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EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
Ninety-third Meeting
Montreal, 15-19 December 2023
Item 14 of the provisional agenda¹

REPORT OF THE SUB-GROUP ON THE PRODUCTION SECTOR

Introduction

1. The Sub-group on the Production Sector, which had been reconstituted at the 93rd meeting of the Executive Committee, met on 15 and 18 December 2023 in the margins of the 93rd meeting. It consisted of the representatives of Australia, Brazil, China, Cuba, Finland, Italy, Kenya and the United States of America, with Australia acting as facilitator. Representatives of the World Bank were also present as observers.

Agenda item 1: Adoption of the agenda

2. The facilitator of the Sub-group welcomed the participants.

3. The Sub-group adopted the provisional agenda as set out in document UNEP/OzL.Pro/ExCom/93/SGP/1.

Agenda item 2: Organization of work

4. With regard to agenda item 4, on the draft updated guidelines and the standard format used for the verification of ODS production phase-out, the facilitator informed the Sub-group that informal discussions had taken place on the matter during the intersessional period, and all members of the Sub-group would be fully apprised of progress made before further discussion of the agenda item within the Sub-group.

5. The Sub-group agreed to follow the organization of work proposed by the facilitator.

¹ UNEP/OzL.Pro/ExCom/93/1

Agenda item 3: HCFC production phase-out management plan for China

Agenda item 3(a): Addendum to the 2019, 2020, and 2021 verification reports of the HCFC production sector in China (decision 91/70(b)(i))

6. The representative of the Secretariat introduced document UNEP/OzL.Pro/ExCom/93/SGP/2, presenting the addendum to the 2019, 2020, and 2021 verification reports of the HCFC production sector in China, pursuant to decision 91/70(b)(i). The field verifications included on-site inspection of the physical status of each HCFC production line and a spot-check of the original documents and operation records against the 2019–2021 digital copies provided by the producers during remote verification. The spot-check accounted for 40 to 100 per cent of the original documents. Any discrepancy identified had been thoroughly investigated and included in the update of the relevant plant verification report. Although the field verification identified some discrepancies, it had concluded that China was in compliance with the targets set in the agreements with the Executive Committee for the phase-out of HCFCs in the production and consumption sectors in 2019 to 2021.

7. In the ensuing discussion, one member noted with satisfaction that the discrepancies identified had been small, and with appreciation that the Government would amend its Article 7 data for 2019, 2020 and 2021 in line with the findings of the addendum, and also noted the value of the in-person verification.

8. The Sub-group on the Production Sector recommended that the Executive Committee note the addendum to the 2019, 2020, and 2021 verification reports of the HCFC production sector in China, submitted by the World Bank in line with decision 91/70(b)(i).

Agenda item 3(b): 2022 verification report of the HCFC production sector, including an update on the enterprise Suqian Kaier (decision 91/70(b)(iii)) and the one-off verifications requested under decision 91/70(b)(ii) and (c)

9. The representative of the Secretariat introduced document UNEP/OzL.Pro/ExCom/93/SGP/3, presenting the 2022 verification report of the HCFC production sector in China and the Secretariat's comments and recommendations. The verification had concluded that China was in compliance with the Montreal Protocol control targets for HCFC production and consumption, and with the agreements made with the Executive Committee in 2022. The World Bank had clarified that the main factors in determining vertically integrated facilities included the following:

- (a) The existence of both upstream HCFC production and downstream facilities;
- (b) Physical connection between the HCFC production line and downstream facilities via a direct pipeline without any branch outlet in between; and
- (c) Exclusive use of HCFCs produced in the line as feedstock in downstream facilities;

10. Applying the criteria for a vertically integrated facility to the specific situation in China, the World Bank had further clarified the following:

- (a) Compliance with China's regulations on the establishment of HCFC production for feedstock uses;
- (b) The mode of transfer was a primary criterion;
- (c) Ownership was not considered a primary criterion as long as the facility was established in accordance with national regulations; and
- (d) Relative production capacity was a consideration, depending on the specific case.

11. In the ensuing discussion, appreciation was expressed for the comprehensive report presented by the Secretariat. One member expressed concern that a facility labelled as vertically integrated had been found to have a removable flange giving potential access to a branch outlet. In such circumstances clear and transparent reporting was necessary, and the recommendation requesting the World Bank to include the additional verification of production lines that produced HCFCs for feedstock use was welcomed.

12. The representative of the World Bank sought, on behalf of the Government of China, clarification on the proposed recommendation that the Government of China submit a report to the 94th meeting on the reporting of HCFCs captured from high-boiling residue (HBR), specifically with regard to the enterprises to be included in that reporting. It was subsequently clarified that while the report would set the principle for reporting HCFCs contained in the HBR under Article 7 data in future years, the report to the 94th meeting could be limited to the two enterprises that used HBR in 2022. With regard to the recommendation requesting that the World Bank include in the 2023 annual production verification an additional five enterprises that established feedstock production lines since last reporting to the 91st meeting and that were not included in the tonnage referred to in paragraph 3 of the Agreement for the HCFC production phase-out management plan (HPPMP), he said that the support costs approved for the HPPMP were insufficient to cover the additional work, and requested that additional funding of US \$50,000 be approved to finance that task.

13. Members raised further queries on the data presented in the 2022 verification report, including the reduction in the HFC-23 by-product generation rate over the period 2013–2022; the level of confidence in the data on the level of HFC-23 emissions, which in 2022 were 110.69 metric tonnes (mt), and possible discrepancies between those data and the data emerging from recent global atmospheric monitoring studies; and possible reasons for the increase in 2022 in the amount of HFC-23 by-product vented, by quantity and percentage, following a steady reduction during the period 2013–2021.

14. The representative of the World Bank responded that the emissions data presented were based on information collected from producers, and they had not been subsequently verified. The increase in emissions noted for 2022 was probably largely the result of a measurement discrepancy during a mass balance calculation at one production facility.

15. The representative of the Secretariat said that possible primary drivers of the improvement in the by-product generation rate were the establishment of new HCFC-22 integrated feedstock production lines that were optimized; and upgrades to existing older facilities leading to reduced by-product generation.

16. Subsequently, the Sub-group further discussed the request from the World Bank for additional funding in the amount of US \$50,000 to include in the 2023 annual production verification the additional feedstock production lines at the five producers alluded to above. One member said that, in view of the pressures faced by the World Bank due to the additional verification requirements, a one-time payment of US \$50,000 should be disbursed to the Bank, on an exceptional basis, to support verification activities for production lines owned by enterprises that were not included in the HPPMP. Another member concurred that the unusual circumstances warranted the one-off payment. The representative of the World Bank clarified that the request was in line with paragraph 3 of Appendix 5-A of the Agreement between the Government of China and the Executive Committee for stage II of the HPPMP, and was in line with decision 83/70(c), which stipulated that the Executive Committee would consider the need for such additional funding on a case-by-case basis.

17. The Sub-group on the Production Sector recommended that the Executive Committee:

(a) Note:

(i) The 2022 verification report of the HCFC production sector in China considered by the Sub-group on the Production Sector;

- (ii) The update related to Suqian Kaier, including the integrated nature, closure and dismantling of the HCFC-22 production line, and the proposed measures by the Government to further strengthen the management of HCFC production for feedstock use;
- (iii) That the Government of China would revise its Article 7 data for HCFCs to reflect the changes identified in the 2022 annual production verification report;
- (b) Request the World Bank to continue including in annual production verification reports information on HCFCs captured from high-boiling residue (HBR) as a mixture of HCFCs or a single component, and subsequently sold or used for controlled or feedstock use;
- (c) Request the Government of China to submit a report to the 94th meeting on the matter relating to the reporting of HCFCs captured from HBR, as mentioned in subparagraph (b) above, under Article 7 of the Montreal Protocol;
- (d) Request the World Bank to include the additional verification of production lines that produced HCFCs for feedstock use, as contained in annex I to the present document, in the 2023 verification to be undertaken in 2024; and
- (e) Provide to the World Bank, on an exceptional basis, a one-time payment of US \$50,000 for support of verifications of HCFC tonnage of lines owned by enterprises that were not included in the HCFC production phase-out management plan.

Agenda item 3(c): Matters related to HFC-23 (decisions 91/70(e) and (f) and 91/71(c))

18. The representative of the Secretariat introduced document UNEP/OzL.Pro/ExCom/93/SGP/4. He informed the Sub-group that the technical guidelines for reporting on HFC-23 were under development and were expected to be finalized by December 2024. Regarding the analysis of discrepancies between the data reported under Article 7 and in the 2021 verification report, he clarified that, subsequent to the issuance of the document, the World Bank had confirmed that in line with decision 82/87, the 2021 verification reported included information on the management of HFC-23 from all HCFC-22 production lines in the country, including those established after 2010, which therefore also included the six HCFC-22 producers referred to in document UNEP/OzL.Pro/ExCom/93/SGP/4. Therefore, the different methodology used for reporting HFC-23 emissions under Article 7 and the verification report was the only reason for the difference between the 1,060.34 mt reported under the former and the 29.61 mt reported under the latter.

19. In the ensuing discussion, one member said that the reason for the discrepancies between the data reported under Article 7 and in the verification reports for 2021 and 2022 remained unclear. Explaining the significant discrepancies observed, particularly in 2021, in terms of methodological differences alone was difficult to understand. Another member said that additional information and action would help clarify the issue, including further explanation of the mass balance approach used by the Government of China for HFC-23 reporting under Article 7, and the discrepancies noted when the Secretariat tested the method at three production facilities; reporting by the Scientific Assessment Panel and the Technology and Economic Assessment Panel in 2024 to clarify reasons for the apparent differences between China's Article 7 reporting data and the data presented in recent studies of atmospheric concentrations of HFC-23; an update on the availability of data on atmospheric concentrations of HFC-23 from atmospheric measuring stations within China, including the Shangdianzi Global Atmosphere Watch Regional Station; and provision of an update to the 95th meeting on any discrepancies in the data reported under Article 7 and in the verification reports. Another member added that it would be very useful to have a common methodology for reporting of monitoring data to assist comparability.

20. The representative of the World Bank clarified that the verification report of the World Bank relied on data collected from HCFC-22 producers based on measurement data analysis, while China's HFC-23 Article 7 data reporting was informed by a verification of the HFC-23 by-product generated and destroyed in the country conducted by an independent body commissioned by the Government of China that was based on a mass balance approach or measurement data analysis. A possible factor behind the differences in quantity destroyed was the adjustments made by the independent verification experts in a few cases where the incinerated gas measured by flowmeter may have been mixed with other gases.

21. The representative of China said that, while research on atmospheric concentrations of HFC-23 was welcome, uncertainty remained as to the source of the emissions, and there was significant variation in the methodologies applied. Also, the matter was of more relevance to the mandate of the Meeting of the Parties than to the Executive Committee.

22. Subsequently, the Sub-group considered a draft recommendation on the matter. The member from the United States of America, introducing the draft recommendation, emphasized the importance of the issue of HFC-23 emissions, and said that the provisions of the draft recommendation represented a continuation of the information-gathering process that supported the best efforts being made by China in the context of the HPPMP. In summary, the draft recommendation sought information and data from China on HFC-23-related matters, including reporting on HFC-23 generation, destruction and emissions, and any regulatory or implementation updates; analysis of the discrepancy between Article 7 reporting and 2021 and 2022 verification reports; and availability of atmospheric monitoring data. The draft recommendation requested that the update be provided at the 95th meeting of the Executive Committee.

23. Several members expressed support for the content and intent of the draft recommendation. One member said that greater availability of data from data monitoring stations would assist in closing data gaps on atmospheric concentrations of HFC-23 and enhancing comparability of data within global monitoring systems. Another member said that it was unclear why a mass balance approach was still being used when measured data were being collected. Another member said that greater efforts by China to share data would help build trust and would provide comparable data with the potential to fill gaps in international monitoring.

24. The representative of China said that his country recognized that emission of HFC-23 was a global problem requiring a joint effort, and was cognizant of the efforts of the Technology and Economic Assessment Panel and Scientific Assessment Panel to shed light on the discrepancies that had been identified. While there was no basis for requiring a Government to submit national information on the matter, the Government of China had shared information on its progress in resolving HFC-23-related issues. Technical data and methodologies should be communicated and exchanged by research institutions and academia, and indeed Chinese experts had recently published papers in the field. The Chinese Government encouraged global scientific cooperation and saw it as the best way forward in expanding knowledge and information of HFC-23 emissions and disagreed with the inclusion in the draft recommendation of paragraphs requesting certain information on atmospheric monitoring from the Government of China.

25. One member requested more detail from China on the barriers to information sharing. Another member said that global and regional atmospheric monitoring had indicated unexpected emissions in that area of the world, and data from the monitoring stations in China could contribute significantly to a good faith effort to resolve the conundrum. The representative of China noted that data from the Shangdianzi Global Atmosphere Watch Regional Station were available to institutions and experts. Also, China had been following best practice in reducing its by-product emissions, including HFC-23; however, atmospheric monitoring was a scientific rather than a governmental issue, and it was thus more appropriate to exchange data and information between scientific agencies, institutions and experts.

26. A member who had spoken previously acknowledged that the issue of atmospheric monitoring lay outside the provisions of the HPPMP, but reiterated the importance to his delegation of a stronger indication

of best efforts from China in meeting the provisions in paragraph 10 of the HPPMP Agreement and providing a substantive response that would help resolve the problem of unexplained emissions of HFC-23 in that region of the world. Such willingness would assist deliberations on the next tranche of the HPPMP.

27. Given the shortage of time to further discuss the matter, the Sub-group agreed that further informal discussions could take place among interested members in an attempt to agree on a text for the draft recommendation.

28. Subsequently, based on the informal discussions, the Sub-group on the Production Sector recommended that the Executive Committee:

- (a) Invite the Government of China, through the World Bank, to submit, at the 95th meeting, an update on the development of technical guidelines being developed by the Government of China for reporting on HFC-23 generation and emissions and a description of the methodology used to report that generation and those emissions under Article 7 of the Montreal Protocol;
- (b) Invite the Government of China, through the World Bank, to provide an update at the 95th meeting containing the most recent information on HFC-23 generation, destruction and emissions in China and any relevant regulatory or implementation updates;
- (c) Invite the Government of China, through the World Bank, to submit an analysis that would clarify the discrepancy between Article 7 reporting and the 2021 and 2022 verification reports; and
- (d) Request the Secretariat to engage with the World Bank and provide further analysis at the 95th meeting on the mass balance emissions estimates as compared to Article 7 reporting, as referenced in paragraph 12 of document UNEP/OzL.Pro/ExCom/93/SGP/4.

Agenda item 3(d): 2019–2022 investigation of HCFC feedstock applications (decision 91/71(b)(i))

29. The representative of the Secretariat introduced document UNEP/OzL.Pro/ExCom/93/SGP/6, which contained the 2019–2022 investigation of HCFC feedstock applications submitted in line with decision 91/71(b)(i). The investigation had concluded that, from 2019 to 2022, all HCFCs produced for feedstock use in China had been used as feedstock, and there was no evidence of diversion from feedstock use to ODS uses.

30. The Sub-group on the Production Sector recommended that the Executive Committee:

- (a) Note with appreciation the submission of the annual reports on the investigation of HCFC feedstock applications in China for 2019 to 2022, submitted by the Government of China through the World Bank and contained in document UNEP/OzL.Pro/ExCom/93/SGP/5; and
- (b) Invite the Government of China, through the World Bank, to continue to submit annual investigation reports of HCFC feedstock applications in China undertaken under the country's HCFC production phase-out management plan to the last meeting of the respective year.

Agenda item 4: Draft updated guidelines and the standard format used for the verification of ODS production phase-out (paragraph 243 of document UNEP/OzL.Pro/ExCom/92/56)

31. The representative of the Secretariat introduced document UNEP/OzL.Pro/ExCom/93/SGP/6, which contained the draft updated guidelines and the standard format used for the verification of ODS production phase-out. Annex I to that document contained the current draft of a recommendation related to the definition of a “vertically integrated facility” and the updated guidelines and standard format used for the verification of ODS production phase-out, for further consideration by the members.

32. There was agreement that the term “ozone-depleting substances” rather than “controlled substances” be applied in the definition.

33. The representative of the Secretariat informed the Sub-group that the intention of part (a)(i) of the recommendation was to cater for any instance where a vertically integrated production line had a surplus of HCFCs that it wished to sell, in which case the sale of those stocks would then be verified as part of the annual verification exercise that would be conducted for that year. In such a scenario, inclusion of the enterprise in an annual verification would be triggered only in those cases where the enterprise sold surplus HCFCs, and it would otherwise remain exempt from the annual verification process.

34. Further discussion followed on various issues of relevance to the definition, for example how the definition would apply in cases where the enterprises were separate legal entities in the same group; how to account for, in the definition, transfers within an entity or group that did not constitute an actual purchase or sale; whether verification would apply to both upstream and downstream facilities in the same entity; and the relative capacity of upstream and downstream production processes, for example in cases where upstream capacity was initially greater than downstream capacity pending the phased construction of downstream facilities, in which case verification data should be obtained during the interim period.

35. With respect to the consideration of the design capacity of the downstream production process relative to that of the upstream ODS production line, Sub-group members noted that in considering the design capacity of the downstream production processes, it would be important to consider the capacity of all the downstream production processes. For example, if there were multiple downstream production processes that manufactured specialty chemicals, it was the aggregate production capacity of all the speciality chemicals that would be relevant.

36. It was noted that it would be difficult to devise a definition that covered all cases, and that any queries in particular instances could be brought to the attention of the Secretariat for consideration by the Sub-group.

37. The Sub-group reviewed the draft updated guidelines and the standard format used for the verification of ODS production phase-out and resolved any outstanding issues in previously bracketed text. The Sub-group therefore approved the guidelines and the standard format used for the verification of ODS production phase-out.

38. Following the discussions, the Sub-group agreed to continue, at the 94th meeting of the Executive Committee, discussion of whether to request inclusion of national information on the change in HCFC stock level in integrated HCFC production facilities that were not subject to annual verification.

39. The Sub-group on the Production Sector recommended that the Executive Committee:
- (a) Define a “vertically integrated facility” as follows:

“A vertically integrated facility is a facility that includes one or more production lines that produce ODS that are used exclusively as raw materials in the manufacture of other chemicals in a downstream process that is exclusively owned, operated and controlled by the same legal entity including the legal entities within the same group. The vertically integrated facility may also purchase ODS to supplement those produced from the in-house production line(s) as long as the quantities of such supplementary ODS are monitored and reported clearly. A vertically integrated facility must also have the following features:

 - (i) ODS produced in a vertically integrated facility are intended exclusively for use as feedstock in the downstream production process. The vertically integrated facility may also sell or transfer ODS, if surplus due to unforeseen plant closures or shutdowns, as long as it is exclusively sold for feedstock uses. In such a case, the Government concerned would inform the Executive Committee to ensure that the any such sales or transfers from the facility are included in the annual verification;
 - (ii) The design capacity of the downstream production processes must be compatible with or larger than the capacity of the upstream line(s) producing ODS; and
 - (iii) A monitoring and reporting mechanism must be in place to ensure that all ODS produced by the integrated facility are used exclusively as feedstock in the manufacture of other chemicals in the downstream production process.”
 - (b) Take note of the draft updated guidelines and the standard format used for the verification of ODS production phase-out, contained in document UNEP/OzL.Pro/ExCom/93/SGP/6;
 - (c) Approve the updated guidelines and the standard format used for the verification of ODS production phase-out, contained in annex II to the present document;
 - (d) Further take note:
 - (i) That the Secretariat’s review of verification reports submitted in line with the updated guidelines may be delayed due to the need to compare the verified production data with the data submitted under Article 7 of the Montreal Protocol; and
 - (ii) In line with paragraph 4 of Appendix 5-A of the Agreement between the Government of China and the Executive Committee for stage II of the HCFC production phase-out management plan, that the World Bank may require additional funding for the verification of production lines beyond those for which tonnage was included in paragraph 3 of the Agreement. In line with decision 83/70(c), the Executive Committee will consider the need for such additional funding on a case-by-case basis.

Agenda item 5: Other matters

40. No other matters were raised.

Agenda item 6: Adoption of the report

41. The present report was reviewed by the facilitator and submitted to the Chair of the Executive Committee for transmission to the 93rd meeting of the Executive Committee.

Agenda item 7: Closure

42. The meeting of the Sub-group on the Production Sector was closed at 10 a.m. on 18 December 2023.

Annex I

**ONE-OFF VERIFICATION OF THE PRODUCTION LINES TO BE INCLUDED
IN 2023 ANNUAL PRODUCTION VERIFICATION**

HCFC producer	Substance	Reason for additional verification
Inner Mongolia Yonghe Fluorochemical	HCFC-22 HCFC-142b	Verifying implementation of remedy measures recommended by the verifier, including welding the branch outlet removable tee flange on the pipeline connection of HCFC-22 facility and removing the branch outlet on the pipeline connection of HCFC-142b facility
Inner Mongolia 3F Wanhao Fluorochemical	HCFC-142b	Verifying the status of dismantling of the production line (capacity 5,500 mt/year)
Zhejiang Pengyou Chemical Co Plant	HCFC-22	Relocation of one line to an alternative plant site
Zhejiang Lantian Fluoro Materials Co., Ltd	HCFC-142b	Relocation of one line to an alternative plant site
Jiangsu Meilan Chemical Co., Ltd.	HCFC-22	Relocation of four lines to an alternative plant site
Shandong Dongyue Chemical Co. Ltd.	HCFC-22	Establishment of a new feedstock production line
Shandong Dongyue Chemical Co. Ltd.	HCFC-142b	Establishment of a new feedstock production line
Zibo Feiyuan Chemical Co., Ltd	HCFC-133a	Establishment of a new feedstock production line
Fujian Shaowu Yonghe	HCFC-22	Establishment of a new feedstock production line
Shandong Deyi	HCFC-142b	Establishment of a new feedstock production line
Hubei Funuolin	HCFC-142b	Establishment of a new feedstock production line
Sinochem Lantian	HCFC-142b	Establishment of a new feedstock production line
Inner Mongolia 3F Wanhao Fluorochemical	HCFC-142b	Establishment of a new feedstock production line
Fujian Haidefu	HCFC-22	Establishment of a new feedstock production line
Changshu 3F fluoro-chemical Industry	HCFC-142b	Planned establishment of a new feedstock production line (if operational)
Shandong Huaan New Material	HCFC-142b	Planned establishment of a new feedstock production line (if operational)

Annex II

UPDATED GUIDELINES AND THE STANDARD FORMAT USED FOR THE VERIFICATION OF ODS PRODUCTION PHASE-OUT

Purpose

1. The purpose of the guidelines is to provide standard procedures to be followed in conducting verifications of ODS production phase-out (including gradual closures) when so required for a project under implementation financed by the Multilateral Fund, consistent with the Agreement between the country concerned and the Executive Committee. The guidelines include the questionnaire in Appendix I.

Scope of the production verification

2. The verification should include all the production capacity of the referred ODS in the country, irrespective of when the capacity was established, and including the production of the ODS used as feedstock for further production of other chemicals.

3. Once a feedstock production line has been verified as vertically integrated with downstream production in which the ODS was used only as feedstock, further annual verifications of that line would not be required.

Process

4. Before the field verification, the implementing agency responsible for the ODS production phase-out project should ensure that the producer(s) provide the necessary information, using the questionnaire in Appendix I.

5. The responsible implementing agency should prepare terms of reference for the verification mission and make available to the verification team, prior to the field visit, the questionnaire(s) containing baseline enterprise information, annual data reported for the year by the enterprise and a copy of the sector agreement approved by the Executive Committee.

6. During the verification of production line closure or the production verification, the verification team should have full access to the daily production logs and the financial records to validate the data provided by the producer in the questionnaire. For verification of production line closure for which compensation from the Multilateral Fund was provided, the verification team should also review photographic evidence of equipment destruction to ensure that key equipment of the production line had been destroyed or rendered unusable.

7. Based on the review of the documentation provided by the Government, including *inter alia* relevant regulations, questionnaires submitted by the producers using the format of Appendix I, production quota issued to individual producers by the Government for the year, a list of registered distributors, and other relevant information provided by the Government, and the field findings against the data provided by the producer in the questionnaire, the verification team should prepare its verification report for submission to the Executive Committee and attach the filled-in questionnaire to its report.

Questionnaire for data collection

8. The questionnaire should be filled out by each producer for all the production lines to be verified and made available to the verification team before the field visit to the plant. Thus, the verification team would have in hand before departure:

- (a) Names and locations/addresses of producers;
- (b) Contact information for each corporate headquarters and each production site;
- (c) Number of days in production (operational days) for each month, at each production site, and for each ODS production line monitored at the location. For periods where a production line was not in operation, the status of that line during that period should be provided (e.g., under maintenance, idle);
- (d) Monthly production data for the ODS production monitored at each production site;
- (e) Monthly consumption and procurement data for raw materials used for the production of the ODS monitored, (e.g., trichloromethane (TCM) and anhydrous hydrogen fluoride (AHF) for HCFC-22 production); and
- (f) Monthly sales figures for the ODS monitored, as well as stock level for each monitored ODS at the beginning and end of each year. If the stock level of the monitored ODS at the end of the previous year does not equal to the stock level at the beginning of the current year, an explanation should be provided.

9. Once a feedstock production line has been verified as vertically integrated with downstream production in which the ODS was used only as a feedstock, the owner would be required to retain the records for that line, including process inputs and outputs and purchase and sales data, for at least three years. If so requested by the verification team, a plant with such a line should provide the data for the relevant years to the verification team before the verification team's departure.

Verification steps before field verification

10. The following steps should be performed before the field verification:
- (a) Review the data provided by the producer for consistency and ensure that the ODS production, sales figures and stock at the beginning of the verification year and the end of the previous year add up;
 - (b) Compare actual production to annual quota assigned for each ODS production monitored and at each production site for the verification year;
 - (c) Review any quota trading or changes of quotas during the year. Also check if ODS products monitored have been procured from other producers or distributors;
 - (d) Review and verify conformity of raw materials consumption with the ODS production monitored;
 - (e) Based on questionnaire data, identify each campaign and distribute production and raw material consumption data per campaign, taking into account the number of operational days; and
 - (f) Ensure access to daily production logs and financial records for the ODS monitored as necessary for the verification of information provided by the producer.

Verification steps at each producing location

11. The following steps should be performed on the site:

- (a) Confirm production quantities and raw material consumption from production logs;
- (b) Verify sales and procurements of monitored ODS products against financial records; and
- (c) Verify stock at the beginning and the end of the year against financial records.

12. To achieve the steps in paragraph 11, the production verification should:

- (a) Review the record-keeping system for adequacy;
- (b) Assess production line condition and apparent operational status;
- (c) Verify daily production records for monitored ODS production and “key” feedstock consumption data;
- (d) Confirm monthly and annual production of monitored ODS (production equals sales (from sales records) minus change in inventory (from plant records));
- (e) Confirm that cumulative inventory changes of monitored ODS correspond to annual production and sales data;
- (f) Confirm that cumulative inventory changes of “key” raw material(s) are consistent with production, both overall and per campaign;
- (g) Integrate hourly in-plant flowrate data (corrected for concentration if necessary), over time to get an independent value for production;
- (h) Compare the changes in reported feed and product tank levels, integrated with the appropriate correlating factor, to reported raw material usage and ODS production;
- (i) On a spot basis, rationalize hourly operation logs with raw material consumption and ODS production. In other words, match throughput, for example for a week, with raw material consumption and the monitored ODS production for the same week. Do for at least two or three weeks during each campaign taking into account the number of operational days;
- (j) Review logs for periods of high hourly throughput and compare to reported production. Investigate any possible inconsistency; and
- (k) Review hourly operation logs during non-campaign time periods to verify non-production.

Verification steps at permanently closed location

13. The following steps should be performed during verification of a production line closure:

- (a) Assess the production line condition and apparent operational status;
- (b) Verify the data provided in section D(I) of the questionnaire; and
- (c) Provide photographic documentation for the dismantling of the production line (e.g., photo and/or video).

Procedures for verification of ODS production for feedstock and other exempted uses

14. In line with paragraph 5 of Article 1 of the Montreal Protocol, production of ODS for feedstock use does not count toward the determination of a country's production. The feedstock use of ODS can be identified by examining the financial records for such ODS that was sold for feedstock use, or operational records documenting the final use of ODS as internal feedstock use. The verification steps listed in paragraphs 11 and 12 are applicable to the verification of ODS production for feedstock use.

15. When ODS is sold as feedstock, the producer should document the transaction process. The documentation should include purchase orders, sales contracts, receipts, and any other financial/operational records. The documentation should record the identity of the feedstock users, and the amount and type of ODS feedstock sold/transferred. The producers should provide the information in section D(III) of the questionnaire and maintain these records for a minimum of three years. When so requested by the producer, such information will be kept in strict confidence by the verification team.

16. If ODS is sold for feedstock use through a distributor, the information specified in paragraph 15 above should be provided by the distributor to the producer.

17. When ODS is used as feedstock internally in the manufacturing of other chemicals within the same enterprise, the producer should maintain all records related to the ODS feedstock use, including the planned production of ODS for internal feedstock use for that year, the accounting book for the internal transfer, the mass transferred, quantities of chemicals produced using the ODS as feedstock and if possible, and on a voluntary basis, the reaction processes involved. Where so requested from the producer, such information will be kept in strict confidence by the verification team. For production lines that have previously been verified as being vertically integrated, such records should be maintained for a minimum of three years.

18. When ODS is produced for an exempted use, such as under a critical- or essential-use exemption, the producer should provide relevant evidence to document that use.

19. The verification team should review the above records and verify the amount of ODS used as feedstock and for other exempted uses.

Verification report

20. The verification report should provide the results of the team's findings and conclusions on the implementation of ODS production phase-out annual programme, including an assessment of whether the production targets specified in Appendix 2-A of the Agreement had been met. The report should include as annexes the completed questionnaires.

21. The verification report should include a description of the mechanism established and implemented by the Government concerned to ensure that production lines that were provided with compensation for the phase-out of ODS production capacity as part of a project financed by the Multilateral Fund, consistent with the Agreement between the country concerned and the Executive Committee, did not redirect the compensated capacity towards feedstock production; procedures to monitor production facilities' adherence to relevant national regulations; and the penalties that may be applied in accordance with national regulations.

Field verification team

22. The verification team should consist of at least two persons. At least one person should be fluent in the national language, and one should be fluent in English.

- (a) One of the verification team members should be familiar with accounting practices and financial verification; and
- (b) One of the verification team members should be a technical expert with experience relevant to the ODS production to be verified.

Appendix I

Questionnaire for ODS production phase-out verification (including gradual closure)

A. Producer identification

Name of enterprise :
 Producer ref. number* :
 Address of the production site :
 Contact person(s) and functional title :
 Telephone number :
 Fax number :
 E-mail address :

B. Verification team composition

Leader

Name :
 Functional title :

Member(s)

Name :
 Functional title :
 Date of plant visit :
 Duration of visit :

* As applicable, e.g., producer reference number for China's HCFC production plants.

C. Production History

Date of construction:					
ODS products	No. of lines	Capacity in baseline year*	Production**		
			Baseline year*	Year 1	Year 2
HCFC-22					
HCFC-141b					
HCFC-142b					
HCFC-123					
Others					
Raw materials production***					
AHF					
TCM					

* The year from which data is used for approving the ODS production phase-out project.

** Covering all the years since last verification until the year prior to the verification.

*** This applies to plants where production of raw material(s), such as either AHF or TCM or both, is integrated.

D. Production activity in the year verified

I. Production line(s) for permanent closure

No. of ODS production lines closed	:	
Date of ODS production ceased	:	
Date of dismantling completed	:	
Verification of destruction of key components by:		[Name of certifying body]
Reactor(s) and distillation column(s) dismantled and destroyed ¹	:	Yes/No
Control and monitoring equipment dismantled and destroyed ²	:	Yes/No
Pipes dismantled and destroyed ²	:	Yes/No
Utilities dismantled and destroyed ²	:	Yes/No
Evidence of destruction (photos or videos)	:	Yes/No
Chance of resuming production	:	Yes/No
Assessment by the verification team to be included in the verification report	:	Yes/No

II. Production lines for gradual closure

Annual ODS production quotas, production, sales and stock levels at the beginning and end of the year in which ODS production is verified

(Please use one table for each ODS product)

ODS product (e.g., HCFC-22, HCFC-141b, HCFC-142b)	Baseline year*	Year 1	Year 2**
Quota			
Opening stock at beginning of year			
Production			
Sales			
Closing stock at end of year			

* For the first year of a standalone or a multi-year agreement project, the stock level in the previous year should be the year from which data was used to approve the ODS production phase-out project.

** Covering all the years since last verification until the year of the verification.

Annual raw material and production ratio (e.g., AHF/HCFC, TCM/HCFC ratios, etc.)

Ratio	Baseline year	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6*
HCFC-22							
AHF/HCFC-22 ratio							
TCM/HCFC-22							

¹ Key components that must be destroyed or rendered unusable.

² Components whose destruction is optional.

Operational days per year

Type of production	Baseline year	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6*
HCFC-22							
HCFC-141b							
Other ODS							

* Covering all the years since last verification until the year of the verification.

Monthly ODS (using HCFC-22 as an example) production and raw material consumption*

HCFC-22 production and TCM* consumption:

Month	HCFC-22	No. of operating days	HCFC-22 production	TCM/HCFC-22 ratio	TCM opening stock	TCM procured/or added to stock	TCM closing stock
Jan							
Feb							
Mar							
Apr							
May							
Jun							
Jul							
Aug							
Sept							
Oct							
Nov							
Dec							

* If another production process is used and the raw material is not TCM, please use the data for the actual raw material.

HCFC-22 production and AHF consumption:

Month	HCFC-22	No. of operating days	HCFC-22 production	AHF/HCFC-22 ratio	AHF opening stock	AHF procured/or added to stock	AHF closing stock
Jan							
Feb							
Mar							
Apr							
May							
Jun							
Jul							
Aug							
Sept							
Oct							
Nov							
Dec							

* Similar tables should be provided for other ODS.

Date of site visit:

Duration of visit:

III. Production for feedstock use

For those cases where ODS is produced for feedstock use at a production line not previously verified as being vertically integrated with downstream manufacturing in which the ODS was used only as a feedstock, except for the information requested above, the producer should also provide the following information:

- (a) Name and quantity of ODS sold/transferred;
- (b) Date of the sale/transfer;
- (c) Name, location and contact information of the feedstock user; and
- (d) Any other relevant information.

When so requested by the producer, such information will be kept in strict confidence by the verification team.
