	Workshops held in November 2012 and April 2013. Expenses from activity 2.1.5 are also included under this activity.	337,624	N/A	56,271	N/A	N/A	N/A	51,886	N/A	92%	N/A
Activity 2.1.4 (NEA-managed): Preparations for capacity building workshop	No preparations and contributions have yet been made to a capacity building workshop.	96,475	N/A	16,079	N/A	N/A	N/A	0	N/A	0%	N/A
Activity 2.1.5	Expenses included in activity	192,950	N/A	32,158	N/A	N/A	N/A	0	N/A	0%	N/A

Planned (GHG Activities according to AWP)	Actual Physical Progress of GHG Activities	As per GHG ProDoc (NOK)		As per GHG ProDoc (USD)		approved 2012-2014 GHG budget (USD)		Actual Exp. as of Sept. 2013 (USD)		% of GHG Project Budget	
		NDRC	NEA	NDRC	NEA	NDRC	NEA	NDRC	NEA	NDRC	NEA
(NEA-managed): Reporting and quality control on capacity building workshop	2.1.3.										
Activity 2.1.6 (NEA-managed): Expert fees and organizational expenses for capacity building workshop	Expenses included in activity 2.1.3.	198,020	N/A	33,003	N/A	N/A	N/A	0	N/A	0%	N/A
Activity 2.1.7 (NEA-managed): Norwegian expert travel for activity 2.1	Travelling to workshops in November 2012 and April 2013.	490,099	N/A	81,683	N/A	N/A	N/A	35,119	N/A	43%	N/A
Activity 2.1.8 (NEA-managed): Consultant fees in activities 2.1.3, 2.1.4 and 2.1.5	Consultants used for writing report on other ETSs than EU, and participating in the workshop in April 2013.	1,534,035	N/A	255,673	N/A	N/A	N/A	31,252	N/A	12%	N/A
Activity 2.1.9 (NEA-managed): Consultant fees for activities 1.1 and 2.1.2	No consultant fees have been charged	386,139	N/A	64,356	N/A	N/A	N/A	0	N/A	-	N/A
Activity 2.1.10 (NEA-managed): Final report	Not yet commenced	64,316	N/A	10,720	N/A	N/A	N/A	0	N/A	0%	N/A
Activity 2.1.11 (NEA-managed): Translation and other costs	No translation costs have yet been charged.	445,545	N/A	74,258	N/A	N/A	N/A	0	N/A	0%	N/A
Activity 2.1.12 (NEA-managed): Miscellaneous costs	No costs have yet been charged	297,030	N/A	49,505	N/A	N/A	N/A	0	N/A	0%	N/A
Activity 2.1.13 (NEA-managed): End meeting	Not yet started	128,713	N/A	21,452	N/A	N/A	N/A	0	N/A	0%	N/A
Activity 2.1	Accounting methodologies for	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Planned (GHG Activities according to AWP)	Actual Physical Progress of GHG Activities	As per GHG ProDoc (NOK)		As per GHG ProDoc (USD)		approved 2012-2014 GHG budget (USD)		Actual Exp. as of Sept. 2013 (USD)		% of GHG Project Budget	
		NDRC	NEA	NDRC	NEA	NDRC	NEA	NDRC	NEA	NDRC	NEA
(NDRC-managed): Study of Accounting Methodology for GHG Emission for Enterprises in Cement and Flat Glass Industries in China	GHG emissions from cement and flat glass industries has been completed based on the cooperative assistance of 7 pilot enterprises. In addition, the reporting formats & contents for enterprises in the two industries have been completed. A number of small scale workshops have been held between the project implementing institutions, the China National Institute of Standards, China Building Material Test & Certification Group and the China Building Material Academy, other industrial experts and NDRC to solicit feedback on the reports.										
Activity 2.2 (NDRC-managed): Study of Accounting Methodology for GHG Emission from Nonferrous Enterprises in China	Two accounting methodologies have been completed and drafts of two types of reporting formats & contents for enterprises have been completed with the assistance of 2 pilot enterprises. Two small scale workshops were held between project implementing institutions and industrial experts, with a project progress reporting workshop with NDRC to collect comments from all participating experts and enterprises.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Activity 2.3 (NDRC-managed): Study of Accounting Methodology for GHG Emission in Chemical Factories	Draft reports for accounting methodology of GHG inventory from chemical factories and a GHG inventory reporting guideline for chemical factories have been completed. Trial applications of the guidelines are in progress on ammonia, calcium carbide, ethylene, and methanol production factories.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Planned (GHG Activities according to AWP)	Actual Physical Progress of GHG Activities	As per GHG ProDoc (NOK)		As per GHG ProDoc (USD)		approved 2012-2014 GHG budget (USD)		Actual Exp. as of Sept. 2013 (USD)		% of GHG Project Budget	
		NDRC	NEA	NDRC	NEA	NDRC	NEA	NDRC	NEA	NDRC	NEA
	The results have been discussed at workshops with industrial experts and the Department of Climate Change of NDRC. Final reports and guidelines are scheduled for completion by March or April of 2014										
Activity 2.4 (NDRC-managed): Study of Accounting Methodology for GHG Emission in Iron & Steel Works	A GHG guideline and draft of reporting format was completed based on data from 3 field studies, workshops amongst industry experts, and trial applications of accounting methodologies by selected enterprises. Finalization of the report and guidelines are scheduled for completion by April 2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Activity 2.5(NDRC-managed): Study of Accounting Methodology for GHG Emission for aviation enterprises	Draft guidelines for the accounting of GHG emissions and reporting template for Chinese aviation enterprises has been completed. These outputs have been discussed at an NDRC seminar for feedback. Finalization of this activity will involve the application of the guidelines to more airline companies, adjusting the guidelines based on further feedback and finalizing the guideline report and reporting formats	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Activity 2.6 (NDRC-managed): Study of Accounting Methodology for GHG Emission for Chinese fossil fuel power generation	Draft guidelines for the accounting of GHG emissions for Chinese fossil fuel power generation and power T&D enterprises have been completed. In addition, a draft reporting template for power generation companies has been completed. A seminar has been	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Planned (GHG Activities according to AWP)	Actual Physical Progress of GHG Activities	As per GHG ProDoc (NOK)		As per GHG ProDoc (USD)		approved 2012-2014 GHG budget (USD)		Actual Exp. as of Sept. 2013 (USD)		% of GHG Project Budget	
		NDRC	NEA	NDRC	NEA	NDRC	NEA	NDRC	NEA	NDRC	NEA
enterprises and power T& D enterprises"	completed with feedback with NDRC and industry experts. Finalization of this activity will involve the application of the guidelines to more power generation companies, adjusting the guidelines based on further feedback and finalizing the guideline report and reporting formats.										
Total Output 2:		**13,823,000**	**7,000,000**	**2,358,069**	**1,194,132**	**2,100,000**	**816,940**	**1,683,969**	**227,862**	**80%**	**28%**
Project Reporting		1,286,000	300,000	168,202	51,177	500,000	275,346	51,237	117,171	10%	43%
M&E, PMO operations		900,000	900,000	0	153,531						
UNDP Management Support		3,046,300	1,200,000	314,961	204,708	300,000	161,506	138,146	24,302	46%	15%
Totals		**20,309,300**	**13,200,000**	**3,464,568**	**2,251,791**	**3,300,000**	**1,776,565**	**2,198,305**	**616,506**	**59%**	**35%**

Table 2: Activity and Fiscal Progress of the ETS Project

Planned (ETS Activities according to the AWP)	Actual Physical Progress of ETS Activities	As per ETS ProDoc (NOK)		As per ETS ProDoc (USD)		approved 2012-2014 ETS budget (USD)		Actual Exp. as of Sept. 2013 (USD)		% of ETS Project Budget	
		NDRC	NEA	NDRC	NEA	NDRC	NEA	NDRC	NEA	NDRC	NEA
Activity 1.1 (NDRC-managed): Review the design of existing emission trading scheme registries, summarize and analyze the basic functions and key issues of a typical emissions trading scheme registry	Completion of a design review of registries in three jurisdictions (the EU, California, and Australia) with a summary that was prepared on the overall design, basic functions and key issues of these registries. The summary report was being used as a foundation for the design of the Chinese ETS by SCII and their team of experts.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Activity 1.1 (NEA-managed): Review the design of existing emission trading scheme registries, summarize and analyze the basic functions and key issues of a typical emissions trading scheme registry	NEA, in addition to facilitating discussions and information exchanges, also arranged for a meeting for Chinese participants in Germany to learn about the development and operation of the ETS schemes managed by Germany and the EU in July 2013.	N/A	N/A	N/A	N/A	N/A	N/A	14,049	N/A	N/A	N/A
Activity 1.2 (NDRC-managed): Research on the domestic emission trading regulation and management system of China and propose the overall framework design of two registries	This activity has been completed with the following outcomes: a) Improved understanding of regulations for national voluntary carbon market and national emissions trading scheme of China as well as their carbon market management system; b) draft design for the National Registry System disseminated amongst NCSC and NDRC through seminars, ETS workshops and steering committee meetings (mainly in	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Planned (ETS Activities according to the AWP)	Actual Physical Progress of ETS Activities	As per ETS ProDoc (NOK)		As per ETS ProDoc (USD)		approved 2012-2014 ETS budget (USD)		Actual Exp. as of Sept. 2013 (USD)		% of ETS Project Budget	
		NDRC	NEA	NDRC	NEA	NDRC	NEA	NDRC	NEA	NDRC	NEA
	November 2012 with EU experts); c) a revised design for the National Registry System that combines the voluntary and the national ETS systems.										
Activity 1.3 (NEA-managed): Finish the final version of overall plan of the voluntary emission reduction project registry system and national registry system for ETS in China	This activity has been completed with NEA's preparation and participation in the Beijing meeting and international workshop in January and April 2013 that assist NDRC in validating their design approaches for the two registries. NEA also organized feedback from EU experts to improve and finalize the design of the two registries.	N/A	N/A	N/A	N/A	N/A	N/A	51,178	N/A	N/A	N/A
Activity 1.3 (NDRC-managed): Finish the final version of overall plan of the voluntary emission reduction project registry system and national registry system for ETS in China	This activity has also been completed in spring 2013 with the draft design plans of two registries, feedback from potential users and managers of the system as well as EU experts to improve and finalize the design of the two registries.	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Activity 1.4 (NEA-managed): International workshops	International workshops have been completed to present the overall design framework of the two registries in China as well as Berlin, Munich and Brussels from 25th June to 5th July 2013	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Activity 1.5 (NDRC-managed): Complete project executive report of National Voluntary	This will be completed next year after completion of the previous activities	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Planned (ETS Activities according to the AWP)	Actual Physical Progress of ETS Activities	As per ETS ProDoc (NOK)		As per ETS ProDoc (USD)		approved 2012-2014 ETS budget (USD)		Actual Exp. as of Sept. 2013 (USD)		% of ETS Project Budget	
		NDRC	NEA	NDRC	NEA	NDRC	NEA	NDRC	NEA	NDRC	NEA
Emission Reduction Project Registry System and National Registry System for ETS (Chinese and English version)											
Activity 1.6 (NEA-managed): Sharing of Norwegian security knowledge	IT security report delivered in April 2013, written by Norwegian IT consultants selected by NEA.	N/A	N/A	N/A	N/A	N/A	N/A	31,057	N/A	N/A	N/A
Total Output 1:		**6,380,000**	**3,700,000**	**1,088,366**	**631,184**	**350,000**	**232,013**	**280,662**	**164,179**	**80%**	**71%**
Activity 2.1 (NEA-managed): Research on the application situation of similar domestic and international software. By comparison, analyze their function design and security design. Finish the software developing plan of the national voluntary emissions reduction project registry system and national ETS registry system	In addition to completing research for existing registry systems in Europe, NEA assisted with the organization of a study tour to Europe in summer 2013 to meet with managers of the German and EU ETSs.	N/A	N/A	N/A	N/A	N/A	N/A	30,689	N/A	N/A	N/A
Activity 2.1 (NDRC-managed): Research on the	Using research from NEA on the existing registry systems in Europe, Tsinghua and Sino Carbon provided software	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Planned (ETS Activities according to the AWP)	Actual Physical Progress of ETS Activities	As per ETS ProDoc (NOK)		As per ETS ProDoc (USD)		approved 2012-2014 ETS budget (USD)		Actual Exp. as of Sept. 2013 (USD)		% of ETS Project Budget	
		NDRC	NEA	NDRC	NEA	NDRC	NEA	NDRC	NEA	NDRC	NEA
application situation of similar domestic and international software. By comparison, analyze their function design and security design. Finish the software developing plan of the national voluntary emissions reduction project registry system and national ETS registry system	design of the registry system combining voluntary and national ETS registry systems. In addition, a preliminary hardware design architecture has been presented that focuses on the security of the system (based on a rigorous analysis of the security requirements), identifies the structure and specific hardware devices to be used by the system, and the expected performance requirements. Future work to complete this activity includes the selection of specific technology for the system from cost and reliability perspectives										
Activity 2.2 (NDRC-managed): Prepare implementation plan for national ETS registration system	An implementation plan for rolling out the national ETS system is being prepared, and will be completed sometime in 2014	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Activity 2.3: Test registry (NEA-managed)	A demonstration for testing the registry was developed and shown to NEA, UNDP and NDRC personnel in November 2013. The purpose of the demonstration was to clarify the business processes during the transactions and the software design requirements. Further testing will be required once the system is operational and registering actual emission reduction transactions	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Activity 2.4 (NEA-	Building and testing hardware	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Planned (ETS Activities according to the AWP)	Actual Physical Progress of ETS Activities	As per ETS ProDoc (NOK)		As per ETS ProDoc (USD)		approved 2012-2014 ETS budget (USD)		Actual Exp. as of Sept. 2013 (USD)		% of ETS Project Budget	
		NDRC	NEA	NDRC	NEA	NDRC	NEA	NDRC	NEA	NDRC	NEA
managed): Build and test hardware and network facilities for ETS registration system	and network facilities of the ETS system may not be done until the registry is approved for usage by NDRC (expected to be 2016 or later)										
Total Output 2:		**7,192,000**	**6,000,000**	**1,226,885**	**1,023,541**	**2,300,000**	**269,333**	**1,844,347**	**30,689**	80%	11%
Activity 3.1 (NEA-managed): Compile user manual and training material for VER registration and management system and survey EU instruction manual and guide and relevant carbon trading scheme register systems	NEA has assisted NDRC in its efforts to compile information on the EU ETS, California ETS and Australian ETS. NEA has also tried to obtain copies of ETS user manuals (from Denmark, the Netherlands, Switzerland, Finland and Liechtenstein) as a means to assist NDRC in formulating their own ETS manuals and guides but have not been successful due to security concerns of other ETSs.	N/A	N/A	N/A	N/A	N/A	N/A	1,434	N/A	N/A	N/A
Activity 3.1 (NDRC-managed): Compile user manual and training material for VER registration and management system and survey EU instruction manual and guide and relevant carbon trading scheme register systems	This is in progress with the compilation of information from reviews of the EU ETS, California ETS and Australian ETS, a survey of China's ETS pilots, a survey of EU member state user manuals (from Denmark, the Netherlands, Switzerland, Finland and Liechtenstein) and a review of the user guide for the Australian National Registry of Emission Units (ANREU).	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Activity 3.2: Train users of national VER registration	Workshops as a part of registry training started in mid-2012 with questionnaires to participants on	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Planned (ETS Activities according to the AWP)	Actual Physical Progress of ETS Activities	As per ETS ProDoc (NOK)		As per ETS ProDoc (USD)		approved 2012-2014 ETS budget (USD)		Actual Exp. as of Sept. 2013 (USD)		% of ETS Project Budget	
		NDRC	NEA	NDRC	NEA	NDRC	NEA	NDRC	NEA	NDRC	NEA
and management system	their opinions of the training quality for the purposes of feedback and improvement of future training										
Activity 3.3: Summarize the Training Results and improve the Chinese Voluntary Emission Reduction Trading Register System and Carbon Emission Trading Register System come from relevant institutions	This activity is in progress based as training is being delivered	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total Output 3:		**2,620,000**	**2,000,000**	**446,946**	**341,180**	**300,000**	**314,298**	**120,567**	**20,280**	40%	6%
Project Reporting and Project Meetings		1,450,000	300,000	247,356	51,177	**450,000**	**259,084**	**126,764**	**122,946**	28%	47%
M&E, PMO operations		1,595,000	1,000,000	272,091	170,590						
UNDP Management Support (including CICETE support)		1,923,700	1,300,000	328,164	221,767	**340,000**	**107,473**	**171,607**	**10,735**	50%	10%
Totals		**21,160,700**	**14,300,000**	**3,609,809**	**2,439,440**	**3,740,000**	**1,182,201**	**2,543,946**	**348,828**	**68%**	**30%**

Notwithstanding the issues raised in the LFA in Section 2.1 of this report, the Evaluation team has reviewed the performance of the Projects against criterion of:

- *Timeliness and quality of outputs:*
  - ⇒ GHG Project: The delivery of GHG accounting methodologies and reporting formats for 6 key industrial sectors has been substantially completed as of November 2013, ahead of schedule. These outputs have undergone reviews by industry experts, and personnel from the National Environment Agency of Norway (NEA) and the National Development and Reform Commission (NDRC) of the Government of China. This has resulted in a quality of output that is satisfactory to all stakeholders;
  - ⇒ ETS Project: Outputs delivered to date include the software design and a demonstration version of the registry system in November 2013. While this has been a satisfactory achievement for the ETS Project at the mid-point of the ETS Project, the description of the intended outputs of the ETS Project does not describe the expected quality of new registry system at the end of the project with indicators that are specific and measurable.

Timeliness and cost-effectiveness of activities taken:

- ⇒ GHG Project: Completion of the formulation of GHG accounting methodologies for 6 priority industrial sectors is ahead of schedule with only 59% of the NDRC-managed budget expended, and 35% of the NEA-managed budget. NDRC and NEA are now in discussion on utilizing the remaining budget to complete GHG accounting methodologies and reporting formats for another 8 industrial sectors. This is a highly satisfactory outcome;
- ⇒ ETS Project: The work completed to date on the ETS Project includes reviews of the designs of other ETS setups in other domestic and international jurisdictions, draft and final design of registry system, registry software architecture, development and demonstration of registry system, and hardware platform design. With the ETS Project expenditure of USD 2.9 million against a budget of USD 4.9 million (59%), there is cost-effectiveness of budget expended to date. However, there is a similar disparity of expenditures with only 68% of the NDRC-managed budget and 30% of the NEA-managed budget expended to the mid-point of the ETS Project.

- *Quality and quantity of outputs produced:*
  - ⇒ GHG Project: The number of industrial sector GHG accounting methodologies completed after 15 months of operation will exceed the original number of 6 sectors. Although there are ongoing improvements being made to all the GHG accounting methodologies through informal discussions between all stakeholders, the quality of the GHG accounting methodologies for the 6 industrial sectors completed to date has been satisfactory with more methodologies to be completed with the remaining budget. Furthermore, the quality of inventories and reporting systems being developed under the project has been strengthened by contributions from Norwegian experts who provide an outside perspective based on best international practices, and on topics where there is little expertise within China*;*
  - ⇒ ETS Project*:* The design and demonstration of a consolidated ETS system combining the voluntary ETS with the national ETS system has been delivered. While the quality of outputs is satisfactory, there is insufficient descriptive wording of the level of quality of the ETS registry to be delivered at the end of the Project. For example, ETS Project

targets can include indicators for the level of fraud detection and prevention, and stress testing for transaction volume spikes in the ETS log-frame.

- *Achievement of outcomes:*
  - ⇒ GHG Project: While the outcomes are expressed as objectives in the Project documents, the objectives to support provincial GHG emission inventory capacity building and developing a set of GHG emission accounting methodologies for key industrial enterprises have been achieved for 6 key industrial sectors. This can be considered a highly satisfactory outcome;
  - ⇒ ETS Project: Similar to the GHG Project, outcomes are expressed as objectives. The objectives of establishing a registry for a national emission trading scheme have been partially achieved with the availability of a demonstration of the registry software for centralized information disclosure and trading of emission reduction units and allowances. The objective of building capacity to enhance the ability of all users of the registry system to record their transactions on an ETS market, however, has not been achieved pending the completion of the ETS system, both hardware and software. In addition, the description of the ETS Project objectives is not specific, leaving the desired outcomes of the project (such as "establishing an emissions reduction project registry system" or "building capacity by carrying out education and training activities") open to interpretation in terms of "to what extent" establishing or building capacity has been achieved, and making it difficult for an evaluation to assess the successfulness of the outcomes achieved.

- *Financial review against the Project budgets.*
  - ⇒ GHG Project: After 16 months of operations, the GHG Project budget is 61% expended with all original targets (6 industrial sectors) achieved);
  - ⇒ ETS Project: After 16 months of operation, the ETS Project is 59% expended with the Project poised to deliver an ETS system (complete with software and hardware platform designs) that is functional and can be tested for use and operation during the remaining period of the Project.

2.3 Project Impact

The impact of the Project outputs to date is significant:

- For the GHG Project, the ongoing development of GHG accounting methodologies and reporting formats for 6 industrial sectors accompanied by capacity building will have the impact of strengthening the quality of GHG accounting methodologies and reporting formats generated in China[3]. The impacts are further augmented by Norwegian contributions that validate the approaches with best international practices to generate GHG inventories for the various industrial sectors. These will provide long-term guidance to all enterprises and provincial GHG authorities in the dissemination of GHG emissions data to a national ETS registry system;
- For the ETS Project, the outputs consisting of the design and demonstration of a consolidated ETS system (combining the voluntary ETS with the national ETS system)

[3] The development of the GHG accounting methodologies has reduced the uncertainty level of the inventories through the collection of data from central and provincial statistic bureaus, industrial assessments done by central and provincial authorities, and the collection of raw data. The GHG project has also provided technical assistance for exact methodologies on calculating emissions and taking out certain processes that belong in another sector, thus avoiding double counting.

sets a solid foundation towards developing a functional national ETS market, a target of the 12th and 13th Five-Year Plan of the Chinese government.

2.4 Project Implementation Arrangements

2.4.1 Progress Towards Achievement of Results

Progress towards the achievement of results has been highly satisfactory with a moderate likelihood of timely completion by June 2014. The reason for these ratings is two-fold:

- On the GHG Project, the target for GHG accounting methodologies and reporting formats for enterprises for 6 sectors and building the capacity of provincial stakeholders for reporting GHG emissions will be achieved with an expenditure of slightly more than 55% (USD 2.815 million against a budget of USD 5.076 million);
- On the ETS Project, progress to setup a national ETS registry has been satisfactory with an expenditure of 59% (USD 2.892 million against a budget of USD 4.922 million). The rating of a moderate likelihood of timely completion is that the intended outcomes and outputs of the ETS Project are difficult to measure as the Project log-frame does not have any tangible or measurable outcomes or outputs.

Both GHG and ETS Projects have budgets that are managed by NDRC and NEA. At the time of this Evaluation, work related to NDRC-managed budgets has been nearly completed. This mainly involves a number of sub-contracts under the GHG Project with NCSC, Tsinghua University and SCII for GHG accounting methodologies and reporting format, all of which are more than 90% complete.

For NEA-managed budgets, expenditures are only 35% and 30% for the GHG and ETS Projects respectively up to September 30, 2013. NEA involvement, looking forward in the expenditure of the remaining budget, will be significant notably on the ETS Project.

Project inputs have been directed through the guidance of NDRC that wants to meet the target of delivering CO_2 emission reductions of 17% reduction by 2015, and 40 to 45% by 2020 according to the Twelfth Five-Year Plan (2011-15). While the guidance of NDRC on the delivery of GHG accounting methodologies, reporting formats and ETS registry setups has provided the framework on which the GHG and ETS Projects are based upon, the involvement of NEA is viewed by the Evaluation team as useful, and increasing the likelihood of meeting the CO_2 reduction targets of the Twelfth Five-Year Plan.

NEA inputs have been strategic, helpful and responsive to NDRC requests for assistance. While it was evident that there was a lack of collaboration and communication between NDRC and NEA during the initial stages of the Projects from June to November 2012, these issues appear to have been resolved by December 2012. In the experience of the Evaluation Team, “teething” problems between foreign and local teams are common occurrence as both sides become familiar with the working cultures of their counterparts, and then arriving at an agreeable working relationship. At this time, there is a good collaborative working relationship between NDRC, NEA and the sub-contractors. A primary role of NEA on these Projects is serving as a window for NDRC to access knowledge and experience outside of China, and more specifically to experience of EU countries where ETS knowledge is advanced. Wherever there are queries from the NDRC teams that are outside the expertise of the Norwegian Government, NEA has managed to outsource the expertise through its extensive contacts with other EU countries (such as for the ETS design, security issues and systems training manuals), the United States and Australia. Without the

involvement of NEA, NDRC's ability to access and utilize outside expertise for the GHG and ETS Projects likely would not be as efficient or effective.

Critical issues that will affect progress towards achievement of results mainly involve the ETS Project:

- Sustaining the current collaborative efforts of NEA and NDRC that improves Project planning activities through joint AWP preparation exercises and increased communications. The overall benefit of these efforts is improved Project planning functions that result in better use of time resources of all Project personnel;
- The uncertainty of the extent of ETS registry testing to be done under the current Project budget. Will sufficient ETS registry testing be done by the target date of April 2014 that the system can register transactions when the ETS is operational at a date later than 2015?
- The type of hardware to be purchased depends on the rollout date of the ETS. If State Council approval of the ETS rollout date is 2016 or later, should procurement of the hardware be delayed until there is more certainty with the rollout date? It is anticipated that a delayed procurement date would allow the ETS managers to procure the latest technology for ETS hardware;
- The uncertainty of addressing security issues of the ETS registry until the registry is operational. Security issues by their nature cannot be dealt with until the system is operational;
- The uncertainty of effectiveness of ETS capacity building to be provided in 2014 given that the State approval for an operational ETS may not be until 2016 or later. As such, there is a high risk that there will be "corporate memory loss" from the 2014 training to the time the system is operational in 2016 or later.

2.4.2 Factors Affecting Implementation and Achievement of Results

Due to high level Government support for the ETS system and a low carbon economy for China, all project personnel interviewed including sub-contractors expressed their drivenness to perform their assignments with a high degree of effort and to the best of their ability, and to deliver quality outputs in a timely manner. In addition, NEA responses to NDRC specific queries for assistance have been prompt. Efforts have been made by NEA and NDRC to improve their planning of Project activities through joint AWP preparation exercises and more frequent communications between themselves. An example of the benefits of improved planning functions between NEA and NDRC is NDRC's advanced notification to NEA to have NEA personnel to travel to China or to outsource technical assistance using UNDP procurement procedures. An overall benefit in this instance is improved use of time resources of all Project personnel.

The Project outputs, namely the GHG inventory guidelines for the various industrial sectors, training workshops for building capacity and the ETS registry systems, remain highly relevant to China's objectives of transforming into a low-carbon economy. As such, a pool of highly qualified domestic technical experts is available to the Projects to drive implementation that will meet and possibly exceed their intended targets. The use of international expertise as identified by NEA has increased the pace on which NDRC and its sub-contractors are able to fill in knowledge gaps, validate implementation approaches and guide the projects and hence, accelerate progress towards intended outcomes.

2.4.3 Project Management Framework

The key elements to the management of the GHG and ETS Projects consist of:

- a PSC chaired by UNDP with NDRC and NEA managing personnel and budgets for specific components of both GHG and ETS Projects (see Figure 1);
- focal points within NDRC on the GHG and ETS teams to regularize communications between NEA and NDRC that resolved an issue of infrequent communications during the commencement of the Projects (June to November 2012 period). Joint meetings coordinated by these focal points between UNDP, NEA and NDRC have been conducted as required since November 2012 to report on progress and deciding on next steps of implementation for both GHG and ETS projects;
- the appointment of the focal points has catalyzed extensive dialogue between NEA/MFA and NDRC followed by communication from UNDP to proceed with implementing various activities or proposed changes to the original work plans. This has resolved an issue raised by NEA of the need for NDRC to provide advanced notice to NEA experts for joint NEA-NDRC activities. While NDRC provides the overall guidance of the Projects towards the GHG emission reduction targets of the 12th Five-Year Plan, any adjustments of plans of both Projects are made through this modality;
- GHG and ETS quarterly progress reports (QPRs) from both NDRC and NEA. Qualitative progress is reported mainly against the log-frames of the Projects which are updated with each annual work plan. The quality of QPRs has been adequate in assessing Project implementation, progress and risks, and is effective in providing the level of detail required to evaluate the performance of the Projects.
- regular use of e-mail and Skype for communication between NEA, NDRC, and all subcontractors.

With this structure accompanied by the high quality of technical assistance from both domestic and international experts, management of the Projects has been effective in 2013. Looking forward, the Projects will need to be adaptively managed given that NEA involvement in project management is expected to be more substantial in the second half of the Projects, notably on the ETS project where NEA and EU experience on ETS operational issues is substantive. This will involve a new disbursement modality where NEA is now managing activities that were previously being managed by NDRC.

2.4.4 Strategic Partnerships

These Projects are forging stronger collaborative ties between NDRC and NEA mainly through NEA-NDRC collaborations in workshops. This includes Norwegian participation in the 6 GHG workshops for the six industrial sectors and forestry inventory work as well as in the ETS design where NEA serves as a window to EU expertise in ETS design and operation.

The second half of the ETS Project is an opportunity to strengthen NDRC-NEA collaboration in the when testing of ETS registry system is underway. Long term collaboration between NDRC and NEA may:

- ⇒ involve capacity building during the actual operations of the ETS registry system. There will be ongoing issues with the ETS during its operations with regards to system capacity to manage a growing volume of transactions and its security against fraud;
- ⇒ be strengthened due to an anticipated need by the Chinese-based managers of the ETS for technical assistance to prepare user and training manuals for ETS managers

and users. While Chinese ETS managers would benefit from access to other ETS user manuals, other ETS managers are not providing access to their manuals for proprietary and security reasons, necessitating a need for technical assistance external in this area to NDRC.

2.4.5 Project Issues

Overall project management issues include:

- With the NEA-budget being under-utilized for both GHG and ETS projects during the first half of the Projects, NEA will be managing much of the remaining work that includes managing NDRC-led activities. The Project will need to agree on a working arrangement where NEA is managing the budget for NDRC-led activities such as the ETS testing and GHG accounting methodologies;
- If the Project should extend its influence to NDRC on the procurement process to obtain the best available hardware for the ETS system with the knowledge that the likelihood of State Council approval for ETS operationalization will not be until 2016 or later.

No project issues are foreseen for the GHG Project.

For the ETS Project, issues include:

- The extent to which current budgetary resources are able to provide robust testing of the ETS registry system and adding new functionalities for efficient roll-out of the ETS registry system;
- The need for highly qualified technical assistance from outside of China for ETS fraud detection and prevention in the registry system;
- Questionable effectiveness of current ETS capacity building activities if operationalization of ETS system is delayed until 2016 or later.

3. CONCLUSIONS AND RECOMMENDATIONS

3.1 Conclusions

- The Projects are proceeding at a satisfactory rate but with some uncertainty on the desired outcomes and the extent of work required to deliver a functional and robust ETS system;

- The GHG Project has been highly effective in delivering outputs for GHG accounting and reporting formats that will enhance the quality of enterprise GHG reports and GHG inventories to the ETS system. The effectiveness of the past work should allow the Project to cover 14 industrial sectors instead of the original target of 6 sectors;

- The ETS Project has made satisfactory progress in building a strong foundation for a national ETS registry system. Moreover, the Project has taken pragmatic approaches that include the consolidation of the voluntary and national ETS systems in the country into one ETS system. An issue for consideration by the Project Managers, however, is the necessity of having a specific targeted final outcome of the activities that would include the *intended state of the ETS system* to be handed over to NDRC when all Project expenditures are exhausted;

- The benefits of NEA participation on these Projects are significant including their inputs and validation of NDRC's approach to the design of enterprise-GHG guidelines, GHG inventories and ETS designs and operations.

3.2 Recommendations

Recommendation 1: Consider addressing the lack of specific desired outcomes and outputs of the ETS Project in the 2014 Work Plan. While the Evaluators understand that this may have been intentional, the use of SMART indicators to describe the desired outcomes (or objectives) and outputs of the ETS Project will provide a clearer picture of the expected results of the Project at its conclusion. More importantly, it can improve the ability for project managers to monitor their effectiveness in utilizing remaining resources for the remaining period of the Project. If there is a realization that targets or outcomes cannot be achieved during the course of the Project, project managers can reset these targets and outcomes through adaptive management and implementing changes to attain new targets and outcomes:

- The work plan can improve its definition on the duration and extent of the ETS registry testing phase that would include debugging software errors, introducing new functionalities, and changing software versions. The benefit to having a "measure" of the work remaining in the ETS system is to provide a target for project managers to manage remaining resources (e.g. how many times the system will be debugged or how many functionalities would be introduced). The lack of such measures may lead to difficulties in optimizing the use of remaining resources to needed actions to achieve targets, and in measuring the effectiveness of Norwegian technical assistance in subsequent project evaluations;

- Similar to providing measures of the ETS registry testing phase, the work plan can improve its definition of work required to strengthen ETS registry operational issues. This should include various approaches for dealing with fraud detection and prevention, stress testing

for transaction volume spikes, and a control plan to maintain system integrity. Examples of measures for improving the operational aspects of the ETS may include:

⇒ a quantity of fraud detection measures made during the remaining period of time; or

⇒ a definition of stress tests on the ETS system that may include a certain volume of transactions over a one-day period (which has the potential to occur according to EU experience where enterprises could delay acting on trades until a deadline day for compliance such as April 30, a target date of EU compliance to ETS permits for a year);

Setting of targets needs to be discussed and set with the relevant experts to ensure that the targets can be attained within the remaining budget and an appropriate time period. With the current terminal date of both GHG and ETS Projects being June 30, 2014, there will be new activities planned to meet new targets for the ETS Project that will provide justification for an extension of the terminal date beyond June 30, 2014;

- The work plans should make provisions for the ETS Project to target specialized assistance in the area of fraud prevention and system security. While there is good experience within China of such protection within the financial sector and government websites, the benefits of sourcing the best global expertise in this area are significant, especially in consideration of the potential value of a Chinese carbon market and the fiscal consequences of fraudulent transactions or security breaches into the system. Analogous to constant efforts in eradicating malaria, a solution to prevent all fraud and security breaches against an ETS is also a long-term effort as past human behaviour indicates that there will always be an evolution of new ideas and approaches for breaching the system[4];

- Sufficient resources should be availed for NEA assistance to prepare an ETS user manual based on NEA experience in managing ETS systems in Norway and the EU. The provision of this assistance is significant with the understanding that there will not be any access to existing user manuals from other ETSs;

- The ETS work plan should acknowledge the uncertainty of when the State Council will authorize operationalization of the ETS system, and adjust their expectations of capacity building activities that would secure "corporate memory" of the ETS knowledge provided from these activities. Two actions are proposed:

  ⇒ Formation of an "ETS Management Cell" housing all personnel with ETS operational knowledge. In comparison with other countries, the risk of loosing Chinese Government personnel in specific positions is lower; hence, provisions could be made to retain and secure personnel with ETS corporate memory until 2016 or later when the ETS is operational;

  ⇒ Proceed with the current procurement process for ETS hardware as efficiently as possible considering the need of testing with a real system but with a provision that the system can be upgraded at a later date (this is related to Recommendation 3). This will allow future ETS operations personnel to be trained in 2014. A postponement of the procurement process of the ETS system will cause substantial delays to the ETS operation start-up date,

[4] Examples of ETS system security issues includes preferred persons with access to ETS transaction folders, filtering of certain e-mail addresses, double or triple approval of documents, and criminal checks of trading participants.

increase the time delay between capacity building activities, and reduce the effectiveness of capacity building activities;

- While the experience of the Evaluators is not sufficient to provide specific recommendations on the allocation of remaining resources to the GHG and ETS Projects, they do recommend serious consideration for the extension of the GHG and ETS Projects from the end of June 2014 to the end of December 2014 or later. As such, a 2014 work plan with specific targets for the ETS testing phase and the strengthening of the ETS operational issues can provide the basis for an extension of the ETS project to the end of December 2014 or later. The additional time for an extension can be justified on the amount of time, effort and fiscal resources required to achieve newly defined outcomes, notably on security issues with the ETS Project, which could only be resolved once the testing phase is completed in April 2014 (or later if deemed appropriate);

Recommendation 2: Other complementary ETS assistance to NDRC including the "Partnership for Market Readiness" Project of the World Bank should be documented in NEA progress reports. This will provide confidence to MFA and external reviewers of a minimization of overlap between NEA technical assistance and ETS development with other donors[5], and that the effectiveness of MFA resources is being maximized;

Recommendation 3: If possible and for reasons of cost-effectiveness, NDRC should consider flexibility clauses in their current procurement process for ETS hardware to ensure that the best possible equipment is available when the State approves operationalization of the ETS system. The Evaluation team was informed that NDRC procurement of the ETS hardware is underway, and that any recommendation of delaying or halting of the process is not feasible. With an expected delay in ETS operationalization until 2016 or later pending State Council approval, there is a risk that the 2014 technology may be superseded by 2016 hardware improvements. By introducing flexibility in the procurement process of ETS hardware, NDRC can implement one of the following actions:

a) proceed with procurement as currently scheduled considering the need of testing with a real system with the provision that the system can be suitably upgraded when the system is operational and at a reasonable cost; or
b) proceed with procurement with a delayed delivery date to enable procurement of "next-generation" hardware in 2015 or later.

The advantage of a system that can be upgraded is that the hardware can be setup at an early date allowing the training of operations personnel for the ETS system to commence at an earlier date. Regardless, the impact of implementing one of these actions will allow NDRC to maintain the desired momentum in its current procurement process (which may take until late 2014 or later to complete) and to procure the best hardware technologies available on the market;

Recommendation 4: NEA and NDRC will need to setup a new disbursement modality where NEA are managing previously-led NDRC managed activities. This may include NEA "outsourcing" direction of these specific activities to NDRC, and providing its own oversight to these activities prior to approving the reimbursement of these activities.

[5] The Evaluation team is aware from NDRC of possible future contributions from GIZ and the EU for capacity building in the area of GHG and ETS development.

3.3 Lessons Learned and Best Practices

Lessons learned include:

- Strong high level support of a project is essential for its successful and timely implementation. In the case of the GHG and ETS Projects, the drivenness of NDRC to meet the specific targets of the 12th and 13th Five-Year Plans demonstrates the high level support of the Chinese Government to appoint a project implementation partner that is strongly linked with climate change policy making. The involvement of NDRC has allowed the Project to access a wide range of China's best specialists from various government departments and agencies to compile and share information for the formulation of GHG accounting methodologies and the setup of an ETS registry system;

- A project with a strong domestic implementing agency or partner that sets policy will experience minimal obstacles amongst project participants (including subcontractors and other institutions) in the sharing of information. This will have the impact of improving efficiency of delivery and the quality of outputs. In the case of the GHG and ETS Projects, NDRC in collaboration with NEA have demonstrated the benefits of effective management leading to substantial project implementation progress. NDRC also has the support of the Chinese Premier, and has excellent managerial and coordination capacity for undertaking the development of a national emission trading scheme. The NPDs and NPMs appointed by NDRC and the personnel appointed by NEA to source expertise external to China are providing excellent direction and have taken responsibility for its outputs and outcomes. They have also provided a conducive working and collaborative environment for a wide range of specialists from various government departments and agencies and external assistance for the outputs delivered to date;

Best practices that can be cited from this Project include:

- Research institutes need both autonomy and stakeholder feedback for the proper preparation of GHG MRV protocols and ETS registry systems. This has resulted in greater ownership by the research institutes and greater acceptance by stakeholders who will use the protocols and registry systems;

- Both the GHG and ETS Projects have employed sub-contractors for numerous outputs where there has been an abundance of efforts between them to coordinate their own outputs. The cooperation to coordinate outputs between Tsinghua University, SCII and NCSC has been excellent that has led to the efficient delivery of outputs within a 15-month period.

APPENDIX A – MISSION TERMS OF REFERENCE

Terms of Reference for the Mid-Term Evaluation

on the two UNDP Projects
With funding support from the Ministry of Foreign Affairs of Norway
For
Provincial Greenhouse Gas Emissions Inventory Capacity Building and Greenhouse Gas Emissions Accounting Methodology for Enterprises of Key Industries (a. k. a "The GHG Project")
and
Establishment of National Registry System for Domestic Emissions Trading Scheme and Voluntary Carbon Emission Reduction
(a. k. a. "The ETS Project")

1. Introduction:

On 25 November 2009, the Chinese government set the target to reduce its carbon dioxide emission per unit of GDP by 40-45% based on the level of 2005 by 2020, and clearly stated that this target will be included as a binding indicator into the "twelfth-five" and the subsequent mid-and-long term economic and social development planning.

The meeting of the National People's Congress held in March 2011 adopted the "National Economic and Social Development Twelfth Five-Year (2011-2015) Plan" clearly stated that carbon dioxide emission per unit of GDP in 2015 will be cut by 17% based on the level of 2010. It also specified that China will "explore low-carbon product standards, labeling and certification system, build up a sound system of greenhouse gas emissions statistics and accounting, and gradually establish a carbon emissions trading market."

The market mechanisms including emissions trading system (ETS) are helpful for China to achieve the goal of greenhouse gas emissions (GHG) control. To gradually establish a carbon emission trading market, the greenhouse gas emissions accounting, reporting and verification system at enterprise level is firstly needed, especially in high energy consumption rate, high emission rate industries. China also needs to prepare in advance before launch of a national ETS across the country and to conduct capacity development on developing provincial sector-based GHG accounting methodologies. These works are of great significance for China to achieve the GHG emission control target, to gradually establish carbon emissions trading market, and to promote reasonable allocation of emission allowances.

On 2 December 2011, Contractual Service Agreements have been signed by MFA of Norway with UNDP, whereas MFA agrees to contribute funds to UNDP on a cost-sharing basis for the implementation of the climate change projects; whereas UNDP shall designate an Implementing Partner for the implementation of the two separate Projects, for supporting *Provincial Greenhouse Gas Emissions Inventory Capacity Building and Greenhouse Gas Emissions Accounting Methodology for Enterprises of Key Industries* (a. k. a "The GHG Project") and *Establishment of National Registry System for Domestic Emissions Trading Scheme and Voluntary Carbon Emission Reduction*
(a. k. a. "The ETS Project")

The Goal of both Projects is to contribute to the development of measures aimed at reducing the carbon intensity in the Chinese economy as set in China's 12th Five-Year Plan.

The objectives of the two projects as follows:

For the ETS Project, it is aimed to support these policies by designing and building technical measures to regulate and supervise the voluntary market.

The objectives of the ETS project are three fold: 1) Establish national voluntary emission reduction project registry system to maintain a common voluntary market with centralized information disclosure and standardized trading commodities; 2) Establish a national registry for regional and nationwide emissions trading schemes to materialize the national objective to build carbon market gradually; 3) Capacity building by carrying out education and training activities to build and enhance the capacities of stakeholders in the voluntary project market, and regional and national emissions trading market.

For the GHG Project, the Goal of the Project is to assist the GoC to better address climate change through capacity building and building up a Guidelines of Greenhouse Gas emission accounting methodology and reporting for enterprises level for carbon trading.

To achieve this, the project will take two actions: 1) in order to lay a good foundation for local governments to develop climate change policies and accomplish GHG control target, the project will use "Guidelines on Provincial Greenhouse Gas Emission Inventory (Trial)", issued by the National Development and Reform Commission (NDRC), as the teaching materials, to implement training activities nationwide and strengthen capacity of related local governments and agencies; 2) inter alia to make preparations for GHG trading and permit allocation, the project will also develop Guidelines of GHG accounting methodology for certain industries, as well as GHG reporting format, by combining the analysis of the characteristics and the typical manufacturer in sectors such as power generation, iron & steel, cement, glass, Nonferrous metal, chemicals and aviation industry in China with the existing relevant accounting methodology. On basis of these, key outputs include: a) Capacity building in Greenhouse Gas Emissions Inventory Development for all Provinces; and b) A set of GHG emissions accounting methodologies for enterprises of key industries.

Given the similarities in funding sources, implementing agencies, and interlink between the two UNDP projects, it was generally agreed at Annual Consultation Meeting on 15 may 2013 at the Norwegian Embassy that a joint independent Mid-Term Evaluation on the ETS + GHG be organized in mid August 2013.

UNDP oversees the implementation of the entire project with NDRC, as the Executing Agency, manages the subcontracts directly with the 3 domestic teams (i.e. Tsinghua University, NCSC, and SCII) while UNDP manages the sub-contract directly with the Climate and Pollution Agency (Klif), which reports to the Norwegian Ministry of the Environment.

Further details of the two projects' set-up, with regard to the interlinked topics and with all the different contributors on different levels, will be found in the project documents.

2. Description of the Assignment

As part of their project management activities, the ETS + GHG Projects are up for Mid-Term Evaluation (MTE). The purpose of the MTE is to evaluate the project implementation and management

performances. It will determine whether the projects are on track to achieve the project objective and therefore just need to be sustained; or needs revisions to keep it on track. The MTE will also determine and report on the experiences and lessons learnt during the project implementation so as to provide guidance in determining the targets and strategies for the remaining time of the two projects

3. Scope of the Evaluation

The scope of the MTE covers the Norwegian -funded ETS + GHG Projects and their components.

The MTE will assess the ETS + GHG Projects implementation taking into account the status of the project activities and outputs and the resource disbursements made up to 30 June 2013.

With two separate projects working on related issues, , the MTE will assess 1) how this interdependent set-up works and if it secures the content/outputs of the two projects; 2) how things are going with all the contributing partners on several levels in two projects, with Klif in Norway, NDRC in China and the different subcontractors when there are challenges that some parts of the work are dependent on the progress of other work being finalized first (e. g. Klif is dependent on being informed from China so as to be able to deliver successfully etc.)

The MTE will involve analysis at two levels: output level and project level. On the output level, the following shall be assessed:

- Whether there is effective relationship and communication between/among outputs so that data, information, lessons learned, best practices and results are shared efficiently, including cross-cutting issues;
- Whether the use of technical experts (both domestic and international has been successful in achieving component outputs.
- Whether the communication between the Chinese technical teams with Klif is adequate

The MTE will also include such aspects as appropriateness and relevance of work plan, compliance of the work and financial plan with budget allocation, timeliness of disbursements, procurement, coordination among project team members and committees, and the UNDP country office support. Any issue or factor that has impeded or accelerated the implementation of the project or any of their components, including actions taken and resolutions made should be highlighted.

At the project level, besides looking into the interlink of the two projects and all the different contributors on different levels, the MTE will assess the project performance in terms of: (a.) Progress towards achievement of results, (b.) Factors affecting successful implementation and achievement of results, (c.) Project Management framework, and (d.) Strategic partnerships.

(a) Progress towards achievement of results (internal and within Projects' control)

- Is the Project making satisfactory progress in achieving project outputs vis-à-vis the targets and related delivery of inputs and activities?
- Are the direct technical partners and project experts (both domestic and international) able to provide necessary inputs or achieve results?
- Given the level of achievement of outputs and related inputs and activities to date, is the Project likely to achieve their purpose/objective and contribute to the realization of their goal?

- Are there critical issues relating to achievement of project results that have been pending and need immediate attention in the next period of implementation?

(b) Factors affecting successful implementation and achievement of results (beyond the Projects' immediate control or project-design factors that influence outcomes and results)

- Is the project implementation and achievement of results proceeding well and according to plan, or are there any outstanding issues, obstacles, bottlenecks, etc. on the government (national and local), research institutes (sub-contractors) or private sector as a whole that are affecting the successful implementation and achievement of project results?
- To check out through their interview that to what extent does the broader policy environment remain conducive to achieving expected project results, including existing and planned legislations, rules, regulations, policy guidelines and government priorities?
- Is the project design still relevant in the light of the project experience to date?
- To what extent do critical assumptions/risks in project design make true under present circumstances and on which the project success still hold? Has the project team validated these assumptions as presently viewed by the project management and determine whether there are new assumptions/risks that should be raised?
- Do the Projects' outcomes remain valid and relevant, or are there items or components in the project design that need to be reviewed and updated?
- Are the Projects' institutional and implementation arrangements still relevant and helpful in the achievement of the Projects' objective and outcomes, or are there any institutional concerns that hinder the Projects' implementation and progress.

(c) Project management (adaptive management framework)

- Are the project management arrangements adequate and appropriate?
- How effectively is the project managed at all levels? Is it results-based and innovative?
- Do the project management systems, including progress reporting, administrative and financial systems and monitoring and evaluation system, operate as effective management tools, aid in effective implementation and provide sufficient basis for evaluating performance and decision making?
- Is technical assistance and support from project partners and stakeholders appropriate, adequate and timely?
- Validate whether the risks originally identified in the project document and, currently in the Quarterly Operational Report (QOR)/Annual Project Report (APR), are the most critical and the assessments and risk ratings placed are reasonable.
- Describe additional risks identified during the evaluation, if any, and suggest risk ratings and possible risk management strategies to be adopted.
- Assess the use of the project work plans as management tools and in meeting with UNDP/Norwegian requirements in planning and reporting.
- Assess the use of electronic information and communication technologies in the implementation and management of the project.
- On the financial management side, assess the cost effectiveness of the interventions and note any irregularities.
- How have the QOR/APR process helped in monitoring and evaluating the project implementation and achievement of results?

(d) Strategic partnerships (project positioning and leveraging)

- Are there further opportunities for stronger collaboration and substantive partnerships identified to enhance the Projects' achievement of results and outcomes?
- Are the project information and progress of activities disseminated to project partners and stakeholders? Are there areas to improve in the collaboration and partnership mechanisms?

3. Specific Tasks for the Evaluation

Through the review of pertinent documents related to the projects such as project documents, quarterly and annual progress reports, other activity/component specific deliverables and evaluation, if there are any, etc; conduct of structured interview with knowledgeable parties (e.g., NDRC, the Project Management Office (set up in NDRC), Sub-Contracting Parties/Entities (3 Chinese technical teams and Klif respectively), UNDP Country Office Counterparts, the Norwegian Embassy, , etc.); and the evaluation mission will carry out the following tasks:

3.1 Review of the project design, and planning to find out whether: (a) the project approaches and strategy are sound; (b) the immediate objectives and outputs are properly stated and verifiable in the project logical framework; (c) the timeframe of the projects are feasible and practicable; and, (d) Others.

3.2 Review of project performance: timeliness and quality of inputs; timeliness and cost-effectiveness of activities undertaken; quality and quantity of outputs produced; achievement of outcomes; and a financial review against the project budget.

The projects are now more or less in the mid duration and as such progress should be measured against outputs stated in the project document. The evaluation will focus on such aspects as appropriateness and relevance of work plan, compliance with the work plan along side with budget allocation; timeliness of disbursements; procurement, quantity and quality of goods and services created; any reallocation of funding or re-adjustment of planned projects' activities are needed; coordination among different project actors and UNDP country office support. Any issues that have impeded or advanced the implementation of the project or any of their components, including actions taken and resolutions made should be highlighted.

[Note: Whatever format is deemed appropriate for the presentation of the assessment results in the evaluation report, the evaluation should come up with a summary of information as in the following table.]

UNDP will prepare the following table for the Consultants, who will use it as a checklist when they conduct their work under the review.

Activities		Budget		
Planned	Actual	As per ProDoc	Actual Expenditures	% of Project Budget

3.3 Review the project impact: determine the extent to which the project objectives are expected to be achieved and what are the short-term and long-term impact of the project, including efficiency of the project, cost-effectiveness of the project;

3.4 Provide recommendations on the improvement or sustenance of the implementation of the remaining activities of the project; and look at whether these are still relevant in light of policy development and related activities being undertaken by the government.

4. Qualifications and requirements

The MTE assignment requires an evaluation team that will consist of: one national expert and one international expert (team leader). Both experts should have basic knowledge of globally and practical experience in designing, reviewing or constructing ETS and GHG inventories.

The experts should hold an advanced degree in studies related to the subject, and have at least 10 years of working experience in the area of climate change and GHG emission inventory. Both Candidates could come either from the UNDP consultant roster or from the recommendation from the Embassy, NDRC, or Klif.

The International expert will act as the team leader and the lead writer of a joint MTE report with separate chapters on the two different projects while the national expert will support in the MTE process and compilation of evaluation report.

The final version of the joint MTE report should be finalized by the MTE team, reflecting the comments from PMO, UNDP and the Norwegian Embassy.

It is also desired that the national and international consultants have as many as possible the following qualifications:

1) Project development, implementation and evaluation experience;
2) Professional experience with designing, reviewing, developing, or operating an ETS or involved in GHG emission inventory calculation or verification;
3) Knowledgeable about the relevant policies of UNDP and Norway;
4) Good communications and writing skills in English;
5) Knowledge of UNDP projects and project requirements;
6) Good experiences in working in China and with Chinese counterparts.

5. Roles and Responsibilities

UNDP will assist the MTE team in preparing for the MTE of the project. The MTE Team reports to UNDP in China. The Projects' executing agency (NDRC) shall coordinate all relevant national agencies and institutes and provide in advance copies of the necessary documents needed by the evaluation expert/s. Likewise, PMO shall arrange and finalize the itinerary/schedule for the MTE in consultation with all parties concerned. The Projects' Coordinators (PC) and Assistants to PC will provide administrative support to the MTE team. PMO and UNDP will coordinate the logistical arrangements for the evaluation.

6. Support to the Evaluation Team:

UNDP will provide policy guidance to the MTE Team, and the PMO will arrange necessary briefings, background materials, meetings and other logistical support.

The following documents and reports shall be provided to the MTE Team to assist them in the conduct of the MTE:

a) ETS + GHG Project Documents
b) Quarterly Operational Reports (QOR)
c) Annual Project Report (APR)
d) Comprehensive reports including subcontracts, executive reports, study tour reports, newsletters, etc
e) Other related documents

7. MTE Schedule and Budget

The MTE is scheduled to be conducted starting from Oct. 23 to Nov.21, 2013, for a period of 30 working days. A preliminary schedule for the MTE assignment in China is proposed as follows and shall be finalized by the PMO in consultation with respective agencies. The terms of payment for the services rendered by the consultants (evaluators) are based conformity on the UNDP standards.

Schedule

Day	Activity	Lead Agency
1-3	Home-based review of the background materials for both the national and international consultants while Day 4 for travelling of the international consultant from his/her home country to China	PMO providing documents in a timely manner
4 -5	Briefing over Skype or teleconference with the IC and NC by UNDP with participation of the representatives of the Norwegian Embassy in Beijing, the Project Management Office (NDRC), and Klif The IC and NC to have meetings with Klif and other institutions as recommended by Klif soon after the Briefing	UNDP Klif
6	IC travel to China	
7-14	Meeting with NDRC and with the sub-contractor institutions in Beijing. Drafting of the key findings and recommendations for debriefing presentation at UNDP	PMO MTE Team
15-16	Debriefing at UNDP with participation of the	MTE Team

	representatives of the Norwegian Embassy in Beijing and the Project Management Office (NDRC)	
17	IC to travel back to the home station	
21 - 25	Drafting the MTE report	MTE Team
25 - 27	Review by PMO, UNDP and the Norwegian Embassy and feedback to the MTE Team	UNDP
28-30	Finalizing the final version of the MTE report	MTE Team

8. Outputs

The MTE Team is expected to deliver the following outputs:

1) Inception report within one week after signing the contract: evaluator provides a very short report on clarifications on timing and method, showing how will meet TOR expectations.
2) **Debriefing at UNDP:** Presentation of initial findings to Project Team and Country Office prior to departure to home station.
3) **Draft final report for comment:** within 25 days of the mission period, a draft Final Report based on UNDP template should be provided to UNDP.
4) **Final Report:** within 30 days of the mission period, the Final Evaluation Report presenting the final mid-term evaluation results of the project, recommendations for the implementation of the remaining activities until end-of-project, and suggestions for implementation of the two projects in the remaining time frame. The documents should be submitted in electronic format.

   Revisions made onto the final report should use the Track Changes Format so that the details are reflected about how all received comments have or have not been addressed in the final report.

   The findings of the evaluation will be used by NDRC as the implementing partner and UNDP to better adjust project strategy and approaches to guide the project implementation in the remaining time frame of the two projects.

9. Payment Schedule

Upon signing of the Individual Contract, travel related costs, including estimated DSA and terminals for the entire mission will be paid to the contracted consultants. All the travel related costs will be disbursed through UNDP according to the actual expenditure by providing tickets invoice and boarding passes.

30% of the consultant fees will be paid to the consultant upon receipt of an inception report while the remaining 70% is payable upon acceptance by UNDP of the evaluation report in the final form.

APPENDIX B – MISSION ITINERARY (FOR OCTOBER 26 TO NOVEMBER 8, 2013)

The mid-term evaluation mission was conducted by Mr. Roland Wong, International Consultant and Dr. Hongwei Yang in accordance with the objectives of the evaluation and obtained data relevant for making judgments regarding Project success and lessons learned.

October 26, 2013 *(Saturday)*			
#	**Activity**	**Stakeholder involved**	**Place**
	Arrival of Mr. Roland Wong in Beijing		
October 27, 2013 *(Sunday)*			
	Preparations for meetings and mission		
October 28, 2013 *(Monday)*			
1	Mission briefing meeting	UNDP, MFA, NDRC	UNDP Office in Beijing
2	Meeting with NDRC on provincial GHG inventory capacity building project, enterprise GHG accounting and reporting guidelines	NCSC (Climate Change Department of NDRC)	NCSC offices in Haidian District of Beijing
3	Meeting with NEA	Norwegian Environment Agency	UNDP Office in Beijing
October 29, 2013 *(Tuesday)*			
4	Meeting with Tsinghua University on GHG Accounting Methodologies for Non-Ferrous Metal Enterprises	Tsinghua University	Tsinghua University Campus, Energy Science Building C,
5	Meeting with Tsinghua University on GHG Accounting Methodologies and Reporting Guidelines for Cement and Flat Glass Industries	Tsinghua University	Tsinghua University Campus, Energy Science Building C,
October 30, 2013 *(Wednesday)*			
6	Meeting with Tsinghua University on Overview of ETS Registry Design Work	Tsinghua University	Sino-Carbon offices, Dongcheng District, Beijing
7	Meeting with SCII on Development of the Construction of the National ETS Registry System	SCII	Sino-Carbon offices, Dongcheng District, Beijing
8	Meeting with NCSC on Capacity Building on the ETS Project	NCSC	Sino-Carbon offices, Dongcheng District, Beijing

9	Meeting with SCII on GHG Accounting Methodologies for Aviation Sector	SCII	Sino-Carbon offices, Dongcheng District, Beijing
10	Meeting with SCII on GHG Accounting Methodologies for Power Sector	SCII	Sino-Carbon offices, Dongcheng District, Beijing
October 31, 2013 *(Thursday)*			
11	Meeting with NEA on GHG Accounting Methodologies and Reporting Guidelines	NEA	UNDP Office in Beijing
November 1, 2013 (*Friday)*			
12	Meeting with NEA on ETS Design and Establishment of Registry System	NEA	UNDP Office in Beijing
November 2, 2013 (*Saturday)*			
	Preparation of Report		
November 3, 2013 (*Sunday)*			
	Preparation of Report		
November 4, 2013 (*Monday)*			
	Preparation of Report		
November 5, 2013 (*Tuesday)*			
13	Mission De-Briefing	UNDP, MFA, NEA and NDRC	UNDP Office in Beijing
November 9, 2013 (*Saturday)*			
	Departure of Roland Wong from Beijing		

Total number of meetings conducted: 13

APPENDIX C – LIST OF PERSONS INTERVIEWED AND DOCUMENTS REVIEWED

This is a listing of persons contacted in Beijing (unless otherwise noted) during the Evaluation Period for the MTE only. The Evaluation Team regrets any omissions to this list.

1) Mr. Carsten Germer, Assistant Country Director, UNDP China
2) Ms. Goerild Heggelund, Senior Climate Change Advisor, UNDP China
3) Mr. Zhang Weidong, Programme Manager, Energy & Environment, UNDP China
4) Ms. Fan Shuhua, Programme Associate, Energy & Environment, UNDP China
5) Mr. (Bert) Wu Peng, Programme Manager, Energy & Environment, UNDP China
6) Mr. Tor Skudal, Counsellor (Environment), Royal Norwegian Embassy, Beijing
7) Ms. Liu Yinglang, Advisor Climate Change, Royal Norwegian Embassy, Beijing
8) Mr. Wang Shu, National Project Director, Deputy Director, Department of Climate Change, NDRC
9) Ms. Guo Tingzhen, National Coordinator, PMO for GHG Project, Department of Climate Change, NDRC
10) Ms. Wang Xi, National Coordinator, PMO for ETS Project, Department of Climate Change, NDRC
11) Ms. Elin Økstad, Project Director, Norwegian Environment Agency, Oslo
12) Ms. Trine Berntzen, Project Manager, GHG Project, Norwegian Environment Agency, Oslo
13) Mr. Stian Rein Andresen, Senior Advisor, GHG Project, Norwegian Environment Agency, Oslo
14) Ms. Carina Jacobsen Heimdal, Project Manager and Financial Analyst, ETS Project, Norwegian Environment Agency, Oslo
15) Mr. Finn Jostein Gjelten, Senior Advisor, ETS Project, Norwegian Environment Agency, Oslo
16) Dr. Tong Qing, Associate Professor, Tsinghua University
17) Dr. Lu Chuanyi, Associate Professor of Energy and Environmental Economics, Tsinghua University
18) Dr. Duan Maosheng, Professor, Tsinghua University
19) Dr. Zhang Xiaoguang, Software Architect, Sino-Carbon Innovation & Investment, Beijing
20) Mr. Yang Jin, Information Director, Sino-Carbon Innovation & Investment, Beijing
21) Mr. Li Peng, Senior Project Manager, Sino-Carbon Innovation & Investment, Beijing
22) Dr. Tang Jin, R&D Director, Sino-Carbon Innovation & Investment, Beijing
23) Dr. Wei Xiaohao, CDM Project Management Center, NCSC
24) Dr. Ling Ji, Statistics and Assessment Department, NCSC
25) Mr. Su Mingshan, Director, Statistics and Assessment Department, NCSC
26) Ms. Sun Fen, Statistics and Assessment Department, NCSC
27) Ms. Li Xiang, Statistics and Assessment Department, NCSC

Documents reviewed for this evaluation includes:

1. UNDP Project Document for GHG Project
2. UNDP Project Document for ETS Project
3. Quarterly Progress Reports from NEA and NDRC for 2013
4. 2012 Annual Project Report from NEA and NDRC for GHG Project
5. 2012 Annual Project Report from NEA and NDRC for ETS Project
6. Project Implementation Reports (2012 to 3rdQ 2013)

7. Annual Work Plans (2012 and 2013)
8. Presentation on GHG Inventory Development for Non-Ferrous Sector by Tsinghua University
9. Presentation on GHG Inventory Development for Cement and Flat Glass Industrial Sectors by Tsinghua University
10. Presentation on GHG Inventory Development for Chemical Sector by NCSC
11. Presentation on GHG Inventory Development for Steel Industrial Sector by NCSC
12. Presentation on GHG Inventory Development for Aviation Sector by SCII
13. Presentation on GHG Inventory Development for Power Sector by SCII
14. Presentation on ETS Design Overview by Tsinghua University
15. Presentation on ETS Construction by SCII
16. Presentation on ETS Capacity Building by NCSC
17. Report on Norwegian Emissions Trading Scheme 2012
18. Report to NEA on "A Review of MRV Requirements of the US GHG Initiative, California's Cap-and-Trade Program, Australia's ETS, and New Zealand's ETS" by Pace Energy and Climate Center, April 2013
19. Report to Klif on "Security for National Chinese ETS" by Mnemonic, April 2013
20. 2013 Audit Reports for the GHG and ETS Projects by the Audit Service Center for China National Audit Office for Foreign Loan and Assistance Projects