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EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
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Item 9(d) of the provisional agenda¹

PROJECT PROPOSAL: EGYPT

This document consists of the comments and recommendation of the Secretariat on the following project proposal:

Technical assistance

- Pilot project to maintain and/or enhance the energy efficiency of replacement technologies and equipment in the context of HFC phase-down in Egypt: energy efficiency project in the refrigeration and air-conditioning sector

UNIDO

¹ UNEP/OzL.Pro/ExCom/93/1

Pre-session documents of the Executive Committee of the Multilateral Fund for the Implementation of the Montreal Protocol are without prejudice to any decision that the Executive Committee might take following issuance of the document.

PROJECT EVALUATION SHEET – NON-MULTI-YEAR PROJECT**EGYPT****PROJECT TITLE****BILATERAL/IMPLEMENTING AGENCY**

(a) Energy efficiency pilot project in the refrigeration and air-conditioning sector in Egypt to maintain and/or enhance the energy efficiency of replacement technologies and equipment in the context of HFC phase-down	UNIDO
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PROJECT OBJECTIVE

Upgrade and strengthen three testing laboratories and implement the minimum energy performance standards and equipment labelling.

NATIONAL CO-ORDINATING AGENCY

National ozone unit

LATEST ARTICLE 7 DATA (Annex F)

Year: 2022

n/a*

n/a*

Particular	Non-investment activities
	Units
HFC used by the servicing sector	n/a*
Project duration (months):	36
Initial amount requested (US \$):	395,900
Final project costs (US \$):	285,000
Requested grant (US \$):	285,000
Implementing agency support cost (US \$):	19,950
Total cost of project to Multilateral Fund (US \$):	304,950
Energy efficiency savings (US \$/kWh):	n/a
Status of counterpart funding (Y/N):	Y
Project monitoring milestones included (Y/N):	Y
Minimum energy performance standards available for the relevant sector (Y/N):	Y

SECRETARIAT'S RECOMMENDATION

Individual consideration

* Egypt ratified the Kigali Amendment on 22 August 2023. Data on HFC consumption was not yet available at the time of finalization of the present document.

PROJECT DESCRIPTION

Background

1. On behalf of the Government of Egypt, UNIDO submitted, in line with decision 91/65, a request for technical assistance to establish a testing laboratory to support the implementation and update of minimum energy performance standards (MEPS) and equipment labelling in the country, for maintaining and/or enhancing the energy efficiency of replacement technologies and equipment in the context of HFC phase-down, in the amount of US \$395,900, plus agency support costs of US \$35,631, as originally submitted.² The submission includes a description of specific activities, targets, and performance indicators and an implementation plan for 2023 to 2024.

Status of implementation of energy efficiency-related activities funded by the Multilateral Fund

2. At the 81st meeting, Egypt received funding for the implementation of enabling activities for HFC phase-down (US \$250,000) for implementation jointly by UNIDO and UNEP, which was completed in June 2022. The report of the enabling activities submitted noted that the project had raised awareness on the Kigali Amendment which led to its ratification. The following were also achieved: aligned ozone and climate activities to facilitate the phase-down of HFCs, upgraded the licensing system to include HFCs and established an operational electronic system to monitor HFC imports, and conducted a detailed HFC survey for industrial applications and the mobile air-conditioning (MAC) sector. The enabling activities project also strengthened the partnership with the Ministry of Energy, Climate Change Department to identify the linkage between the HFC phase-down and energy efficiency, and it was agreed that the national ozone unit (NOU) will work with the Egyptian General Organization for Standardization and Quality to implement the MEPS for refrigeration and air-conditioning (RAC) equipment.

Report on HFC consumption

3. As of the time of finalization of the present document, the country had not yet reported HFC consumption under Article 7 of the Montreal Protocol or under its country programme implementation report, as the country had only ratified the Kigali Amendment on 22 August 2023. The HFC baseline has not yet been established for the country.

Policy, regulatory and institutional framework

4. Stage II of the HPMP for Egypt is under implementation with UNIDO as the lead agency working in coordination with the NOU and other Government agencies, such as the national customs authority and the Egyptian Environmental Affairs Agency (EEAA). Cooperating agencies include UNDP, UNEP, and the Government of Germany. The HCFC licensing and quota system came into force in 2013. The country has not yet received project preparation funding for the development of a Kigali HFC implementation plan (KIP) as it has only recently ratified the Kigali Amendment; a request for the preparation of the KIP is expected soon thereafter.

5. The Government of Egypt has adopted its second National Energy Efficiency Action Plan (NEEAP), which included a target to reduce Egypt's energy consumption 18 per cent by 2030. The NEEAP also addressed the importance of standards and labelling as a measure to improve energy efficiency in the country. The Ministry of Electricity and Renewable Energy (MERE) is in charge of managing and regulating the generation, transmission, and distribution of electricity in the country. Energy efficiency activities are implemented in coordination with the MERE, the Egyptian Organization for Standardization (EOS), New and Renewable Energy Authority (NREA), and the NOU. The EOS is responsible for the

² As per the letter of 5 September 2023 from the Ministry of Environment of Egypt to UNIDO.

preparation and issuance of all standards through technical committees and experts and inspects locally manufactured appliances together with the Industrial Control Authority (ICA).

6. The NREA has authority for the promotion and development of renewable energy projects, which include solar and wind energy in Egypt, and also hosts and manages specialized testing labs for testing the efficiency of different appliances. NREA has a testing laboratory for air conditioners³ to ensure that manufacturers and importers comply with the standards and regulations of NREA before placing the equipment in the market. Other bodies such as the Egyptian Syndicate of Engineers (EEA), an advisory body of specialized experts in the country; the Federation of Egyptian Industries (FEI) that supports policy and regulatory matters that are of interest to the members; the National Vocational Training and Technical Education Authorities that support training of technicians; and the National Research Centre, which is a research and development centre for scientific research and development on different technical areas, are also involved in looking at energy efficiency of RAC equipment.

7. MEPS exist in Egypt for residential air-conditioning (AC) units that had recently been updated to integrate seasonal energy efficiency rating (SEER) levels; MEPS for commercial air conditioners are also under preparation.

Project description

Objective

8. With the upgrade of Egypt's MEPS to align with new SEER levels for residential AC units that will go into effect in June 2024, the project aims, as submitted, to establish an independent regional testing laboratory in Egypt for AC units using refrigerants with a low global warming potential (GWP) and allow Egypt and its neighbouring countries to implement the upgraded MEPS and labelling. The MEPS will be further upgraded based on the latest standards and technologies. The project also aims to strengthen coordination among national and regional stakeholders, promote energy efficiency in RAC equipment, and yield climate and environmental benefits.

Proposed activities

9. The following activities have been proposed for the pilot project:

- (a) *Implementation of the upgraded MEPS:* Data collection on energy efficiency levels of the equipment and gap analysis of equipment to meet the standards in the current market, including eight awareness training programmes for RAC manufacturers (20-50 participants each) (US \$20,000); upgrade MEPS and labelling to reflect the latest SEER levels (US \$20,000); MEPS performance monitoring that would include methodology for calculation of emission reductions (US \$12,000); and incorporation of energy efficiency findings based on the above into the country's National Cooling Plan (funded by the Cool Up programme);
- (b) *Establishment of a testing laboratory:* Assessment of the country's current certified and accredited private testing laboratories (US \$3,000); development of technical requirements for the testing laboratory for residential AC units (US \$6,000); and equipment support for national and independent testing and accreditation laboratory for variable-speed controller

³ The tests are in accordance with the Minister of Industry No. 266 of 2002 and No. 180 of 2003 on the obligation of manufacturers and importers to paste an energy efficiency card on devices before being put in the market for the consumer, through cooperation with the General Authority for Export and Import Control, the General Authority for Standards and Quality, and local enterprises.

residential AC units based on low-GWP refrigerants, including staff training and installation and commissioning of balanced ambient calorimeter (US \$235,000);

- (c) *Incorporating energy efficiency into RAC technician training:* Review of RAC technical and vocational training for incorporating energy-efficiency-related aspects (US \$10,000); development of training materials for delivering training programme (US \$10,000); and an annual technical seminar, organized by the national RAC association, for RAC technicians, trainers, installers, assemblers, and related experts on the energy-efficient operation and servicing of residential AC units (US \$10,000);
- (d) *Awareness-raising activities and materials:* Awareness and information exchange programmes for importers, distributors and retail stores so that regulations relating to the upgraded MEPS are understood and can be effectively adopted (US \$10,000); information exchange on the benefits of the upgraded MEPS and labelled equipment for different consumers (US \$14,000); and two annual seminars and workshops (20-50 participants each) for policymakers and stakeholders on the upgraded MEPS and labelling so that they can support implementation of MEPS regulations (US \$20,000); and
- (e) Project management and coordination (US \$25,900).

Total cost of the pilot project

10. The total cost of the project to maintain and enhance the energy efficiency of replacement technologies and equipment in the context of HFC phase-down amounts to US \$395,500, plus agency support costs as originally submitted, and will be implemented between January 2024 and December 2025.

Gender policy implementation⁴

11. In accordance with decisions 84/92(d) and 90/48(c), the Government of Egypt and UNIDO will incorporate gender mainstreaming into the implementation of project activities and will report on specific indicators developed for the project.

Coordination of energy efficiency activities funded outside the Multilateral Fund

12. The Cool Up programme⁵ is funded by the International Climate Initiative of Germany and promotes sustainable RAC solutions in Egypt, Jordan, Lebanon, and Türkiye by supporting climate policies, showcasing new refrigerant technologies, and developing related financial models. The organization works with the Ministry of Environment of Egypt to support the Montreal Protocol and Kigali Amendment through studies, recommendations, and technical assistance. It also funds Egypt's National Cooling Plan, which will incorporate the energy efficiency findings from the outcome of the MEPS upgrade. In addition, a study on the cost and benefits of room AC efficiency improvement in Egypt was published in October 2022 that was used to inform the development of the MEPS to include SEER levels.⁶

⁴ In line with decision 84/92(d), decision 90/48(c) encouraged bilateral and implementing agencies to continue ensuring that the operational gender mainstreaming policy was applied to all projects, taking into consideration the specific activities presented in table 2 of document UNEP/OzL.Pro/ExCom/90/37.

⁵ <https://www.coolupprogramme.org>

⁶ <https://escholarship.org/uc/item/4qf5z8j2>

SECRETARIAT'S COMMENTS AND RECOMMENDATION

COMMENTS

13. The Secretariat reviewed the project proposal in light of decision 91/65. In line with decision 91/65(b)(iv), UNIDO confirmed that the NOU will coordinate with relevant energy efficiency authorities and national standards bodies to facilitate consideration of refrigerant transition when developing energy-efficiency standards in the relevant sectors/applications; that, if Egypt has mobilized or are to mobilize funding from sources other than the Multilateral Fund for energy efficiency components when phasing down HFCs, the project will not result in the duplication of activities among those funded by the Multilateral Fund and those funded from other sources; that the information on project progress, results and key learning will be made available, as appropriate; and that the date of completion of the project will be set as no more than 36 months after the date of approval by the Executive Committee and a detailed project report will be submitted to the Executive Committee within six months of the date of completion of the project.

Policy, regulatory and institutional framework

14. The Secretariat requested additional information on how the implementation of SEER standards developed by EOS would be supported through this project noting that those will enter into force in June 2024. UNIDO explained that the laboratory upgrade would include equipment infrastructure for SEER measurement and thus would facilitate enforcement of SEER; in addition, EOS was currently working on MEPS for commercial air conditioners. Moreover, UNIDO noted that it planned to develop a project with support outside the Multilateral Fund to support AC manufacturers on fully integrating SEER standards into their design. On the quality of refrigerant, UNIDO also clarified that the MEPS currently do not include consideration of the GWP of the refrigerant used, and the NOU will advocate inclusion of the GWP in the MEPS and labelling; this, in turn, would facilitate adoption of energy-efficient low-GWP refrigerant-based equipment.

Technical and cost-related issues

15. The Secretariat sought clarification from UNIDO on the objective of the project noting the proposal includes the establishment a testing laboratory for residential AC equipment (US \$244,000). The Secretariat further noted that while the presence of an independent testing laboratory is essential to the successful implementation and enforcement of MEPS, the possible financing of testing centres is a matter that is still being discussed in the context of an operational framework for energy efficiency and is not an eligible activity under decision 91/65. Moreover, the country already has an accredited laboratory hosted in the NREA that carries out energy efficiency testing for imported and locally manufactured AC equipment. Accordingly, it was not clear why a new laboratory would be needed.

16. UNIDO, in noting the Secretariat's comments, revised the project to upgrade the equipment of the existing laboratory to allow for SEER measurement and testing with flammable refrigerants. In particular, the existing testing facility has three laboratories (two for residential AC units and one for refrigerators) that will be upgraded to allow the testing of equipment based on flammable refrigerants, including fire detectors, fire extinguishers, anti-spark switches, emergency exit and creation of a muster point, and other related equipment and measures to allow the laboratory to operate safely and meet the required new testing standards.

17. The Secretariat further discussed with UNIDO other elements of the project activities taking into consideration the criteria mentioned in decision 91/65. Following these detailed discussions, adjustments were made to the components as described below:

- (a) Upgrading the existing three calorimetric laboratories at the NREA for testing refrigerators, air conditioners, and variable speed air conditioners using flammable refrigerants that would require technical assessment for upgrading the laboratories for using flammable refrigerants, equipment support for laboratories with necessary safety system and training on safe operations of the calorimetric laboratories (US \$92,000);
- (b) Supporting the implementation and enforcement of the upgraded MEPS would require awareness, technical information exchange and workshops with stakeholders, (US \$41,000);
- (c) Supporting capacity building of testing laboratories in Egypt including processes for certification/accreditation and methods for how to do SEER and MEPS testing in the laboratories, with a 50 per cent cost shared by those who require testing on SEER and MEPS (US \$51,000);
- (d) Supporting the development of a university-level course for engineers on the design and operation of calorimetric laboratories to support local RAC manufacturers design and build appropriate laboratories (US \$20,000);
- (e) Awareness and capacity-building activities on SEER and labelling that include upgrading quick-response (QR) codes to include the SEER and show the GWP of the refrigerant based on a color-coded scale; annual workshop with approximately 100 participants for importers, distributors, retail stores, and consumer representatives on the SEER, QR code and labelling systems; and awareness publications and other materials for end-users and consumers (US \$81,000).

Agreed cost of the pilot project

18. The total project cost was agreed at US \$285,000 as shown in table 1.

Table 1: Agreed funding for the pilot project for energy efficiency in Egypt

Activity	Sub-activity description	Budget (US \$)
Upgrade of three testing laboratories	Develop technical specifications for laboratory upgrades	6,000
	Acquisition and installation of safety systems in testing labs	80,000
	Annual training for laboratory personnel on how to use safety features while using flammable refrigerants (e.g., use of fire extinguishers, ventilation systems, and other safety features)	6,000
Implementation and enforcement of the upgraded MEPS	Annual workshop (30 participants each) for importers, distributors and retail stores on how to adopt the upgraded MEPS regulations	12,000
	Annual workshop (30-50 participants each) for NREA laboratory operators and EOS personnel on how to implement the upgraded MEPS and labelling	14,000
	Annual workshop (30-50 participants each) for customs officers, the Industrial Control Authority, and the Consumer Protection Agency on how to implement and enforce the upgraded MEPS and labelling	15,000
Support capacity of testing laboratories in Egypt	Create a list of certified and accredited testing laboratories in Egypt categorized geographically	3,000
	Annual technical training for newer testing laboratories on how to become certified or accredited (three enterprises per year)	18,000
	An expert to provide technical assistance on how to do SEER and MEPS testing to laboratories that applied for certification or accreditation (50 per cent funded by the applicant enterprises)	30,000

Activity	Sub-activity description	Budget (US \$)
Develop a university-level course for engineers	Develop a university-level engineering course on the design and operation of calorimetric laboratories to support local RAC manufacturers design and build appropriate labs	20,000
Capacity-building for labelling and QR codes	Upgrade QR codes to include the SEER and show GWP based on a colour rating	21,000
	Annual workshop (100 participants each) for importers, distributors, retail stores, and consumer representatives on reading the QR code	30,000
	Awareness-raising materials for end-users and consumers	30,000
Total		285,000

Coordination of energy efficiency activities funded outside the Multilateral Fund

19. UNIDO informed that the NOU will ensure complementarity between activities funded under the Multilateral Fund and those funded externally and take steps to avoid overlaps. The Secretariat notes that some of the activities under such non-Multilateral Fund supported projects could be approved at different points in time, have wider project and geographic scope, and have timelines for implementation beyond the pilot project timelines.

Sustainability of the pilot project and assessment of risks

20. The pilot project includes activities that would result in strengthening national laboratory infrastructure on implementation of MEPS for RAC equipment, including testing capacity for handling flammable refrigerants, strengthening technical skills of personnel including testing laboratory technical personnel on technical aspects relating to MEPs, testing procedures, awareness and information outreach for manufacturers, equipment suppliers/distributors, testing laboratory operators and enforcement authorities on implementation of MEPS. These activities would facilitate adoption of energy-efficient equipment in different applications including AC applications. The development of a university-level course is a long-term investment in building local capacity to test and enforce MEPS. Once the KIP is approved, and in line with the Executive Committee policies, the Government may need to include activities for upgrading skills of relevant national stakeholders, including energy efficiency enforcement authorities, on a continuous basis for systematic adoption and updates of MEPS.

21. Since the project involves activities that will support existing laboratories operated by national regulatory authorities and will support strengthening existing regulations, support from relevant authorities would continue and would facilitate sustainability of the project. Once the KIP is developed and approved, the project would facilitate adoption of energy-efficient equipment while phasing down HFCs through relevant KIP projects. Thus, sustained implementation of energy-efficiency-related measures is expected through this project.

RECOMMENDATION

22. The Executive Committee may wish to consider:

- (a) Approving the pilot project to maintain and/or enhance the energy efficiency of replacement technologies and equipment in the context of HFC phase-down (non-investment activities) for Egypt, in the amount of US \$285,000, plus agency support costs of US \$19,950 for UNIDO, noting:
 - (i) That the Government of Egypt has committed to the conditions referred to in decision 91/65(b)(iv)b. to (b)(iv)d.; and

- (ii) That the project would be operationally completed no later than December 2026 and a detailed project report would be submitted to the Executive Committee within six months of the date of completion of the project.
