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EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
Ninety-sixth Meeting
Montreal, 26–30 May 2025
Item 16 of the provisional agenda¹

REPORT OF THE SUB-GROUP ON THE PRODUCTION SECTOR**Introduction**

1. The Sub-group on the Production Sector (Sub-group) met on 28, 29, and 30 May 2025 in the margins of the 96th meeting of the Executive Committee of the Multilateral Fund. It consisted of the representatives of Argentina, Canada, Cuba, China, Italy, Lesotho, Sweden and the United States of America, with Canada 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/96/SGP/1.

Agenda item 2: Organization of work

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

Agenda item 3: HCFC production phase-out management plan (HPPMP) for China: Matters related to HFC-23 (decision 95/95)

5. The representative of the Secretariat introduced document UNEP/OzL.Pro/ExCom/96/SGP/2, on matters related to HFC-23 (decision 95/95). Due to a lack of time to finish its discussions at the 95th meeting, the Executive Committee had decided to defer further consideration of the matter to the present meeting. The representative provided an update on progress towards organization of the 2025 international workshop on atmospheric monitoring of ODS and HFCs, including HFC-23, under the aegis of the Chinese Foreign Environmental Cooperation Center (FECO). He also noted with appreciation recently published analyses

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¹ UNEP/OzL.Pro/ExCom/96/1

of certain HFC emissions from two recently established atmospheric monitoring stations in China. Finally, he provided additional information from the verification reports of two producers, Zhonghao Chenguang Research Institute of Chemical Industry Co. (plant #25A), which represented the first-time industrial use of a conversion technology; and on Xingguo Xingfu Chemical Co. (plant #28), which had in 2023 taken measures to increase its HFC-23 by-product generation rate.

6. The recent opening of two atmospheric monitoring stations in China, and the publication of articles in the scientific literature analyzing the observations made, were welcomed as indications of the progress being made in China's efforts to improve monitoring of emissions of controlled substances. However, several members noted that, while analytical results of emissions of a number of substances using data gathered at the two monitoring stations had been presented in the literature, they did not include those of HFC-23 and the CFCs identified by the Scientific Assessment Panel in its 2022 report as exhibiting positive growth after previously showing near-zero change. Another member said that dissemination of the results generated by the monitoring stations would be greatly facilitated if China were to share the data, for example with the Advanced Global Atmospheric Gases Experiment (AGAGE) network.

7. The representative of the World Bank said that the data being collected at the monitoring stations were being analyzed by researchers at universities in China, and further results would be published in peer-reviewed literature as they became available. It was intended that data on HFC-23 emissions would be made available at the international workshop on HFC-23 emissions control at the scientific level that would take place in 2025, in line with decision 95/94(d). He also confirmed that it was within the capability of the monitoring stations to collect data on CFC-11 and CFC-12.

8. The representative of the Secretariat summarized the provisions set out in decision 95/94. By that decision, additional reporting would be submitted to the Executive Committee at its 97th meeting on various activities, including the international workshop on HFC-23 emissions control, and the Secretariat would also be receiving the progress report on the implementation of the HPPMP and the 2024 HCFC verification reports.

9. The Sub-group sought to gain further insight into the continuing discrepancies between the reported HFC-23 emissions and those derived from concentrations measured in the atmosphere. One member enquired whether, overall, the mass balance method provided a better estimate of HFC-23 emissions than the measured data analysis method because the former included fugitive emissions in the calculation. The representative of the Secretariat responded that the choice of method to use depended on the specific circumstances of each facility. The 2024 verification report would be available by the next meeting of the Executive Committee, and would provide some comparison of data using different methods. Differences between the data reported using different methods were expected to be smaller than previously.

10. One member said that while the discrepancy between Article 7 reporting and the annual verification reports had been analyzed in detail in document UNEP/OzL.Pro/ExCom/95/SGP/5, and some understanding of those discrepancies had been attained, an issue of greater concern was the discrepancy between the reported emissions and those derived from atmospheric monitoring, which indicated emissions for eastern China could be up to an order of magnitude greater than nationally reported emissions.

11. Members of the Sub-group sought further information on the management of HFC-23 by-product at two producers, Zhonghao Chenguang Research Institute of Chemical Industry Co. (plant #25A) and Xingguo Xingfu Chemical Co. (plant #28), as described in document UNEP/OzL.Pro/ExCom/96/SGP/2. In the former case, the Sub-group noted the application of new technology whereby HFC-23 by-product was converted to HCFC-21 and HCFC-22 and sought additional information on the replicability and economic benefits of the technology.

12. The representative of the Secretariat responded that the enterprise had only just started using the technology, and data on the economics of the process were not yet available. The representative of the

World Bank confirmed that the project was now operating on a commercial scale and that the producer was collecting information on the economic aspects of the process, which would be analyzed and shared when completed. Other enterprises had taken an interest in adopting the conversion technology, pending analysis of the economic viability of the process. It was possible that some information on that matter might be available in time for the aforementioned workshop. He confirmed that theoretically, all the HFC-23 could be converted back to HCFC-21 and HCFC-22.

13. With regard to the second enterprise referred to in document UNEP/OzL.Pro/ExCom/96/SGP/2, Xingguo Xingfu Chemical Co., one member, noting that the facility had increased its generation of HFC-23 to meet market needs, queried the statement in the document that HFC-23 that was not sold was either stored or vented, as well as the statement that the 2023 verification had noted that the increased generation of HFC-23 by the producer might have been to secure a higher initial quota of HFC-23 production in 2024.

14. The representative of the Secretariat confirmed that the facility had changed its production parameters to increase its HFC-23 by-product generation to satisfy market demands and recalled that Xingguo Xingfu was the only HCFC-22 producer in the country that did not have an HFC-23 incinerator, but rather used a separation unit and stored HFC-23 that had not been sold. The Government of China explained the reason why Xingguo Xingfu did not establish a destruction facility is because its parent company has a halon 1301 production facility, and HFC-23 is the key raw material for the production of halon 1301, so it can be considered that the enterprise has a supporting feedstock use conversion unit.

15. The representative of the World Bank said that the facility used the mass balance method as a basis for calculating HFC-23 by-product generation and emissions. HFC-23 that had been captured but remained unsold was stored. None of the HFC-23 was intentionally vented, though some fugitive emissions may occur during the production process. He also said that, based on the methodology and timeline for calculating quotas, it was unlikely that the producer had increased generation of HFC-23 to secure a higher initial quota of HFC-23 production in 2024.

16. During the ensuing discussions, the Government of China invited members of the Sub-group on the Production Sector to participate in the international workshop on HFC-23 at the scientific level to be held later in 2025.

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

- (a) Note the update on matters related to HFC-23, submitted by the Government of China through the World Bank as contained in document UNEP/OzL.Pro/ExCom/96/SGP/2;
- (b) Request the Secretariat to prepare a report, within the scope of the HCFC production phase-out management plan, to the Sub-group on the Production Sector at the 97th meeting summarizing information from relevant recent scientific studies related to the matter of HFC-23 by-product emissions, taking into account the outcomes of the international workshop on HFC-23 at the scientific level to be held in China in 2025 in line with paragraphs (b)(iii) and (d)(ii) of decision 95/94; and
- (c) Invite the Government of China, in collaboration with the World Bank, to implement a technical assistance project to study the economics and broader application of the HFC-23 transformation process to convert HFC-23 to HCFC-22 and HCFC-21 as described in document UNEP/OzL.Pro/ExCom/SGP/2, and to provide a report on the outcome of that study to the 99th meeting.

Agenda item 4: Other matters

18. No other matters were raised.

Agenda item 5: Adoption of the report

19. The present report was reviewed by the facilitator and submitted to the Chair of the Executive Committee for transmission to the 96th meeting of the Executive Committee.

Agenda item 6: Closure

20. The meeting of the Sub-group was closed at 6:15 p.m. on 30 May 2025.
