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**Workshop on management and destruction of ozone-depleting substance
banks and implications for climate change**
Geneva, 13 July 2009

**Technology and Economic Assessment Panel report on the
environmentally sound management of banks of ozone-depleting
substances: executive summary**

Note by the Secretariat

1. The annex to the present note sets out the executive summary of a report by the Technology and Economic Assessment Panel entitled: "Task Force Decision XX/7 Interim Report: Environmentally Sound Management of Banks of Ozone-depleting Substances". The full report is available on the Ozone Secretariat website at: http://ozone.unep.org/Assessment_Panels/TEAP/Reports/TEAP_Reports/teap-june-2009-decisionXX-7-task-force-report.pdf.
2. The executive summary is being issued in the six official languages of the United Nations to facilitate its consideration by the participants in the workshop on management and destruction of ozone-depleting substance banks and implications for climate change. It is presented here as received from the Technology and Economic Assessment Panel and has not been formally edited.

I. Executive Summary

1. A TEAP Task Force has conducted a further study into the distribution and accessibility of ODS banks, where banks are defined as 'consumption not yet emitted', in line with the requests set out in Decision XX/7. The scope of the study covers banks of CFCs, HCFCs and halons, but does not systematically cover the ODS replacements. The reference year has been taken by the Task Force as 2010, representing the earliest point at which any data presented by this report could be readily acted upon. This Interim Report has limited itself to an analysis of developed and developing country banks in order to maintain consistency with other key references on this subject – most notably the 2005 Special Report on Ozone and Climate (SROC) and its Supplement Report.
2. This latest assessment has concluded that the reachable banks of ODS are distributed as shown in Table ES-1 with levels of effort reflecting the likely ease of access of those banks. Although this varies significantly by sector, the geographic spread of the banks is also important, with ODS banks situated in densely populated (DP) areas being easier to manage than those in sparsely populated (SP) areas.

<i>Region</i>	<i>ODS type</i>	<i>Low Effort</i>	<i>Medium Effort</i>	<i>High Effort</i>
<i>(all in ktonnes)</i>				
Developed Countries	CFCs	123.82	239.76	1009.08
	HCFCs	631.86	308.23	838.73
	Halons	44.32	15.00	-
Developing Countries	CFCs	160.79	225.80	154.27
	HCFCs	563.49	645.72	347.22
	Halons	22.24	28.95	-
Global		1546.52	1463.46	2349.30

Table ES-1 Reachable ODS Banks with Different Levels of Efforts Reflecting the Ease of Access

3. Since a large proportion of the high effort banks are in insulating foams which are still in use, there is little experience of managing these banks, resulting in limited information on the related costs for recovery and destruction. Accordingly, this Interim Report has focused mostly on costs related to Low Effort and Medium Effort banks.
4. The outcome of this initial assessment is that costs to manage all low effort banks could reach approximately US \$62 billion, while adding medium effort banks would result in total costs approaching US \$180 billion. The breakdown of these costs by region and level of effort is summarised in Table ES-2.

<i>Region</i>	<i>Low Effort</i>	<i>Medium Effort</i>	<i>Total</i>
<i>(US\$ billion)</i>			
Developed Countries	15.96 - 26.21	45.23 - 59.37	61.19 - 85.58
Developing Countries	26.56 - 35.38	43.87 - 58.02	70.43 - 93.40
Global	42.52 - 61.59	89.10 - 117.39	131.62 - 178.98

Table ES-2 Summary of Bank Management Costs by Region and Effort

5. In this interim assessment, no account has yet been taken of the annual flow of decommissioned ODSs into the waste stream and therefore the period over which an investment of the type highlighted in Table ES-2 might be spread. However, it can be realistically assumed that management of ODS banks could take place at least until 2050, based on expected product lifecycles, although, in general terms, the CFC banks will be emitted prior to the HCFC banks.
6. The Task Force has also assessed the likelihood of being able to finance the recovery and destruction of these ODS banks. Recognising that the global warming potentials of the range of individual ODSs vary, it has been necessary to characterise the banks by substance in order to obtain an average climate benefit arising from bank management in each sector. Such an approach recognises the

fact that policy decisions on managing banks are most likely to be taken by sector and region (encompassing both densely populated and sparsely populated sub-divisions) rather than by substance, even though some ODSs within the bank composition may not be cost effective to manage in isolation. Figure ES-1 shows the relationship between sectoral cost and possible revenue, based on a hypothetical carbon price.

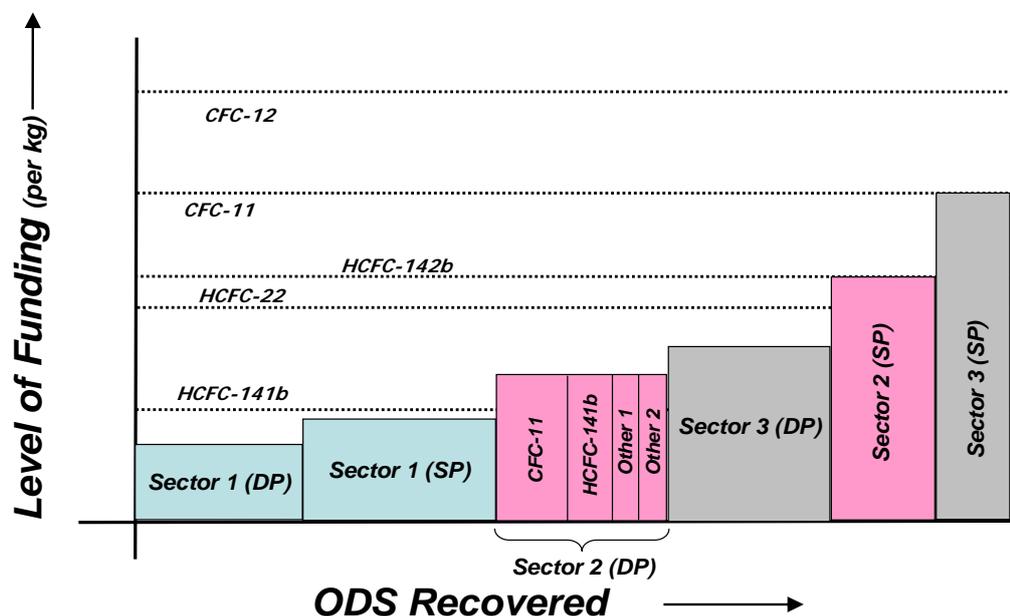


Figure ES-1 Relationship between the Level of Funding and Cost of Recovery

7. The diagram illustrates how the carbon funding available will vary with the global warming potential of the substance being recovered and destroyed. It can be seen that the costs for some sectors can be covered no matter what the ODS being recovered is (e.g. Sector 1 (DP)), whereas others cannot. The overall affordability of a particular mix of ODS in a bank will depend on the carbon price available.

8. Based on the bank compositions assessed and the average global warming potentials derived, carbon prices as high as US \$35 per tonne of CO₂ saved may be required to manage all low and medium effort banks. Only if reliable inventories and methodologies are in place will such prices be supported. However, the opportunity would still exist to manage the low effort banks provided that a carbon price of US \$15 per tonne of CO₂ saved could be sustained.

9. The potential policy issues arising from opening up ODS bank management to carbon financing options have been explored. A critical factor in avoiding misuse of this funding mechanism is the traceability of waste streams. There is the potential for this to be ensured by appropriate waste permitting provisions, which already exist in some parts of the world. However, particular care will need to be given to protect against the diversion of ODS continuing to be manufactured for feedstock uses and to ensure that those banks of ODS requiring retention for future use (e.g. halons) are protected.

10. Since this is still an Interim Report, there remain a number of limitations that Parties may wish the Task Force to address prior to the completion of the Final Report. The following text provides a review of three of these limitations together with a statement of the specific conclusions reached at this stage of the process.

11. The following three limitations should be noted:

(a) As noted earlier in the Executive Summary, no overview has yet been given to the timing of the availability of banks, taking into consideration the lifecycle of products and applications and the influence that this might have on the infra-structure required for bank management.

(b) There has been no discussion of the institutional structures required to facilitate this additional level of project activity

(c) The regional analysis of the ODS banks has been limited to the divide between developed and developing country territories. Although data exists at sub-regional level, there is a concern within the Task Force that the level of additional analysis required would be too great to be

presented in such a report format. One option for the Final Report might be to select one or more regional examples.

12. Notwithstanding these three caveats, the following interim conclusions have been reached:

(a) An assessment of reachable banks through a further analysis of 'levels of effort' has provided a workable framework for presenting results based on reference to population density centred around the urban/rural divide.

(b) The cost of ODS bank management is linked fundamentally to the nature of each sector as well as the 'levels of effort' required.

(c) The climate benefit associated with ODS bank management measures has the potential to fund the bulk of the costs associated with process through direct and/or indirect carbon financing – possibly on a programmatic basis.

(d) Programmes are likely to be organised on a sectoral basis and the Task Force sees little or no opportunity to preferentially recover and destroy specific substance types.

(e) The 'Low Effort' banks would ultimately require a carbon price of approximately US \$15 per tonne of CO₂ saved to ensure their effective management based on the average global warming potentials.

(f) The 'Medium Effort' banks would ultimately require a carbon price in excess of US \$35 per tonne of CO₂ saved to ensure their effective management based on the average global warming potentials.

(g) There is a real risk that uncontrolled early action in the carbon market, without first establishing a working registry and methodologies, could undermine efforts to secure higher carbon prices in future.

(h) There is substantial concern that banks requiring retention for later use (e.g. halons) may be amongst the most lucrative to exploit in the short-term. Accordingly, some form of permitting scheme may be essential to ensure that only those elements of the bank that are truly surplus to requirements are eligible for funding. These issues will be explored further in the Final Report following further inputs from stakeholders.

(i) A number of other policy issues have been reviewed including the potential for perverse incentives such as production for destruction. However, the Task Force has concluded that suitable safeguards can be enacted to avoid malpractice, although particular care may be necessary in managing on-going production of ODSs for feedstock purposes.

(j) Destruction projects should be limited to those technologies recommended by Parties to the Protocol (as listed in section 3.1 of the 2006 Montreal Protocol Handbook), that are properly permitted according to government requirements.

(k) Destruction projects involving ODS imports must adhere to the licensing provisions established under agreement with the Protocol, and care should be given to make certain that international treaties concerning the trans-boundary shipment of waste are respected.
