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OPEN-ENDED WORKING GROUP OF THE
PARTIES TO THE MONTREAL PROTOCOL

Tenth meeting
Nairobi, 5-8 July 1994
Items 6-7 of the provisional agenda

NOTE BY THE SECRETARIAT TO THE WORKING GROUP AT ITS TENTH MEETING

Item 6: Consideration of the report of the Scientific Assessment Panel on the impact on the ozone layer of continued use of recycled controlled substances (decision IV/24, para. 6).

1. In decision IV/24, paragraph 6, the Parties requested the Scientific Assessment Panel to study and report by 31 March 1994, on the impact on the ozone layer of continued use of recycled controlled substances and of the utilization or non-utilization of available environmentally-sound alternatives/substitutes and requested the Open-ended Working Group of the Parties to consider the report and submit their recommendations to the Sixth Meeting of the Parties.

2. The Open-ended Working Group may wish to consider the report of the Scientific Assessment Panel which has been communicated as UNEP/OzL.Pro/WG.1/10/4 and make appropriate recommendations.

Item 7 (a): Nominations for essential uses, for 1995, of halons (decisions IV/25 and V/18).

3. The Technology and Economic Assessment Panel has observed that the nomination for essential-use exemptions for halons for firefighting applications for 1995 by France, which is a repeat of its nomination for 1994, does not satisfy the essential-use criteria laid down by the Fourth Meeting of the Parties in decision IV/25. The Working Group may consider the issue.

Item 7 (b): Nominations for essential uses of controlled substances other than halons (decisions IV/25 and V/18)

4. The Technology and Economic Assessment Panel has recommended that the nominating Parties be permitted production and consumption of controlled substances after 1 January 1996 for Aerosol Metered Dose Inhalers (MDIs) and specific applications for the space shuttle. It has also recommended that laboratory and analytical uses of the controlled substances be permitted for all Parties, whether they have nominated such uses or not. The recommended quantities for each of the nominating Parties are annexed (Table 1) to the present note. The recommendations for laboratories/ analytical uses cannot be quantified since the Panel recommended that these uses may be permitted for all the Parties even though only some have made a nomination for this purpose and quantified their requirements.

5. Some Parties have made nominations for the years beyond 1996. The Panel has recommended the nominations for the years beyond 1996 by South Africa and the United States, subject to the conditions of:

(a) Annual review of the quantity of controlled substances authorized;

(b) Biannual review of the essential-use criteria, including whether alternatives and substitutes have become technically and economically feasible.

The recommended quantities for South Africa and the United States for years beyond 1996 are annexed (Table 3).

6. In the case of the nominations by Switzerland for MDIs for 1996 and beyond, an exemption is recommended for 1996 and not for later years since Switzerland has not submitted complete information. The Panel recommended that Switzerland be requested to give the complete information by 1 January 1995.

7. In case of MDIs, the Panel recommended that:

(a) The Parties undertake a major effort to educate physicians and patients about treatment options including the use of dry powder inhalers which will assist in reducing reliance on MDIs containing CFCs;

(b) The essential-use exemption be contingent on good faith efforts to eliminate or recover emission from filling or testing;

(c) The Parties investigate destruction of CFCs in MDIs that have exceeded their shelf-life or whose use is rendered unnecessary because of commercialization of alternatives.

8. The Panel has not recommended applications for essential-use exemptions by Belgium, Denmark, Ireland, Italy and the United Kingdom for the use of CFC-113 for fingerprints, since alternatives are available. However, the Panel has requested the Parties to consider the aspect of acceptance by the relevant courts of law, if any Party chooses to make a plea. In the case of applications to be exempted for use in the space shuttle solid rocket motor, the Panel requested the Parties to encourage all organizations manufacturing solid rocket motors to identify, verify and implement alternatives and substitutes.

9. In respect of laboratory and analytical uses, the Panel welcomed the offer of Canada to convene in 1994 a Workshop on such uses to assist a review of the issue.

10. France, Italy and the Netherlands have nominated the use of carbon-tetrachloride in manufacturing certain products. The Panel observed that such use of carbon-tetrachloride as a process agent is widespread in many countries. While the use of a controlled substance as feedstock is exempted from being counted as production, in Article 1, paragraph 5, the use as process agents has not been so exempted in the Protocol. The Panel has recommended that the use as process agents also need not be counted as consumption.

11. The Panel has found itself unable to recommend many other applications for essential-use exemptions. A short summary of such cases is annexed (Table 2).

12. The Secretariat would recommend that exemptions be recommended for 1996, as per the recommendations of the Panel, only for those Parties who submit their complete data for years up to 1994 before 30 September 1995 in accordance with Article 7.

13. The Working Group may wish to consider the recommendations of the Panel.

Item 7 (c): Supply of halons to Parties operating under paragraph 1 of Article 5 of the Protocol (decision V/16)

14. Decision V/16 requested the Technology and Economic Assessment Panel and its Halons Technical Options Committee to study and report by 31 March 1994 on the problems and options of Parties operating under paragraph 1 of Article 5 of the Protocol in obtaining halon, in light of the phase-out in developed countries and subsequent closing of halon production facilities.

15. The Halons Technical Options Committee has observed in its report, contained in the report of the Technology and Economic Assessment Panel 1994, that there appears to be an ample supply of halons to satisfy critical applications for all countries that cannot be satisfied by any other fire protection measures such as sprinkler systems, carbon dioxide systems and increased utilization of new alternatives. It is estimated that the global bank of halon 1211 should be sufficient to maintain existing equipment using recycled halon in both developed and Article 5 (1) countries. In virtually all cases where halon 1211 portable fire extinguishers are employed, extinguishers that use other proven extinguishants such as dry powder can be substituted for new applications. Global banking of halon 1301 will be adequate to supply maintenance quantities for equipment in both developed countries and Article 5 (1) countries for at least the next 40 years. Also, improved efficiency of recycling programmes within the developed countries and an orderly transition by the Article 5 (1) countries to employ both proven fire protection measures and new alternatives and establish halon banks as a final measure, will facilitate an early global phase-out of halon production and consumption.

The Working Group may discuss the report.

Item 7 (d): Total emissions resulting from trace impurities, emission during manufacture, etc. (decision IV/12, para. 3)

16. The Technology and Economic Assessment Panel has reported that a worst-case estimate for the current emissions from the inadvertent production and process emissions of chlorofluorocarbons (CFCs), carbon tetrachloride (CTC), methyl chloroform, hydrochlorofluorocarbons (HCFCs) and methyl bromide is approximately 7,200 ODP-tonnes. It is estimated that this will reduce to a worst-case emission of 5,800 ODP-tonnes in the year 2000. These levels equate to about 0.5 per cent of the amount of controlled substances produced in their baseline years. It has recommended that Governments and industries take steps to minimize emissions of such substances, including steps such as the avoidance of the creation of such emissions, reduction of emissions using practicable technologies or process changes, containment or destruction. Also, it is particularly important that such technologies are transferred to developing countries where CFC production, and hence process emissions and inadvertent production, may continue for a number of years under the Montreal Protocol.

The Working Group may consider this recommendation.

Item 7 (e): Recycling of controlled substances (decision IV/24, para. 7)

17. Decision IV/24, paragraph 7 of the Fourth Meeting of the Parties requested the Technology and Economic Assessment Panel to review and report, by 31 March 1994 at the latest, through the Secretariat on:

(a) The technologies for recovery, reclamation, recycling and leakage control;

(b) The quantities available for economically feasible recycling and the demand for recycled substances by all Parties;

(c) The scope of meeting the basic domestic needs of the Parties operating under paragraph 1 of Article 5 of the Protocol through recycled substances;

(d) The modalities to promote the widest possible use of alternatives/substitutes, with a view to increasing their usage, and release their reclaimed substances to Parties operating under paragraph 1 of Article 5 of the Protocol;

(e) Other relevant issues and to recommend policies with respect to recovery, reclamation and recycling, keeping in mind the effective implementation of the Montreal Protocol.

18. The Technology and Economic Assessment Panel has recommended that:

(a) Recovery, recycling, containment and leakage control programmes are necessary:

(i) To minimize ODS emissions into the atmosphere;

(ii) To ensure that controlled substances are available to service existing equipment beyond phase-out, in particular for critical applications and essential uses;

(iii) To offset the demand for ODS in developing countries;

(b) Commercially demonstrated and effective technologies are available for the recovery, recycling, containment and leakage-control of halons, methyl bromide, refrigerants and solvents. Recovery and recycling of refrigerants will be re-investigated in the period 1995-1996;

(c) It is possible to meet a portion of the demand for ODS in Article 5 (1) countries from supplies recovered and recycled in developed countries although, with the possible exception of halons, recovery and recycling in Article 5 countries is challenging due to the lack of existing equipment bases, training, and equipment and refrigerant standards.

The Working Group may consider the recommendation.

Item 7 (f): Evaluation of alternatives to HCFCs (decision IV/30, para. 1)

19. Decision IV/30 of the Fourth Meeting of the Parties requested the Technology and Economic Assessment Panel:

(a) To evaluate alternative substances and technologies to the application for HCFCs as a refrigerant and as an insulation gas in rigid foam;

(b) To identify other applications for HCFCs, if any, where other more environmentally suitable alternatives or technologies are not available;

(c) To submit its findings to the Open-ended Working Group of the Parties to the Montreal Protocol no later than 31 March 1994.

20. Decision IV/30 also requested the Open-ended Working Group to consider the report of the Panel with respect to HCFCs and make appropriate recommendations for consideration by the Parties in 1994. The Executive Committee of the Multilateral Fund was also requested to estimate, on an ongoing basis, the amount of HCFCs required by Parties operating under paragraph 1 of Article 5 of the Protocol and recommend the methods of meeting such needs in full.

21. The Technology and Economic Assessment Panel has observed that:

(a) HCFCs are important to the phase-out of CFCs. The selection of alternatives is complex. It involves balancing the need to effect an early transition from CFCs and other controlled substances with the need to ensure that use of HCFCs is not encouraged where other more environmentally-appropriate technologies exist. Also, any decision made must consider application, country - and site - specific economic, regulatory, health and safety, and technological circumstances;

(b) HCFCs are technically and economically necessary for the transition in:

(i) The majority of refrigeration and air conditioning applications;

(ii) Manufacturing of insulating foams;

(iii) Selected and limited solvent applications;

(iv) Certain fire protection applications where space constraints exist;

(c) Other more environmentally acceptable alternatives to HCFCs are available in the following applications:

(i) Most fire-fighting applications;

(ii) Non-insulating foams;

(iii) The majority of solvent applications;

(iv) As an alternative to 1,1,1-trichloroethane (due to comparable ODP);

(v) Aerosols;

(vi) Sterilization.

22. The Executive Committee of the Multilateral Fund has concluded that, within the milieu of technologies currently available for the phase-out of ODS in Article 5 countries, there are areas:

(a) Where the use of HCFCs in the short-term may be economically cost-effective with minimal environmental penalties (2-11% residual ODP).

These include:

(i) Refrigerator insulation foam blowing;

(ii) Rigid insulation foam;

(iii) Manufacture/conversion of centrifugal chillers;

(iv) Manufacture of compressors for air-conditioners;

(v) Manufacture/conversion of some commercial refrigerators;

(b) Where the use of hydrocarbons provide economically cost-effective and generally environmentally sound solutions. These include:

Manufacture of extruded polystyrene and polyethylene foams and sheets;

(c) Where the use of hydrocarbons hold considerable promise for increasing cost-effectiveness and environmental soundness of projects, but where there is need for further optimization or close cooperation between the technology supplier and the recipient enterprise. These include:

(i) The establishment/conversion of compressor plants;

(ii) The establishment/conversion of domestic refrigerator/freezers/manufacturing plant;

(iii) Servicing of refrigerator/freezers;

(d) Where the use of other substitutes or substitute technologies provide economically cost-effective and environmentally sound solutions. These include:

(i) The use of methylene chloride in flexible foam blowing;

(ii) Carbon dioxide and water blown foaming process.

The Working Group may consider the issue.

Item 7 (g): List of products containing controlled substances from Annex B (para. 3 bis of Article 4 of the Montreal Protocol and decision IV/28)

22. Article 4, paragraph 3 bis of the Montreal Protocol provides that within three years of the date of entry into force of this paragraph, the Parties shall elaborate, in an annex, a list of products containing controlled substances in Annex B. Parties that do not object to the annex prepared in accordance with the procedures in Article 10 of the Convention shall ban the import of those products from any State not Party to the Protocol within one year of the Annex having become effective.

24. By decision IV/28 of the Fourth Meeting of the Parties, the Technology and Economic Assessment Panel was requested to study and report on a list of products containing controlled substances from Annex B to enable the Sixth Meeting of the Parties in 1994 to consider the elaboration of such a list as an annex to the Protocol, in accordance with paragraph 3 bis of Article 4 of the Protocol.

25. The conclusions of the Panel on this issue are as follows:

(a) Substances in Group I of Annex B

A large number of products contain trace quantities of these substances. The only significant product which contains CFC-13 is a refrigerant in low-temperature refrigeration.

(b) Group II Substances (Carbon-tetrachloride)

This is an ingredient in adhesives, aerosol cleaners, carbon-tetrachloride, fire-extinguisher coatings, inks and paints, pesticides and printer cartridges. There are many products which contain trace quantities of carbon-tetrachloride;

(c) Group III (Methyl Chloroform)

The products containing methyl chloroform include adhesive correcting fluid for typewriters, paints, inks and coatings, printer and copying ink and waxes.

26. The Committee concluded that it would be very difficult to make a comprehensive list of products containing these substances. The Committee also observed that the substances would have been almost phased out by all the Parties not operating under Article 5 by the time an annex of products containing these substances entered into force. It also felt that since almost all nations with most of the consumption and production were already Parties to the Protocol, additional import restrictions on non-Parties might not increase the incentive for non-Parties to join the Protocol.

27. The Working Group may consider the recommendation and the observation of the Panel. Article 4, paragraph 3 bis mandates the Parties to elaborate in an annex, a list of products containing controlled substances in Annex B.

Other issues

28. The Panel has raised two issues relating to the controlled measures on methyl bromide:

(a) The first issue is regarding the definition, in Article 1, paragraph 4 of controlled substances which excludes any controlled substance or mixture which is in a manufactured product other than a container used for the transportation or storage of that substance. Most of the trade in methyl bromide is through manufactured products containing methyl bromide. The Panel fears that many Parties can continue using methyl bromide since the export and import of manufactured products containing methyl bromide do not count in calculating its consumption;

(b) The next problem raised is with regard to the definition of the terms "quarantine" and "pre-shipment" (Appendix III of the report of the Technology and Economic Assessment Panel of 1994), for which use of methyl bromide is exempted. The Panel and the Technical Options Committee discussed the issue of definitions and discovered many ambiguities in defining these terms. The recommendation of the Panel is that the Parties consider the advantages of not exempting any uses excepting feedstock and rely instead on the essential-use process to consider each nomination on a case-by-case basis.

29. With regard to the definition of "controlled substances" in Article 1, the Parties arrived at this after careful consideration and also provided other safeguards to ensure that this definition is not misused, e.g. under Article 4, lists of products containing controlled substances can be made and their import prohibited from non-Parties. The 10-year grace period for developing countries is only for "basic domestic consumption" and the First Meeting of the Parties clarified that this term should be understood as not to allow expansion of the production of products containing controlled substances for the purposes of supplying other countries, (decision 1/12 (g)).

The Working Group may discuss the recommendations of the Panel.

Table 1
(*In tonnes*)

ESSENTIAL USE NOMINATIONS (Recommended)				Year: 1996		
PARTY	**CFC-11**	**CFC-12**	**CFC-113**	**CFC-114**	**1,1,1-Tri-Chloro-ethane (methyl chloroform)**	
1. AUSTRALIA	80	200		10		
2. CANADA	152	377		70		
3. BELGIUM	90	95				
4. FRANCE	618	1,063	30.1	153		
5. GERMANY	178	417		178		
6. IRELAND	145	264				
7. ITALY	145	340	5	50		
8. JAPAN	75	142	1	22		
9. POLAND	330	330		40		
10. PORTUGAL	4	9		2		
11. SOUTH AFRICA	59	123		7		
12. SPAIN	146	362	1	39		
13. SWITZERLAND	8	8		8		
14. U.K.	1,031	1,762	32	363		
15. USA	750	2,365		345	56.8	
TOTAL	3,811	7,857	69.1	1,287	56.8	13,080.9

Note: Certain clarifications are awaited from Belgium, Finland and Poland.

Table 2
(*In tonnes*)

ESSENTIAL USE NOMINATIONS (Unable to recommend)						Year: 1996		
PARTY	**CFC-11**	**CFC-12**	**CFC-113**	**CFC-114**	**CFC-115**	**1,1,1-Tri-Chloro-ethane (methyl chloroform)**	**Carbon Tetra-chloride**	
1. EUROPEAN COMMUNITY			1.5					
2. BELGIUM			30.5			183.02		
3. DENMARK			3.1					
4. FRANCE	36.38	18.075	1157.	1	0.204	1256.039		
5. GERMANY	1							
6. GREECE	50	50						
7. ITALY		150	0.1		150			
8. IRELAND			21.42					
9. NETHERLANDS			0.3					
10.SOUTH AFRICA								
11.SWITZERLAND							4	
12. U.K.			14					
13. U.S.A.	37.7	5.6		10.4		677.1		
TOTAL	125.08	223.675	1,227.92	11.4	150.204	2,116.159	4	

Table 3
(*In tonnes*)

ESSENTIAL USE NOMINATIONS		**Year: 1997-2001**												
CONTROLLED SUBSTANCES		R E C O M M E N D E D (YEAR)					I N C O M P L E T E				UNABLE TO RECOMMEND			
CFC-11	PARTY	1997	1998	1999	2000	2001	PARTY	1997	1998	1999	PARTY	1995	1997	1998
	South Africa	67	73	80	86		Switzerland	8	8	8	USA		38.4	39
	USA	658.3	521.5	477.5			Sub-total	8	8	8	Sub-total		38.4	39
	Sub-total	725.3	594.3	557.5	86									
CFC-12	South Africa	138	150	161	178		Switzerland	8	8	8	USA		5.6	5.6
	USA	2,177	1,918.5	1,894.7			Sub-total	8	8	8	Sub-total		5.6	5.6
	Sub-total	2,315	2,068.5	2,055.7	178									
CFC-113		0	0	0	0									
CFC-114	South Africa	9	9	9	10		Switzerland	8	8	8	USA		10.7	11.1
	USA	343.1	338.9	300.7	10		Sub-total	8	8	8	Sub-total		10.7	11.1
	Sub-total	352.1	347.9	309.7	10									
CFC-115														
		0	0	0	0						Japan		81	81
											Sub-total		81	81

1,1,1,-trichlo-ethane	USA	56.8	56.8	56.8	56.8	56.8					USA		677.1	222.5
	Sub-total	56.8	56.8	56.8	56.8	56.8					Sub-total		677.1	222.5
Halon-1301											France	45		