UNITED NATIONS DEVELOPMENT PROGRAMME

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PROJECT DOCUMENT
People's Republic of China

Project Title: Sector plan for phase-out of HCFCs in the Industrial and Commercial Refrigeration and Air Conditioning (ICR) Sector in China (Stage-II) for compliance with 2020 targets

Project Number: Award ID 00087756, Output ID 00094677

Implementing Partner: Ministry of Environmental Protection/Foreign Economic Cooperation Office MEP/FECO

Start Date: 1 April 2017 **End Date:** 31 March 2021 **PAC Meeting date:** 27 March 2017

Brief Description
At the 77th Executive Committee (ExCom) meeting held November 2016 in Montreal, Canada, ExCom decision 77/49 was taken to approve US$ 89,144,797 for the HPMP stage II of the Industrial and Commercial Refrigeration and Air Conditioning (ICR) Sector in China. The Stage II ICR Sector Plan will contribute to China's overall HCFCs Phase-out Management Plan (HPMP) to achieve the HCFCs consumption target by 2020. The ICR Sector Plan proposes the maximum consumption of HCFCs at 2,042.4 ODP tonnes in 2018 and at 1,609.9 ODP tonnes in 2020 and 2021. To achieve these targets, investment activities in production line conversion will be carried out in four prioritized sub-sectors over five years from 2016-2021. More than 50% of the HCFCs targeted for phase-out will be replaced by best available low GWP alternatives including hydrocarbon, CO_2, ammonia and HFOs. Production line conversions will be supported by a series of technical assistance and capacity building activities as well as policy and regulatory interventions to ensure permanent and sustainable phase-out. Upon successful implementation, the Sector Plan will reduce green-house gas emissions of 39.227 million MT CO_2 equivalents. The Stage II ICR Sector plan originally requested a funding level of US$ 118.165 million from the Multilateral Fund. As a result of deliberations at the 76th and 77th ExCom meetings, a total of US$ 89,144,797 was approved, in principle, at the 77th ExCom meeting.

Contributing Outcome (UNDAF/CPD, RPD or GPD): 2. More people enjoy a cleaner, healthier environment as a result of improved environmental protection and sustainable green growth. **Indicative Output(s):** Output 1.3: Solutions developed at national and sub-national levels for sustainable management of natural resources, ecosystem services, chemicals and waste. Output 1.4. Scaled up action on climate change adaptation and mitigation across sectors which is funded and implemented.	**Total resources required(USD):**	89,144,797
	Total resources allocated:	
	MP Multilateral Fund(USD):	89,144,797
	Company In-kind	

Agreed by (signatures):

UNDP	Implementing Partner: FECO/MEP
Print Name: Mr. Patrick Hovarth, Deputy Country Director	Print Name: CHEN Liang, Director General
Date: 18 May 2017	Date: 5/12/2017

LIST OF ABBREVIATIONS

CP	Country Programme
CRAA	China Refrigeration and Air-conditioning Industry Association
SGD	Sustainable Development Goals
ICR	Industrial and Commercial Refrigeration and Air-conditioning Sector
SESP	Social and Environmental Screening Procedure
QA	Quality Assurance
ExCom	Executive Committee of the Multilateral Fund
FECO	Foreign Economic Cooperation Office
GWP	Global Warming Potential
HCFCs	Hydrochlorofluorocarbons
HFCs	Hydrofluorocarbons
HPMP	HCFCs Phase out Management Plan
IA	Implementing Agency
MEP	Ministry of Environmental Protection
MLF	Multilateral Fund for the Implementation of the Montreal Protocol
MOP	Meeting of Parties to the Montreal Protocol
MP	Montreal Protocol
MT	Metric Tonnes
ODP	Ozone Depleting Potential
ODS	Ozone Depleting Substances
PBP	Performance Based Payment
SBAA	Standard Basic Assistance Agreement
UNDP	United Nations Development Programme

I. DEVELOPMENT CHALLENGE

In an effort to protect the depleted stratospheric ozone layer, the international community signed the Vienna Convention for the Protection of the Ozone Layer (hereafter referred to as the Vienna Convention) and the Montreal Protocol on Substances that Deplete the Ozone Layer (hereafter referred to as the Montreal Protocol or MP) in 1985 and 1987, respectively. The Montreal Protocol and its subsequent amendments and adjustments called for joint actions from both developed and developing countries to gradually phase out production and consumption of Ozone Depleting Substances (ODS). The London Amendment to the Montreal Protocol agreed in 1990 to set up the funding mechanism to ensure technology transfer among countries under the principle of the most favourable conditions.

The Government of China signed the Vienna Convention in 1989. In June 1991, China ratified the Montreal Protocol and its London Amendment. As a Party to the Montreal Protocol, China has committed to phase out Ozone Depleting Substances (ODS) in accordance with its designation as an Article 5 country. Subsequently, China proceeded with its ratification of the Copenhagen Amendment, Montreal Amendment, and Beijing Amendment. The dates of ratification by China of the Montreal Protocol and its amendments are shown in the following table.

Table 1-1 Ratification by China of the Montreal Protocol and its amendments

Agreement	Ratification
Montreal Protocol	June 1991
London Amendment	June 1991
Copenhagen Amendment	April 2003
Montreal Amendment	May 2010
Beijing Amendment	May 2010

To meet China's obligations under the Copenhagen Amendment, China organized HCFCs data survey and HCFCs phase-out feasibility assessment in 2004. Since 2005, the previous State Environmental Protection Administration of China began discussions with international community on opportunities and challenges faced in an accelerated phase-out of HCFCs as well as conditions and targets to carry out the phase-out. This initiative was highly recognized by the international community.

At the 19th Meeting of the Parties of Montreal Protocol in September 2007, the Parties agreed to accelerate the HCFCs phase-out schedule. According to the new schedule, China was required to freeze the production and consumption of HCFCs at the average level of 2009 - 010 (baseline) by 2013, realize 10%, 35%, and 67.5% reduction in 2015, 2020 and 2025, respectively, and completely phase out HCFCs in 2030 with a limited production and consumption to meet residual demand in the service sector during the period 2030–2040.

China is the biggest for HCFCs production and consumption in the world. HCFCs produced and consumed in China include HCFC-22, HCFC-123, HCFC-124, HCFC-141b, and HCFC-142b. In addition, China also imports a limited quantity of HCFC-225 for solvent applications. Seven sectors are involved in HCFCs production and consumption: HCFCs production sector, PU foam sector, room air-conditioner sector, industrial and commercial refrigeration sector, solvent sector and refrigeration servicing. Annual production and consumption of HCFCs in 2012 – 2015 is shown in Table 1-2. The HCFCs production in China reached its peak of 505,749 MT in 2012 and consumption amount also climbed to the highest point at about 317,000 MT in 2012, and it has started to decline from 2013.

Table 1-1 HCFC Production and Consumption in China from 2012 – 2015

II. HCFCs	III. 2012		IV. 2013		V. 2014		VI. 2015	
	Production*	Consumption	Production	Consumption	Production	Consumption	Production	Consumption
HCFC-22	364,550.21	237,462.64	288,493.07	195,009.29	299,950.13	190,322.43	243,474.14	153,972.77
HCFC-141b	117,131.32	63,863.94	87,123.91	51,010.33	86,911.31	51,847.78	65,876.85	38,584.35
HCFC-142b	22,159.25	15,274.28	16,954.46	12,855.04	16,566.05	9,918.41	18,835.60	11,616.42
HCFC-123	1,687.43	778.65	2,079.21	1,156.58	1,930.61	1,005.78	1,750.43	899.91
HCFC-124	221.26	0	208.62	119.89	315.25	96.23	76.31	-46.32
Total	505,749.67	317,415.56	394,859.27	260,034.25	405,673.35	253,223.85	330,013.32	
Total (ODP ton)	34,413.67	21,094.94	26,598.96	17,195.80	27,179.84	16,838.75	21,898.53	

Source: Article 7 data report.

* Production for feedstock use is not included.

**ODP: HCFC-22, 0.055; HCFC-123, 0.022; HCFC-124, 0.022; HCFC-141b, 0.11; HCFC-142b: 0.065

Industrial and Commercial Refrigeration (ICR) sector is one of the major HCFCs consumption sectors. According to the survey by China Refrigeration and Air-conditioning Industry Association (CRAA) in 2015, the overall consumption of HCFCs in ICR sector in 2014 was 40,249 MT, of which 39,500 MT were HCFC-22, 649 MT were HCFC-123, and 100 MT were HCFC-142b.

The baseline level for the ICR sector is 43,925 MT. Hence, the consumption of HCFCs in 2014 represents 91.6% of the baseline level. In the year 2015, the target of 10% reduction is required to be achieved and the consumption of HCFCs should not exceed 39,533 MT.

HCFCs Phase-out Management Plan (HPMP) of the ICR sector (Stage-I) in China was approved by the Multilateral Fund Executive Committee in June 2011 with total funding of US$ 61 million. The targets of HCFCs consumption freeze in 2013 and 10% reduction in 2015 in the ICR sector have been achieved through a series of activities in production line conversion, technical assistance, training and public awareness.

38 manufacturing line conversion projects have been arranged for the phase out activities, of which 34 are refrigeration projects and 4 are compressor projects. With the implementation of stage I of HPMP, great achievements have been realized, 2015 actual ODS consumption is much lower that the targets.

Table 1-3 Actual ODS consumption in the ICR Sector in stage I of HPMP

	2011	**2012**	**2013**	**2014**	**2015**
2015 Actual consumption in the ICR sector (MT)	48,213	47,463	40,805	40,749	36,385
2015 Actual consumption in the ICR sector (ODP tonnes)	2,651.72	2,610.47	2,224.80	2,219.48	1,981.70
Maximum allowable consumption in the ICR sector(MT)	N/A	N/A	43,925	43,925	39,533
Maximum allowable consumption in the ICR sector (ODP tonnes)	N/A	N/A	2,402.80	2,402.80	2,162.50

VII. STRATEGY

Introduction

At the 73rd Meeting of the Executive Committee (Paris, 9-13 November 2014), Preparation of a HCFC Phase-out Management Plan for the industrial and commercial refrigeration and air-conditioning sector (Stage II) was approved by the Executive Committee with UNDP as the implementing agency in order to help China to realize the second stage compliance target by 2020. The Stage II ICR Sector Plan has been prepared in 2014 and 2015, amended in 2016, and was approved at the 77th ExCom meeting held in Montreal, Canada, in November 2016 with the total fund of US$ 89,144,797.

The Stage II ICR Sector Plan will be implemented as part of the overall HCFCs Phase-out Management Plan in China. It will contribute to China's overall target of 35% HCFCs consumption reduction by 2020. The Stage II ICR Sector Plan proposes the maximum allowable consumption of HCFCs at 2,042.4 ODP tonnes in 2018 and at 1,609.9 ODP tonnes in 2020 and 2021, which will lead to about 33% reduction of its baseline level. The phase out target of Stage II HPMP of ICR will be achieved through production line conversion, management and monitoring practices, policy measures as well as technical assistance activities. The total HCFCs maximum allowable consumption in the ICR sector for each year agreed is shown below:

Table 2-1 HCFCs maximum allowable consumption in the ICR sector

	2016	**2017**	**2018**	**2018**	**2019**	**2020**
HCFCs maximum allowable consumption in the ICR sector (ODP T)	2,162.5	2,162.5	2,042.4	2,042.4	1,609.9	1,609.9

The industrial and commercial refrigeration and air-conditioning sector (ICR) is the most complicated sector in China for ODS substitution. It covers the refrigeration systems in big buildings such as stadiums, supermarkets, cool storages, transportations of passengers and goods (cool chain). The requirement of the low temperature is different in different applications, sometimes, the temperature is as low as minus 70 centigrade, while sometimes it is 17 centigrade. The complexity makes the subsector diverse section of products, technologies, and application.

The ICR sector in China has a wide range of products, used in various applications. The different industrial and commercial refrigeration and air-conditioning products are categorized according to applications. They are generally classified in the following sub-sectors:

Table 2-2 Product categories of the ICR sector

No.	**Determined by the type of compressor**
1	Refrigerant compressors
2	Freezer and refrigeration and condensing units
3	Small-sized water chillers (heat pumps)
4	Industrial & commercial chillers (heat pumps)
5	Heat pump water heaters
6	Unitary air-conditioners

7	Variable refrigerant flow/Variable refrigerant volume (heat pumps)
8	Vehicle air-conditioners

Source: Sector survey and analysis

The alternatives based on substances include HFCs, such as HFC-134a, R410a, R507A, R407C, R404A, HFC-143a, and HFC-32. HFCs have zero ODP, which are accepted to phase out ODS, however, most of HFCs has high GWP of more than 1,000, some of them are with GWP as high as more than 4,000. For example, R410A has 2,100 GWP, R404A has 3,900GWP. From the perspective of ozone layer protection, HFCs are acceptable; however, from the perspective of climate changes, HFCs should not be encouraged and should be controlled.

In terms of both ODP and GWP, HFC-32 has advantages compared with other HFCs, its ODP is zero and GWP is 675. It has good thermal conductivity, large refrigeration capacity and high theoretical efficiency. Under the condition of equal refrigeration volume, the recharge volume of HFC-32 is only two third of that of HCFC-22. HFC-32 is a mature and stable refrigerant which is easy and cheap to obtain. Though HFC-32 is weakly flammable, it can be promoted and used safely under proper precautionary measures as proved by preliminary research. The exhaust temperature of HFC-32 system is relatively high and needs to be reduced by technological measures. Experiments shows that measures like compressor spray, vapour injection and dryness control of the vapor can reduce the exhaust temperature effectively, in the meantime, using modified lubricant with heat resistant can ensure system reliability. As the greenhouse effect has become an issue of global concern, HFC-32 received worldwide attention, given its lower GWP (around 1/3 of R-410A) and sound refrigerating performance. It enjoys a promising future of application.

Taking into consideration of the newest development of MP conventions, HFC-32 are not encouraged though it is widely used for substitute ODS in some areas in some developed countries. Therefore, in Stage II, its applications will be limited in terms of its amounts/quantity.

The alternatives also include some natural gases, such CO_2, NH3, and Hydrocarbons. They are zero ODP and very low GWP. But in China, those technologies need to be improved, and the standards need to be updated. Those technologies have some disadvantages such as high pressure, flammability and toxics, which confine its usages and applications. However, China is determined to use those technologies in stage II, and this is encouraged and appreciated by the ExCom. There are 3,350 MT HCFCs planned to be phase out by natural gas and HFOs, which are developed recently and with high price.

Table 2-3 ODP and GWP of potential alternative refrigerants

No.	**Name**	**ODP**	**GWP**	**Safety classification**
1	HFC-134a	0	1430	A1
2	R410A	0	2100	A1
3	R407C	0	1800	A1
4	R404A	0	3900	A1
5	R507A	0	4000	A1
6	HFC-32	0	675	A2L
7	NH_3	0	<1	B2L
8	CO_2	0	1	A1
9	H_2O	0	<1	A1

10	HC-290	0	3	A3
11	HFO-1234yf	0	1	A2L
12	HFO-1234ze(E)	0	1	A2L
13	HCFO-1233zd(E)	0.00034	1	A1
14	HFO-1234ze(Z)	0	1	-
15	HFO-1336mzz(Z)	0	2	A1

In the ICR sector, the products also include the compressors, which are one of the key components of the industrial and commercial refrigeration system. There are many kinds of compressors to be used in the sector, different compressor has its own applications, besides, its size, refrigerants and efficiency also affect its applications. The different compressor categories are:

a. Reciprocating compressor in air conditioning

b. Scroll compressor in air conditioning

c. Screw compressor in air conditioning

d. Centrifugal compressor in air conditioning

The ICR Sector Plan (Stage-II) will consist of a series of investment and technical assistance. Management and monitoring are considered an important component of the effective implementation of the project.

INVESTMENT ACTIVITIES

Conversions of 3 compressor manufacturing lines will be carried out to meet the new ODS free and low GWP alternatives adopted in stage II.

Table 2-4 Conversion of compressors in Stage II ICR sector plan

Types of compressor	Technology
Scroll compressors	HFC-32
Reciprocating compressor	CO_2
Screw compressor, semi-hermetic	NH3/CO_2

FECO has the flexibilities on the technology choice for the compressor lines conversion.

Conversion of equipment manufacturing production lines will be carried out over five years from 2016-2020. For 2016-2018, conversion projects will mainly start in subsectors that already had conversion experiences in Stage I, and the existence of relatively mature technologies such as HFC-32, NH3 and NH3/CO_2 cascade will be prioritized. The conversion plan is set in table below based on the understanding that the flexibilities has to be applied if necessary on the phase out distribution in different periods for the lines conversion:

Table 2-5 Conversion plan for equipment manufacturing subsectors

Sub-sector	Alternative refrigerant	Phase out amount (MT)	
		2016-2018	2019-2020
Freezers and refrigeration and condensing units	CO_2, NH3	1,150	700
Water chiller (heat pump)	HFOs, HC	130	1,100
Heat pump water heater	CO_2	150	120
Unitary air-conditioning	HFC-32	3,000	150
Total		4,430	2,070

	6,500

TECHNICAL ASSISTANCE

TA activities proposed under the Stage II ICR Sector Plan will focus on (1) technology improvement and problem solving; (2) strengthening management and monitoring capabilities of stakeholders; (3) revision of technical standards in the ICR sector; (4) update information on technology and policy development; and (5) publicity and awareness. The TA activities are of great importance to the success implementation of conversion in Stage II ICR sector plan. Description of each TA activities is summarized below:

RESEARCH ON ALTERNATIVE TECHNOLOGY AND RISK EVALUATION

The alternative refrigerants in the ICR sector, especially natural refrigerants and HFOs, have some obvious drawbacks such as flammability, increased system pressure and toxicity. Special design and production process are required when using these alternatives. The ICR industry in China is still lack experiences in dealing with these alternatives technologies. In order to ensure sustainable conversion, it is necessary to carry out research and development projects to tackle key problems emerged in conversion. Since new refrigerants or blends are introduced to the ICR sector from time to time, it is important for the Chinese ICR industry to look into these new technologies and carry out assessment and evaluation. Technology research and development will focus on the following aspects:

1. Issues in product designing when using alternatives;
2. New requirements for core components;
3. Safety issues such as safety measures for production process, measures to limit risk, ways to reduce charging amount;
4. Solution to improve performance of products in order to meet standards;
5. Risk evaluation for flammable refrigerants;
6. Follow up development of new refrigerants; carry out test and assessment on potential alternatives.

The activities planned in this component are for refrigerant but not for equipment itself which is covered under the respective enterprise level projects.

ESTABLISHMENT OF TECHNICAL STANDARDS AND REGULATIONS

The technical standard of the ICR industry is generally divided into two categories: fundamental and safety standard and product standard. All existing standards are established on the basis of HCFCs as refrigerants. In Stage I ICR sector plan, the national standards for safety is revised which is an important step for the use of flammable refrigerants. Product standards are under revision in parallel. When alternative refrigerants are adopted, the existing standards need to be revised or new standards be established.

Table 2-6 some potential standards to be revised in Stage II

Categories	Names of Standards	Standard No.
Fundamental and safety standards	Safety requirements for unitary air-conditioners	GB25130-2010
	Water chillers (heat pump) using the vapor compression	GB25131-2010
	Testing of refrigerating systems	GB/T 7941-1987
	Safety requirements for air handling units	GB 10891-1989

Product standards for key components		Reciprocating refrigerant compressors	GB/T 10079-2001
		Hermetic Scroll refrigerant compressors	GB/T 18429-2001
		Reciprocating single-machine double-stage refrigerant compressor	JB/T 5446-1999
		Positive displacement refrigerant compressor condensing unit	GB/T 21363-2008
		Screw refrigerant compressors	GB/T 19410-2008
Product standard for equipment	Water chilling (heat pump) packages	Water chilling (heat pump) packages using the vapor compression cycle—Part 1: Water chilling (heat pump) packages for industrial & commercial and similar application	GB/T 18430.1-2007
		Water-source(ground-source) heat pumps	GB/T 19409-2013
		Low ambient temperature air source heat pump (water chilling) packages—Part 1: Heat pump (water chilling) packages for industrial & commercial and similar application	GB/T 25127.1-2010
		Low ambient temperature air source heat pump (water chilling) packages—Part 2: Heat pump (water chilling) packages for small-sized and similar application	GB/T 25127.2-2010
		Water-source high temperature heat pumps using the vapor compression cycle	GB/T 25861-2010
	Heat pump water heater	Heat pump water heater for commercial & industrial and similar application	GB/T 21362-2008
		Small-sized and similar heating & air conditioning & hot water packages	JB/T 10916-2008
	Air conditioner	Dehumidifiers	GB/T 19411-2003
		Low ambient temperature air source multi-connected heat pump (air conditioning) unit	GB/T 25857-2010
	Rail bound vehicles	Air-conditioning units for rail bound vehicles	GB/T 19842-2005
	Freezer and cold storage	Large-scale saline ice making installation	GB/T 29029-2012
		Flake ice machines	GB/T 29032-2012

TECHNICAL CONSULTANT SERVICES AND VERIFICATION

National consultants who will provide consultancy for project selection and proposal review will be selected to support the implementation of the sector plan. The consultants will assist FECO/MEP in project selection, review of project proposals, and development of technical documents as well as monitoring and verification of project progress. Consultancy firms, such as auditing and accounting firms will be entrusted to verify HCFCs consumption data at enterprise level and they will also assist in monitoring project progress.

DEMONSTRATION OF PRODUCTS WITH ALTERNATIVE TECHNOLOGY

Experience in implementing the Stage I sector plan shows that it always takes a longer time for the market to accept new technology and products. Moreover, when new technology is adopted, the cost will increase significantly which will further limit the marketization of new products. Demonstration of new products at selected sites with subsidized funding from the sector plan will minimize the time of products from manufacturer to the end-users, at the same time it will provide first hand data for review of the technology and performance of equipment. In Stage-II, new demonstration projects will

be carried out in typical application sites to help collect data and analyze equipment performance. Equipment with hydrocarbon, CO_2, HFOs or blended refrigerants will be considered to be demonstrated. The demonstration will be incorporated with national environmental protection policy and industrial development schemes. Based on the demonstration, public awareness and technology dissemination will be conducted to promote the alternative technology and ensure sustainability of phase -out.

TECHNICAL COMMUNICATION AND SEMINARS

Technical communication activities and seminars will be held in Stage-II to follow up the development of technology and international standards. The seminar aims to discuss technology development, review international standards. Main activities include: 1) Organize technical workshop and seminar: invite domestic and international enterprises, governments, industry associations and scientific research institutes to update progress on research and exchange views 2) Send national consultants to attend international seminar and academic meetings and workshops to understand the latest international alternative refrigerant and technology. 3) Invite international consultant to involve in technology development and conversion activities in China's ICR industry and provide expertise advice.

One of the important activities is to take advantage of the ICR annual exhibition, which is attended by the thousands of representatives of the world, especially the clients, experts, researchers, policies makers. The Road Show and the seminars on the new technology also aim at the promotion and publicity of MP. Another activity is to organize the thematic meetings in the annual meeting of the ICR association, which aim to discuss and analyze the status of HPMP stage II in China, and the situation of the world.

TRAINING WORKSHOPS

Workshops will be organized to inform ICR enterprises of the objectives and phase out strategy of the Stage II ICR Sector Plan. Participants will be informed of the relevant project procedures from submission of applications to implementation arrangement and schedule, project supervision, commissioning and reporting requirements. All beneficiary enterprises of the ICR Sector Plan will be required to follow proper procedures for procurement of goods, financial management, disbursement, and environmental impact evaluation. Consultant for training on project management procedures, reporting and procurement process will be assisting in conducting these training workshops for relevant stakeholders.

PUBLIC AWARENESS

Publicity and awareness activities will be organized in Stage II ICR sector plan. The objectives of public awareness include: 1) disseminate ODS phase out policies and raise awareness of phase-out strategy of Stage II ICR sector plan; 2) spread experience of conversion and TA results in Stage I and Stage II; 3) promote alternative technologies and products. The publicity and awareness activities will incorporate exhibitions, industrial fairs and other events in the ICR sector.

VIII. RESULTS AND PARTNERSHIPS

At the 77th Executive Committee meeting held November 2016 in Montreal, Canada, the ExCom, through its decision 77/49, approved, in principle, the ICR sector of stage II of the HPMP for China for the period 2016 to 2021 to achieve, by 2020, a 33 percent reduction in relation to the 2013 maximum allowable consumption in the sector, in the amount of US $ 89,144,797 of the total amount approved in principle for stage II of the HPMP, on the understanding:

(i) That a maximum quantity of 3,150 metric tonnes in the unitary air-conditioning (UAC) sub-

sector could be converted to HFC-32;

(ii) That the Government of China would have flexibility in the UAC subsector to convert to alternatives with a lower global warming potential (GWP) than HFC-32 as long as the cost and tonnage to be phased out remained the same;

(iii) That the Government of China would have flexibility to convert heat-pump water-heater (HPWH) lines to HFC-32 on the understanding that UAC and HPWH conversions to HFC-32 combined would not exceed 3,150 metric tonnes;

(iv) That at least 20 per cent of the total phase out of HCFC-22 in the ICR sector would be from the conversion of small and medium-sized enterprises (i.e., those consuming 50 metric tonnes or less);

(v) That in sectors other than the UAC sector, the Government of China would have flexibility to select from among the six low-GWP technologies identified in Table 8 of document UNEP/OzL.Pro/ExCom/76/25, excluding HFC-32, and would make best efforts to ensure that the tonnage within 30 per cent of the amount specified for each technology in that table, at no additional cost to the Multilateral Fund, and that any deviation from that range would be reported to the Executive Committee for its consideration.

PROJECT OUTPUT AND ACTIVITIES

Output 1: Phase out HCFCs by the year 2020 and 2021

1.1: The maximum allowable consumption of HCFC-22 and HCFC-123 will be 2,042.4 ODP tonnes by the year 2018, and 1,609.9 ODP tonnes by the year 2020 and 2021. The reduction in HCFCs consumption in the Stage II ICR Sector Plan will contribute to China's overall HCFCs Phase-out Management Plan to achieve consumption reduction by 2020. Besides phase-out to be achieved through funding of the Multilateral Fund, additional quantities of HCFCs consumed by non-eligible enterprises will be phased out through management, quota system, enforcement for regulations and rules, monitoring, supervision together with public awareness promotions activities, etc.

The quota for consumption and production, together with that for HCFCs import and export, will be renewed annually to control the maximum allowable consumption and production.

Meeting and public awareness activities will be conducted for outreach and publicity to the HCFCs consuming companies, including those consuming companies that are not eligible for MLF funding due to not meeting MLF eligibility criteria.

Issuance of standards regarding refrigerants used by the industrial and commercial refrigeration system and more alternatives will be assessed by the companies in the process of HCFCs phase out.

Low GWP and zero ODP technologies will be strongly encouraged to be used in China.

Output 2: ODS manufacturing lines of refrigeration and air conditioner system converted to non–ODS system

Conversions of the production lines will phase out 6,500 MT HCFCs with support of MLF funding.

2.1: The best available alternatives will be selected. Maximum of 3,150 MT HCFCs are planned to be phased out with R32 technologies, and 3,350 MT by CO_2, hydrocarbons, HFOs, NH3, NH3/CO_2(cascade) and NH3 with CO_2 as a secondary refrigerant.

2.2: According to ExCom Decision 77/49, the following conditions will need to be observed:

(i) That a maximum quantity of 3,150 metric tonnes in the unitary air-conditioning (UAC) sub-sector could be converted to HFC-32;

(ii) That the Government of China would have flexibility in the UAC subsector to convert to alternatives with a lower global warming potential (GWP) than HFC-32 as long as the cost and tonnage to be phased out remained the same;

(iii) That the Government of China would have flexibility to convert heat-pump water-heater (HPWH) lines to HFC-32 on the understanding that UAC and HPWH conversions to HFC-32 combined would not exceed 3,150 metric tonnes;

(iv) That at least 20 per cent of the total phase out of HCFC-22 in the ICR sector would be from the conversion of small and medium-sized enterprises (i.e., those consuming 50 metric tonnes or less);

(v) That in sectors other than the UAC sector, the Government of China would have flexibility to select from among the six low-GWP technologies identified in Table 8 of document UNEP/OzL.Pro/ExCom/76/25, excluding HFC-32, and would make best efforts to ensure that the tonnage within 30 per cent of the amount specified for each technology in that table, at no additional cost to the Multilateral Fund, and that any deviation from that range would be reported to the Executive Committee for its consideration.

Output 3: Compressor lines conversion

3.1: Three compressors lines will be converted in order to supply ODS free compressors to the sector.

Output 4: Research on alternative technology and risk evaluation

4.1: Technology research and development will focus on the following aspects: product designing, new requirements for core component, safety issues, solution to improve performance of products in order to meet standards, risk evaluation for flammable refrigerants and potential alternatives.

Output 5: Revise existing standards or establish new standards

5.1: There are 21 standards that need to be revised to adapt to alternative refrigerants. These standards can be separated into three categories: fundamental and safety standards, product standards for key components, product standard for equipment. (see attached document, UNDP_76Excom_HPMP ICR sector plan Stage II of China)

Output 6: Organize publicity and awareness activities

6.1: Disseminate ODS phase out policies and raise awareness of phase-out strategy of Stage II ICR sector plan

6.2: Share experiences of conversion and TA results of Stage I and Stage II

6.3: Promote alternative technologies and products.

Output 7: Demonstration of new products at selected sites with subsidized funding from the sector plan

7.1: New demonstration projects will be carried out in typical application sites to help collecting data and analyzing equipment performance. Equipment with hydrocarbon, CO2 and HFOs or blended refrigerants will be considered to demonstrate.

Project Management

The project will be implemented under the National Execution (NIM) modality in line with the Standard Basic Assistance Agreement between UNDP and the Government. The Ministry of Environmental Protection (MEP) is the government institution responsible for the daily execution and coordination of the project and will serve as the government Executing Agency (EA). MEP has designated the Foreign Economic Cooperation Office (FECO) as the Project Management Office (PMO, or National Ozone Unit) in the implementation of activities relating to fulfilling China's

obligations under the multilateral environmental conventions.

Government-Private Collaboration will be the main approach for the project to achieve the objective. The private sector will be closely involved in the project and will be supported by national and local governments in the implementation of the projects. The private sector will also support the government in participating in assessment of the new policy impacts and standards. Hands-on experience from the private sector will be taken up to facilitate effective technology transfer and experience exchange, ensuring sustainability of the project.

Collaboration between the industrial associations in this case will also be important for the implementation of the sector plan. The associations will assist FECO and the enterprises in the implementation of the sector plan, provide technical assistance to the enterprises and PMO. In this regards, the relevant association will act as the implementation partner, and will sign cooperation agreement or contract with FECO regarding the assistance to FECO in the implementation of the stage II ICR sector plan. This will establish the responsibilities of both parties.

The enterprises who participate in the HCFC phase out programme will commit to phase out the consumption of HCFCs after conversion of the production or manufacturing lines. The participating enterprises will organize a working group, consisting of technical experts and managerial personnel for the implementation of the project.

The implementation of HCFCs Phase-out Management Plan (Stage-II) in ICR industry of China will learn from the experiences and lessons accumulated from implementation of Stage-I ICR sector plan. An overall industrial level management and implementation approach will be promoted. Conversion activities will be planned as a whole and implemented step by step. The implementation will make full use of available resources of the ICR industry and other stakeholders.

United Nations Development Program (UNDP) serves as the international implementing agency, whose main responsibilities include: assist PMO in the preparation of annual Tranche Implementation Plan and Tranche Implementation Report, submit report and funding request to the Executive Committee; review and approve terms of reference for technical assistance activities; guarantee funds disbursement according to performance evaluation mechanism; verify project progress as requested by the Executive Committee; provide necessary technical assistance to implementation of sector plan when requested by MEP/FECO.

The PMO will take full responsibility to implement the Stage-II ICR Sector Plan. Staffs of the PMO include project managers, technical consultants, procurement and contract officials as well as financial management officials. The funding request for Stage II ICR sector plan has included operating cost for the PMO. The PMO will be responsible for carrying out the following tasks:

1) Organize and implement sector plan in accordance with Agreement between China and the ExCom;
2) Coordination with related government departments to establish phase-out policy and ensure its implementation;
3) Coordination with industrial association, related research institution and enterprises to carry out phase-out project;
4) Prepare TOR for technical assistance activities and organize implementation with agreement of UNDP;
5) Prepare report according to the requirements of implementing agency and MLF ExCom;
6) Monitor and manage phase-out project and consultant services, make fund disbursement as

stipulated in the contracts;

7) Finance management to ensure effective utilization of MLF resources;

8) Develop and maintain project information management system;

9) Assist in financial and performance verification or audit as required by international implementing agency and the ExCom.

Considering the requirement of the ExCom decision in the Agreement, disbursement of at least 20% of the previous tranche from FECO to final beneficiaries is a prerequisite for requesting release of the next tranche. UNDP encourages FECO to simplify its procedure of disbursement to the finial beneficiaries in two aspects as described below, while taking full consideration of the related financial regulations/policies of the Government of China to ensure financial accountability.

Firstly, for conversion projects with large HCFCs consuming enterprises (50 MT or more), three payments could be applied. With regard to SMEs (i.e., enterprises consuming 50 MT or less), three payments or the new mechanism of two payments could be applied. Secondly, the percentage of the first payment could range between 25 - 30% of the contract.

China Refrigeration and Air-conditioning Industry Association (CRAA) will provide technical support to the overall phase-out and conversion in the ICR industry, main activities include: assistance in project application and verification at enterprise level; cooperating with FECO on the supervision and monitoring of project implementation and progress; coordination on the implementation of technical assistance activities, such as technical seminar and public awareness; tracking alternative technology development, organizing nationals experts to evaluate alternative technology, provide advice on alternative selection for enterprise; collecting and summarizing timely the consumption, alternative technology application progress and technology trend, help understand phase-out progress and technology development in the ICR sector.

Expert Committee on HCFCs Alternative Technology for China ICR Industry is responsible for tracing the domestic and overseas development of alternative refrigerant and technologies, organizing research and evaluation towards alternative technologies, rendering suggestion on technology selection, and providing theoretical and practical basis for the government's constitution of rebate policies.

Implementation of the sector plan will also involve other authorities such as local environmental authorities (EPB), safety and fire control department, etc. Based on their designated duties, they will play their respective roles in project implementation such as checking on safety issues, public health, pollution control, energy savings, ODS consumption, observance of relevant regulations by the enterprises etc. and giving advice and monitor the process of the project implementation.

IX. RESULTS FRAMEWORK

TABLE 4-1 RESULT FRAMEWORK

Intended Outcome as stated in the UNDAF/Country [or Global/Regional] Programme Results and Resource Framework: 2. More people enjoy a cleaner, healthier environment as a result of improved environmental protection and sustainable green growth.											
Outcome indicators as stated in the Country Programme [or Global/Regional] Results and Resources Framework, including baseline and targets: (SP) Indicator 2.1.2: Total ODP tonnes of Hydro chlorofluorocarbons (HCFC) consumption that companies committed to reduce by signing the UNDP project agreements Target (2020): Maximum allowable total consumption of Annex C, Group I substances (ODP tonnes) 11,772.0											
Applicable Output(s) from the UNDP Strategic Plan: Output 1.3: Solutions developed at national and sub-national levels for sustainable management of natural resources, ecosystem services, chemicals and waste. Output 1.4. Scaled up action on climate change adaptation and mitigation across sectors which is funded and implemented.											
Project title and Atlas Project Number: Sector plan for phase-out of HCFCs in the Industrial and Commercial Refrigeration and Air-Conditioning (ICR) Sector in China (Stage II) for compliance with 2020 targets. Award ID 00087756, Output ID 00094677											
EXPECTED OUTPUTS	**OUTPUT INDICATORS**	**DATA SOURCE**	**BASELINE**		**TARGETS (by frequency of data collection)**						**DATA COLLECTION METHODS & RISKS**
			Value	**Year**	**Year 2016**	**Year 2017**	**Year 2018**	**Year 2019**	**Year 2020**	**Year 2021**	
Output 1: Phase out HCFCs by 2020	1.1 A total of 6,500 MT HCFCs will be phased out through investment in conversion of production lines. Addition quantities of phase-out consumed by non-eligible enterprises will be achieved through management, quota system, enforcement for regulations and rules, monitoring, supervision together with public awareness promotions activities, etc.	Annual progress report		2009-2010 average	N/A	N/A	Maximum allowable consumption limited: 2,042.4 ODP tonnes	N/A	Maximum allowable consumption limited: 1,609.9 ODP tonnes		Verifications and article 7 data submitted to the ExCom every year
	1.2 The maximum allowable consumption of HCFCs will not exceed 2,042.4 ODP tonnes by 2018, and 1,609.9 ODP tonnes by 2020										Verifications and article 7 data submitted to the ExCom every year
Output 2 ODS manufacturing lines of refrigeration system converted to non–ODS	2.1 The best available alternatives will be selected. Maximum 3,150 MT HCFCs are planned to be phased out by R32 technologies, and 3,350 MT by CO_2, hydrocarbons, HFOs, NH3, NH3/CO_2(cascade) and NH3 with CO_2 as a secondary refrigerant	Annual progress report		N/A	Applicable	Applicable	Applicable	Applicable			Verifications and article 7 data submitted to the ExCom every year

refrigeration system.	2.2 Decision 77/49 will be followed during the conversion.	Annual progress report		N/A	Applicable	Applicable	Applicable	Applicable	3150MT		Verifications and article 7 data submitted to the ExCom every year
Output 3: Compressor lines conversion	Three compressors lines will be converted in order to supply ODS free compressors to the sector.			N/A	N/A	A	A	A	3 lines to be converted		Verifications and article 7 data submitted to the ExCom every year
Output 4: Research on alternative technology and risk evaluation	4.1 Technology research and development will focus on the following aspects: product designing, new requirements for core components, safety issues, solution to improve performance of products in order to meet standards, risk evaluation for flammable refrigerants and potential alternatives			N/A	N/A	A	A	A	A		Annual Tranche Implementation Report and Tranche Implementation Plan prepared and submitted to the ExCom, with verification report
Output 5: Revise existing standards or establish new standards	There are 21 standards that need to be revised to adapt alternative refrigerants. These standards can be separated into three categories: fundamental and safety standards, product standards for key components,			N/A		A	A	A	21		Annual Tranche Implementation Report and Tranche Implementation Plan prepared and submitted to the ExCom, with verification report
Output 6: Organize publicity and awareness activities	6.1 Disseminate ODS phase out policies and raise awareness of phase-out strategy of Stage II ICR sector plan 6.2 Share experiences of conversion and TA results of Stage I 6.3 Promote alternative technologies and products.			N/A	N/A	A	A	A	Publicity Materials and training secessions. Try best to the TVs, radio, newspapers and other medias, to make achievements		Annual Tranche Implementation Report and Tranche Implementation Plan prepared and submitted to the ExCom, with verification report

Output 7: Demonstration of new products at selected sites with subsidized funding from the sector plan	New demonstration projects will be carried out in typical application sites to help collecting data and analyzing equipment performance. Equipment with hydrocarbon, CO_2 and HFOs or blended refrigerants will be considered to demonstrate			N/A	A	A	A	A	A		Annual Tranche Implementation Report and Tranche Implementation Plan prepared and submitted to the ExCom, with verification report

X. MONITORING AND EVALUATION

In accordance with UNDP's programming policies and procedures, the project will be monitored through the following monitoring and evaluation plans:

Table 5-1 Monitoring Plan

Monitoring Activity	Purpose	Frequency	Expected Action	Partners (if joint)	Cost (if any)
Track results progress	Progress data against the results indicators in the RRF will be collected and analysed to assess the progress of the project in achieving the agreed outputs.	Quarterly, or in the frequency required for each indicator.	Slower than expected progress will be addressed by project management.	NI	
Monitor and Manage Risk	Identify specific risks that may threaten achievement of intended results. Identify and monitor risk management actions using a risk log. This includes monitoring measures and plans that may have been required as per UNDP's Social and Environmental Standards. Audits will be conducted in accordance with UNDP's audit policy to manage financial risk.	Quarterly	Risks are identified by project management and actions are taken to manage risk. The risk log is actively maintained to keep track of identified risks and actions taken.	NI and experts	
Learn	Knowledge, good practices and lessons will be captured regularly, as well as actively sourced from other projects and partners and integrated back into the project.	At least annually	Relevant lessons are captured by the project team and used to inform management decisions.	NI and experts	
Annual Project Quality Assurance	The quality of the project will be assessed against UNDP's quality standards to identify project strengths and weaknesses and to inform management decision making to improve the project.	Annually	Areas of strength and weakness will be reviewed by project management and used to inform decisions to improve project performance.	NI and experts	
Review and Make Course Corrections	Internal review of data and evidence from all monitoring actions to inform decision making.	At least annually	Performance data, risks, lessons and quality will be discussed by the project board and used to make course corrections.	NI and experts	
Project Report	A progress report will be presented to the Project Board and key stakeholders, consisting of progress data showing the results achieved against pre-defined annual targets at the output level, the annual project quality rating summary,	Annually, and at the end of the project (final report)		NI, experts, and the companies involved in the projects implementation	

	an updated risk long with mitigation measures, and any evaluation or review reports prepared over the period.				
Project Review (Project Board)	The project's governance mechanism (i.e., project board) will hold regular project reviews to assess the performance of the project and review the Multi-Year Work Plan to ensure realistic budgeting over the life of the project. In the project's final year, the Project Board shall hold an end-of project review to capture lessons learned and discuss opportunities for scaling up and to socialize project results and lessons learned with relevant audiences.	Annually	Any quality concerns or slower than expected progress should be discussed by the project board and management actions agreed to address the issues identified.	NI, experts, and the companies involved in the projects implementation	

XI. MULTI-YEAR WORK PLAN

All anticipated programmatic and operational costs to support the project, including development effectiveness and implementation support arrangements, need to be identified, estimated and fully costed in the project budget under the relevant output(s). This includes activities that directly support the project, such as communication, human resources, procurement, finance, audit, policy advisory, quality assurance, reporting, management, etc. All services which are directly related to the project need to be disclosed transparently in the project document.

Table 6-1 Implementation Schedule

Activities	2017				2018				2019				2020				2021				2022			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Investment																								
Compiling and approval of HPMP																								
Stakeholder consultations																								
Enterprise-level agreements																								
Technology conversions																								
Application research on potential refrigerant																								
Phase-out in selected enterprisers																								
Non-investment																								
Policy and regulatory framework																								
Research on alternative technology																								
Technical standards and regulations																								
Technical exchange and seminar																								
Public awareness and training																								
Application demonstration of alternative technology																								
Verification																								
Verification of phase-out																								

Note: *The grey-coloured box in the above chart indicates the scheduled payment should be issued, under the condition that the planned activities have been completed.*

At the 77th ExCom meeting, US $89,144,797 was approved for stage II HPMP ICR sector plan. After ExCom approval, the Government of China, other national supporting agencies and UNDP agreed on the following fund allocation. This allocation has taken into account the HPMP proposals originally submitted, the decisions of the ExCom, and especially the tasks and targets to be achieved under the HPMPs with the approved funding, etc.

Table 6-2 Funding Allocation

No.	Activity	Budget (US$)
1	Conversion of equipment lines	72,000,000
2	Conversion of compressor lines	5,400,000
Sub-total of investment activities		**77,400,000**
3	Alternative technology research	1,200,000
4	Technical standards	800,000
5	Consultant services and verification	300,000
6	Technical communication and seminars, including travel	100,000
7	Public awareness and training workshops	150,000
8	Demonstration of products with alternative technology	2,000,000
9	Technical support by CRAA	1,782,896
Sub-total of TA activities		**6,332,896**
10	PMU cost for FECO	4,644,797
11	Contingency	767,104
Grand Total		**89,144,797**

Table 6-3 below presents the budgets for the **2016 tranche** released by the ExCom. Subsequent annual tranches under the project will be added with budget revision upon release of each tranche by the ExCom. Total fund approved in principle by the ExCom for Stage II HPMP ICR Sector Plan is US $ 89,144,797for period 2016 – 2020.

AWARD ID	00087756									
PROJECT ID	00094677									
Project Title	Sector Plan for phase-out of HCFCs in the Industrial and Commercial Refrigeration and Air Conditioning (ICR) Sector in China (Stage-II) for compliance with 2020 targets									
Executing Agency	Foreign Economic Cooperation Office, Ministry of Environmental Protection (FECO/MEP)									
ATLAS Activity	**Responsible Party**	**Source of funds**	**ATLAS Code**	**ATLAS Budget Description**	**2017**	**2018**	**2019**	**2020**	**2021**	**Total**
Activity 1: Investment Projects	FECO/MEP	63080	72100	Contractual services – companies	8,640,000	2,160,000				10,800,000
	Sub-Total				**8,640,000**	**2,160,000**				**10,800,000**
Activity 2: Technical Assistance	FECO/MEP	63080	71600	Travel	1,600	400				2,000
	FECO/MEP	63080	72100	Contractual services – companies	1,289,900	332,475				1,622,375
	FECO/MEP	63080	75700	Training, workshop and meeting	4,800	1,200				6,000
	UNDP	63080	72100	Contractual services	40,000	-				40,000
	UNDP	63080	71300	Local consultants		5,000				5,000
	UNDP	63080	71600	Travel	16,000	4,000				20,000
	UNDP	63080	74100	Professional services	-	5,000				5,000
	Sub-Total				**1,352,300**	**348,075**				**1,703,375**
Activity 3: Project Management	FECO/MEP	63080	71800	Contractual services – Implementing partner	557,252	139,313				696,565
	FECO/MEP	63080	74500	Miscellaneous expenses	137,453	34,363				171,816
	Sub-Total				**694,705**	**173,676**				868,381
Grand Total					**10,687,005**	**2,681,751**				**13,368,756**

Note1: During project implementation, subsequent (2017, 2018, 2019 and 2020) tranches released by the ExCom will be added to the project budget with budget revisions, to the total approved sector plan project funding of US$ 89,144,797. The budget listed above could be adjusted between budget lines under each activity and/or new budget line could be added while keeping the same subtotal for each activity, if deemed necessary; the budget among the activities under each year could be adjusted through the budget revision to be agreed between UNDP and FECO/MEP.

Note 2: USD 56,000 in 2017 allocation of tranche 2016, and USD 14,000 in 2018 of tranche 2016 will, in agreement between parties, be kept in UNDP for relevant activities.

Based on the Agreement between the Government of China and the Executive Committee, funding tranche will be released annually by the ExCom after a Tranche Implementation Report for the previous calendar year, a Tranche Implementation Plan for the next calendar year, and a Tranche Release Request are submitted and approved by the ExCom. The format of the Tranche Implementation Report and Tranche Implementation Plan are set under the Agreement. Any amendment of format will be stated by the decisions of the ExCom.

In principle, each tranche will be disbursed by UNDP to FECO in three instalments. Disbursement of each instalment will be made based on meeting the indicators/milestones stipulated.

Payment Schedule and Indicators/Milestones

Table 6-4: Tranche 2016 (US $13,298,756)

Payment Schedule	Disbursement (US$)	Indicators/Milestones
First disbursement	US $ 6,649,378 (about 50%)	- The annual funding tranche upon Executive Committee's approval of the annual plan; - Receipt by UNDP of fund transfer from MLF Treasury; - ProDoc signed between FECO/MEP and UNDP; - 2017 implementation work program submitted and agreed with UNDP.
Second disbursement	US $ 3,989,627 (about 30%)	- 50% of the first disbursement has been committed. - Signed conversion contracts of HCFCs to be phased out are not less than 300 metric tonnes in 2017.
Third disbursement	US $ 2,659,751 (About 20%)[1]	- Total 80% of the 2016 Tranche has been committed. - More than 20% of 2016 Tranche has been disbursed from FECO to the beneficiaries. - Tranche Implementation Report and Tranche Implementation Plan is satisfactory to UNDP and submitted to the ExCom.

XII. GOVERNANCE AND MANAGEMENT ARRANGEMENTS

The project will be managed in accordance with National Execution (NIM) modality. The Government of China will implement the project through its Foreign Economic Cooperation Office, Ministry of Environmental Protection (FECO/MEP) with supports from UNDP. The MoU between UNDP and FECO/MEP which was signed on 8 January 2011 will serve as the guideline for the overall management on project implementation. The Performance Based Payment (PBP) mechanism will be applied to the implementation of the ICR sector plan project as discussed in this project document.

The project will be technically and managerially implemented in accordance with the framework of the project proposal submitted and approved by the 77th ExCom as contained in Annex III, with

[1] Based on the decision 77/21, 103,708USD will be deducted from the third payment of 2016 tranche.

details specifically defined in the project document and the revised project proposal in terms of the updated baseline conditions and the final ExCom approved funding.

Roles and responsibilities of UNDP and FECO/MEP

UNDP serves as the implementing agency to supervise the implementation of the sector plan, specifically including the following responsibilities:

- Providing assistance for policy development, planning and management of sector programming as set out in this ICR sector when required;
- Ensuring verification of performance and progress of the 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 the sector and assisting FECO/MEP in the implementation and assessment of the activities;
- Assisting FECO/MEP in the preparation of the ICR sector annual Tranche Implementation Report and Tranche Implementation Plan per Appendix 4-A in the agreement between the Government of China and the ExCom;
- Ensuring financial verification of the activities implemented;
- Reviewing and clearing TORs for TA activities and provide advice and assistance as needed;
- Monitoring the progress and carrying out supervision missions;
- Ensuring fund disbursement in accordance with the guidelines of the ExCom;
- Reporting the progress of the implementation plan and submitting requests to the ExCom for future trances;

FECO/MEP will be responsible for the overall implementation, coordination and management of the ICR sector plan, specifically including the following responsibilities:

- Preparing and implementing annual Tranche Implementation Plan/biennial work programme;
- Implementing, supervising and monitoring the conversion activities;
- Developing policy framework, implementing regulatory actions, and conducting technical assistance activities during the implementation as planned. All technical assistance activities will be further defined through development of specific TOR that will be reviewed and agreed by UNDP;
- Executing performance–based contracts with enterprises participating in stage II for technology conversions, and ensuring disbursement to the enterprises based on agreed performance targets;
- Preparing the annual Tranche Implementation Plan/biennial work program and annual Tranche Implementation Report as per provision of the agreement between the Government of China and the ExCom; and reports as required by UNDP;
- Facilitating performance verification and financial audit as required;
- Coordinating between various HCFCs consumption sectors at national level in such a way as to facilitate establishment of reliable sector level HCFC consumption data;
- Ensuring coordination between all relevant stakeholders in the sector;

- Carrying out commission procedure for establishing completion of enterprise level conversions.

In addition, China Refrigeration and Air-conditioning Industry Association (CRAA), acting as the supporting agency, will participate in the overall management and implementation of HCFCs phase-out in the ICR industry and will be responsible for the following tasks:

- Providing comprehensive technical support to the overall phase-out and conversion of the sector industry;
- Assisting FECO in selecting and finalizing the enterprise that would participate in stage II conversions;
- Assisting FECO in monitoring and reporting the progress of conversion at enterprise level;
- Carrying out selected technical assistance activities, such as organizing workshops and information disseminations activities, arranging technical experts meeting, and training, etc., as and when requested by FECO;
- Ensuring selection of the appropriate alternative technology at enterprise level and ensuring their sustainable implementation consistent with the agreed schedule;
- Assisting FECO in the formulation and implementation of policy and regulatory interventions that would ensure reductions in the HCFC consumption required for compliance with the 20120 targets;
- Assisting FECO in developing the programme implementation manual (PIM);
- Providing up-to–date data information and statistics relating to consumption of HCFC and alternatives, manufacturing, import and export volumes of the products containing HCFCs and alternatives and any other data relating to the industry as maybe requested by FECO;
- Assisting FECO in ensuring coordination with related stakeholders during the implementation tasks mentioned above;
- Organizing thematic meetings in the annual meeting of the sector, with aim to discuss and analyze the status of HPMP stage II in China, and the situation of the world;
- Carrying out road shows and roundtable meetings/seminars on new technology development with the promotion of publicity of MP (this activity will be supported by UNDP directly).

It is noted that the above tasks carried out by CRAA will not disqualify CRAA from participating in the bidding process of other technical assistance activities under the sector plan, as long as there exists no conflict of interest.

XIII. LEGAL CONTEXT AND RISK MANAGEMENT

This document together with the CPAP signed by the Government and UNDP which is incorporated herein by reference, constitute together a Project Document as referred to in the Standard Basic Assistance Agreement (SBAA); as such all provisions of the CPAP apply to this document. All references in the SBAA to "Executing Agency" shall be deemed to refer to "Implementing Partner", as such term is defined and used in the CPAP and this document.

Consistent with the Article III of the Standard Basic Assistance Agreement (SBAA), the responsibility for the safety and security of the Implementing Partner and its personnel and property,

and of UNDP's property in the Implementing Partner's custody, rests with the Implementing Partner. To this end, the Implementing Partner shall:

(a) put in place an appropriate security plan and maintain the security plan, taking into account the security situation in the country where the project is being carried;

(b) assume all risks and liabilities related to the implementing partner's security, and the full implementation of the security plan.

UNDP reserves the right to verify whether such a plan is in place, and to suggest modifications to the plan when necessary. Failure to maintain and implement an appropriate security plan as required hereunder shall be deemed a breach of the Implementing Partner's obligations under this Project Document.

The Implementing Partner agrees to undertake all reasonable efforts to ensure that none of the UNDP funds received pursuant to the Project Document are used to provide support to individuals or entities associated with terrorism and that the recipients of any amounts provided by UNDP hereunder do not appear on the list maintained by the Security Council Committee established pursuant to resolution 1267 (1999). The list can be accessed via http://www.un.org/sc/committees/1267/aq_sanctions_list. shtml. This provision must be included in all sub-contracts or sub-agreements entered into under/further to this Project Document".

Any designations on maps or other references employed in this project document do not imply the expression of any opinion whatsoever on the part of UNDP concerning the legal status of any country, territory, city or area or its authorities, or concerning the delimitation of its frontiers or boundaries.

1. Legal Context:

- ☐ Country has signed the Standard Basic Assistance Agreement (SBAA)
- ☐ Country has not signed the Standard Basic Assistance Agreement (SBAA)
- ☐ Regional or Global project

2. Implementing Partner:

- ☐ Government Entity (NIM)
- ☐ UNDP (DIM)
- ☐ CSO/NGO/IGO
- ☐ UN Agency (other than UNDP)
- ☐ Global and regional projects

Or click here for the MS Word version of the standard legal and risk management clauses.

XIV. ANNEXES

1. Project Quality Assurance Report
2. Social and Environmental Screening Procedure
3. Risk Analysis. Use the standard Risk Log template. Please refer to the Deliverable Description of the Risk Log for instructions
4. Capacity Assessment: Results of capacity assessments of Implementing Partner (including HACT Micro Assessment)

5. Project proposal submitted to the ExCom and revised to reflect approved funding level
6. MOU for MP project management based on PBP modality
7. UNDP_77ExCom_Stage II ICR Sector Plan_China