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EXECUTIVE COMMITTEE OF  
THE MULTILATERAL FUND FOR THE  
IMPLEMENTATION OF THE MONTREAL PROTOCOL  
Eighty-fourth Meeting  
Montreal, 16–20 December 2019

**REPORTS ON PROJECTS WITH SPECIFIC REPORTING REQUIREMENTS**

**Addendum**

1. This Addendum is issued to include reports on projects with specific reporting requirements pertaining to China.
2. The document is divided into the following parts:
  - Part I: Report on progress in the implementation of activities listed in decision 83/41
  - Part II: Financial audit reports for the CFC production, halon, polyurethane foam, process agent II, refrigeration servicing and solvent sectors (decision 83/42) (UNDP, UNEP, UNIDO, and World Bank)
  - Part III: Sector plan for the phase-out of methyl bromide production (decisions 83/43(b)(i) and 83/44(b) and (c)) (UNIDO)
3. Each part contains a brief description of the report or the progress of implementation of projects, the Secretariat's comments and recommendations.

**PART I: REPORT ON PROGRESS IN THE IMPLEMENTATION OF ACTIVITIES LISTED IN DECISION 83/41 (UNDP, UNEP, UNIDO, AND WORLD BANK)**

**Background**

4. At the 83<sup>rd</sup> meeting, the Executive Committee considered a document on the Review of current monitoring, reporting, verification and enforcement systems (MRVE) in accordance with HCFC consumption and production phase-out management plan Agreements between the Government of China and the Executive Committee, submitted by UNDP on behalf of the Government of China. In its deliberations, the Executive Committee *inter alia* welcomed a number of regulatory and enforcement actions to be undertaken by the Government; noted with appreciation that the Government will undertake additional actions in support of its enforcement actions; and further noted with appreciation that the Government of China will consider a set of suggestions to supplement and augment its regulatory and enforcement actions. The Executive Committee also noted that the Government of China would submit a

report at the 84<sup>th</sup> meeting, and again to the 86<sup>th</sup> meeting, on its progress in implementing the activities described in sub-paragraphs (a)-(d) of decision 83/41.

5. The Government of China has submitted to the 84<sup>th</sup> meeting a Progress Report pursuant to decision 83/41 (“*Progress Report*”). As requested by the Government of China, the *Progress Report* is annexed in its entirety to the present document without editing or further review.

## **PART II: FINANCIAL AUDIT REPORTS FOR THE CFC PRODUCTION, HALON, POLYURETHANE FOAM, PROCESS AGENT II, REFRIGERATION SERVICING AND SOLVENT SECTORS (UNDP, UNEP, UNIDO AND WORLD BANK)**

### **Background**

6. In line with decisions 71/12(b)(ii) and (iii)<sup>1</sup>, 72/13<sup>2</sup>, 73/20(b)<sup>3</sup>, 75/18<sup>4</sup>, 77/26(b)<sup>5</sup>, and 80/27<sup>6</sup>, the Government of China submitted to the 82<sup>nd</sup> and 83<sup>rd</sup> meetings, through the relevant bilateral and implementing agencies, final progress reports, relevant research, technical assistance reports, and audit reports including the interest accrued during the implementation of the CFC production, halon, polyurethane foam (PU) foam, process agent II, refrigeration servicing and solvent sector plans.

7. At the 83<sup>rd</sup> meeting, the Executive Committee decided to defer, to its 84<sup>th</sup> meeting, consideration of the financial audit reports for CFC production, halon, PU foam, process agent II, refrigeration servicing and solvent sectors in China (decision 83/42). Accordingly, the Government of China, through the relevant implementing agencies, has submitted to the 84<sup>th</sup> meeting a financial audit as of June 30 2019, and an update as of September 2019 to the reports presented at the 83<sup>rd</sup> meeting.

8. In order to reflect the updates since the 83<sup>rd</sup> meeting, the Secretariat is using the same document used at the 83<sup>rd</sup> meeting<sup>7</sup> **including in bold new text associated to the review of the updated report.**

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<sup>1</sup> The Committee invited the Government, through the relevant implementing agency, in future financial audit reports, to provide data on all funds that were being held by the Government for disbursement to beneficiaries, and the interest accrued from those balances, on the process agent II, solvent and the refrigeration servicing sector plans; and information on progress related to the work plans for the sector plans and its proposal on how to use potential balances.

<sup>2</sup> The Committee invited the Government, through the relevant implementing agency, to submit to the 73<sup>rd</sup> meeting the financial audit reports for the process agent II, solvent and CFC refrigeration servicing sectors, together with the plans for the remaining funds for the halon, CFC production, foam, process agent II, solvent, and CFC refrigeration servicing sectors, describing how they would be used for activities related to ODS phase-out and allow for the completion of those sector plans by the end of 2018.

<sup>3</sup> The Government and the relevant bilateral and implementing agencies were requested to submit annual progress reports, audit reports, and interest accrued during the implementation of the CFC production, halon, PU foam, process agent II, refrigeration servicing and solvent sector plans, until the completion of all activities no later than 31 December 2018, and to submit project completion reports for the sector plans no later than the first meeting in 2019.

<sup>4</sup> The Government was invited to include the results of the activities on the screening and evaluation of CFC-free substitutes and the development of new substitutes in a report to be submitted when those activities had been completed; to collect information where available on halon recovery as part of its collection of information on CFC recovery during visits to ship dismantling centres; and to undertake a study on its country’s production of CTC and its use for feedstock applications and to make the results of the study available to the Committee by the end of 2018.

<sup>5</sup> The Government was requested to provide to the 79<sup>th</sup> meeting final study reports on all R&D projects undertaken with funds from the Multilateral Fund under the CFC production sector.

<sup>6</sup> The Committee noted with appreciation that the Government has confirmed that the funding balances associated with each of the sector plans will be fully disbursed by the end of 2018; that relevant research and technical assistance reports will be submitted to the last meeting of 2018, and that the project completion reports will be submitted to the first meeting in 2019.

<sup>7</sup> Part I of document UNEP/OzL.Pro/ExCom/83/11/Add.1.

Planned budgets and progress reports

9. The financial data in the present report is based on the audit report submitted by the Government of China as of June 2019. As of **30 June 2019**, remaining balances amounted to **US \$14,752,436**. Table 1 presents an overview of fund disbursements between **1 July 2018 and 30 June 2019**, fund balances, and the planned completion dates for each of the sector plans.

**Table 1: Planned budgets for the use of remaining funds (US \$)**

Activity	Balance as at 30 June 2018	New disbursement	Balance as at 30 June 2019	Completion date
<b>CFC production: Total approved US \$150,000,000 (World Bank)</b>				
Research and development on ODS alternatives	742,087	697,952	44,135	
Supervision and management	233,411	97,668	135,743	
<b>Total</b>	<b>975,498</b>	<b>795,620</b>	<b>179,878</b>	<b>Dec 2019</b>
<b>Halon sector: Total approved US \$62,000,000 (World Bank)</b>				
Establishment of a national halon recycling management center, including capacity building, detecting equipment and information system	2,232,991	1,125,726	1,107,265	
Establishment of a halon-1211 recycling center, including collection, transportation, recycling and reclamation	3,017,686	0	3,017,686	
Establishment of a halon-1301 recycling center, including collection, transportation, recycling and reclamation	1,305,460	440,790	864,669	
Technical assistance: investigation of halon quantities for the civil aviation industry and for the ship recycling industry; and policy and regulations for halon recycling	2,917,936	256,834	2,661,102	
Disposal of unusable halon and residues	1,504,105	0	1,504,105	
<b>Total</b>	<b>10,978,178</b>	<b>1,823,351</b>	<b>9,154,827</b>	<b>Dec 2022</b>
<b>Process agent II: Total approved US \$46,500,000 (World Bank)</b>				
Capacity building for local EEBs	273,694	273,694	-	
CTC residue disposal	4,600,000	3,754,325	845,675	
Study on production of CTC and its use for feedstock applications	20,285	15,824	4,461	
Monitoring, management and post evaluation	2,439,041	213,067	2,225,974	
<b>Total</b>	<b>7,333,019</b>	<b>4,256,910</b>	<b>3,076,109</b>	<b>Dec 2020</b>
<b>PU foam: Total approved US \$53,846,000 (World Bank)</b>				
Screening and evaluation of CFC-free substitutes and development of new substitutes	270,935	80,994	189,941	
Additional provincial foam activities (capacity building for 11 provinces)	490,812	260,084	230,727	
Technical service for the foam enterprise for better application of new alternatives	375,377	188,039	187,338	
Continue monitoring of CFC phase-out in the foam sector	370,373	105,685	264,687	
Project monitoring and management	147,901	123,587	24,314	
<b>Total</b>	<b>1,655,397</b>	<b>758,389</b>	<b>897,009</b>	<b>Dec 2019</b>
<b>Refrigeration servicing: Total approved US \$7,884,853 (Japan, UNEP, UNIDO)</b>				
Ongoing activities (e.g., eight training centres, training on disposal ships sector, Shenzhen demonstration project)	94,415	94,415	0	
Training programmes for ICR/RAC sub-sectors	580,733	232,828	347,904	
Research on leakage of refrigeration during R-290 RAC servicing and operation	282,040	0	282,040	
Data survey	84,586	84,586	0	
Monitoring and management	10,000	0	10,000	
Capacity building on ODS monitoring (reallocation of funds from training activities)	95,846	0	95,846	

Activity	Balance as at 30 June 2018	New disbursement	Balance as at 30 June 2019	Completion date
Total	1,147,620	411,829	735,790	Oct 2019
<b>Solvent sector: Total approved US \$52,000,000 (UNDP)</b>				
Combating ODS illegal activities: capacity building for 10 local customs offices	644,985	191,866	453,119	
Capacity building for ODS-related personnel in 14 provinces	340,000	340,000	0	
Alternative technology assessment and research	140,178	140,178	0	
Electronic file management system	92,307	0	92,307	
Activity management and monitoring	249,470	86,074	163,396	
Total	1,466,940	758,118	708,822	Dec 2019
<b>Summary</b>				
CFC production (US \$150,000,000 - World Bank)	975,498	795,620	179,878	2019
Halon sector (US \$62,000,000 - World Bank)	10,978,177	1,823,351	9,154,827	2022
Process agent II (US \$46,500,000 - World Bank)	7,333,019	4,256,910	3,076,109	2020
PU foam (US \$53,846,000 - World Bank)	1,655,397	758,389	897,009	2019
Servicing (US \$7,884,853 - Japan, UNEP, UNIDO)	1,147,621	411,829	735,791	2019
Solvent (US \$52,000,000 - UNDP)	1,466,940	758,118	708,822	2019
<b>Total*</b>	<b>23,556,652</b>	<b>8,804,217</b>	<b>14,752,436</b>	

\* The progress reports received for each sector plan indicate that as of 31 August 2019 the balance has been reduced to US \$13,280,207 (i.e., US \$179,878 in CFC production; US \$9,154,827 in halon; US \$3,076,109 in process agent II; US \$200,000 in PU foam; US \$288,183 in servicing and US \$381,211 in solvent). Those additional expenditures are only included here for information purpose as they have not been audited. The audited balance as of 30 June 2019 is US \$14,752,436.

10. Financial audits of the disbursements as of **30 June 2019** were conducted by Daxin Certified Public Accounts LLP according to national standards. The audit opinion was that **the statements of project grant and disbursement of the CFC production, halon, CTC process agent, PU foam, solvent and refrigeration servicing sector plans were in compliance with the rules of the Montreal Protocol and the accounting standards of China, and had been fairly and justly presented by the Foreign Environmental Cooperation Center/Ministry of Ecology and Environment (FECO/MEE) of China.**

11. The activities implemented in each sector plan since 1 July 2018 are summarized below.

#### CFC production sector

12. Since 2015, the only remaining activities in the CFC production sector plan are in research and development (R&D) of ODS alternatives, and supervision and management. A total of **US \$795,620** had been disbursed **between 1 July 2018 and 30 June 2019**. The remaining funding of **US \$179,878** is expected to be disbursed by the end of 2019.

13. Regarding R&D of ODS alternatives, thirteen proposals have been selected, **all** of which have been completed **and passed project acceptance**. **Since the 82<sup>nd</sup> meeting, US \$697,952 was disbursed. Due to currency fluctuations between the time when the contracts were signed and when payments were made, there is an unallocated balance of US \$44,135 that the Government of China proposes to use to purchase instruments for ODS monitoring for local Ecology and Environment Bureaus (EEBs) to build their capacity and achieve sustainable CFC phase-out compliance.**

14. A total of US \$233,411 had been allocated to supervision and management. **FECO** has disbursed US \$97,668 to produce video training materials for ODS import and export management (**US \$32,073, with a remaining contract value of US \$80,080**), for a training workshop held on 21-23 January 2019 in Changsha, for 140 officers from all the provincial EEBs (US \$22,801); for a video on industry compliance that was screened on the 2018 Ozone Day (US \$34,145); and for the 2018 financial audit for all the sectors (US \$8,649). The remaining unallocated balance of US \$55,662 will be used by **FECO** to purchase instruments for ODS monitoring for local **EEBs** to build their capacity and achieve sustainable

CFC phase-out compliance. **The total remaining unallocated balance of US\$ 99,797 from the CFC production sector, together with the unallocated fund from other sectors, is planned to be allocated to purchase instruments detect both pure ODS and ODS-containing foam products. Based on the purchase cycles of the detectors, the contract of this activity has been signed, and is expected to be completed by the end of 2019.**

#### Halon sector

15. A total of **US \$1,823,351** was disbursed between **1 July 2018 and 30 June 2019**. The remaining funding of **US \$9,154,827** is expected to be disbursed between the end of 2019 and 2022.

16. In 2014, FECO prepared a plan to develop the national halon recycling and management system (NHRMC), and the remaining funding of the halon sector was entirely designated to support this program. Between 2015 and 2016, FECO established the NHRMC in cooperation with the certification center for fire products within the Ministry of Public Security. In 2017, the NHRMC publicized halon recycling in Shanghai, and worked with the government and the private sector to encourage halon recycling. Based on the experience gained in the last three years and feedback received, in 2018, NHRMC and FECO redesigned the work plan, started a project to develop an information management system and recycled 1.5 tonnes of halon-1301 from Tianjin and Jiangsu. Part of the remaining funding will be used for the purchase of equipment for stations, centers and local fire-fighting bureaus to analyze halon product components and identify their purity during recycling.

17. In 2018, Shanghai Leinuo Security Technology Co., Ltd also recycled 450 kg of halon-1301 from discarded ships for sale. As the market price of recycled halon-1301 was insufficient to cover the recycling cost, Leinuo applied to NHRMC for a compensatory subsidy, which NHRMC is currently evaluating. In January 2019, Leinuo was formally certified as national halon-1301 recycling station and **is currently receiving** assistance to enhance its capacity.

18. **The investigation of halon quantities for the Chinese civil aviation industry was concluded. Amounts of halon-1301 and halon-1211 existing in aircrafts and maintenance enterprises were estimated, and it confirmed that airports are no longer using halon-1301 and halon-1211 in fire extinguishers, in line with regulations.**

19. FECO is currently selecting qualified enterprises to undertake the establishment of a halon-1211 recycling center. The project is estimated to start in 2019 and be completed in 2020. In the meantime, FECO will provide assistance to the enterprise Zhejiang Dongyang chemical Co., Ltd to ensure the safe storage of 2,261.4 tonnes of halon-1211. In December 2018, FECO and NHRMC approved the project at US \$1.45 million for new storage tanks and cylinders and the establishment of a stocks management and monitoring system. Currently, FECO and NHRMC are addressing safety concerns raised by the local government and the project is expected to restart **in November 2019**. FECO and NHRMC plan to organize the policy and regulation research for halon recycling in 2019.

20. FECO and NHRMC **approved** a contract for US \$200,000 with the Shanghai fire department to investigate halon quantities and distribution in the Shanghai district. **Terms of reference for a similar contract with the Henan fire department are being prepared.**

21. NHRMC and FECO are committed to exploring the feasibility of international cooperation on halon recycling and disposal, to assist other Article 5 countries in achieving the compliance target. In the next few decades, HFC fire-fighting products have the potential to become the main substitute for halon products. Considering that the Kigali Amendment will gradually reduce the production and consumption of HFC, relevant experience learned from the establishment of NHRMC could be adapted to HFC recycling, reclaiming, recovering and disposal.

22. **FECO intends to implement a project for monitoring the feedstock use of halon-1301 and identifying any possible illegal production and sales of halon-1301. At present, this project is still under preparation and coordination with the relevant department.**

23. With the funding so far disbursed, the Government of China has gradually established and operated the NHRMC. Out of the balance of **US \$9.15 million, US \$1.89 million** are committed on ongoing activities. The **US \$7.26 million** not committed yet will be used on activities aimed to further improve the recycling system and achieve sustainable management of halons, including: the establishment and operation of the halon-1211 recycling centre, halon-1301 recycling operations, capacity building for halon recycling stations, procurement of halon detecting instrument, policy and regulation research for halon recycling, investigation of halon quantities in key areas of China and disposal of unusable halon and residues. These activities will be implemented between 2019 and 2022.

#### Process agent II

24. A total of **US \$4,256,910** was disbursed between **1 July 2018 and 30 June 2019**. The remaining funding of **US \$3,076,109** is expected to be disbursed between the end of 2019 and 2020.<sup>8</sup>

25. **The progress report on the process agent II was received on 15 November 2019 and the Secretariat was unable to review that report in time for inclusion in the present document. For ease of reference, the information as presented to the 83<sup>rd</sup> meeting is included below.**

26. Six EEBs working with producers of CTC and other ODS received assistance to set up ODS management offices, establish specialized channels for enterprises to report ODS data, and undertake on-site inspections of enterprises. The project has been completed and the last payment was disbursed in January 2019, for a total disbursement of US \$280,000 for this activity. The remaining balance of US \$8,357 is proposed to be allocated to strengthened ODS monitoring and management.

27. A CTC residue disposal project is being implemented to support CTC by-producers in the disposal of their distillation residues from CTC refining and conversion facilities. Contracts for US \$4.6 million in total were signed with nine enterprises for the construction of incinerators (3), the upgrading of existing incinerators (2), the construction of residue reduction devices (2), and for operation costs subsidies (2). Construction of the three incinerators and two residue reduction devices has been completed, with the incinerators and devices tested; one enterprise finished the upgrade to its existing incinerator, while the other has not yet finished its upgrade. On-site verification of the two enterprises receiving subsidies for the operation of their incinerators confirmed their use to dispose CTC residues. The level of disbursement for those activities was US \$3,228,084, with US \$1,371,915 in payments still to be made upon completion of the activities by December 2019. The remaining balance of US \$845,970 is proposed to be allocated to strengthened ODS monitoring and management.

28. As per the requirements of decision 75/18 of the Executive Committee, a study on China's production of CTC and its use for feedstock applications was launched in March 2018. Questionnaires for methane chloride production enterprises (CTC by-producers) and CTC feedstock use enterprises have been designed and were distributed in July. On-site investigations at the enterprises are being carried out, and a report assessing current emissions from CTC production and the feedstock usage is under preparation. **The report was submitted on 21 October 2019; the Secretariat will present that report, and the Secretariat's review thereof, in Addendum II to document UNEP/OzLPro/ExCom/84/22.**

29. Decision XXIII/6 specifies that after 31 December 2014, the use of CTC for the testing of oil in water would only be allowed under an essential use exemption. In 2017, the Government of China announced its commitment to phase out the use of CTC for laboratory testing of oil in water by 2019. In

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<sup>8</sup> Updated figures based on the audit report submitted by the Government of China as of 30 June 2019, which included data on the process agent II.

January 2018, FECO signed a contract with Tianjin Eco-Environmental Monitoring Center to develop alternative testing standards. Technical ways of replacing CTC with n-hexane have now been determined, and three national standards have been developed and were released and became effective 1 January 2019, and US \$10,978, representing the final payment under the contract, was disbursed. The contract with Beijing Guohua Jingshi Consulting Co., Ltd., was signed in August 2018 to continue training and advocacy for alternative technologies to replace analytical use of ODS in laboratories; the contract value is US \$110,224, and the first payment of US \$10,978 was disbursed. A further US \$14,125 was disbursed to experts for technical support for project evaluation, acceptance and site verification.

30. In addition, two projects have been launched to strengthen capacity building for sustainable compliance with the Montreal Protocol. One project is the design and construction of an ODS online data reporting information system (stage II) (US \$250,000). The online system will complement the HCFC online management information system (MIS) established under the stage I of the HPPMP by incorporating data on all ODS and will be a management platform to MEE and local EEBs to monitor enterprises under their jurisdiction. The other project is capacity building for customs in the area of supervision and management of ODS (US \$750,000). FECO is coordinating the supervision and management of ODS trade with the new department at the Customs Authority given institutional reforms at the Customs Authority.

31. Given unallocated balances of approximately US \$1.24 million, the Government of China proposes to undertake the following activities to enhance the long-term monitoring and management of ODS:

- (a) Construction and upgrade the online monitoring system on CTC production. This system would complement the ODS MIS by focusing on the CTC production, conversion, sales and stockpile among all the chloromethane (CM) producers;
- (b) Investigations of CTC production and feedstock uses. This activity will complement the study to be submitted in line with decision 75/18, which was carried out by an expert with a focus on CTC emissions during CTC production and feedstock uses. This activity is planned as an on-site survey and verification for CTC production and feedstock uses. PCE plants would not be covered;
- (c) Support to enterprises on development and supply of the necessary reagent (substitute of CTC) that is applied by the amended national standard. The supply of substitute, PCE, does not fulfill the market demand after the new standard was released. This activity would support reagent manufactures to set up the necessary purifying facilities of PCE to meet the requirements of the new standard and market demand;
- (d) Training and capacity building on ODS supervision and enforcement for local EEBs. The activity is to conduct regular training courses to local EEBs on ODS management, inspection, supervision and enforcement. Staff from provincial, municipal and county-level EEBs engaged in environmental monitoring will be trained;
- (e) Market supervision and information collection on ODS sales. A consulting firm will be contracted to collect information of ODS sales and market, and to identify suspected illegal sales. The information related to such sales will be reported to MEE for further action; and
- (f) Technical, policy and law support on ODS management, inspection, supervision, enforcement, as well as ODS disposal, etc. Individual experts will be hired to provide such support to relevant institutions.

PU foam

32. A total of **US \$758,839** was disbursed between **1 July 2018 and 30 June 2019**. Out of the remaining funding of **US \$897,009 as of 30 June 2019**, **the progress report submitted indicates that as of end September 2019 there is a balance of US \$200,000** expected to be disbursed **by the end of 2019**.

33. The remaining balance is being used in the procurement of instant blowing agent detectors. Ten research activities implemented in the PU foam sector were completed during the first half of 2018. These proposals had been selected to support the development of formulations with zero-ODP and low-GWP blowing agents at low prices that could be used by small and medium-sized enterprises (SMEs), and formulations of pre-blended polyol systems to optimize the stability, performance and insulation properties of foam products.

34. In June 2018, a spray field test was completed at a construction site in Hebei province with HFO as the blowing agent. The field test sprayed over 2,350 m<sup>2</sup> for domestic buildings. Dimensional stability, insulation performance, and other relevant foam properties were assessed in the winter under low ambient temperature and the report is being finalized.

35. In December 2014, FECO signed contracts with four systems houses that established production capacity for water-blown based pre-blend polyols by installing production facilities and laboratory equipment, and through trials and testing of the new formulations. Currently, the systems houses are providing technical services to downstream foam enterprises and have sold over 2,000 mt of alternative pre-blended polyols to downstream users including SMEs. The four projects were completed in June 2018 and the systems houses received their last payment early 2019.

36. FECO also signed contracts with EEBs in 11 provinces/cities aimed at enhancing public awareness of ozone layer protection, strengthening sustainable compliance capability, and ensuring that no CFCs or other controlled ODS would resurge post 2010. The 11 local EEBs had fulfilled the goals and conditions as per required in the contract. The projects have strengthened the knowledge, management and enforcement capacity of these 11 regions, and promoted awareness of the national ODS management regulations. The 11 EEBs completed the projects in December 2018 and received final payments on their contracts.

37. The Government has issued the Regulations on ODS Management and the Circular on the Management of Construction of Facilities Producing or Using ODS, and has taken other policy actions to prohibit the re-use of phased-out CFCs and enforce the controls on HCFCs. However, the foam sector contains a large number of enterprises with various applications. Therefore, FECO has continued monitoring activities through contracts with five provinces (i.e., Hebei, Henan, Shandong, Si Chuan and Tianjin), where the majority of systems houses and foam enterprises are located, to visit chemical dealers, systems houses, and foam enterprises to collect samples of blowing agents, pre-blended polyol systems, and final foam products. **As of the 83<sup>rd</sup> meeting**, over 420 foam enterprises and systems houses have been visited, and over 780 foam and raw material samples have been collected. According to the preliminary test of the samples, there is a small percentage of those samples suspected of probably containing phased-out CFC/HCFC. Three enterprises in Shandong were detected with illegal use of CFC-11, and were subject to the punishment in accordance with ODS management regulation. **The most updated information on the findings of these monitoring activities, including those related to the inspection of an additional 656 systems houses and foam enterprises, is presented in the report annexed to the present document, submitted by the Government of China in line with decision 83/41(e).**

38. The Government considers that the monitoring activities have effectively enforced the established policy system. However, the efficiency of inspection and monitoring of the foam sector can be hindered by the number of subsectors and system houses, inadequate knowledge on the part of inspectors regarding foam production, and an insufficient number of blowing-agent detectors (not all cities and counties have them). In addition, the regulations on ODS management are concise and do not provide detailed instructions



on dealing with each specific situation that may arise, leaving things up to provincial policy and EEB interpretation. Moreover, the alternative technologies have not penetrated the sector and higher costs undermine the willingness of SMEs to convert to zero-ODP, low-GWP alternatives. These challenges are well noted by FECO and MEE, which will continue providing technical support to local EEBs and environmental monitoring branches via different channels.

39. Fourteen instant blowing agent detectors were procured and allocated to five EEBs to continue monitoring of CFC phase-out in the foam sector. Based on the positive results obtained in improving the efficiency of inspections, US \$200,000 were allocated to procure 14 additional detectors to strengthen monitoring and enforcement capacity in key provinces lacking testing equipment. **Given that not all detectors have been assembled and delivered to destined provinces, the funding will most likely not be disbursed before the end of 2019.**

40. In order to improve testing capacity and facilitate enforcement (only three institutions that can provide certified testing reports), the Government of China will support six additional testing centers to adopt a technical standard on testing blowing agent in foam and become certified as PU foam blowing agent testing labs by the end of 2019.

41. The Government of China also held the International Workshop on Capacity Building for the Implementation of the Montreal Protocol in China on 18 March 2019, with over 10 Article 5 and non-Article 5 Parties, the Ozone Secretariat, the Fund Secretariat, the Scientific Assessment Panel and all implementing agencies. Balances of nearly US \$100,000 were **used** to deliver this workshop, the testing fee for the samples of foam and polyols accrued since August 2018 and increasing testing capacity.

#### CFC refrigeration servicing sector

42. A total of **US \$411,829** was disbursed between **1 July 2018 and 30 June 2019**. Out of the remaining funding of **US \$735,790 as of 30 June 2019**, **the progress report submitted indicates that as of end September 2019 there is a balance of US \$288,183** expected to be disbursed by the end of **October 2019**.

43. All of the 13 training centers established by FECO in 13 cities to implement vocational training courses for servicing technicians have completed their projects. As of August 2018, more than 4,100 technicians, trainers and students had been trained (three of the centres have completed the training programme). In 2017-2018, FECO conducted site visits and issued final reports for all 13 training projects.

44. By the end of 2018, an additional 500 technicians were trained in the two additional training centres contracted in 2017. In 2018, FECO signed contracts with four additional training centers for training in good refrigeration practices that **will finish by end October 2019**, and completed a research on refrigerant leakage control during the operation and servicing of R-290-based air-conditioning systems, and the two surveys on the disposal-ships sector and on the cold chain in supermarkets. A total of 150 technicians and managers from the disposal-ships sector were trained on ODS management policies and reduction of ODS emissions through recovery.

45. Monitoring and management activities (including consultancy, training, evaluation and verifications) will be conducted by FECO to achieve sustainable compliance with CFC phase-out. A balance of US \$15,924 from training activities was allocated to monitoring for the procurement of ODS instant detectors to support EEBs in undertaking on-site inspections.

#### Solvent sector

46. A total of **US \$758,118** was disbursed between **1 July 2018 and 30 June 2019**. Out of the remaining funding of **US \$708,822 as of 30 June 2019** **the progress report submitted indicates that as of end of September 2019 there is a balance of US \$381,211** expected to be disbursed by the end of 2019.

47. As of August 31, 2018, 3,800 officers from ten customs offices had received training on ODS-related issues and each customs office that had made ODS checking part of its regular work received testing equipment. As of 30 June 2018, more than 5,000 local EEB officers had received training on ODS-related policies, and over 18,000 people had participated in public awareness activities. Local EEBs organized more than 30 on-site inspections of ODS enterprises. All 31 EEBs assisted finished completion reports and received the final payment by the end of 2018.

48. FECO, with the support of Peking University, finished the report “Analysis on the impacts of ratification by China of the Kigali Amendment on HFC management.” Research on alternative technologies and on silicone oil optimization at five institutions<sup>9</sup> was completed. Management and monitoring activities, including on-site verifications, monitoring audits and project evaluations, continued to be implemented.

49. An electronic management system for ODS related documents **was finalized** and the last payment for US \$92,307 **was** disbursed. A balance of US \$453,119, **together with other financial resources from other sector plans**, has been committed to the procurement of **50 sets of ODS instant testing equipment to support 28 provinces. The first 20 sets have been delivered to local EEBs, and the remaining 30 will be delivered before the end of 2019. The disbursement of balances will take place by the end of December 2019.**

50. As per decision 73/20, UNDP revised the PCR submitted in 2012 to reflect the activities implemented under the solvent sector during the last four years. A final PCR will be submitted when the remaining balances are disbursed.

### Interest accrued

51. Table 2 presents the amount of interest collected.

**Table 2: Interest reported from the sector plans in China (US \$)**

Sector	1 July 2018 – 30 June 2019	1 January 2010 – 30 June 2019
CFC production, halon, process agent II, and PU foam	979	22,088
Refrigeration servicing	4,322	97,887
Solvent	24,508	350,144
<b>Total</b>	<b>29,809</b>	<b>470,119</b>

52. As in past reports, the interest accrued for the solvent sector is significantly higher than that accrued for other sectors, as interest from RMB accounts is higher than interest from US dollar accounts.

### Secretariat’s comments

#### Overall progress

53. At the 80<sup>th</sup> meeting, the implementing agencies provided reassurance that the funding balances associated with each of the sector plans would be fully disbursed by the end of 2018 and that the project completion reports would be submitted to the first meeting of the Executive Committee in 2019. Subsequently, the Executive Committee noted with appreciation *inter alia* that the Government of China had confirmed that all activities associated with each of the sector plans would be completed by the end of 2018, that relevant research and technical assistance reports would be submitted to the last meeting of 2018, and that the project completion reports would be submitted to the first meeting of the Executive Committee in 2019 (decision 80/27(c)).

<sup>9</sup> Beijing Yuji, Dongyang Weihua, Shanghai Xilikang, Quzhou Sancheng and Huaxia Shenzhou.

54. Furthermore, during the 80<sup>th</sup> meeting, the Committee held informal discussions on the issue of the return of balances, and in reporting the outcome of those discussions, one member, supported by another member, said that, while the request for the return of the outstanding balances to the Fund had been withdrawn, in his view and in the view of others, outstanding balances should in principle be returned to the Fund or offset against future approvals, and the issue of the return of balances should be revisited at a future meeting of the Committee (UNEP/OzL.Pro/ExCom/80/59).

55. The progress reports submitted to the 82<sup>nd</sup> meeting indicate that the commitment to complete all activities by the end of 2018 **had** not been fulfilled in several of the sector plans, and some sector plans **were** proposed for extension to 2020 (process agent II) and to 2022 (halon). It **was** also noted that all other sector plans with the planned completion date of December 2018 (CFC production, PU foam, servicing, solvent) **had** balances, which **were** planned for disbursement in 2019. Out of the balance of US \$25.89 million, as of 30 June 2017, only US \$4.13 million (16 per cent) had been disbursed. The balance **at the 82<sup>nd</sup> meeting** of US \$22.24 million **was** still only 43 per cent of the total balance of US \$52 million available in 31 December 2009.

56. The Government of China noted the points raised above, and emphasized that there was no specific decision or requirement to return funds, further stating that the remaining funds are necessary to achieve the overall goal of permanent and sustainable phase-out and have been programmed accordingly. In addition, the Government of China indicated that:

- (a) All substantive activities in the CFC production, PU foam, refrigeration servicing and solvent sectors will be completed as scheduled by December 2018 and final disbursements will be made in 2019 after satisfactory completion of the activities by December 2018;
- (b) The major reason for non-completion of the halon sector activities is that from 2014 to 2018, FECO focused on building the foundation and gradually developing the NHRMC. FECO summarized the lessons learned from the demonstration project of the halon bank (2008-2013) and set up a strategic plan that established the halon recycling system in 2014. After four years of efforts, the NHRMC is established and in operation;
- (c) There were three main reasons for the non-completion of the process agent II sector plan. First, as CTC residue disposal is also controlled by the hazardous waste management system in China, FECO first completed the feasibility analysis before the project was launched, including site visits with experts to the CTC by-producers and hazardous waste disposal centers, and several rounds of discussion with the key provincial EEBs. Second, building the capacity of local EEBs is a long-term project under which the local EEBs were required to carry out numerous activities and to meet the relevant milestones. Finally, CTC, as a by-product of CM plants, will continue to be generated, and it is expected that its use as a feedstock will continue in the future. Hence, continued long-term monitoring of the production and use of CTC is always required. And it is necessary for MEE to improve and refine the regulations.

57. **The progress reports submitted to the 84<sup>th</sup> meeting indicate that all activities for the servicing sector would be completed by October 2019; CFC production, PU foam, and solvent sectors would be completed by December 2019; process agent II would be completed by 2020; and halon sector by 2022.**

Additional comments on overall progress from the updated report submitted to the 84<sup>th</sup> meeting

*Date of completion of the sector plans*

58. At the 82<sup>nd</sup> meeting, the Government of China indicated that all substantive activities in the CFC production, PU foam, refrigeration servicing and solvent sectors would be completed as scheduled by

December 2018 and final disbursements would be made by 2019 after satisfactory completion of the activities in December 2018; while the completion of the process agent II and halon sector plans would be December 2020 and December 2022, respectively. However, the Executive Committee did not take a decision on this matter and decided to defer consideration of the financial audit reports to the 83<sup>rd</sup> and 84<sup>th</sup> meetings (decisions 82/17 and 83/42). The updates indicate that none of the sector plans was completed in December 2018 as all of them have additional activities ongoing/planned in 2019.

59. Noting that the Executive Committee did not decide on the extension of the projects beyond December 2018, the Secretariat considered that no further activities should have been conducted in 2019. The Government of China considered that the assessment that no other activities should have been conducted in 2019, cannot be deemed correct or incorrect from the Committee's perspective.

60. The updated dates of completion of the sector plans proposed by the Government of China are **October 2019 for the servicing sector; December 2019** for CFC production, PU foam, refrigeration servicing and solvent sectors; December 2020 for the process agent II; and December 2022 for the halon sector plan.

*Use of funds from several sectors in common activities*

61. It was also noted that part of the balances in several of the sectors were being allocated to cross-cutting areas related to the overall monitoring of the plans (e.g., the procurement of ODS identifiers, assistance to customs, monitoring workshop, the cost of the technical audit for all sectors to one sector, i.e., CFC production). The Government of China indicated that some of the balances are precisely being allocated to this type of activities following strong signals from the Committee and the Secretariat that balances should be diverted away from the narrow focus of individual sector plans to monitoring to ensure sustainable ODS phase-out, particularly sustainable CFC-11 phase-out.

62. On the area of capacity building to EEBs, which was present in several sectors and is practically completed, the Government of China provided an overarching summary of the assistance provided over the years and the results obtained. A total of 31 EEBs participated in the ODS capacity building project during the past five years with support, respectively from the PU foam sector plan (11 EEBs, US \$2,900,000), the process agent II sector plan (six EEBs, US \$2,800,000) and the solvent sector plan (14 EEBs, US \$3,880,000).<sup>10</sup>

63. A brief summary of the activities implemented as provided by FECO is presented below:

- (a) Established compliance coordination mechanism for ozone layer protection at local Government level; carried out data survey on ODS production and consumption, and on ODS sales, import and export, where relevant; and identified ODS consumer enterprises in their jurisdiction;
- (b) Strictly controlled new construction projects through environmental impact assessment approval at local level to ensure that no new ODS production and consumption facilities are approved in China except for feedstock use;
- (c) Organized training workshops on ODS management and compliance targeting city or county level officers and enterprises. More than 35,000 officers of local EEBs and other relevant authorities and more than 13,000 enterprises management staff have received training. Organized awareness-raising activities on ozone layer protection across the country through internet, television, schools or communities; and

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<sup>10</sup> A table with the value of the contracts signed with each EEB was made available to the Secretariat.

- (d) Took actions jointly to crack down ODS illegal behaviors based on the information received through the reporting platform and other sources, the ministry and local EEBs.

64. In addition, using funding from the CFC production sector, a training workshop was held in Changsha, Hunan Province 21-23 January 2019 for 140 officers from all provinces to share experience and lessons learned on ODS management.

65. Regarding the plan to supply of ODS instant detectors to EEBs to strengthen their monitoring and enforcement capacity, which is also present in several of the sector plans, the Government of China provided an overarching summary as well. The total funding for this purpose is estimated at US \$768,479 from the following sources: CFC production plan (US \$99,436), PU foam sector plan (US \$200,000), solvent sector plan (US \$453,119) and servicing sector (US \$15,924). In order to efficiently use funds, MEE plans to combine the balance from those four sectors to purchase the same type of detectors for local EEBs. MEE plans to purchase detectors as much as possible through centralized procurement. It will cover all provincial EEBs, especially major PU foam consumer areas, which will be equipped with more detectors.

66. The Government of China also explained that the suitcase-sized instant detectors<sup>11</sup> are capable to test the components of foam products, blowing agents, as well as pre-blended polyols. In testing, the collected sample is put into the detector through the feed port. The detector then generates the testing map against the chemicals contained in the sample through gas chromatography method. As per the different peak times of chemicals, the component of blowing agents can be screened on a preliminarily basis. The entire testing process of one sample usually takes about 20 minutes.

67. The Secretariat supports the use of these remaining balances for supply of ODS instant detectors to EEBs on the understanding that the Government of China will continue to report on the results of local EEBs monitoring efforts, including cases where CFC-11 was detected, in future financial audit reports. Once all the remaining balances under the projects included in the financial audit have been disbursed and those projects have been completed, the Secretariat proposes that Government of China continue such reporting under the annual progress reports of the HPMP PU foam sector.

#### *Summary of remaining balances and activities proposed*

68. In summary, based on the information provided by the Government of China up to the 84<sup>th</sup> meeting, out of the fund balance of **US \$14.75 million, US \$2.52 million from the CFC production, PU foam, solvent and servicing sector plans will be used mostly in ongoing monitoring activities and will be disbursed no later than December 2019; US \$3.07 million from the process agent II sector plan will be used in an online ODS management system and customs training, and activities to strengthen long-term, sustainable ODS monitoring, and will be disbursed up to December 2020; and US \$9.15 million from the halon sector plan will be used in the activities aimed to further improve the recycling system and achieve sustainable management of halons and will be disbursed up to December 2022.**

#### Monitoring sustainability of the phase-out

69. Each sector plan allocated funds for activities the Secretariat considers would contribute to the sustainable, long-term monitoring of the phase-out, including supervision and management, activities related to information management, capacity building for EEBs, and other activities. **At the 82<sup>nd</sup> meeting the Secretariat requested that the Government of China provide additional information on how the activities undertaken would contribute to the sustainable, long-term monitoring of the phase-out. For ease**

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<sup>11</sup> **Model EW-4400 portable photoionization gas chromatograph, manufactured by East and West Analytical Instruments at a cost of US \$20,000 apiece.**

**of reference**, the input provided by the Government of China and the Secretariat's comments, **as reflected in the document presented to the 83<sup>rd</sup> meeting**, are below.

*CTC production sector and the process agent sector*

70. CTC continues to be co-produced at CM plants (together with methyl chloride, methylene chloride and chloroform) where the ratio of CTC produced is reduced as much as possible. CTC is still used for feedstock by a number of chemical producers, for process agent (PA) applications where CTC emission control is applied, and for laboratory uses as allowed by the Parties to Montreal Protocol, governed by the Country's registration and quota system. In order to ensure that CTC production and consumption is limited within the amount allowed by the Government of China, CTC consumption quotas for laboratory uses and PA applications are issued by the MEE/FECO to relevant enterprises. Each CTC feedstock user is required to be registered in MEE/FECO. Qualified CTC producers are allowed to sell CTC to the CTC users with consumption quota or registration. Any excess CTC produced by qualified producers has to be converted to methylene chloride/perchloroethylene (MCI/PCE) or incinerated. Hence, continued monitoring of the production and use of CTC, and reporting of CTC production /consumption data to MEE/FECO, and regular inspection by local EEBs is required.

71. In order to strengthen the daily monitoring of CTC producers by both MEE and local EEBs, the CTC online monitoring system is planned to be restarted and upgraded. An online monitoring platform is to be set up, through which MEE and local EEBs would get real-time data from the CTC producers.

72. As identified during implementation of the CTC production phase-out plan, residues containing CTC are generated with CTC production. If not incinerated, or entrusted for incineration, there is a risk that CTC could be recovered and sold for illegal uses. In order to reduce the risk, incineration facilities at nine CM plants have been funded by FECO and the local EEBs will have to monitor disposal of CTC residues.

73. In 2017, the Government of China announced its commitment to phase out the use of CTC for laboratory testing of oil in water by the year of 2019. In order to replace CTC with a non-ODS extracting agent in oil in water tests, research, tests and analysis have been completed by MEE, through which ways for replacing CTC have been determined and the relevant national standards are expected to be released in the near future. Given that replacing CTC is not only a technical issue, MEE will continue to carry out relevant training and advocacy for alternative technologies and launch a project to encourage enterprises to improve the quality of the alternative reagent to replace CTC in laboratories.

74. The Government also indicated its understanding that the remaining funds could also be used for any new process agents the Parties might decide to add to the list of process agents controlled by the Montreal Protocol.

75. Understanding these challenges, the Government of China sees the need to extend the program beyond 2018 and continue to use the funds to ensure the sustainability of the phase-out of CTC for controlled uses.

76. The Secretariat noted with appreciation the proposal to allocate US \$1,200,000 for long-term monitoring and management for the sector. While supporting the allocation of funding for this purpose, the Secretariat noted the substantial level of funding and sought to better understand how the activities that would be funded would relate to those already undertaken. The Secretariat also sought clarification on how CTC producers obtain their qualification; how users become registered, and whether such registration would be restricted to users with a demonstrated PA application, feedstock use, or laboratory use; whether and how FECO allocated a quota for CTC; additional information related to the online monitoring system, including when it is expected to be operational; and whether all CM plants were required to have and operate an incinerator to dispose of CTC residues.

77. The Government of China informed that there are 15 CM producers with co-production of CTC and other CMs. Only three out of the 15 CM producers are allowed to sell CTC to registered users with an annual quota from FECO for feedstock, laboratory, and PA uses only. Only CTC producers that have a production quota before 2007 are allowed to sell CTC. MEE/FECO reviews their status annually.

78. In total, there are eight enterprises for laboratory use and PA use that is required to apply for annual procurement quota to MEE. For 2017, MEE issued 395 mt quota to these eight enterprises. For feedstock users, MEE performs annual registration management. The CTC feedstock user applying for registration must submit the necessary approval documents, including an environmental impact assessment (EIA). FECO announces the registration results on its website after reviewing the submitted documents to confirm the feedstock use and the quantity of CTC, which cannot exceed the approved capacity of the feedstock facility in the EIA document. The registration specifies the type of product to be produced using CTC and quantity of CTC.

79. In China, the CTC residue disposal is required to comply with the hazardous waste management regulations, which is a different regime from ODS regulations. According to the current policy, CMs producers could choose to dispose the CTC residue at their own disposal facilities with EIA approved by local EEBs, or send the residue to a qualified hazardous waste disposal centre. The producers are required to report the amount of residue produced, disposed, and stored to local EEBs. In addition, in-house disposal facilities are monitored by local EEBs to ensure compliance with the national discharge standard and the requirements of the approved EIA. FECO further clarified that three of the CM producers are part of a group of enterprises with HCFC-22 production; however, those CM plants are not part of the HCFC-22 production enterprises but independent entities within the group of enterprises. Therefore, the incinerators used for the destruction of HFC-23 by-product are different from the incinerators used to destroy CTC; subsidies provided for the destruction of HFC-23 by-product are similarly distinct from those provided for the destruction of CTC.

80. The local EEBs inspect all CTC producers and registered users in areas under their jurisdiction. According to the current regulations, there is no mandatory requirement for inspection frequency, but in practice it is at least once a year. Local EEBs inspect distributors that store CTC onsite. Regular inspection of CTC producers and feedstock users will continue after the funding has been exhausted and the project completed.

81. The CTC online monitoring system was shut down in 2015 due to a technical issue. That system only covers CMs producers under the CTC sector plan but not the new CMs producers, and so MEE/FECO has been working to find ways to expand the CTC online monitoring system to all CMs producers.

82. Remaining balances are planned to be used for an ODS online management system (US \$250,000), for capacity-building with the Customs Authority (US \$750,000), and for six activities to strengthen long-term, sustainable ODS monitoring (US \$1.24 million). The Secretariat notes the following:

- (a) The ODS online management system will enable all enterprises that use ODS to apply and register as an ODS user, and to report data. Accordingly, the Secretariat supports the proposal in principle, while noting that the Secretariat is not sufficiently familiar with the details of the existing ODS online management system to be able to identify how that system will be modified and, therefore, a reasonable level of funding for this activity. Moreover, funding from other projects, including MB production, the industrial and commercial refrigeration and the room air-conditioning sector plans under the HCFC phase-out management plan (HPMP), and the HCFC production phase-out management plan (HPPMP), has similarly been used to strengthen the ODS online management system. Such pooling of funding is likely an efficient use of resources, but makes monitoring the financial and implementation progress challenging;

- (b) Funding is similarly proposed under the MB production sector for capacity-building with the Customs Authority. FECO clarified that the contract under the MB production sector is focused on MB used for quarantine and pre-shipment (QPS) uses, while the capacity-building under the process agent II plan would be focused on anti-smuggling efforts. Given the delays in signing the contract under the MP production sector, the Secretariat believes it will be important to closely monitor the progress of this activity to ensure that it can be completed by December 2020;
- (c) While the six proposed activities will be useful, the Secretariat is unclear who much funding would be allocated to each activity. In addition, the Secretariat considers that additional reporting to the Executive Committee on the outcome of some of the activities would be useful. For example, the activity related to market supervision could provide a better understanding of how facilities that produced CFC-11 were able to purchase CTC. Moreover, the market supervision activity appears to be an activity that that a consulting firm would undertake for the duration of the contract for that activity. The Secretariat suggests that such market supervision would continue to be helpful after the completion of the project, and that a budget within MEE be allocated for that purpose. The construction and upgrade of the online monitoring system on CTC production would enable such market supervision. The Secretariat suggests that the Government of China, through the World Bank, provide additional information on the proposed activities, their budget, and a progress report on their implementation, to the 85<sup>th</sup> meeting. The Executive Committee may also wish to provide additional guidance on the US \$1 million allocated to the ODS online management system and capacity-building with the Customs Authority.

83. As further discussed in the document on the overview of the Country's monitoring, reporting and verification contained in Part I of document **UNEP/OzL.Pro/ExCom/83/11/Add.1**, the Secretariat strongly supports the proposed measures to strengthen the monitoring of CTC, and shares the view that improved CTC monitoring is vital to ensuring both the sustainability of the phase-out of controlled uses of CTC and of the production of CFCs. Based on additional information provided by the Government of China, recently discovered illegal CFC production facilities used the common production pathway, i.e., liquid phase fluorination of CTC and anhydrous hydrogen fluoride in the presence of antimony chloride; those facilities were able to purchase CTC for use as a raw material, suggesting that strengthened mechanisms to monitor CTC will be beneficial. The Secretariat believes the measures proposed will help in this regard. However, the Secretariat is unclear why PCE plants have not been included in the Government of China's CTC monitoring efforts.

#### *CFC production phase-out*

84. At the 82<sup>nd</sup> meeting, the Government indicated that, as found in recent atmospheric monitoring results, it appeared that there is some production and emission of CFCs, especially CFC-11. As all the known CFC production facilities were dismantled as part of the CFC Phase-out Sector Plan and FECO had visited all the previous producers of CFCs and found that none of them had restarted CFC production, any CFC production would come from illegal production facilities set up without permits. The Secretariat notes that the verifications submitted in line with the CFC production phase-out sector plan included photographic and video evidence demonstrating that key equipment had been destroyed or rendered unusable.

85. In order to identify any illegal CFC production, the monitoring of CTC production will be strengthened as indicated under the PA project. In addition, FECO proposes to expand the provincial atmospheric monitoring program in some provinces where illegal production might take place.

86. Production of CFC requires CTC and anhydrous hydrogen fluoride. Noting that monitoring the use of anhydrous hydrogen fluoride would be difficult, the Secretariat considers that strengthened monitoring of CTC production will be a key step in preventing future illegal CFC production. Similarly, the Secretariat considers that the proposal to expand the provincial atmospheric monitoring program would be invaluable



in detecting and deterring future illegal CFC production. The Secretariat enquired whether the current provincial atmospheric monitoring program already included instruments to observe CFCs and CTC, and how it would be expanded. The review of the current MRVE (decisions 82/65 and 82/71(a)) submitted by the Government of China provides additional information on the Country's atmospheric monitoring network, and its plans to expand it to ensure the sustainability of ODS phase-out; **and the report annexed to the present document, submitted by the Government of China in line with decision 83/41(e), provides an update on the progress made towards establishing that atmospheric monitoring network, as well as information on an additional CFC-11 production facility that was detected in 2019.**

*PU foam sector*

87. The Government indicated that while it assumed that CFC-11 had been phased out, it is now known that some CFCs might be illegally produced and used as blowing agents in the PU foam sector. In order to monitor what kind of blowing agents are used and to identify potential illegal use of CFC-11 in the PU foam sector, the inspection capacity of local EEBs has been strengthened. However, increased monitoring of PU foam manufacturers and foam systems houses is still needed. Hence, the Government considers that the continuation of the monitoring program beyond 2018 is needed until the Government of China's funding is fully exhausted.

88. In addition, although there is extensive, ongoing monitoring of foam enterprises that converted from CFC-11, including sampling of foam for analysis of the foam blowing agent content, the Government recognizes that there could be a gap in CFC-11 monitoring if all applications are not addressed beyond foam. Accordingly, the Government of China and the implementing agencies plan to coordinate monitoring between sectors.

89. The Secretariat emphasized the need to ensure the sustained phase-out of CFC-11 even after the funding under the PU foam sector plan was exhausted, and noted that 420 foam enterprises and systems houses have been visited in five provinces, and over 780 samples of raw material have been collected for analysis. With regard to the small percentage of samples suspected to contain CFC-HCFC, the Secretariat asked if the analysis by the certified labs confirmed use of CFC and, if so, in what proportion and what relevant rules and regulations would apply to enterprises using it.

90. The Government informed that the enterprises that have samples containing CFC-HCFCs are under investigation and hence under the joint mandate of the local EEB and Public Security (local police). The results were expected to be released to the public by the end of October. The updated report **at the 83<sup>rd</sup> meeting** indicated that three enterprises in Shandong were detected with illegal use of CFC-11, they were subject to punishment in accordance to regulations and the cases were closed. The Government clarified that this was part of the provincial monitoring activities. The ten cases reported in the monitoring and evaluation report are an outcome of the 2018 special campaign implemented.

91. On the relevant rules and regulations that would apply to enterprises using banned ODS, the Government indicated that so far, three enterprises had been detected illegally using CFC-11, and had been subject to the punishment set out in accordance with ODS management regulation. **The most updated information on the findings of these monitoring activities is contained in the report annexed to the present document, submitted by the Government of China in line with decision 83/41(e).**

92. The Secretariat notes that the use of HCFC-141b by an enterprise that committed to phase out may be subject to an enforcement action according to local regulations. However, in the case of CFC-11, it would have to be determined whether the origin is stockpile, recycled gas from previous uses (e.g., chillers) or production after the total phase-out deadline, which would potentially incur a penalty for non-compliance with the Agreement for CFC production and perhaps the Agreement for CFC consumption. This would require further analysis.

*Solvent sector*

93. For the solvent sector plan, the Government indicated that to further strengthen sustainable, long-term monitoring of the phase-out in the solvent sector, FECO supported local EEBs to monitor ODS activities and control illegal ODS production and use in their province. In addition, some local EEBs had established long-term mechanisms by issuing ODS management policies and effectiveness assessment requirements for ODS management officers. Also, by supporting the development of implementation techniques for the solvent sector, several experts had been trained to provide long-term and effective support for the sustainable, long term monitoring of the phase-out. The Secretariat noted that those activities were helpful but that it was still unclear how these actions, in particular the latter, would help ensure the sustainable, long-term monitoring of the sector.

*Servicing sector*

94. The Government indicated that the technical assistance projects on research into servicing leakage and the data survey are closely connected to HPMP implementation. The research on leakage of refrigerant during R-290 RAC servicing and operation is part of research into alternatives. The data survey in the supermarket sub-sector is connected with promoting good servicing practices in that sub-sector. The Secretariat noted that those activities were helpful but not related to ensuring the sustainable, long-term monitoring of the sector.

*Halon sector*

95. The situation for the halon sector is somewhat different from other sectors as there is a continued demand for halon-1211 and halon-1301 for uses where alternatives are not available. Those applications are supposed to be met by recovered and recycled halons until alternatives are available. The halon recycling program was an essential element in the halon sector plan. The China halon sector plan also includes halon banking as a key component. The implementation of the halon banking component has been delayed as reported.

96. The Government considers that the risk of illegal production of halon-1211 is very low given the large stock of halon-1211 produced before the total phase-out and the minimal annual demand of 20 to 30 mt/year. The remaining stock of halon-1211 is at one former halon-1211 producer. The Government of China proposes to either move all or part of it so it can be stored under safe and controlled conditions, or to destroy/convert some of it. The Government of China believes that this is important to avoid the emission of over 2,200 mt of halon-1211.

97. In contrast, halon-1301 is still produced solely for feedstock use; such newly produced halon-1301 is not added to stocks but is instead used exclusively as a feedstock. The Government assumes that the demand for controlled uses of halon-1301 is covered by existing stocks, and that halon-1301 is recovered from dismantled fire-protection installations and reclaimed for applications where no alternatives exist yet. There is a continued demand for halon-1301 for existing fire extinguishing systems where no other alternatives can be used due to safety issues, and for civil aviation, where there are still no alternatives available for certain aircraft fire suppression systems. Civil aviation is expanding globally, especially in China, with an expected annual growth of over ten per cent over the next five to ten years.

98. There are two issues related to halon-1301. First, halon-1301 is still being produced<sup>12</sup> for feedstock use by one producer and sold to eight producers of fipronil (a pesticide). Hence, it is essential to ensure that all newly produced halon is sold to those eight enterprises and that they are using it as feedstock for fipronil and not selling it for other uses. The second challenge is to ensure sufficient supply of halon-1301 to the remaining users with no approved alternatives, especially civil aviation. The Government considers that in

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<sup>12</sup> As noted in UNEP/OzL.Pro/ExCom/82/SGP/03, HFC-23 is used as a feedstock during the production of halon-1301.

order to avoid the need for production for essential use, it is clear that as of today, the demand can only be met by halon-1301 recovered from the market. Hence, continuation of the halon-1301 recycling programme is essential to ensure supply of halon-1013 and avoid the risk of illegal production.

99. The Secretariat agrees that the halon recycling programme is a valuable element in ensuring continued supply of halon-1301. However, the Secretariat was not clear how the Government of China intended to ensure the long-term, sustainable monitoring of the halon phase-out after completion of the project.

#### Financial issues in specific subsectors

100. With regard to the CFC production sector plan, the Secretariat noted that a contract for US \$112,153 was signed for the production of a video on ODS basic knowledge, progress in the implementation of the Montreal Protocol and necessary implementation skills for enforcement officers and ODS dealers. In explaining how this activity is related to the CFC production sector and how it will enhance the sustainable monitoring of the phase-out, the Government explained that the series of video textbooks will be used by the customs department during the management of ODS import and export training aimed at improving the supervision ability of customs staff, and improving the performance knowledge of on-campus customs officers. It will also train enterprises engaged in ODS import and export to comply with the requirements of ODS management, in order to enhance the training sector's ODS compliance awareness, management skills and management level.

101. In relation to PA II, in August 2018 contracts for US \$4.6 million were signed with nine enterprises for the construction of three incinerators, the upgrading of two existing incinerators, the construction of two residue reduction devices, and for operation cost subsidies in two cases. Given that the enterprises will receive the first installment of 80 per cent of the contract value by the end of 2018, the Secretariat requested clarification regarding the milestone that the enterprises need to achieve to receive the funding and asked whether this was a retroactive project. The Government explained that these are investment projects to be completed by 2019 (not retroactive) and that the milestone for the first payment is completion of the upgrade or establishment of the disposal facilities. The enterprises involved must bear most of the cost of establishing or upgrading the facilities, with FECO only providing a small portion of the funds to encourage the internal disposal of the CTC residues. This project is aimed at encouraging CTC producers to dispose of their CTC residue internally instead of sending it to other disposal centers or even selling it to be re-used. The Secretariat notes that such sale would be considered consumption.

#### Research and technical assistance reports

102. On the expected impact of the technical assistance provided with these balances on the implementation of the HPMP sector plans, the HPPMP, and the phase-out of HCFCs, the Government affirmed that technical assistance is necessary in the CFC PU foam and CFC production sectors to ensure that manufacturers using alternatives and producers of alternatives to CFC continue to have the best technical options available to them as the market evolves. In particular, the goal is to prevent those enterprises that have chosen ODS alternatives from defaulting to HCFCs if they have experienced challenges with other alternatives.

103. In the past four years, the solvent sector plan supported research and several studies, including R&D for alternatives with zero-ODP and low-GWP. Two new alternatives (HC solvent, solvent-free silicon oil) had been chosen by solvent enterprises to replace HCFC-141b during phase-out implementation, and the other three alternatives are at the stage of preparing related qualified certification for more applications. The goal of this research and these studies is to provide sustainable technical solutions to industry, and to try to prevent them from using HCFCs when they encounter any technical challenges.

104. The progress report of the PU foam sector included interesting abstracts of the studies completed, mostly on the performance of alternatives. Taking into consideration that the studies have taken place with

Multilateral Fund assistance, the Secretariat requested the complete reports of the research activities in all sectors in order to consider how they could be disseminated. FECO noted the Secretariat's request for submission of the relevant reports, and indicated that it would communicate with the institutions to confirm whether there is confidential information that cannot be disclosed. Several of these reports have already been shared with the Fund Secretariat, while others are being finalized.

### **Recommendation**

105. The Executive Committee may wish:

- (a) To note:
  - (i) The financial audit reports for the CFC production, halon, polyurethane (PU) foam, process agent II, solvent and servicing sectors in China, contained in document UNEP/OzL.Pro/ExCom/84/22/Add.1;
  - (ii) That the funding balances associated with each of the sector plans had not been fully disbursed by **June 2019**;
  - (iii) That the Government of China has confirmed that the CFC production, PU foam, solvent and servicing sector plans will be completed and the associated balances will be disbursed by **December 2019**;
- (b) To agree to extend the process agent II and the halon sector plans to 2020 and 2022, respectively;
- (c) To request the Government of China, through the relevant implementing agency:
  - (i) **To submit to the 85<sup>th</sup> meeting the financial audit report as of December 2019 for the CFC production, halon, process agent II, PU foam, solvent and CFC refrigeration servicing sectors, and the project completion reports for the CFC production, PU foam, solvent and servicing sector plans;**
  - (ii) **To return to the Multilateral Fund at the 85<sup>th</sup> meeting funding balances associated with CFC production, PU foam, solvent and servicing sector plans;**
  - (iii) **To report on the results of the monitoring efforts of local Ecology and Environment Bureaus, including cases where CFC-11 was detected, in future financial audit reports, and once all the remaining balances under the projects included in the financial audit have been disbursed and those projects have been completed, to continue such reporting under the annual progress reports of stage II of the PU foam sector plan of the HCFC phase-out management plan; and**
  - (iv) To submit the **remaining** completed research and technical assistance reports undertaken in all sectors, for possible dissemination to other Article 5 countries; and
- (d) **To request the Government of China, through the World Bank, to provide additional information on the proposed activities to be undertaken under the process agent II sector plan, their budget, and a progress report on their implementation, to the 85<sup>th</sup> meeting.**

### **PART III: SECTOR PLAN FOR THE PHASE-OUT OF METHYL BROMIDE PRODUCTION (UNIDO)**

#### **Background**

106. At the 83<sup>rd</sup> meeting, the Executive Committee took note of the progress report on the contract for the development of the MIS and its incorporation in the monitoring and supervision programme to be implemented by the Customs Authority and the update to the work plan in order to ensure the long-term, sustained monitoring of MB after completion of the sector plan for the phase-out of MB production, both submitted by UNIDO; and requested the Government of China, through UNIDO, to provide, at the 84<sup>th</sup> meeting, an update on the contract for the monitoring and supervision programme to be implemented by the Customs Authority and an update regarding the MB labelling and traceability system in the annual report on the status of implementation of the sector plan for the phase-out of MB production (decision 83/44). On behalf of the Government of China, UNIDO submitted to the 84<sup>th</sup> meeting the requested progress report and updates.

107. The Agreement with the Executive Committee specified a maximum annual allowable production of MB for controlled uses for 2015 and beyond of zero save for QPS, feedstock and critical uses to be approved by the Parties. Moreover, at the 83<sup>rd</sup> meeting, the Executive Committee requested the Government of China and UNIDO to include in the verification of the 2018 MB production requested by decision 82/19(e) the amounts used for MB consumption. The Parties authorized 87.24 metric tonnes (mt) for critical-use exemptions (CUEs) for China for 2018.

108. The Government of China did not submit a critical-use nomination for production for 2019. The 2018 verification report confirmed that China's production was consistent with the Agreement. The Government reported under Article 7 of the Montreal Protocol MB production that is consistent with the verification report.

**Table 3: 2018 Article 7, verified MB production, and authorized CUEs for China (mt)**

<b>MB production</b>	<b>2018</b>
Article 7 production for controlled uses	87.18
Verified production for controlled uses	87.179
CUEs authorized by the Parties	87.24

#### Verification of 2018 MB production

109. The production data verification for three MB producers was conducted in March 2019. The related 2018 production data were collected and verified, including: plant's identification, plant's history, plant's operation details, sales figures, and inventory at the beginning and end of the year. The verification team concluded that none of the three enterprises has produced MB for controlled uses exceeding the quotas, and production for controlled uses is within the limit of industry plans.

#### Progress report on the contract with the Customs Authority

110. As the General Administration of Quality Supervision, Inspection and Quarantine has been incorporated into the Customs Authority, the FECO/MEE and the Customs Authority are negotiating a new memorandum to define activities to be carried out during the period 2019 to 2021. Initial discussions on the work plan and memorandum have been undertaken, and it was agreed to sign a memorandum by the 84<sup>th</sup> meeting. Once that memorandum has been finalized, FECO will sign a contract to carry out the activities.

### Implementation plan for 2019–2021

111. At the 82<sup>nd</sup> meeting, the Executive Committee noted the 2019-2021 work plan, which consists of near-term activities focused on monitoring and supervision of MB production in 2019 to 2021, and activities intended to ensure the long-term compliance through the establishment and implementation of MB monitoring and supervision programmes and tools.

112. Since the progress report submitted to the 83<sup>rd</sup> meeting,<sup>13</sup> FECO is preparing terms of reference to establish the MB labelling and traceability system that will be completed by the end of 2019. FECO will set up an MB labelling and traceability system that dynamically captures MB production and consumption information into a data MIS. As MB is only shipped in cylinders, and not iso-tanks, each cylinder containing MB would be labelled and, after verification of how that MB was used (e.g., at a QPS fumigation facility or a feedstock user), the type of use would be recorded (e.g., QPS or feedstock). The system will be designed according to the characteristics of each MB producer, and take into account the suggestions of stakeholders. In addition, FECO is preparing the terms of reference for the data survey of MB feedstock uses for 2017-2018.

### **Secretariat's comments**

#### Progress report on the contract with the Customs Authority

113. Noting that the contract with the Customs Authority for the development of the MIS and its incorporation in the monitoring and supervision programme has not yet been signed, the Secretariat suggested that the Government of China, through UNIDO, provide a verbal update on the status of the contract during the 84<sup>th</sup> meeting, on the understanding that the allocated funds (US \$350,000, plus agency support costs of US \$26,250 for UNIDO) would be returned to the Fund if the contract were not signed by then.

114. UNIDO clarified that the memorandum has been drafted, and that consultations were still ongoing so that the memorandum could be signed before the 84<sup>th</sup> meeting. However, given that the Executive Committee had agreed to extend the date of completion of the MB production sector plan to 31 December 2021, and had noted the proposed 2019–2021 work plan to ensure the long-term, sustained monitoring of MB production in China (decision 82/19(b) and (d)), the Government considered that the funds should not be returned at the 84<sup>th</sup> meeting.

#### MB labelling and traceability system

115. The Secretariat noted that the establishment of a MB labelling and traceability system, was still in a conceptual phase, and suggested that the Government provide a detailed update in the annual progress report of the sector plan for the phase-out of MB production to be submitted to the 86<sup>th</sup> meeting.

#### Sustainability of the MB phase-out

116. The Secretariat noted that MB consumption for feedstock uses was concentrated in three provinces (Jiangsu, Shandong, Shanghai, and Zhejiang), and asked whether consideration been given to ensure that any atmospheric monitoring stations that may be established in those provinces, as described in the review of China's current MRVE,<sup>14</sup> include instruments that can measure atmospheric abundances of MB. UNIDO clarified that the ODS atmospheric monitoring network that MEE plans to establish by 2021 was under design, and MEE had not yet decided if MB would be listed under the substances to be included in the system.

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<sup>13</sup> UNEP/OzL.Pro/ExCom/83/11/Add.1 (Part V).

<sup>14</sup> UNEP/OzL.Pro/ExCom/83/11/Add.1 and UNEP/OzL.Pro/ExCom/84/22/Add.1.

117. Given that no information was available in the 2014 or subsequent verification and progress reports, the Secretariat inquired whether additional information was available on the case of illegal production of MB in 2014 that was reported by the Government at the 83<sup>rd</sup> meeting.<sup>15</sup> UNIDO indicated that the MEE was not in a position to disclose further details since the legal proceedings were still ongoing. The Secretariat invited MEE, through UNIDO, to report to the Executive Committee as soon as information was publicly available.

### **Recommendation**

118. The Executive Committee may wish to consider:

- (a) Noting the report on the status of implementation of the sector plan for the phase-out of methyl bromide (MB) production in China, the update on the contract for the monitoring and supervision programme to be implemented by the Customs Authority, and the update regarding the MB labelling and traceability system submitted by UNIDO, contained in document UNEP/OzL.Pro/ExCom/84/22/Add.1;
- (b) [Based on the update provided during the 84<sup>th</sup> meeting on the signature of the memorandum between the Customs Authority and the Ministry of Ecology and Environment of China, whether or not to cancel the associated activities and note the return of US \$350,000, plus agency support costs of US \$26,250 for UNIDO, to the Multilateral Fund;]
- (c) Requesting the Government of China, through UNIDO, to include an update on the MB labelling and traceability system in the annual report on the status of implementation of the sector plan for the phase-out of MB production in China to be submitted to the 86<sup>th</sup> meeting; and
- (d) Inviting the Government of China, through UNIDO, to provide information on the 2014 case of illegal production of MB referred to in UNEP/OzL.Pro/ExCom/84/22/Add.1 once that information was publicly available.

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<sup>15</sup> Paragraph 52(c) of UNEP/OzL.Pro/ExCom/83/11/Add.1.

**Progress Report Pursuant to Decision 83/41 of the 83<sup>rd</sup>**  
**Meeting of the Executive Committee of the Multilateral Fund for the**  
**Implementation of the Montreal Protocol**

## **1 Background**

*Review of the current monitoring, reporting, verification and enforcement systems in accordance with HCFC Consumption and Production Phase-Out Management Plan Agreements and Desk Study on the current system of monitoring consumption of foam-blowing agents at enterprises assisted under stage I of the HCFC Phase-Out Management Plan and the verification methodology submitted by the Government of China were discussed at the 83<sup>rd</sup> meeting of the Executive Committee of the Multilateral Fund. The Executive Committee (ExCom) commended China for the proposed action plans of monitoring and enforcement for the next step, including additional actions such as the establishment of ODS atmospheric monitoring network, laboratory testing capacity and on-line monitoring of carbon tetrachloride (CTC), and put forward relevant suggestions for supplementing and strengthening monitoring and enforcement actions. According to Decision 83/41 of the ExCom, the Government of China will report to the Committee, at the 84<sup>th</sup> meeting, on its progress in implementing the activities above.*

The Government of China attaches great importance to the unexpected increase in the concentration of trichlorofluoromethane (CFC-11) in the atmosphere. From the China side, on the one hand, control of the CTC supply is strengthened to preempt diversion of CTC to illegal ODS production. On the other hand, China is constantly strengthening monitoring and enforcement of ODS to prevent illegal sales and use of ODS. The Ministry of Ecology and Environment (MEE) has taken active actions to improve its law and regulation system, conduct special enforcement actions, intensify CTC management, build capacity for implementing the Protocol, strengthen coordination with industry, and establish monitoring network, etc.

## **2 Progress of monitoring and law enforcement activities**

### **2.1 Improve Law and Regulation System**

China issued *the Regulation on the Administration of Ozone Depleting Substances* (hereinafter referred to as the Regulation) in 2010 and formulated a series of supporting management rules and regulations, which provides a comparatively sound legal system for meeting ODS phase-out goals of the Protocol. Based on the current situation regarding protocol implementation and the reassessment of current management system, in August 2019, MEE launched a revision of the Regulation. Under this effort, regulations at every step of the life-



cycle of ODS starting from production, sales, use, import and export, recycle, reuse and destruction of ODS are to be strengthened. In addition, provisions on penalty and punishment measures on illegal behaviors are to be reinforced to provide more clarity on the legal basis for imposing penalty/punishment on various cases of violations, and the duty/responsibility of enterprises on environmental protection will be further elaborated. The financial penalties will be heightened to make it become a more effective deterrence measure. According to the revision procedure of national laws and regulations, the revision of the Regulation will be completed in 2020. Other supporting management rules and regulations which require adjustment will also be revised and issued in 2020.

In addition, on February 20, 2019, the Supreme People's Court, the Supreme People's Procuratorate, the Ministry of Public Security, the Ministry of Justice and MEE issued a circular to identify controlled ODS as hazardous substances. Illegal discharge, dumping, and disposal of ODS will be held criminally responsible for the crime of environmental pollution under the Criminal Law of the People's Republic of China.

## **2.2 Carry out law enforcement actions**

### **2.2.1 Cracking down on illegal CFC-11 production**

As a result of the special campaigns conducted in 2018 and 2019, three illegal CFC-11 production factories were uncovered. In July 2018, two underground factories producing CFC-11 illegally in Liaoning Province and Henan Province were identified by MEE based on the intelligent gathered by MEE. These facilities were demolished by MEE. The third illegal CFC-11 factory, which was located in Henan Province, was found in May 2019.

The illegal production site in Liaoning Province was located behind a seafood processing workshop in Wenbin Village, Langtou Town, Dandong City. There were two sets of CFC-11 production equipment in the workshop. No production records were found. A total of 145 tons of CTC raw materials were found on site. At present, the workshops and its production equipment have been dismantled and raw materials have been incinerated as hazardous waste. The case is under trial. One of the suspects has surrendered himself to the police, while another is still at large.

The illegal production site in Henan was located in Houlu Village, Mengzhou City, hidden in an idle plant of a mechanical processing enterprise. There was one set of CFC-11 production equipment in the plant. Approximately 32.6 tons of CTC raw materials and 29.9 tons of CFC-11 products were found on site. According to the production records found in the workshop, the enterprise involved started their illegal production activities in the middle of June 2018. The illegal production lasted for about one and a half months and the total production of CFC-11 was about 700 tons. At present, the production equipment has been removed and destroyed. All five suspects involved are out on bail pending trial by the public security authorities. The case

is still under investigation.

In May 2019, according to whistle-blowing, another illegal CFC-11 production site was found and destroyed in Nanqiu Village, Jincheng Town, Bo'ai County, Henan Province... The factory was hidden in an idle workshop of a resin production enterprise. About 70 tons of CTC raw materials, 13 tons of CFC-11 products and two sets of illegal production equipment of CFC-11 were found. The two reactors of the equipment were 2.5 and 1.2 cubic meters large. Due to frequent law enforcement actions of the local EEB, the factory could only produce in batches and was not able to make continuous production. The illegal factory started its production in June 2018. Based on the electricity consumption, it is estimated that about 900 tons of CFC-11 may have been produced up to May 2019. At present, the case was handed over to local public security authorities. Two main suspects were arrested and the other two suspects are being pursued by the police.

### **2.2.2 Strict control on illegal use of CFC-11**

From August to October 2018, MEE organized a special ODS law enforcement campaign in all provinces and inspected 1,172 enterprises, among which some batches of the products of 394 system houses and foam manufacturers were tested through portable instant detectors. MEE also directly dispatched 26 supervisory groups to conduct special verification in nine provinces with large numbers of ODS production and consumption enterprises. According to laboratory retesting, samples collected from one system house contained more than 0.1% of CFC-11. 0.25 tons of pre-blended polyols were seized and destroyed. A fine of RMB 100,000 yuan was imposed. In addition, 8.96 tons of CFC-11 were confiscated in another system house and later incinerated. A penalty of RMB 208,000 yuan was imposed. Some batches of the products of 4 foam enterprises contained CFC-11 which were confirmed by laboratory retesting, where 2.99 tons of pre-blended polyols and 5.32 tons of insulation foam were confiscated and disposed of. A fine of RMB 1,113,500 was imposed.

From June to August 2019, MEE dispatched law enforcement officers to form joint enforcement groups with local law enforcement personnel to 11 key provinces/municipalities including Shandong, Hebei, Henan, Jiangsu, Zhejiang and Guangdong to conduct special inspections. In this action, 656 system houses and foam companies were inspected, where some batches of the products of 322 enterprises were tested with instant detectors. It was found that samples from 37 enterprises, including 6 system houses and 31 foam manufacturers, contained CFC-11. These samples are being retested in laboratories.

### **2.2.3 Additional law enforcement equipment for local EEBs**

As a way of strengthening law enforcement and improving law enforcement capacity, MEE has equipped law enforcement officers in all provinces (autonomous regions and municipalities directly governed by the central government) of the country and some of the key

cities and counties with portable instant detectors, to help them determine on the scene whether the enterprise being inspected is suspected of illegal production and use of ODS. By the end of September, 30 portable ODS instant detectors have been distributed to 19 provinces and municipalities, and the remaining 20 will be distributed before the end of 2019.

Instead of serving as evidences for law enforcement, the outcomes of instant detectors can only determine that an enterprise is in suspicion of violations. In case it is necessary to prosecute, a legally valid testing report by a qualified testing laboratory shall be issued.

#### **2.2.4 Mobilizing the public to participate in supervision**

Firstly, industry self-discipline is urged and promoted. In 2019, 10 HCFC-22 production enterprises jointly set up a whistle-blower hotline and a reward fund for reporting illegal ODS activities. Individuals or organizations providing information on illegal production, sales and use of ODS will be given monetary reward between RMB 50,000 to RMB 500,000 yuan. At the same time, enterprise employees are encouraged to conduct self-supervision internally. Reporting-for-reward notices are put up in ODS production and consumption enterprises. Secondly, public participation is motivated. China has vigorously mobilized the whole society to participate in supervision through the zero threshold online reporting of the national 12369 law enforcement platform. MEE, after receiving reports, takes actions immediately, and tracks down effective clues to the end.

The Government of China considers strict law enforcement as an important guarantee to sustain achievements of the implementation of the Protocol, and has always taken a zero-tolerance policy in cracking down on illegal production, sales and use of ODS. MEE has required that all local EEBs incorporate ODS supervision and law enforcement into their daily ecological environment protection work since 2004. MEE organizes a joint special law enforcement action at least once a year with participation by both central and local law enforcement officers starting from 2019, exerting the utmost pressure for combating illegal behaviors. MEE will continue to collect clues extensively, encourage the industry and the public to report illegal activities, and give full play to social supervision.

In order to guide law enforcement at the local level and ensure effectiveness of law enforcement, MEE sorted out problems identified during previous law enforcement campaigns and started developing a *Technical Guide for ODS Law Enforcement* (hereinafter referred to as the Guide) according to the requirements of relevant laws and regulations of China so as to guide local personnel to make the law enforcement work more standardized. The Guide, which is to be issued and sent to local EEBs by the end of 2019, will include methods and contents of law enforcement inspection and the handling of violations.

### **2.3 Intensify Source Control**

### **2.3.1 Establishment of CTC on-line production monitoring system**

There are currently 16 chloromethane producers in China. MEE has been implementing strict management on chloromethane producers to meet the requirements of CTC control of the Montreal Protocol since the complete phase-out of CTC production and consumption for controlled use in China in 2010. The management system bans the use of CTC. Only laboratory analysis and process agent uses as permitted by parties are subject to the quota licensing management, and feedstock use is subject to annual registration management. In terms of sales, 7 enterprises with CTC sales qualification (among which 3 are CTC producers, 3 dealers and 1 distillation enterprise) are subject to annual sales registration management. CTC sales enterprises are only allowed to sell CTC to enterprises holding CTC consumption quota or with registration qualification for feedstock use. CTC producers must convert their by-production of CTC. All CTC enterprises must report relevant production, sales and consumption data to MEE. China also conducted, as per the ExCom's request, a technical study to identify sources of CTC emission. The study suggests low emission of CTC to the atmosphere.

In addition to the above monitoring system, MEE has imposed additional control measures on the enterprises generating CTC as by-product since 2019 to prevent CFC-11 illegal production from the source of supply by requiring all enterprises to install a verifiable and quantitative CTC online production monitoring system. By the end of September, 7 enterprises had completed the installation. The rest will finish installation by the end of 2019. Online monitoring of CTC as by-product in all 16 chloromethane enterprises in production will be in place and mandatory starting from 2020.

### **2.3.2 On-site supervision of chloromethane enterprises**

Starting from June 2019, MEE has dispatched supervisory working groups to all 16 CTC by-production enterprises nationwide to carry out on-site inspection on CTC crude output, purification, residue, storage, conversion and sales and other key processes to ensure legal use. By the end of September, 320 persons had been dispatched in seven rounds. Each round lasted for two weeks (including holidays), achieving continuous daily on-site supervision and thus far no violations were recorded.

## **2.4 Conduct Publicity Activities**

The theme of this year's International Ozone Day is *32 Years and Healing*. As an effort to demonstrate the zero-tolerance policy towards illegal activities related to ODS and the firm resolution to crack down on illegal ODS activities, the Government of China convened the meeting to commemorate the 2019 International Ozone Day in Shandong Province with the theme of "cracking down on illegal ODS activities and strengthening domestic supervision and management".

Mr. Li Ganjie, Minister of Ecology and Environment of China and Mr. Gong Zheng, Governor of Shandong Province attended and addressed the meeting. The meeting was attended by more than 200 people from international agencies and non-governmental organizations such as the Ozone Secretariat, the Multilateral Fund Secretariat, the United Nations Environment Programme, the United Nations Development Programme, the United Nations Industrial Development Organization, the World Bank and Environmental Investigation Agency, as well as member ministries of the National Leading Group for the Protection of the Ozone Layer, ecological and environmental departments/bureaus of all provinces/autonomous regions/municipalities, domestic research institutions, industrial associations and enterprises. Major domestic media, some industry media, local media and some foreign media reported the meeting.

During the meeting, the progress of China's implementation work was introduced and the video on special law enforcement actions in 2018 and 2019 played. There were exchange of ideas and discussions on local and industrial implementation work at the meeting. Materials on ODS management policies and regulations were distributed. Major foreign representatives went to Shandong Dongyue Fluorosilicon Materials Co., LTD in Huantai County, Zibo, Shandong and visited the operation of CTC on-line monitoring system and HCFC production facilities.

In addition, MEE promptly released the plans for enforcement actions and progress of the implementation of the Montreal Protocol respectively in seven regular press conferences in July, August and October 2018, and May, June, August and September 2019.

## **2.5 Building capacity for implementing the Protocol**

### **2.5.1 Construction of testing laboratories and development of testing standards**

For construction of testing laboratories, MEE planned to build 6 new ODS industrial product testing laboratories located in Beijing (2), Guangdong, Zhejiang, Shandong and Chongqing. So far all six laboratories have established independent laboratories or experimental areas, equipped with at least one set of testing equipment of laboratory use and one set of portable testing equipment as well as at least 3 professional testing staff. At this stage, MEE is pushing forward expansion of the CMA (China Inspection Body and Laboratory Mandatory Approval) certificate for these laboratories to ensure testing results with legal effect could be provided by the end of 2019. In addition, two more CMA certified testing laboratories are being built in Hebei and Henan provinces to meet the testing and determination demand of law enforcement. The two laboratories are expected to complete their construction by the end of this year.

Meanwhile MEE is accelerating the development of laboratory testing method standards for ODS in industrial products. The two standards, *Determination of HCFC-22, CFC-11 and HCFC-141b ODS in combined polyether polyols—Headspace/gas chromatography -mass*

*spectrometry and Qualitative detection of CFC-12, HCFC-22, CFC-11 and HCFC-141b ODS in rigid polyurethane foam and polyether combinations—Portable headspace/gas chromatography-mass spectrometry*, have been developed. Public hearings on the two standards started August 1<sup>st</sup> and ended on September 9<sup>th</sup>. The two standards are expected to be published before mid-October 2019.

### **2.5.2 Hold supervision and enforcement training**

MEE held a training session on ODS phase-out management in January 2019 in Changsha, Hunan province, which trained about 150 people from atmospheric environment division and technical support personnel from local EEBs. In April, June and September 2019, MEE held three training sessions for law enforcement personnel respectively in Quzhou Zhejiang Province, Zibo Shandong Province and Chongqing, focusing on key points of law enforcement inspection and supervision on CTC enterprises, ODS production and consumption enterprises, as well as use of instrument and equipment etc. The three sessions trained a total of 220 environment law enforcement personnel from the province, city and county level. In July 2019, a training session on ODS import and export management for licensing agencies under departments of commerce of key provinces and municipalities was held in Shenyang Liaoning Province with 100 officers trained in total.

To further enhance capacity of grass-roots environment protection personnel below the provincial level, some provinces and municipalities held ODS phase-out management training sessions within their provinces or municipalities. In September 2019, Hebei Province and Liaoning Province trained 340 atmospheric environment management staff from cities or areas. Local EEBs of key areas will organize ODS phase-out management training to further enhance capacity of grass-roots environment protection personnel below provincial level.

In June 2019, MEE and the General Administration of Customs jointly held a training session on ODS import and export management for a total of 60 customs officers from key customs of the country. Regular training on customs officers will continue to be held in 2020, which aims to train about 70 customs officers in total.

### **2.5.3 Building ODS information management system**

Currently there exists an overall on-line HCFCs information management system in China with functions including the management of HCFCs quota application, registration application and data reporting. Some provinces and municipalities established their own on-line registration system for registration management and data reporting. The systems will be updated comprehensively to consolidate all local systems into an overall system and extend the scope to all ODS, allow on-line data reporting by enterprises and facilitate queries on enterprise data. It aims to provide a comprehensive understanding of ODS-related enterprises, establish an enterprise database, get a picture of the overall situation of ODS production, sales and consumption in the country, verify enterprise data and enable tracking sources in the supply

chain. The ODS information management system covering all ODS will be established by the end of 2020 and the system will be optimized and incorporate data from local EEBs.

## **2.6 Enhance Cooperation with Industries**

### **2.6.1 Enhance communication with industries**

The Government maintains close communication and contact with relevant industrial associations and experts to keep abreast of the market and improve management ideas and measures based on their suggestions. Industrial associations have been providing technical support for supervision and management, policy formulation, and law enforcement of the government over the long-term; some technical experts recommended by industrial associations directly participate in law enforcement operation and on-site inspection etc. In any revision of the Regulation, communications are conducted actively with industrial associations, experts and research institutes and others, and their suggestions are fully incorporated during the revision process.

### **2.6.2 Market analysis of the PU foam sector**

China Plastics Processing Industry Association (CPPIA) cooperated with industry experts on analysis of the situation of the PU foam market in 2011-2017 and consumption of various blowing agents by using mass balance analysis (relevant information was submitted to the Ozone Secretariat in March). At present, CPPIA and industry experts are compiling and analyzing the 2018 data, and consumption of various blowing agents will be evaluated by mass balance analysis according to the situation of the market in 2018.

### **2.6.3 Market Analysis of Refrigeration and Air Conditioner Sector**

MEE is communicating with industrial associations and experts to discuss the feasibility and methodology of mass balance analysis in the refrigeration and air conditioner market.

In the process of ODS compliance supervision and management, China will continue to strengthen cooperation with industrial associations who will provide comprehensive technical support for policy formulation, implementation supervision and management from various aspects such as industry market and technologies. In addition, China will continue to study the feasibility and methodology of mass balance analysis in the refrigeration and air conditioner market. In the foam and refrigeration sector, mass balance analysis will be conducted every year to evaluate the market situation and consumption of various types of blowing agent/refrigerant in a bid to provide technical information for implementation effectiveness assessment and ODS phase-out supervision and management.

## **2.7 Establishment of monitoring and alerting capacity**

The government of China formally launched the planning of an ODS atmospheric

monitoring network to improve its early warning and effectiveness evaluation capacity. Now a team of experts is being formed to conduct basic scientific research and gradually establish and improve monitoring technology methods and the quality control system. Starting from 2021, the ODS monitoring stations will be constructed. ODS monitoring will be conducted starting in 2022.

## **2.8 Non-governmental study**

As discussed at the 83<sup>rd</sup> meeting of the Executive Committee, an independent non-governmental consulting firm will be selected to conduct a study to determine the regulatory, policy, enforcement and market circumstances and risks of ODS phase-out in China. Bidding will start to select a consulting firm in October 2019. The study will be completed by August 2020.



Annex : Progress and Plans Pursuant to Decision 83/41 of the 83rd meeting of the ExCom of the Multilateral Fund for the Implementation of the Montreal Protocol

No.	Activities	Decision 83/41	Progress	Next step of work
1	<b>Improve Law and Regulation System</b>	<p>a)i) Increase and extension of penalties for enterprises' non-compliance with the controlled substance regulations</p> <p>c)iv)Extension of penalties and prohibitions to consumers of controlled substances or products containing controlled substances, where appropriate;</p>	<ul style="list-style-type: none"> <li>• Revision of the Regulation has been launched, and punishment on violations will be further intensified;</li> <li>• The Supreme People's Court, the Supreme People's Procuratorate, the Ministry of Public Security, the Ministry of Justice and MEE issued a circular to identify controlled ODS as hazardous substances. Illegal discharge, dumping, and disposal of ODS will be held criminally responsible for the crime of environmental pollution under the Criminal Law of the People's Republic of China.</li> </ul>	<ul style="list-style-type: none"> <li>• Revision of the Regulation will be completed by 2020.</li> </ul>
2	<b>Carry out law enforcement actions</b>	a)ii) Intensification of inspections of enterprises currently or formerly using	<ul style="list-style-type: none"> <li>• MEE initiated special law enforcement action in 2019, carried out on-site inspection at all 16 CTC by-</li> </ul>	<ul style="list-style-type: none"> <li>• A joint special law enforcement action will be organized at least once a year with participation by both central</li> </ul>

No.	Activities	Decision 83/41	Progress	Next step of work
		<p>controlled substances;</p> <p>a)iii) Implementation of controlled-substance inspection plans for ecology and environment bureaus (EEBs);</p> <p>a)iv) Increased provision of support and enforcement tools to EEBs;</p> <p>c)ii) Increased direction on enforcement at the provincial level from the national government;</p> <p>c)vi) Random testing of products that might contain controlled substances;</p> <p>c)viii) Reporting on the details of enforcement activities, including the capacity of the reactor, amount of controlled substance on site, relevant records on feedstock purchases and sales, any penalties resulting from the enforcement action</p>	<p>production enterprises, and inspected 656 system houses and foam enterprises in 11 key provinces and municipalities. Some batches of products of 322 system houses and foam enterprises were tested. Samples deemed problematic by the initial tests in 37 enterprises are being retested at laboratories;</p> <ul style="list-style-type: none"> <li>• 30 instant detectors were distributed to local EEBs;</li> <li>• Development of the <i>Technical Guide for ODS Law Enforcement</i>;</li> <li>• MEE timely released progress of enforcement actions in three regular press conferences in August and October 2018 and June, August and September 2019.</li> </ul>	<p>and local law enforcement officers ;</p> <ul style="list-style-type: none"> <li>• Another 20 instant detectors will be distributed to local EEBs by the end of 2019;</li> <li>• The <i>Technical Guide for ODS Law Enforcement</i> will be issued by the end of 2019;</li> </ul>

No.	Activities	Decision 83/41	Progress	Next step of work
3	<b>Intensify Source Control</b>	<p>b)iii) Real-time flow monitoring of CTC at chloromethane production enterprises</p> <p>Real-time flow monitoring of CTC at chloromethane production enterprises;</p>	<ul style="list-style-type: none"> <li>• 7 Chloromethane enterprises have completed installation of the CTC on-line monitoring system;</li> <li>• Supervision working group were dispatched to all 16 enterprises with CTC by-production to carry out continuous daily on-site inspection.</li> </ul>	<ul style="list-style-type: none"> <li>• Complete the installation of CTC online monitoring system in Chloromethane-producing enterprises by the end of 2019;</li> <li>• Online monitoring will begin in 2020.</li> </ul>
4	<b>Conduct Publicity Activities</b>	<p>a)viii) Publicizing outcome of investigations and increased communication with industry;</p>	<ul style="list-style-type: none"> <li>• The Government of China convened the meeting to commemorate the 2019 International Ozone Day in Shandong Province with the theme of “cracking down on illegal ODS activities and strengthening domestic supervision and management”. Mr. Li Ganjie, Minister of Ecology and Environment of China and Mr. Gong Zheng, Governor of Shandong Province attended and addressed the meeting. The meeting was attended by more than 200 people from international agencies and</li> </ul>	<ul style="list-style-type: none"> <li>• Continue publicity activities to release information</li> </ul>

No.	Activities	Decision 83/41	Progress	Next step of work
			<p>non-governmental organizations such as Ozone Secretariat, Multilateral Fund Secretariat, United Nations Environment Programme, United Nations Development Programme, United Nations Industrial Development Organization, the World Bank and Environmental Investigation Agency, as well as member ministries of the National Leading Group for the Protection of the Ozone Layer, ecological and environmental departments/bureaus of all provinces/autonomous regions/municipalities, domestic research institutions, industrial associations and enterprises.</p> <ul style="list-style-type: none"> <li>• MEE promptly released the plans for enforcement actions and progress of the implementation of the Montreal Protocol respectively in seven regular</li> </ul>	

No.	Activities	Decision 83/41	Progress	Next step of work
			press conferences since July 2018	
5	<b>Build capacity for implementing the Protocol</b>	<p>a)v) Development of an online registration and tracking system for controlled-substance users;</p> <p>a)vi) Increased training for customs officers;</p> <p>b)ii) Establishment of an additional six testing laboratories for controlled substances in products;</p> <p>c)iii) Development of performance indicators for enforcement activities, such as the number of customs officers trained or inspections undertaken</p>	<ul style="list-style-type: none"> <li>• Update of the information management system for controlled substances has started. TOR has been completed.</li> <li>• MEE held a training session on ODS phase-out management in Jan 2019 in Changsha, Hunan province, which trained about 150 people from the atmospheric environment division and technical support personnel from local EEBs. In April, June and Sept 2019, MEE held three training sessions for enforcement personnel respectively in Quzhou, Zhejiang Province, Zibo, Shandong Province and Chongqing. The three sessions trained a total of 220 environment law enforcement personnel from province, city and county level.</li> <li>• In July 2019, a training session on</li> </ul>	<ul style="list-style-type: none"> <li>• Function framework building and optimization of the ODS information management system as well as data incorporation from local EEBs will be completed by the end of 2020.</li> <li>• Training session will continue to be held in 2020, aiming to train about 70 custom officers in total.</li> <li>• Local EEBs of key areas will organize ODS phase-out management training to further enhance capacity of grass-roots environment protection personnel.</li> <li>• Six new ODS product testing laboratories are expected to be constructed by the end of this year with expanded CMA certificate. Two additional laboratories in Hebei</li> </ul>

No.	Activities	Decision 83/41	Progress	Next step of work
			<p>ODS import and export management for licensing agencies under departments of commerce of key provinces and municipalities was held in Shenyang Liaoning Province with 100 officers trained in total.</p> <ul style="list-style-type: none"> <li>• In June 2019, a training session on ODS import and export management was held for a total of 60 customer officers from key customs.</li> <li>• Some local EEBs of key areas held ODS phase-out training sessions. In Sept 2019, Hebei Province and Liaoning Province trained 340 atmospheric environment management staff from cities or prefectures.</li> <li>• All the 6 testing laboratories have established independent laboratories or experimental areas, equipped with at least one set of laboratory testing</li> </ul>	<p>Province and Henan Province are expected to be built by the end of this year.</p>

No.	Activities	Decision 83/41	Progress	Next step of work
			<p>equipment and one set of portable testing equipment for ODS as well as at least 3 professional testing staff. At this stage, China is pushing forward the expansion of the CMA certificate of the laboratories.</p>	
6	<p><b>Enhance Cooperation with Industries</b></p>	<p>a)vii) Conduct an annual mass balance analysis of foam blowing components to determine the market size of the foam sector;</p> <p>a)viii) Publicizing the outcome of investigations and increased communication with industry;</p> <p>c)v) Regular and frequent consultations with industry and enterprises to ascertain market conditions;</p> <p>c)vii) Conduct annual mass balance</p>	<ul style="list-style-type: none"> <li>Industrial associations have been providing technical support for supervision and management, policy formulation, and law enforcement of the government for long-term. Some technical experts directly participate in law enforcement operation, on-site inspection etc. In the revision of the Regulation, communications are actively conducted with industrial associations, experts and research institutes etc., and management ideas were further clarified according to</li> </ul>	<ul style="list-style-type: none"> <li>China will continue to study the feasibility and methodology for mass balance analysis in the refrigeration and air conditioner market.</li> <li>Based on the study mentioned above, mass balance analysis will be conducted in the foam and refrigeration sector every year to evaluate the market situation and consumption of various types of blowing agent/refrigerant.</li> </ul>

No.	Activities	Decision 83/41	Progress	Next step of work
		analysis of refrigeration and air-conditioning market to determine market size and verify reported HCFC consumption;	<p>actual situation.</p> <ul style="list-style-type: none"> <li>The PU foam sector experts/the association have completed mass balance analysis of 2011-2017 and is analyzing consumption of blowing agent in 2018. MEE is communicating with industrial associations and experts to discuss the feasibility and methodology of mass balance analysis in the refrigeration and air conditioner market.</li> </ul>	
7	<b>Establishment of measuring and alerting capacity</b>	<p>b)i) Establishment of a national controlled atmospheric monitoring network for controlled substances;</p> <p>c)i) Fast-track atmospheric monitoring through movement or modification of existing equipment and/or flask sampling</p>	<ul style="list-style-type: none"> <li>In 2019, the government of China formally launched the planning of ODS atmospheric measuring network. Now a team of experts is being formed to conduct joint basic scientific research and gradually establish and improve monitoring technology methods and the quality control system.</li> </ul>	<ul style="list-style-type: none"> <li>Starting from 2021, ODS monitoring stations will be constructed; ODS monitoring will be conducted starting in 2022.</li> </ul>



No.	Activities	Decision 83/41	Progress	Next step of work
			<ul style="list-style-type: none"> <li>• Feasibility study on fast-track atmospheric monitoring was conducted. At present China conducts fast-track atmospheric monitoring mainly by means of cruise observation and micro-station etc. According to investigation and survey, accuracy and sensitivity of these facilities and technologies are suitable for monitoring pollutants of high concentrations (ppm level) while ODS concentrations in the atmosphere are usually at ultra trace level (ppt level). Therefore the requirements of ODS fast-track monitoring cannot be met. At present China has no plan for this kind of monitoring.</li> </ul>	
8	<b>Non-governmental study</b>	d) To note that the Government of China will consider engaging a non-governmental consultant to undertake a study (including quantitative data, where available, and qualitative market information) to determine	<ul style="list-style-type: none"> <li>• Completion of preparation for the bidding.</li> </ul>	<ul style="list-style-type: none"> <li>• Bidding will start in Oct 2019.</li> <li>• The study will be completed by Aug 2020.</li> </ul>

No.	Activities	Decision 83/41	Progress	Next step of work
		the regulatory, enforcement, policy or market circumstances that might have led to the illegal production and use of CFC-11 and CFC-12		

**Illegal CFC-11 Production Site in Mengzhou City, Henan Province**



**Production site**



**Dismantling of production equipment**



**Production site after dismantling and removal of production equipment**



**Illegal CFC-11 Production Site in Dandong City, Liaoning Province**



**Production site**



**Dismantling of the production line**



**Production site after dismantling and removal of production equipment**



**Illegal CFC-11 Production Site in Boai County, Jiaozuo City, Henan Province**



**Production site**



**Production site being demolished**



**Production site after dismantling and removal of production equipment**