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执行蒙特利尔议定书
多边基金执行委员会
第八十次会议
2017 年 11 月 13 日至 17 日，蒙特利尔

2017 年世界银行工作方案修正案

基金秘书处的评论和建议

1. 世界银行请执行委员会核准表 1 所列 2017 年工作方案修正案的 820,000 美元外加机构支助费用 72,400 美元。来文附于本文件之后。

表 1：2017 年世界银行工作方案修正案

国家	活动/项目	申请数额（美元）	建议数额（美元）
A 节：建议个别审议的活动			
A1：扶持活动技术援助（第 79/46 号决定）			
马来西亚	逐步减少氢氟碳化合物的扶持活动	250 000	*
菲律宾	逐步减少氢氟碳化合物的扶持活动	250 000	*
泰国	逐步减少氢氟碳化合物的扶持活动	250 000	*
	A1 小计	750 000	*
	机构支助费用（项目编制占 9%）	67 500	*
	A1 共计	817 500	*
A2： 氢氟碳化合物相关项目的项目编制（第 78/3 号决定(g)段 和第 79/45 号决定）			
泰国	Pattana Intercool 和 System Forms 有限公司在商用制冷设备生产中实现从氢氟碳化合物向基于氢氟烯烃或其他低全球升温潜能值替代品转换的项目编制。	40 000	
	机构支助费用（项目编制占 7%）	2 800	
	A2 共计	42 800	
A3：副产品 HFC-23 减排或转换示范项目的项目编制（第 79/47 号决定）			
中国	山东东岳化工有限公司副产品 HFC-23 转换技术示范项目的项目编制	30 000	*
	机构支助费用（项目编制占 7%）	2 100	*
	A3 共计	32 100	*
	（A1、A2 和 A3）总计	892 400	*

* 供个别审议

A 节：建议分别考虑的活动

A1：扶持活动技术援助（第 79/46 号决定）

背景

2. 根据第 79/46 号决定，[1] 世界银行为在表 1 所列的三个第 5 条国家开展扶持活动提交了供资申请。详细提案载于世界银行提交文件的附件 2 至附件 4。

3. 这三个国家申请的扶持活动包括以下要素：

(a) 评估关于臭氧和气候保护的现有条例，以确定加强关于管制和监测氢氟碳化合物进口、出口和使用的现有政策和监管框架的备选方案；

(b) 审查和更新现有的臭氧消耗物质许可证和配额制度以涵盖氢氟碳化合物，并调整现有的海关编码协调制度，以跟踪氢氟碳化合物和氢氟碳化合物混合物的进出口；

(c) 探讨各国政府参与臭氧和气候保护事项的机构间协同作用，以协调它们作出的努力，从而管制和监测氢氟碳化合物，并向相关全球环境条约报告氢氟碳化合物的消费和排放情况；

(d) 审查臭氧消耗物质替代品的调查结果（菲律宾和泰国）或对氢氟碳化合物的消费情况开展调查（马来西亚），以分析和预测氢氟碳化合物的消费基准量，并汇编各行业的替代技术；以及

(e) 制定一份战略草案，强调逐步减少氢氟碳化合物的不同情景，以继续推进对《基加利修正案》的批准和遵守。

[1] 执行委员会决定，除其他外，核准这些扶持活动，依据是各国由此可以灵活地开展一系列活动，以履行其根据《基加利修正案》承担的初始义务；扶持活动可包括但不限于：促进和支持早日批准《基加利修正案》的活动；启动支持体制安排的活动；审查许可证制度的活动；报告氢氟碳化合物数据的活动；以及非投资活动的示范活动。

秘书处的评论

4. 为便于编制和提交扶持活动申请，秘书处为申请逐步减少氢氟碳化合物的扶持活动编写了指南，并在机构间协调会议上[2] 提供给各双边和执行机构。秘书处指出，世界银行提交的扶持活动申请遵循了这份指南。

5. 德国和意大利政府（作为双边机构）以及 4 个执行机构代表 59 个第 5 条国家，根据第 79/46 号决定全部提交了为扶持活动供资的申请。在该决定的(e)分段中，委员会决定，向第八十次会议提交的关于扶持活动的供资申请将会尽可能地得到满足，由来自非第 5 条缔约方提供额外的自愿捐款。为了促进委员会成员的审查和讨论，并且考虑到在第 79/46 号决定(e)段中商定的供资方式，秘书处在项目审查期间所查明问题概览文件中纳入了一份提交给第八十次会议的扶持活动申请清单，其中写明了供资水平和所涉机构。[3]

6. 秘书处审查了扶持活动的申请，并得出结论认为，这些申请都满足第 79/46 号决定中的所有要求，如下文所述：

(a) 世界银行提交了来自这三个第 5 条国家政府的支持意向书，指出它们有意向尽最大努力尽早批准《基加利修正案》；

(b) 三个项目提案包括对每项扶持活动、机构安排、成本分析和执行时间表的详细说明；

(c) 所有这些提案将在 18 个月内执行。

秘书处的建议

7. 执行委员会不妨在其对项目审查期间所查明问题概览文件中说明氢氟碳化合物相关项目提案进行讨论的情况下，考虑为在上文表 1 所列的三个第 5 条国家开展逐步减少氢氟碳化合物的扶持活动提出的申请。

A2： 氢氟碳化合物相关项目的项目编制（第 78/3 号决定(g)段和第 79/45 号决定）

项目说明

[2] 2017 年 9 月 5 日至 7 日，蒙特利尔。双边和执行机构对编写这份指南表示赞赏。

[3] UNEP/OzL.Pro/ExCom/80/22。

8. 世界银行提交了一份项目编制申请，以促进泰国的两家企业（上文表 1 所列 Pattana Intercool 和 System Forms）在制造商用制冷设备的过程中实现从氢氟碳化合物向低全球升温潜能值制冷剂的转换。项目编制申请的详情载于世界银行提交的文件的附件 5。

秘书处的评论

9. 德国政府（作为双边机构）和三个执行机构也提交了供资请求，目的是根据第 78/3 号决定[4] 和第 79/45 号决定，[5] 为 10 个第 5 条国家的消费行业编制逐步减少氢氟碳化合物的投资项目，并为阿根廷、[6] 孟加拉国、[7] 哥伦比亚[8]和墨西哥[9] 编制四个（妥善制定的）逐步减少 HFC-134a 的投资项目。执行委员会需要考虑提交至第八十次会议的所有氢氟碳化合物相关项目提案，并且注意到其选择标准（即提案提议使用的技术、可复制性和地域分配）和其供资方式（即在优先考虑扶持活动的前提下，尽可能利用由非第 5 条缔约方提供的额外自愿捐款进行供资[10]）。为促进委员会成员的审查和讨论，秘书处在项目审查期间所查明问题概览文件中纳入了一份提交至第八十次会议的所有氢氟碳化合物相关项目提案的清单，其中包括一份简要说明、选择的技术、供资水平和所涉机构。

10. 关于为在泰国开展两个逐步减少氢氟碳化合物项目提出的项目编制请求，秘书处注意到请求材料符合第 78/3 号决定和第 79/45 号决定的所有要求，并且符合有关项目编制供资的各项相关决定。

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[4] 执行委员会决定，除其它外，仅在制造行业考虑核准数量有限的氢氟碳化合物相关项目，以便允许委员会在可能与逐步减少氢氟碳化合物 s 相关的增量资本和业务费用方面获得经验，但必须基于如下条件：提交项目的任何国家都应当已经批准《基加利修正案》或已经提交正式信函，说明该国政府有意向批准该修正案；在将批准文书交存至纽约联合国总部之前，将不会提供进一步供资；且作为项目成果减少的任何氢氟碳化合物总量都将从起点扣除。

[5] 执行委员会，除其他外，重申了第 78/3 号决定(g)段，并决定了以下考虑氢氟碳化合物相关项目提案的标准：项目应当在决定转换成熟技术的个体企业开展，应当对国家、地区或行业具有广泛的可复制性，并且应当考虑到地域分配；项目必须在两年内得到充分执行；项目完成报告应当全面，包括关于合格增量资本费用、增量业务费用、转换过程中可能导致的任何节余和促进执行的相关因素的详细信息。

[6] UNEP/OzL.Pro/ExCom/80/30。

[7] UNEP/OzL.Pro/ExCom/80/32。

[8] UNEP/OzL.Pro/ExCom/80/38。

[9] UNEP/OL.Pro/ExCom/80/45。

[10] 第 79/45 号决定(d)段。

秘书处的建议

11. 执行委员会不妨在其对项目审查期间所查明问题概览文件中说明氢氟碳化合物相关项目提案进行讨论的情况下，考虑为上文表 1 所列的 Pattana Intercool 和 System Forms 有限公司在生产商用制冷设备的过程中实现从氢氟碳化合物向基于 HFO 或其他低全球升温潜能值替代品的转换提出的项目编制请求。

A3：副产品 HFC-23 减排或转换示范项目的项目编制（第 79/47 号决定）

项目说明

12. 根据第 79/47 号决定(g)段，[11] 世界银行提交了一份供资请求，请求为中国山东东岳化工有限公司副产品 HFC-23 的转换编制示范项目，如表 1 所列。项目编制请求的详情载于世界银行请求材料的附件 1。

秘书处的评论

13. 秘书处注意到，为副产品 HFC-23 转换的技术示范项目提出的项目编制请求符合关于项目编制供资的相关决定。

14. 秘书处要求提供进一步信息，说明转换规模、拟覆盖的生产线的数量以及估计的项目提案的全部费用；然而，世界银行指出，这些信息只有在编制示范项目的期间才能得知，最早可向第八十一次会议提交。

15. 秘书处正在向执行委员会寻求关于这一请求的供资来源的咨询意见，并注意到在第 79/47 号决定(g)段中，为 HFC-23 排放控制措施的示范项目提出的供资请求将提交至第八十一次会议，且由非第 5 条缔约方提供的额外自愿捐款首先用于（作为优先事项的）扶持项目，其次是消费行业中氢氟碳化合物相关的投资项目。

秘书处的建议

16. 鉴于秘书处的评论，执行委员会不妨考虑为中国山东东岳化工有限公司副产品 HFC-23 转换技术示范项目编制提出的供资请求。

[11] 执行委员会，除其它外，邀请各执行机构向第八十一次会议提交关于 HFC-23 副产品减排或转换技术的可行技术示范提案，以期以节约成本的、环境可持续的方式完成对 HFC-23 的转换。

2017 BUSINESS PLAN
WORK PROGRAM AMENDMENT

WORLD BANK IMPLEMENTED
MONTREAL PROTOCOL OPERATIONS

Presented to the
80th Meeting of the Executive Committee
of the Multilateral Fund

Revised
4 October 2017

WORK PROGRAM FOR

WORLD-BANK IMPLEMENTED MONTREAL PROTOCOL OPERATIONS

1. This proposed work program amendment for Bank-Implemented Montreal Protocol Operations is prepared on the basis of the 2017-2019 World Bank Business Plan which was approved by the Executive Committee at its 77th meeting.

2. The 2017-2019 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. 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. As part of the 2017-2019 Business Plan, the World Bank has submitted stage II of the HPMP for Argentina, China, Indonesia, Jordan, the Philippines, and Vietnam; and stage II of the HPPMP for China. Stage II of the HPMP for Thailand is being prepared and will be submitted in 2018.

4. In addition, this work program amendment includes activities for HFC-related projects in response to decisions undertaken at the 79th Meeting of the Executive Committee, in particular, decisions 79/45, 79/46, and 79/47.

2017 Work Program – ExCom 80 Amendment

5. The proposed 2017 Work Program Amendment being submitted for consideration at the 80th Meeting of the Executive Committee, includes funding requests for Agency Core Unit Costs, one preparation activity for feasible technology demonstration for HFC-23 by-product conversion technologies for China, one preparation activity for demonstration/stand-alone investment projects for commercial refrigerator manufacturers in Thailand, and three HFC enabling activities, outlined in Table 1 below. Explanation on the preparation activities and HFC enabling activities are described in annexes below.

Table 1: Funding Requests Submitted for Consideration by the 80th Meeting of the Executive Committee

Country	Request (US$)	Support Costs (US$)	Duration	Description	Supporting document
China	30,000	2,100	1 year	Preparation of technology demonstration project for HFC-23 by-product conversion at Shandong Dongyue Chemical Co. Ltd.	Annex 1
Malaysia	250,000	17,500	1.5 years	Enabling activities for HFC phase-down	Annex 2
Philippines	250,000	17,500	1.5 years	Enabling activities for HFC phase-down	Annex 3
Thailand	250,000	17,500	1.5 years	Enabling activities for HFC phase-down	Annex 4
Thailand	40,000	2,800	1 year	Project preparation for conversion from HFC to HFO-based or other low-GWP alternatives in the production of commercial refrigeration equipment at Pattana Intercool and System Forms Co., Ltd.	Annex 5
Global	0	1,735,000	1 year	Agency Core Unit Costs	
Total	**820,000**	**1,792,400**			

Annex 1: Request for project preparation for feasible technology demonstration of HFC-23 by-product conversion technologies at Shandong Dongyue Chemcial Co. Ltd for China

1. The Government of China has requested the Bank to prepare a technology demonstration of HFC-23 by-product conversion technology at Shandong Dongyue Chemical Co. Ltd. which is one of the largest HCFC-22 producers in China. This request is in response to Decision 79/47 inviting implementing agencies to submit to the 81st meeting proposals for feasible technology demonstration for HFC-23 by-product mitigation or conversion technologies with the potential for cost-effective, environmentally sustainable conversion of HFC-23.

2. Preparation activities will include technical assessment as well as financial analyses of various HFC-23 conversion technologies in comparison to HFC-23 destruction and by-product mitigation. The assessment will include review and evaluation of technical feasibility of various HFC-23 conversion technologies, determination of the capital cost of investment and recurrent costs (i.e., operating costs) of each option, and price and market for converted chemicals. Comparison of these costs for various technologies will be made in order to identify the most cost-effective option for the Multilateral Fund while taking into account specific needs of the enterprise.

3. The Bank is requesting $30,000 to prepare project proposal for submission to the 81st ExCom meeting. At the time of project submission to the 81st ExCom, the proposal will identify the selected HFC-23 conversion technology and provide information on the set up of the facility, costs, and HFC-23 conversion capacity.

4. The estimated breakdown of preparation cost is shown in table below.

ACTIVITIES	COST (US $)
International Expert	$20,000
International Travel	$8,500
Domestic Travel	$1,500
Total	$30,000

Annex 2: HFC Enabling Activities for Malaysia

Background

The Government of Malaysia is fully committed to the Montreal Protocol (MP) and the Climate Change Convention. It acceded to both the Vienna Convention for the Protection of the Ozone Layer and the Montreal Protocol on Substances that Deplete the Ozone Layer in August 1989. As of 1 January 2010, Malaysia has fulfilled its commitment to phase out consumption of all controlled substances with the exception of hydrochlorofluorocarbons (HCFCs).

Various chemical and physical properties of HFCs and other alternatives make them suitable refrigerants and blowing agents. They also have several other industrial application-friendly properties like superior solvent abilities for which they're extensively used in various applications like fire-extinguishers, aerosols etc.

Malaysia has not yet undertaken the non-ODS alternatives survey though it is expected their main HFC consumption will be used as refrigerants for air-conditioning and refrigeration systems. Malaysia has the highest percentage of car ownership among ASEAN countries. Almost all passenger cars and trucks are equipped with mobile air-conditioners where hydrofluorocarbons (HFC) is used as refrigerant. In addition, the market penetration of residential air-conditioners is also the highest among ASEAN countries. Currently, more than 90% of the households in Malaysia are installed with air-conditioners. Major refrigerants used in air-conditioners are either hydrochlorofluorocarbon (HCFC) or HFC. These refrigerants have global warming potential (GWP) more than thousand times of carbon dioxide. HFC phase-down which is the objective of the Kigali Amendment is therefore relevant to the future economic development of Malaysia.

Since Malaysia had not embarked in any HFC survey and the current import/export control system did not have any provisions for tracking the flow of each specific HFC, Malaysia is requesting an additional support for conducting HFC survey in accordance with decision 74/53. This activity will be done in parallel with the initial HFC enabling activities.

Objectives

The main objective for the proposed enabling activities is to enable Malaysia to proceed with the ratification of the Kigali Amendment and make recommendations for policy and regulatory actions that would enable Malaysia to be in compliance with the initial HFC phase-down obligations under the Amendment.

Proposed approach and activities

The proposed approach includes the following:

(i) An assessment of existing domestic regulations pertaining to the ozone and climate protection in order to identify potential options to strengthen existing policy and regulatory framework to effectively control and monitor import, export, and use of HFCs. One of the primary systems of controls on ODS is the Application Import Permit System (AP System), which is administered by the Ministry of International Trade and Industry (MITI). Since its introduction in 1994 under the Prohibition of Import (Amendment No. 4) Order, 1994 of the Customs Act, 1967, all importers of the listed ODS must obtain an import permit issued by MITI. The total quantity of any of these substances that can be imported in any year is set by MITI in consultation with DOE. The amount is reduced each year in line with the Montreal Protocol obligations.

(ii) Capacity building for DOE, MITI, Customs Deparment, and others in order to strengthen their capacity to extend existing licensing and quota systems for ozone depleting substances under the AP system to cover HFCs, and to adapt existing Harmonized System (HS) of Custom Codes for tracking import/export of HFCs and HFC blends.

(iii) Exploring synergy among various government agencies involved in ozone and climate protection

with an aim to coordinate their efforts to control and monitor HFCs and to report HFC consumption and emissions to the relevant global environmental treaties (i.e. UNFCCC and Montreal Protocol).

(iv) Conduct Malaysia HFC survey[12] and analyze to forecast the baseline HFC consumption level (average consumption between 2020 and 2022) and consumption beyond 2022 based on business as usual through intensive consultation with government, industry and NGOs. The HFC consumption projection would then be compared with the maximum level allowed by the Kigali Amendment. This would provide guidance for the Government of Malaysia with regard to timing and compliance concerns.

(v) Based on the forecasted baseline HFC consumption and use, a list of alternative technologies for respective sectors will be developed. Consultations with stakeholders to determine appropriate alternative technologies for the Malaysia context would be carried out. All alternative technologies that are currently commercially available as well as emerging technologies and expected timeframe for these technologies would become commercially available should be considered.

(vi) Develop a draft strategy highlighting different phase-down scenarios for Malaysia to proceed with ratification and to be in compliance with short-term, medium-term, and long-term commitments with the Kigali Amendment. The strategy should include recommendations for policy and regulatory actions to enable Malaysia to proceed with the ratification and those that would enable Malaysia to be in compliance with the Amendment. In addition, the strategy should provide comprehensive analyses for Malaysia's technology pathway for complying with the Amendment.

Impact on HCFC phase-out projects implementation

The implementation of the enabling activities would not delay implementation of HCFC phase-out projects in Malaysia.

[12] Separate funding requested in accordance with decision 74/53

Proposed activities, implementation plan, and budgets[13]

Activities	Responsible entity	Target group	Start date	Date of completion	Tentative Budget (US $)	Milestones	Expected outputs
1. National consultation workshop (Kick-off)	WB/NOU	Industry/ legislators	Jan-18	Jan-18	10,000	Workshop conducted – workshop summary report	Introduction to Kigali Amendment
2. Review existing regulations to control and monitor import and export of HFCs and HFC-blends	WB/NOU	Legislators	Feb-18	Jun-18	10,000	Report with recommendations	Revision of regulations to enable control and monitor import and export of HFCs and HFC-blends
3. Training workshops for customs officers/DIW/importers/exporters	NOU/ customs department	Industry/ legislators	Jan-19	Jun-19	30,000	Workshop conducted – workshop report	Capacity building of national stakeholders
4. Review ODS alternative survey, analysis and forecast baseline HFC consumption	WB/NOU	Industry/ legislators	Jul-18	Aug-18	20,000	Model for forecast HFC consumption	Improve capacity to analyse HFC phase-down scenarios
5. Industry consultation workshops	WB/NOU	Industry (MAC, domestic refrigerator, Residential AC, solvent, fire fighting)	Jul-18	Mar-19	50,000	Workshop conducted – workshop report	Identification of potential technology pathway for each sector
6. Review of lower-GWP alternatives in each sector including assessment of commercial availability of alternatives and components	WB/NOU	Industry	Jun-18	Dec-18	30,000	Technical reports for each sector	

[13] Indicative list and cost which can be subjected to change as deemed necessary

Activities	Responsible entity	Target group	Start date	Date of completion	Tentative Budget (US $)	Milestones	Expected outputs
7. Development of phase-down scenarios, technology pathway, and draft strategy	WB/NOU	Industry/ legislators	Jan-19	Apr-19	50,000	Draft strategy with recommendations for policy and regulatory actions to enable compliance	
8. National consultation workshop (draft strategy)	WB/NOU	Industry/ legislators	Mar-19	Apr-19	10,000	Workshop conducted – workshop summary report	
9. Information dissemination on the Kigali Amendment	NOU	Public/ industry / legislators	Apr-19	May-19	10,000		Information package
10. Public consultation for ratification of Kigali Amendment	NOU	Public/ industry / legislators	Apr-19	May-19	20,000	National consultation report	Initial process before ratification of Kigali Amendment
11. National consultation workshop (ratification)	NOU	Parliament/ legislators	May-19	Jun-19	10,000		Support by members of Parliament on the ratification bill
Total					250,000		

Institutional arrangements

Brief background of relevant agencies that will be involved in HFC enabling activities is summarized as follow:

1) Malaysia established the Ozone Protection Unit within the Department of Environment (DOE) to respond to mandates of the Montreal Protocol. The Ozone Protection Unit (OPU) within the Air Division of the Department of Environment, plays a lead role in the Government's sustained efforts to phase-out ODS in the country.
2) The OPU is also the Secretariat to the National Steering Committee (NSC) for the Protection of Ozone Layer that serves as an advisory body to the Government to provide strategic and policy guidance for implementation of the Montreal Protocol. The Chair of the NSC is the Secretary General of the Ministry of Natural Resources and Environment. There are various working groups for the implementation of Montreal Protocol in Malaysia and the OPU acts as their coordinating body.
3) Ministry of International Trade and Industry (MITI) administers the Application Import Permit System (AP System) which is one of the primary systems of controls on ODS. MITI, in consultation with DOW, set the import quota of ODS that can be imported in any year. The amount is reduced each year in line with the Montreal Protocol obligations.

Annex 3: HFC Enabling Activities for Philippines

Background

The Philippines is fully committed to the Montreal Protocol (MP). It signed the Protocol on September 14, 1988 and ratified both the Vienna Convention for the Protection of the Ozone Layer and the Montreal Protocol on Substances that Deplete the Ozone Layer in July 1991. As of 1 January 2010, the Philippines has fulfilled its commitment to phase out consumption of all controlled substances with the exception of hydrochlorofluorocarbons (HCFCs).

Various chemical and physical properties of HFCs and other alternatives make them suitable refrigerants and blowing agents. They also have several other industrial application-friendly properties like superior solvent abilities for which they're extensively used in various applications like fire-extinguishers, aerosols etc.

The main consumption of HFCs in the Philippines has been observed in the refrigeration and air-conditioning applications such as: unitary air-conditioning, chiller, domestic refrigerator, commercial and industrial refrigeration, transportation refrigeration. There are also HFC consumption in other sectors including: aerosol, fire fighting, foam, and solvent.

Preliminary results of ODS alternatives survey shows major import of HFCs in 2015 as summarized in table below.

HFC	Import (mt)
HFC-134a	1,064
R-410A	312
R-404A	170
R-507	30
R-407C	27
HFC-236fa	24
Other HFCs[14]	12
Total	1,639

Objectives

The main objective for the proposed enabling activities is to enable Philippines to proceed with the ratification of the Kigali Amendment and make recommendations for policy and regulatory actions that would enable Philippines to be in compliance with the initial HFC phase-down obligations under the Amendment.

Proposed approach and activities

The proposed approach includes the following:

(i) An assessment of existing domestic regulations pertaining to the ozone and climate protection in order to identify potential options to strengthen existing policy and regulatory framework to effectively control and monitor import, export, and use of HFCs. These regulations include: the Republic Act #6969, known as the "Toxic Substances and Hazardous and Nuclear Wastes Control Act of 1990" regulates, restricts, or prohibits the importation, manufacture, processing, sale, distribution, use, and disposal of chemical substances and mixtures that present unreasonable risk and/or injury to health or the environment; Chemical Control Orders (CCO); and Memorandum Circular No. 2005-03.

(ii) Capacity building for DENR-EMB, POD, BOC, and others in order to strengthen their capacity

[14] Include HFCs and HFC-blends with quantity less than 20 MT.

to extend existing licensing and quota systems for ozone depleting substances to cover HFCs, and to adapt existing Harmonized System (HS) of Custom Codes for tracking import/export of HFCs and HFC blends.

(iii) Exploring synergy among various government agencies involved in ozone and climate protection with an aim to coordinate their efforts to control and monitor HFCs and to report HFC consumption and emissions to the relevant global environmental treaties (i.e. UNFCCC and Montreal Protocol).

(iv) Review Philippines ODS alternatives survey and analyze to forecast the baseline HFC consumption level (average consumption between 2020 and 2022) and consumption beyond 2022 based on business as usual through intensive consultation with government, industry and NGOs. The HFC consumption projection would then be compared with the maximum level allowed by the Kigali Amendment. This would provide guidance for the Government of Philippines with regard to timing and compliance concerns.

(v) Based on the forecasted baseline HFC consumption and use, a list of alternative technologies for respective sectors will be developed. Consultations with stakeholders to determine appropriate alternative technologies for the Philippines context would be carried out. All alternative technologies that are currently commercially available as well as emerging technologies and expected timeframe for these technologies would become commercially available should be considered.

(vi) Develop a draft strategy highlighting different phase-down scenarios for Philippines to proceed with ratification and to be in compliance with short-term, medium-term, and long-term commitments with the Kigali Amendment. The strategy should include recommendations for policy and regulatory actions to enable Philippines to proceed with the ratification and those that would enable Philippines to be in compliance with the Amendment. In addition, the strategy should provide comprehensive analyses for Philippines' technology pathway for complying with the Amendment.

Impact on HCFC phase-out projects implementation

The implementation of the enabling activities is not expected to delay implementation of stage II of the HCFC phase-out management plan in Philippines[15].

[15] Stage II HPMP of Philippines is being considered at the 80th ExCom.

Proposed activities, implementation plan, and budgets[16]

Activities	Responsible entity	Target group	Start date	Date of completion	Tentative Budget (US $)	Milestones	Expected outputs
12. National consultation workshop (Kick-off)	WB/NOU	Industry/ legislators	Jan-18	Jan-18	10,000	Workshop conducted – workshop summary report	Introduction to Kigali Amendment
13. Review existing regulations to control and monitor import and export of HFCs and HFC-blends	WB/NOU	Legislators	Feb-18	Jun-18	10,000	Report with recommendations	Revision of regulations to enable control and monitor import and export of HFCs and HFC-blends
14. Training workshops for customs officers/DIW/importers/exporters	NOU/ customs department	Industry/ legislators	Jan-19	Jun-19	30,000	Workshop conducted – workshop report	Capacity building of national stakeholders
15. Review ODS alternative survey, analysis and forecast baseline HFC consumption	WB/NOU	Industry/ legislators	Jul-18	Aug-18	20,000	Model for forecast HFC consumption	Improve capacity to analyse HFC phase-down scenarios
16. Industry consultation workshops	WB/NOU	Industry (MAC, domestic refrigerator, Residential AC, solvent, fire fighting)	Jul-18	Mar-19	50,000	Workshop conducted – workshop report	Identification of potential technology pathway for each sector
17. Review of lower-GWP alternatives in each sector including assessment of commercial availability of alternatives and components	WB/NOU	Industry	Jun-18	Dec-18	30,000	Technical reports for each sector	

[16] Indicative list and cost which can be subjected to change as deemed necessary

Activities	Responsible entity	Target group	Start date	Date of completion	Tentative Budget (US $)	Milestones	Expected outputs
18. Development of phase-down scenarios, technology pathway, and draft strategy	WB/NOU	Industry/ legislators	Jan-19	Apr-19	50,000	Draft strategy with recommendations for policy and regulatory actions to enable compliance	
19. National consultation workshop (draft strategy)	WB/NOU	Industry/ legislators	Mar-19	Apr-19	10,000	Workshop conducted – workshop summary report	
20. Information dissemination on the Kigali Amendment	NOU	Public/ industry / legislators	Apr-19	May-19	10,000		Information package
21. Public consultation for ratification of Kigali Amendment	NOU	Public/ industry / legislators	Apr-19	May-19	20,000	National consultation report	Initial process before ratification of Kigali Amendment
22. National consultation workshop (ratification)	NOU	Senate/Office of the President	May-19	Jun-19	10,000		Support by members of Senate and Office of the President on the ratification bill
Total					250,000		

Institutional arrangements

Brief background of relevant agencies that will be involved in HFC enabling activities is summarized as follow:

1) **Environmental Management Bureau (EMB):** the **Department of the Environment and Natural Resources (DENR)' EMB** acts as the focal point for the implementation of the Montreal Protocol in the Philippines. Under Department Administrative Order No. 2003-43, the **Philippine Ozone Desk (POD)** was created in 1994 to facilitate and coordinate ODS phase-out projects and policies for overall implementation of Montreal Protocol obligations.
2) **Project Management Unit (PMU):** PMU was also created in 2014 to spearhead HCFC phase-out activities and to carry out the work programs of HPMP Stage I and its subsequent implementation. The HPMP-PMU remains as the focal office in the preparation and implementation of HPMP Stage II and ensures proper coordination with all concerned stakeholders including donor agencies.
3) **Bureau of Customs (BOC)**: BOC is responsible for implement/enforce relevant rules and regulations related to the import, export, transport, processing, storage, possession or sale of ODS and its alternatives. BOC designated the Environmental Protection Unit (EPU) under the Office of the Deputy Commissioner for Intelligence and Enforcement Group (IEG) to be in-charge in the implementation of the agreement and act as the official liaison to DENR-EMB through the POD.
4) Other actors taking part in the institutional framework for Montreal Protocol implementation are DENR-EMB and its Regional Offices, Department of Trade and Industry (DTI) and its Fair Trade Enforcement Bureau, Technical Education and Skills Development Authority (TESDA) at the Department of Labor and Employment, and Local Government Units-LGUs under the Department of Interior and Local Government and its Business Permits and Licensing Offices.

Annex 4: HFC Enabling Activities for Thailand

Background

The Government of Thailand is fully committed to the Montreal Protocol and the Climate Change Convention. In particular, substances controlled by the Montreal Protocol are widely used as refrigerants for air-conditioning and refrigeration systems. Thailand is one of the largest manufacturing hubs in Southeast Asia given its central location and market access for the 600-million consumers in the ASEAN Economic Community (AEC) and supported by relatively good infrastructure and business environment. Thailand is the second largest residential air-conditioning manufacturing base in East Asia with annual output of 17 million units in 2016. Major refrigerants used in air-conditioners are either hydrochlorofluorocarbon (HCFC) or hydrofluorocarbon (HFC). Its automotive industry is the largest in Southeast Asia and 12th largest in the world with an annual output of nearly 2 million vehicles in 2015. Almost all passenger cars and trucks are equipped with mobile air-conditioners where HFC is used as refrigerant. Thailand also produces 5-6 million units of domestic refrigerator of which about 2 million units were sold in domestic market and the rest in export markets. These refrigerants have global warming potential (GWP) more than thousand times of carbon dioxide. HFC phase-down which is the objective of the Kigali Amendment is therefore relevant to the future economic development of Thailand.

Preliminary results of ODS alternatives survey shows major import of HFCs in 2015 as summarized in table below.

HFC	Import (mt)
R-410A	9,289
HFC-134a	4,505
HFC-32	1,148
R-404A	347
HFC-152a	112
R-407C	111
Other HFCs[17]	155
Total	15,667

Objectives

The main objective for the proposed enabling activities is to enable Thailand to proceed with the ratification of the Kigali Amendment and make recommendations for policy and regulatory actions that would enable Thailand to be in compliance with the initial HFC phase-down obligations under the Amendment.

Proposed approach and activities

The proposed approach includes the following:

(i) An assessment of existing domestic regulations pertaining to the ozone and climate protection in order to identify potential options to strengthen existing policy and regulatory framework to effectively control and monitor import, export, and use of HFCs.

(ii) Capacity building for Department of Industrial Works, Customs Department, and others in order to strengthen their capacity to extend existing licensing and quota systems for ozone depleting substances to cover HFCs, and to adapt existing Harmonized System (HS) of Custom Codes for

[17] Include HFCs and HFC-blends with quantity less than 100 MT.

tracking import/export of HFCs and HFC blends.

(iii) Exploring synergy among various government agencies involved in ozone and climate protection with an aim to coordinate their efforts to control and monitor HFCs and to report HFC consumption and emissions to the relevant global environmental treaties (i.e. UNFCCC and Montreal Protocol).

(iv) Review Thailand ODS alternatives survey and analyze to forecast the baseline HFC consumption level (average consumption between 2020 and 2022) and consumption beyond 2022 based on business as usual through intensive consultation with government, industry and NGOs. The HFC consumption projection would then be compared with the maximum level allowed by the Kigali Amendment. This would provide guidance for the Government of Thailand with regard to timing and compliance concerns.

(v) Based on the forecasted baseline HFC consumption and use, a list of alternative technologies for respective sectors will be developed. Consultations with stakeholders to determine appropriate alternative technologies for the Thailand context would be carried out. All alternative technologies that are currently commercially available as well as emerging technologies and expected timeframe for these technologies would become commercially available should be considered.

(vi) Develop a draft strategy highlighting different phase-down scenarios for Thailand to proceed with ratification and to be in compliance with short-term, medium-term, and long-term commitments with the Kigali Amendment. The strategy should include recommendations for policy and regulatory actions to enable Thailand to proceed with the ratification and those that would enable Thailand to be in compliance with the Amendment. In addition, the strategy should provide comprehensive analyses for Thailand's technology pathway for complying with the Amendment.

Impact on HCFC phase-out projects implementation

The implementation of the enabling activities would not delay implementation of HCFC phase-out projects in Thailand.

Proposed activities, implementation plan, and budgets[18]

Activities	Responsible entity	Target group	Start date	Date of completion	Tentative Budget (US $)	Milestones	Expected outputs
1. National consultation workshop (Kick-off)	WB/NOU	Industry/ legislators	Jan-18	Jan-18	10,000	Workshop conducted – workshop summary report	Introduction to Kigali Amendment
2. Review existing regulations to control and monitor import and export of HFCs and HFC-blends	WB/NOU	Legislators	Feb-18	Jun-18	10,000	Report with recommendations	Revision of regulations to enable control and monitor import and export of HFCs and HFC-blends
3. Training workshops for customs officers/DIW/importers/exporters	NOU/ customs department	Industry/ legislators	Jan-19	Jun-19	30,000	Workshop conducted – workshop report	Capacity building of national stakeholders
4. Review ODS alternative survey, analysis and forecast baseline HFC consumption	WB/NOU	Industry/ legislators	Jul-18	Aug-18	20,000	Model for forecast HFC consumption	Improve capacity to analyse HFC phase-down scenarios
5. Industry consultation workshops	WB/NOU	Industry (MAC, domestic refrigerator, Residential AC, solvent, fire fighting)	Jul-18	Mar-19	50,000	Workshop conducted – workshop report	Identification of potential technology pathway for each sector
6. Review of lower-GWP alternatives in each sector including assessment of commercial availability of alternatives and components	WB/NOU	Industry	Jun-18	Dec-18	30,000	Technical reports for each sector	

[18] Indicative list and cost which can be subjected to change as deemed necessary

Activities	Responsible entity	Target group	Start date	Date of completion	Tentative Budget (US $)	Milestones	Expected outputs
7. Development of phase-down scenarios, technology pathway, and draft strategy	WB/NOU	Industry/ legislators	Jan-19	Apr-19	50,000	Draft strategy with recommendations for policy and regulatory actions to enable compliance	
8. National consultation workshop (draft strategy)	WB/NOU	Industry/ legislators	Mar-19	Apr-19	10,000	Workshop conducted – workshop summary report	
9. Information dissemination on the Kigali Amendment	NOU	Public/ industry / legislators	Apr-19	May-19	10,000		Information package
10. Public consultation for ratification of Kigali Amendment	NOU	Public/ industry / legislators	Apr-19	May-19	20,000	National consultation report	Initial process before ratification of Kigali Amendment
11. National consultation workshop (ratification)	NOU	Parliament/ legislators	May-19	Jun-19	10,000		Support by members of Parliament on the ratification bill
Total					250,000		

Institutional arrangements

Brief background of relevant agencies that will be involved in HFC enabling activities is summarized as follow:

5) **Ministry of Finance (MOF):** MOF is the designated focal point for World Bank projects in Thailand. All grant agreements between Thailand and the World Bank are signed by MOF on behalf of Thailand. Moreover, the Customs Department under the MOF has a vital role in monitoring imports and exports of HCFC. The Customs Department has worked with the Department of Industrial Works for more than a decade in controlling imports and exports of CFCs. It has recently extended its cooperation with the Department of Industrial Works to cover imports and exports of HCFCs.
6) **Ministry of Industry (MOI):** MOI is the designated agency for the implementation of the Montreal Protocol. It is also in charge of the development and implementation of national industrial policies and regulations including the Hazardous Substances Act and the Factory Act. These framework laws are employed for controlling import, transport, storage, use, and final disposal of ODS.
7) Department of Industrial Works (DIW): MOI has appointed DIW to serve as the national focal point for the implementation of the Montreal Protocol. DIW is tasked with enforcement of the Hazardous Substances and Factory Acts. DIW houses the key units including NOU and the PMU which are responsible for the implementation of MLF funded activities.
8) **Treaties and International Strategies Bureau (TISB):** TISB is a bureau under DIW with a mandate for developing industrial strategies in relation to global environment treaties. Its responsibilities under the project include: determining overall annual import quotas of HCFCs, verifying annual HCFC consumption, reconciling import data from the Customs Department and data recorded by the Hazardous Substances Control Bureau (HSCB) and other activities required by the Montreal Protocol. TISB will be supported by the National Ozone Unit, which has been funded by the MLF for the last 21 years, and DIW-PMU.
9) **Hazardous Substances Control Bureau (HSCB):** HSCB is a bureau under DIW, which has the legal mandate to issue import permits for all hazardous substances. For HCFC control, HSCB is responsible for allocating the overall annual import quotas as determined by TISB to each importer and for issuing import/export permits to eligible importers/exporters. HSCB will also be in charge of monitoring actual imports/exports made by importers/exporters and recording the actual import/export quantities reported by all importers/exporters. The data collected by HSCB and import records maintained by Customs Department will be used by TISB to conduct independent verification of annual consumption as required by the agreement between the Executive Committee of the Multilateral Fund.
10) National Ozone Unit (NOU): The NOU was established in 1992 within DIW. Its main responsibility is to ensure Thailand's compliance with its obligations under the Montreal Protocol especially monitoring import/export of ODSs, implementing import quota system of ODSs and liaising with other government agencies including the Customs Department to ensure the effective control of the borders to preempt any illegal shipments of ODS in and out of the country. Moreover, the NOU is also tasked to comply with Article 7 data reporting requirements and submit Progress Reports on the

Implementation of the Country Program on an annual basis, carry out public awareness activities, information exchange with stakeholders in the country, including both public and private sectors, and stakeholders in other Article 5 countries within the region and participate in all international meetings related to the Montreal Protocol.

11) **DIW Project Management Unit (DIW-PMU):** The DIW-PMU will be responsible for day to day operations including overseeing the implementation of technical assistance activities DIW-PMU will review and determine the eligibility of the enterprise for sub-project financing following criteria established by the MLF and agreed to by the Bank and provide advice to beneficiary enterprises in preparing their subproject proposals. In addition, DIW-PMU will assist DIW in putting into place both overarching regulations and sector specific regulations and policies and engaging with the Foam Association and Air-Conditioning and Refrigeration Industry Club of the Federation of Thai Industries to ensure full cooperation of the industry in reducing its consumption of HCFCs and inform the industry of financial and technical assistance available from the Project. DIW-PMU will also be responsible for reporting requirements as detailed in the Project Implementation Manual.

12) **Customs Department:** Customs Department is responsible to check import of any banned substances into the country and keep a track of all controlled substances as notified by the government entered through or departed from port or check point. In order to proceed with import/export clearance, the importer/exporter is required to furnish Customs Department with the original import/export permit and approved import/export declaration form from DIW.

Annex 5: Request for project preparation for conversion of HFC to lower-GWP refrigerant at Pattna Intercool and System Forms.

1. The Government of Thailand has requested the Bank to prepare an investment project for conversion from HFC to HFO-based alternatives in the manufacturing of commercial refrigeration equipment at Pattana Intercool Co., Ltd. And System Forms Co., Ltd. in response to Decision 79/45.
2. Pattana Intercool and System forms are manufacturers of commercial refrigeration equipment for restaurants, supermarkets, convenience stores, etc. They produce a variety of commercial refrigeration equipment for low and medium temperature applications. The two companies consumed approximately 35 MT of HFC-134a and small quantity of R-404A and R-507.
3. The Bank is requesting $40,000 to prepare project proposal for submission to the 81st ExCom meeting. At the time of project submission, the proposal will identify the selected mature technology and confirm the quantities of HFCs that will be phased out.
4. The estimated breakdown of preparation cost is shown in table below.

ACTIVITIES	COST (US $)
International Expert	$22,000
National Consultant	5,000
International Travel	$10,000
Domestic Travel	$3,000
Total	$40,000