Mid-term Review of the Project: Urban Atmospheric Multi-Pollutant Prevention and Control in China

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Mid-term Review of the Project:

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Final Report

Scanteam
Analysts and Advisers

Project: Mid-Term Review of the Project "Urban Atmospheric Multi-Pollutant Prevention and Control in China"

Client: Norad, Department for Climate, Energy and Environment, Section for Sustainable Development and Environment

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Acronyms and Abbreviations

CAEP	Chinese Academy for Environmental Planning
GHG	Greenhouse Gases
KLIF	Norwegian Climate and Pollution Agency
MEP	Ministry of Environmental Protection
MFA	Norwegian Ministry of Foreign Affairs
MOFCOM	Ministry of Commerce of the People's Republic of China
MP	Multi Pollutants
NEA	Norwegian Environment Agency
NILU	Norwegian Institute for Air Research
PD	Project Document
PM	Particle Matters
PM 2.5	Fine particles with diameter no larger than 2.5 microns
PMG	Project Management Group
SAES	Shanghai Academy of Environmental Science
TAES	Tianjin Academy of Environmental Science
TU	Tsinghua University
TIUC	Tianjin Institute of Urban Construction
UEPB	Urumqi Environmental Protection Bureau
UAES	Urumqi Academy of Environmental Science
Vista	Vista Analysis
IIASA	International Institute for Applied Systems Analysis

Executive Summary

This Mid-term Review has assessed project progress up to date, the effectiveness of the project and if project implementation has been done in accordance with the project document. The review has also assessed project sustainability and cross-cutting issues, and reflected on future perspectives.

This review has reasserted the relevance of the project and confirmed that the project overall has made satisfactory progress, though some delays not critical to project achievement has been identified. Output component 2 was finalized with some delays with the submission of a final report in April 2014, providing the basis for formulation of a policy brief to MEP. A draft Output 3 component report was submitted stakeholders in November 2014, in time for the final Output 3 workshop held in mid-November. At the same time outputs have been produced from the pilot in Urumqi contributing to output 3. It is also noteworthy that Output 4 activities were in fact started prior to plan, to take advantage of the increased political momentum experienced from 2013.

The review concludes that the project management activities under the responsibility of CAEP and NEA have been performed in a professional manner, effectively planning and implementing activities, and ensuring a gender balance in the project. It is however noted that the performance related to the annual consultations and reporting has been inadequate. Despite satisfactory progress, this may have affected project implementation, as aspects of concern, or opportunities arising, have not been discussed in the project's highest decision-making authority. It may also have increased the risks of financial mismanagement, though no indications of this were observed. Lack of data has also been a constraining factor for the review team in answering all aspects of the ToR.

The review has shown that key factors contributing to achievements include project relevance and strong ownership in implementing institutions, relevant inputs contributing to technological know-how and policy formulation, professional project management in PMG, broad involvement of stakeholders, and an effective organizational structure facilitating good communication and collaboration between institutions and technical staff. Constraining factors include lack of clarity in term of involvement of Shanghai institutions, weaknesses in dissemination of results to external stakeholders, and possibly the lack of sufficient piloting of the methodologies and tools.

The project now enters a critical phase in terms of achieving project outcomes and its objectives. The quality and applicability of the tools and methodologies proposed in Output 3 will be key to ensure project outcomes and impacts. The tools and methodologies will be tested in Urumqi. However, more extensive piloting is desired to ensure and demonstrate that the methodologies and tools are relevant and applicable on a wider scale.

The current political momentum and public awareness on air pollution represents a "Window of Opportunity" for the project to achieve outcomes and significant impacts. Early demonstration of project results is therefore important to maximize the impact on the 13th five-year plan and the drafting of the strategies and guidelines on MP, as well as to catch an early interest of other urban localities planning to improve MP control to meet the new national requirements on PM 2,5.

To further strengthen the project effectiveness and increase the sustainability three main actions are recommended in the follow-up of this review:

- The number of pilots should be considered increased to ensure that all proposed methodologies and tools are tested, taking advantage of the current window of opportunity, and preparing the ground for roll out to other cities. If possible, pilots should be started as soon as the pilot in Urumqi concludes, tentatively in June 2015,
- The mechanisms for transfer of technical know-how and policies to other cities and regions should be clarified, and a strategy to strengthen transfer of know-how between cities and regions should be developed, to prepare knowledge sharing after pilots are concluded.
- The dissemination strategy should be strengthened. How, what, to whom and when dissemination will be made, should be operationalized. Given the current political momentum and public interest an effective dissemination strategy could facilitate an interest in the project that may strongly improve the chances of the methodologies and tools being promptly applied on a broader scale in China.

In addition, it is recommended that a semi-annual progress report for January - June 2015 is submitted by PMG in mid-2015, updating all project partners on progress in project implementation and results achievements.

The project partners should consider if additional project funding is required to follow up the above recommendations. It is the view of the review team that the project period should be considered extended to ensure that the additional pilots are concluded, alternatively the pilots could continue into a second phase of the project if a second project phase is decided.

Given the fundamental gaps in capacities and the relevance of the issue at stake, both locally but also globally in terms of GHG's reduction, the review team recommends that a second phase of the project are discussed between the project partners. If the partners agreed to a second phase, early preparations should be undertaken to ensure a smooth transition from the current project phase.

Provided that the Outputs 3, 4 and 5 are adequately finalized in 2015, it is the review teams view that a second phase should continue, and possibly further strengthen, its focus on local capacity building, which will be key to ensure effective implementation of a national strategy. Capacity building targeting local governments should however as in the current phase be linked to development and implementation of national policies. The following perspectives should be considered if a second phase is decided;

- A detailed plan for building local capacities needs to be formulated. A first issue that will need to be attended to is the lack of a tradition for sharing lessons learned both within and between regions.
- Second, it should be considered establishing regional learning hubs, enabling capacity building and technical assistance to urban localities in each region.
- Third, expanding the inputs with peer learning from European cities should be considered.
- Forth, it should be considered to establish a wider network of cities, for example a "Blue Sky City Network China", with appropriate backing of MEP.
- Fifth, the methodologies and toolkit should be promoted as something "new" to China, representing an opportunity for cities to improve the wellbeing of their citizens and effectively follow up the stricter national regulations.

1 Background to the review

On request from the Norwegian Embassy in Beijing, Norad´s Department for Climate, Energy and Environment invited tenders for a Mid-term Review (MtR) of the project CHN- 10/002, Urban Atmospheric Multi-pollutant prevention Control in China.

The goal of the project is to assist China in meeting the national targets for Ambient Air Quality, and the purpose is to strengthen the capacity of national and local decision makers in China in the reduction of multi-pollutant emission and coordinated control of greenhouse gases.

The review is to cover the period December 2012 – November 2014, but will also be forward looking in terms of possible changes for the remaining project period and a possible second phase of the project. The purpose of the review is to focus on the progress to date and the effectiveness and efficiency of the project, i.e. the extent to which the purpose and the outputs are being achieved, and if the progress has been made in accordance with the work plan and budget. Expected impact should be assessed to the degree possible.

Project background

This cooperation project between China and Norway grew out of a long-term cooperation in the environmental sector. Moreover, as recognized all over the world, China is facing big challenges from severe air pollution. To address these challenges, the Chinese government set an ambitious national target in the 12th national 5-year plan to control the emissions of SO_2 (8% reduction) and NO_X (10% reduction) over 2010-2015. The Ambient Air Quality Standards was revised as well, with much stricter limit values and much higher requirement of quality control, e.g. with a change from the previous requirement of PM 10 in urban localities to the current requirement of PM 2,5.[1] This change is a demanding requirement of local authorities to meet, and tools and methodologies are necessary for local governments to identify pollutants and its sources.

Responding to the increasingly complex and severe air pollution situation in large areas in China, this project aims at proposing means to address these problems in a uniform manner. At the same time, the project takes into account the increasingly relevant issue of choosing solutions that follows the policy of reducing greenhouse gases.

The project design was planned from 2010, and a pre-phase of a project addressing this issue was carried out in 2010/11, with the objective to elaborate a full project proposal. The Chinese Ministry of Commerce forwarded the formal application resulting from the pre-phase to the Norwegian embassy in Beijing in June 2012. The title of the project proposal was *Urban Atmospheric Multi-Pollutant Prevention and Control in China*.

An appraisal of the project was undertaken late June 2012. The appraisal concluded that the project was highly relevant both in regional and a global context and aligned with the priorities of China and directly addresses objectives of the 12th Five Year Plan, but did propose some adjustments in the project results framework as well as organizational and budget changes to the project proposal.

The projects inception phase was initiated with the signing of the agreement between China

[1] PM2,5 is particles with diameter no larger than 2,5 microns.

and Norway in November 2012. The appraisal recommendation were attended to during the inception phase and discussed in the inception workshop. A final PD was submitted stakeholders in June 2013.

Though China and Norway has a long-term cooperation in the Environmental sector, this is the first project in which the Chinese Academy for Environmental Planning (CAEP) is the responsible implementing partner on the Chinese side. CAEP is a public institution with an independent legal status with a mission to provide technical support and advise on environmental planning and policies to the government. The main implementing partner on the Norwegian side is the Norwegian Environmental Agency (NEA).

Project design and objectives

The overall goal (long-term objective) of the project is to "improve the capacity and capability of local authorities in Ambient Air Quality Management". The short-term objective is that "MEP has accepted/adopted a set of procedures and tools to support the local authorities in the reduction of multi-pollutant emission and coordinated control of GHGs." To achieve the objectives the project is organized into five different components, i.e. one management component and four Output components. The components are structured as follows:

Outcome 1: Management and administration;

Outcome 2: Review of air multi-pollutant control;

Outcome 3: Methodology and tools for air MP control;

Outcome 4: Strategies, guidelines and supporting measures of air MP control

Outcome 5: Pilot testing of instruments and measures developed by the project in Urumqi.

For each component the PD has identified the planned activities and outputs on each output with a set timeline, output indicators to measure achievements both at component level and at activity level, participants involved and a planned budget.

With the exception of the Management and administration components, the outputs are planned in a serial pattern, feeding into to the purpose and goal of the project. Output 2 reviews the current status of MP tools and methodologies using a comparative Sino-European perspective. Output 3 proposes a methodology and key technical tools for air MP control based on the assessment in outcome 2. Output 4 aims at developing practical guidelines to local authorities for applying the tools and methodology and a strategy, whereas Output 5 proposes a pilot testing in Urumqi of instruments and measures for implementation of the tools.

According to the PD, the total budget for the project is NOK 26,2 million, of which 3,9 million is Chinese in kind contribution and 22,3 is Norwegian contribution. The lowest budget post is for output 2 budgeted at NOK 2,4 million. All other components are budgeted between NOK 4,3 – 4,8 million.

Scope of Work

This Mid-Term Review will assess the project progress to date, the effectiveness and efficiency of the project, and to the degree possible expected impacts.

The term of reference lists seven sets of questions related to project management, implementation, effectiveness and efficiency that is indicative for the work of the review. The

questions also provide a basis for providing recommendations for possible improvements to the project and a possible second phase of the project.

1. What are the biggest challenges for China in urban atmospheric multi-pollutant prevention and control, technologically and policy wise? Has the project been able to produce inputs and basis for suggestions on how to meet these challenges in a scientific and pragmatic way?
2. How has the project contributed to Chinese authorities' technological know-how (output 3) and policy formulation (output 4) on urban atmospheric pollution prevention and control?
3. Are all key stakeholders, especially those at local level, adequately involved throughout the implementation process?
4. Has the Norwegian expertise being shared through the project activities been found relevant and useful for the project implementation and China's work in this area? How can the Norwegian expertise and experience be utilized to tackle the relevant challenges in China at both national and local levels?
5. How are the cross-cutting issues handled in the project; gender, anti-corruption and project sustainability.
6. Has the project management (including financial management) on the Norwegian side – and on the Chinese side - been carried out in a professional and efficient manner? Is the reporting following the agreed outline?
7. A potential second phase is being discussed, the consultants should to the degree possible advise on priorities for further cooperation in this field.

Structure of the report

In accordance with the ToR, this Review first provides the approach and methodology applied to the task in Chapter 2. Chapter 3 provides an assessment of the results (ouputs and outcomes) achieved from the start of the project in December 2012 to November 2014, and discusses the main factors contributing and constraining project progress. Chapter 4 assesses the project effectiveness, efficiency and sustainability, whereas Chapter 5 discusses future perspectives and summarizes key recommendations and Chapter 6 provides a conclusion of the review.

Attached to toe report are three annexes. Annex A contains the Terms of Reference for the task. Annex B provides the list of informants spoken with and Annex C presents the documents consulted.

2 Methodology and task implementation

The methodology used in this Review is aligned with Norad's guidelines and practices for project reviews as outlined in the Development Cooperation Manual, following the Terms of Reference (ToR).

The review has been based on a mix of documentation review and informant interviews. Before the field mission interviews were conducted with key stakeholders in Norway and with IIASA in Vienna. In addition project document, the agreements and a progress report were reviewed. Based on the review an inception note was submitted to the Embassy and Norad.

An important constraining factor for the review team has been that no annual consultations had been held prior to the team's field mission, and the documentation providing the basis for discussion in the annual consultations has therefore not been produced. Moreover, despite repeated requests from the review team to PMG and the Norwegian Embassy, no minutes from annual consultations and no financial documentation, i.e. financial statements, audits, annual budgets or expenditure data, was shared with the team before, during or after the mission. This limitation in available financial data implies that an efficiency analysis of the project cannot be undertaken in this review, and that neither an assessment of budget releases compared to planed budget nor an assessment of the financial management of the project is possible. However, the NEA has provided estimates on expenditures for the Norwegian project activities, enabling an assessment of NEA expenditures.

The field mission was undertaken from Monday 10th to Friday 15th November 2014. The review team met with all key stakeholders in Beijing. Much of the Review Team's time during the field mission was spent on informative and open discussions with stakeholders, as well as reviewing documentation the Team received during the field mission. Accompanied by CAEP and an interpreter the team also visited involved institutions in Urumqi and met with Urumqi Environmental Protection Bureau (UEPB) and Urumqi Academy of Environmental Science (UAES). Extensive documentation on project outputs was presented the team during the review. Follow up interviews have been conducted with Norwegian institutions after the field mission.

A local consultant expert on air pollution policy joined the Scanteam team leader during the field mission. It should be noted that the team do not assess the quality of the output documentation.

The key documents reviewed are the project document (PD), the project agreement between The Norwegian Embassy and Chinese Ministry of Commerce (MOFCOM) and the institutional agreement between NEA and CAEP, the CAEP progress report presented to the first annual meeting in November 2014, and the output documents. The team has also reviewed the contracts between NEA and International Institute for Applied Systems Analysis (IIASA) and the Norwegian Institute of Air Research (NILU).

3 Project achievements

This chapter presents the objectives set for the project and for each of the work components and the results recorded. After the signing of the agreement in November 2012 and the inception meeting in December 2012, the technical activities started with output 2. Despite that the project is planned in a sequential manner, activities have been initiated under all five components during 2013 and 2014, and in total four workshops and seminars and an inception meeting have been arranged.

Outputs related to the management and administration component is assessed in section 3.1 below. Under section 3.2 – 3.5 is a summary of activities undertaken and progress in terms of output achievements under each of the four technical output components. Section 3.6 assesses results in terms of outcomes and potential impacts achieved and section 3.7 provides an analysis of the achievements made.

Achievements Output 1 –Project Management and administration

The Project Management and administration output aims to administer the project and manage and coordinate project partners and activities to ensure efficient project implementation and to disseminate the results timely to policy makers.

Programme results areas and outputs: The Project Document identifies eight different activities of the Management and administration Output Component. Under each of these, the expected and actual deliverables (Outputs) as per 2014 are provided in table 3.1 below.

Table 3.1: Component – Program Management and Administration

Results areas / outputs	Output indicator programmed 2012, timetable and stakeholders involved	Results, November 2014
1. Proposal and contracts prepared and signed	• Contract signed between CAEP and KLIF / NEA (January 2014)	• Concluded. Final Project document submitted June 2014. Contract signed May 2014.
2. / 3. Inception / meeting with project partners (Combined kick -off meeting)	• Project Document (PD) completed and kick off meeting held (February 2014)	• Concluded. Kick-off meeting held December 2012, revised final PD agreed. Updated results framework.
4. Preparation of inception report	• Inception Report in Chinese and English versions	• Concluded, but not shared with the team. Minutes including a summary presented in progress report.
5. Preparations of annual meetings	• Annual meetings held	• Not concluded. First Annual Meeting November 2014. First progress report submitted stakeholders Nov 2014.

The Project Management and administration component is budgeted at NOK 4,8 million of which 3.0 million is budgeted for Norwegian participants, including travel costs etc., and 1,8 million is budgeted for Chinese participants.

6. Dissemination of results	• Annual report to MEP, Workshop with MEP	• In progress. Dissemination strategy developed. MEP participates in workshops, and close collaboration confirmed. Annual report not presented but Output 2 report and policy recommendations submitted.
7. Final Project Workshop	• Final Workshop held	• Not concluded
8. Project Administration	• Continues	• In progress.

3.1.1 Outputs delivered

The work on the Project Management and administration component started immediately after the signing of the agreement in November 2012. Already in December 2012 the inception / kick-off meeting was arranged. During the meeting a detailed work plan was established, and the results framework were improved with the assistance of an external Norwegian consultant from NCG. Based on the above activities, a revised Project document (PD) was submitted stakeholders in June 2013.

After the inception meeting an inception report was prepared (not shared with the team), and an institutional contract between CAEP and NEA was signed with some delays in May 2013. Following the signing of the institutional cooperation contract, CAEP signed sub-contracts with the 5 cooperating partners in China, i.e. TU, UEPB, UAES, SAES, TAES. On the Norwegian side NEA agreed a work plan with IIASA, NILU and Vista Analysis.

According to the agreement between MFA and MOFCOM, an annual consultation meeting should be organized in September each year. In email correspondence between MOFCOM and the Norwegian Embassy in June 2013 it was agreed to amend the contract to change the time for annual consultations on the project from September to April. Moreover, despite that the first Annual consultation was planned September 2013, no Annual consultations were held before November 2014, and the requirement of the agreement has therefore not been fully met.

The delay in annual consultations implies that no annual progress report, annual work plan or budget, or financial statement and an audit for the previous year, had been submitted to the embassy at the time of the review. Moreover, the lack of reporting and formal consultation meetings almost two years into the project, implies that issues of special concern, matters arising during implementation, discussions on progress and expenditures, as well as work plans and budgets, have not been discussed in the highest decision making authority of the project. The lack of financial reporting to the annual consultations also implies that the risk for mismanagement and corrupt practices increases, as financial flows are not adequately monitored on a regular basis.

Furthermore, the delay in annual consultation has also had consequences for the dissemination of results to MEP. An Annual Report, compiling all project outputs, should have been submitted to the annual meeting and to MEP. However, an Output 2 report including all output reports was submitted all stakeholders in April 2014, and an Output 3 report is expected when the Output component is finalized.

Following up the recommendation in the appraisal report, the PMG has developed a dissemination strategy. The strategy is targeting MEP and local authorities. Thus far, the project has submitted a policy recommendation paper based on outputs from Output 2 activities.

Gender issues have to some extent been addressed. In particular CAEP has focused on maintaining a gender balance in the project. In CAEP the majority of staff that has to some extent been involved in the project are female staff, and attendance in seminars during 2013 shows that more than 40 percent were female.

Overall, project administration has performed well on the key activities related to the startup, planning and implementation of the project activities. The PMG has also worked to improve on the dissemination activities, developing a dissemination strategy targeting MEP and local governments, and ensured a gender balance in the project. Moreover, the project management activities under the responsibility of CAEP and NEA have been performed in a professional manner. It is however noted that the performance related to the annual consultations, outside the mandate of the PMG, and reporting to the annual meetings, has been severely delayed. This may have affected project implementation as opportunities to address aspects of concern, or opportunities arising, have not been discussed in the project's highest decision-making authority. It also implies an increased risk for financial mismanagement.

Achievements Output 2 – Air multi-pollutant control

The aim of the output 2 component is to sort out the key elements and technical tools that needs to be developed for air multi-pollutants control. The component activities focus on review of MP technical tools, policies and control mechanisms in Europe and China, and undertake a status and gaps analysis.

The PD has identified the main output indicator for component /output 2 as "An analysis report on status and gaps if air multi-pollutants control."

Programme results areas and outputs: The Project Document identifies five result areas / outputs in this component. Under each of these, the expected and actual deliverables (Outputs) as per November 2014 are provided in table 3.2 below.

Table 3.2: Component 2 – Programmed and Achieved Output Results

Results areas / outputs	Output indicator programmed 2012, timetable and stakeholders involved	Results, November 2014
1. Prepare the template / structure of the review report	a. A template of review report (Jan - feb. 2013, CAEP)	a. Concluded Feb. 2013. Structure of the report drafted and agreed.
2. Review international experience of MP technology and policy tools	a. An analysis of European experiences in air-MP control included in the review report (Jan – May 2013, NEA).	a. Concluded, May 2013. Review of international experiences disseminated in Output 2 report (NEA).
3. Review China's status of MP control	a. An analysis of China's status of air-MP control included in the review report. (Jan – July 2013, CAEP)	a. Concluded, May 2013. Review of Chinese experiences disseminated in Output 2 report (CAEP).
4. To compare China and foreign countries in terms of development, management regime, policy regulation and standards of air MP	a. An analysis of the differences between China and Europe included in the review report (May – Sept 2013, CAEP). b. A summary report containing the	a. Concluded, Sept 2013. Report disseminated in Output 2 report.

control	draft road map for MP control (May – Sept 2013, CAEP)	
5. Analysis of gaps and needs	a. A gaps and needs report (Aug – Sept 2013, CAEP)	a. Concluded, April 2014. Report disseminated.

The output 2 component is in budgetary terms the smallest of the five components, budgeted at NOK 2,8 million, of which NOK 2,4 million is Norwegian funding. Lead stakeholders are NEA on the Norwegian side and CAEP on the Chinese side. Tsinghua University (TU) and the Norwegian Institute for Air Research (NILU) has been involved and delivered key inputs. Other project stakeholders have also contributed and been involved in workshop discussions. The outputs were planned implemented from January 2013 and finalized in September the same year.

3.2.1 Outputs delivered

The work on output 2 started after the conclusion of the inception meeting in December 2013 and a template of the review report were finalized in February 2013.

Three output 2 workshops / seminars were arranged during 2013, bringing together all key stakeholders from Europe, China and Urumqi. The output was first discussed in workshop in CAEP in May 2013. It was agreed that the four planned sub-reports from outputs 2.2 – 2.5 should be compiled into one report with four chapters. In June 2013, the second output 2 seminar was held in Vienna, Austria, focusing on the international experiences in MP control. The workshop brought together all project representatives from Klif / NEA, NILU, VISTA, CAEP, TU, UEPB, TIUC. All interviewed stakeholders described the workshop as highly successful, bringing together leading European and Chinese expertise and local implementers from Urumqi, extensively discussing the difference between Europe and China on air pollution control, summarizing the possible gaps to be addressed in China

A third workshop for output 2 was arranged in October, 2013, with discussions on gaps and needs as well cost/benefit analysis. The first draft of the compiled output 2 report, containing two chapters on air pollution control in Europe and China, one chapter providing a comparative perspective and one chapter identifying gaps and needs in China, was finalized in December 2013. However, due to the changes in the policy context, with increased focus urban air pollution and the State Council Action plan released in September 2013, it was decided that more efforts should be made to refine the review report to enable formulation of a policy brief with recommendations from CAEP to MEP.

A second draft was presented to stakeholders on a workshop in April 2013. Based on the workshop discussions the output 2 report was finalized by the end of April and submitted to stakeholders. The review report included in chapter four an analysis on status and gaps if air multi-pollutants control, in line with the defined output 2 outcome indicator, "An analysis report on status and gaps if air multi-pollutants control.".

Moreover, based on the report, a policy brief that included a summary of policy recommendations has been developed and is currently in the process of being submitted from CAEP to MEP. The recommendations are providing concrete inputs to MEP with regard to drafting of policy regulations for at national and local governments.

Overall, it is the assessment of the review team that the project has delivered satisfactory on output 2. All planned activities were undertaken during 2013, and the delay of the final report

was agreed among all stakeholders to enable policy recommendations, which are increasingly relevant due to the recent political momentum on air pollution.

Achievements Output 3 – Methodology and tools for air MP

The Output 3 component builds on the experiences gained through component 2. Guided by the gaps and needs analysis in component 2, the Output component 3 aims to propose the scientific methodologies and technical tools, to enhance local authorities capacities to control air MP and to make a national strategy on air pollution control.

The PD has identified the main output indicator for component /output 3 as "A report on methodologies and principles (4 sub reports in annexes: Classification; Co-benefits; Cost-effective analysis) and a workshop reports."

Programme results areas and outputs: The Project Document identifies eight result areas / outputs in this component. Under each of these, the expected and actual deliverables (Outputs) as per 2014 are provided in table 3.2 below.

Table 3.3: Component 3 – Programmed and Achieved Output Results

Results areas / outputs	Output indicator programmed 2012, timetable and stakeholders involved	Results, November 2014
1. Identify characteristics and classification of air pollution in selected parts of China	• Sub report Classification (CAEP, TU)	• Concluded. November 2014. Preliminary Results disseminated at workshops in April and October. Comments included in revised sub-report and draft Output 3 report.
2. Identify key industries and sectors for implementation of MP control	• Sub report Classification (CAEP, TU, KLIF / NEA, VISTA, NILU, International experts)	• Concluded. Draft sub report submitted October 2014. Included in the draft Output 3 report. Follow-up under discussion at Output 3 work shop.
3. Compare and assess various existing relevant methodologies for MP control	• Sub-report Methodology (KLIF / NEA, TU, International experts, CAEP, SAES, VISTA, NILU)	• Integrated as section in sub report 3.2?
4. Propose a methodology approach to address urban MP pollution control (main building blocks)	• Sub-report Methodology (TU, CAEP, Klif / NEA)	• Draft sub report submitted October 2014, included in the draft Output 3 report. Follow-up under discussion at Output 3 workshop in November.
5. Define methods to analyze emission reduction potential to improve ambient air quality	• Sub-report Methodology (TU, CAEP, KLIF / NEA, International experts)	• Draft sub report submitted October 2014, included in the draft Output 3 report. Follow-up under discussion at Output 3 workshop.
6. Analyze how to evaluate the extra benefits that emission	• Sub-report Co-benefits (TU, CAEP, Klif / NEA, VISTA,	• Draft submitted October 2014, included in the draft Output 3

reduction in regualar pollutants has for control of GHS	International experts)	report. Follow-up under discussion at Output 3 work shop.
7. Establish cost analysis evaluation methodology of air MP emission reductions	• Sub-report cost analysis (VISTA, TU, KLIF /NEA)	• Draft submitted November 2014, included in draft Output 3 report.
8. Hold a technical workshop on air MP control (models, control methods and cost analysis)	• Concluded on methodologies and principles for MP-control (CAEP, Klif / NEA, TU, VISTA, International experts	• Draft report disseminated and presented at workshop November 2014

The output 3 component is in budgeted at NOK 6,0 million, of which NOK 4,7 million is funds from Norway. Whereas CAEP has been the responsible institution on the classification studies, NEA has been lead on comparison of methodologies, TU lead on tools and methodologies and VISTA on cost analysis. Other institutions such as NILU have however also been comprehensively involved on specific outputs.

The activities were planned implemented in a serial pattern, to a certain extent building on each other. Activities 3.1 and 3.2 were planned undertaken in 2013 and activities 3.3 - 3.4 planned finalized in July / August 2014. The last output activities 3.5 – 3.7, defining tools and methodologies to reduce MP, were planned finalized in September 2014. The final Output 3 workshop, presenting the results and a final report, were planned October 2014.

3.3.1 Outputs delivered

Based on preliminary conclusions made in output 2 the work on the Output component 3 started mid-2013. As evident from table 3.2 above, the planned activities have progressed well though some delays have occurred on some of the activities.

In June 2014, a first Output 3 seminar were held in Beijing, with NEA, NILU, VISTA, TU, UAES and CAEP participating. Based on preliminary reports, presentations on methodologies, impact assessments, cost / benefit analysis and control mechanisms were held. The component 3 activities were also discussed among stakeholders during the inception meeting in December 2012 and in connection with the Output 2 workshop in October 2013. A final Output 3 workshop was arranged after the field mission, in November 2014.

Preliminary results from activity 3.1 and 3.2, the classification studies on air pollution, sectors and industries, were presented to the Project Management Group (PMG) in April and October 2014. Based on comments revised drafts have been presented in the draft Output 3 report submitted in November 2014. The activities have as such been delayed compared to the initial timetable, however extensive consultations have been undertaken to ensure the quality of the studies.

Activity 3.3, comparison of Methodologies, is linked to component 2 and the work started with stakeholder discussions in November 2013, slightly delayed. The work has been ongoing throughout 2014, and major issues have been how to update air emission data and how to run the regional air quality model, applying and comparing different models in Urumqi.

Activities 3.4 – 3.7 are key activities in terms of sustainability of the project. The outputs from

these activities are the tools and methodologies to be applied at local government level, and to be piloted in Urumqi. Draft sub reports from each of the outputs were submitted in October and November, and included in the Output 3 report. The draft reports were planned discussed among stakeholders during the November Output 3 workshop.

Overall, the component has delivered according to initial plan with some moderate delays. The draft output 3 report on methodologies and principles (4 sub reports in annexes: Classification; Co-benefits; Cost-effective analysis) and workshop reports was submitted to stakeholders before the November 2014 Output 3 workshop, in line with the outcome indicator. Stakeholders highlighted the importance of the Output 3 component and emphasized that the quality of the methodologies and tools presented in the sub-reports will be key to the long-term sustainability of the project. Moreover, more important than achieving the actual timeline and outputs, is that the outputs delivered are applicable to other localities than Urumqi in the medium and longer term. At the same time however, it was emphasized that the activities and outputs achieved, with good dialog among stakeholders, has led to increased technical knowledge and understanding in involved institutions.

Achievements Output 4 – Strategies, guidelines and supporting measures of air MP control

Whereas output 3 proposed methodologies and technical tools for MP control to be applied at local level, the Output component 4 focuses on policy related aspects to support implementation at local level. Based on the lessons learned from the Output components 2, 3 and 5, Output component 4 aims to propose a strategy for MP control, management guidelines and procedures to support Chinas local authorities to apply the methodology and tools proposed in output component 3.

The PD has identified the main output indicator for component /output 4 as; "A practical guidelines and workshop reports."

Programme results areas and outputs: The Project Document identifies five result areas / outputs in this component. Under each of these, the expected and actual deliverables (Outputs) as per 2014 are provided in table 3.3 below.

Table 3.4: Component 4 – Programmed and Achieved Output Results

Results areas / outputs	Output indicator programmed 2012, timetable and stakeholders involved	Results, November 2014
1. Draft practical guidelines for air MP control	• Proposal of instruments and measures submitted to MEP (Jul 2014 – Feb 2015, CAEP, TU, NEA, SAES, TAES, VISTA, Int. experts)	• In progress. Work started 2013 and is ongoing.
2. Propose relevant control technologies and additional instruments (economic, legal, etc.) of MP control for key sectors and industries	• A sub-report presenting an overview of what can be achieved with different technologies (Aug. 2014 – May 2015, CAEP, NEA, TU, TIUC)	• In progress. Work started in Sept. 2013 and is ongoing.
3. Propose strategy for co-control of air pollutants and GHGs	• Proposal of instruments submitted to MEP (Dec 2014 – Sep. 2015)	• Not started.

4. Establish system for evaluating the MP control performance	• A system to analyze and reflect the emission reduction with Air MP control measures (Dec. 2014 – Sep 2015, CAEP, NEA, UEPB, SAES)	• Not started.
5. Improve guidelines based on lessons learned during pilot	• Revision of the pilot work results based on feedback Sum-up report of pilot projects (Sep.-Nov 2015, CAEP, NEA, TU)	• Not started.

The activities are according to the PD planned implemented from July 2014 and the component is planned finalized at the end of the project period in 2015. The output 4 component is in budgeted at NOK 5,4 million, of which 4,3 million in Norwegian contribution. Whereas NEA is responsible institution on activity 4.3, CAEP is the lead institution on the other four activities. However, other involved institutions includes both TU, VISTA and the local level institution UEPB as well as SAES and TAES.

3.4.1 Outputs delivered

Due to the increased political momentum, with the Action Plan on Reduction of Air Pollution, it was decided by PMG to start the work on component four activities before originally planned. Moreover, the work on drafting of strategies and guidelines were initiated by the PMG already in 2013, by recording and summarizing relevant policies, to ensure that relevant inputs can be provided to the 13th 5 year national plan which is currently under drafting in MEP. In this process the experiences from the activities undertaken in the pilot study (Output 5) is being used, as well as inputs from output 2 and 3. Further increase in momentum on the Output 4 component is anticipated from December 2014 as the Output 3 component comes to conclusion.

Achievements Output 5 – Pilot testing of instruments and measures developed by the project in Urumqi

The Output 5 represents the pilot study in the project. The component aim to review the situation on MP, to develop a strategy to increase MP control, and to test the tools and methodologies developed in output 3. The outputs from the pilot in Urumqi are then intended used as feedback into Output components 3 and 4.

The PD has identified the main output indicator for component /output 5 as "A pollution control status report, a pilot study report and a workshop report."

Programme results areas and outputs: The Project Document identifies three result areas / outputs in this component. Under each of these, the expected and actual deliverables (Outputs) as per 2014 are provided in table 3.4 below.

Table 3.5: Component 5 – Programmed and Achieved Output Results

Results areas / outputs	Output indicator programmed 2012, timetable and stakeholders involved	Results, November 2014
1. Review of air pollution control status in Urumqi	• Understanding the air quality situation in Urumqi and the capacity of AQ management (June – Dec 2013; UEPB, NILU, CAEP, TU)	• Concluded. Report submitted PMG in April 2014

2. Propose air MP control requirements through application of air quality modeling	• Emissions inventory report, modeling reports describing base scenario and selected future descriptions of objectives for MP control (Jan 2014 – June 2015; TU, UEPB, NILU, CAEP, NEA)	• In progress. Historic data collected from 2013. TU and UAES currently work to develop base year emission inventory based on methodology presented in output 3.
3. Propose measures of co-control of air MP and GHGs to conduct cost analysis of control measures, and rank measures accordingly	• MP co-control plan with measures and implementation plans (Jan 2014 – June 2015; UEPB, TU, NILU, CAEP, NEA)	• In progress?

The output 5 component is in budgeted at NOK 5,9 million, of which NOK 4,4 million is funds from Norway. Urumqi Environmental Protection Bureau (UEPB) has the main responsibility for implementation of the activities in Urumqi, whereas and TU is responsible for proposal of air quality modeling. NILU and CAEP have also provided extensive inputs.

3.5.1 Outputs delivered

The activities on Output 5 started in May 2013 with a workshop meeting in Urumqi with stakeholders from UEPB, CAEP, NEA and NILU, initiating the work on the review report analyzing the characteristics of air pollution, air pollution control mechanisms, capacity of air quality management and measures in relation to air quality standards. A final review report was presented the PMG in April 2014. Furthermore, activity 5.2, to propose control requirements through application of an air quality management model, has been ongoing since 2013 with collection of historic data required for modeling. TU is currently collaborating with UAES to develop the base year emission inventory based on the proposed methodology in the Output 3 report. NILU stressed that they are now awaiting data to validate the model TU is applying in Urumqi. It is the review teams understanding that stakeholders agree that the successful accomplishment of activity 5.3 is key to demonstrate the applicability of the proposed methodologies and tools, required to achieve the overall objectives of the project.

Overall, the work on Output component 5 has progressed well. The work came off to an early start with the first workshop in May 2013, and the review was concluded in April 2014. It was noted by the team that efforts and extensive government investments to improve the air pollution situation in Urumqi had been done already before the start of this project and it was emphasized by local stakeholders that the project makes an important contribution in terms of transfer of technical know-how on measures to achieve the PM 2,5 target. UAES stressed that the project had significantly contributed to transfer of knowledge, and explicitly appreciated the exposure to European experiences providing new perspectives, both through activities undertaken and in the workshops.

Overall assessment of outputs achieved

The above overview of delivered outputs illustrates that overall the planned technical activities have taken place in accordance to the PD and that outputs have been produced. The assessment of the core work components (output 2-5) has shown that the project has made satisfactory progress. Output component 2 was finalized with some delays with the submission of a final

report in April 2014, providing the basis for formulation of a policy brief to MEP. A draft Output 3 component report was submitted stakeholders in November 2014, in time for the final Output 3 workshop held in mid-November. At the same time outputs have been produced from the pilot in Urumqi contributing to output 3. It is also noteworthy that Output 4 activities were in fact started prior to plan, to take advantage of the increased political momentum experienced from 2013.

It is also noted that some delays have occurred. The delays have however not had critical impact on project progress, though several stakeholders pointed the sequential planning of the project implies that delays in some activities impacts on other activities and should be avoided.

More significant is the agreement partner's inadequate follow up with regard to annual consultation meeting, including the reporting and auditing requirements on which the consultations shall take place. According the agreement MOFCOM shall call for and chair the annual consultations, and NEA has repeatedly requested the consultations to take place. The lack of consultations in 2013 may be explained by the agreement amendments with regards to the dates for the annual consultation meetings agreed in July 2013, moving the timing of the annual consultations from September to April. It was however, to the knowledge of the team, not agreed not to have annual consultations in 2013. The delay in 2014 has according to MOFCOM been due to constraints related to a large number of agreements and annual consultations. The consultations have however been held in November 2014.

The lack of annual reporting to the annual consultations, including audit, annual financial statements, budgets, progress report and annual plan, implies an increased risk for the project. Moreover, opportunities to address aspects of concern or opportunities arising are not attended to. Furthermore, it represents a risk for financial mismanagement and corrupt practices, as financial flows are not sufficiently monitored on a regular basis. The team will however emphasize that no such indications were observed.

Outcome and impact results

In terms of outcomes, stakeholders interviewed both at local level in Urumqi and in CAEP and TU, stressed that the project already has contributed to increased capacity at technical level. It was stressed that the European experiences shared in through the project activities and workshops has contributed to increased capacity in terms of MP modeling, control and management both in Urumqi, in CAEP and TU. Moreover, it was emphasized that the aspect of MP control and management is new in China, and that the stricter regulations implies that capacity enhancement is wanted and needed both at national and local level.

The increased capacity is at this stage related to transfer of know-how between staff in stakeholder institutions, improving the Human Resources (HR) capacity on MP's control and management. The capacities have been improved both through the activities undertaken and in the workshops that has been attended by all involved stakeholders. Though not assessed extensively, the review team did not find any evidence that the project at the current stage has contributed to organizational capacity, in terms of in shifting resources and responsibilities, changing procedures and practices etc., improving the basis for the institutions to fulfill its functional roles to plan, manage and control MP emissions.

The policy component of the project is largely related to Output component 4, which according to PD is planned finalized December 2015. Hence, at the current stage the project is not expected to have achieved results in terms of changes at policy level. It is however noted that due to the

political momentum CAEP started up Output 4 activities already in 2013, one year ahead of plan, to ensure policy impacts. Furthermore, based on the results of the Output 2 component, a policy brief has been submitted by CAEP to MEP, which contains general recommendations on MP's control and management. In discussions with the team both CAEP and MEP highlighted that it is a very close dialogue between the two institutions on this matter, and that the project outputs feeds into MEP's ongoing work with drafting of the 13th five-year plan.

The key aspects to ensure project outcomes and impacts, stressed by several stakeholders including IIASA and NILU, is that the output 3 component delivers results that are applicable at local level. Moreover, it was emphasized that the methodologies and toolkits developed in this component must be understood and viewed as useful for urban localities with different characteristics and different capacities. The pilot in Urumqi is therefor of key importance, and possibly further testing in other urban localities is required to ensure that the methodology and toolkit can be applied in cities throughout China.

Analysis of achievements

3.8.1 Factors contributing to achievements

There are some key factors contributing to the achievements of outputs and outcomes. First, there has been a strong ownership to the program in the implementing institutions with dedicated and highly professional staff. All institutions interviewed highlighted to the team that the current political momentum represents a unique opportunity to deal with the MP challenges in China. At the time of project planning no one had expected that the political momentum would pick up at the current speed, with the backing of the State Council. In particular it was emphasized that the new regulations with regard to PM 2,5 and the National Action Plan on Air Pollution implies that this issue is high on the agenda among policy makers and in the public. At the same time some stakeholders underlined the importance of demonstrating early results to underpin the political momentum, potentially ensuring significant project impacts.

Second, Norwegian and European institutions inputs are perceived by the Chinese institutions as very relevant. It is highly appreciated by the Chinese partners that the project includes a broad base of European technical expertise, including IIASA, NILU and Vista. The technical expertise provided has uniformly been described as very competent, and perceived as complementary to China's own expertise. This has provided a solid base for transfer of know-how and high quality technical discussions in workshops. Furthermore, the Chinese partners value the policy capacity of NEA, pointing out the significance of enabling transfer of technical knowledge into policies to ensure project impacts that will be the focus area in the upcoming year.

Third, the project is including the relevant stakeholders at national level in China and in Urumqi. Different stakeholders work together on different activities, but all relevant stakeholders meet in Output workshops for discussions on planning of activities as well as outputs produced. It is the view of the review team that the workshops provides a good arena for stakeholder involvement and that the activities are well planned in terms of roles and responsibilities, ensuring that the project stakeholders have an comprehensive understanding of the project activities. It was questioned by the review team why some environmental institutions such as CRAES was not involved. Meetings did however confirm that also CRAES was informed about the project by CAEP, and that the project activities were not within CRAES

primary mandate or capacities.

Fourth the organizational structure of the program, not involving FECO as originally planned, was pointed out as a success factor. The team learned from meetings with MEP and MOFCOM that it was a formal decision to change the Executive Agency from FECO to CAEP in order to reinforce the connections between the project activities and MEP planning and policies. MEP expressed clearly to the team that MEP is already benefiting the project results through CAEP inputs to the tasks/requirements made by MEP to CAEP. Moreover, the organizational structure has facilitated open communication lines between involved institutions and good working relationships between technical staff.

Finally, the project managers on both Chinese and Norwegian side have been dedicated to the project and performed their responsibilities in a highly professional manner. The review team's view is that the PMG has managed to ensure clarity in terms of defined roles and responsibilities for the institutions involved, and the workshops organized by PMG have provided a good arena for transfer of know-how. Local government stakeholders, who clearly value the exposure to European experiences, particularly expressed this aspect.

3.8.2 Factors hampering achievements

In meetings with stakeholders the overall impression expressed was that the project has not faced significant issues hampering the planned activities and achievements. Some issues were however raised in discussions with stakeholders that may cause difficulties in terms of achieving the overall objectives.

First, some stakeholders pointed out the inadequate follow of the agreement requirements with regard to annual consultations as a weakness that may have negative impacts. Some stakeholders emphasized that they were not up to date on progress due to the delay in reporting, and that the annual consultation is key in terms of keeping the project activities on track. It is the view of the review team that the delays in formal consultations including reporting on progress and planning of activities may have hampered opportunities to adjust the planned activities according to the changing political context. It also raises the corruption risk in the project, as financial monitoring is not undertaken on a regular basis. It is however noted that the informal dialogue between the implementing partners is good, that an informal dialogue with the Norwegian Embassy takes place, and that the PMG has made certain adjustments in project activities without formal approvals, by early start-up of some of the planned activities.

Second, there appears to be a lack of clarity in terms of involvement of the local institutions from Shanghai that have only to a limited been involved in project activities. Some stakeholders emphasized that the experiences from Shanghai would be extremely valuable, particularly in terms contributing to sharing lessons learned across regions, which is key to ensure transfer of technical know-how and policies necessary to achieve project goals.

Third, related to the above aspect, despite formulation of a communication strategy, the dissemination strategy and its implementation would benefit from being strengthened. Communication and dissemination of results are relatively effective within the project, with timely dissemination of reports to project stakeholders. There is also a satisfactory dialogue between CAEP and MEP. There is however no evidence of implementation of a broader dissemination strategy, e.g. with the set-up of a web site and with defined targets groups, ensuring pro-active dissemination to user groups not directly involved in the project, e.g. defined local governments and research institutions in the provinces.

Finally, it was remarked that the ambitious goals of the project combined with the short time period, is a challenge. Moreover, concerns were raised with regards to the realism of the project. It was noted that the outcome of the Output 3 component is key in terms of effective implementation of the tools and methodologies at a wider scale, and it was expressed concern that the project does not include sufficient pilots to fully test the proposed methodologies and toolkit proposed.

4 Effectiveness, efficiency and Sustainability

To assess the project's effectiveness it is relevant to examine to which extent the project has reached the intended objectives. With regard to goals at the output level, the assessment of the core work components (output 2-5) has shown that the project has delivered outputs and made satisfactory progress despite some delays. Overall the project effectiveness has been good, and the prospects of achieving the project objectives are realistic. It is the assessment of the review team that the project addresses the issue of MP control and management in a systematic, scientific and pragmatic way, by providing the technical tools and assisting to develop a policy framework to address the issue.

It is however noted that several stakeholders have stressed the importance of ensuring applicability of the methodology and tools proposed in the Output 3 activities. Moreover, the methodology and toolkit in this project is only to be tested in the pilot city Urumqi. This implies that some of the proposed methodologies and tools will not be tested, as these are not applicable to Urumqi. The project would therefor benefit from pilot testing in a larger group of cities, which are representative to different air quality levels, in accordance with the methodologies classified as high-, medium- and low level capacity cities. Based on the discussion with key stakeholders, it is the review teams assessment that further pilots in several localities with different capacities and characteristics should be considered started within the scope of this project. This would further strengthen the project effectiveness and increase the possibility of achieving project outcomes and impacts.

Project effectiveness is also dependent of well-functioning project management and administration. The weaknesses pointed out in section 3.1 regarding annual consultations does potentially pose a risk that opportunities to address aspects of concern or opportunities arising are not attended to. As the project is now moving into the last year of implementation, it is suggested that a semi- annual report for progress for the period January – June 2015 is submitted no later than July 2015. This will ensure that all project partners are up-to date on the overall progress and achievements of the project.

As clarified in chapter three, lack of available financial data implies that an assessment of project efficiency is not undertaken in this review. Estimates on expenditures of the Norwegian partners, provided to the review team by NEA, indicate that expenditures in 2013 is approximately 1,3 million below the planned budget of 3,45 million. Also expenditures for 2014 are likely to be below the budget. The main explanation is that fewer NEA staff has been involved in the project than planned for. Also the expenditures for NILU has been lower than planned. One reason for this is that some of the output 5 activities have been slightly delayed. The project partners should clarify if the under-spending implies that project funding is available for other project activities and can be spent on additional activities as proposed in chapter 5.

Sustainability of results

As discussed above the project has the potential of achieving significant outcomes and impacts. There are however some aspects which may impact on the long-term sustainability of the project, and therefore should be addressed by the PMG.

First, as discussed above, a strategy for further testing the methodologies and tools developed in the Output 3 component should be developed. It is the view of the review team that to ensure

that the project takes advantage of the current political momentum, these activities should if possible be incorporated into the current project and activity plan for in 2015.

Second, there is a need to clarify mechanisms for transfer of know-how and lessons learned between urban localities after the project is finalized. Stakeholders stressed that the current lack of regional or national mechanisms for coordination and exchange of lessons learned is a key issue of concern that differs fundamentally from the European experience. Given this apparent lack of regional or national mechanisms that ensures transfer of know-how and coordination of activities, the PMG should clarify how the transfer of know-how between cities will be ensured after the project is ended.

A third sustainability element, related to the above-mentioned aspect, is effective implementation of the dissemination strategy. Given the current political momentum and public interest an effective dissemination strategy could facilitate an interest in the project that may strongly improve the chances of the methodologies and tools being promptly applied on a broader scale in China. It is recommended that the dissemination strategy is further strengthened, clearly operationalizing how, what and to whom dissemination will be targeted. The strategy should also contain a clear timetable, and a website should be established.

5 Key recommendations and future perspectives

The situation on MP air management and control in China today, as described by Chinese stakeholders, is one of fundamental capacity gaps at local level. Also at national level there are significant gaps, considering the size of China and the magnitude of the problem and issues to be addressed.

This review has reasserted the relevance of the project and confirmed that the project overall has made satisfactory progress, though some delays not critically to project achievement has been identified. To further strengthen the project effectiveness and increase the sustainability three main actions are recommended in the follow-up of this review:

1. The number of pilots should be considered increased to ensure that all proposed methodologies and tools are tested, taking advantage of the current window of opportunity, and preparing the ground for roll out to other cities. If possible, pilots should be started as soon as the pilot in Urumqi concludes, tentatively in June 2015.
2. The mechanisms for transfer of technical know-how and policies to other cities and regions should be clarified, and a strategy to strengthen transfer of know-how between cities and regions should be developed, to prepare knowledge sharing after pilots are concluded.
3. The dissemination strategy should be strengthened. How, what, to whom and when dissemination will be made, should be operationalized. Given the current political momentum and public interest, an effective dissemination strategy could facilitate an interest in the project that may strongly improve the chances of the methodologies and tools being promptly applied on a broader scale in China.

The project partners should consider if additional project funding is required to follow up the above recommendations. It is the view of the review team that the project should be considered extended to ensure that the additional pilots are concluded, alternatively the pilots could continue into a second phase of the project if a second project phase is decided.

Given the fundamental gaps in capacities and the relevance of the issue at stake, both locally but also globally in terms of GHG's reduction, the review team recommends that a second phase of the project is discussed between the project partners. Looking beyond this project period is however challenging given the fast developments in China.

Nevertheless, there are some perspectives that should be considered in the planning of a second phase of the project. It is the view of several stakeholders that one unique aspect of this project is that capacity building at local level is integrated in the project design. Moreover, provided that the Outputs 3, 4 and 5 are adequately finalized, with the adaption of a national strategy, it is the review teams view that a second phase should continue and possibly further strengthen its focus on local capacity building, which will be key to ensure effective implementation of a national strategy. Capacity building targeting local governments should however as in the current phase be linked to development of national policies. For example, a second phase could include development of a national action plan for implementation of the strategy proposed in Output 4.

With this perspective on local capacity building, a detailed plan for building local capacities needs to be formulated. A first issue that will need to be attended to is the lack of a tradition for sharing lessons learned both within and between regions. A systematic approach to capacity building to local teams, either in terms of geographically defined city clusters, or in clusters of cities with similar characteristics, should be considered.

Second, it should be considered establishing regional learning hubs, enabling capacity building and technical assistance to urban localities in the region. These learning hubs could for example be "partnerships" between academic research institutions and local EPB's within a region. The aim should be to create regional capacities to assist cities in implementation of MP control strategies and to provide a regional perspective to the MP issue.

Third, expanding the inputs with peer learning from European cities should be considered. Urumqi EPB and UAES both emphasized the added value of being exposed to the European experiences. Exposure to selected European cities experiences on MP control could further strengthen the relevance of European experiences.

Forth, it should be considered to establish a wider network of cities, for example a "Blue Sky City Network China". The value of promoting Urumqi and Shanghai experiences in a city network could be considered. The backing of MEP would be essential to create a real value for such a network.

Finally, the methodologies and toolkit should be promoted as something new to China, representing an opportunity for cities to improve the wellbeing of their citizens and effectively follow up national regulations.

6 Conclusion

The project has an ambitious design, bridging technological capacity building with policy changes over a relatively short time period, involving both local and national level stakeholders and international experts. Despite the ambitious project design this review concludes that the project is on track in terms of achieving the planned outputs, and that the prospect of achieving the objectives are good. The review has shown that key factors contributing to achievements include project relevance and strong ownership in implementing institutions, relevant inputs contributing to technological know-how and policy formulation, broad involvement of stakeholders, and an effective organizational structure facilitating good communication and collaboration between institutions and technical staff, and dedicated project leadership.

The project is however currently in a critical phase in terms of achieving project outcomes and its objectives. As emphasized by several stakeholders, the quality and applicability of the tools and methodologies proposed in Output 3, is key to ensure project outcomes and impacts. Moreover, to ensure and demonstrate that the methodologies and tools are applicable, more extensive testing should be undertaken as soon as the pilot in Urumqi is finalized, tentatively in June 2015. Given the current political momentum it is the review teams assessment that it is important to bring forward these activities to the current project. This may further strengthen project effectiveness and ensure that documented results are provided as inputs to policy activities in Output 4, and to the extent possible as inputs into the 13th five-year plan currently under drafting in MEP.

In terms of outcomes, impacts and sustainability it is also recommended that the project further strengthens the dissemination strategy, and that the mechanisms for transfer of know-how and lessons learned between cities is clarified. These aspects should be addressed in the activity plan and budget for 2015, and are key in terms of preparing the ground for a possible second phase of the project.

The project outcomes and impacts also depend on effective project management and administration. As pointed out the PMG has managed administration of the project in a professional manner. However, there have been significant delays in terms of annual consultations and reporting. Despite this it is the review teams assessment that the project has responded well to the changing political context by bringing forward the implementation of some of the activities and increasing the policy focus by providing policy recommendations to MEP. It is however uncertain how the project has performed in terms of efficiency and the lack of regular financial reporting increases the risks of financial mismanagement.

To ensure effective project implementation the final year of the project, it is proposed that the PMG deliverers a semiannual report no later than June 2015. This will ensure that potential issues of concern or opportunities arising is attended to in due time before the project is ended.

Furthermore, it should be emphasized that the opportunity window on addressing urban air pollution is now, with the drafting of the 13th five-year plan and the current strong political momentum. The project partners should use this opportunity, and promptly start rollout the testing of the toolkit and methodology to other cities, start disseminating results, and start the preparation for a possible second phase of the project.

Annex A: Terms of Reference

TERMS OF REFERENCE FOR MIDTERM REVIEW OF THE PROJECT URBAN ATMOSPHERIC MULTI-POLLUTANT PREVENTION AND CONTROL IN CHINA

PTA Programme/project CHN-2148 10/0027

BACKGROUND FOR THE REVIEW

According to the agreement (Article X) for the project *Urban Atmospheric Multi-Pollutant Prevention and Control in China,* the Parties may agree to carry out a review, an inspection and/or an evaluation of the Project. Based on the agreement of the Parties, the review will take place in late 2014.

DESCRIPTION OF THE PROJECT TO BE REVIEWED

Goal

The goal of the project is to assist China in meeting the national targets for Ambient Air Quality.

Purpose

The purpose of the project is to strengthen the capacity of national and local decision makers in China in the reduction of multi-pollutant emission and coordinated control of greenhouse gases.

Outputs

1. Status of air multi-pollutant control reviewed (international and local)
2. Methodology and tools for air multi-pollutant control developed
3. Strategies, guidelines and supporting measures of air multi-pollutant control developed
4. Multi-Pollutant control strategy tested in pilot city

The total budget for the project is NOK 26.19 mill. The Norwegian grant for this project is NOK 22.32 mill. The Chinese side provides a contribution of NOK 3.87 mill.

The project agreement was signed on November 26, 2012. The time-frame for the project in the signed agreement is 2012-2015. The formal kick-off meeting was held in December of 2012. The project will be finalized by the end of 2015.

MOFCOM has the overall responsibility for the Project and MEP supervises the implementation of the Project. The main project implementing partners consist of the Norwegian Climate and Pollution Agency (Klif), now named Norwegian Environment Agency (NEA), and the Chinese Academy for Environmental Planning (CAEP) under Ministry of Environmental Protection (MEP).

PURPOSE OF THE REVIEW

The purpose of the review is to focus upon progress to date and the effectiveness and efficiency of the project, i.e. the extent to which the purpose and outputs are being achieved, and if the progress has been made in accordance with the work plan and budget. Expected impact should be assessed to the degree possible.

SCOPE OF WORK

-Institutions to be interviewed in Norway: NEA, Norwegian Institute for Air Research (NILU)

and Vista Analysis.
-Institution to be interviewed in Vienna: International Institute for Applied Systems Analysis (IIASA)
-Institutions to be interviewed in Beijing: Norwegian Embassy in Beijing, MOFCOM, MEP, CAEP and Tsinghua University.
-The review team will also visit Urumqi (pilot city for the project) where the main contact point is Urumqi Environmental protection Bureau (UEPB)

The following questions will be indicative for the work of the review team:

- What are the biggest challenges for China in urban atmospheric multi-pollutant prevention and control, technologically and policy wise? Has the project been able to produce inputs and basis for suggestions on how to meet these challenges in a scientific and pragmatic way?
- How has the project contributed to Chinese authorities' technological know-how and policy formulation on urban atmospheric pollution prevention and control?
- Are all the relevant stakeholders, especially those at local level, adequately involved in the project implementation and shared with adequate information about the project?
- Has the Norwegian expertise being shared through the project activities been found relevant and useful for the project implementation and China's work in this area? How can the Norwegian expertise and experience be utilized to tackle the relevant challenges in China at both national and local levels?
- How are the cross-cutting issues handled in the project: gender, anti-corruption and project sustainability?
- Has the project management (including financial management) on the Norwegian side – and on the Chinese side - been carried out in a professional and efficient manner? Is the reporting following the agreed outline?
- A potential second phase is being discussed, the consultants should to the degree possible advise on priorities for further cooperation in this field.

APPROACH, TIMING AND PLANNED RESULTS OF THE PROJECT REVIEW

The review will take place in late 2014. The review will include interviews with relevant partners and institutions in Oslo, Vienna and Beijing, a two-day field visit to Urumqi as well as archive material and reports produced by the project will form the basis for a review report. The Review Team should present their main findings and recommendations to CAEP and the Norwegian Embassy before leaving Beijing.

The review report shall be in English language and not exceed 20 pages (excluding annexes). The dates for the draft report and the final report should be agreed with the Embassy and CAEP.

The Report should include:

0 Executive summary

1 Introduction

2. Project Description and comments on project design

3 Project status assessment

4 Project efficiency, impact and sustainability

5 Conclusions and recommendations

Relevant Annexes

REVIEW TEAM COMPOSITION

Norwegian/International consultant (Team leader)
Norwegian technical expert (to be decided)

Chinese technical expert

An interpreter will be provided for the team, with the relevant costs to be covered by the Norwegian Embassy.

The interviews in Norway and in Vienna will be done only by the Norwegian/Intenational expert

Annex B: Persons Interviewed

CAEP:

- Lei Yu Deputy Director of Department of Atmospheric Environment, CAEP
- Liu Wei
- Ning Miao

CRAES:

- Meng Fan, Dean of Atmospheric Science Institute

IIASA

- Zbigniew Klimont

MEP:

- Huang Miao (Deputy Director –level, Division of European Affairs).
- Li Yang, Division of Air Pollution and Noise Control, Department of Prevention and Control of the Pollution

MOFCOM:

- Zhang Lei

Norwegian Embassy in China, Beijing:

- Mr. Tor Skudal
- Mr. Jan Wilhelm Grythe
- Yinglang Liu

Norwegian Environmental Agency (NEA)

- Kari Kjønningsen
- Roar Gammelsæter

Norwegian Insititute for Air Research (NILU)

- Trond Bøhler

Tsinghua University:

- Wu Ye
- Xu Jiayu
- Zhou Yu

Urumqi Environmental Protection Bureau (UEPB):

- Zhao Shiying, Deputy Director of UEPB
- Bian Jiang, Division Head of Environment Monitoring & Supervision
- Song Xiangyang, Division Head o S&T Education
- Feng Peng, Deputy Director of Environment Monitoring Station
- Wang Yong, Director of UAES
- Zhang Xinli, (Project manager) from UAES

Urumqi Academy of Environment Sciences (UAES):

- Wang Yong, Director of UAES

- Zhang Xinli, Sino-Norway MP Project manager
- Qian Shuhong, Division Head
- He Hongyan, Division Head

Annex C: Main documents consulted

CAEP (June 2013) Revised Project Document. Sino-Norwegian project on Urban atmospheric multi-pollutant prevention and control in China.

CAEP (April 2014) Output 2 Report. Multi-pollutant control in China and Europe

CAEP (Oct 2014) Features of Air Pollution in China

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