Annual Project Report (UNDP conclusion)

[Name of project] Sector Plan for HCFC Phase-out in the Industrial and Commercial Refrigeration and Air Conditioning (ICR) Sector in China (Stage-I)

[Date of report]January 10, 2015

Project annual report rating

Item rated	*Rating provided*
Overall quality of the report	4
Does the project still fit with the Country office Strategic direction	4
Is the project still Relevant within the country setting	5
Sustainability	5
Efficiency: Financial performance (overall)	4
Efficiency: Financial performance (reporting period)	4
Effectiveness: Activity implementation (overall)	4
Effectiveness: Activity implementation (reporting period)	4
Partnership Effectiveness (if applicable)	4
Total	38

Partnership Effectiveness (only for joint inter-UN agency initiatives)

Overall assessment

There are lot s of works conducted in 2014, such as renewing the project document, submission of the workplan and report, applying the 2014 tranches. At the enterprise level, there are also a lot works to be done. Field mission were organized by FECO, preliminary investigation and evaluation were made on some companies or enterprises, finally 4 new contracts were signed,

Sustainability (either separate or as part of the overall assessment)

The expertise obtained through the practice of converting to new technology using flammable refrigerants is expected to be documented and kept by enterprises and research institutions involved. This will inform further conversions and formulation of workplace health and safety measures and standards.
By the end of 2014, the PMO received new 9 conversion project proposals from enterprises, and these proposals were preliminary reviewed by PMO.
In 2014, the PMO signed contracts with 2 ICR manufacturing enterprises, converting in total 948 MT of HCFC consumption capacities. The total value of the 2 sub-contracts is US$4,971,697.

Management steps to be taken

Though the project meets the criteria for approve next tranche, contracts sighed should be speed up, therefore the disbursement to final beneficiaries should be made on time.

The items/activities regarding amending The standards for the new products are delayed to some extent, this leads to the application of new technologies. The work should be accelerated.

2015 is the last year of the project, some revision regarding the project implementation possibly need to be regulated so that it meet the objectives of the project well.

Signed by

Date 30 Jan - 2015

Annual Project Report

Sector Plan for HCFC Phase-out in the Industrial and Commercial Refrigeration and Air Conditioning (ICR) Sector in China (Stage-I)

1/12/2015

Basic Project Information

Project Title: Sector Plan for HCFC Phase-out in the Industrial and Commercial Refrigeration and Air Conditioning (ICR) Sector in China (Stage-I)	
UNDP Award ID	00051326
UNDP Project ID	00063695
Project Duration	2011-2015
Reporting Period	2014.1-2014.12
Total Approved Project Budget	US$ 61,000,000
Participating UN agencies	United Nations Development Programme (UNDP)
Implementing Partners/ National collaborating agencies	Ministry of Environmental Protection (MEP)/Foreign Economic Cooperation Office (FECO)
International collaborating agencies	N/A
Cost-sharing third parties	N/A
UNDP Contact officer	Yun Hong
Project website	N/A

Executive Summary

With the implementation of HCFC Phase-out Management Plan (Stage I), China successfully achieved the freezing target in 2013 according to the reported A7 data. In 2014, the annual progress report of HPMP in ICR sector was prepared and submitted to the 73rd Executive Committee meeting and the fourth tranches of US$ 11,075,000 was released. The signed conversion projects of 9 beneficiary enterprises with 20 production lines were implementing smoothly according to their projects plan. All of these projects finished the first two milestones and one enterprise finished 3rd milestone, and the progresses were verified. In 2014, the PMO signed contracts with 2 ICR manufacturing enterprises, converting in total 948 MT of HCFC consumption capacities. The total value of the 2 sub-contracts is US$4,971,697. The revision of the safety standard GB 9237 was launched. A demonstration project of environmental friendly heat pump using in heating system was launched.

1. Background

Development Context

The XIXth Meeting of the Parties to the Montreal Protocol in September 2007, through its Decision XIX/6, adopted an accelerated phase-out schedule for HCFCs. The first control is the freeze on production and consumption of HCFCs from 01 January 2013, at the Baseline Level (average of 2009 and 2010 consumption levels). The other control steps are reduction of 10% by 2015, reduction of 35% by 2020, reduction of 67.5% by 2025, reduction of 100% by 2030, allowance of

2.5% of baseline (annual equivalent) for period 2030-2040 and complete phase out by 2040. China is a party to the Montreal Protocol and must comply with the above targets.

To fulfil the country's compliance and to achieve the HCFC phase-out targets for stage-I, i.e. freezing the HCFC consumption at the average level of 2009-2010 from January 2013 and reduction of 10% of the baseline consumption from January 2015, in cooperation with UNDP, the ICR HPMP of China was prepared and submitted for the consideration of the 62nd Meeting of the Executive Committee after due review and endorsement by the Government. The Executive Committee approved the ICR HPMP of China in 64th meeting for Stage-I in July 2011 at a funding level of US $ 61,000,000. The agreement between Government of China and the Executive Committee of the Multilateral Fund (Document UNEP/OzL.Pro/ExCom/6739, Annex-X) for the reduction in consumption of Hydrochlorofluorocarbons (Annex-C Group-I substances) in China was updated at the 67th Meeting of the Executive Committee of the Multilateral Fund. The agreement between the ExCom and Government of China indicated the ICR HPMP of China aims to phase out 224.5 ODP tons in 2013 and 240.3 ODP tons in 2015.

The breakdown of the annual HCFC consumption and phase-out control targets, approved funding and disbursement schedule, reproduced from the agreement is as below:

Table 1 Consumption Control Targets for HCFC in ICR Sector (tons ODP)

	2011	2012	2013	2014	2015	Total
Montreal Protocol reduction schedule of Annex C, Group I substances (ODP tonnes)	n/a	n/a	19,269.0	19,269.0	17,342.1	n/a
Maximum allowable total consumption of Annex C, Group I substances (ODP tonnes)	n/a	n/a	18,865.4	18,865.4	16,978.9	n/a
Maximum allowable consumption of Annex C, Group I substances in the ICR sector (ODP tonnes)	n/a	n/a	2402.8	2402. 8	2162.5	n/a
Total Phase-out (ODP tonnes)	n/a	n/a	224.5	n/a	240.3	464.8

Table 2 Annual Funding Instalments for ICR Sector (US$)

	2011	2012	2013	2014	2015	Total
Sector Lead IA (UNDP) agreed funding (US $)	25,380,000	6,900,000	8,495,000	11,075,000	9,150,000	61,000,000
Support costs for UNDP (US $)	1,903,500	483,000	594,650	775,250	640,500	4,396,900
Total	27,283,500	7,383,000	9,089,650	11,850,250	9,790,500	65,396,900

Under the Sector Plan, the first 4 funding tranche in the total amount of $51,850,000 has been approved and released by the Executive Committee.

Project Objectives and Strategy

The ICR sector in China proposes to return its HCFC consumption to the baseline level (average of 2009 and 2010) by 2013 and reduce a further 10% to meet the 2015 target. The ICR sector will need to phase-out a total about 8,450 metric tonnes of HCFC consumption for meeting the 2015 target, of which 167 metric tonnes are expected to be phased out by non-A5 owned enterprises through their own resources. Thus, the net eligible HCFC consumption in the ICR Sector is 8,283 metric tonnes. Of this, about 312 metric tonnes will be phased out by the two previously approved demonstration projects (Yantai Moon and Tsinghua Tongfang). The remaining eligible HCFC consumption of 7,971 metric tonnes will be addressed in this Sector Plan, through technology conversions in about 20 enterprises, which will be carefully selected based on their financial soundness and sustainability, technical and managerial capacity, reputation and criticality for sustainable reductions.

By signing production line conversion contracts with these enterprises, the PMO channels Multilateral Fund (MLF) funding to necessary procurements of equipment, alternative refrigerants, and related parts, as well as to training of personnel and technology assistance. By focusing on influential large enterprises, the PMO hopes to lever the industry to recognize the trend of HCFC phase-out and turn to new non-ODS refrigerants. In order to ensure that the phase-out actions are carried out on time and remain sustainable, targeted policy and regulatory actions, management and coordination, technical assistance and awareness programmes will also need to be introduced.

2. Key Results

Project Outcomes

Outcome 1

With the implementation of HCFC Phase-out Management Plan (Stage I), China successfully achieved the freezing target in 2013 according to the reported A7 data.

Outcome 2

The annual progress report of HPMP in ICR sector was prepared and submitted to the 73rd Executive Committee meeting and the fourth tranches of US$ 11,075,000 was released.

Outcome 3

Project preparation fund request for stage II of HPMP in ICR sector was prepared and submitted to the 73rd Executive Committee meeting through international agencies with UNDP as the leading agency.

Outcome 4: Investment Projects

4.1 The signed conversion projects of 9 beneficiary enterprises with 20 production lines were implementing smoothly according to their projects plan. All of these projects finished the first two milestones and one enterprise finished 3rd milestone, and the progresses were verified.

4.2 In 2014, the PMO signed contracts with 2 ICR manufacturing enterprises, converting in

total 948 MT of HCFC consumption capacities. The total value of the 2 sub-contracts is US$4,971,697.

Outcome 5: Technical Assistance

5.1 The PMO provided information and policy advices for MEP to implement a quota system in the ICR sector, as a part of a comprehensive HCFC production and consumption quota system in China.

5.2 Revision of three product standards finished drafting and the drafts of standards passed through technical committee review

5.3 Study on applicability of R32 in the ICR sector and Study on applicability of natural refrigerants in the ICR sector. The two projects finished survey and the primary analysis reports were submitted.

5.4 Revision of safety standards. Safety standard GB 9237 "Refrigerating systems and heat pumps — Safety and environmental requirements" launched revising. The contract was signed in September, 2014.

Outcome 6: Technology Promotion

A demonstration project of environmental friendly heat pump using in heating system was launched. Ten sub-projected of heat-pump for warming and heating in HVAC were chosen in different areas and different technical method, and R32, natural refrigerants and other no-ODS environment friendly refrigerants were applied.

Activities and Outputs

Activity 1 Data collection and reporting

As required by the Montreal Protocol and the Multilateral Fund, China collected and reported A7 data to the Ozone Secretariat and country program to the MLF Secretariat in September 2014. The reported data show that HCFC production and consumption in 2013 is lower than the freezing target for production and consumption sector, which means that China has successfully achieved the freezing target as required by the Montreal Protocol.

In the coordination of UNDP, the ICR HPMP progress report on 2013-2014 annual implementation programme was prepared and submitted to the 73rd Executive Committee meeting and the fourth

tranches of US$ 11,075,000 was requested.

Activity 2 submission of progress report to the 73rd ExCom meeting

According to the agreement between China and the Excom for the reduction in consumption of HCFCs, the annual progress reports were prepared and submitted through implementing agencies to the 73rd Executive Committee meeting and requested the fourth tranches for the HPMPs of ICR sectors. Pursuant to decision 70/20, an audit report on the disbursement for stage I of HPMP for ICR sector was submitted along with the progress report to the 73rd meeting of the Executive Committee.

With consultation with UNDP, FECO developed project preparation documents of stage II HPMP, the project documents was submitted to the 73rd meeting of the Executive Committee.

Activity 3 Policy

The quota allocation scheme developed by MEP for the year 2013 and 2014 took into account, among other things, the amount of HCFCs consumed by applicants in 2009 and 2010, the quota allocated in 2013, the control targets at both sector and national levels, etc. For the year 2013, the quota permissions were issued with 14 enterprises and 9995 tonnes of ODS. And for the year 2014, the quota permissions were issued with 17 enterprises and 10,443 tonnes of ODS for 2014.

Activity 4 Investment Projects

Activity 4.1 Signed Projects Implementation

The signed production line revision projects were implementing smoothly according to their plan. UNDP, FECO and CRAA were monitoring the progress of these projects closely and carried out 7 times of verifications of these enterprises in 2014. The verification showed that these projects mostly had finished the design process, and some of them had finished procurement of key devices and components. The details are shown in following table.

Table 3 Progress of conversion lines

	Enterprise	Progress	Status
1	Zhuhai Gree	Design of new products. Design of conversion of production lines and test room. Contracts for devices and components of heat exchanger and sheets processing.	Finished and verified in July 2014.
		Conversion of heat exchanger and sheets processing Contracts for all the devices, components, and services of test room and production lines conversion	Processing

2	Dunan Environment	Design of new products. Design of conversion of production lines and test room. Contracts for devices and components of heat exchanger and sheets processing.	Finished and verified in October 2013.
		Conversion of heat exchanger and sheets processing Contracts for all the devices, components, and services of test room and production lines conversion	Processing
3	Guangdong Midea	Design of new products. Design of conversion of production lines and test room. Contracts for heat exchanger and sheets processing.	Finished and verified in July 2014.
		Conversion of heat exchanger and sheets processing Contracts for all the devices, components, and services of test room and production lines conversion	Processing
4	Shandong Geruide	Design of new products. Design of conversion of production lines and test room. Contracts for devices and components of heat exchanger and sheets processing.	Finished and verified in May 2014.
		Conversion of heat exchanger and sheets processing Contracts for all the devices, components, and services of test room and production lines conversion	Processing
5	Qingdao Haier	Design of new products. Design of conversion of production lines and test room. Contracts for devices and components of heat exchanger and sheets processing.	Finished according to report from enterprise but not verified
		Conversion of heat exchanger and sheets processing Contracts for all the devices, components, and services of test room and production lines	Processing
6	Jiangsu Xuemei	Design of new products programme.	Finished and verified in July 2014.
		Contracts for devices and components of compressors assembly line.	Processing
7	Nanjing Tianjia	Design of new products. Design of conversion of production lines and test room. Contracts for devices and components of	Finished and verified in October 2013.

		heat exchanger and sheets processing.	
		Completion of heat exchanger and sheets processing conversion Contracts sign of devices, components, and services of test room conversion Contracts for other devices, components, and services of production lines conversion	Finished and verified in July 2014.
		Prototypes construct Test room conversion Assembly lines conversion	Processing
8	Wuhan Xinshijie	Design of new products. Design of conversion of test room.	Finished and verified in July 2014.
		Contracts sign of devices and components of heat exchanger and sheets processing. Contracts for all the devices, components, and services of test room. Prototypes construct	Processing
9	Zhejiang Shangji	Design of new products Design of conversion of test room and assembly line	Finished and verified in October 2013.
		Prototypes construct Test room conversion	Processing

Activity 4.2 Verification on Progresses

The PMO reviewed payment applications submitted by the enterprises with the aid by CRAA, took 7 times of on-site progress verification and processed payments as requested in a timely manner. The total amount disbursed to conversion enterprises this year is US$5,070,000.

Activity 4.3 New Conversion Projects

Activity 4.3.1 Proposals Collecting

By the end of 2014, the PMO received new 9 conversion project proposals from enterprises, and these proposals were preliminary reviewed by PMO.

Activity 4.3.2 Baseline Verification and Evaluation on New Conversion Projects

Two times of on-site verification for basic date of enterprises' production lines were organized. The PMO organized evaluation meeting inviting technical and financial experts to review these proposals, and approved the proposals of 3 enterprises.

Activity 4.3.3 Contracts Signature

After the proposals were approved, the PMO coordinated with the enterprises about the details of conversion and contract obligations. In December, the PMO signed contracts with two enterprises, namely Chongqing Midea and Ningbo AUX, the contracts in total amounts to US$4,971,697,

phasing out 948 MT of HCFC.

Activity 5 Technical Assistant

Activity 5.1 Study on Applicability of R32

In order to promote HFC-32 application, the study on applicability of HFC-32 was launched. The project was undertaken by a bidder formed by seven parties including universities, research institute, and enterprises. In May 2014, a coordination meeting was held in Hefei to discuss the work plan and exchange research basis and preliminary results. The project duration was 24 months. By the end of 2014, the project finished survey and the primary analysis reports were submitted.

Activity 5.2 Study on Applicability of Natural Refrigerants

The study on applicability of natural refrigerants was launched. The project was undertaken by a bidder formed by six parties including universities, research institute, and enterprises. In May 2014, a coordination meeting was held in Hefei to discuss the work plan and exchange research basis and preliminary results. The project duration was 24 months. By the end of 2014, the project finished survey and the primary analysis reports were submitted.

Activity 5.3 Revision of Products Standards in ICR Sector

The three products standards of "Unitary air-conditioners", "water chilling (heat pump) packages using the vapor compression cycle—part 2: water chilling (heat pump) packages for household and similar application", and "ducted air-conditioning (heat pump) units" are being revised now. The contract was signed in December 2013. The first drafts of these standards had been completed and reviewed in expert workshop which was held in March 2014. In the first draft versions, the application scopes were redefined which were including R32 and other alternative refrigerants, and the terms for the products logo, packaging, transportation and storage were increased. By the end of 2014, the project finished drafting and the drafts of standards passed through technical committee review.

Activity 5.4 Revision of Safety Standards in ICR Sector

In China, the national GB9237 is the standard for products in industrial and commercial refrigeration sector. Considering the situation China is facing and the technological achievement regarding utilization of some flammable alternatives to substitute HCFCs in commercial refrigeration and air-conditioning sectors, the revision of GB9237 is necessary. In 2014, FECO issued the bidding for revision of GB9237 standard, and the contract was signed at November.

Activity 6 Coordination Meetings

Activity 6.1 In April 2014, the 2014 industry roundtable was co-sponsored by UNEP and FECO and CRAA. At the meeting, experts from Europe, Japan, AHRI and GIZ made presentations to review policies in the USA, Japan and the EU toward zero-ODP and low carbon alternatives and discussed the challenges facing alternative selection.

Activity 6.2 In December 2014, Beijing, the Low GWP Technical Application Workshop was co-sponsored by FECO and CRAA. At the meeting, experts from the industry communicated the experiences of research and application of low GWP substitution.

Activity 6.3 In December 2014, Tianjin, the Heat pump Application Workshop was co-sponsored by FECO and Tianjin EPA. At the meeting, Officials, experts, and enterprises from the industry communicated the advantages of heat pumps and relevant energy conservation Policy and forecast great application prospect.

Activity 7 Verification and Monitoring

Activity 7.1 In order to monitor and verify progresses of implementing conversion projects, the PMO signed contract with PKF Daxin Certified Public Accountants LLP (Beijing) through public bidding, to verify milestones of conversion projects. The value of contract was US$233,800.

Activity 7.2 The progress verification team was organized by FECO, including Daxin, FECO, CRAA, technical experts, and 7 times of verifications were taken, including Gree, Midea, Xuemei, Shandong Geruide, Tianjia, Wuhan Xinshijie, Haier. The verification reports were basis of relevant payments.

Activity 7.3 For new phase-out projects, two times of the baseline verification which applied for conversion had been conducted. The verification team verified the enterprises' proportion of Chinese investment in the corporate capital, collected the information of production, equipment and the HCFCs consumption, and checked their financial data and their HCFCs purchase invoices. Upon the conclusion of the verifications, these 2 enterprises were eventually identified as qualified applicants for the new batch of conversion projects.

Sustainability

The expertise obtained through the practice of converting to new technology using flammable refrigerants is expected to be documented and kept by enterprises and research institutions involved. This will inform further conversions and formulation of workplace health and safety measures and standards.

Partnership Effectiveness

As the international implementing agency, UNDP supervises the implementation of the sector plan. UNDP was providing assistance for policy development, planning and management of sector programming as set out in these sectors, when require. UNDP was ensuring verification of performance and progress of disbursement in accordance with the Agreement between the Government of China and the ExCom and with its specific internal procedures and requirements as set out in these sectors and assisting FECO in the implementation and assessment of the activities. UNDP was assisting FECO in the preparation of the ICR sector annual Implementation Plans as per Appendix 4-A in the agreement between Government of China and the ExCom. UNDP was ensuring financial verification of the activities implemented. UNDP was reviewing and clearing the

Project Implementation Manual (PIM) and all other TORs for TA activities and provide advice and assistance as needed. UNDP was monitoring the progress and carrying out supervision missions. UNDP was ensuring the Fund disbursed in accordance with the guidelines of the ExCom. UNDP was reporting the progress of implementation plan and submitting requests to the ExCom for future tranches.

As the technical support party of the HPMP, CRAA has actively participated in conversion project design and supervision, technology assistance activities and public awareness campaigns. CRAA has effectively fulfilled its duty outlined in the Project Document. In addition, CRAA has served well as the communicator between the PMO and industry, helping the policies reach the enterprises, and enterprises' needs and questions reach the PMO. The position of CRAA ensured that the HPMP can have a significant impact in the industry and engage most major stakeholders.

Cross-cutting Issues

The 2 contracts signed this year that directly contribute to phase-out of HCFCs will contribute to mitigation of climate change by reducing 864,966 carbon dioxide equivalent tons of greenhouse gas emission.

3. Project Management and Oversight

Implementation status

With the implementation of HCFC Phase-out Management Plan (Stage I), China successfully achieved the freezing target in 2013 according to the reported A7 data.
The annual progress report of HPMP in ICR sector was prepared and submitted to the 73rd Executive Committee meeting and the fourth tranches of US$ 11,075,000 was requested.

Human Resource Management

The personnel stability strengthened, the experiences of staff were increased, and department cooperation among FECO, UNDP, and CRAA were continually enhanced, all of which were very beneficial for efficiency of project execution.

Monitoring and Evaluation

In order to monitor and verify progresses of implementing conversion projects, the PMO signed contract with PKF Daxin Certified Public Accountants LLP (Beijing) through public bidding, to verify milestones of conversion projects.
The progress verification team was organized by FECO, including Daxin, FECO, CRAA, technical experts, and 7 times of verifications were taken, including Gree, Midea, Xuemei, Shandong Geruide, Tianjia, Wuhan Xinshijie, and Haier. The verification reports were basis of relevant payments.
For new phase-out projects, two times of the baseline verification which applied for conversion had been conducted. The verification team verified the enterprises' proportion of Chinese investment in the corporate capital, collected the information of production, equipment and the HCFCs consumption, and checked their financial data and their HCFCs purchase invoices. Upon the conclusion of the verifications, these 2 enterprises were eventually identified as qualified applicants for the new batch of conversion projects.

Risk management

The development in standard making and technology development should alleviate some legality risks linked to manufacturing and selling products based on HFC-32, but the risk still exists for many sub-sectors where standards are lacking. By current progress, some sub-sectors may not be able to sell alternative products before 2015. The PMO had launched revision of relevant safety and products standards, which will speed up no-ODS products marketing.

Communication and advocacy

The PMO submitted the QPRs and APR to UNDP and communicated the project progress with UNDP.
The discussion and missions were arranged during the report period, with aim to improve the projects management.

4. Financial Management (Rate:6.2)

	Source of Fund	Budget	Expenditure
Expenditure Vs. Approved project budget by source of funding	UNDP	US$ 40,775,000	US$ 14,337,662
	Government Cost Sharing		
	Third Party Cost-sharing		
	Other (please specify)		
	Total	US$ 40,775,000	US$ 14,337,662

Output	Activities	Source of Funding	Budget Description	Annual Budget (USD)	Annual Expenditure (USD)	Note
Output 1 Conversion contracts	**New contracts and 9 existing contracts**	MLF	Subcontracts	5,700,000	5,672,080	
Output 2 Technology Assistance contracts	**Consultant**	MLF	Consultant	3,000	2,460	
	Travel	MLF	Travel	2,000	1,538	
	Audit	MLF	Audit	46,000	45,367	
	Coordination meetings	MLF	Coordination meetings	26,000	25,870	
Output 3 Support activities	**Support activities**	MLF	Support activities	836,400	836,400	
			Total	6,613,400	6,583,715	

5. Management recommendations

6. Annexe/s
