NATIONS UNIES

EP

Programme des Nations Unies pour l'environnement

Distr.
GENERALE

UNEP/OzL.Pro/ExCom/61/26
1er juin 2010

FRANÇAIS
ORIGINAL : ANGLAIS

COMITE EXECUTIF
DU FONDS MULTILATERAL AUX FINS
D'APPLICATION DU PROTOCOLE DE MONTREAL
Soixante et unième réunion
Montréal, 5 – 9 juillet 2010

AMENDEMENTS AU PROGRAMME DE TRAVAIL DE LA BANQUE MONDIALE POUR L'ANNEE 2010

OBSERVATIONS ET RECOMMANDATIONS DU SECRETARIAT DU FONDS

1. La Banque mondiale demande au Comité exécutif d'approuver la somme de 765 453 $US, plus les coûts d'appui de 57 409 $US, pour les amendements à son programme de travail pour l'année 2010. Le programme de travail est joint au présent document.

2. Les activités proposées dans les amendements au programme de travail de la Banque mondiale pour l'année 2010 sont indiquées dans le tableau 1, ci-dessous :

Tableau 1 : Amendements au programme de travail de la Banque mondiale

Pays	Activité/projet	Somme demandée ($US)	Somme recommandée ($US)
SECTION A : ACTIVITES RECOMMANDEES POUR APPROBATION GENERALE			
A1. Projets de renouvellement du renforcement des institutions :			
Tunisie	Projet de renouvellement du renforcement des institutions (phase VI)	185 453	185 453
	Total partiel de la section A1 :	185 453	185 453
A2. Préparation du projet de plan de gestion de l'élimination des HCFC (volet investissement)			
Jordanie	Préparation d'un projet sur les activités d'investissement du plan de gestion de l'élimination des HCFC dans le secteur de la réfrigération (commerciale)	30 000	30 000
Thaïlande	Préparation d'un projet sur les activités d'investissement du plan de gestion de l'élimination des HCFC dans le secteur des mousses	100 000	100 000
Thaïlande	Préparation d'un projet sur les activités d'investissement du plan de gestion de l'élimination des HCFC dans le secteur de la réfrigération	100 000	100 000
Thaïlande	Préparation d'un projet sur les activités d'investissement du plan de gestion de l'élimination des HCFC dans le secteur de la climatisation	100 000	100 000
	Total partiel de la section A2 :	330 000	330 000
SECTION B : ACTIVITES RECOMMANDEES POUR EXAMEN INDIVIDUEL			
B1. Assistance technique :			
Mondial	Mobilisation des ressources pour une étude sur les avantages complémentaires de l'élimination des HCFC	250 000	*
	Total partie de la section B1 :	250,000	*
	Total des sections A et B :	765 453	515 453
Coûts d'appui aux agences (7,5 pour cent pour la préparation de projet, le renforcement des institutions et autres activités de plus de 250 000 $US et 9 pour cent pour les autres activités de moins de 250 000 $US)		57 409	38 659
Total :		822 862	554 112

*Projets pour examen individuel ou en instance.

SECTION A : ACTIVITES RECOMMANDEES POUR APPROBATION GENERALE

A.1 Renouvellement des projets de renforcement des institutions

a) Tunisie (phase VI) : 185 453 $US

Description du projet

3. La Banque mondiale a présenté une demande de renouvellement du projet de renforcement des institutions pour la Tunisie. La description de cette demande est jointe à l'annexe I au présent document.

Observations du Secrétariat

4. Le Secrétariat du Fonds a pris connaissance du rapport final sur le renforcement des institutions et du plan d'action proposés par la Banque mondiale au nom de la Tunisie afin d'appuyer la demande de renouvellement et a constaté que les rapports respectent les normes et les exigences concernant ces rapports. Le Secrétariat a pris en compte les décisions 57/36 b), 58/16, 59/47 et 60/10, mais plus particulièrement la décision 59/47, dans laquelle le Comité exécutif a décidé « de prolonger le soutien financier pour le renforcement des institutions dans les pays visés à l'article 5 au-delà de 2010, plus particulièrement jusqu'en décembre 2011 ».

Recommandation du Secrétariat

5. Le Secrétariat du Fonds recommande l'approbation générale de la demande de renouvellement du renforcement des institutions pour la Tunisie au niveau de financement calculé au prorata jusqu'en décembre 2011 indiqué dans le tableau 1 du document UNEP/OzL.Pro/ExCom/61/26. Le Comité exécutif pourrait souhaiter transmettre au gouvernement de la Tunisie les commentaires joints à l'annexe II au présent document.

A2. Préparation de projet de plan de gestion de l'élimination des HCFC (volet investissement)

Jordanie : Préparation de projet supplémentaire pour les activités d'investissement du plan de gestion de l'élimination des HCFC (secteur de la réfrigération) : 30 000 $US

Thaïlande : Préparation de projet des activités d'investissement du plan de gestion de l'élimination des HCFC (secteur des mousses) : 100 000 $US

Thaïlande : Préparation de projet des activités d'investissement du plan de gestion de l'élimination des HCFC (secteur de la réfrigération) : 100 000 $US

Thaïlande : Préparation de projet des activités d'investissement du plan de gestion de l'élimination des HCFC (secteur de la climatisation) : 100 000 $US

Description du projet

6. La Banque mondiale demande un soutien financier pour la préparation d'activités d'investissement dans les deux pays ci-dessus dont le financement du plan de gestion de l'élimination des HCFC a déjà été approuvé. La proposition de la Banque mondiale contient de l'information générale sur la consommation de HCFC dans ces pays et les secteurs qui consomment les HCFC, et sur le lien entre les plans de secteur et le plan complet de gestion de l'élimination des HCFC. La demande pour la Jordanie comprend une demande de financement supplémentaire pour le secteur de la réfrigération, pour

lequel la 60e réunion du Comité exécutif a approuvé la somme de 30 000 $US. La Banque mondiale a justifié cette demande en précisant que le projet de préparation s'applique à plus d'une entreprise du secteur. L'information à l'appui de cette demande est présentée dans les amendements au programme de travail, joints au présent document.

Observations du Secrétariat

7. Le Secrétariat a examiné en détail les propositions de la Banque mondiale et a demandé des précisions, si nécessaire. Le Secrétariat a constaté que l'information fournie pour les pays ci-dessus et le financement demandé étaient conformes aux dispositions de la décision 56/16.

Recommandation du Secrétariat

8. Le Secrétariat recommande l'approbation générale de la préparation des activités d'investissement du plan de gestion de l'élimination des HFC en Jordanie et en Thaïlande aux niveaux de financement indiqués dans le tableau 1 du document UNEP/OzL.Pro/ExCom/61/26.

SECTION B : ACTIVITES RECOMMANDEES POUR EXAMEN INDIVIDUEL

B.1 Assistance technique

Mondial : Mobilisation des ressources pour une étude sur les avantages complémentaires de l'élimination des HCFC : 250 000 $US

Description du projet

9. La Banque mondiale a proposé une demande de projet d'assistance technique aux 57e, 58e, 59e et 60e réunions, afin de mobiliser les ressources pour maximiser les avantages de l'élimination des HCFC, pour la somme de 250 000 $US. Cette demande est présentée par la Banque mondiale aux fins d'examen par le Comité exécutif. La proposition contient une note de concept décrivant les objectifs, les activités et les résultats attendus de ce projet. Comme le projet n'a pas été examiné dans les détails lors des réunions précédentes, la Banque mondiale présente le projet à nouveau sans avoir apporté de changements à la proposition présentée à la 60e réunion.

10. Le tableau ci-dessous présente une ventilation des coûts de 250 000 $US demandés par la Banque mondiale :

Elément	Description	$US
Réduction des émissions équivalant à un volume potentiel de dioxyde de carbone	Examen des applications actuelles du HCFC et des solutions de rechange sans HCFC existantes; analyse du marché sur la pénétration des différentes solutions de rechange (de potentiel de réchauffement de la planète faible et élevé) et des estimations des avantages découlant d'un rendement énergétique accru (en tenant compte des travaux en cours du Groupe de l'évaluation technique et économique et du Groupe des ressources opérationnelles sur l'ozone)	35 000
Obstacles associés à la reconversion de la technologie à base de HCFC offrant une énergie de référence et une efficacité des ressources à une solution de remplacement à faible potentiel de réchauffement de la planète offrant une efficacité énergétique et des ressources accrues	Etude industrielle dans des pays visés à l'article 5 choisis et des pays visés à l'article 2 qui sont d'importants fournisseurs de technologie pour les différentes utilisations du HCFC	50 000
Consommation et production de HCFC	Etude industrielle portant sur les producteurs de produits chimiques dans les pays visés à l'article 5 et non visés à l'article 5; analyse des marchés visant à prévoir les tendances	10 000
Ressources de financement possibles	Examen des différents projets et activités financés par différents mécanismes de financement; examen des méthodes portant et ne portant pas sur des mécanismes pour un développement propre; interviews avec les bénéficiaires possibles dans des pays visés à l'article 5; mise en évidence des sources de financement possibles; développement des démarches et du modèle de projet pour obtenir ces ressources	55 000
Développement de critères/normes/méthodes de financement	Développement des outils pour l'obtention de ressources de cofinancement à l'extérieur du Fonds multilatéral	70 000
Réunions de consultation avec les parties prenantes	3 réunions de consultation	30 000
Total		**250 000**

Observations du Secrétariat

11. Le paragraphe 11 b) de la décision XIX/6 de la dix-neuvième Réunion des Parties conseille au Comité exécutif d'accorder la priorité, entre autres, aux « produits et solutions de remplacement qui réduisent au minimum les autres impacts sur l'environnement, en particulier sur le climat, en tenant compte de leur potentiel de réchauffement global, de leur consommation d'énergie et d'autres facteurs pertinents » lors de l'examen de projets d'élimination des HCFC. Le Comité exécutif a approuvé des sommes pour la préparation de plans de gestion de l'élimination des HCFC pour 160 pays à ce jour. On s'attend à ce que les plans de gestion de l'élimination des HCFC proposés au Comité exécutif pour approbation incluent et examinent les mesures d'encouragement financières et les occasions de cofinancement, conformément à la décision 54/39. Ces éléments de cofinancement pourraient contribuer à assurer que l'élimination des HCFC crée des avantages conformes au paragraphe 11 b) de la décision XIX/6 mentionnée ci-dessus.

12. Le Secrétariat prend note que les résultats de l'étude proposée par la Banque mondiale, qui pourraient être disponibles en 2010 ou plus tard, ne lui permettraient d'aider les pays qu'en offrant une orientation aux agences lors de la mise en œuvre de la première étape du plan de gestion de l'élimination

des HCFC, et en examinant les possibilités de cofinancement pour la préparation de la deuxième étape, selon qu'il convient. Il prend note également que le Comité exécutif n'a encore fourni aucune orientation sur la façon d'établir les coûts des avantages climatiques associés à l'élimination des HCFC ni déterminé si ces coûts constituent des coûts différentiels en vertu du Fonds multilatéral.

Recommandation du Secrétariat

13. Le Comité exécutif pourrait souhaiter examiner la demande d'assistance technique pour la mobilisation de ressources pour maximiser les avantages climatiques de l'élimination des HCFC à partir de la propositions soumise et des délibérations sur le mécanisme de financement spécial qui se sont déroulées lors de la 30e réunion du Groupe de travail à composition non limitée.

Annexe I

PROPOSITIONS DE PROJET DE RENFORCEMENT DES INSTITUTIONS

Tunisie : Renouvellement du renforcement des institutions

Sommaire du projet et profil du pays	
Agence d'exécution:	Banque mondiale
Sommes déjà approuvées pour le renforcement des institutions ($US)	
Phase I : Octobre 1992	285 312
Phase II : Juillet 1998	186 700
Phase III : Avril 2003	242 667
Phase IV : Avril 2006	247 270
Phase V : Juillet 2008	247 270
Total	1 209 219
Somme demandée pour le renouvellement (phase VI) ($US) :	185 453
Somme recommandée pour l'approbation de la phase VI ($US) :	185 453
Coûts d'appui à l'agence ($US) :	13 909
Coût total de la phase VI du renforcement des institutions pour le Fonds multilatéral ($US)	199 362
Quantité équivalente de CFC éliminée grâce à la phase VI du renforcement des institutions à 12,1 $US/kg (tonnes PAO) :	S.o.
Date d'approbation du programme de pays :	1996
Consommation de SAO rapportée dans le programme de pays (1996) (tonnes PAO) :	609
Consommation de référence des substances réglementées (tonnes PAO) :	
a) Groupe I de l'annexe A (CFC) (moyenne 1995-1997)	870,1
b) Groupe II de l'annexe A (halons) (moyenne 1995-1997)	104,3
c) Groupe II de l'annexe B (tétrachlorure de carbone) (moyenne 1998-2000)	2,9
d) Groupe III de l'annexe B (méthyle chloroforme) (moyenne 1998-2000)	0,1
e) Annexe E (bromure de méthyle) (moyenne 1995-1998)	8,3
Dernière consommation de SAO rapportée (2009) (tonnes PAO) en vertu de l'article 7 :	
a) Groupe I de l'annexe A (CFC)	16,6
b) Groupe II de l'annexe A (halons)	0
c) Groupe II de l'annexe B (tétrachlorure de carbone)	0
d) Groupe III de l'annexe B (méthyle chloroforme)	0
e) Annexe E (bromure de méthyle)	6,6
f) Groupe I de l'annexe C (HCFC)	44,3
Total	67,5
Année des données sur la mise en œuvre rapportées dans le programme de pays :	2009
Somme approuvée pour les projets ($US) :	8 542 383
Somme décaissée (en date de décembre 2009) ($US) :	7 418 679
SAO à éliminer (tonnes PAO) :	1 208,8
SAO éliminées (en date de décembre 2009) (tonnes PAO) :	1 208,8

1. Sommaire des activités et des sommes approuvées par le Comité exécutif :

Sommaire des activités		Sommes approuvées ($US)
a)	Projets d'investissement:	5 361 636
b)	Renforcement des institutions :	1 209 219
c)	Préparation de projet, assistance technique, formation et autres activités ne portant pas sur des investissements	1 971 528
	Total :	8 542 383

Rapport périodique

2. Le gouvernement de la Tunisie termine sa phase actuelle du projet de renforcement des institutions en atteignant une étape importante, à savoir l'élimination complète des substances des annexes A et B à la date limite du 1er janvier 2010 imposée aux pays visés à l'article 5. Ce succès est attribuable à l'élan donné par la politique du Bureau national de l'ozone de l'Agence nationale de protection de l'environnement (ANPE), qui a fait en sorte que les quotas de CFC soient maintenus à un niveau de loin inférieur aux objectifs en 2009 et que les halons soient éliminés plusieurs années à l'avance.

3. Les enquêtes et les études menées tout au long du plan national d'élimination des SAO en 2008 et au début de 2009 dans le but de recenser les secteurs ayant besoin d'un investissement et d'assistance technique ont aussi clairement informé le secteur privé de l'élimination prochaine et ont agi en tant que complément aux politiques gouvernementales. Le Bureau national de l'ozone a joué le premier rôle dans l'établissement des dispositions pour la mise en œuvre du plan national d'élimination au cours de 2008-2010, et a dirigé leur mise en œuvre. Il a supervisé l'achèvement des vérifications de la consommation de CFC en 2006 et en 2007, et de halons en 2009, et s'est assuré que le vérificateur ait accès aux données des douanes. Au cours de la dernière partie de la phase V du renforcement des institutions, l'ANPE a organisé des réunions d'information et de sensibilisation pour tous les importateurs de HCFC et de produits à base de HCFC en vue d'une élimination accélérée des HCFC (décision XIX/6 des Parties). Des formulaires ont été créés et distribués à ces parties prenantes afin d'y consigner les niveaux d'importation et les utilisations des HCFC. Toutes les nouvelles importations ont été consignées sur ces formulaires depuis le 1er janvier 2010, ce qui a permis de connaître les acheteurs de ces HCFC sur le marché tunisien. Ce fut une étape importante dans l'établissement des assises nécessaires pour les futures politiques sur les HCFC, y compris les quotas.

4. Le Bureau national de l'ozone de la Tunisie au sein de l'ANPE s'est aussi assuré que son programme de travail courant était mis en œuvre de 2008 jusqu'à la mi-2010. Cette mesure ne comprenait pas seulement la mise en oeuvre et la gestion du programme de permis, mais aussi la surveillance des secteurs et des entreprises, et la remise de rapports aux Secrétariats de l'ozone et du Fonds multilatéral.

Plan d'action

5. La phase VI du renforcement des institutions en Tunisie portera à la fois sur le maintien de l'élimination des substances des annexes A et B et sur la mise en place graduelle de nouveaux mécanismes, projets et démarches pour gérer les prochaines mesures de réglementation de la consommation de HCFC en vertu du Protocole de Montréal, et sur la gestion de la consommation du bromure de méthyle utilisé comme fumigène. En ce qui concerne le maintien de l'élimination des CFC et des halons réalisée en 2009, le Bureau national de l'ozone de l'ANPE aura comme objectif central d'achever son plan national d'élimination avant la fin de 2011. Le Bureau national de l'ozone s'assurera que les activités restantes du plan national d'élimination des SAO sont exécutées en vue d'une saine

gestion des SAO et des stocks de SAO installés, d'une réduction de la demande pour les SAO dans le secteur de l'entretien et de l'application des normes, en coordonnant et en dirigeant les activités d'assistance technique et de formation dans les secteurs et des agents de douane avec les ministères et les agences concernés.

6. Au cours de la phase VI du renforcement des institutions, le Bureau national de l'ozone poussera plus loin les initiatives entreprises au début de 2010 avec les importateurs de HCFC qui exigent la remise de rapports sur les quantités importées et les utilisations des HCFC, et qui formeront les assises d'un éventuel programme de quotas. Le Bureau national de l'ozone participera activement au processus de développement du plan de gestion de l'élimination des HCFC et au repérage de nouveaux projets d'investissement qui permettront au pays de satisfaire à ses obligations de 2013 et de 2015 pour les HCFC. Enfin, les activités courantes, à savoir la surveillance annuelle, la remise de rapports et les activités de sensibilisation du public, seront une partie intégrante de la phase VI du renforcement des institutions.

Annexe II

POINTS DE VUE EXPRIMES PAR LE COMITE EXECUTIF SUR LES RENOUVELLEMENTS DES PROJETS DE RENFORCEMENT DES INSTITUTIONS PROPOSES A LA 61e REUNION

Tunisie

1. Le Comité exécutif a examiné le rapport final présenté avec la demande de renforcement des institutions pour la Tunisie et félicite le gouvernement de la Tunisie d'avoir respecté ses engagements en matière d'élimination en vertu du Protocole de Montréal et ses objectifs d'efficacité en vertu de l'accord pluriannuel conclu avec le Comité exécutif pour le plan national d'élimination des SAO au 1er janvier 2010. Il prend note avec reconnaissance des efforts du gouvernement de la Tunisie pour assurer la pérennité de l'élimination des substances de l'annexe A par la mise en œuvre du plan national d'élimination des SAO tout en sollicitant la collaboration des parties prenantes pour les nouvelles obligations d'élimination des HCFC dans le cadre de consultations avec les secteurs privé et public. Le Comité exécutif encourage la Tunisie à demeurer sur le chemin du succès de la réglementation et de l'élimination des SAO grâce à ses politiques, la surveillance, l'application et les activités de sensibilisation du public, et encourage la Tunisie à mener à terme son plan national d'élimination des SAO dans les délais prévus.

2010 WORK PROGRAM AMENDMENT

PRESENTED TO THE 61st MEETING of the EXECUTIVE COMMITTEE

WORLD BANK IMPLEMENTED MONTREAL PROTOCOL OPERATIONS

10 May, 2010

WORK PROGRAM FOR WORLD BANK-IMPLEMENTED MONTREAL PROTOCOL OPERATIONS

1. This proposed work program for Bank-Implemented Montreal Protocol Operations is prepared on the basis of the World Bank 2010 Business Plan also being submitted to the 61st meeting of the Executive Committee. The proposed 2010 Business Plan consists of investment and non-investment activities to ensure Article 5 partner countries' full compliance with the 2010 complete phase-out of CFCs, halon, and CTC, and also includes activities identified as necessary to assist Article 5 countries to meet their first two HCFC reduction targets (i.e., freeze in 2013 and 10% reduction in 2015).

2. The value of deliverables contained in the proposed 2010 World Bank Business Plan, including investment and non investment activities, totals US $73.17 million, including agency support costs. Funds will be used to support both new and previously approved activities which combined, will capture an estimated 14,050 ODP tonnes in 2010.

3. The proposed 2010 Business Plan includes deliverables of 9 investment activities in 8 countries, totaling roughly US $69.44 million. These include annual work programs for 5 previously approved multi-year projects and 4 new HCFC sector phase-out plans.

4. The proposed 2010 Business Plan allocates US $2.15 million (roughly 3% of the total investment deliverables for the year) to support national and sector phase-out plans in Antigua & Barbuda, Thailand, Tunisia and Turkey, as well as India CFC production closure projects. The Business Plan also allocates US $67.29 million (roughly 97% of total investment deliverables for the year) to support national and sectoral HCFC phase-out work in China, Indonesia and Sri Lanka.

5. In 2010, requests to support implementation of previously approved phase-out and sector plans will include subsequent funds for: i) approved CFC phase-out plans in Antigua and Barbuda, Thailand and Tunisia; ii) a commercial refrigeration sector plan for Turkey and iii) an accelerated CFC production closure in India.

6. The proposed 2010 Business Plan includes requests to extend support for implementation of two existing institutional strengthening projects in the Philippines and Tunisia, totaling US$0.369 million.

7. The proposed 2010 Business Plan also includes a request to carry out a comprehensive study on resource mobilization to maximize climate benefits from HCFC phase-out. The concept note for this proposed activity, along with a breakdown of costs associated with conducting this proposed study, is included in Annex I.

8. A further request included in the proposed 2010 Business Plan involves organization of a workshop and preparation of a comprehensive study on Technology Options to Meet Accelerated HCFC Phase–out Obligations, a joint initiative to be carried out in partnership with UNEP.

9. The proposed 2010 Work Program, which is being submitted for consideration at the 61st Meeting of the Executive Committee, includes six (6) project preparation funding requests:

i. four (4) for preparation of HCFC phase-out sector plans;
ii. a funding request for the renewal of the institutional strengthening program for Tunisia; and,
iii. one (1) for a global initiative, which proposes initiation of a comprehensive study on resource mobilization to maximize climate benefits from HCFC phase-out.

10. Brief descriptions of the six project preparation funding requests are included in Table 1.

Table 1: Project Preparation Funding Requests Submitted for Consideration of the 60th Meeting of the Executive Committee

Country	Request (US$)*	Duration	Description
Jordan	30,000	July 2010 – July 2011	Supplementary funds for preparation of HCFC refrigeration sector plan (commercial)
Thailand	100,000	July 2010 – July 2011	HCFC Foam Sector Plan (consumption of 59 ODP T)
Thailand	100,000	July 2010 – July 2011	HCFC Refrigeration Sector Plan (consumption of 45 ODP T)
Thailand	100,000	July 2010 – July 2011	HCFC A/C Sector Plan (consumption of 156 ODP T)
Tunisia	185,453	July 2010 – December 2011	Institutional Strengthening renewal
Global	250,000	July 2010 – November 2011	Resource Mobilization for HCFC Phase-out Co-benefits Study
Support Costs	57,409		
Total	**822,862**		

Annex I
DRAFT CONCEPT NOTE
RESOURCE MOBILIZATION FOR
MAXIMIZING CLIMATE BENEFITS OF HCFC PHASE-OUT

BACKGROUND

The Montreal Protocol on Substances that Deplete the Ozone Layer has been considered as one of the most successful global environmental treaties as it has proven to be an effective instrument in bringing down consumption and production of the most potent ozone depleting substances (ODS) by more than 400,000 Mt within the last two decades[1]. Consumption and production of CFCs, halons, and CTC will be completely phased out in less than 12 months, except for a limited quantity for essential usages.

As most ODS are high global warming gases, phase-out of CFCs, halons, and CTC has also brought climate benefits. The Montreal Protocol in the last two decades has resulted in avoided emissions of high global warming gases equivalent to 25 billion tons of CO2 equivalent in comparison with 2 billion tons of CO2 equivalent to be achieved under the firs the commitment period of the Kyoto Protocol[2].

However, phasing out of these potent ODS has resulted in an increasing demand for high global warming gases including gases regulated under the Kyoto Protocol[3]. For example, the demand for HFC-134a, which is a primary alternative for CFC in new refrigeration and air-conditioning applications, was more than 133,000 Mt in 2002[4] and could exceed 400,000 Mt by 2015[5]. In the short term, replacing CFCs, which have significant higher global warming values than HFCs, resulted in significant climate benefits as mentioned above. With continuing growth in the demand for refrigeration and air-conditioning equipment particularly in developing countries, however, continuing dependence on HFCs could eventually pose significant burden to the climate in the long run.

The ozone and climate communities recognize the linkage between their efforts in protecting the ozone layer and the climate. Increasing efforts have been asserted in order to ensure synergy between the two associated global conventions. When the Parties of the Montreal Protocol decided in 2007 to accelerate the phase-out of HCFCs[6], it was recognized that selection of alternative technologies for HCFCs should take into consideration climate impact and benefits. However, the accelerated phase-out of HCFCs

[1] 2007 Consolidated Progress Report, Multilateral Fund Secretariat, July 2008.
[2] Velder and al. 2007. The Importance of the Montreal Protocol in Protecting Climate, Vol 104. PNAS,
[3] Emissions of greenhouses regulated under the first commitment period of the Kyoto Protocol (2008-2012) are CO_2, CH_4, N_2O, HFCs, PFCs and SF_6.
[4] Consumption of HCFCs grew at an average growth rate of more than 20% a year from 1995 – 2001. Consumption continues to grow at almost the same rate from 2002 – 2007.
[5] IPCC/TEAP Special Report: Safeguarding the Ozone Layer and the Global Climate System Chapter 11
[6] HCFCs are controlled by the Protocol since 1994 as "Annex C" substances. In 2007, The Parties of the Montreal Protocol negotiated an accelerated schedule of phase-out by ten years for all Parties for HCFCs. Developing countries have agreed to phase-out HCFCs by 2030.

could result in an unintentional growth of HFC demand as it was the case for CFC phase-out; therefore, efforts should be made to ensure that more consideration be given to low GWP alternatives despite the fact that some alternatives will require higher investment capital[7].

Under the current regulatory frameworks, neither the Montreal Protocol, nor the Kyoto Protocol is systematical covering the costs associated with a transition to low GWP technologies. The Kyoto Protocol is covering the mitigation of emissions, while the concern will be at the production and consumption levels. The Montreal Protocol has proven to be an effective instrument to deal with phasing out of ODS at the production and consumption levels; however, HFCs, which is primarily replacing ODS in the air-conditioning sector are regulated under the Kyoto Protocol, a protocol that has demonstrated, through the Clean Development Mechanism, the effectiveness of market instrument to leverage funding for technology transfer in developing countries[8]. Elements from both conventions can therefore be analyze and compared to preempt the increase in the demand of HFCs or high GWP gases.

OBJECTIVES

The objective of this study is to explore options for preempting an increase in the demand of HFCs or any other high global warming gases as a result of HCFC phase-out in developing countries. The study will review and examine potential financing mechanisms available for financing the transition to low GWP alternatives, including a scheduled phase-down of HFCs in developing countries and transition economies. This study will focus on direct emissions of chemical; however, it recognized that actions to reduced indirect emissions indirect emissions, such as energy efficiency improvement, can have a significantly higher impact that focusing strictly on chemical used[9]. Therefore, the proposed study will also addressed technologies limitations and tradeoff between energy efficiency gains and low GWP gases in order to maximize overall energy benefits.

HCFCS PHASE-OUT SCHEDULE OF THE MONTREAL PROTOCOL

As per Article 7 data reporting requirements under the Montreal Protocol, the total consumption of HCFCs, mainly HCFC-141b, HCFC-142b, and HCFC-22, of all developing country Parties in 2006 is approximately 352,000 MT. Consumption of other HCFCs (for example, HCFC-123) represents only a small fraction in the HCFC consumption of most developing countries. It is expected that consumption of HCFCs would continue to grow if there were no Montreal Protocol obligations as demand for

[7] Use of certain low alternative may result in higher capital due to toxicity and/or flammability of product and necessity to ensure that manufacturing facilities, production and servicing personnel are trained and equipped with necessary safety equipment.

[8] The State and Trends of the Carbon Market 2008, World Bank, 2008 reported a cumulative committed investment to CDM projects activities over 2002-2007 of about US$59 billion, for an average leverage ratio of 3.8.

[9] I IPCC/TEAP Special Report: Safeguarding the Ozone Layer and the Global Climate System Chapter 11.

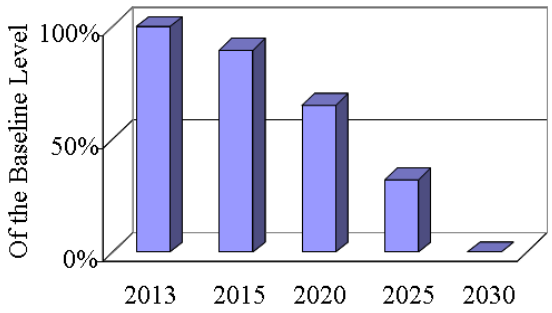
refrigeration and air-conditioning, and better insulation, in developing countries is growing at a rapid pace. Based on the aggregate HCFCs consumption trends of developing countries in the previous years, a growth rate of 9 - 10% per annum could be expected. By applying a 9% growth rate to the demand of each type of HCFCs, the total demand of HCFCs in developing countries could reach up-to 2.78 million tons level in 2030. The breakdown of HCFC demand in 2030 is shown in Table 1.

Table 1. Demand of HCFCs (MT) Under Business-as-Usual Scenario in Developing Countries

HCFC/Year	2010	2015	2020	2025	2030
HCFC-141b	171,445	242,008	372,360	572,921	881,510
HCFC-142b	45,070	63,620	97,887	150,611	231,734
HCFC-22	324,594	458,191	704,983	1,084,704	1,668,951
Total	541,108	763,818	1,175,229	1,808,236	2,782,195

Actual demand of HCFCs is expected to be much lower than the business-as-usual scenario as the Montreal Protocol requires Article 5 countries to freeze their HCFC consumption by 2013 and followed by interim reduction steps leading to a complete phase-out by 2030, except a small quantity for meeting the servicing tail up to 2040.

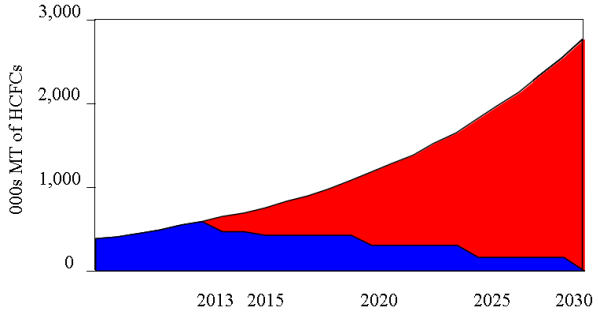
Fig. 1. HCFC Allowance Production and Consumption Schedule in Developing Countries



With the accelerated HCFC phase-out schedule of the Montreal Protocol, a total HCFC consumption of 21 million MT could be avoided during the period 2013 – 2030[10]. This avoided consumption would result in early introduction of alternatives. Climate impacts or benefits are, therefore, dependent on the choices of alternatives to be adopted by Parties of the Montreal Protocol.

[10] For illustration purposes, it is assumed that the same demand growth for the BAU scenario and the same reduction schedule are applied to each HCFC.

Fig. 2 Estimated consumption of HCFCs and alternatives for 2013 – 2030



If the avoided consumption (the red area in Fig. 2) is replaced by low GWP alternatives, the total climate benefits from the accelerated HCFC phase-out schedule (excluding impacts from improved or inferior energy efficiency performances) could be as high as 30.5 Gt of CO_2 equivalent by 2030[11]. As early phase-out of HCFC-22 also results in avoided production of byproduct HFC-23, the accelerated HCFC phase-out schedule contributes therefore to additional indirect emission reductions of 5.6 Gt of CO_2 equivalent associated with avoided production of HFC-23[12].

NON-HCFC ALTERNATIVES

Major applications of HCFC-22, HCFC-141b, and HCFC-142b in developing countries are in the refrigeration, air-conditioning, and foam sectors. Alternatives to these HCFC applications include HFCs, which have high global warming potential values, and hydrocarbons (HC), CO_2 and ammonia, which have lower GWP values. Currently available non-HCFC alternatives for various applications are summarized in Appendix 1.

Selection of alternatives depends on the desired product quality and safety. For example, hydrocarbons, which are flammable, may not be desirable for certain applications. Certain alternatives may also compromise product quality (such as insulation performance of insulation foam products.

CLIMATE IMPACT OF HCFC PHASE-OUT

The ozone depleting substances (HCFCs) are also high global warming gases, the phase-out of these chemicals presents an opportunity to maximize climate benefits, including energy efficiency gains and uses of low GWP alternatives. Alternatives currently available for replacing HCFCs consist of high global warming gases such as HFCs, low GWP gases such as hydrocarbons, CO2 and ammonia.

[11] Assuming that HCFCs are replaced by only low GWP alternatives.

[12] Assuming 3% byproduct HFC-23 in the HCFC-22 production, refer to HCFC Phase-out under the Montreal Protocol - Introductory Note on a Programmatic Approach, Montreal Protocol Operations, World Bank, 2008

Selection of these substances would have to take into account a number of factors ranging from desired product qualities, flammability, toxicity, and associated costs of using such alternatives, including energy consumption and servicing aspects.

In terms of climate benefits, the selection of alternative gases, should not only focus on low GWP of alternatives, but should also cover energy efficiency benefits that could be gained over the lifetime of the equipment. This is particularly true for the foam products, air-conditioning and refrigeration equipment that are generally made with a small quantity of HCFCs, but are characterized by long product lifetime. Alternatives could be categorized according their energy efficiency potential and GWP of the products (refer to appendix 2).

ADDITIONALITY OF CLIMATE BENEFITS ASSOCIATED WITH ACCELERATED HCFC PHASEOUT

To meet the accelerated HCFC phase-out schedule stipulated by the Montreal Protocol, major policies and actions must be undertaken to minimize the current demand of HCFCs and future dependence on HFCs. Restricting manufacturing of new HCFC-based equipment is also another important measure to avoid the build-up of HCFC demand for servicing this equipment in the future. Restricting production of new HCFC-based equipment and products could be applied to existing manufacturers or manufacturing capacity by providing them with incentives for early conversion. Establishment of new manufacturing capacity based on HCFC technologies should also be prohibited.

Recovery, recycling and reuse of HCFCs, particularly HCFC-22 which represents more than 80% of the total consumption in most developing countries, would assist countries to meet their Montreal Protocol obligations. Since the Montreal Protocol defines consumption as production plus import and minus export, recycled HCFC-22 would replace the need for production and/or import of virgin HCFC-22 which in turn assists countries in meeting their consumption limit.

Replacement of HCFC-based equipment would also contribute to significant reduction in HCFC demand. Given that HCFC-based equipment or products (e.g., air-conditioning equipment, insulation foams, and etc.) have a long product life, early replacement of these items could be costly and not financially viable. Based on experience from CFC phase-out, early replacement of HCFC-based equipment or products could be viable when new products are more energy (and resource) efficient. As there have been a number of projects addressing this issue, this option will not be addressed in this proposed study.

As pointed out earlier, replacement of HCFCs in most applications could be done via both low and high GWP alternatives. In most cases, applications of low GWP technologies in the foam and refrigeration sectors could result in lower product costs. However, because of related toxicity and/or flammability issues of these low GWP alternatives, higher capital investments are required to ensure that manufacturing facilities, production and servicing personnel are trained and equipped with necessary safety equipment. Conversion costs could be prohibitive, particularly for small-and-medium scale enterprises.

The CFC phase-out experience clearly demonstrates that while cyclopentane is available as a foam blowing agent, all small-and-medium scale enterprises opt for HCFC-141b as initial investments are much lower. Hence, the preferred choice for phasing out of HCFC in the foam sector for small-and-medium scale enterprises could as well be HFCs, rather than cyclopentane. Common HFCs for foam blowing applications include HFC-134a, HFC-152a, HFC-245fa, HFC-365mc, and HFC-227ea. These chemicals have GWP many times higher than hydrocarbon alternatives (with GWP of less than 25) (Appendix 3).

Similarly, HCFC-22 refrigerant in the refrigeration and air-conditioning applications could be replaced by either low or high GWP refrigerants (i.e, hydrocarbons, ammonia, carbon dioxide, and HFCs). For developing countries in particular where the demand of residential air-conditioners is rapidly increasing, selection of appropriate alternatives to HCFC-22 refrigerant would render significant climate benefits. Currently, HFC-410A, which has a high GWP value, seems to be an alternative of choice. Extensive research and development has been put in place to improve energy efficiency of new HFC-410A residential air-conditioners. Providing that similar energy efficiency could be achieved by hydrocarbon technology, replacing HCFC-22 with hydrocarbon refrigerant could contribute additional benefits to the climate since GWP of hydrocarbon refrigerant are more than 100 times lower than HFC-410A. However, safety concerns on the flammability of hydrocarbons could prevent a large-scale adoption of this technology. Extensive training of production and servicing personnel may be required in order to employ this technology safely. More awareness for end-users is also equally important in order to educate consumers of the safe use of these products.

Recovery and recycling of HCFC-22 during servicing and maintenance of refrigeration and air-conditioning equipment is considered as an eligible activity for funding from the Multilateral Fund. Thus far, the Multilateral Fund has allocated significant resources to support establishment of recovery and recycling networks in almost all developing country Parties of the Montreal Protocol. In addition, training on better containment (reducing leak, recovery and recycling, and reuse) has also been one of the core activities funded by the Multilateral Fund.

Experience from CFC recovery and recycling, thus far, is not encouraging. Implementation of recovery and recycling practice is more desirable financially when servicing equipment with a large refrigerant charge size. For example, recovery and recycling of refrigerants in large industrial and commercial refrigeration systems and in large chillers are common. However, recovery and recycling of CFCs from mobile air-conditioning equipment and domestic refrigerators have not shown a similar success as the price of CFCs and the quantity of CFCs that could be recovered from each unit are low.

It is expected that the economic of recovery and recycling HCFC-22 from residential air-conditioning units would probably be similar to recovery and recycling of CFCs from mobile air-conditioning equipment and domestic refrigerators. A combination of the low price of HCFC-22 and a small charge size of HCFC-22 in each piece of equipment, and

high transaction costs to implement recovery and recycling HCFC-22, makes the recovery and recycling practice less financial attractive to most service technicians.

Potential climate benefits of recovery and recycling HCFC-22 warrants further consideration as it leads to a lower requirement for production of virgin HCFC-22. Excluding the direct GWP associated with HCFC-22, recovery and recycling of one MT of HCFC-22 reduces emission of 30 kg of byproduct HFC-23 from production of one MT of virgin HCFC-22 or about 420 MT of CO_2 equivalent. This significant climate benefits render opportunity to mobilize additional resources to lower high transaction costs of implementing the recovery and recycling practice experienced by service technicians.

PROPOSED STUDY

As indicated above, HCFC phase-out could result in an increased use of HFCs . In order to maximize benefits of both ozone layer protection and climate protection, a synchronized strategy for managing the use of HCFCs and phasing-down HFCs could assist Parties to the Montreal Protocol to develop a conducive environment for climate friendly technologies. This would also assist industries in developing countries to avoid two-steps conversion to low GWP technologies (from HCFC to HFC and to low GWP alternatives). To support market penetration of low GWP technologies, financial incentives within and outside the Multilateral Fund should be considered in order to offset higher costs, if any, of adoption of low GWP technologies. In addition, consumption and production of HFCs including those produced as byproducts of other chemical processes will also be considered.

Since all Parties to the Montreal Protocol are now in the process of developing their HCFC phase-out strategies, it is an opportune time for Parties to also consider their HFC strategy as part of their response to the call for more consideration of other environmental benefits, particularly the climate benefits, when phasing out HCFCs. Based on the business-as-usual scenario, it is obvious that the need for HFCs equipment or products (e.g., air-conditioning and insulation foam products) will continue to grow in spite of the HCFC phase-out schedule under the Montreal Protocol. Hence, to minimize the growth of HFCs the choice of technologies to be made by existing manufacturing facilities of those products currently produced with or containing HCFCs not only has to be considered, but also the choice of technologies for facilities to be established in the future in order to meet the demand of these products.

OBJECTIVES OF THE STUDY

While HCFC phase-out renders two climate benefit opportunities: (i) improved energy efficiency; and (ii) use of lower GWP chemicals, the proposed study will focus on resource mobilization to support the latter, but will addressed technologies limitations and tradeoff between energy efficiency gains and low GWP gases.

The study will focus on resource mobilization to support projects aiming at reducing use of HFCs[13] as a result of HCFCs phase-out and reducing HFCs as a byproduct from HCFC production.

SCOPE OF THE STUDY

The study will investigate: (i) review of tradeoff between energy efficiency gains and low GWP gases; (ii) costs and barriers associated with conversion of HCFC technology with to low GWP alternatives; (iii) volume of HFCs and equivalent in carbon dioxide equivalent associated with the consumption and production in developing countries and transition economies including those produced as byproducts of other chemical processes; and (iiv) potential funding resources (e.g., Multilateral Fund, Carbon Market, Carbon Partnership Funds, Clean Technology Fund, and etc.) to support adoption of better HCFC containment practice, and climate friendly technologies (v) recommendations (or development of a) for a funding methodologies such as approaches to evaluate and setting the baseline consumption and production of HFCs, etc. In addition, the study will investigate effective modalities for implementing these activities in order to ensure seamless synergy between the MLF funded activities and activities funded by resources outside the MLF.

Based on experience from CFC phase-out, it is anticipated that HCFC phase-out will involve a large number of beneficiaries. Moreover, HCFC phase-out strategies and HFC strategies may require not only investment and technical assistance activities but also a combination of policy and timely investment interventions to ensure cost-effective means of achieving the targets. Experiences from implementation of CFC phase-out activities in the last two decades clearly demonstrate effectiveness of sectoral or national approaches whereby policy and investment activities are carried out in chronology. Similarly, the climate community also recognizes the need to scale up its CDM activities. Recently, a program of activity approach has been adopted by the CDM Board.

There are some similarities between the sectoral or national approaches under the Multilateral Fund and the CDM program of activity approach. The study will review these different approaches and offer recommendations to synchronize implementation modalities as well as to synchronize, to the extent possible, monitoring and verification procedures that may be required by the MLF mechanism, CDM mechanism, and other potential funding mechanisms.

STUDY APPROACH

The study will entail a desk review of the on-going study on HCFC alternatives and their climate benefits being conducted by UNEP TEAP under the auspices of the Montreal Protocol, the cost study being carried out by the Multilateral Fund, all applicable CDM methodologies, proposed approaches under negociations by the climate community, funding mechanisms outside UNFCCC and MP such as the Clean Technology Carbon

[13] It includes HFCs used as a result of CFC phaseout and possibly HCFC phase-out. For example, the study will explore financing opportunities for replacing HFC-134a MACs with low GWP alternatives.

Partnership Funds, Clean Technology Fund and others. Findings of the desk review will lead to recommendations or development of a funding methodologies for potential funding sources. The study will also include workshops to inform developing countries of findings of the study, which will lead to identification of potential pilot projects in a few developing countries.

TIMEFRAME

Detailed terms of reference for this study will be submitted for the consideration of the Executive Committee at its 61st Meeting in July 2010. The study will then take about 12 months to complete. The final report of the study will be submitted to the ExCom at its 65th Meeting in November 2011.

Appendix 1: Non-HCFC Alternative Matrix

Sector	Sub-sector	HCFCs Currently Used	Alternative Options
Foam	XPS	HCFC 22/HCFC 142b (blends), HCFC 22, HCFC 142b	CO_2, CO_2/Ethanol, CO_2/HCs; HFC 134a
	Polyurethane Spray	HCFC 141b, minor use of HCFC 141b/HCFC 22	HFC, CO_2 (CO_2 not preferred option if superior thermal insulation performance is required.)
	Domestic refrigerators/freezers	HCFC 141b, minor use of HCFC 141b/HCFC 22	HFC, HC (Small enterprises use HFCs)
	Commercial refrigerators/freezers	HCFC 141b	HFC, HC, CO_2 (Adhesion problem with CO_2)
	Sandwitch panels - continuous	HCFC 141b	HFC, HC
	Sandwitch panels - discontinuous	HCFC 141b	HFC, HC
	Insulated pipes	HCFC 141b	HFC, HC
	Integral skin foams	HCFC 141b	HFC 134a, CO_2, HC
Refrigeration	Supermarket refrigerators	HCFC 22	R-404A, CO_2, HCs and Ammonia (R-717)
	Industrial refrigeration	HCFC 22	R-717, CO_2
	Transport refrigeration	HCFC 22	HFC 134a, R-404A, R-410A
Air-conditioning	Air-conditioning	HCFC 22	R-410A, HCs, CO_2
	Water -heating heat pumps	HCFC 22	HFC 134a, R-410A, CO_2
	Chillers	HCFC 22	HFC 134a

Source: OORG Presentations, OORG Meeting, October 2008, Washington DC
Note: R-404A and R-410A are HFC blends.

Appendix 2: Selection of HCFC's Alternatives and Climate Considerations

In terms of climate benefits, it could be described that the available alternatives in the consumption sector can be categorized according to Figure 3. These four regions represent:

- Region I – Low GWP alternatives with improved energy and resource efficiency or thermal insulation property of the final products;
- Region II – High GWP alternatives with improved energy and resource efficiency or thermal insulation property of the final products;
- Region III – Low GWP alternatives with inferior energy and resource efficiency or thermal insulation property of the final products when compared with HCFC products;
- Region IV – High GWP alternatives with inferior energy and resource efficiency or thermal insulation property of the final products when compared with HCFC products.

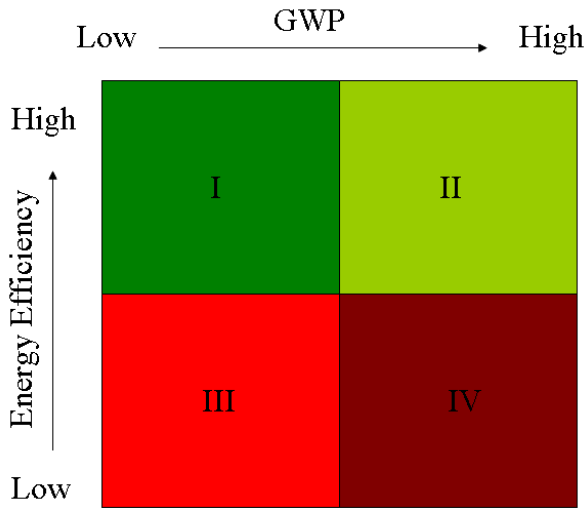


Fig. 3 Characteristics of Non-HCFC Alternatives

Foam products, air-conditioning and refrigeration equipment, are made with a small quantity of HCFCs. However, they have a long product lifetime. Therefore, any alternatives of HCFCs that fall in Regions III and IV are not desirable. For example, replacing HCFCs with low GWP alternatives (Region III) but resulting in low energy efficiency or insulation property, could result in higher energy consumption during the lifetime of these products. Emissions of carbon dioxide during the lifetime of the products normally are many times higher than the difference between the GWP values of HCFCs and alternatives used for manufacturing or maintaining these products. Alternatives in Region IV are even less desirable.

Appendix 3: GWP of HCFCs and HFC alternatives[14]

Substance	GWP
HCFC-22	1,700
HCFC-141b	630
HCFC-142b	2,000
HFC-134a	1,300
HFC-152a	140
HFC-245fa	820
HFC-365mc	840
HFC-227ea	2,900
HFC-23	14800
R-410A (HFC Blends)	2,100
R-404A (HFC Blends)	3,900
R-407C (HFC Blends)	1,800

Note: R-404A, R-407C, and R-410A are HFC blends

[14] 2006 UNEP Technical Options Committee Refrigeration, A/C and Heat Pump Assessment Report

Appendix 4: Preparation Cost Breakdown

Element	Description	US$
Potential Volume of Carbon Dioxide Equivalent Emission Reduction	Review of current HCFC applications and available non-HCFC alternatives; market analysis on penetration of various alternatives (high and low GWP) and estimates on benefits from improved energy and resource performance (taking into account ongoing work of TEAP and OORG)	35,000
Barriers Associated with Conversion of HCFC Technology with Baseline Energy and Resource Efficiency to Low GWP Alternatives with Improved Energy and Resource Efficiency	Industrial survey in a selected number of Article 5 countries and Article 2 countries that are major technology providers for each HCFC application	50,000
Consumption and Production of HCFCs	Industrial survey focusing on chemical producers in both Article 5 and non-Article 5 countries; market analysis to project trends	10,000
Potential Funidng Resources	Review of existing activities or projects funded by various funding mechanisms; review existing CDM and non-CDM methodologies; interview with prospective beneficiaries in Article 5 countries; identification of potential sources of financing; development of approaches and project model for securing such resources	55,000
Development of Funding Criteria/Standards/Methodologies	Development of tools for capturing co-financing resources outside the MLF	70,000
Stakeholder Consultation Meetings	3 consultation meetings	30,000
Total		**250,000**