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COMITÉ EXÉCUTIF
DU FONDS MULTILATÉRAL AUX FINS
D'APPLICATION DU PROTOCOLE DE MONTRÉAL
Quatre-vingt-treizième réunion
Montréal, 15 – 19 décembre 2023
Points 9 c) et d) de l'ordre du jour provisoire¹

**AMENDEMENTS AU PROGRAMME DE TRAVAIL DE LA BANQUE MONDIALE POUR
L'ANNÉE 2023**

¹ UNEP/OzL.Pro/ExCom/93/1

OBSERVATIONS ET RECOMMANDATION DU SECRÉTARIAT DU FONDS

1. La Banque mondiale demande au Comité exécutif d'approuver le montant de 550 000 \$US, plus des coûts d'appui d'agence de 38 500 \$US pour les amendements à son programme de travail de 2023 indiqués dans le Tableau 1. La demande est jointe au présent document.

Tableau 1: Amendements au programme de travail de la Banque mondiale pour l'année 2023

| Pays | Activité/Projet | Montant demandé (\$US) | Montant recommandé (\$US) |
|---|---|------------------------|---------------------------|
| SECTION A : ACTIVITÉS RECOMMANDÉES AUX FINS D'APPROBATION GLOBALE | | | |
| A1 : Préparation de projets en vue de plans de gestion de l'élimination des HCFC (PGEH) | | | |
| Thaïlande | Préparation d'un PGEH (phase III) | 90 000 | 90 000 |
| Thaïlande | Préparation d'un projet d'investissement lié au PGEH dans le secteur de la réfrigération commerciale | 80 000 | 80 000 |
| Total partiel pour A1 | | 170 000 | 170 000 |
| Coûts d'appui d'agence | | 11 900 | 11 900 |
| Total pour A1 | | 181 900 | 181 900 |
| A2 : Élaboration d'un inventaire national des banques de substances contrôlées usagées ou indésirables et d'un plan de collecte, de transport et d'élimination de ces substances² | | | |
| Viet Nam | Elaboration d'un inventaire national des banques de substances contrôlées usagées ou indésirables et d'un plan | 100 000 | 100 000 |
| Total partiel pour A2 | | 100 000 | 100 000 |
| Coûts d'appui d'agence | | 7 000 | 7 000 |
| Total pour A2 | | 107 000 | 107 000 |
| A3 : Préparation d'un projet pilote visant à maintenir et/ou améliorer l'efficacité énergétique des technologies et équipements de remplacement dans le contexte de la réduction progressive des HFC³ | | | |
| Malaisie | Préparation d'un projet pilote visant à maintenir et/ou améliorer l'efficacité énergétique de la réfrigération commerciale autonome | 30 000 | 30 000 |
| Total partiel pour A3 | | 30 000 | 30 000 |
| Coûts d'appui d'agence | | 2 100 | 2 100 |
| Total pour A3 | | 32 100 | 32 100 |
| SECTION B : ACTIVITÉS RECOMMANDÉES AUX FINS D'EXAMEN INDIVIDUEL | | | |
| B1 : Préparation de projets pour les plans d'élimination de HFC de Kigali (KIP) | | | |
| Thaïlande | Préparation d'un KIP (phase I) | 220 000 | * |
| Total partiel pour B1 | | 220 000 | * |
| Coûts d'appui d'agence pour B1 | | 15 400 | * |
| Total pour B1 | | 235 400 | * |
| B2 : Préparation d'un projet pilote pour maintenir et/ou améliorer l'efficacité énergétique des technologies et équipements de remplacement dans le contexte de la réduction progressive des HFC | | | |
| Viet Nam | Préparation d'un projet pilote pour maintenir et/ou améliorer l'efficacité énergétique dans le secteur de la climatisation | 30 000 | * |
| Sous-total pour B2 | | 30 000 | * |
| Coûts d'appui d'agence pour B2 | | 2 100 | * |
| Total pour B2 | | 32 100 | * |
| Total général (A1, A2, A3, B1 et B2) | | 550 000 | 300 000 |
| Coûts d'appui d'agence pour A1, A2, A3, B1, B2 | | 38 500 | 21 000 |
| Total général | | 588 500 | 321 100 |

* Recommandé pour examen individuel

² Ci-après dénommée élaboration d'un inventaire national des banques de substances contrôlées usagées ou indésirables et d'un plan.

³ Ci-après dénommé préparation d'un projet pilote visant à maintenir et/ou améliorer l'efficacité énergétique.

SECTION A : ACTIVITÉS RECOMMANDÉES AUX FINS D'APPROBATION GLOBALE

A1: Préparation de projets pour les plans de gestion de l'élimination des HCFC

Description du projet

2. La Banque mondiale, en qualité d'agence d'exécution désignée, a soumis une demande de préparation de la phase III du PGEH et une demande de préparation d'un projet d'investissement dans le secteur de la réfrigération commerciale pour la Thaïlande comme indiqué dans la section A1 du tableau 1.

3. La Banque mondiale a fourni la description des activités visant à soutenir la demande de préparation de projet pour la phase III du PGEH, qui comprenaient : la justification du financement demandé pour la préparation du projet ; un rapport d'avancement sur la mise en œuvre de la phase II du PGEH ; et la liste des activités à entreprendre lors de la préparation du projet ainsi que les budgets correspondants.

Observations du Secrétariat

4. Lors de l'examen de ces demandes, le Secrétariat a tenu compte des lignes directrices relatives à la préparation des PGEH pour des pays visés à l'article 5, énoncées dans la décision 71/42, les progrès accomplis lors de la phase II des PGEH telle qu'approuvée, y compris l'état d'avancement de la mise en œuvre des tranches au moment de la rédaction du présent document ; et de la décision 84/46 (e).⁴ Le Secrétariat a noté que le financement demandé est conforme à la décision 71/42 et que la demande est conforme à la décision 82/45, laquelle autorise la soumission de demandes de préparation de projets pour la phase III deux ans avant la date de fin de la phase II du PGEH.⁵

5. Le Secrétariat a noté que la mise en œuvre de la phase II du PGEH pour la Thaïlande progresse après quelques retards⁶ et que la deuxième tranche a été approuvée en 2022. Le Secrétariat a en outre noté que la Thaïlande respecte les objectifs de contrôle du Protocole de Montréal et a déclaré une consommation annuelle de HCFC qui ne dépasse pas la consommation annuelle maximale autorisée indiquée dans l'accord passé entre le Gouvernement de la Thaïlande et le Comité exécutif ; et que la Banque mondiale a indiqué que la notification visant à l'interdiction du HCFC-141b sera en place d'ici la fin de 2023. La Banque mondiale a confirmé que la phase III du PGEH pour la Thaïlande éliminera 100 % de la valeur de référence pour les HCFC d'ici au 1er janvier 2030.

6. La demande de financement de préparation de projet pour le projet d'investissement porterait sur un plan du secteur de la réfrigération commerciale visant à reconvertir le reste du secteur manufacturier utilisant des HCFC en Thaïlande à une technologie à base d'hydrocarbures et inclurait potentiellement 12 petites et moyennes entreprises (PME) utilisant du HCFC-22. La Banque mondiale a confirmé que le projet d'investissement sera soumis dans le cadre de la phase III du PGEH pour la Thaïlande.

Recommandation du Secrétariat

7. Le Secrétariat recommande l'approbation globale de la préparation de projet pour la phase III du plan de gestion de l'élimination des HCFC (PGEH) et de la préparation d'un projet d'investissement lié au

⁴ L'inclusion de la phase III des PGEH dans le plan d'activités n'est autorisée que pour les pays disposant d'une phase II de PGEH approuvée avec des cibles de réduction inférieures aux objectifs de conformité de 2025.

⁵ La dernière année pour laquelle un niveau de consommation totale maximum autorisé a été spécifié à l'Annexe 2-A de l'Accord passé entre le Gouvernement de la Thaïlande et le Comité exécutif pour la phase II du PGEH est 2023.

⁶ La phase II du PGEH pour la Thaïlande pour la période 2018 à 2023 (visant à réduire la consommation de HCFC de 61,8 % par rapport à la valeur référence) a été approuvée à la 82^e réunion pour un montant de 3 791 077 \$ US, plus des coûts d'appui d'agence de 265 375 \$ US pour la Banque mondiale ;

PGEH dans le secteur de la réfrigération commerciale pour la Thaïlande, au niveau de financement indiqué dans la section A1 du Tableau 1.

A2 : Élaboration d'un inventaire national des banques de substances contrôlées usagées ou indésirables et d'un plan de collecte, de transport et d'élimination de ces substances

Description du projet

8. La Banque mondiale, en qualité qu'agence d'exécution désignée, a soumis une demande pour la préparation d'un inventaire national des banques de substances contrôlées usagées ou indésirables et d'un plan pour le Viet Nam, comme indiqué dans la section A2 du tableau 1.

Observations du Secrétariat

9. Lors de l'examen de la demande, le Secrétariat a pris en compte les critères de préparation d'un inventaire national des banques de substances réglementées usagées ou indésirables et d'un plan dans la décision 91/66, ainsi que les activités proposées pour la préparation du projet et leur lien avec les plans d'élimination ou de réduction progressive (c'est-à-dire le PGEH ou le KIP) à l'échelle du pays. Le Secrétariat a noté que la demande de financement est conforme à la décision 91/66 et qu'en tant qu'agence d'exécution désignée, la Banque mondiale a fourni une description des activités requises pour la préparation d'un plan national et d'un inventaire des banques de substances contrôlées usagées ou indésirables pour le Viet Nam en utilisant les formulaires de soumission appropriés aux propositions de projets.

10. Les activités comprenaient la préparation d'un plan de gestion du cycle de vie des substances contrôlées pour suivre et gérer les frigorigènes et les agents de lutte contre l'incendie depuis la première importation jusqu'à la récupération, l'élimination et la destruction définitive, ainsi qu'un rapport final ; la consultation des parties prenantes et la collecte de données ; l'analyse des quantités d'équipements et de substances contrôlées qui seront mises hors service ; une analyse des options permettant de baisser le plus possible les coûts du système de recyclage, de valorisation et d'élimination ; et les considérations de genre pour encourager une participation équilibrée des genres au projet et pour collecter des données ventilées par genre, le cas échéant.

Recommandation du Secrétariat

11. Le Secrétariat recommande l'approbation générale de la préparation d'un inventaire national des banques de substances contrôlées usagées ou indésirables et d'un plan pour la collecte, le transport et l'élimination de ces substances pour le Viet Nam au niveau de financement indiqué dans la section A2 du tableau 1.

A3 : Préparation d'un projet pilote visant à maintenir et/ou améliorer l'efficacité énergétique des technologies et équipements de remplacement dans le contexte de la réduction progressive des HFC

Description du projet

12. La Banque mondiale, en qualité d'agence d'exécution désignée, a soumis une demande de préparation d'un projet pilote visant à maintenir et/ou améliorer l'efficacité énergétique pour la Malaisie, comme indiqué dans la section A3 du tableau 1. La soumission a été faite conformément à la décision 91/65.

13. La demande de préparation de projet s'ajoute à la proposition de reconversion de deux petits et moyens fabricants d'équipements de réfrigération commerciale passant d'une technologie utilisant les HFC-134a et R-404A vers la technologie à R-290 et R-600a, qui est incluse dans la phase I du KIP soumis au présente réunion. Le projet pilote proposé dans le cadre de la décision 91/65 se concentrerait

sur les améliorations de l'efficacité énergétique à mettre en œuvre lors de la reconversions de ces entreprises, ce qui comprendrait le passage d'un compresseur à vitesse fixe à une technologie de compresseur à inverseur à vitesse variable ; et explorerait également la faisabilité de concevoir et d'assembler des produits à inverseurs exempts de HFC plutôt que de compter sur la disponibilité du marché. L'objectif global du projet serait de renforcer la politique de performance énergétique en Malaisie pour les équipements de réfrigération autonomes et d'aider les fabricants malaisiens à augmenter leur part de fabrication d'unités sobres en énergie. Les activités de préparation du projet comprendraient une évaluation des besoins en capacités des deux entreprises et des régulateurs de l'efficacité énergétique ; des consultations avec des fournisseurs de technologie dans la région ; et la conception et l'élaboration d'une proposition de projet finale, y compris la détermination de la source de technologie et d'expertise.

Observations du Secrétariat

14. Le Secrétariat a examiné la proposition de projet conformément aux critères de projet énoncés dans la décision 91/65 et a noté que la demande de préparation de projet proposée relèverait de l'alinéa (b)(i)a. pour les projets de reconversion visant à maintenir et/ou améliorer l'efficacité énergétique lors de la reconversion à partir de technologies à HFC dans la fabrication de systèmes de réfrigération domestique, de réfrigération commerciale autonome, de climatisation résidentielle et commerciale et de pompes à chaleur qui seraient envisagés de manière prioritaire.

15. Le Secrétariat a noté que la préparation du projet demandé est liée à la phase I du KIP pour le pays qui propose l'élimination totale du HFC-134a et du R-404A dans la fabrication d'unités de réfrigération commerciale autonomes. La Banque mondiale a confirmé que le projet en résultant pour les deux entreprises incluses dans la phase I du KIP améliorerait la performance énergétique des équipements de réfrigération commerciale autonomes fabriqués par ces entreprises et conduirait au développement de politiques et de normes favorables dans le pays. Le Secrétariat a également voulu savoir si ce projet pilote serait soumis pour examen avant le début des activités de reconversion dans ces deux entreprises, afin d'assurer une mise en œuvre coordonnée de ces activités, ce que la Banque mondiale a confirmé. La Banque mondiale a également confirmé que les exigences de l'alinéa b(iv) de la décision 91/65 seraient remplies par le projet qui en résulterait.

Recommandation du Secrétariat

16. Le Secrétariat recommande l'approbation globale de la demande de préparation d'un projet pilote visant à améliorer l'efficacité énergétique dans le secteur de la réfrigération commerciale en Malaisie dans le contexte d'un passage à des frigorigènes de remplacement à faible PRP, au niveau de financement indiqué dans la section A3 du tableau 1.

SECTION B : ACTIVITÉS RECOMMANDÉES AUX FINS D'EXAMEN INDIVIDUEL

B1 : Préparation de projet pour les plans de mise en œuvre des HFC de Kigali

Description du projet

17. La Banque mondiale, en qualité qu'agence d'exécution désignée, a soumis une demande de préparation de la phase I du KIP pour un pays, comme indiqué dans la section B1 du tableau 1.

18. La soumission comprend des données sur la consommation de HFC et de mélanges de HFC pour 2020 et une description des activités requises pour la préparation de la stratégie globale pour la phase I du KIP de la Thaïlande. Les activités de préparation du projet comprenaient une enquête menée à l'échelle nationale et une collecte de données sur la consommation de HFC ; l'analyse de l'utilisation des HFC et des solutions de remplacement et une enquête portant sur les équipements utilisant des HFC ; l'examen des politiques publiques et de la législation liées à la réduction progressive des HFC ; un examen législatif et réglementaire ; et l'élaboration d'une stratégie globale de réduction progressive des HFC.

19. La Banque mondiale soumet cette demande en notant que le Gouvernement thaïlandais a approuvé la ratification de l'Amendement de Kigali, mais que les instruments de ratification n'ont pas encore été transmis à leur dépositaire aux Nations Unies.

Observations du Secrétariat

20. Dans son examen de la demande, le Secrétariat a tenu compte des lignes directrices pour la préparation des KIP figurant dans la décision 87/50, ainsi que les activités proposées pour la préparation de projets et leur lien avec les activités habilitantes et d'autres projets liés aux HFC dans le pays.

21. La Banque mondiale, en qualité qu'agence d'exécution désignée, a décrit les activités requises pour la préparation de la stratégie globale en utilisant le format des demandes de préparation de projet applicables aux KIP. Le Secrétariat a noté que le pays avait fourni une lettre d'approbation signifiant son intention de prendre des mesures pour éliminer progressivement les HFC ; et que le financement demandé était conforme à la décision 87/50(c).

22. Le Secrétariat a en outre noté que bien que le Gouvernement thaïlandais ait approuvé la ratification de l'Amendement de Kigali et qu'il achève le processus d'approbation interne permettant le dépôt des instruments de ratification aux Nations Unies, ce qui pourrait arriver avant la réunion du Comité exécutif ou pendant celle-ci, la ratification de l'Amendement de Kigali est une condition préalable pour envisager le financement de la préparation du KIP. Le Secrétariat a donc informé la Banque mondiale que la demande serait incluse pour examen individuel, étant donné que le processus de ratification pourrait être achevé avant la réunion du Comité exécutif ; toutefois, si l'instrument de ratification n'était pas déposé d'ici là, la demande serait retirée et soumise à la réunion suivante. La Banque mondiale a accepté ce procédé et assuré que le processus de ratification serait achevé en temps voulu.

Recommandation du Secrétariat

23. Le Comité exécutif pourrait envisager d'approuver la préparation du projet pour le plan de mise en œuvre des HFC de Kigali pour la Thaïlande, d'un montant de 220 000 \$ US, plus les coûts d'appui d'agence de 15 400 \$ US, à condition que l'instrument officiel de ratification ait été transmis et reçu par son dépositaire aux Nations Unies, emportant ratification par le pays de l'Amendement de Kigali et ce d'ici à la 93^e réunion du Comité exécutif.

B2 : Préparation d'un projet pilote pour maintenir et/ou améliorer l'efficacité énergétique des technologies et équipements de remplacement dans le contexte de la réduction progressive des HFC

Description du projet

24. La Banque mondiale, agissant en qualité qu'agence d'exécution désignée, a soumis une demande de préparation de projet pilote visant à maintenir et/ou améliorer l'efficacité énergétique au Viet Nam, comme indiqué dans la section B2 du tableau 1. La soumission a été faite conformément à la décision 91/65.

25. La demande de préparation de projet aiderait un fabricant (Nakagawa) de climatiseurs de type bibloc à intégrer une conception plus économe en énergie et faciliterait une révision des normes énergétiques minimales en vigueur actuellement au Viet Nam pour les climatiseurs individuels à inverseur, lesquelles sont en place depuis 2011. Le projet pilote comprendra une évaluation de marché portant sur l'efficacité énergétique moyenne actuelle et des frigorigènes utilisés dans les climatiseurs individuels commercialisés au Viet Nam. L'objectif de la préparation serait de déterminer les exigences pour la conception et l'entretien de climatiseurs plus efficaces, y compris la faisabilité du passage des modèles à HFC-32 à vitesse fixe à des appareils à inverseur ; les activités comprendraient une évaluation

des besoins en capacités des entreprises et des régulateurs de l'efficacité énergétique ; des consultations avec les fournisseurs de technologie et l'élaboration de la proposition de projet finale, y compris la détermination de la source de technologie et d'expertise.

Observations du Secrétariat

26. Le Secrétariat a examiné la proposition de projet conformément aux critères de projet énoncés dans la décision 91/65 et a noté que la demande de préparation de projet proposée relèverait de l'alinéa (b)(i)a. pour les projets de reconversion visant à maintenir et/ou améliorer l'efficacité énergétique lors de la reconversion à partir de technologies à HFC dans la fabrication de systèmes de réfrigération domestique, de réfrigération commerciale autonome, de climatisation résidentielle et commerciale et de pompes à chaleur qui seraient envisagés de manière prioritaire.

27. Le Secrétariat a noté que Nakagawa avait reçu un financement dans le cadre de la phase II du PGEH pour passer du HCFC-22 au HFC-32 pour les climatiseurs à vitesse fixe. Même si le projet pilote qui en résulterait améliorerait l'efficacité énergétique des équipements à base de HFC-32 en passant des climatiseurs à vitesse fixe aux climatiseurs à vitesse variable avec technologie à inverseur, le Secrétariat a noté que la décision 91/65 lie spécifiquement ces projets pilotes d'efficacité énergétique aux contextes de la réduction progressive des HFC. Le Secrétariat s'est demandé si l'entreprise envisageait de se reconvertir à une solution de remplacement exempte de HFC en raison de ce projet, notant que le HFC-32 est la technologie la plus populaire pour les climatiseurs tant au Viet Nam que dans la région.

28. La Banque mondiale, prenant note des préoccupations du Secrétariat, a indiqué que l'entreprise n'est actuellement pas en mesure de passer à un réfrigérant sans HFC à faible PRP, car il s'agit d'un petit fabricant qui doit choisir une technologie mature, techniquement et économiquement réalisable et accessible. Cependant, l'adoption de climatiseurs à inverseur créerait une base solide permettant aux fabricants de climatiseurs dans le pays d'améliorer l'efficacité énergétique de leurs produits dès maintenant et pour une reconversion future vers des frigorigènes à faible PRP. Il a en outre été noté que l'objectif plus large du projet qui en résulterait serait la révision des normes minimales de performance énergétique du pays, ce qui permettrait d'améliorer et de promouvoir l'efficacité énergétique des climatiseurs dans le pays. Pour cette raison, la Banque mondiale a souligné que la demande répondait aux critères de la décision 91/65.

Recommandation du Secrétariat

29. Le Comité exécutif souhaitera peut-être envisager d'approuver la demande de préparation d'un projet pilote visant à améliorer l'efficacité énergétique dans le secteur de la climatisation au Viet Nam pour un montant de 30 000 \$ US, plus les coûts d'appui d'agence de 2 100 \$ US.

2023 BUSINESS PLAN
WORK PROGRAM



WORLD BANK GROUP

WORLD BANK IMPLEMENTED
MONTREAL PROTOCOL OPERATIONS

Presented to the
93rd Meeting of the Executive Committee
of the Multilateral Fund

20 October 2023

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 2023-2025 World Bank Business Plan which was approved by the Executive Committee at its 91st meeting.
2. The 2023-2025 World Bank Business Plan consists of investment and non-investment activities to assist Article 5 partner countries to meet their HCFC reduction target, the 2020 35% reduction in both production and consumption sectors. The Business Plan includes, in addition to deliverables associated with previously approved and new investment activities, requests to extend support for implementation of existing institutional strengthening projects in 2 countries.
3. The 2023-2025 Business Plan also includes investment and non-investment activities for the World Bank client countries that either have ratified or in the process of ratifying the Kigali Amendment to phasedown HFCs. These activities will ensure their compliance with the 2024 freeze target and the 2029 10% reduction in the consumption sectors.

2023 Work Program – ExCom 93 Amendment

4. The proposed 2023 Work Program being submitted for consideration at the 93rd Meeting of the Executive Committee, includes four (5) funding requests:
 - (i) One (1) for preparation of energy efficiency project in refrigeration sector for Malaysia
 - (ii) One (1) for preparation of Kigali Implementation Plan for Thailand
 - (iii) One (1) for preparation of Stage III HPMP for Thailand
 - (iv) One (1) for preparation of energy efficiency project in air-conditioning sector for Viet Nam
 - (v) One (1) for preparing life cycle management plan for controlled substances for Viet Nam
5. Brief description of the work program amendment activity requests are highlighted below.

**Table 1: Funding Requests Submitted for Consideration
by the 93rd Meeting of the Executive Committee**

| Country | Request (US\$) | Support Costs (US\$) | Duration (months) | Description | Supporting document |
|----------------|-----------------------|-----------------------------|--------------------------|--|----------------------------|
| Malaysia | 30,000 | 2,100 | 12-18 | Preparation of energy efficiency project in refrigeration sector | Annex 1: |
| Thailand | 220,000 | 15,400 | 12-18 | Preparation of Kigali Implementation Plan Stage I | Annex 2-A |
| Thailand | 90,000 | 6,300 | 12 | Preparation of Stage III HPMP | Annex 2-B |
| Thailand | 80,000 | 5,600 | 12 | Preparation of Investment Projects in Commercial Refrigeration Sector Plan | Annex 2-C |
| Viet Nam | 30,000 | 2,100 | 12-18 | Preparation of energy efficiency project in air-conditioning sector | Annex 3-A |
| Viet Nam | 100,000 | 7,000 | 24 | Development of Lifecycle Management Plan for Controlled Substances | Annex 3-B |
| Total | 550,000 | 38,500 | | | |

Annex 1: Request for project preparation of energy efficiency project for Malaysia

Title: Project preparation for enhancing energy efficiency in Malaysia's commercial refrigeration sector while transitioning to low-GWP alternative refrigerants.

Objective: Improve energy efficiency by 20 to 40% in stand-alone commercial refrigeration in Malaysia in parallel with complete HFC phaseout in the subsector.

Context: Malaysia's Stage I Kigali Implementation Plan proposes total phaseout of HFC-134a and R-404A in the commercial refrigeration subsector of stand-alone units. Malaysia has put forward a request for MLF support to convert the two largest, eligible commercial refrigeration manufacturers, Berjaya Steel and Zun Utara and for TA to guide the remaining sector towards safe use of low-GWP alternatives and to inform the preparation of a sector ban of HFCs. Both of the refrigeration companies are considered small and medium size enterprises and have basic capacity in terms of technology. Although a number of their customers do prefer energy performing equipment, their products are largely based on fixed speed compressors which limits the extent to which companies can improve energy performance.

Additional climate benefits on top of the nearly 200,000 tCO₂ eq. in reductions that are targeted by the KIP are possible if manufacturers and importers market commercial refrigeration units with variable speed/inverter compressor technology. Because stand-alone refrigeration units such as freezers and display cases run 24 hours a day, there is large potential for significant energy savings and CO₂.

HFC phaseout in the sector is also likely to be more sustainable if companies can design and assemble their own HFC-free, inverter products rather than rely on designs and technologies in the EE market that still is dominated by HFC-based compressors.

Concept for Improving EE in Stand-alone Commercial Refrigeration: The proposal intends to introduce a dual approach of strengthening energy performance policy on stand-alone refrigeration and technical and investment support to the Malaysian-owned manufacturers to increase their production share of energy efficient units (beyond the refrigerant).

The two companies will be supported to first select one of two pathways towards improving the energy performance in their products. The pathway chosen would dictate the type of technology transfer and capacity building needed. The technology support would allow the enterprises to design systems to effectively use and optimize inverter, hydrocarbon (R-290) based compressors, including how to program controls and install and repair the inverter box. The latter would reduce operating cost to consumers, which will make inverter commercial refrigeration equipment become more attractive. Expected project costs will be chiefly related to this technology transfer and capacity building. Only a small amount of investment would be likely required which will be confirmed during project preparation.

In order to quantify the CO₂ benefits accrued from the support to the two manufacturers, the project would cover the costs of testing the energy performance of the companies' existing products. This would become the baseline against which to measure the energy savings from the new equipment post-project.

To scale up climate benefits possible from the use of variable speed compressors, the proposed EE project would pursue the development and introduction of policy and standards that promote uptake of high energy efficient compressors in the subsector and create the enabling environment for uptake of more efficient, greener technology thereby supporting Malaysian-owned manufacturers. In order to understand how ambitious a minimum energy performance standard could be at the onset; the project would include a market assessment of the current average EE and refrigerant used of units (freezers and display cases) marketed in Malaysia. Moreover, the study would

assess other opportunities for EE improvement in the context of HFC phasedown, most notably in the MAC sector which is also targeted by the KIP in the form of a pilot project to phaseout HFC-134a.

Project preparation support: Preparation will determine what is required to help the companies design more efficient units and source requisite parts. Preparation work will also lead to an estimated amount of CO₂eq. in additional benefits that can be accrued. The actual target would be confirmed in project implementation subsequent to 1) testing enterprise products and 2) assessing the average energy performance of stand-alone, plug-in units in the Malaysian market.

Preparation Budget for EE Improvement in Stand-alone Commercial Refrigeration

| Activity | Planned Budget (US\$) |
|--|------------------------------|
| Capacity needs assessment of two enterprises and EE regulators (incl. travel) | 10,000 |
| Consultations with technology providers/suppliers in the Region (incl. travel) | 5,000 |
| Design and development of the proposal, including determination of source of technology and know-how | 15,000 |
| Total | 30,000 |

Annex 2-A: Request for project preparation of Kigali Implementation Plan for Thailand

MULTILATERAL FUND FOR THE IMPLEMENTATION OF THE MONTREAL PROTOCOL KIGALI-HFC IMPLEMENTATION PLAN (KIP) PROJECT PREPARATION (PRP) KIP (OVERARCHING + INV)

Part I: Project information

| | | |
|--|---|-----------------------------------|
| Project title: | Thailand Kigali HFC Implementation Plan Preparation | |
| Country: | Thailand | |
| Lead implementing agency: | World Bank | |
| Implementation period for stage I of the KIP: | January 2024 – June 2025 | |
| Duration of PRP implementation (i.e., time (in months) from the approval of PRP to submission of the KIP (please specify): 18 | | |
| Funding requested: | | |
| Agency | Sector | Funding requested (US \$)* |
| World Bank | Overarching | 220,000 |

Part II: Prerequisites for submission

| Item | Yes | No |
|--|-------------------------------------|-------------------------------------|
| 1. Official endorsement letter from Government, indicating the specifying roles of respective agencies (where more than one IA is involved) | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Ratification of the Kigali Amendment by Thailand | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| If NO, please provide explanation: <ul style="list-style-type: none"> Thailand is in the final stage of ratification of the Kigali Amendment. The ratification process was delayed due to change in the government but is now back on track and expected by December. | | |

A. Information required for PRP funding request for the overarching strategy of the KIP

| | | | |
|--|-----------------------------|---|---|
| 1. Montreal Protocol compliance target to be met in <input type="checkbox"/> stage I of the KIP | | | |
| Phase-out commitment (%) | Freeze 10% reduction | Year of commitment | 2024 2029 |
| <input type="checkbox"/> Servicing only | | <input type="checkbox"/> Manufacturing only | <input checked="" type="checkbox"/> Servicing and manufacturing |
| 2. Brief background/description/information on approved relevant projects and multi-year agreements as follows: <ul style="list-style-type: none"> The current progress in implementation of any funded HFC-related project (enabling activities or stand-alone HFC investment projects) The current progress in ongoing HCFC phase-out management plan (HPMPs) Consideration of integrating HFC phase-down activities with HPMP activities taking into account previously approved HFC-related projects, if this information is available. | | | |
| Thailand received MLF approval for its enabling activity funds in late 2017 to help guide it through the ratification of the KA, and initial monitoring and reporting obligations pertaining to HFCs. Also in 2017, it was awarded a Kigali-Cooling Efficiency Program (K-CEP) grant through the World Bank to develop a national cooling plan, but which integrated review, analysis and recommendations on alternatives to HCFCs and HFCs as refrigerant and on energy efficiency (EE) in the refrigeration and air-conditioning (RAC) sector. HFC Thailand enabling activities was completed in 2022. The recommendation package for Kigali Amendment ratification has already been submitted to Permanent Secretary of the Ministry of Industry for the consideration of the new Minister. The new Minister of Industry will assume her position after the new Government announces its policy to the parliament on September 8. With the approval of the Minister of Industry, the recommendation will be | | | |

forwarded for the consideration of the Cabinet. Thailand expects to deposit its ratification instrument by December 2023.

Thailand embarked on Stage I HCFC Phaseout Management Plan (HPMP) in 2013 that focused on enterprises in the foam sector (except spray foam) consuming bulk HCFC-141b and Thailand's important air-conditioning manufacturing sector, HCFC-22. Through the Stage I HPMP, Thailand committed to reduce its consumption of HCFCs within the baseline level by 2013 and reduce its consumption further to the level not exceeding 90% of the baseline level by 2015, and 85% of the baseline level by 2018. Implementation of the Stage I HPMP was completed in 2018 and all the commitments were achieved. The Stage II HPMP addressing the remaining consumption of HCFC-141b in the spray foam sub-sector and consumption in the refrigeration and air-conditioning sectors, was submitted and approved by the MLF ExCom. Implementation of the Stage II HPMP started in 2020 and still on-going. The objectives of the Stage II HPMP is to sustain the consumption level achieved by the Stage I HPMP and further reduce the consumption to not more than 355 ODP tons by 2023. Thailand has submitted project preparation for the Stage III HPMP to the 93rd ExCom to enable Thailand to completely phase-out HCFCs by 2030, except for those allowed for a servicing tail between 2030 and 2040, where required, consistent with the provisions of the Montreal Protocol/

3. Overview of current HFC consumption in metric tonnes by substance (last three years)

| Substance/blend | Sector | 2020 | 2021 | 2022 |
|-----------------|------------------------------------|----------|------|------|
| HFC-23 | Fire suppression | 3.89 | | |
| HFC-32 | RAC manufacturing and/or servicing | 7,877.80 | | |
| HFC-43-10mee | Solvent | 4.63 | | |
| HFC-125 | Fire suppression | 39.32 | | |
| HFC-134a | RAC manufacturing and servicing | 6,067.43 | | |
| HFC-152a | Others | 3.60 | | |
| HFC-227ea | Fire suppression | 17.50 | | |
| HFC-236fa | Fire suppression | 6.60 | | |
| HFC-245fa | Foam | 392.08 | | |
| HFC-365mfc | Foam | 0.92 | | |
| R-404A | RAC manufacturing and/or servicing | 568.49 | | |
| R-407C | RAC manufacturing and/or servicing | 147.80 | | |
| R-407F | RAC manufacturing and/or servicing | 12.17 | | |
| R-407H | RAC manufacturing and/or servicing | 2.21 | | |
| R-410A | RAC manufacturing and/or servicing | 6,853.40 | | |
| R-415B | RAC manufacturing and/or servicing | 225.65 | | |
| R-448A | RAC manufacturing and/or servicing | 36.16 | | |
| R-452A | RAC manufacturing and/or servicing | 6.91 | | |
| R-454A | RAC manufacturing and/or servicing | 0.33 | | |
| R-454B | RAC manufacturing and/or servicing | 0.48 | | |
| R-454C | RAC manufacturing and/or servicing | 0.32 | | |
| R-507A | RAC manufacturing and/or servicing | 18.42 | | |
| R-508B | RAC manufacturing and/or servicing | | | |
| R-513A | RAC manufacturing and/or servicing | 0.76 | | |

4. Based on the consumption data given above, please provide a description of the sector/sub-sector that use HFCs in the country, including a short analysis and explanation of the consumption trends (i.e., increasing or decreasing)

HFC consumption in Thailand is mainly in the AC and refrigeration sectors including residential AC, building chiller, mobile AC, commercial and domestic refrigeration sectors. Only small quantities are consumed in the foam, solvent, aerosol, and fire protection industries.

- Thailand is a major manufacturing hub for residential ACs. These manufacturers are multinational and national companies. The main HFCs used in residential ACs are HFC-32 and R-410A with increasing preference to HFC-32. This is a significant shift from R-410A which was the main alternative to HCFC-22 till 2015.
- The total production of domestic refrigerators in Thailand is estimated at 7-8 million units per annum of which about 2-3 million is sold to meet the domestic demand with remaining sold in the export market. HC-600a is fast replacing HFC-134a as preferred refrigerant for domestic refrigerators and freezers.

- Thailand is also a major hub of automobile manufacturing to serve the domestic and export markets. Cars, vans and buses, pick-up trucks, and large trucks, are manufactured and exported from the country. The annual production of vehicles is more than two million of which, cars and small pick-up trucks make up a major share.
- The commercial refrigeration sector comprises many type of equipment and refrigeration system for various applications such as retail market, cold chain, food and industrial processing. The major manufacturers are mainly local players providing design, engineering, installation and servicing support.
- PU foam sector has converted from HCFC-141b mainly to cyclopentane with some opting for HFC-245fa, HFC- 365mfc/HFC-227ea blend, HFOs, and water blown technology in certain applications.
- Fire protection systems are either fixed or portable type. Fixed fire protection systems installed in Thailand use HFC-227ea (FM-200) along with CO2. Besides, HFC-236fa, HFC-125 and HFC-134a are used as fire suppression agents in portable type fire protection equipment.

| 5. Description of information that needs to be gathered during project preparation. Explain how this data will be gathered | | |
|---|--|---------------|
| Information needed | Description | Agency |
| Data on HFC consumption in manufacturing/servicing sector | Update Thailand HFC survey – inclusion of actual 2021 – 2023 HFC consumption and sectoral consumption. Analyze the impact of COVID-19 pandemic that may depress the demand of HFCs and HFC-based equipment during the baseline years (2020 – 2022), resulting in a lower HCFC baseline than the previous estimate. Update HFC consumption projections for the immediate period (2024 – 2029) to assess potential compliance risk once demand returns to normal post COVID-19 pandemic. | World Bank |
| HFC sectoral consumption information | | |
| Analysis of types of equipmentt using HFCs | | |
| New information on ODS regulations | | |

| 6. Activities to be undertaken for project preparation and funding (decision 87/xx(b)) | | |
|---|-----------------------------------|---------------|
| Activity | Indicative funding (US \$) | Agency |
| 1. Import and export control | | |
| 1.1 Review of the national licensing and quota system to monitor and control the consumption of HFCs and HFC blends. Development of options in alignment with the preparation of the HFC phasedown strategy. | 20,000 | World Bank |
| 1.2 Capacity building activities related to import/export licensing system including Customs and importers/exporters. Assistance in the development of options as necessary. | 10,000 | World Bank |
| 2. Data collection and analysis | | |
| 2.1 Data collection by sector/sub-sector/HFC substance (2019-23) | 50,000 | World Bank |
| 2.2 Stakeholder consultation: conducting interviews, organizing workshops and stakeholders’ consultations on ODS alternatives and for the integration of national regulations and procedures for KA implementation and coordination of technical capacities in the institutions involved in HFC control | 25,000 | World Bank |
| 2.3 Data analysis and development of BAU and growth modeling scenarios, sensitivity analysis, review of feasible options along with preparation of a related technology roadmap reflecting current and future HFC alternatives | 25,000 | World Bank |
| 3. Development of overarching strategy | | |
| 3.1 Review and development of implementing policies and approaches as relevant and in the context of Vietnam’s forthcoming national plan on the management and disposal of controlled ODS and GHGs, including inter-ministerial/agency and institutional arrangements for HFC phasedown. | 10,000 | World Bank |
| 3.2 Development of the overarching strategy for the phase-down of HFCs and plan of action for stage I of the KIP to address the freeze and 10 per cent reduction in HFC consumption. HFC phase-down strategy development: Technical and legal experts to prepare all legal and technical documents; and if necessary, recommendations for update of institutional arrangements; consult all key stakeholders and develop detailed strategy. | 50,000 | World Bank |

| | | |
|---|----------------|------------|
| 3.3 Development of and integration of the strategy for the phase-down of HFCs focusing on refrigeration servicing sector into the overarching strategy. | 20,000 | World Bank |
| 4. Outreach and communication | | |
| 4.1 Preparation of a comprehensive communication and outreach plan in consultation with key stakeholders. | 5,000 | World Bank |
| 4.2 Consultation with relevant stakeholders to identify challenges and conduct need assessment for development of outreach and communication methodology for the servicing sector. | 5,000 | World Bank |
| TOTAL | 220,000 | |
| 7. How will activities related to preparing the KIP be linked to the current stages of the HPMP being implemented in the country? (OPTIONAL) | | |
| <p>It is expected that there will be opportunities for synergies between the HPMP and the KIP, particularly in refrigeration and air-conditioning sectors that use both HCFCs and HFCs. Previous measures from the HPMPs in these sectors such as capacity building for technicians, can be integrated to a certain extent. However, there are other sectors that only use HFCs such as in the mobile air-conditioning and domestic refrigeration that were not addressed in the HPMPs. Moreover, integration of best practices in installed equipment maintenance related to energy performance was also not covered. Thus, the Kigali Implementation Plan will be broader and more complex undertaking than HCFC phase-out.</p> | | |
| 8. How will the Multilateral Fund gender policy be considered during project preparation? | | |
| <p>The Royal Thailand Government is aware of the Multilateral Fund gender policy contained in ExCom document 84/73, and the related Executive Committee decision 84/92. The project preparation will aim to advocate the importance of gender-responsive actions and provisions in developing the Kigali Implementation Plan. Relevant stakeholders will be sensitized on the gender policy and efforts will be made to encourage female stakeholders to contribute to the project preparation. To the extent possible, a gender-disaggregated data will be collected.</p> | | |

Annex 2-B: Request for project preparation of Stage III HPMP for Thailand

**MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
HPMP PROJECT PREPARATION REQUEST FORM
HCFC PHASE-OUT MANAGEMENT PLAN (OVERARCHING STRATEGY)**

Part I: Project Information

| | | |
|----------------------------------|--|-----------------------------------|
| Project title: | Project Preparation Request: Thailand HCFC Phase-out Management Plan Stage III (HPMP III) | |
| Country: | Thailand | |
| Lead implementing agency: | World Bank | |
| Implementation period: | 12 months | |
| Funding requested: | | |
| Agency | Sector | Funding requested (US \$)* |
| World Bank | Overarching | 90,000 |

Part II: Prerequisites for submission

| Item | Yes | No |
|--|-------------------------------------|--------------------------|
| 3. Official endorsement letter from Government specifying roles of respective agencies (where more than one IA is involved) | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 4. Written confirmation – balances from previous PRP funding approved for stage I HPMP had been returned / will be returned (decision 71/42(i)) | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| <ul style="list-style-type: none"> • Specify meeting at which PRP funding balance had been returned/will be returned | Not Applicable | |

Information required to support PRP funding (Overarching strategy)

| | | | |
|---|---|--|---|
| Montreal Protocol compliance target to be met in <input type="checkbox"/> stage II / <input checked="" type="checkbox"/> stage III of the HPMP | | | |
| Phase-out commitment (%) | 100% (with a servicing tail in line with the MP) | Year of commitment | 2030 |
| <input checked="" type="checkbox"/> Servicing only | | <input type="checkbox"/> Manufacturing only | <input type="checkbox"/> Servicing and manufacturing |
| Brief background on previous stage of the HPMP (i.e., when the HPMP was approved; a description of the progress in implementation of the previous stage of the HPMP to demonstrate that substantial progress had been made.) | | | |
| Thailand embarked on its Stage I HCFC Phaseout Management Plan (HPMP) in 2013. It focused on enterprises in the foam sector (except spray foam) consuming bulk HCFC-141b and Thailand’s important air-conditioning manufacturing sector consuming HCFC-22. Through the Stage I HPMP, Thailand committed to reduce its consumption of HCFCs to within the baseline level by 2013 and reduce its consumption further to a level not exceeding 90% of the baseline by 2015, and not exceeding 85% of the baseline by 2018. Implementation of the Stage I HPMP was completed in 2018 and all the commitments were achieved. The Stage II HPMP addressing the remaining consumption of HCFC-141b in the spray foam subsector and consumption in the refrigeration and air-conditioning sectors, was submitted and approved by the MLF Executive Committee (ExCom). Implementation of the Stage II HPMP started in 2020 and is ongoing. | | | |
| Current progress in implementation of previous stage of the HPMP | | | |
| Activity | Description | | Implementing agency |

| | | |
|--------------------------------|---|------------|
| Manufacturing-Foam PU | Conversions in the manufacturing sector are exclusively in the spray foam sector as planned in the Stage II HPMP. Larger enterprises with HCFC-141b consumption of more than 10 MT will have subprojects to change or retrofit foaming machines: five subgrant agreements have been signed and one more is in the works, planned for an estimated US\$1.3 million. Smaller enterprises with limited HCFC-141b consumption and capacity are receiving technical support through a workshop on the comparison of each alternative for the spray foam industries, technical know-how on self-blended HFOs and others. Hands-on training on reduced-HFO formulation via the cooperation of the Bank and the main system houses also provided. | World Bank |
| Refrigeration servicing sector | In the refrigeration and air-conditioning (AC) servicing sector, equipment procurement for training has started after some COVID-19-related delays. Delivery of 72 sets of training equipment for AC service technicians for the 12 selected training centers was completed by June 2022. Two partner training institutes have been engaged in delivering the training to technicians, DSD and OVEC (six centers each). One-hundred two (102) out of 229 training sessions were completed by the 12 training centers. A total of 1,860 technicians received training from the DSD and OVEC training centers. | World Bank |
| Legal/regulatory framework | Preparation of the notification to ban HCFC-141b is ongoing and planned to be enacted by the end of 2023, as per ExCom Decision 82/60(b)(ii) to prevent diversion and zero consumption of HCFC-141b in all applications. | World Bank |

Overview of current HCFC consumption in metric tonnes by substance (last three years)

| Substance | Sector | 2019 | 2020 | 2021 |
|-----------|-----------------------|----------|----------|----------|
| HCFC-22 | Manufacturing-REF | 120.36 | 34.18 | 34.18 |
| HCFC-22 | RAC servicing | 5,013.64 | 5,348.91 | 5,308.55 |
| HCFC-123 | Manufacturing-AC | 16.50 | 6.50 | 6.50 |
| HCFC-123 | RAC servicing | 120.00 | 35.00 | 112.50 |
| HCFC-141b | Manufacturing-Foam PU | 115.00 | 153.27 | 153.27 |
| HCFC-141b | Solvent | 429.00 | 388.91 | 194.00 |
| HCFC-227 | Solvent | 38.14 | 4.00 | - |

Based on the consumption data given above, please provide a description of the sector/sub-sector that use HCFCs in the country, including a short analysis and explanation of the consumption trends (i.e., increasing or decreasing)

HCFC consumption for manufacturing has dropped significantly after completion of Stage I which focused on the foam sector (except spray foam) consuming bulk HCFC-141b and the air-conditioning manufacturing sector. Remaining HCFC consumption for manufacturing is in the refrigeration sector and is expected to further drop as the sector started moving to HFCs, although it is believed that several companies using R-22 remain. Consumption of HCFC-141b in foam and solvent sectors have been on a decline with ongoing activities in spray foam and in part due to the signals received by the industry on the inevitable bans in 2023. The bulk of remaining HCFC consumption is HCFC-22 for the servicing sector as well as possibly up to the 12 small commercial refrigeration manufacturers identified in Stage II preparation.

| Description of information that needs to be gathered and updated. Explain why this has not been undertaken during preparation for the previous stage of the HPMP. | | |
|---|---|---------------|
| Information needed | Description | Agency |
| Updated data on HCFC consumption in manufacturing/servicing sector | To better assess the type/size of typical providers, nature of work and options/readiness for introduction of climate-friendly, potentially flammable replacements. To revisit the commercial refrigeration manufacturing sector where some remaining HCFC consumption may exist. | World Bank |
| Analysis of the types of equipment using HCFCs | To estimate needs for servicing tail after 2030 | World Bank |
| Updated sectoral consumption information | The Stage III HPMP will review and address the use of HCFCs in the solvents sector | World Bank |
| New information on ODS regulations | A review of existing rules, any updates and any need for updates or modifications | World Bank |
| Explore the need for continuity and further capacity strengthening for functional agencies in controlled substances management | To better manage the controlled substances by competent and functional agencies like customs, import-export management agencies and other relevant stakeholders | World Bank |
| Activities to be undertaken for project preparation and funding | | |
| Activity | Indicative funding (US \$) | Agency |
| Data updates, reconciliation, and analysis | 45,000 | World Bank |
| Technology and servicing needs assessment | 20,000 | World Bank |
| Stakeholder workshops (2) and consultations and associated travel | 15,000 | World Bank |
| Policy and institutional framework review, including aspects related to gender, and actions needed if any | 10,000 | World Bank |
| TOTAL | 90,000 | |
| How will activities related to implementation of the Kigali Amendment to phase down HFCs be considered during project preparation for stage III of the HPMP? | | |
| Efforts will be undertaken to coordinate activities in servicing subsectors such as air-conditioning and commercial refrigeration that may use both HCFCs and HFCs. During preparation, survey data from the KIP preparation will be compared to that collected/updated under the HPMP to better identify consumption and use patterns in the servicing sector of the different types of refrigerants as well as to assess and understand supply and distribution channels beginning with imports to end-users and service shops. Efforts will be made in training and awareness workshops and other events to provide consistent messaging on phaseout and phasedown requirements. | | |
| How will the Multilateral Fund gender policy be considered during project preparation? | | |
| In Stage III preparation, first an assessment will be made of how gender was addressed in Stage II, lessons learned and results if any given that the MLF policy was adopted after the Stage II project was prepared and launched. The data update and collection period will be an opportunity to establish the starting point for measuring progress in integrating gender considerations. A WB gender specialist will be included in the preparation team to determine how to integrate gender into the project in accordance with the WBG gender policy and that of the MLF and to work with the government on incorporating practicable measures and indicators into the project design. | | |

Annex 2-C: Request for project preparation for investment projects in commercial refrigeration sector for Thailand

A. PRP funding request for investment projects in commercial refrigeration

| 1. Agency: | | World Bank | | | |
|--|--------------------|---|---|------|---|
| 2. Sector: | | Refrigeration | | | |
| 3. HCFC consumption in item #2 reported under country programme data? | | <input type="checkbox"/> Yes, please specify reported amount and year: _____ <input checked="" type="checkbox"/> No The enterprises' HCFC consumption to be phased out will be determined during the preparation of the investment project. The country has been reporting HCFC consumption as servicing consumption absent of a detailed survey (to be done under the HPMP III overarching preparation support) | | | |
| 4. Does the enterprise commit to phase out the HCFC consumption associated with the proposed investment project, if approved by the Executive Committee? | | <input checked="" type="checkbox"/> Yes, please provide support letter _____ <input type="checkbox"/> No | | | |
| 5. If the project preparation is requested in advance of the HPMP, did the Government provide a written commitment that the consumption associated with these investment projects, once approved, will be deducted from the country's starting point, once established? | | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Investment project/sector plan will be submitted as part of the final Stage III HPMP. | | | |
| 6. Please explain briefly how the investment project would relate to the overarching strategy for the country, and when the final HPMP will be submitted | | Complete conversion of remaining manufacturing will allow Thailand to permanently ban all manufacturing and imports of HCFC-based products and assist it to slow demand for HCFC in servicing as it moves to complete phaseout. | | | |
| 7. Information on sector consumption (specify previous year HFC consumption) | | | | | |
| Substance | | | Consumption (metric tonnes) | | |
| Others, specify. | | | HCFC-22 TOTAL CONSUMPTION IN 2022: 4,100.55 MT | | |
| 8. Information on enterprise(s) for which funding is being sought | | | | | |
| Enterprise | Year established | HCFC consumption (metric tonnes) (last three years) | | | HCFC phase-out to be achieved (metric tonnes and CO ₂ -eq. tonnes) |
| | | 2020 | 2021 | 2022 | |
| Up to 12 SMEs* The combined R-22 consumption is expected to be low due to the size of these companies. | Prior to Sep. 2007 | TBD | TBD | TBD | TBD |

| 9. Activities to be undertaken for preparation of the investment project and funding requested | | |
|---|-------------------------------|----------------------------------|
| Activity | Indicative funding (US \$) | Bilateral/implementing agency |
| Prepare investment group conversion project for up to 12 enterprises manufacturing commercial refrigeration equipment to convert from HCFC-22 refrigerant to hydrocarbons | 80,000 | World Bank |
| TOTAL | 80,000 | |

*In the event that a lower number of enterprises are identified, preparation funding will be returned in accordance with Decision 56/16(f) on the funding scale for the number of enterprises in manufacturing.

Annex 3-A: Request for project preparation of energy efficiency project for Viet Nam

Title: Project preparation for enhancing energy efficiency in Viet Nam’s air-conditioning sector while transitioning to low-GWP alternative refrigerants.

Objective: Improve energy efficiency by 10 to 20% in split-type air-conditioning equipment in Viet Nam in parallel with complete HFC phaseout in the subsector.

Context: Room AC is also the top energy consuming equipment in the residential sector in Vietnam. Room AC, with an estimated stock of 16 million units in 2020, accounted for 30%. While energy consumption for ACs is high in the residential sector, it is even higher in the commercial and industrial sectors. AC systems consume 45% of total electricity used in office buildings, 41% of total electricity used in supermarkets, and 42% in hotels.

There are currently three air-conditioner manufacturers in Vietnam, including two multinational companies and one locally owned manufacturer. The local company, Nagakawa, restarts AC production in 2023 after a few years pause to modernize its factory to comply with new safety regulations. Nagakawa, however, can only make fixed speed R-32 models as it currently lacks capacity to make inverter units. Fixed-speed room AC is simple to design and manufacture because the marketplace is highly commoditized with components that are easy to obtain and integrate into an operational AC system. For inverter-based room AC systems it is necessary to integrate sensors, signal conditioning, analog-to-digital converters and computational programming into the electronic controllers for each model. In addition, the local companies cannot fix the inverter circuit board and can only replace with new one leading to growing problems of electronic waste. These barriers have entrenched local manufacturing in fixed speed AC production and further exacerbates competitiveness of local manufacturing, as witnessed particularly in Vietnam.

In Vietnam, the MEPS and labeling scheme are in place since 2011 and are mandatory for a range of products, including air conditioners. They include the comparative label (up to five stars) and endorsement label (which is recognition that the equipment has an EE level that reaches or exceeds the highest energy performance standard). Vietnam’s approach is considered “technology neutral,” in that it does not provide two sets of MEPS for fixed-speed and more efficient inverter AC. The MEPS for AC have been revised only once in 2015 though market data however shows that its current MEPS levels are low and not reflective of the actual market. The MEPS levels have not been updated in eight years and there is no strong legal basis for a continuous review and improvement, meaning there is no obligation nor resources for regulators to update MEPS levels.

Concept for Improving EE in Split-type Air-Conditioner: The proposal intends to introduce a dual approach of strengthening energy performance policy on split-type AC and technical and investment support to the Viet Nam-owned manufacturer to increase their production share of energy efficient units.

To scale up climate benefits possible, the proposed EE project would pursue the development and introduction of policy and standards to increase MEPS that promote uptake of inverter-based room AC and create the enabling environment for uptake of more efficient, greener technology thereby supporting Viet Nam-owned manufacturers. In order to understand how ambitious a minimum energy performance standard could be at the onset; the project would include a market assessment of the current average EE and refrigerant used of room AC marketed in Viet Nam. Moreover, the study would assess other opportunities for EE improvement in the context of HFC phasedown.

Project preparation support: Preparation will determine what is required to help Nagakawa design and service more efficient units while reducing electronic waste. Preparation work will also lead to an estimated amount of CO₂eq. in additional benefits that can be accrued. The actual target would be confirmed in

project implementation subsequent to 1) testing enterprise products and 2) assessing the average energy performance of split-type AC units in the Viet Nam market.

Preparation Budget for EE Improvement in Split-type AC

| Activity | Planned Budget (US\$) |
|--|------------------------------|
| Capacity needs assessment of Nagakawa and EE regulators (incl. travel) | 10,000 |
| Consultations with technology providers/suppliers in the Region (incl. travel) | 5,000 |
| Design and development of the proposal, including determination of source of technology and know-how | 15,000 |
| Total | 30,000 |

Annex 3-B: Request for the Development of Lifecycle Management Plan for Controlled Substances for Viet Nam

**MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL**

FUNDING REQUEST FOR THE PREPARATION OF NATIONAL INVENTORIES OF BANKS OF USED OR UNWANTED CONTROLLED SUBSTANCES AND A PLAN FOR THE COLLECTION, TRANSPORT AND DISPOSAL OF SUCH SUBSTANCES, INCLUDING CONSIDERATION OF RECYCLING, RECLAMATION AND COST-EFFECTIVE DESTRUCTION

Part I: Project information

| | |
|--|---|
| Project title: | Development of Lifecycle Management Plan for Controlled Substances |
| Country: | Viet Nam |
| Lead implementing agency: | World Bank |
| Meeting where request is being submitted | 93rd Meeting |
| Implementation period | 2025-2027 |
| Duration of implementation (i.e., time (in months)) from the approval of PRP to submission of the national inventory and action plan (please specify): 24 | |
| Funding requested: | |
| Agency | Funding requested (US \$)* |
| World Bank | 107,000 |

*Details should be consistent with information provided in the relevant sections below. Agency support costs included.

Part II: Prerequisites for submission

| Item | Yes | No |
|--|--------------------------|-------------------------------------|
| Official endorsement letter from Government, indicating roles of respective agencies (where more than one IA is involved), and that the national inventory/action plan will be completed within 24 months from the date of project approval | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Project included in the bilateral/IA business plan? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| If NO , please provide explanation: | | |
| <ul style="list-style-type: none"> • Endorsement letter will be provided by the week of October 30th (due to DCC travel for MP meetings) • The activity was not included in the 2024-2026 Business Plan as the KIP survey was just starting and it was not certain whether the activity was needed at that time (September 2022). | | |

Information required for PRP funding request for the national inventories of banks of used or unwanted controlled substances and a plan for the collection, transport and disposal of such substances, including consideration of recycling, reclamation and cost-effective destruction

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| Brief overview of the the concept, methodology and approach to be taken for the preparation of the national inventory and / or action plan and how it is linked to other activities in the country (i.e., national plans like the KIP), in particular those activities in the refrigeration servicing sector such as recovery, recycling, and reclamation programmes. |
| The project objective is to develop a life-cycle management plan for reducing demand for and emissions of Montreal Protocol controlled substances and which is financially self-sustaining over time. In order to understand the feasibility of such a plan, the following is needed: i) the amount and type of currently installed controlled substances (i.e. “banks”); ii) the existing flow of and market for refrigerants and fire suppression agents and available infrastructure for tracking, monitoring, recovering and storing these chemicals; iii) the existing regulatory framework and system related to trade in chemicals and to waste management as well as |

recovery and recycling of MP controlled substances; iv) models and lessons learned from other countries that have a life-cycle management approach, or elements of an approach in place; v) technical capacity to analyze content and quality of reclaimed materials and purity standards of reclaimed materials required/expected by the market and how to ensure these are achieved; and vi) demand for recovered, recycled controlled substances within Viet Nam and the Region.

After understanding the current situation, the proposed activity will analyze the information and data collected, including estimating future streams (amounts and types of substances) for recovery, reuse or destruction. One of the main objectives will be in fact, to quantify real and sustained reductions in CO₂eq. emissions that Viet Nam can claim in its NDC and other climate related strategies and carbon market objectives. Financial analysis, most critically the break-even cost for a viable, self-sustained scheme will be conducted. Design of a scheme, or business model, and required regulation, infrastructure and other investments to make it viable will be done in close consultation with the various stakeholders in the country as well as external players that have already some ideas and experience in the field. In the consultation process, business partnerships and public-private sector cooperation will be promoted. For the latter, linkages to implementation of related activities in the servicing sector under Viet Nam's Stage I KIP and HPMP III will be made as well as to build on/scale-up bilateral work with Japan on recovery and disposal. Recommendations will be formulated to assist the country and stakeholders to institute and implement the proposed life-cycle management plan, building on the country's current import/export/destruction system, and to scale-up recovery, recycling and reuse of controlled substances across MP sectors and possibly across countries.

Description of activities that will be implemented during the preparation of the national inventories/action plans of banks for used and/or unwanted controlled substances and an indication of the estimated costs for the activities described broken down per agency

| Activity | Description | Agency |
|----------------------------|--|------------|
| Data collection | Data collection will determine the installed stock of refrigeration and cooling equipment, including estimates on the amount and types of refrigerant used. The focus will be on larger units. Part of data collection will entail research of bankable management models in non-A5 and other A5 countries, and Viet Nam's existing regulatory framework and including the new regulation on ODS and GHG and rules to fulfil obligations under the chemicals conventions (Basel, etc.). The study will also investigate current in-country capacity to analyze quality of recovered and reclaimed materials. | World Bank |
| Stakeholder consultations | Consultations with importers of controlled substances, major equipment suppliers, associations, waste management and disposal operators, larger servicing shops and authorized dealers and regulators from ministries of industry, environment, energy and finance (Customs). Consultations with companies active in the Region that specialize in recovery, reclamation, disposal and tracing refrigerants and to the extent possible companies engaging in carbon market trading, will also be consulted. | World Bank |
| Analysis of data collected | Analysis of collected data and modelling of quantities of equipment and controlled substances that will be decommissioned, available for collection over time by type of substance. The focus will also be given to collection options to minimize transaction costs of the R&R and disposal scheme. The break-even cost of R&R and destruction will be | World Bank |

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| | calculated. Assessment of Viet Nam’s existing infrastructure and regulatory framework for lifecycle management of controlled substances will be undertaken, including any need for implementation rules of its new Decree No. 06/2022/ND-CP and other provisions of the Law on Environmental Protection. | |
| Preparation of inventory report/national plan | A lifecycle management plan for controlled substances will be developed to track and manage refrigerants and fire suppression agents from first import through recovery and disposal (including destruction). The starting point for the plan, namely the existing inventory of controlled substances will be described as well as the results of the analysis, financing scheme and additional requirements if any, and recommendations for implementation, including needed infrastructure, facilities and equipment, will be included. | World Bank |
| Funding for the activities described in 2 above | | |
| Activity | Indicative funding (US \$) | Agency |
| Data collection consulting firm | 45,000 | World Bank |
| In country stakeholder consultation | 15,000 | World Bank |
| Expert time for data analysis | 15,000 | World Bank |
| Expert time for designing a viable lifecycle management plan and sustainable business model | 20,000 | World Bank |
| Report preparation | 5,000 | World Bank |
| TOTAL | 100,000 | |
| How will the Multilateral Fund gender policy be considered during project preparation? | | |
| Relevant stakeholders will be sensitized on gender policy including that of the Multilateral Fund to the degree possible and as relevant. Efforts will be made to encourage female stakeholders to contribute to the inventory and design of the proposed scheme/action plan for managing refrigerants and fire suppression agents and other related controlled substances. To the extent relevant, gender-disaggregated data will be collected (in the consultations and discussions with waste operators for example). | | |

