UNITED
NATIONS

EP

United Nations
Environment
Programme

Distr.
GENERAL

UNEP/OzL.Pro/ExCom/93/38
20 November 2023

ORIGINAL: ENGLISH

EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
Ninety-third Meeting
Montreal, 15-19 December 2023
Items 9(c) and (d) of the provisional agenda[1]

WORLD BANK'S WORK PROGRAMME AMENDMENTS FOR 2023

[1] UNEP/OzL.Pro/ExCom/93/1

COMMENTS AND RECOMMENDATION OF THE FUND SECRETARIAT

1. The World Bank is requesting approval from the Executive Committee of US $550,000, plus agency support costs of US $38,500, for its 2023 work programme amendments listed in table 1. The submission is attached to the present document.

Table 1: World Bank's work programme amendments for 2023

Country	Activity/Project	Amount requested (US $)	Amount recommended (US $)
SECTION A: ACTIVITIES RECOMMENDED FOR BLANKET APPROVAL			
A1: Project preparation for HCFC phase-out management plans (HPMPs)			
Thailand	Preparation of an HPMP (stage III)	90,000	90,000
Thailand	Preparation of an HPMP investment project in the commercial refrigeration sector	80,000	80,000
	Subtotal for A1	170,000	170,000
	Agency support costs	11,900	11,900
	Total for A1	181,900	181,900
A2: Preparation of a national inventory of banks of used or unwanted controlled substances and a plan for the collection, transport, and disposal of such substances [2]			
Viet Nam	Preparation of a national inventory of banks of used or unwanted controlled substances and plan	100,000	100,000
	Subtotal for A2	100,000	100,000
	Agency support costs	7,000	7,000
	Total for A2	107,000	107,000
A3: Preparation of a pilot project to maintain and/or enhance the energy efficiency of replacement technologies and equipment in the context of HFC phase-down[3]			
Malaysia	Preparation for a pilot project to maintain and/or enhance energy efficiency in stand-alone commercial refrigeration	30,000	30,000
	Subtotal for A3	30,000	30,000
	Agency support costs	2,100	2,100
	Total for A3	32,100	32,100
SECTION B: ACTIVITIES RECOMMENDED FOR INDIVIDUAL CONSIDERATION			
B1: Project preparation for Kigali HFC implementation plans (KIPs)			
Thailand	Preparation of a KIP (stage I)	220,000	*
	Subtotal for B1	220,000	*
	Agency support costs B1	15,400	*
	Total for B1	235,400	*
B2: Preparation of a pilot project to maintain and/or enhance the energy efficiency of replacement technologies and equipment in the context of HFC phase-down			
Viet Nam	Preparation for a pilot project to maintain and/or enhance energy efficiency in the air-conditioning sector	30,000	*
	Subtotal for B2	30,000	*
	Agency support costs B2	2,100	*
	Total for B2	32,100	*
	Total for A1, A2, A3, B1, B2	550,000	300,000
	Agency support costs for A1, A2, A3, B1, B2	38,500	21,000
	Grand total	588,500	321,100

* Recommended for individual consideration

[2] Herein referred to as preparation of a national inventory of banks of used or unwanted controlled substances and plan

[3] Herein referred to as preparation for a pilot project to maintain and/or enhance energy efficiency

SECTION A: ACTIVITIES RECOMMENDED FOR BLANKET APPROVAL

A1: Project preparation for HCFC phase-out management plans

Project description

2. The World Bank submitted a request for the preparation of stage III of the HPMP and a request for the preparation of an investment project in the commercial refrigeration sector for Thailand as the designated implementing agency, as shown in section A1 of table 1.

3. The World Bank provided descriptions of the activities to support the request for project preparation for stage III of the HPMP, which included: justification for the requested project preparation funding; a progress report on the implementation of stage II of the HPMP; and the list of activities to be undertaken during project preparation and the corresponding budgets.

Secretariat's comments

4. In reviewing these requests, the Secretariat took into account the guidelines for funding the preparation of HPMPs for Article 5 countries contained in decision 71/42, the progress on stage II of the HPMP including the status of implementation of the tranches as at the preparation of the present document; and decision 84/46(e).[4] The Secretariat noted that the funding requested is in line with decision 71/42 and that the request is in accordance with decision 82/45 allowing submission of requests for project preparation for stage III two years before the end date of stage II of the HPMP.[5]

5. The Secretariat noted that the implementation of stage II of the HPMP for Thailand is progressing after some delays,[6] and that the second tranche was approved in 2022. The Secretariat further noted that Thailand is in compliance with the control targets under the Montreal Protocol and has reported annual HCFC consumption that does not exceed the annual maximum allowable consumption indicated in the Government of Thailand's Agreement with the Executive Committee; and that the World Bank has reported that the notification to ban HCFC-141b will be in place by the end of 2023. The World Bank confirmed that stage III of the HPMP for Thailand will phase out 100 per cent of the HCFC baseline by 1 January 2030.

6. The request for project preparation funding for the investment project would be for a commercial refrigeration sector plan to convert the remaining HCFC-based manufacturing in Thailand to hydrocarbon-based technology and would potentially include 12 small and medium-sized enterprises (SMEs) using HCFC-22. The World Bank confirmed that the investment project will be submitted as part of stage III of the HPMP for Thailand.

Secretariat's recommendations

7. The Secretariat recommends blanket approval for the project preparation for stage III of the HCFC phase-out management plan (HPMP), and the preparation of an HPMP investment project in the commercial refrigeration sector for Thailand, at the level of funding shown in section A1 of table 1.

[4] Inclusion of stage III of HPMPs in the business plan is allowed only for those countries with an approved stage II of HPMPs with reduction targets below the 2025 compliance targets.

[5] The last year for which a maximum allowable total consumption level has been specified in Appendix 2-A of the Agreement between the Government of Thailand and the Executive Committee for stage II of the HPMP is 2023.

[6] Stage II of the HPMP for Thailand for the period 2018 to 2023 to reduce HCFC consumption by 61.8 percent of the baseline, was approved at the 82nd meeting in the amount of US $3,791,077, plus agency support costs of US $265,375 for the World Bank;

A2: Preparation of a national inventory of banks of used or unwanted controlled substances and a plan for the collection, transport, and disposal of such substances

Project description

8. The World Bank submitted one request for the preparation of a national inventory of banks of used or unwanted controlled substances and plan for Viet Nam as designated implementing agency, as shown in section A2 of table 1.

Secretariat's comments

9. In reviewing the request, the Secretariat took into account the criteria for the preparation of a national inventory of banks of used or unwanted controlled substances and plan in decision 91/66 and the activities proposed for project preparation and their connection with the national phase-out/phase-down plans (i.e., HPMP or KIP) in the country. The Secretariat noted that the funding request is in line with decision 91/66, and that as designated implementing agency, the World Bank provided a description of the activities required for the preparation of a national plan and inventory of banks of used or unwanted controlled substances for Viet Nam using the relevant submission forms for project proposals.

10. The activities included the preparation of a lifecycle management plan for controlled substances to track and manage refrigerants and fire suppression agents from first import through recovery, disposal and destruction and a final report; stakeholder consultation and data collection; analysis of quantities of equipment and controlled substances that will be decommissioned; an analysis of options to minimize costs in the recycling, reclamation and disposal scheme; and gender considerations to encourage balanced gender participation in the project and to collect gender-disaggregated data where appropriate.

Secretariat's recommendation

11. The Secretariat recommends blanket approval for the preparation of a national inventory of banks of used or unwanted controlled substances and a plan for the collection, transport, and disposal of such substances for Viet Nam at the level of funding shown in section A2 of table 1.

A3: Preparation of a pilot project to maintain and/or enhance the energy efficiency of replacement technologies and equipment in the context of HFC phase-down

Project description

12. The World Bank submitted one request for the project preparation of a pilot project to maintain and/or enhance energy efficiency for Malaysia as designated implementing agency as shown in section A3 of table 1. The submission was made in line with decision 91/65.

13. The project preparation request is an addition to the proposed conversion of two small and medium-sized manufacturers of commercial refrigeration equipment from HFC-134a and R-404A to R-290 and R-600a technology, which is included in stage I of the KIP submitted to the present meeting. The proposed pilot project under decision 91/65 would focus on the energy efficiency improvements to be implemented during the conversions of these enterprises which would include switching from fixed speed compressor to variable speed inverter compressor technology; and would also explore the feasibility of designing and assembling HFC-free, inverter products rather than relying on market availability. The project's overall objective would be to strengthen the energy performance policy in Malaysia for stand-alone refrigeration equipment and to support Malaysian-owned manufacturers to increase their manufacturing share of energy-efficient units. The project preparation activities would include a capacity needs assessment of the two enterprises and energy efficiency regulators; consultations with technology suppliers in the region; and the design and development of a final project proposal, including determination of source of technology and expertise.

Secretariat's comments

14. The Secretariat has reviewed the project proposal according to the project criteria set out in decision 91/65 and noted that the proposed project preparation request would fall under paragraph (b)(i)a. for conversion projects to maintain and/or enhance energy efficiency while converting from HFCs in the manufacture of domestic refrigeration, stand-alone commercial refrigeration, residential and commercial air-conditioning and heat-pumps which would be considered in priority.

15. The Secretariat noted that the requested project preparation is linked to stage I of the KIP for the country which proposes the total phaseout of HFC-134a and R-404A in the manufacture of stand-alone commercial refrigeration units. The World Bank confirmed that the resulting project for the two enterprises included in stage I of the KIP would improve the energy performance of the stand-alone commercial refrigeration equipment manufactured by these enterprises and would lead to the development of enabling policies and standards in the country. The Secretariat also clarified whether this pilot project would be submitted for consideration before the conversion activities in those two enterprises start to ensure the coordinated implementation of activities, which the World Bank confirmed. The World Bank also confirmed that the requirements of paragraph b(iv) of decision 91/65 would be met by the resulting project.

Secretariat's recommendation

16. The Secretariat recommends blanket approval for the request for the preparation of a pilot project to enhance energy efficiency in the commercial refrigeration sector in Malaysia while transitioning to low-GWP alternative refrigerants at the level of funding shown in section A3 of table 1.

SECTION B: ACTIVITIES RECOMMENDED FOR INDIVIDUAL CONSIDERATION

B1: Project preparation for Kigali HFC implementation plans

Project description

17. The World Bank submitted a request for the preparation of stage I of the KIP for one country as designated implementing agency, as shown in section B1 of table 1.

18. The submission includes data on the consumption of HFCs and HFC blends for 2020 and a description of the activities required for the preparation of the overarching strategy for stage I of the KIP for Thailand. The project preparation activities included a nationwide survey and data collection on HFC consumption; analysis of the use of HFCs and alternatives and a survey of HFC-based equipment; policy and legislative reviews related to HFC phase-down; a legislative and regulatory review; and the development of an overarching HFC phase-down strategy.

19. The World Bank is submitting this request noting that the Government of Thailand had approved the ratification of the Kigali Amendment, but the instruments of ratification had not yet been deposited to the UN Depository.

Secretariat's comments

20. In reviewing this request, the Secretariat took into account the guidelines for the preparation of KIPs as contained in decision 87/50, the activities proposed for project preparation and their connection with enabling activities and other HFC-related projects in the country.

21. The World Bank, as the designated implementing agency, described the activities required for the preparation of the overarching strategy using the format for requests for project preparation for a KIP. The Secretariat noted that the country had provided an endorsement letter signifying their intention to take action on HFC phase-down; and that the funding requested is in accordance with decision 87/50(c).

22. The Secretariat further noted that while the Government of Thailand had approved the ratification of the Kigali Amendment and is completing the internal approval process for depositing the instrument of ratification to the UN Depository, which is expected before or at the time of the meeting of the Executive Committee, the ratification of the Kigali Amendment is a prerequisite for considering funding for the preparation of the KIP. The Secretariat therefore advised the World Bank that the request is being included for individual consideration on the basis that the ratification process may be completed prior to the meeting of the Executive Committee; however, if the instrument of ratification were not deposited by then, the request will be withdrawn and submitted to the next meeting. The World Bank agreed to this approach and assured that the ratification process will be completed by then.

Secretariat's recommendation

23. The Executive Committee may wish to consider approving the project preparation for the Kigali HFC implementation plan for Thailand, in the amount of US $220,000, plus agency support costs of US $15,400, on the condition that the official instrument of ratification had been deposited and received at the UN Depository signifying the country's ratification to the Kigali Amendment by the 93rd meeting of the Executive Committee.

B2: Preparation of a pilot project to maintain and/or enhance the energy efficiency of replacement technologies and equipment in the context of HFC phase-down

Project description

24. The World Bank submitted one request for the project preparation for a pilot project to maintain and/or enhance energy efficiency for Viet Nam as designated implementing agency as shown in section B2 of table 1. The submission was made in line with decision 91/65.

25. The project preparation request would assist one manufacturer (Nakagawa) of split-type air-conditioning equipment in incorporating a more energy-efficient design and would facilitate a revision of the current minimum energy standards in Viet Nam for inverter-based room air conditioners (ACs) which have been in place since 2011. The pilot project will include a market assessment of the current average energy efficiency and refrigerant used in room ACs marketed in Viet Nam. The aim of the preparation would be to determine the requirements for the design and servicing of more efficient units including the feasibility of switching from fixed speed HFC-32 models to inverter units; activities would include a capacity needs assessment of the enterprise and energy efficiency regulators; consultation with technology providers and development of the final project proposal, including determination of source of technology and expertise.

Secretariat's comments

26. The Secretariat has reviewed the project proposal according to the project criteria set out in decision 91/65 and noted that the proposed project preparation request would fall under paragraph (b)(i)a. for conversion projects to maintain and/or enhance energy efficiency while converting from HFCs in the manufacture of domestic refrigeration, stand-alone commercial refrigeration, residential and commercial air-conditioning and heat-pumps which would be considered in priority.

27. The Secretariat noted that Nakagawa had received funding as part of stage II of the HPMP to convert from HCFC-22 to HFC-32 for fixed speed ACs. While the resulting pilot project would improve the energy efficiency of the HFC-32-based equipment as it would move from fixed speed to variable speed ACs with inverter technology, the Secretariat noted that decision 91/65 specifically links these pilot projects for energy efficiency to the context of the HFC phase-down. The Secretariat expressed concern whether the enterprise is planning to convert to a non-HFC alternative because of this project noting that HFC-32 is the technology of choice for ACs both in Viet Nam and the region.

28. The World Bank, in noting the Secretariat's concerns, advised that the enterprise is currently not able to change to a non-HFC low-GWP refrigerant as they are a small manufacturer that needs to choose a mature technology that is technically and economically feasible and accessible. However, adoption of inverter-based ACs would set a firm foundation for the AC manufacturers in the country to improve the energy efficiency of their products now and for future conversion to low-GWP refrigerants. It was further noted that the broader objective of the resulting project would be the revisions to the country's minimum energy performance standards which would enhance and promote energy efficiency of ACs in the country. In this context, the World Bank emphasized that the request falls within the criteria in decision 91/65.

Secretariat's recommendation

29. The Executive Committee may wish to consider approving the request for the preparation of a pilot project to enhance energy efficiency in the air-conditioning sector in Viet Nam at the amount of US $30,000, plus agency support costs of US $2,100.

2023 BUSINESS PLAN
WORK PROGRAM

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 tCO_2 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 CO_2.
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 CO_2 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)	☒	☐
2. Ratification of the Kigali Amendment by Thailand	☐	☒
If **NO**, please provide explanation: • 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 ☐ stage I of the KIP			
Phase-out commitment (%)	**Freeze 10% reduction**	**Year of commitment**	**2024 2029**
☐ **Servicing only**		☐ **Manufacturing only**	☒ **Servicing and manufacturing**

2. Brief background/description/information on approved relevant projects and multi-year agreements as follows:

- 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)

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.

8. How will the Multilateral Fund gender policy be considered during project preparation?

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.

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)	☒	☐
4. Written confirmation – balances from previous PRP funding approved for stage I HPMP had been returned / will be returned (d**ecision 71/42(i)**)	☒	☐
• 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 ☐ stage II / ☒ stage III of the HPMP			
Phase-out commitment (%)	**100%** (with a servicing tail in line with the MP)	**Year of commitment**	2030
☒ **Servicing only**		☐ **Manufacturing only**	☐ **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?	☐ **Yes**, please specify reported amount and year: ☒ **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?	☒ **Yes**, please provide support letter ☐ **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?	☐ **Yes** ☒ **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	☐	☒
Project included in the bilateral/IA business plan?	☐	☒
If **NO**, please provide explanation: • 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

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

	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).