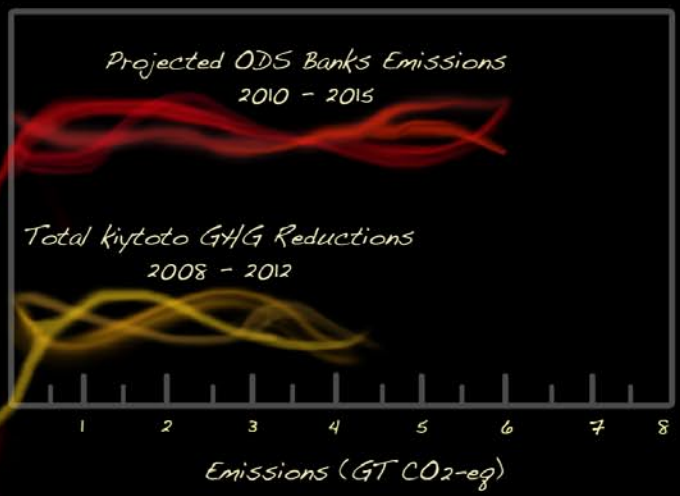
Recovery and Destruction of ODS Banks:

URGENT ACTION FOR GLOBAL CLIMATE PROTECTION



Montreal Protocol on substances that deplete the ozone layer

Conference of the Parties XXI Port Ghalib, Egypt 2009

RECOVERY AND DESTRUCTION OF ODS BANKS: URGENT ACTION FOR GLOBAL CLIMATE PROTECTION

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EXECUTIVE SUMMARY

Over the last 21 years global implementation of the Montreal Protocol on Substances that Deplete the Ozone Layer (Montreal Protocol) as successfully phased out the consumption and production of ozone-depleting substances (ODS) by 95% in developed countries and 50-75% of the ODS in developing countries. Since most ODS are "super" greenhouse gases (GHG) with global warming potentials (GWP) hundreds or thousands of times greater than carbon dioxide (CO_2), this phase-out has had dramatic impacts on mitigating climate change. Unfortunately, once ODS are released onto the market, they are no longer regulated under either the Montreal Protocol or the Kyoto Protocol to the United Nations Framework Convention on Climate Change (UNFCCC).

Huge quantities of ODS used over the past fifty years still remain in equipment such as refrigerators and air conditioners. These high-GWP ODS can also be found in insulating and other foams, and in stockpiles of virgin, recovered and contaminated ODS. These ODS are collectively referred to as "Banks". Since these Banks are not regulated by international treaty, huge quantities of ODS are omitted into the atmosphere every day.

In May of this year, the governments of the Federated States of Micronesia and Mauritius submitted a joint proposal to amend and strengthen the Montreal Protocol to promote the destruction of ODS Banks. The proposed amendment seeks to manage and destroy Banks before they are released to the atmosphere in order to both speed up the recovery of the ozone layer and combat global climate change. The amendment would authorize the Multilateral Fund (MLF) to finance a global Banks management and destruction program for Article 5 countries, immediately fund proposed Banks destruction pilot projects, seek to develop co-financing opportunities with international institutions including carbon financing generated through the CDM and future carbon markets established under the post-2012 climate treaty, and require developed countries operating under Article 2 to recover and destroy a certain percentage of their ODS Banks in certain sectors.

Approximately 4 Gt CO_2-eq. will be emitted from Banks in the next 5 years. There are a total of 16-17 Gt CO_2-eq. Banks which will need to be managed and destroyed. Only the implementation of a comprehensive strategy for Banks management and destruction will prevent this one-time, massive release of greenhouse gases.

Only action by the Montreal Protocol to recover and destroy ODS Banks can prevent Banks emissions from negating the greenhouse gas reductions achieved under the Kyoto Protocol

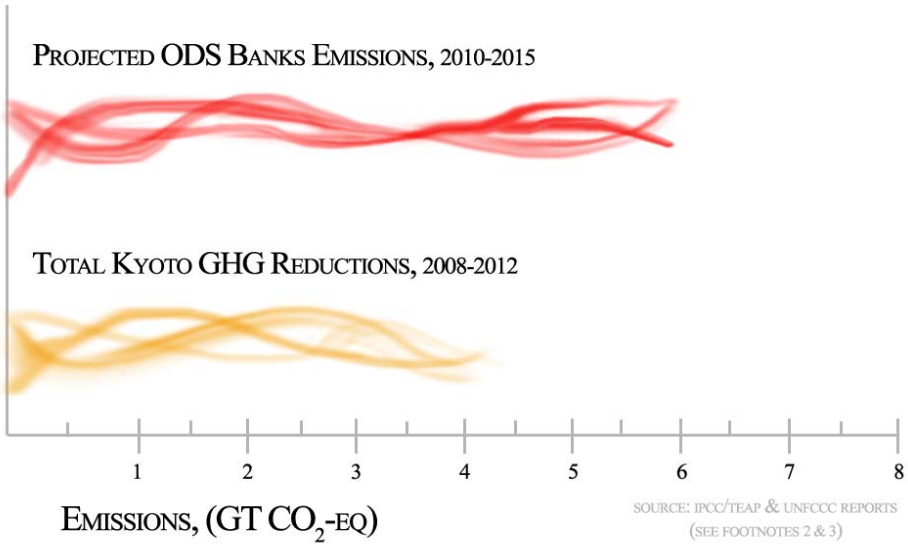
ODS BANKS: PROBLEM AND OPPORTUNITY

According to the Intergovernmental Panel on Climate Change (IPCC) and the Montreal Protocol's Technical and Economical Assessment Panel (TEAP), ODS Banks contain approximately 16-17 Gt CO_2-eq.[1] Actions to recover and destroy CFCs and HCFCs in refrigeration and air-conditioning Banks represent the most cost-effective climate mitigation opportunities.

The window of opportunity to reap this double dividend on ozone and climate protection by recovering and destroying ODS Banks is rapidly closing. IPCC and TEAP predict that approximately 6 Gt CO_2-eq. will be released into the atmosphere during the period from 2011 to 2015 alone from the most easily accessible and destroyable Banks in refrigeration and air conditioning.[2] Unless immediate action is taken, the IPCC and TEAP also predict that total direct emissions of emitted from Banks will reach 2.3 Gt CO_2-eq. per year by 2015, which would erase all of the reductions in GHG emissions achieved under the Kyoto Protocol.[3] The nations of the world have a limited opportunity to capture these emissions and prevent a massive release of powerful GHGs that will further exacerbate global climate change. Aggressive actions must be taken this year. According to the TEAP, "The collection, recovery and destruction of refrigerants of all types represent the most immediate and cost-effective method of mitigating the impacts from the release of ODS Banks".

Managing and destroying ODS Banks provides a unique opportunity to control emissions of greenhouse gases at a much lower cost per CO_2-eq. than most other climate mitigation measures, Additionally, expanding and supplementing the Montreal Protocol's previous investments in infrastructure, training, and governance institutions necessary to recover and destroy these 'reachable' Banks in the near-term will achieve the collateral benefit of reducing the costs of recovering and destroying the medium and high effort Banks that will be emitted after 2015.

Parties cannot continue to allow ongoing emissions from Banks which will both slow the recovery of the ozone layer and have dramatic climate change impacts. Unless a Banks management and destruction program is implemented immediately, approximately 4 billion tonnes of CO_2-eq. emissions from the most easily accessible and destroyable Banks in refrigeration and air conditioning will be released by 2015. The Parties must act now or this opportunity will be lost.



Without action by the Montreal Protocol ODS Banks emissions from 2010-2015 will erase all of the GHG reductions achieved under the Kyoto Protocol

MAINTENANCE AND DESTRUCTION OF BANKS

Tackling the destruction of Banks will require a multi-faceted approach. In non-Article 5 countries, feasible potential regulatory approaches include requiring producers and retailers to collect and destroy ODS, providing incentives for ODS destruction, and creating industry-led programs for this purpose.[4]

Most non-Article 5 countries have available infrastructure and facilities to destroy ODS effectively in a validated and verifiable manner.[5] However, most developed countries have not instituted comprehensive Banks maintenance and recovery programs that; (1) employ best available technologies; (2) receive adequate funding, and: (3) are supported by effective enforcement.

The Parties have been considering the issue of maintenance and destruction of Banks for years. Numerous decisions have been passed concerning approved destruction technologies (Decisions IV/11, V/26, VII/35, XIV/6 and XV/9) and good housekeeping procedures for destruction (Decisions IV/11 and XV/9), and they have clarified destruction efficiency issues (decisions IV/11, XV/10 and XVII/17). Despite this, destruction rates in developed countries remain inadequately low.

Non-article 5 countries should take immediate steps to maintain and destroy Banks within their jurisdiction and to adopt comprehensive maintenance and destruction programs supported by adequate resources to ensure their effectiveness and enforcement.

In 2006, it was estimated that there were 515,000 tonnes of reachable CFC Banks within Article 5 Parties (developing countries). Since the production of CFCs will cease world wide as of January 1, 2010, the IPCC and TEAP estimate that there will be a need for as much as 30,000 tonnes of CFCs to meet the global demand for servicing CFC- based refrigeration, with this amount dropping to 3,000 tonnes by 2015. While some evidence suggests that these estimates are too high, it does indicate there will be a commercial incentive to recover and properly maintain a certain percentage of Banks for the purpose of CFC replenishment.

The Multilateral Fund (MLF) has financed at least 100 recovery and recycling projects to establish the expertise and to distribute the necessary equipment for recovery and recycling of Banks. Anecdotal data obtained by the expert group that prepared the 2006 report for the MLF indicated that recovery efforts to date have been highly ineffective.

Based on responses received from 11 Article 5 Parties, only 23 of the 4,275 tonnes of ODS used in easily accessible refrigeration equipment had been recovered. This indicates the inadequacy of recovery efforts and the enormous opportunities for the Montreal Protocol to assist Article 5 Parties in recovering and recycling reachable Banks. This would ensure the availability of adequate supplies for replenishment while advancing the goal of aggressive Banks destruction. There is a clear need for financial and technology transfers to recover, store and maintain existing Banks, create destruction facilities, and transport ODS. Such activities are consistent with others traditionally occurring through the MLF. Infrastructure building and personnel training in these countries must also be enhanced to ensure valid and verifiable ODS destruction.

The Montreal Protocol has approved twelve technologies to date for the destruction of CFCs and halons.[6] Developed countries use many different commercial technologies for CFC destruction. In Japan, more than ten technologies were being used in approximately eighty-two operational ODS destruction plants in 2006.[7] Commercial ODS destruction facilities using technologies approved by the TEAP operate in twenty countries worldwide.[8] ICF International estimates that ODS destruction capacities range roughly from 40 to 600 tonnes per year. The cost to destroy ODS at these facilities varies by country, technology, capacity, and ODS type.

FINANCING THE MANAGEMENT AND DESTRUCTION OF BANKS

Pilot studies approved by the Montreal Protocol and a similar study being undertaken by the World Bank[11] are intended to determine which technologies work best for specific ODS, identify ODS that are actually recoverable, devise a plan to address ODS in Article 5 countries, ascertain the recovery costs for different ODS, and suggest methodologies for validation and verification of the destruction. To date 33 proposed pilot projects have received funding. Given the enormity of the Banks issue and the need for immediate action, funding should be made available immediately for all viable proposed pilot projects.

In November 2008, at the Twentieth Meeting of the Parties, the first concrete steps were taken to manage and destroy Banks. In decision XX/7,[12] the Parties agreed to a broad range of actions to evaluate the management and destruction of Banks, including: (1) evaluating ways to mitigate emissions of ODS from Banks through the Montreal Protocol or by national and/or regional legislative strategies; (2) authorizing pilot projects to evaluate collection, transport, storage, and destruction of ODS to generate data on how these measures would protect the ozone layer and achieve climate benefits; and (3) evaluating and adopting best practices and performance standards to prevent emissions from Banks, whether by recovery, recycling, reclamation, reuse as feedstock, or destruction.[13]

The Parties also commissioned the TEAP to conduct a cost-benefit analysis of destroying Banks of ODS versus recycling, reclaiming and reusing such substances, taking into consideration the relative economic costs and environmental benefits to the ozone layer and climate.[14]

Additionally, recognizing that financial constraints limit the ability to manage and destroy Banks, and that financing is going to be the decisive factor determining whether emissions from Banks can be effectively destroyed, the Parties scheduled a meeting of experts from funding institutions, such as the UNFCCC, the Global Environment Facility (GEF), the Executive Board of the Clean Development Mechanism (CDM), and the World Bank to assess possible funding opportunities.[15]

One of the reasons for the unparalleled success of the Montreal Protocol's phase-out of ODS has been the financial and technological support provided to Parties operating under Article 5 through the MLF. In the replenishment of the MLF in 2008, for the first time funds were allocated to conduct pilot projects for the recovery and destruction of Banks. Althoughthe Montreal Protocol has not historically directly controlled Banks management and destruction, the Parties now must implement a comprehensive strategy in order to achieve the significant climate and ozone benefits from controlling Banks.

On May 20, 2009, the report by the Secretariat on Funding Opportunities of the Management and Destruction of Ozone-Depleting Substances (Funding Report) was issued.[16] The TEAP report on Banks Destruction and the Funding Report provided the Parties with clear instruction on how to manage and destroy Banks.

Given the fact that Banks destruction is now being driven by a desire to prevent climate change, the Funding Report investigated the broad range of funding mechanisms for projects with climate benefits to determine whether there was a way to increase MLF funding or to leverage available MLF resources to finance much greater management and destruction of Banks.

The Funding Report described traditional MLF mechanisms and potential modifications, as well as funding from international institutions, such as the GEF, the World Bank, the United Nations Development Program (UNDP), and the United Nations Industrial Development Organization (UNIDO). The investigation also looked into generating revenue by obtaining credits in the cap and trade carbon market established by the CDM or through voluntary carbon markets.

FINANCING THE MANAGEMENT AND DESTRUCTION OF BANKS (CONTINUED)

The Secretariat explored funding opportunities for ODS management and destruction from national or regional sources, including use of revenues from carbon credit auctions, national levies on ODS, end-of-life disposal fees, contributions from alternatives producers, and use of energy efficiency exchange programs to obtain voluntary carbon credits for funding. Finally, the Secretariat evaluated whether a strategic approach to ODS management could result in funding or other benefits under existing programs implemented by the Basel, Stockholm and Rotterdam conventions.

The Funding Report concluded that:

(1) Carbon markets are not a viable source of short-term or up-front funding.

a. While the carbon markets are generating billions of dollars annually and may provide a real opportunity to fund ODS destruction, gaining access to the bulk of those markets would necessitate a change to the Kyoto Protocol guidance, but also the development and approval of new methodologies, both of which would be time consuming measures. This is particularly true given the concern of some that opening up the CDM to ODS would significantly increase credit availability and thereby decrease their value.

b. Carbon credits are typically given after the emissions reductions have been achieved and so do not constitute a good source of up-front funding for destruction of Banks.

c. Potential funding from carbon markets does not avert the need to mobilize up-front funding for project development and implementation.

d. Carbon markets are volatile and are not likely to assure a steady source of long-term funding for Banks destruction.

(2) Traditional funding of ODS destruction pilot projects is likely to be needed for the short-term but may be able to generate voluntary carbon and energy credits that can be sold to finance other projects.

(3) International institutions including the GEF, World Bank, UNDP and UNIDO provide funding opportunities for ODS recovery and destruction. Additionally, national or regional sources are a viable source of funding for banks destruction through programs such as carbon credit auctions, national levies on ODS, end-of-life disposal fees, contributions from alternatives producers, and use of energy efficiency programs to obtain voluntary carbon credits for funding. Finally, a strategic approach to ODS management and destruction under existing programs implemented by the Basel, Stockholm and Rotterdam conventions hold real opportunities to either generate funding through the MLF or for individual Article 5 parties.

The Funding Report identifies many opportunities for developing countries to obtain additional funding from international institutions, strategic partners and voluntary carbon markets to advance the Montreal Protocol's efforts to manage and destroy banks. The generation of credits on the voluntary carbon markets for Banks destruction would have to be set up in a manner that is consistent with cap and trade mechanisms set up under the Kyoto Protocol. However, it should be noted that linking ODS destruction to carbon markets has the potential to result in widespread and rapid ODS bank destruction, and requires careful consideration to ensure the stability of carbon markets, that substantial climate savings are gained, and illegal production of ODS is not stimulated.

The high-GWP of CFCS and other ODS means that the destruction of relatively small amounts of these gases can generate large numbers of credits. EIA's many years experience monitoring illegal trade in ODS substantiates that payment for the destruction of CFCs and other ODS can create perverse incentives for illicit production from HCFC/CFC swing plants. Therefore, any methodology developed to include Banks destruction within carbon markets must create secure systems to ensure that illegal production does not occur.

RECOMMENDATIONS

Banks are the by-product of the phase-out of ODS under the Montreal Protocol. Therefore, the Parties must take all reasonable actions to prevent Banks emissions from continuing unabated which will both slow the recovery of the ozone layer and drastically impede efforts to combat climate change. In order to implement a comprehensive program to manage and destroy Banks as rapidly as possible the following actions should be adopted at the Twenty First Meeting of the parties in Port Ghalib, Egypt:

[1] The MLF should be instructed to immediately fund pilot projects that evaluate and implement innovative and effective Banks management and destruction measures.

[2] Pilot projects that leverage funding from the MLF with co-financing from other international institutions or that generate voluntary carbon credits should be encouraged.

[3] Proven pilot projects should be replicated by as many countries as possible to provide a rapid and effective response to control emissions from Banks.

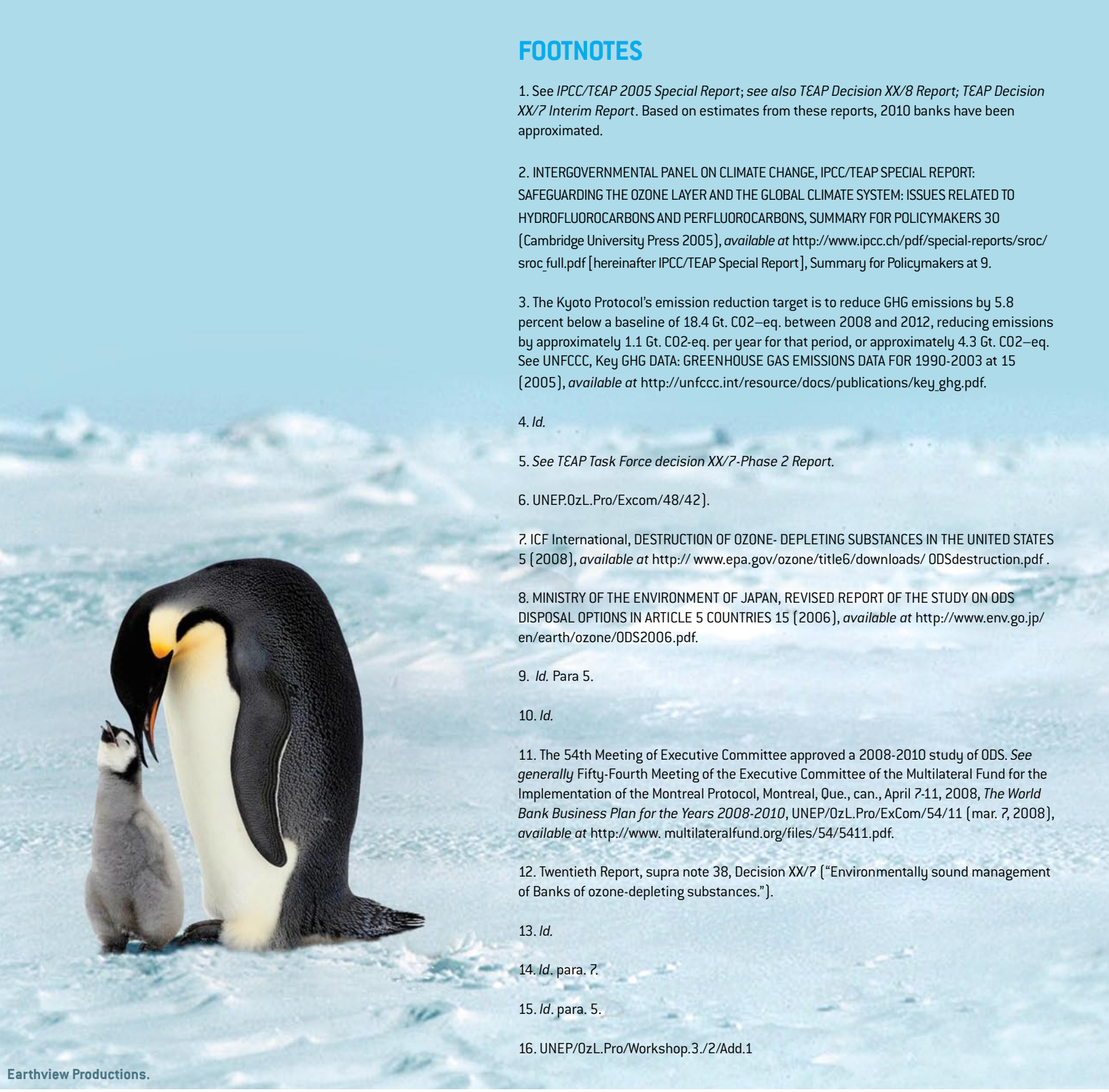
[4] The Executive Committee and the Secretariat should be directed to aggressively seek ways to finance ODS Bank recovery and destruction utilizing the various financing mechanisms available from other international institutions, national initiatives and voluntary and mandatory carbon markets.

[5] The Executive Committee and the Secretariat should be directed to contact the UNFCCC to ensure that the financing of ODS Banks destruction is approved as an appropriate use of any climate money provided to developing countries in the post-2012 Agreed Outcome.

[6] The Executive Committee and the Secretariat should also be directed to investigate how Banks destruction can generate credits in the mandatory carbon markets without destabilizing those markets or creating incentives for the illegal production of ODS.

[7] The Parties to the Montreal Protocol have an obligation to use traditional MLF funding mechanisms for the short-term management and destruction of Banks until alternative funding becomes available.

[8] All non-Article 5 Parties should implement best management practices to manage and destroy their Banks along with adequate funding and enforcement.



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FOOTNOTES

1. See *IPCC/TEAP 2005 Special Report*; *see also TEAP Decision XX/8 Report; TEAP Decision XX/7 Interim Report*. Based on estimates from these reports, 2010 banks have been approximated.

2. INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, IPCC/TEAP SPECIAL REPORT: SAFEGUARDING THE OZONE LAYER AND THE GLOBAL CLIMATE SYSTEM: ISSUES RELATED TO HYDROFLUOROCARBONS AND PERFLUOROCARBONS, SUMMARY FOR POLICYMAKERS 30 (Cambridge University Press 2005), *available at* http://www.ipcc.ch/pdf/special-reports/sroc/sroc_full.pdf [hereinafter IPCC/TEAP Special Report], Summary for Policymakers at 9.

3. The Kyoto Protocol's emission reduction target is to reduce GHG emissions by 5.8 percent below a baseline of 18.4 Gt. CO2–eq. between 2008 and 2012, reducing emissions by approximately 1.1 Gt. CO2-eq. per year for that period, or approximately 4.3 Gt. CO2–eq. See UNFCCC, Key GHG DATA: GREENHOUSE GAS EMISSIONS DATA FOR 1990-2003 at 15 (2005), *available at* http://unfccc.int/resource/docs/publications/key_ghg.pdf.

4. *Id.*

5. *See TEAP Task Force decision XX/7-Phase 2 Report.*

6. UNEP.OzL.Pro/Excom/48/42).

7. ICF International, DESTRUCTION OF OZONE- DEPLETING SUBSTANCES IN THE UNITED STATES 5 (2008), *available at* http:// www.epa.gov/ozone/title6/downloads/ ODSdestruction.pdf .

8. MINISTRY OF THE ENVIRONMENT OF JAPAN, REVISED REPORT OF THE STUDY ON ODS DISPOSAL OPTIONS IN ARTICLE 5 COUNTRIES 15 (2006), *available at* http://www.env.go.jp/en/earth/ozone/ODS2006.pdf.

9. *Id.* Para 5.

10. *Id.*

11. The 54th Meeting of Executive Committee approved a 2008-2010 study of ODS. *See generally* Fifty-Fourth Meeting of the Executive Committee of the Multilateral Fund for the Implementation of the Montreal Protocol, Montreal, Que., can., April 7-11, 2008, *The World Bank Business Plan for the Years 2008-2010*, UNEP/OzL.Pro/ExCom/54/11 (mar. 7, 2008), *available at* http://www. multilateralfund.org/files/54/5411.pdf.

12. Twentieth Report, supra note 38, Decision XX/7 ("Environmentally sound management of Banks of ozone-depleting substances.").

13. *Id.*

14. *Id*. para. 7.

15. *Id*. para. 5.

16. UNEP/OzL.Pro/Workshop.3./2/Add.1

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