Mid-Term Review of Sino-Norwegian Cooperative Project on Persistent Organic Pollutants (POPs); Capacity building on implementing the Stockholm Convention

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Mid-Term Review

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CHN 2150 (10/0046)

Sino-Norwegian Cooperative Project on Persistent Organic Pollutants (POPs); Capacity building on implementing the Stockholm Convention

"SiNoPOP2"

Final Report

06.12.2013

PREFACE

A mid-term review is in line with the normal project cycle in Norwegian-supported projects, and was also foreseen in the Agreement between The Norwegian Ministry of Foreign Affairs (MFA) and The Ministry of Commerce of the People's Republic of China (MOFCOM) regarding support *to Sino-Norwegian Cooperative Project on Persistent Organic Pollutants (POPs); Capacity building on implementing the Stockholm Convention* (referred to as SiNoPOP 2 later in this report).

The Review team consisted of the following members:
- Ms Helle Biseth; Senior Adviser; Norad (Norway)
- Mr Torgrim Asphjell; Senior Adviser; Norwegian Environment Agency (Norway)
- Dr Xitao Liu; Associate Professor, Beijing Normal University (China)

The field work was undertaken in end of October and beginning of November 2013. A draft report was submitted to relevant parties for comments on November 22nd 2013. Comments to the draft report were received from MOFCOM, FECO including comments from Ministry of Environment (MEP) and the pilot provinces, Royal Norwegian Embassy (Beijing), Ministry of Environment (Norway) and NIVA. Comments found relevant by the Team have been incorporated in the final report. Some of the comments are related to the follow-up of the Mid Term Review and are included in Annex 10 to this report.

The Review Team would like to thank the Norwegian Embassy in Beijing and FECO for excellent cooperation and facilitation of the review mission. The Team would like to thank the Environmental Protection Bureaus in Wuhan and Hangzhou for their assistance and good company during our visit to the two pilot provinces and we would also like to thank the representatives from Guangdong province that travelled to Wuhan to meet with us.

The Team would also like to thank staff of the participating institutions who have contributed by sharing information and insight. We also appreciated that Hubei Hengxin Chemical Industry Co., Ltd outside Wuhan as well as Linjiang Wastewater Treatment Plant and the Xixi Wetland Park Automatic Monitoring Station, both outside Hangzhou, welcomed us to see their facilities.

And last, but not least, we want to thank our interpreter Ms Leona Li assisting us both with interpretation and with translation of some key documents.

6th December 2013
Helle Biseth
Senior Adviser (Team Leader),
Norad

LIST OF ACRONYMS AND ABBREVIATIONS

(Refer to Annex V for further explanation of some technical terms used in the report)

BFRs	-	Brominated flame retardants (a sub-group of POPs)
CNEAC	-	China National Environmental Analyses Centre (also referred to as NRCEAM)
COP	-	Conference of the Parties
The Embassy	-	Royal Norwegian Embassy; Beijing
EMC	-	Environmental Monitoring Centre
EPB	-	Environmental Protection Bureau (also referred to as EPD)
FECO	-	Foreign Economic Cooperation Office of Ministry of Environmental Protection
GD-EPB	-	Guangdong EPB
GEMC	-	Guangdong Environmental Monitoring Centre
HB-EPB	-	Hubei EPB
HEMCS	-	Hubei Environmental Monitoring Central Station
IR	-	Inception Report
MEP	-	Ministry of Environmental Protection (China)
MFA	-	Ministry of Foreign Affairs (Norway)
MoE	-	Ministry of Environment (Norway)
MOFCOM	-	Ministry of Commerce (China)
MoU	-	Memorandum of Understanding
NIVA	-	Norwegian Institute for Water Research
NOK	-	Norwegian kroner
Norad	-	Norwegian Agency for Development Cooperation
PBDEs	-	Polybrominated diphenyl ethers (a sub-group of BFRs)
PFCs	-	Perfluorochemicals (a sub-group of POPs. In this context not referring to the PFC greenhouse gases)
PFOS	-	Perfluoroctane sulfonic acid (a chemical in the PFC-group)
POPs	-	Persistent Organic Pollutants
RMB	-	Ren Min Bi (Chinese currency – Yuan)
SOP		Standard Operational Procedure
TU	-	Tsinghua University
The Project	-	The SiNoPOP II project
The Team	-	The Review Team that conducted this Review
ToR	-	Terms of Reference
ZEMC	-	Zhejiang Environmental Monitoring Centre
ZJ-EPB	-	Zhejiang EPB

Contents

Annexes

0. EXECUTIVE SUMMARY

The Review Team has assessed the relevance, design, progress (including outcome and impact), effectiveness and sustainability of the *project CHN 2150; CHN 10/0046 Sino-Norwegian Cooperative Project on Persistent Organic Pollutants (POPs); Capacity building on implementing the Stockholm Convention (SiNoPOP2)*. The Team also provides some recommendations that should be considered for a possible phase 3 of the SiNoPOP cooperation.

The cooperation between Norwegian and Chinese environmental authorities is based on a MoU between the Ministries of Environment of the two countries. POPs pollution is a major challenge for China as the country is both a producer and a user of several of the pollutants included under the Stockholm Convention. China is preparing to ratify an addendum to the Convention including 9 additional POPs. Technology transfer and technical cooperation is deemed necessary to fulfil China's obligation under the Convention, and Norway has comprehensive experience in this field. The *Relevance* of the project is seen as high both for Norway and for China.

The Team has pointed out some weaknesses in *project design*, and the Inception Report did not fully reflect the activities and discussions undertaken during the Inception period. Therefore the project is lacking a comprehensive overview and detailed guidance when implementing the project. Nevertheless, the *progress* on the five main outputs (output 2-6) is deemed satisfactory, and all participating institutions have a strong ownership to the project. The Chinese partners are satisfied with NIVA's technical strength and delivery mode. The technical training has been extensive and well received and the work on national standards for sampling and analysis is progressing as planned. Introduction of passive sampling and sampling of biological matters has been a major achievement. Completion of the lab calibration in collaboration between the project and UNEP has been useful both to increase the standards of the labs, and to get closer links to UNEP. The pilot provinces have been able to provide counterpart funding and the necessary staff and facilities.

The SiNoPOP project has also produced results not anticipated in the project document. Most remarkable is the discovery of the "PFOS Alternative" by researchers from Tsinghua University and NIVA. The two institutions have continued to do joint research on this discovery using their own research funds.

The Review Team recommend that more emphasis should be given to management training and to dissemination activities in the remaining implementation period. The planned management level study tour should include topics like policy, regulation, risk assessment and mitigation to better link the technical training to future management level decisions. During the remaining project period the project partners should ensure that the technical training is fully consolidated among the Chinese project partners.

The *efficiency* of the project is deemed satisfactory. The implementing partners are being paid upon achieved results, and with some few exceptions the activities are carried out within the agreed financial - and time frame. In the view of the Review Team, NIVA delivers its technical input and training activities efficiently. The contingency amounts are rather high, and an efficient allocation of these extra resources is important and must be discussed in the next Annual Consultations.

Cross-cutting issues and *sustainability* elements have been assessed and no major challenges have been identified. However, the three main implementing partners should ensure that the knowledge of the project coordinators is embedded in the institutions. In the opinion of the Review Team, the achieved results will contribute significantly to the stated Development Goal of the project.

The project management is efficient, but there is still room for improvements. The project management routines as outlined in the Agreement and in the Inception Report are not always corresponding to the actual roles and responsibilities of the various project partners. Communication between the implementing institutions might benefit from being more formalised, and the Review Team will advise that all reports are shared with the implementing institutions and provinces. The Review Team further suggests that the members of the Project Management Group are invited as observers to the Annual Consultations.

All the Norwegian funded projects with FECO should follow the same management and financial routines. MOFCOM and MEP/FECO should agree on how the communication between the two institutions on projects like the SiNoPOP2 could be improved.

The SiNoPOP 2 project has mainly focused on technical issues related to sampling and analysis, and this has resulted in considerable build-up of technical competence and established good working relationships between researchers (Norwegian and Chinese) and environmental management authorities (mainly Chinese). This can be the basis for future work on related topics such as regulation, risk assessment and mitigation. The exact priorities for a *phase 3* must be based on Chinese needs, Norwegian competence and the available budget. A third phase should build on present relationships to the extent possible, but also bring in new partners relevant for the priorities of the project. If extension of the project is decided upon, the Review Team will advise that a project planning expert can be used to assist the partners in the planning process.

1. INTRODUCTION

1.1 Project rationale

Some organic pollutants do not disappear when released into nature; they are “persistent” (Persistent Organic Pollutants - POPs) and they pose a risk of causing adverse effects to human health and the environment. POPs accumulate in the food chain and can therefore be found in high concentrations in some fish, and even in remote locations as in the polar bears in the Arctic. Because of the global nature of the POPs challenge, international mechanisms are needed to regulate them. The Stockholm Convention (http://chm.pops.int) was established to regulate the production and use POPs. Originally 12 pollutants (“the dirty dozen”) were regulated under this Convention. The pollutants are included in either Annex A (elimination), Annex B (restriction) or Annex C (unintentional production). The Stockholm Convention entered into force in 2004 and both China and Norway were among the first group of countries ratifying the Convention.

For China, lack of national capacity was a major obstacle in the implementation of plans and strategies required under the Convention. The SiNoPOP I Project was developed by FECO with support from Tsinghua University (TU) and NIVA to targets this problem and aimed at building capacity at national level and in one pilot area (Chongqing). The Mid-Term Review

of the SiNoPOP project stated: "*The level of dedication and ownership is very high, at the national level and at the local level, as well as among the implementers of the project, including from the Norwegian side. The strong local commitment has already resulted in additional funds for complimentary testing equipment that was outside the scope of the project."* The SiNoPOP 1 project was implemented from 2007 to 2010.

The Parties to the Convention has agreed that other persistent toxic compound can be added to the list if they meet certain criteria for POPs. In 2009, the COP 4 adopted an amendment and included nine new POPs to the Convention. A comprehensive list of these nine can be found in Annex V including exemptions where the chemical can still be used because there are no adequate alternatives.

Among the nine new POPs, some are especially relevant for China because they are both produced in China and used in the manufacturing industry. One of the chemicals; PFOS (ref Annex V for further explanation) is today only produced in China, but has a wide use in for example fire-fighting foams, electric and electronic parts, metal hard plating and textiles. For another POP, PBDEs, the challenge is mainly associated with imported e-wastes. China is the largest dismantling site of e-wastes in the world. It is estimated that 50–80% of the global e-wastes are legally or illegally imported to Asia, of which 90 % are destined for China.

Based on the positive experiences from the SiNoPOP 1 cooperation, and the additional challenges facing China when the new POPs were included in the Stockholm Convention, the main project partners suggested a continuation of the cooperation. China requested that the technical capacity building should deal with these 9 new POPs and in that way be assisting China to prepare for the ratification of the addendum to the Convention.

1.2 Chinese priorities

China is in the process of ratifying the addendum to the Convention including the 9 "new POPs". The SiNoPOP 2 Project is of high relevance for China because technology transfer and technical cooperation is deemed necessary in order to fulfil the country's obligation under the Stockholm Convention. China would need to improve the country's Environmental Monitoring standards to cover the new POPs properly, and NIVA has extensive experience in this field included in the special analysis methods needed to detect these POPs.

As part of the upcoming Five Year Plan, China has developed a specific POPs Plan: *The Twelfth Five-Year Plan for POPs Prevention and Control in Major Industries of China*. The POPs Plan was issued by 12 Ministries in June 2012. The POPs plan aims to establish long term mechanisms for the prevention and control of POPs. By these measures, POPs are expected to be prevented, controlled or reduced, so as to protect the environment and human health. Specific tasks will include (i) establish management system for the whole processes of POPs production, distribution, use, discharge and disposal; (ii) to bring POPs pollution prevention into the routine environmental monitoring system by improving data reporting mechanism of POPs monitoring; (iii) to strengthen the institution-building and capacity building in POPs pollution prevention; (iv) to build up a financial mechanism involving government, enterprises and other organizations; (v) to deepen the international cooperation.

1.3 Norwegian priorities

The cooperation between Norway and China is based on the MoU between MFA and MOFCOM on technical cooperation stating that «*projects in technologically and geographically most needed areas in China will be given priority, within the field of environment and climate…*". The priorities for cooperation are further outlined in the MoUs between the Environmental Ministries of the two countries. The first MoU was signed in 1995 and then later replaced by a new MoU in 2008. The objective of the present MoU is *"to promote cooperation between the Parties in the field of environmental protection and sustainable development on the basis of equality and mutual benefit*." The MoU outlines the following priority areas for cooperation on environmental policy and management: (i) Water and air pollution; (ii) Waste disposal and management; (iii) Chemicals and hazardous waste; (iv) Nature conservation, biological diversity and natural resources; (v) Climate change issues; (vi) The integration of environmental concerns into sector policy; (vii) Public environmental awareness; (viii) Environmental industry and technology; (ix) Other areas as mutually agreed upon.

The Norwegian financing for the SiNoPOP project is drawn from funds earmarked for support to technical cooperation in specific fields among them environment and climate change (MFA budget line "165.71 Faglig samarbeid"). The thematic area for the SiNoPOP cooperation is well aligned with the priorities outlined in the MFA's Action Plan for the Environment in Development Cooperation (2006-2015) which covers hazardous substances, including POPs. The Norwegian Embassy in Beijing receives a total annual allocation of approximately NOK 60 million earmarked various types of technical cooperation.

The use of POPs in other countries, and the import of products containing POPs, is highly relevant for Norwegian environmental authorities. For example, organic pollutants found in polar bears and other animals around the Norwegian Arctic archipelago of Svalbard are caused by production and use of these pollutants globally. Another example is that the "technical" sportswear people use daily in Norway, imported from for example China, are not only polluting the wastewater from the textile plants, but also polluting the wastewater from Norwegian washing machines. Through the SiNoPOP co-operation, Norway is also following up its own commitment under the Stockholm convention to assist developing countries with financial and technical assistance (Article 13 of the Convention). The relevance for Norway is therefore deemed very high.

1.4 Methodology

The methodology used in this Review is aligned with Norad's guidelines for project reviews as outlined in the Development Cooperation Manual and the guidelines for Assessment of Sustainability Elements and for Result Management. The Terms of Reference (ToR) was prepared by the Norwegian Embassy in Beijing with input from FECO and Norad. The ToR states that the main purpose of the review is to assess if progress has been made in accordance with the work plan and budget, and to assess the effectiveness and efficiency of the program. The ToR is enclosed as Annex I.

The review is based on a desk study of written documentation and on interviews with the main partners and stakeholders. The Team has not done a full peer review of the documentation, but the reports/manuals produced by the project have been assessed by the

Chinese expert in the Team for their alignment with Chinese local conditions and also if they have been found useful by the Chinese partners in the project.

The Review Team visited Beijing, Hubei Province (Wuhan) and Zhejiang Province (Hangzhou). Laboratories and some sites of relevance for project activities were also visited. This included a PFOS production plant, a Waste Water Treatment facility cleaning waste water from the textile industry and a Water and Air testing station. The Team did not travel to Guangdong Province, but met with partners from Guangdong while in Wuhan. The two Norwegian members of the team have had meetings with the Norwegian based stakeholders (ref Annex IV).

The outline of the report differs slightly from the outline in the ToR, hopefully to make the report more accessible. The Project description and the Review Team's assessment on project design can be found in chapter 2. The qualitative assessment of the achievements and challenges of the project can be found in chapters 3 and 4, while Annex II gives a summary of the activities and products under the different outputs. In chapter 5, the Team has given some ideas and recommendations for a possible phase 3, and in chapter 6 the main conclusions and recommendations are summarized. The list of documents reviewed can be found in Annex III. The Team has also found it useful to give an explanation of some of some technical issues (Annex V). A map (Annex VI), the organisational set-up of FECO (Annex VII) and a matrix produced by FECO showing the gender balance in major workshops and training activities (Annex VIII) are also enclosed. In the Final Report, an article from the NIVA website on "*A Chinese PFOS Alternative overlooked for 30 years*" has be added (Annex IX) and also comments on the draft report received from partners giving their thoughts on the follow up of the Mid-Term Review (Annex X).

2. PROJECT DESCRIPTION AND COMMENTS ON PROJECT DESIGN

2.1 Project background

In March, 2011, FECO sent a draft project proposal to the Embassy for a second phase of the SiNoPOP cooperation. The proposal had been developed by FECO (Foreign Economic Cooperation Office) with support from NIVA (Norwegian Institute for Water Research) and Tsinghua University, and with input from the other planned implementing institutions of the project.

There had been no Final Review of the SiNoPOP 1, but the project received an overall positive Mid-Term Review, and the Embassy had followed the project implementation through site visits, meetings and reports and based on this was positive to a phase 2. The Embassy also approached the Norwegian Ministry of Environment (MoE) for their assessment of the project. MoE was positive to a continued cooperation because this would be in line with the priorities in the MoU.

An appraisal was carried out by an independent consultant (Stein Hansen, Nordic Consulting Group). The appraisal recommended continued support, but gave some comments on the project design. Based on a slightly adjusted, final project proposal dated June 14, 2011, MOFCOM and the Norwegian Embassy signed an agreement on October 18, 2011 (referred to as "the Agreement"). The main implementing partners, FECO and NIVA signed a contract on December 5, 2011 (referred to as "the Institutional Cooperation Contract").

2.2 Project Design

The goal, purpose, outputs and other project design elements are given in the project proposal, in the Agreement and in the Inception Report. The wording used for the outputs are slightly different; below is the wording from the tables in chapter 4 of the IR (Description of outputs).

Development Goal:
Contamination of new POPs in China can be well understood and addressed in the near future, under the framework of implementing the Stockholm Convention.

Purpose:
Capacity in China at national and provincial levels is strengthened to prioritize measures against the use, release and impacts of the new POPs.

Outputs:
Output 1: Inception stage
Output 2: Strengthen the capacity of new POPs monitoring (manger level training)
Output 3: Capacity building for chemical analyses of new POPs (technical training)
Output 4: Demonstration of new POPs monitoring in selected areas
Output 5: Establishment of new standards for sampling and analysis
Output 6: Dissemination, general capacity building and awareness raising
Output 7: Project coordination

Under each output there are activities, indicators and a risk assessment. The full details can be found in Annex II. The risk assessment is the same in the project proposal as in the Inception Report, and in the view of the Team, could have been more thorough. As for output 6 (Dissemination including the two study tours to Norway) , no risks were anticipated while this is the output that has been - and still might be - most affected by outside factors both in relation to the study tours and the dissemination. In the view of the Team, some activities are not logically placed under the corresponding output; the study tours would have been more logical under output 2 and output 3. The Team is also of the opinion that there should have been fewer outputs because the documentation produced and training done is partly overlapping between outputs.

The Development Goal is in the Team's opinion well formulated and within the scope of what the project can contribute to achieve. The Purpose is in our opinion deemed too ambitious. A more operational "Purpose" would have been the first part of the Development Goal ("Contamination of new POPs in China can be well understood").

Baselines can to some degree be read out of the documentation, but this should have been developed further. Baselines for the actual POP contamination in the three pilot provinces are to be produced as part of the project.

2.3 Participating Institutions and provinces

Ministry of Commerce (MOFCOM)
MOCOM is the Agreement partner on the Chinese side for the SiNoPOP project as well as for all government-to-government project cooperation between China and Norway. MOFCOM has delegated the responsibility for implementing the SiNoPOP project to Ministry of

Environment (MEP)/Foreign Economic Cooperation Office (FECO).

Ministry of Environmental Protection (MEP)
MEP is the technical responsible Ministry for the SiNoPOP project. The following departments have been actively involved in the project: Department of International Cooperation, Department of Science, Technology and Standards, Department of Environmental Monitoring and Department of Pollution Prevention and Control.

Foreign Economic Cooperation Office (FECO)
FECO is an affiliated institution under MEP. FECO has several Project Management Divisions; Division V has the responsibility for the Stockholm Convention on POPs and the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal. FECO's Division V is in charge of the SiNoPOP project and has appointed one of its staff members as project coordinator for this purpose.

Norwegian Institute for Water Research (NIVA)
NIVA is a non-profit research foundation (independent, but the Chair of the Board is appointed by the Norwegian Ministry of Environment. NIVA is doing research, monitoring, assessment and studies on freshwater, coastal and marine environments in addition to environmental technology. The key areas of work include environmental contaminants, biodiversity and climate related issues.

Tsinghua University (TU)
TU is a leading Chinese University and under its School of Environment there has been established a Persistent Organic Pollutants Research Centre. The Centre runs a POPs website: http/www.china-pops.net

China National Environmental Analysis Centre (CNEAC)
CNEAC is a national institution directly under MEP. Since its establishment in 1984, CNEAC has carried out a large number of environmental testing services and technical trainings. The State Environmental Protection Key Laboratory of Dioxin Pollution Control is a part of CNEAC.

Hubei Province
Hubei Province has a population of approximately 57 million. The provincial capital is Wuhan. Hubei is the centre for China's production of PFOS – and this is the main reason for selecting Hubei as one of the pilot provinces. Also, the environmental authorities in Hubei showed great interest in the project and were able to commit staff, a state of the art laboratory and some counterpart funding to the project.

Guangdong Province
Guangdong Province has a population of approximately 104 million. The provincial capital is Guangzhou. Guangdong is the main centre for e-waste dismantling in China and this is the main reason for selecting Guangdong as one of the pilot provinces. Also, the environmental authorities in Guangdong showed great interest in the project and were able to commit staff, facilities and counterpart funding to the project.

Zhejiang Province
Zhejiang Province has a population of approximately 54 million. The provincial capital is Hangzhou. Zhejiang is the main centre for the Chinese textile industry (= PFOS use) and also

a major site for e-waste dismantling. This is the main reasons for selecting Zhejiang as one of the pilot provinces. Also, the environmental authorities in Zhejiang showed great interest in the project and were able to commit staff and facilities to the project. Zhejiang is also participating in two other international projects on POPs; one funded by Germany and one by World Bank, but none of these projects focuses on the "new POPs".

2.4 Inputs

The total financial contribution from MFA/Embassy is NOK 19.309.000. Additional to this, the 3 pilot provinces provide counterpart funding stipulated to be NOK 5.228.400. The various implementing partners receive the following amounts:

Institution	Amount (NOK)	Comments
NIVA	10.268.640	To be paid directly from embassy to NIVA
FECO total	9.039.600	
FECO's own implementation	3.028.600	Inception phase, organise various training workshops, study tour to Norway for managers, project meetings, close-up seminar, project management, audit.
FECO -> TU	1.297.600	TU is subcontracted by FECO
FECO -> CNEAC	1.137.600	CNEAC is subcontracted by FECO
FECO -> ZJ-EPB	1.158.600	Zhejiang pilot province
FECO -> GD-EPB	1.158.600	Guangdong pilot province
FECO -> HB-EPB	1.158.600	Hubei pilot province
FECO -> CQ-SWMC	100.000	Chongqing Environmental Department (implemented SinoPOP1)

The counterpart funding varies between the three provinces, the following is based on information given verbally to the Review Team:
- Hubei: Upgrade of lab as part of national Chinese project (700.000 RMB), procurement of PFOS measuring instruments (1,7 mill RMB), Operation of lab (100.000 RMB)
- Guangdong: Cash contribution of 1 mill RMB in 2012; also staff and facilities. No provincial funds in 2013, but will apply for 2014.
- Zhejiang: Equipment, facilities and staff. The counterpart funding has been used for equipment including one 2D-GC (1 mill RMB) and the province will buy an ASE (0,7 mill RMB).

The contracts between FECO and the other Chinese partners outline in detail the responsibility of each partner for the implementation of the project. A budget and a timeline are given for each activity and also the reporting requirements. The provinces are paid on performance; the disbursements are made once a year after the stated activities have been completed and the reporting accepted by FECO. The provinces are given some flexibility between budget lines so the actual spending on each output might not be accurate in the financial reporting that is based on the budget allocations. The provinces follow the general public financial management rules of each province, and their accounts are audited according to the regulation of each province. It is the understanding of the Team that the financial management routines may vary slightly from province to province.

The Embassy makes bi-annual disbursements to FECO as is the general rule for Norwegian government-to-government development cooperation projects. FECO is disbursing funds to the other implementing partners only once a year. Funds are therefore accumulating in the FECO account.

The Review Team recommends:
- The Embassy should effectuate the major disbursement of funds to FECO in December each year. The amount should be based on FECO's own need for the following 6 months and on the amount FECO is to disburse to the five implementing partners in January (ref. para 2.5 for amounts). Then in May or June; a smaller disbursement can be made covering FECO's own activities the next 6 months.

FECO does not have a designated project account for the SiNoPOP project, but one account for all Norwegian support to or through FECO. This is an interest bearing account. Based on both Article V; Clause 2 and Article VII Clause 4 in the Agreement; FECO (or MOFCOM according to the agreement) is to report interest accrued as part of the financial reporting to the embassy, but that this has not been done in the report to the embassy covering the period from the first disbursement in November 2011 to December 14, 2012.

The text of the agreement is to some extend contradictory to a letter from the Embassy to FECO dated August 8, 2008 where the parties agree that funds for all Norwegian projects with FECO should be paid to the same FECO account, but this should be a dedicated account for Norwegian funded projects. The implication is that it is impossible to split accurately interest earned on this account on the various projects. Hence, in 2012 it was agreed between MOFCOM, MEP, FECO and the Embassy that the interest should be used to support activities relevant to the general Sino-Norwegian cooperation – or it should be returned back to the Embassy.

The Review Team recommends:
- Once a year, a meeting should be held between The Embassy, MOFCOM and the various project implementing Divisions in FECO to decide on the use of the accrued interest. Other issues relevant to the management or implementation of the Norwegian funded projects should also be decided on in such a meeting. Specific project meetings could be held back-to-back to this meeting.

The Embassy disbursed the initial amount of NOK 2.990.080 to NIVA in November 2011. Later disbursements are done bi-annually and based on actual progress and expenditures. NIVA does not have a specific project account for the SiNoPOP project, but uses the general NIVA bank account. NIVA says that a designated project account has not been required for the embassy funded projects, only for Ministry of Foreign Affairs funded projects. In the view of the Review team it is acceptable that NIVA uses a general account for project funds, but only if NIVA invoices the project based on actual expenditures and not on future expected expenditures.

The Review Team recommends:
The financial routines of NIVA are acceptable given that NIVA invoices the project only based on actual expenditures. Anyhow, NIVA should be allowed to invoice more often than today as large outstanding amounts on projects poses a challenge for NIVA.

2.5 Project implementation structure

The project implementation structure is described in the project proposal and in the Inception Report. But some of the described formal structures for decision making are actually more informal lines of communication. The Project Steering Committee (membership to be made up of three Departments of MEP and FECO) is not a formal committee; FECO communicates with the various departments of MEP both on implementation related issues end technical issues when relevant, but there are no formal meetings. The Project Management Group (membership FECO, NIVA and TU) is the actual coordinating body of the project. This Group also meets when needed, and there is a more informal day-to day communication between the focal points for the SiNoPOP-project in these three institutions. Written documentation is to some extent produced from the meetings, but no formal Minutes. The Project Implementation Team is not a formal group, just all the implementing parties.

According to the implementation structure, there is no formal line of communication between FECO and the Embassy; communication should go through MEP and MOFCOM. But all parties have accepted that direct communication is necessary. On the other hand; MOFCOM has expressed that they wish to be more involved – and be kept better informed - on the Sino-Norwegian projects in general and the SiNoPOP project especially. It is the impression of the Review Team that the various Project Management Divisions of FECO handle the communication with MOFCOM differently; the Team will advise to streamline this to the extent possible. A meeting once a year between the Embassy, MOFCOM and all relevant FECO divisions would cater for this (ref 2.4)

Figure 1 shows the implementation structure as the Team has experienced it. The dotted lines between FECO and MFA/Embassy and between NIVA and TU reflect the close dialogue between these institutions. The institutions making up the Project Management Group have been given a yellow colour in the diagram.

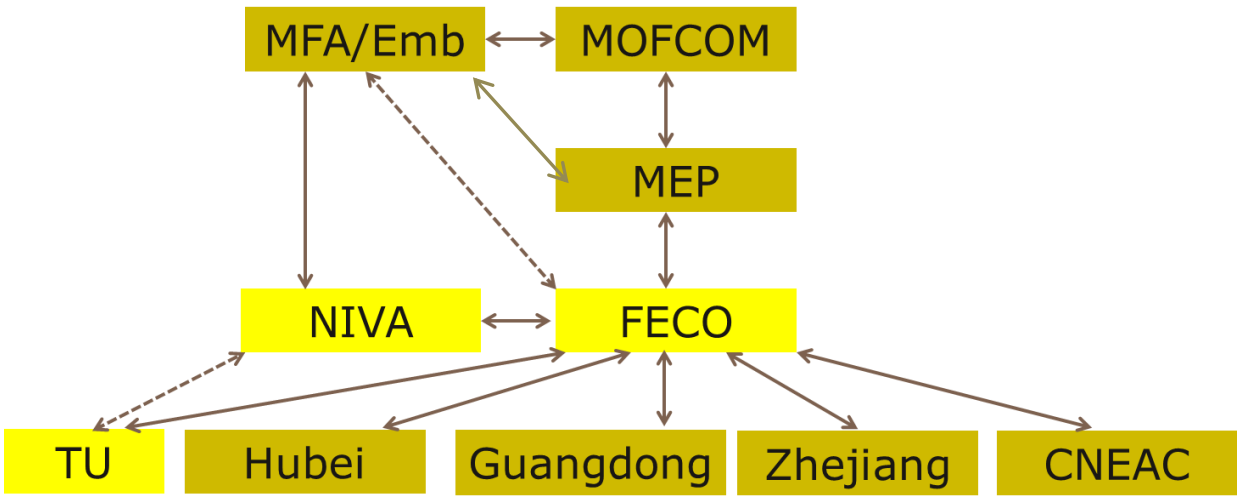


Figure 1

2.6 Implementing partners – obligations and funding arrangements

As the new POPs were not seen as a major challenge for Chongqing District which was the

pilot for SinoPOP1, different pilot provinces were selected for phase two. Discussions on this were a part of the Final Workshop of phase I. All relevant provinces had been invited to this workshop, and Hubei, Zhejiang and Guangdong were later chosen as pilots.

FECO entered into contracts with the three pilot provinces in March 2012. The provincial contract partners are the Environmental Protection Bureaus (EPBs). The contracts states that the province has been chosen to become one of the pilot provinces for the SiNoPOP2 project, and that FECO will provide the province with funds, training and technical support. The contract specifies the outputs each province is to deliver and the timeline for these outputs. The disbursement of funds from FECO to the province is result based; i.e. the disbursements will be made only after the reports from EPBs have been screened and accepted by FECO. The funds should be paid to the province within 30 days of FECO receiving the stated reports.

The contracts between FECO and the implementing partners are in Chinese, so the information below is based on the Team's own translation:
The provinces are to produce the following reports and documentation to FECO:
(1) Annual Report; (2) Outputs from conferences, seminars and training; (3) Minutes from specified meetings; (4) Project Progress Reports. The reports are due in December each year.

According to their contracts, Hubei, Guangdong and Zhejiang Provinces will each receive NOK 1.158.600 of project funds for the 3 year project implementation period.
1st disbursement after signing the contract: 30% (NOK 347.580)
2nd disbursement after submission of reports due December 2012: 25% (NOK 289.650)
3rd disbursement after submission of reports due December 2013: 25%, (NOK 289.650)
The final disbursement after submission of reports due December 2014: 20%, (NOK 231.720)

FECO has also entered into contract on project implementation with Tsinghua University and with CNEAC. The two institutions are to provide technical assistance and training to the pilot provinces. The total financial frame of the contract with TU was NOK 1.297.600 and the financial frame of the contract with CNEAC was NOK 1.137.600. The payment schedule is the same as for the provinces. The reporting schedule also, but the type of reports differ to some extent. TU is for example to produce materials for the training at provincial level and CNEAC are to produce technical guidelines for analysis. The various documents and guidelines to be produced under each output – and the status of these - can be found in Annex II.

2.7 MOFCOM Roles and Responsibilities

According to the Agreement (Articles IV, V, VI and VII) MOFCOM has various roles and obligations that are actually undertaken or implemented by other parties. One example is Article IV – 6 where it is said that MOFCOM is to provide the counterpart funding for the project, while this is done by the pilot provinces. An example of a more accurate wording can be found in Article IV – 9 which states that "MOFCOM shall…ensure that MEP/FECO enters into an Institutional Cooperation Agreement with NIVA…… "

The Review Team will advise that (i) The concerned parties on the Chines side agree on MOFCOM's actual roles and responsibilities; (ii) how the partners should keep MOFCOM better updated on the performance – including achievements and challenges – of the various Sino-Norwegian projects and (iii) that future Sino-Norwegian Agreements reflects the actual

contributions and obligations of the various partners.

3. PROJECT STATUS ASSESSMENT

3.1 Assessment of Project Progress and Status

3.1.1 Introduction

This qualitative assessment of the status of the seven Output Areas is based on the written material and on interviews with the Chinese and Norwegian project coordinators and staff at the participating institutions. A detailed presentation of achievements compared to plans, complete description of outputs, activities, indicators and risks are given in Annex II.

3.1.2 Status and assessment Output 1: Inception stage

The Inception Report (IR) was discussed at the inception meeting in March 2012 and it is the Teams impression that much of the content was decided during or shortly after this meeting. The IR was not finalized and forwarded to the Embassy before in April 2013, which is late considering that this should be a reference document for the implementation which actually started in 2012. The IR was accepted by the Embassy upon submission.

The IR has some inconsistencies. The description of outputs in the tables in chapter 4 has been taken directly from the project document, while the work plan in chapter 5 is the result of additional discussions on the Chinese side during and after the inception meeting. This has resulted in some discrepancies and has complicated the work for the Team, but we have less reason to believe that this has significantly influenced the progress of the project.

The contracts between FECO and the three pilot provinces as well as TU and CNEAC were signed in March 2012. It would have been useful if the IR had given an overview of these contracts as the different provinces are emphasizing different issues in the project. The responsibilities – and budgets of TU, CNEAC – and FECO should have been clearly spelled out in the IR. Budget from NIVA and an implementation schedule is also lacking from the IR.

The three demonstration provinces arranged kick-off meetings and produced comprehensive local implementation plans.

In the view of the Review Team, the necessary planning and contractual work were undertaken in the Inception Phase, but the IR does not properly reflect this.

3.1.3 Status and assessment Output 2: Strengthen the capacity of new POPs monitoring (manger level training)

The activities under this output are geared towards the challenges of the new POPs (mainly PBDEs and PFOS and other PFCs) in the demonstration provinces of Hubei, Zhejiang and Guangdong on the management level. The activities and expected outputs are further specified in chapter 5 in the IR, where analyses of the problem and challenges are also emphasized.

The activities include workshops where NIVA has given lectures based on international experiences as well as technical training sessions with focus on sampling, analyses and chemistry. The training material prepared is mostly in form of presentations from these workshops. To improve sustainability and fulfil the intentions in the IR, the Team will advise that this material should be developed into more formal training manuals and documents.

All three demonstration provinces have produced reports on the present situation as regards possible pollution sources, regulation and monitoring capacity. These reports are relatively comprehensive, and the Team has assessed them as a good basis for planning of the future activities.

The provincial EPBs and EMCs expressed the need for more management training on topics like policy, regulation, risk assessment and mitigation. Due to ambiguities in the project design it is difficult to say whether this actually should be a part of this output. However, more focus on these issues would clearly be in line with the projects overall purpose to "strengthen capacity to prioritize measures against the use, release and impacts of the new POPs".

This output is reported as finalized, but the Team will advise that it should be reopened to better fulfil the intentions of the IR and the requests from participants. The work done so far appears to be somewhat too similar to the technical training in output 3 and too limited in scope for what is relevant on management level. The study tour to Norway or another European country should also be planned with this in mind focusing on visits to environment- and health authorities and businesses, as well as the scientific community (ref also 3.1.7).

3.1.4 Status and assessment Output 3: Capacity building for chemical analyses of new POPs (technical training)

Output 3 emphasises training on the technical level. Focus is on training technical skills for taking samples of environmental media like water, soil/sediment and biological matter, preparing the samples and analysing then for content of POPs. Particular focus has been on passive sampling and monitoring of PFCs and PBDEs in biological matter (fish, blood), on which the Chinese personnel has little experience.

A number of training activities have taken place – both in workshops and on-site technical training. The approach has partly been based on the train-the-trainers principle, where NIVA have trained TU and CNEAC, but NIVA has also undertaken some practical training of provincial staff both in Beijing in the provinces. The Teams impression is that the Chinese personnel are satisfied with the training and TU and CNEAC have gained enough competence to undertake such training in the future. Some respondents expressed the need for more training directly from NIVA. The Team did not have the time to examine this topic in detail, but would advise the project partners to summarize the experience from the training and ensure future sustainability through sufficient knowledge transfer to experienced Chinese personnel.

NIVA has produced draft technical procedures for analyses of PBDEs and PFCs/PFOS in biological matter and also a paper on passive sampling. This documentation has been used as basis for the local laboratories, to produce detailed Standard Operational Procedures (SOPs) for analyses of PBDEs and PFCs/PFOS in biological and other media. These SOPs are being

used by the laboratories in the pilot provinces. This work has been done with the assistance of TU and CNEAC, who have also produced their own SOPs (in Chinese). The Teams impression is that these procedures are comprehensive and adapted to Chinese local conditions. However, due to the differences between Norway and China as regards aquatic species and food chains, the Team would advise that particular attention is placed on adaptation of biological sampling to local conditions when the final procedures are to be made.

The intercalibration study was changed from a planned exercise including additional local laboratories and the laboratories of AMAP, to being part of a larger UNEP intercalibration work. Preliminary results from this study were ready in April 2013 and indicate that the results, with the exception of PBDE in fish, are satisfactory.

Activities under this output have been the core emphasis in the project up till now. Extensive and well-received training has been undertaken and extensive documentation has been produced. It is the Teams impression that a lot of high quality work has been done and that remaining issues as regards sustainability of the training, production of final SOPs and final intercalibration approval can be solved within the project period.

3.1.5 Status and assessment Output 4: Demonstration of new POPs monitoring in selected areas

According to the plans submitted in August 2013, the main focus in Hubei will be areas around metal recycling (PBDEs) and PFCs chemicals production facilities (PFOS). In Zhejiang focus will be on contamination from e-waste dissembling (PBDEs), PFOS production, textile finishing and electroplating (PFOS), while Guangdong will focus on PBDE from e-waste and PFOS from surface processing in textile and other industries. Generally all three provinces will focus on analyses of PBDE and PFOS in samples from water, soil, sediment and fish.

All three demonstration provinces have produced monitoring plans describing locations and media to be monitored and the analytical methods to be used. The plans are comprehensive and appear to have been satisfactory adapted to the assumed pollution situation in the province.

The fieldwork, which is based on the monitoring capabilities established under output 3, has just started. The team is of the opinion that the future progress will be crucial for the overall success of the project, as it is important both for the technical training, dissemination activities (possible interesting results) and possible future mitigation activities (identifying pollution hot spots). The inception report also links the purpose of this output to a "forthcoming risk assessment". The Team has however not been able to identify any activities on this within the current project.

3.1.6 Status and assessment Output Area 5: Establishment of new standards for sampling and analysis

This output includes technical support to establish new national standard operational procedures for both sampling and analysis of PBDE and PFCs in soil/sediment, water and biological material. Core sediment and fish, which is not included in the current monitoring practice, is emphasised. The Standard Operational Procedures (SOPs) produced under output

3 are important input to this work.

Draft national standard methods for sampling and analyses of PBDEs and PFCs/PFOS in soil sediment and biological material have been produced by CNEAC. The overall quality of the documentation produced is good; detailed procedures for sampling, pre-treatment, instrumental analysis and data processing, as well as the matters needing attention are well described.

Pending work includes organizing an expert workshop, finalizing the standards and the production of method verification reports for sampling and analyses of new POPs in fish and sediment core.

The team considers these standards an important spin-off product from the core project activities, since it can contribute to lasting results on a national level. We deem the progress to be good and that final proposals for standards can be entered into the issue pipeline within the project period.

3.1.7 Status and assessment Output Area 6: Dissemination, general capacity building and awareness rising

This output includes activities to disseminate project findings and to contribute to the general capacity building and awareness rising regarding BFRs and PFOS among policy makers in China. However, on the activity level the IR goes beyond this and also includes activities directly related to output 2-3; ref the Team's comments on the design in chapter 2.

The dissemination activities have included an Experience Promotion Meeting for SiNoPOP I, a general brochure on the project in Chinese and English and an article on POPs published in both China Environmental News and China Daily. A scientific article on an alternative to PFOS has also been produced as a spin-off from the project, and TU and FECO has made or translated videos on monitoring aimed at technical staff and policy makers. The Team takes note of that Guangdong province is very active in disseminating information on POPs in general to a wider audience.

The project has focused on technical training, which probably is of limited general interest. When the project now enters a phase of sampling on polluted sites in the demonstration provinces, dissemination activities should be intensified. As regard to information to the general public, the Team is of the opinion that communication of results should be the main focus and that information on the SiNoPOP project itself could possibly be downplayed.

Dissemination of results to policy makers appear to have been quite limited so far. These activities should be intensified when the project now enters a more policy relevant stage. This was also highlighted by MOFCOM, who wants a plan to be developed for this communication work. The Team will advise that the Project Management Group works closer with relevant MEP departments and with MOFCOM on this output.

The study tours have been delayed of reasons outside the project's control. The Team deems these study tours to be important, and will emphasise that they should be undertaken early enough for the participants to use the experiences gained abroad back at their places of work in China while they still have the possibility for technical support from NIVA.

3.1.8 Status and assessment Output Area 7: Project coordination

The project coordinator in FECO was changed during the initial stages of the project, but the Team got the impression that project management was relatively quickly up and running again after the change.

An Annual Progress Report for October 2011 to December 2012 has been finalized and shared with the Embassy in accordance with the Agreement. The report is comprehensive, but a closer alignment with the IR would have made the report more easily accessible. Some information as regards activities performed by NIVA is lacking from the report and it could be more specific with regard to expenditures and involvement of personnel. In the opinion of the Team, FECO should involve the other members of the Project Management Group (i e TU and NIVA) in the drafting of the Annual Progress Report. This report should be shared with all project implementing institutions/provinces.

The pilot provinces take part in project implementation meetings and technical meetings where they have some possibility to share experiences. The Team is of the opinion that this contact should be further developed and also more formalised and reports should be shared with all project implementing partners. The provinces can learn a lot from each other, one example is the dissemination activities where Guangdong has produced material for the general public that can be an inspiration also for the other provinces.

The Audit Report for the period October 2011 to December 2012 was submitted to the Embassy in accordance with the Agreement. The Audit only covers expenses incurred at FECO – including transfers to the five Chinese project partners. As for the NIVA audit report, please refer to chapter 4.3.5 on this issue.

The Annual Consultation on January 30, 2013 was attended by the Agreement partners MOFCOM and the Embassy and also by FECO and MEP. According to the Agreement, the parties can include other participants as observers. The Team will advise that TU and NIVA are invited as observer to the Annual Consultations.

TU, CNEAC and the three local EPBs compiled annual reports for 2012 and other reports as outlined in their contracts with FECO. According to FECO, some of these reports were delayed and some needed adjustments and were re-submitted. Anyhow, these reports formed some of the basis for the Annual Progress Report to the Embassy.

The Team will conclude that the project management is efficient in the implementation stage of the project, but that there is still room for improvements, especially with regard to the reporting.

3.2 SiNoPOP2 - Main achievements and main challenges

Project participants were asked what they considered the main achievements and the main challenges of the SiNoPOP project. The Team find it useful to present what we can call "insider's opinion" of the project:

Achievements:
Both Chinese and Norwegian experts/participants involved in the SiNoPOP project have emphasized the following:

- Introduction of passive sampling and sampling on biological matters has been a major achievement. The passive sampling technic has not been used in China and for POPs sampling it gives much better results. Learning to sample fish for various POPs has been essential.

  - Lab calibration completed in collaboration between the project and UNEP has been useful both to increase the standards of the labs and to get closer links to UNEP.

  - The cooperation between NIVA and TU has resulted in new knowledge and researchers from the two institutions have jointly produced a paper on a PFOS alternative. NIVA and TU have continued research on this topic using own research funds.

  - The possibility for cultural exchange and international exposure was also both among participants from both countries.

Challenges:

- The political situation and how this might influence negatively on the project (study tours, info materiel).
-

  The language. There were various opinions on this; most respondents said the language was a challenge, but a challenge that was possible to deal with: First of all, TU as one of the main partners can ease the communication between the only English speakers and the only Chinese speakers. Secondly, as for the on-the-job training in laboratories and on sampling sites, the general view both among Norwegians and Chinese were that technical people manage to find ways to communicate when they do practical work together. Thirdly, among the newly employed, younger workforce working for the provincial authorities, most will know some English. And last, NIVA has a Chinese guest researcher who can assist the NIVA staff working on the SiNoPOP project with translation of documents.

3.3 NIVA – Technical Strength and delivery mode

The ToR raised the issue of the Chinese participant's opinion on the technical strength and delivery mode of NIVA. The Team raised this issue with most of the Chinese respondents. The feedback was overwhelmingly positive. Some minor issues were raised like that some of the workshop presentations were not targeted enough (started on a too basic level). It was also expressed from several of the provincial staff that they wanted more time with NIVA both in the lab and out sampling and that they preferred NIVA working with them in their own province rather than going for training in Beijing.

4. PROJECT EFFICIENCY, IMPACT AND SUSTAINABILITY

4.1 Project Efficiency

> *Efficiency is a measure of productivity, meaning comparing inputs against outputs; a measure of how economically resources/inputs (funds, expertise, time, etc.) are converted to results/outputs.*

It is not possible to fully assess the efficiency of the SiNoPOP 2 project at this stage since it is only just over halfway through the project implementation period. Most activities have been completed as planned, and the pilot provinces and the two institutional partners in China are being paid upon achieved results. NIVA is invoicing its input also mainly after the activities have taken place. As long as the budgets provided for the implementing partners are realistic, and the results can be controlled, "payment for results" will in the Team's opinion ensure acceptable efficiency.

As for the budgeting; not only FECO but also NIVA has assessed the budgets made available for the pilot provinces, TU and CNEAC. As for NIVA, they use the same hourly rate as for projects implemented for the Norwegian Environmental authorities. For travels, NIVA follows Norwegian Government regulations and also travels on Economy Class tickets as a general rule (an exception if staff has to go straight to work from the flight without possibility for rest). NIVA does not send non-technical staff to China, as the project management is undertaken by the project coordinator who is also delivering technical input and training. In the view of the Review Team, NIVA provides good "value for money".

One factor that adds positively to the efficiency is that the project has produced additional results that were not anticipated when the project was designed. Most notably is the work on the PFOS alternative.

The contingency amount is rather high both in NIVA's budget and in FECOS budget. FECO has divided the contingency between all the Chinese partners, and this might not lead to efficient use of these funds. The Team will suggest that the use of the contingency funds is discussed at the next Annual Consultations.

A few activities have been delayed and might not be accomplished. The study tours have been delayed with a result of under-expenditure of funds. In the Review Teams opinion, the efficiency of the project rests on the way FECO, NIVA, TU – and MOFCOM manage to "work around" the obstacles and still achieve the intended results.

4.2 Possible Outcomes and Impact from the project

> *Outcome is the planned effect of the project*
> *Impact is a measure of all positive and negative consequences/effects/results of the Project, whether planned for and expected, foreseen or not foreseen, direct or indirect.*

It is not possible to fully assess the outcome and impact at this stage of project

implementation.

The purpose of the project: "Capacity in China at national and provincial levels is strengthened to prioritize measures against the use, release and impacts of the new POPs", is, as pointed out earlier in this report, unrealistic to achieve only as a result of this project. On the other hand, the Development Goal of the project "Contamination of new POPs in China can be well understood and addressed in the near future, under the framework of implementing the Stockholm Convention.", the Team will conclude that the SiNoPOP project contributes significantly to the first part of this goal (POP contamination is well *understood*), and might contribute to *addressing* this challenge during the remaining period. The project gives the Chinese Environmental authorities knowledge on how to do sampling and analysing on the main POPs and lays the fundament for monitoring of these pollutants. China will also be better equipped to report under the Stockholm Convention.

Of effects/results/consequences not planned for, in the Review Teams opinion these are only on the positive side. Most remarkably is the discovery of the PFOS alternative. Also the much closer link to UNEP as a result of the laboratory inter-calibration exercise is a result not planned for, but that might have wider positive consequences than just the immediate results. There has also been a very good working relationship between Norwegian and Chinese project participants on all levels, and both Norwegians and Chinese have expressed the positive side effect of cultural exchange. Chinese participants have also said that working together with NIVA has inspired and helped them to learn more English. And last, but not least – building good relationship between individuals help building a good relationship between our two countries.

4.3 Cross-cutting elements and Sustainability issues

> *Sustainability is a measure of whether the positive effects (or assumed measurable effects) of the Project is likely to continue after the external support is concluded, meaning: will the project lead to long term benefits.*

The relevant sustainability elements may vary from project to project. The team has assessed the following:

4.3.1 Gender issues and other non-discrimination policies

The Review team has assessed the gender balance in training and workshops and other activities under the project. The number of men and women who has benefited directly from the project has been reported by FECO after this issue was raised by the embassy. From the figures provided, the Review team can conclude that men and women are given equal access to training and other project activities. Please refer to Annex VIII for a detailed breakdown.

In China (as in Norway), educated women often prefer public sector jobs, while men are overrepresented in higher level jobs in the private sector. In China, there is a strict non-discrimination policy when recruitments are done to civil service jobs. Chinese policy states that all citizens regardless of gender and ethnic background are to be treated equal with regard to employment within the civil service. As for higher education, some of the minor ethnic groups are given preferential treatment.

Following Norwegian laws and labour regulation, NIVA has a non-discrimination recruitment and personnel policy. In NIVA's Annual Report that can be found on the NIVA website ("Årsrapport" – only in Norwegian), NIVA is reporting on number of men and women in the total workforce and on each level and also on the number of non-Norwegian employees. In 2012, NIVA employed in 105 women and 121 men and had 54 foreign national employees from a total of 21 countries (including China).

The Review team cannot find that gender aspects are of relevance to the activities undertaken in this phase of the SiNoPOP project. But gender aspects might be relevant in future work if this will include vulnerability issues because vulnerability to certain chemicals/pollutants will often differ between men, women, children, foetuses etc.

The Review team's assessment:
Men and women are given equal access to training and other project activities and gender specific reporting is done where feasible. Gender issues related to the effect of the project are not relevant in this project, but might be relevant in a possible phase 3.

4.3.2 Technical sustainability

No major investments in technical equipment are included in the SiNoPOP project. The three pilot provinces were chosen partly because they already have competent personnel with high general competence in pollution monitoring and also well-functioning laboratories (Hubei province is also the regional hub covering 4 provinces). Consequently, the technical and human infrastructure for monitoring of POPs in general is in place.

The project has resulted in enhanced knowledge and documentation on the particular field of sampling and monitoring of PBDEs and PFOS in fish and other media. This work has progressed well, but the project partners should verify that the final documentation is well adapted to Chinese conditions and that the transfer of knowledge from training is fully sustainable. The management level training should also be more comprehensive.

Review team's assessment:
Sustainability as regards to technical training appears to be good, but additional emphasis should be put on management level training.

4.3.3 Institutional sustainability

There is a relatively stable workforce both in NIVA and in the Chinese participating institutions both on central level and in the provinces. The staff that has been trained under the SiNoPOP project will be likely to continue to work in their institutions. Also, the written documentation produced will secure institutional memory; anyhow more emphasis must be put on this issue since some of the documentation can only be found as PowerPoint presentations. The methods introduced by the NIVA trainers have been institutionalized in the participating Chinese institutions.

The members of the Project Management Group (FECO, NIVA and TU) are essential for smooth implementation of the project. The SiNoPOP focal points in NIVA and TU have stayed the same as in phase I and in that way brought continuity to the project. FECO changed

coordinating officer of the SiNoPOP project during the inception phase of the project, and this slowed down the implementation temporarily. NIVA and TU both have focal points that know the project – and this thematic area – extremely well. But this can also be a challenge because if any of the focal points leave their workplace; this can have quite negative influence on the implementation of the project. But both institutions are aware of this challenge, and especially NIVA has actively brought in what can be labelled an "assistant coordinator".

The Review team's assessment:
Institutional sustainability is satisfying, but the three main implementing partners (FECO, NIVA and TU) should ensure that the knowledge of the project coordinators is embedded in the institutions.

4.3.4 Financial sustainability

The SiNoPOP project has not financed investments that will incur high costs in the future. Some of the labs, perhaps especially the Wuhan lab, have advanced equipment that will have high running costs. But all the Chinese partners gave feedback to the Team that pollution in general – and the issue of POPs especially – had a high priority, and that the funding for this through the ordinary budget process is forthcoming. Also, the availability of counterpart funds – not only as in-kind funding, but cash funding , also shows the high priority of these issues have in China.

The Review team's assessment:
Financial sustainability is satisfying.

4.3.5 Anti-corruption measures

The various implementing institutions follow their own financial management rules also for project funding like the SiNoPOP project.

As stated in the agreement, MOFCOM is in charge of audit of the Norwegian project funds channelled to MEP/FECO. An independent auditor, Beijing Xinghua CPAS CO., LTD, has been commissioned. The period from project inception (October 18, 2011) to December 14, 2012 has been audited and the audit report shared with the embassy. The audit gives a clean audit opinion on the income and expenditure of project funds. But it is important to be aware of that the auditors do not audit funds spent by the five subcontractors (= TU, CNEAC and the three provinces), only that the agreed amount have been paid to the subcontracted institutions.

The provinces follow the financial management rules of each province. To our understanding, it requires both follow up by internal auditors and the funds will be a part of the general audit of the Province's official expenditure. The provinces also said they expected FECO to do a financial check on the use of project funds. It was confirmed by FECO that this would be done. As with the provinces, TU and CNEAC follow their own financial management routines and rules for auditing.

NIVA is classified as a Norwegian non-profit research foundation. The accounting system and practices of NIVA has ISO certification (ISO9001:2008). Teknologisk Institutt is accredited to do the follow up of NIVA and do spot-checks on some projects each year. NIVA is audited by Lundes Revisjonskontor DA. The audit report (only in Norwegian) can be

found on the NIVA website (www.niva.no). The Audit Report for the year 2012 has been studied by the Review Team and is without remarks. Anyhow, each project is not audited separately. This can be done, but will have to be agreed specifically and the cost would be charged to the project.

The Review team's assessment:
Although the financial management routines vary between the institutions, we do not see any major challenge in this. According to Norwegian guidelines, the partner country's systems are to be used if deemed adequate. In the annual reports to the Embassy, FECO should also report on audits or similar undertaken in the subcontracted institutions. NIVA should submit their annual audit report to FECO. The Team does not find it necessary that a separate audit of the SiNoPOP project in NIVA should be carried out.

5. FUTURE PERSPECTIVES – AND A POSSIBLE NEW PHASE?

5.1 A possible new phase – what should the emphasis be?

The SiNoPOP project has mainly focused on technical issues such as sampling and analyses of POPs in water, soil and biological matter. This has resulted in considerable build-up of technical competence and also established good working relationships between researchers (Norwegian and Chinese) and environmental management authorities (mainly Chinese) that can be the basis for future work.

As illustrated in *figure 2* below, POPs in the environment can be dealt with in many different perspectives - from the release of pollutants, through dispersion in the environment, to the effects on humans. This includes many topics, such as scientific understanding, monitoring, policy, regulation, technology, management and economic considerations. In addition to determination of concentration levels, this can be:

- Assessment of source specific measures such as pollution regulation, technology on mitigation, substitutes and management procedures.
- Studies on emissions, dispersion and mass balance
- Surveys on human and environmental exposure to contaminated media (like fish and other living organisms, water, soil…)
- Work on regulations or advice as regards food, drinking water and contaminated sites
- Risk assessments on health and environmental effects of certain pollution levels
- Assessment of long-range or global effects of Chinese emissions

The current work plan touches upon some of these issues, but the Team would suggest that more extensive work on this should be included in a possible next phase of the project. The exact priorities should be proposed by the project partners taking Chinese needs, Norwegian competence and the available budget into account. Additional project partners can be included in a third project phase. Norwegian agencies on environment, health, agriculture and fishing and the corresponding Chinese governmental bodies could be relevant, the same with research institutions dealing with risk assessments. A stronger involvement from POPs emitting industry, users/importers of POPs and the (environmental) technology community can be explored.

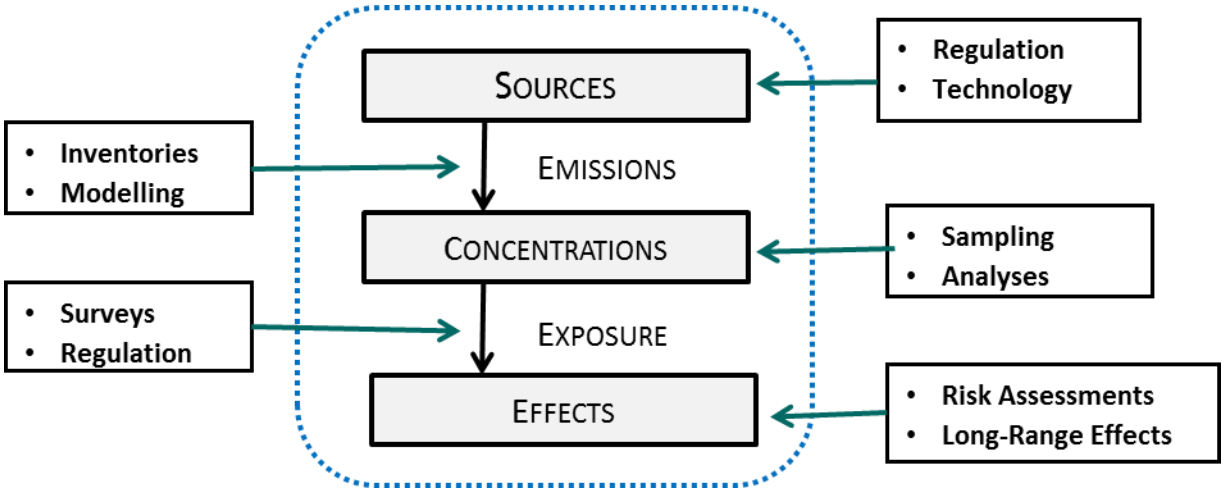


Figure 2

5.2 A possible new phase – recommendations on planning and management

Both the Mid-term Review of SiNoPOP 1 and this Review has pointed to several shortcomings in the project design, and pointed to the fact that project management routines as outlined in the project document/Agreement/IR are often not corresponding to the actual roles and responsibilities of the various project partners.

When planning a possible new phase of the SiNoPOP project, the outputs should be clearly defined and not overlapping. Also, all outputs should be possible to complete under the project. More emphasis should be put on risk factors and (risk) mitigation measures in project planning. A baseline is useful both to decide what the project should prioritise and to more easily assess what the project has actually achieved. The Review Team suggests that some of the contingency funds in the SinoPOP2 budget are used for a planning workshop where a project planning expert is brought in.

The management structure of the project should be thoroughly discussed as part of the planning process in order to safeguard an efficient management – and implementation structure, and not make administrative shortcuts necessary during implementation.

6. CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions and Recommendations SiNoPOP 2 – technical issues

The overall assessment of the project is that the relevance is high both for China and Norway and that the scientific outputs are relevant and of a high quality. Most of the outputs are - or will be - produced within the agreed financial and time frame. The technical training has been extensive and well received and the work on national standards for sampling and analysis is progressing as planned. It is the opinion of the Team that the project will contribute significantly to achieve the Development Goal.

The Review Team has the following recommendations:

- The management level training has been too limited in scope and the documentation is inadequate in a sustainability perspective. More training should be given on topics like policy, regulation, risk assessment and mitigation. The study tour to Norway (or another country in Europe) should be prioritized with this in mind. The two study tours should be undertaken as soon as possible to secure enough time to follow up work.

- Some of the documentation produced by the project needs further work in terms of quality, completeness and relevance to Chinese conditions.

- The practical fieldwork on monitoring should be used to created spin-offs like dissemination activities, risk assessments and investigations on mitigation.

- The dissemination activities undertaken so far have been relatively limited, but according to the work plan, dissemination will mainly be carried out in the final stage of the project. The Review Team will advise that this work should be intensified when result of more general interest probably emerge in the near future. Policy makers should be a key target group for this work.

6.2 Conclusions and Recommendations SiNoPOP 2 – management issues

As stated above, the SiNoPOP 2 project is as a whole so far producing the agreed results within the agreed financial and time frame. Project design, anyhow, has some weaknesses. The Project management is efficient, but there is still room for improvements. Some of the issues the Team has highlighted in this report are related to the planning stage and therefore not relevant to the implementation of the last period of SiNoPOP 2. For the rest of the project period, the Team will recommend:

- Reports from the provinces, TU and CNEAC should be shared with all project implementing institutions/provinces.

- The annual report from the project to the Embassy should be written jointly by NIVA and FECO and reflect the activities and financial data on both sides. The Report should refer directly to the outputs and the activities in the IR. The audit of NIVAs part of project funds should be shared with the Embassy, MOFCOM and FECO. Also, NIVA and TU should be invited as observers to the Annual Consultations between MOFCOM/MEP/FECO and the Norwegian Embassy. Use of contingency funds should be discussed at the next Annual Consultations.

- Minutes should be written from all Project Management Group meetings.

- All documentation produced under the project should be well-labelled (institutional ownership, date, draft or final).

6.3 Recommendations for a possible phase 3

How to use the knowledge gained under SiNoPOP 2 to improve people's lives? This question was formulated by one of the respondents. The Team will highlight this as the guiding principle for a possible SiNoPOP phase 3.

Recommendations – Technical issues:

- A new phase must be based on the needs of China and Norwegian competence

- Widening of the technical scope and include issues like for example monitoring, policy, regulation, technology, management and economic and human health considerations.

- A new phase should build on present relationships to the extent possible, but also bring in new partners relevant for the priorities of the new project.

Recommendations – management issues:

- Outputs should be clearly defined and not overlapping and activities must be logic under each output. Also, all outputs must be possible to complete under the project. More emphasis should also be put on risk factors and (risk) mitigation measures in project planning. A baseline is useful in order to more easily assess what the project has achieved. The Review Team suggests that some of the contingency funds in the SinoPOP2 budget are used for a planning workshop where a project planning expert is brought in.

- The Management structure outlined in the project document – and in the Agreement – should be the actual management structure with regard to who is responsible for what – and which Committees/Groups should be a part of project implementation.

6.4 Recommendations not specific for the SiNoPOP project

- All Norwegian funded projects with FECO should follow the same management routines. A meeting should be held between MOFCOM, Division of Finance of FECO, the relevant project management divisions of FECO and the Norwegian Embassy to outline common management and financial routines.

- Once a year a meeting should be held between the parties above to decide on the use of accrued interest from the previous year and other issues of relevance for all the projects.

Annexes

Annex I

TERMS OF REFERENCE (ToR)
MIDTERM REVIEW
of

CHN-2150 10/0046 Sino-Norwegian Cooperative Project on Persistent Organic Pollutants (POPs); Capacity building for implementing the Stockholm Convention (SiNoPOP2)

1. BACKGROUND FOR THE REVIEW

According to the agreement (Article X) of the project CHN-2150 10/0046 Sino-Norwegian Cooperative Project on Persistent Organic Pollutants (POPs); Capacity building for implementing the Stockholm Convention (SiNoPOP2), the Parties may agree to carry out a review, an inspection and/or an evaluation of the Project. Based on communications between the Parties, a review is suggested to take place in the fall of 2013.

2. DESCRIPTION OF THE PROJECT TO BE REVIEWED

i) Background

SiNoPOP2 is the second phase of the cooperation between the two countries on the issue of POPs. The first phase: "CHN-2150, 07/001 Capacity Building for the Persistent Organic Pollutions in China: Demonstration project on local implementation of the Stockholm Convention (SINOPOP)" was implemented between 2007 and 2010. The SiNoPOP-projects have a special focus on building China's monitoring capacity of the nine new POPs added to the Stockholm Convention in 2009, especially of Perfluoroctane Sulfonic Acid (PFOS) and Polychlorinated Diphenyl Ethers (PBDEs) that pose the biggest challenges to China.

In March of 2011, the first draft of project application for SinoPOP2 was submitted to the Embassy. Based on this, a desk appraisal was conducted by Nordic Consulting Group in April of 2011 and a revised proposal was then submitted by the Chinese authorities in June 2011. The agreement between the parties was signed in October of 2011.

The inception meeting of the project was held in March of 2012 and the first Annual Consultation (AC) was held in January of 2013. It was agreed at the AC that the project duration would be extended to 2014, due to its full launch in 2012. The implementation plan submitted after the Annual Consultation shows that the project activities will run to the end of 2014. This plan was approved by the Embassy via email in August 2013.

Also, at a meeting between the Norwegian Ministry of Environment and China's MEP to discuss future bilateral cooperation held on June 4, 2013, MEP proposed a continuation of the SiNoPOP cooperation (SinoPOP 3)

ii) Goal, purpose, main outputs, budget and participating institutions of SinoPOP2

Goal
The Development Goal of the Project is: Contamination of new POPs in China can be well understood and addressed in the near future, under the framework of implementing the Stockholm Convention.

Purpose
The Purpose of the Project is: Capacity in China at national and provincial levels is strengthened to prioritize measures against the use, release and impacts of the new POPs.

Main Outputs
- *Output 1: Inception stage*
- *Output 2: Strengthen the capacity at management level of new POPs*
- *Output 3: Capacity building for chemical analyses of new POPs*
- *Output 4: Demonstration of new POPs monitoring in selected areas*
- *Output 5: Establishment of new standards for sampling and analysis*
- *Output 6: Dissemination, general capacity building and awareness raising*
- *Output 7: Project coordination*

Budget
The Project Agreement states that the Norwegian grant for this project is NOK 19.31 mill (including NOK 10.3 million to Norwegian partners and NOK 9 million to Chinese partners), and the Chinese contribution is NOK 5.23 mill.

The three pilot provinces, Zhejiang, Guangdong and Hubei, also provide substantial matching fund, totaling 7.63 million RMB (equivalent to around NOK 6.91 million), to the project in 2012, according to a financial statement.

Institutions, Responsibilities & Pilot Provinces
Ministry of Commerce (MOFCOM) has the overall responsibility for the Project and the Ministry of Environmental Protection (MEP) supervises the implementation of the Project. The main project implementing partners consist of the Norwegian Institute for Water Research (NIVA) and (MEP)'s Foreign Economic Cooperation Office (FECO).

The main technical partners on the Chinese side include Tsinghua University and National Research Center for Environmental Analysis and Measurement.

Zhejiang, Hubei and Guangdong Provinces are the pilot provinces for this project. These provinces were selected for the challenges they are facing from the nine new POPs added in the Stockholm Convention in 2009, especially PFOS and PBDEs.

3. PURPOSE OF THE REVIEW

The purpose of the review is to assess if progress has been made in accordance with the work plan and budget, and to assess the effectiveness and efficiency of the program. Outputs, outcomes and possible impacts of project should be assessed, and the review shall assess if the purpose and goal of the project are likely to be achieved within the project period. Furthermore, since the review will take place in the middle of the project implementation, the review should provide recommendations to possible improvements in project design and implementation modalities if relevant. The review report can then be used as a reference

document in the Embassy's communication with project partners to assess progress and possible needs for amendments of plans.

Based on this, the review can help the Embassy to assess what can be continued, focused, strengthened or changed in a possible third phase of the project.

4. SCOPE OF WORK

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

- The main outputs of the project are targeted at building the capacities of both administrative and technical staff on the monitoring of the nine new POPs in the three pilot provinces. Has the project been working towards this target with due efficiency and effectiveness?

- The project was proposed by MEP to enable China to map the situation regarding the nine new POPs for better preparations for a ratification of the amendment to the Stockholm Convention. The project was designed to align with the strategic plan of China's Stockholm Convention Implementation Office in MEP in building up a knowledge base for preparing the next National Implementation Plan for the Stockholm Convention. The review can look into the progresses in these aspects.

- NIVA is an important provider of technical assistance for this project. How do the project partners in China view NIVA's technical strength and delivery mode in this project? Has NIVA met Chinese partners' expectations in helping introducing the best available methodologies and suitable scientific standards into China?

- Are the dissemination activities carried out as an integral part of the project throughout the project, or as additional elements? Are they targeted at different audiences than those of the training sessions?

- The review shall also check the financial status of the project and, to the extent found relevant, assess if anti-corruption measures and gender aspects are appropriately addressed in the project.

- The review should be able to map needs/priorities/potential for a new phase, since the Chinese side has proposed a new phase III

5. APPROACH, TIMING AND REPORTING

The review will take place in the October/November 2013. Interviews with relevant stakeholders at central and provincial level, field visits to the project sites, and project documentation will form the basis for the review. The Review team will spend up to 2 weeks in China carrying out interviews in Beijing, Hubei Province and Zhejiang Province. The team will not visit Guangdong Province, but meet with officials from this province in one of the other locations. In addition, the team leader and the Norwegian technical expert are expected to meet with stakeholders on the Norwegian side before and after field work in China.

The team will have a startup meeting with MEP and the Norwegian Embassy before travelling to the provinces. The team will also have a wrap-up meeting with the main partners where the main findings will be presented.

FECO, NIVA and the Norwegian Embassy should, to the extent possible, provide all relevant documentation to the team leader no later than 2 weeks before the start of the field mission, allowing the team to sufficient time to prepare for meetings with key stakeholders during the field mission.

The draft report will be finalized by November 19, 2013. The various institutions will be given not more than 10 days to comment on the draft report. The final report will be finalized not later than December 6, 2013. The report shall not exceed 20 pages (excluding annexes).

The team composition and responsibility
Mrs. Helle Biseth, Norad, Team Leader
Mr. Torgrim Asphjell, Norwegian Technical Expert
Dr. Xitao Liu, Chinese Technical Expert

The team leader will have the ultimate responsibility for the assignment. The team leader will prepare the draft and final report with support from the other team members. FECO and the Norwegian Embassy will support the team with logistical arrangements.

ANNEX I. REVIEW REPORT

The review report should contain the following information:

LIST OF ACRONYMS AND ABBREVIATIONS
EXECUTIVE SUMMARY
1. INTRODUCTION
2. PROJECT DESCRIPTION AND COMMENTS ON PROJECT DESIGN
3. PROJECT STATUS ASSESSMENT
   (Focus on progress on outputs, and efficiency, effectiveness)
4. FUTURE PERSPECTIVES
   (Assessment of potential impact, relevance, sustainability, focus for a possible third phase)
5. LESSONS LEARNT
6. CONCLUSIONS AND RECOMMENDATIONS

ANNEXES
ANNEX I: Terms of Reference
ANNEX II: Assessment of outputs compared to plans
ANNEX III: List of documents reviewed by the team
ANNEX IV: List of people met

Annex II

Assessment of outputs compared to plans

These tables contain a line-by-line assessment of status on outputs and activities by comparing plans in the IR with the situation at the time of review.

We have chosen to base these tables of the tables in chapter 4 of the IR (Description of outputs). Normally the information in chapter 5 (Work plan) would also have been be used for this compilation, but since there are considerable inconsistencies between these two chapters, we have chosen to focus on the information in chapter 4. Additional information supplied in chapter 5 is mainly dealt with in the Project status assessment (chapter 3) of this report.

Since the IR contains no implementation schedule, this information is taken from the document "Implementation table of SiNoPOP 2" provided by the project partners.

The purpose of these tables is to provide a line-by-line compilation of the status of the outputs and the corresponding activities compared to plans.
The presentation is based on written documentation, in terms of annual reports and technical reports and papers, and supplemented by updated information from project partners.

This assessment is mainly of a quantitative character (fulfilled or not fulfilled). The qualitative assessment is given in chapter 3, where the quality of the written documentation is assessed and supplementary information from the interviews is used to give a more comprehensive assessment of the quality and progress of the different outputs.

Output 1: Inception stage

Period: Qtr 4 2011 - Qtr 2 2013

Activity	**Indicators**	**Review Teams assessment of fulfillment / expected fulfillment**
1.1. Contract and sub-contract preparations 1.2. Inception meeting with project partners 1.3. Preparation of inception report with detailed work plan 1.4. Kickoff meeting with stake holders	• Contracts and sub-contracts signed • Inception meeting arranged • Inception report with detailed work plan prepared • Kickoff meeting with stake holders arranged	• Contract between FECO and NIVA signed on December 5, 2011. • Agreement between MFA and MOFCOM signed on October 18, 2011. • FECO had signed sub-contracts with SOE/THU, CNEAC, ZJ-EPB, GD-EPB and HB-EPB by March 2012. • Inception meeting in Beijing on March 22, 2012 (23 participants). • Draft inception report finished in 2012, final report ready by April 2013. • Implementation plans produced for all three demonstration provinces. • Local kick-off meeting for Hubei Province November 6, 2012 in Wuhan (25 participants, minutes prepared). • Local kick-off meeting for Guangdong Province October 16, 2012 in Guangzhou (32 participants, minutes prepared). • Local kick-off meeting for Zhejiang Province October 19, 2012 in Hangzhou (15 participants, minutes prepared). • Planned cooperation with laboratories of AMAP has been cancelled due to changed priorities in intercalibration activities.

Major risks: no major risks

Output 2: Strengthen the capacity of new POPs monitoring (manger level training)

Period: Qtr 4 2011 – Qtr 4 2012

Activity	**Indicators**	**Review Teams assessment of fulfillment / expected fulfillment**
2.1. Organize workshop to map the needs of local EPBs regarding new POPs monitoring 2.2. Prepare the training materials on new POPs and program for new POPs monitoring 2.3. Organize training workshops for managers 2.4. Organize training workshops for technical staffs	• Needs of local EPBs mapped • Program for new POPs monitoring prepared • Training materials prepared • Training workshops organized	• Project progress briefing meeting with all project partners was arranged in Beijing, on October 23, 2012 (22 participants). • Powerpoint presentations from workshops used as training material. • Training material from UNEP on laboratory work translated into Chinese. • Report Status Quo on New POPs and monitoring requirements (12 pages) produced for Hubei Province. • Report Investigation report on newly added POPs (22 pages) produces for Guangdong Province. • Report Status Quo on New POPs and monitoring requirements (22 pages) produced for Zhejiang Province (15 pages, in Chinese). • Organized training workshops for managers as a side-meeting of TCG meeting in Guangzhou, November 13, 2012 (about 60 participants). • Workshop on Passive sampling held in Beijing June 5-6, 2012 (18 participants). • New POPs analysis training held in Beijing at NERC on September 3-7, 2012 (16 participants). • This output is reported as finalized.

Major risks: The performance of trainings might be affected by the language translation. This risk will be addressed by the help of local experts of POPs monitoring to explain in details about the technology.

<u>Output 3:</u> Capacity building for chemical analyses of new POPs (technical training)

Period: Qtr 4 2011 – Qtr 2 2014

Activity	Indicators	Review Teams assessment of fulfillment / expected fulfillment
3.1. Organize training workshops for participating laboratories as well as other interested laboratories 3.2. Provide the lab necessary consumables (e.g. chemical standards, columns, etc.) required by new POPs monitoring 3.3. Give onsite training in participating laboratories based on the existing instruments 3.4. Develop the Standard Operational Procedures (SOP) considering the actual situation of participating laboratories 3.5. Organize participating laboratories to join the intercalibration study 3.6. Organize the summary workshop on the performance evaluation of the intercalibration study 3.7. Further strengthen the capacity of participating laboratories showing poor performance in the study	• Professionals in participating laboratories trained onsite • Protocol for the intercalibration prepared • Participating laboratories joined the study • At least 3 other interested laboratories joined the study • Final results and summary report of the intercalibration issued • Mission report for the further strengthening activities prepared	• Training workshop held at TU in Beijing in June 6-8, 2012 with NIVA, TU, CNEAC and all three provinces. (18 participants) • Training workshop held in CNEAC in Beijing in September 3-7, 2012 with NIVA training TU and CNEAC (train-the-trainers). (approx. 16 participants) • Technical training for Hubei province held at CNEAC in Beijing, January 21 – February 1, 2013 (4 participants) and February 25 – marts 4, 2013 (5 participants) • On-site technical training for Guangdong province held in Guangzhou by CNEAC on March 27 to 29, 2013 (10 participants). • On-site technical training for Zhejiang province held in Hangzhou by TU on March 27-29, 2013 (7 participants) • Local labs have purchased necessary consumables. • Draft technical pprocedures for analyses of BFR in biological matter (3 pages), PFC in biological matter (2 pages), PFC in blood (2 pages) and Generic passive sampling (22 pages) developed by NIVA. • SOP for PFC in water (9 pages), PFC in soil and sediment (10 pages), PFC in biological body (9 pages) and PBDE (7 pages) produced by Zhejiang Province. • SOP for PFC in water (18 pages), PFC in soil and sediment (19 pages), PFC in biological body (18 pages), PBDE in biological body (19 pages) and in soil/sediment (18 pages) produced by Guangdong Province (in Chinese). • SOP for PFC in water (13 pages), PFC in soil and sediment (13 pages), PFC in biological body (12 pages), PBDE in water (15 pages), PBDEs in biological body (7 pages), PBDEs in soil and sediment (13 pages) produced by Hubei Province (in Chinese). • The intercalibration exercise was changed to being part of a global UNEP work. All the five project labs in China and NIVA participated, but no other interested labs were included. Result reported in in April 2013. Report under preparation. • Summary workshop planned for late 2013.

Major risks: Willingness and interests of laboratories to participate in the intercalibration study. This risk will be approached by carefully design the protocol and always state the label number instead of the actual name of the laboratory to keep their privacy.

Output 4: Demonstration of new POPs monitoring in selected areas

Period: Qtr 2 2013 – Qtr 3 2013

Activity	Indicators	Review Teams assessment of fulfillment / expected fulfillment
4.1. Assessment of BFRs contamination in sediment, water, fish in the vicinity of e-waste dismantling sites 4.2. Assessment of PFOS contamination surrounding typical related facilities (e.g. PFOS production, textile finishing, chrome hard plating, etc.)	• Assessment of BFRs contamination in sediment, water, fish in the vicinity of e-waste dismantling sites • Assessment of PFOS contamination surrounding typical related facilities (e.g. PFOS production, textile finishing, chrome hard plating, etc.)	• Meeting August 1 in Beijing , 2013 to discuss monitoring plan (14 participants). • Monitoring plan produced for Hubei Province (12 pages). • Monitoring plan produced for Guangdong Province (10 pages). • Monitoring plan produced for Zhejiang Province (13 pages). • The first practical field work with environmental sampling was carried out in Sept 2013 in Hubei and in October 2013 in Guangzhou and Zhejiang.

Major risks: Data generated might be of poor quality if something goes wrong during the sampling and/or analysis. This risk will be minimized by strictly following the standard operational procedures (SOPs) as well as the QA/QC practices.

Output 5: Establishment of new standards for sampling and analysis

Period: Qtr 1 2012 – Qtr 3 2014

Activity	**Indicators**	**Review Teams assessment of fulfillment / expected fulfillment**
5.1. Technical support for the standard method for sampling and analysis of sediment, soil and water for new POPs monitoring, and organize method verification 5.2. Promote and propose the standard method for sampling and analysis of fish samples for new POPs monitoring, and organize method verification 5.3. Organize the expert workshop to evaluate the proposed documents 5.4. Finalize the proposed documents and enter into the issue pipeline	• Coordination meeting minute prepared • Standard methods from this project included in the issue/revision plan for the department of science and standard of MEP • Standard method for sampling and analysis of sediment core for new POPs monitoring proposed • Method verification report for the sampling and analysis of sediment core for new POPs • Standard method for sampling and analysis of fish samples for new POPs monitoring proposed • Method verification report for the sampling and analysis of fish samples for new POPs	• The following draft national standard methods for sampling and analyses have been prepared (in Chinese): - PBDEs in Soil/sediment (20 pages) - PFCs in Soil/sediment (12 pages) - PBDEs in water (20 pages) - PFCs in Water (12 pages) - PBDEs in biological material (6 pages) - PFCs in Biological material (9 pages)

Major risks: no major risks.

Output 6: Dissemination, general capacity building and awareness raising

Period: Qtr 4 2011 – Qtr 4 2014

Activity	**Indicators**	**Review Teams assessment of fulfillment / expected fulfillment**
6.1. Update training material and manuals 6.2. Arrange workshops for training 6.3. Prepare information material for policy makers 6.4. Arrange dissemination seminars 6.5. Workshop for policy makers (in Norway) 6.6. Workshop for laboratory managers (in Norway) 6.7. Prepare newspaper articles, TV programs and others material for public awareness raising	• Finalized training materials and manuals based on the experience from this project • Minute of disseminating training for other laboratories • Information materials • Minute of dissemination seminars in Norway • Newspaper articles published, TV program prepared, etc.	• Experience Promotion meeting for SiNoPOP I was held on April 18-19, 2013 in Chongqing (42 participants) • One brochure in English/Chinese has been produced (12 pages) • As a spin-off activity from the project an article on PFOS alternative has been published in Environmental Science and Technology. • Full page article on new POPs published in China Environmental News on November 7, 2013 and in China Daily November 8, 2013. • TU has prepared draft video on monitoring (one version for policy makers, one version for technical staff). FECO has translated 2 videos from UNEP on PFOS and Dioxin monitoring aimed at technical staff.

Major risks: no major risks

Output 7: Project coordination

Period: Qtr 4 2011 – Qtr 4 2014

Activity	Indicators	Review Teams assessment of fulfillment / expected fulfillment
7.1. Project coordination and management throughout 7.2. Annual project meetings 7.3. Preparation of annual reports and requests for funds twice every year 7.4. Final project seminar 7.5. Final project report	• Annual reports prepared • Annual project meetings held • Final project seminar held • Final project report completed • All project outputs completed	• Annual Progress Report for Oct. 2011- Dec. 2012 has been produced. • TU, CNEAC, HB-EPB, GD-EPB and ZJ-EPB have produced annual reports for 2012 • Annual project meeting held at MOFCOM on January 30, 2013 (attended by FECO, MOFCOM, MEP and MFA)

Major risks: No specific risks for this output, but to some extent dependent on the risks mentioned under the previous outputs.

Annex III

LIST OF DOCUMENTS REVIEWED BY THE TEAM

The documents being part of the outputs and listed in Annex II are not repeated here apart from documents used actively in the Review (e g the Inception Report)

SinoPOP 2 documents

Application for grant – SinoPOP2 (14 June 2011)
Desk Appraisal of Draft Project Application (Stein Hansen, April 2011)
Decision Document SiNoPOP2 (Signed 5.9.2011
Agreement SinoPOP2 ; 2011-13 (Signed 18. Oct 2011)
Contract FECO / NIVA signed 5. Dec 2011
Contracts between FECO and the other implementing partners
Annual Progress Report Oct 2011 to Dec 2012
Minutes of Annual Consultation held 30 Jan 2013
SinoPOP2 Inception Report April 2013
Audit Report for the period October 2011 to 14. December 2012 (FECO)
Audit Report, NIVA 2012
Various correspondence between FECO and Norwegian Embassy (embassy file)

Other background documents

Midterm Review SinoPOP1
Review of the project Biodiversity and Climate Change (October 2013)

Websites

http://chm.pops.int
http://www.china-pops.org/ (FECO)
http://www.china-pops.net (TU)
http://www.china-epc.cn/hjfxcs/xxdt/3207.html
http://www.hbepb.gov.cn/xxsb/sjcz/201211/t20121112_57083.html
http://www.cneac.com/Page/153/InfoID/5321/SourceId/521/PubDate/2013-08-19/default.aspx
http://www.cneac.com/Page/153/InfoID/5163/SourceId/484/PubDate/2012-09-24/default.aspx
http://www.ipe.org.cn/En/pollution/discharge_detox.aspx
http://www.hbzhan.com/news/detail/61506.html
http://www.sdetn.gov.cn/jnb/xhjj/hjbh/webinfo/2012/11/1350002518981518.htm
http://www.wikipedia.org/
http:www.niva.no

Annex IV

LIST OF PEOPLE MET

Norway
Mr. Thorjørn Larssen, Research Director; NIVA
Ms. Merete Grung, Senior Research Scientist, NIVA
Ms. Kine Bæk, Group Leader Organic Chemical Analysis, NIVA
Mr. Chris Harman, Research Scientist, NIVA (Phone interview)
Mr. Gard Lindseth, Senior Adviser, Ministry of Environment
Ms. Anne Marie Mo Ravik, Senior Adviser, Ministry of Environment

Royal Norwegian Embassy in Beijing
Mr. Tor Skudal, Counsellor (Environment), Royal Norwegian Embassy
Ms. Yinglang Liu, Programme Officer, Royal Norwegian Embassy

Beijing (Chinese partners)
Mr. Kang Bingjian, Division Director, Dep. of Int. Trade & Economic Affairs, MOFCOM
Mr. Zhang Lei, Project officer, Dep. of International Trade & Economic Affairs, MOFCOM
Ms. Ding Qiong, Division Chief, FECO
Ms. Chen Haijun, Deputy Division Chief, FECO
Ms. Wu Susu, Program Assistant (Coordinator SiNoPOP2), FECO
Ms. Huang Miao, Deputy Director, Department of International Cooperation, MEP
Mr. Duan Guangming, Deputy Division Chief, Department of Science, Technology and Standards, MEP
Mr. Gao Xinhua, Staff, Department of Pollution Prevention and Control, MEP
Ms. Li Li, Staff, Department of Environmental Monitoring, MEP
Mr. Huang Jun, Associate professor, POPs Research Centre, Tsinghua University
Ms. Gao Jie, Master Student, POPs Research Centre, Tsinghua University
Mr. Dong Liang, Division Chief, CNEAC
Mr. Zhang Lifei, Staff, CNEAC

Wuhan Province
Mr. Zheng Guoan, Director of Technology and Cooperation Division, HB-EPB
Mr. Song Guoqiang, Deputy Director of Hubei Environmental Monitoring Central Station (HEMCS)
Mr. Li Aimin, Director of POPs Test and Research Center of HEMCS
Ms. He Xiaomin, Deputy Director of POPs Test and Research Center of HEMCS
Mr. Liu Chunlai, Staff, Pollution Control Division of HB-EPB
Mr. Chen Ruiwen, Staff, POPs Test and Research Center of HEMCS
Mr. Li ShuTao, General Manager, Hubei Hengxin Chemical Industry Co., Ltd

Guangdong province (meeting in Wuhan, Hubei)
Mr. Zhao Jinping, Staff, Guangdong Environmental Monitoring Center , GEMC
Ms. Xu Xiaojing, Staff, GEMC

Zhejiang Province
Mr. Feng Yuanqun, Vice Director of Zhejiang Environmental Monitoring Center (ZEMC)
Ms. Pang Xiaolu, Senior Engineer (Manager), Environmental Analysis Institute of ZEMC
Mr. Liu Jingsong, Vice Manager of Environmental Analysis Institute of ZEMC
Ms. Qiu Zhongyun, Staff, Technology and Cooperation Division, ZJ-EPB
Ms. Wang Jing, Assistant Manager of Environmental Analysis Institute of ZEMC
Mr. Liao Xinfeng, Vice Director of Hangzhou Environmental Monitoring Center
Mr. Zhang Ming, Staff, Hangzhou Environmental Monitoring Center
Ms. Yu Binbin, Staff, Taizhou Environmental Monitoring Center
Ms. Niu He, Staff, Taizhou Environmental Monitoring Center
Mr. Tong Lifeng, General Manager, Linjiang Wastewater Treatment Plant
Mr. Rao Deqiang, General Manager, Huanxin Automatic Detecting Company

Annex V

EXPLANATION OF SOME TECHNICAL TERMS
(Based on information from Wikipedia)

POPs (Persistent organic pollutants) are organic compounds that are resistant to environmental degradation through chemical, biological, and photolytic processes. Because of this, they have been observed to persist in the environment, to be capable of long-range transport, bioaccumulate in human and animal tissue, biomagnify in food chains, and to have potential significant impacts on human health and the environment. Information on the nine new POPs added to the Stockholm Convention in 2009 is given after the explanation of technical terms. This information is copied from the website of the Convention (http://chm.pops.int/TheConvention/ThePOPs/TheNewPOPs/tabid/2511/Default.aspx)

BFRs (Brominated flame retardants) are compounds that have an inhibitory effect on the ignition of combustible organic materials. Of the commercialized chemical flame retardants, the brominated varieties are most widely used. They are very effective in plastics and textile applications, e.g. electronics, clothes and furniture. BFRs are commonly used in electronic products as a means of reducing the flammability of the product.

PBDEs (Polybrominated diphenyl ethers) are organobromine compounds that are used as flame retardant. PBDEs have been used in a wide array of products, including building materials, electronics, furnishings, motor vehicles, airplanes, plastics, polyurethane foams and textiles. The health hazards of these chemicals have attracted increasing scrutiny, and they have been shown to reduce fertility in humans at levels found in households. Because of their toxicity and persistence, the industrial production of some PBDEs is restricted under the Stockholm Convention and it was added to Annex B of the Stockholm Convention on Persistent Organic Pollutants in May 2009.

PFCs (perfluorinated compound s) are organofluorine compound with all hydrogens replaced by fluorine on a carbon chain—but the molecule also contains at least one different atom or functional group. Thus, PFCs have properties similar to fluorocarbons (a wholly carbon and fluorine containing compound) as they are fluorocarbon derivatives. They have unique properties to make materials stain, oil, and water resistant, and are widely used in diverse applications. PFCs persist in the environment as persistent organic pollutants.

PFOS (Perfluorooctanesulfonic acid or perfluorooctane sulfonate) is a chemical belonging to the PFC group. The PFOS levels that have been detected in wildlife are considered high enough to affect health parameters. It was added to Annex B of the Stockholm Convention on Persistent Organic Pollutants in May 2009.

Mass balance calculation is an application of conservation of mass to the analysis of physical systems. By accounting for material entering and leaving a system, mass flows can be identified which might have been unknown, or difficult to measure without this technique. The exact conservation law used in the analysis of the system depends on the context of the problem, but all revolve around mass conservation, i.e. that matter cannot disappear or be created spontaneously. Mass balances are used widely in environmental analyses. For example, to model pollution dispersion and other processes of physical systems in environmental monitoring.

Passive sampling is, in this context, an indirect method for sampling of concentrations of POPs in environmental media such as water. The method is based on exposing a polymer tissue to water or other media for an extended period of time. Afterwards the tissue is analyzed and pollution levels are deducted from these results.

The new POPs under the Stockholm Convention

(Based on information from http://chm.pops.int/

At its fourth meeting held from 4 to 8 May 2009, the Conference of the Parties adopted amendments to Annexes A, B and C to the Stockholm Convention to list nine new persistent organic pollutants (SC-4/10-SC-4/18). Pursuant to paragraph 4 of Article 21 of the Convention, the amendments were communicated by the depositary to all Parties on 26 August 2009. Reference: C.N.524.2009.TREATIES-4

- **Pesticides:** chlordecone, alpha hexachlorocyclohexane, beta hexachlorocyclohexane, lindane, pentachlorobenzene;
- **Industrial chemicals:** hexabromobiphenyl, hexabromodiphenyl ether and heptabromodiphenyl ether, pentachlorobenzene, perfluorooctane sulfonic acid, its salts and perfluorooctane sulfonyl fluoride, tetrabromodiphenyl ether and pentabromodiphenyl ether; and
- **By-products:** alpha hexachlorocyclohexane, beta hexachlorocyclohexane and pentachlorobenzene.

Endosulfan

At its fifth meeting held from 25 to 29 May 2011, the Conference of the Parties adopted an amendment to Annex A to the Stockholm Convention to list technical endosulfan and its related isomers with a specific exemption (decision SC-5/3). Pursuant to paragraph 4 of Article 21 of the Convention, the amendment was communicated by the depositary to all Parties on 27 October 2011. Reference: C.N.703.201.TREATIES-8 (ENGLISH | FRENCH).

Chemical	Annex	Specific exemptions / Acceptable purposes
Alpha hexachlorocyclohexane	A	**Production:** None **Use:** None
Beta hexachlorocyclohexane	A	**Production:** None **Use:** None
Chlordecone	A	**Production:** None **Use:** None
Hexabromobiphenyl	A	**Production:** None **Use:** None
Hexabromodiphenyl ether and heptabromodiphenyl ether (commercial octabromodiphenyl ether)	A	**Production:** None **Use:** Articles in accordance with the provisions of Part IV of Annex A
Lindane	A	**Production:** None **Use:** Human health pharmaceutical for control of head lice and scabies as second line treatment
Pentachlorobenzene	A and C	**Production:** None **Use:** None
Perfluorooctane sulfonic acid, its salts and perfluorooctane sulfonyl fluoride	B	**Production:** For the use below **Use:** Acceptable purposes and specific exemptions in accordance with Part III of Annex B
Technical endosulfan and its related isomers	A	**Production:** As allowed for the parties listed in the Register of specific exemptions **Use:** Crop-pest complexes as listed in accordance with the provisions of part VI of Annex A
Tetrabromodiphenyl ether and pentabromodiphenyl ether (commercial pentabromodiphenyl ether)	A	**Production:** None **Use:** Articles in accordance with the provisions of Part IV of Annex A

Pesticide Industrial chemical By-product

MAP OF THE PROJECT AREA

From the Inception Report

Figure 1: Map of China

Figure 2: Map of Guangdong

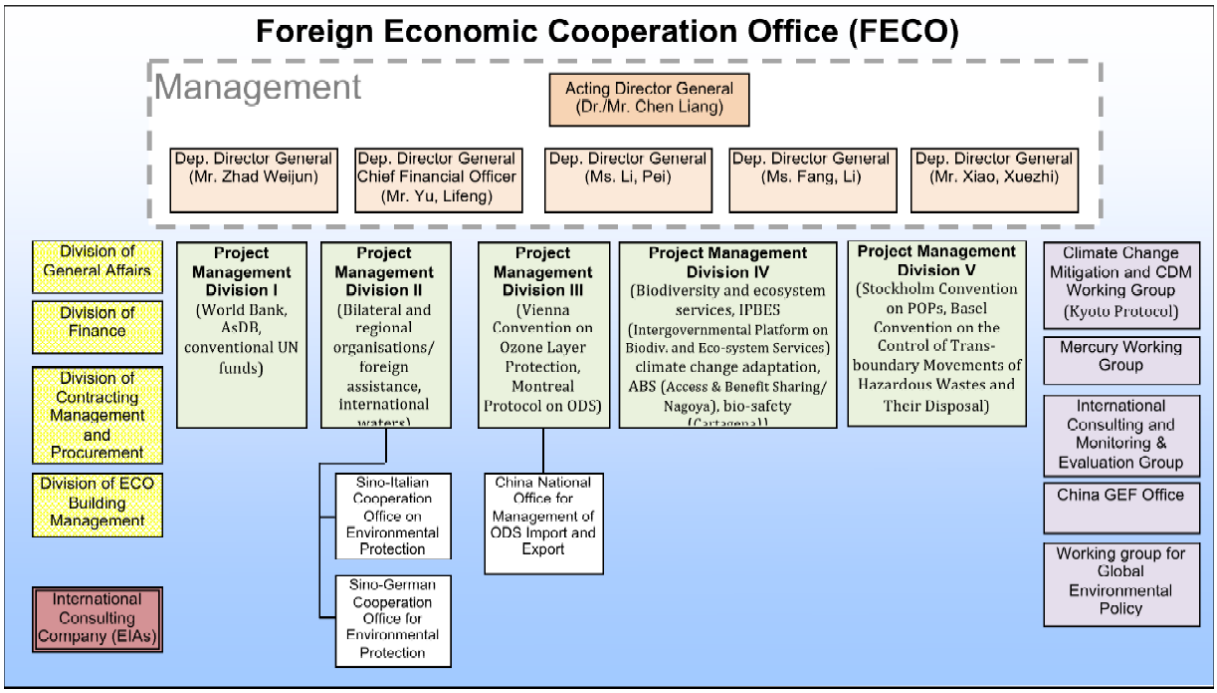
Figure 3: Map of Zhejiang

Figure 4: Map of Hubei

Annex VII

ORGANIZATIONAL SET-UP OF FECO

This figure is taken from the Review Report : Biodiversity and Climate Change, Peoples Republic of China (CHN-2148 09/057). Credits to Mr Tore Laugerud



Annex VIII

GENDER BALANCE IN MAIN PROJECT ACTIVITIES
SINOPOP 2
Produced by FECO

	Activity	Date	Number of participants	Gender balance Female/Male	Composition
1	Inception Meeting& Kickoff meeting	2012.3.22	23	10:13	MEP, Embassy, NIVA, FECO, Tsinghua university, CNEAC, three demonstration provinces
2	Project progress briefing meeting	2012.10.23	22	8:14	MEP, Embassy, NIVA, FECO, Tsinghua university, CNEAC, three demonstration provinces
3	Training workshops for managers	2012.11.13	About 60	25:35(rough)	NIVA, FECO, Tsinghua university, CNEAC, three provinces and other demonstration provinces
4	Training workshops for technical staffs(two)	2012.6.5-6.6 2012.9.18-9.21	18 13	9:9 9:4	NIVA, FECO, Tsinghua university, CNEAC, three demonstration provinces
5	NIVA train the trainers from Tsinghua and CNEAC	2012.9.3-9.7	About 16	11:5 （rough）	NIVA, Tsinghua university, CNEAC
6	Onsite training in Beijing &Hubei	2012.6.6 2013.9.22-9.26	26	15:11	NIVA, FECO, Tsinghua university, CNEAC, three demonstration provinces
7	Dissemination seminar	2013.4.18-19	42	16:26	FECO, Tsinghua university, CNEAC, CAS, three demonstration provinces, Chongqing EPD&EM
8	Seminar for monitoring plans	2013.7.31-8.1	14	7:7	FECO, Tsinghua university, CNEAC, three demonstration provinces

Annex IX

A Chinese PFOS Alternative overlooked for 30 years
Source: http://www.niva.no/en/miljoegift-oversett-i-30-aar

The environmental occurrence of a chlorinated polyfluorinated ether sulfonate (locally called F-53B) was discovered by scientists from Tsinghua University in Beijing and NIVA in wastewater from the chrome plating industry in the city of Wenzhou, China.

Similar structures to PFOS
During the electroplating process, especially in "hard chrome plating", mist suppressants are indispensable for the protection of employees from exposure to the airborne, highly toxic forms of chromium. The most commonly used mist suppressants are based on perfluorooctane sulfonate acid and its salts (PFOS).

The similarity in chemical structures between F-53B and PFOS makes it reasonable to assume that they possess similar physicochemical properties and environmental behavior. Chrome plating is not the only industry that has made use of the special properties of PFOS and similar compounds, and they have been extensively used in hundreds of manufacturing and industrial applications including the textile, electronic, automotive, construction and chemical processing sectors. This has resulted in significant emissions, and subsequently the discovery that they are ubiquitously present in the environment, which in turn led to concern regarding the consequences. Thus PFOS has received considerable attention from environmental scientists and has been shown to possess persistent, bioaccumulative and moderately toxic properties, together with the potential for long-range transport.

The Stockholm Convention
Collectively, these issues led to a voluntary phasing out of PFOS by the primary manufacturer in Western countries in 2002, a consequent steep decline in production in those regions, and international controls such as inclusion in the Stockholm Convention. The Stockholm Convention on Persistent Organic Pollutants is an international environmental treaty, signed in 2001 and effective from May 2004, that aims to eliminate or restrict the production and use of persistent organic pollutants (POPs). Over 170 countries, including China, have ratified the Convention. Due to this reason, F-53B as a PFOS alternative may be expected to obtain a larger market share and potentially expand from being solely used by the metal plating industry to other industries that currently use PFOS.

Moderately toxic and as resistant as PFOS
Scientists from Tsinghua University took samples from surface water the industrial wastewater, in the municipal wastewater treatment plant, and from Ouijang River, at Wenzhou city, which receives the treated wastewater. Both PFOS and F-53B was found in high concentrations in wastewater from the chrome plating industry, and were not successfully removed by the treatments in place. Consequently, it was also detected in the surface water that receives the treated wastewater at similar levels to PFOS. Initial data presented in the report suggests that F-53B is moderately toxic and is as resistant to degradation as PFOS.

Could be found in consumer products
The researchers do note that such a limited sampling regime is not sufficiently robust to ascertain the environmental fate of F-53B, but these preliminary results suggest that it will be similar to that of PFOS.
- First, this shows that we must not assume that the suite of industrial compounds used in developing countries is necessarily the same as those used in the West, says Christopher Harman, researcher at NIVA.
-This may well have consequences for many compound groups, which may find their way into consumer products we buy.
- Second, the existence and use of this compound for decades – which seems to have evaded the attention of environmental research and regulations – reminds us that we don't fully understand the full extent of environmental contamination of these types of compounds in the environment.

Reference: Siwen Wang, Jun Huang , Yang Yang , Yamei Hui, Yuxi Ge, Thorjørn Larssen, Gang Yu, Shubo Deng , Bin Wang and Christopher Harman (2013): "First Report of a Chinese PFOS Alternative Overlooked for 30 Years: Its Toxicity, Persistence, and Presence in the Environment" in Environmental Science & Technology 47 (18), pp 10163–10170. DOI: 10.1021/es401525n

Annex X

Some comments received on the Draft Report
(The comments below are related to the follow up of the review, not on factual errors and misunderstandings. This latter type of comments are incorporated in the report if found relevant by the Review Team)

MOFCOM
It gave me great pleasure to meet you and your team when you visited my office at MOFCOM, and I enjoyed our conversation on the Mid-term Review of Sino-Norwegian POPs project.

I wish to confirm the receipt of the report and principally agree with your comments and recommendations in each aspect. In order to ensure the smooth implementation of the project in the rest of time, I would like to propose the following:
Firstly, regarding the financial issues, I am aware of your concern and will take consideration of your suggestion to discuss the use of interest issue and contingency fund continuously in the future meetings and discussions with the relevant stakeholders and look for a better solution on it. Furthermore, I also suggest the more transparency on the use of funding by Norwegian side, such as the amount and areas.

Secondly, MOFCOM will consult with related authorities on how to better improve the implementation structure which is crucial for the successful communication among all stakeholders and promote the cooperation between China and Norway.

Thirdly, I agree with your recommendations on the possible new phase of project. We could discuss the possibility of new areas and involvement of potential partners in the future cooperation. We should take advantage of such unique platform as the opportunity to enhance the bilateral cooperation in all round perspectives.

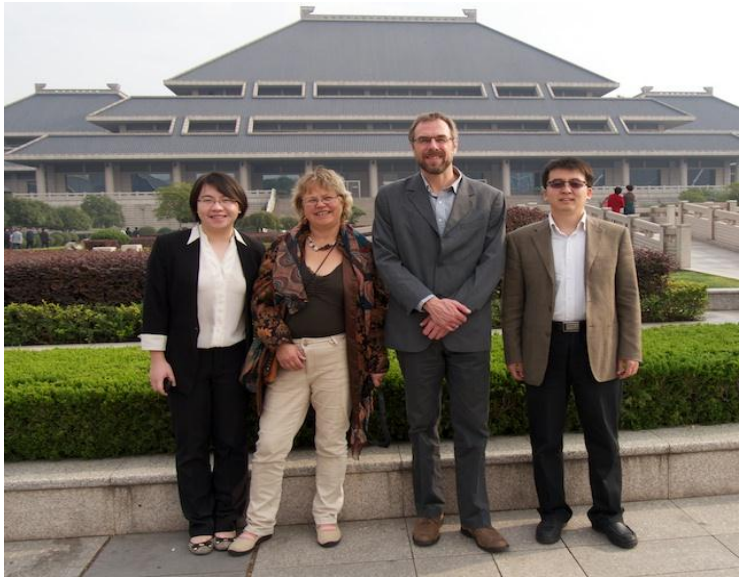
Once again, I wish to express my sincere appreciation on your hard work and precious suggestions. I am looking forward to working with you in the future to push forward the Sino-Norwegian cooperation to the new height.

MEP/FECO
Status and assessment Output 2: Strengthen the capacity of new POPs monitoring (manger level training).We accept the advice from the review team and plan to carry out more trainings next year. We hope more training materials for manger level from Norwegian side can be provided, as we do not have enough materials for policy, regulation, risk assessment and mitigation in China.

MEP/Department of International Cooperation
Basically they agree with the review team's opinions and suggest strengthening the following work in the project implementation:
1. Combined with related work, it is necessary to set up the project steering committee (including the 4 departments from MEP) to strengthen the guidance of the project and reporting on project outputs.
2. In order to strengthen the training on management level, more staff from related departments in MEP can be involved in.
3. For the dissemination, some outputs of this project together with other related domestic products can be reported and showed stage-by-stage.

MEP/Department of Science, Technology and Standards
For achievements of the project, they would like to emphasize that the development of standard methods for sampling and analyzing is very important as they will serve as the technical basis for policies and regulations.

Photos from the Review Mission **Annex IX**



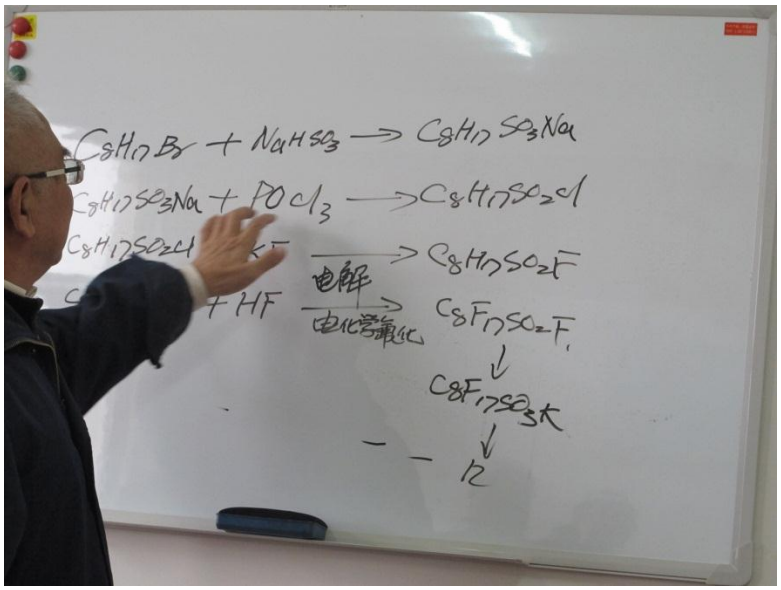
The Review Team: Ms Leona Li (Interpreter), Ms Helle Biseth (Team Leader), Mr Torgrim Asphjell, Dr Xitao Liu.

The POPs laboratory at HEMCS in Wuhan

Meeting at Hubei Hengxin Chemical Industry Co.

Linjiang Wastewater Treatment Plant.

Air Quality monitoring equipment in Xixi Wetland Park.



How to make PFOS? From Hubei Hengxin Chemical Industry Co.