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PROJECT PROPOSAL: BENIN

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

Technical assistance

- Additional activities to maintain and/or enhance energy efficiency under decision 89/6(b)

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 DESCRIPTION

Background

1. Stage II of the HCFC phase-out management plan (HPMP) for Benin was approved at the 90th meeting² to phase out HCFC consumption by 100 per cent from the baseline by 2030, at a total cost of US \$1,170,000, plus agency support costs. Stage II of the HPMP will be completed by December 2031, as stipulated in the Agreement between the Government of Benin and the Executive Committee; and the last tranche is due at the first meeting of the Executive Committee in 2025.

2. On behalf of the Government of Benin, UNIDO, as the designated implementing agency, has submitted a request for funding additional activities to strengthen energy efficiency in the refrigeration and air-conditioning (RAC) servicing sector and promote the use of energy-efficient, low-GWP refrigerants in line with decision 89/6 and 92/22³, in the amount of US \$120,000, plus agency support costs of US \$8,400.⁴ The submission includes a description of specific activities, targets, and performance indicators and an implementation plan for 2024 to 2025.

Report on HCFC consumption

3. The Government of Benin reported a consumption of 10.93 ODP tonnes of HCFC in 2022, which is 54 per cent below the HCFC baseline for compliance. The 2018-2022 HCFC consumption is shown in table 1.

Table 1. HCFC consumption in Benin (2019-2022 Article 7 data)

HCFC	2018	2019	2020	2021	2022	Baseline
Metric tonnes (mt)						
HCFC-22	282.56	267.73	245.23	235.00	198.70	432.5
HCFC-142b	0	6.69	0	0	0	n/a
Total (mt)	282.56	274.42	245.23	235.00	198.70	432.5
ODP tonnes						
HCFC-22	15.54	14.72	13.49	12.93	10.93	23.8
HCFC-142b	0	0.44	0	0	0	n/a
Total (ODP tonnes)	15.54	15.16	13.49	12.93	10.93	23.8

Country programme (CP) implementation report

4. The Government of Benin reported sector consumption data under the 2022 CP implementation report that is consistent with the data reported under Article 7 of the Montreal Protocol.

Project description

5. Benin has been making efforts to enhance energy efficiency while phasing out HCFCs and preparing for the phase-down of HFCs in RAC equipment. The country ratified the Kigali Amendment on 19 March 2018. As of January 2020, the import and export of HFCs are subject to authorization.

6. The Economic Community of West African States (ECOWAS) has adopted an energy efficiency policy in 2013. The Union Economique et Monetaire Ouest Africaine (UEMOA), which is the customs and

² Decision 90/36

³ Decision 92/22 allows for the submission of requests for activities referred to in decision 89/6(b) separately from HCFC phase-out management plan tranche requests, including a revised Agreement between the Government of the Article 5 country concerned and the Executive Committee, on the understanding that those activities were integrated into the ongoing tranche implementation plans

⁴ As per the letter of 16 August 2023 from the National Ozone Unit of Benin to UNIDO.

currency union for Francophone African countries except Guinea, approved Directive No. 04/2020/CM/UEMOA for energy efficiency labelling of lamps and home appliances (including refrigerators and air-conditioning equipment) for its member states.

7. Following these regional initiatives, the Government of Benin has established minimum energy performance standards (MEPS) and energy labelling criteria for lamps and residential air conditioners (ACs) less than 14kW (48k BTU) through Decree No. 2018-563, which came into force in June 2020. The labelling for residential ACs follows the labelling of ECOWAS with three classes depending on cooling capacity (kW), energy efficiency ratio, and kW/year. While the MEPS does not involve a ban on the import of HCFC-based equipment, it contributes to the transition to more energy efficient equipment including the uptake of HFC-based equipment. Of the total of ACs imported in each year between 2020-2022, 85 per cent are HFC-based with the remaining based on R-290 and HFC-32.

8. This project proposal is being submitted specifically for activities listed in subparagraph (i)⁵ of decision 89/6(b). The project aims to replace on a pilot scale existing ACs with low-GWP energy-efficient ACs in one building of a selected Government institute; update the energy efficiency labelling requirements; and consider how unwanted refrigerants from the replaced ACs would be collected and stored, as originally submitted. Its main objective would be to identify and remove barriers for the adoption of low-GWP energy-efficient ACs to ensure their transition from HCFC-22-based equipment while at the same time support the upward revision of labelling standards and preparation of a draft green procurement policy. The project activities together with the funding requested for the different components is presented in table 2 below:

Table 2. Requested funding for activities to maintain and enhance energy efficiency for Benin

Activity	Sub-activity description	Budget (US \$)
Market study for upgrading the labelling and technical specifications for ACs to replace existing units	Market study on ACs	5,000
	Development of technical specifications for ACs based on the market study; call for expressions of interest within the Government followed by a selection process for a beneficiary	9,000
	Validation process and workshop prior to the procurement process	4,000
Activity total		18,000
AC replacement plan to be replicated in the future	Completing the procurement process including signing of certificates of acceptance	6,000
	Purchase and installation of 50 ACs by qualified technicians	80,000
	Preparation of draft green procurement policy for future Government procurements	4,000
Activity total		90,000
Sound management of replaced ACs	Removal of AC units to be replaced	4,000
	Recycling and reuse of refrigerants from replaced AC units	4,000
	Storage of unwanted refrigerants	4,000
Activity total		12,000
Grand total		120,000

9. The submission also included a detailed work plan, targets, and indicators, and UNIDO had committed to ensure reporting on the project progress of implementation, in line with decision 89/6(d).

⁵ Decision 89/6(b)(i) Pilot projects designed for and targeted towards end users, relating primarily to energy efficient small-capacity refrigeration, air-conditioning and heat-pump (RACHP) equipment using alternative low-GWP technologies to address challenges related to market acceptance

Implementation plan

10. The project is expected to be completed in 24 months after approval. The following activities will be implemented between January to December 2025:

- (a) A market study to obtain information on how to update the labelling by redefining a range of energy efficiency ratios for each category of one, two, and three stars; drafting of technical specifications of ACs with three stars in consultation with the building management engineers and air-conditioning technicians of the selected Government entity; and a validation workshop to share results of the aforementioned activities and gather feedback from governmental stakeholders. The national ozone unit (NOU) and Laboratory of Engineering and Applied Research in Alternative Energies and Refrigerants (LIRERA) will establish the criteria for selecting one Government building as the pilot beneficiary for this project (US \$18,000);
- (b) Implementation of the AC replacement plan including a procurement process for ACs specified in the technical specifications developed; technical evaluation of the offers by the NOU and officers of the selected Government entity; and drafting of a green procurement policy. The Government entity selected as beneficiary will disseminate the results of the project among other Government entities and organizations (US \$90,000); and
- (c) Sound management of the replaced ACs including removal of the existing ACs; and installation of the replacement units. The replaced ACs will be collected and transported to a selected air-conditioning facility which will dismantle the ACs and recycle any functioning components; recover used refrigerants from the disassembled ACs for recycling using the capacities and network developed under stage II of the HPMP (US \$12,000).

SECRETARIAT'S COMMENTS AND RECOMMENDATIONS

COMMENTS

11. The Secretariat reviewed the project in line with decision 89/6 and sought additional information from UNIDO on different activities.

12. With regard to the market study, UNIDO confirmed that it will investigate all equipment in the current market including existing installed equipment and new equipment in main stores as well as those that are being imported. The results of the market study are expected to provide information that will support the update of the existing labelling system which has not been reviewed in the past three years. This revision will ensure that the labelling system reflects the equipment and technology currently available in the Benin market.

13. The Secretariat noted that one output would be a draft green procurement policy which will be included and implemented as part of stage I of the Kigali HFC implementation plan (KIP).

14. On the type and number of ACs for the replacement as a pilot demonstration, noting the proposal for 50 HFC-32-based units, the Secretariat discussed with UNIDO whether replacement with fewer units would serve the same purpose, and also to consider the use of R-290-based units noting that such equipment is already in use in the country. Subsequently, UNIDO confirmed that the project will procure 40 R-290-based ACs from local retailers and importers. Replacement with R-290-based units will also be consistent with the proposed updated energy efficiency labelling system. UNIDO further confirmed that an agreement was reached with all importers and three cooling workshops in the country to continue importing R-290-based ACs for and after the project to allow for their continued sales and installation in the country.

UNIDO also added a component of training for technicians specifically on R-290-based ACs and stand-alone commercial refrigerators to ensure proper safety in handling and servicing, and to include understanding of the energy efficiency benefits of this alternative technology.

15. The Secretariat noted that some activities included in the proposal for the sound management of replaced ACs are better suited for inclusion in projects under decision 91/66, and were subsequently removed by UNIDO.

16. UNIDO also indicated that co-financing will be provided by the Government through in-kind contributions, such as staff time to manage and share the results of the project and will continue to look for co-financing to replace ACs in other Government institutions and authorities. Table 3 provides the revised activities and agreed funding.

Table 3. Agreed funding for activities to maintain energy efficiency for the servicing sector for Benin

Activity	Sub-activity description	Budget (US \$)
Market study for upgrading the labelling and technical specifications for ACs to replace existing units	Market study on ACs	5,000
	Development of technical specifications for ACs based on the market study; call for expressions of interest within the Government followed by a selection process for a beneficiary	9,000
	Validation process and workshop prior to the procurement process	5,000
Activity total		19,000
AC replacement plan to be replicated in the future	Completing the procurement process including signing of certificates of acceptance	6,000
	Purchase of and installation of 40 R-290-based ACs by qualified technicians	64,000
	Training of 40 technicians on installation and maintenance of R-290-based ACs as well as stand-alone commercial refrigerators including benefits of its energy efficiency	20,000
	Preparation of draft green procurement policy for future Government procurements	4,000
Activity total		94,000
Sound management of replaced ACs	Recycling and reuse of refrigerants from replaced ACs	7,000
Activity total		7,000
Grand total		120,000

Gender policy implementation

17. In accordance with decisions 84/92(d) and 90/48(c), the Government of Benin and UNIDO will incorporate gender mainstreaming into the implementation of project activities as have been done for stage II of the HPMP and will report on specific indicators developed for the project.

Updated Agreement

18. In view of the inclusion of funding for additional activities to maintain energy efficiency in the refrigeration servicing sector and the accordingly revised funding schedule, the Agreement between the Government of Benin and the Executive Committee has been updated. Specifically, Appendix 2-A has been revised and paragraph 17 has been added to indicate that the updated Agreement supersedes that reached at the 90th meeting, as contained in annex I to the present document. The full updated Agreement will be appended to the final report of the 93rd meeting.

Conclusion

19. The Government of Benin has established the MEPS and energy efficiency labelling standards for lamps and residential ACs following the UEMOA directive and is implementing stage II of the HPMP to phase out HCFCs. The project was submitted in line with decisions 89/6 and 92/22 and will address the barriers for adoption of low-GWP technology while maintaining the energy efficiency in the servicing sector. The demonstration of R-290 technology in residential ACs will provide an opportunity for the Government, industry, technicians and end-users to get familiar with the technology and understand the safety risk, support the capacity building of servicing technicians in handling flammable refrigerants. The Government has planned through the market study to update the energy efficiency labelling programme, and implement a green procurement policy, to be developed through the present project, as part of stage I of the HFC implementation plan. The training activities planned in the project will further support the country's transition to low-GWP alternatives when phasing out HCFCs.

RECOMMENDATION

20. The Fund Secretariat recommends blanket approval of the project for additional activities for the introduction of alternatives to HCFCs with low or zero global-warming potential and for maintaining energy efficiency in the refrigeration servicing sector in Benin, and the corresponding 2024-2025 implementation plan, at the funding level shown in the table below, on the understanding that:

- (a) The Fund Secretariat has updated the Agreement between the Government of Benin and the Executive Committee, as contained in annex I to the present document, specifically Appendix 2-A, based on the revised funding level due to the inclusion of funding for additional activities to maintain energy efficiency in the refrigeration servicing sector; and paragraph 17 that has been added to indicate that the updated Agreement supersedes that reached at the 90th meeting; and
- (b) That upon completion of the pilot project for end users included in stage II of the HPMP, UNIDO will submit a final report on the implementation of this project, in line with decision 92/36(g).

	Project title	Project funding (US \$)	Support costs (US \$)	Implementing agency
(a)	Additional activities for the introduction of alternatives to HCFCs with low or zero global warming potential and for maintaining energy efficiency in the refrigeration servicing sector	120,000	8,400	UNIDO

Annex I

TEXT TO BE INCLUDED IN AGREEMENT BETWEEN THE GOVERNMENT OF BENIN AND THE EXECUTIVE COMMITTEE OF THE MULTILATERAL FUND FOR THE REDUCTION IN CONSUMPTION OF HYDROCHLOROFLUOROCARBONS IN ACCORDANCE WITH STAGE II OF THE HCFC PHASE-OUT MANAGEMENT PLAN

(Relevant changes are in bold font for ease of reference)

17. This revised Agreement supersedes the Agreement reached between the Government of Benin and the Executive Committee at the 90th meeting of the Executive Committee.

APPENDIX 2-A: THE TARGETS, AND FUNDING

Row	Particulars	2022	2023	2024	2025	2026	2027	2028	2029	2030	Total
1.1	Montreal Protocol reduction schedule of Annex C, Group I substances (ODP tonnes)	15.47	15.47	15.47	7.73	7.73	7.73	7.73	7.73	0	n/a
1.2	Maximum allowable total consumption of Annex C, Group I substances (ODP tonnes)	15.47	15.47	15.47	7.73	7.73	7.73	7.73	7.73	0	n/a
2.1	Lead IA (UNEP) agreed funding (US \$)	125,000	0	0	210,000	0	180,000	0	0	185,000	700,000
2.2	Support costs for Lead IA (US \$)	15,536	0	0	26,100	0	22,371	0	0	22,993	87,000
2.3	Cooperating IA (UNIDO) agreed funding (US \$)	200,000	120,000	0	0	0	270,000	0	0	0	590,000
2.4	Support costs for Cooperating IA (US \$)	14,000	8,400	0	0	0	18,900	0	0	0	41,300
3.1	Total agreed funding (US \$)	325,000	120,000	0	210,000	0	450,000	0	0	185,000	1,290,000
3.2	Total support costs (US \$)	29,536	8,400	0	26,100	0	41,271	0	0	22,993	128,300
3.3	Total agreed costs (US \$)	354,536	128,400	0	236,100	0	491,271	0	0	207,993	1,418,300
4.1.1	Total phase-out of HCFC-22 agreed to be achieved under this Agreement (ODP tonnes)										15.47
4.1.2	Phase-out of HCFC-22 to be achieved in the previous stage (ODP tonnes)										8.33
4.1.3	Remaining eligible consumption for HCFC-22 (ODP tonnes)										0

* Date of completion of stage I as per stage I Agreement: 31 December 2022