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EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
Seventy-ninth Meeting
Bangkok, 3-7 July 2017

PROJECT PROPOSAL: MAURITIUS

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

Phase-out

- HCFC phase-out management plan (third tranche) Germany

PROJECT EVALUATION SHEET – MULTI-YEAR PROJECTS

Mauritius

(I) PROJECT TITLE	AGENCY	MEETING APPROVED	CONTROL MEASURE
HCFC phase out plan (Stage I)	Germany	63rd	100% by 2030

(II) LATEST ARTICLE 7 DATA (Annex C Group l)	Year: 2016	6.04 (ODP tonnes)

(III) LATEST COUNTRY PROGRAMME SECTORAL DATA (ODP tonnes)									Year: 2016
Chemical	Aerosol	Foam	Fire fighting	Refrigeration		Solvent	Process agent	Lab use	Total sector consumption
				Manufacturing	Servicing				
HCFC-123				0.0	0.004				0.004
HCFC-124				0.0	0.0				0.0
HCFC-141b				0.0	0.0				0.0
HCFC-142b				0.0	0.0				0.0
HCFC-22				0.0	6.03				6.03

(IV) CONSUMPTION DATA (ODP tonnes)			
2009 - 2010 baseline:	8.0	Starting point for sustained aggregate reductions:	8.0
CONSUMPTION ELIGIBLE FOR FUNDING (ODP tonnes)			
Already approved:	8.0	Remaining:	0.0

(V) BUSINESS PLAN		2017	2018	2019	2020	After 2020	Total
Germany	ODS phase-out (ODP tonnes)	2.86	0.00	0.00	1.49	1.34	5.69
	Funding (US $)	372,890	0	0	180,758	187,705	741,353

(VI) PROJECT DATA			2011	2013	2014	2015 – 2016	2017	2018 - 2019	2020	2021 - 2022	2023	2025	2030	Total
Montreal Protocol consumption limits			n/a	8.0	8.0	7.20	7.20	7.20	5.20	5.20	5.20	2.80	0.20	n/a
Maximum allowable consumption (ODP tonnes)			n/a	8.0	8.0	7.14	7.14	7.14	4.00	4.00	1.57	0.16	0	n/a
Agreed funding (US$)	Germany	Project costs	157,050	0	131,400	0	332,750	0	161,300	0	67,500	0	100,000	950,000
		Support costs	18,846	0	15,851	0	40,140	0	19,458	0	8,142	0	12,063	114,500
Funds approved by ExCom (US$)		Project costs	157,050	0	131,400	0	0	0	0	0	0	0	0	288,450
		Support costs	18,846	0	15,851	0	0	0	0	0	0	0	0	34,697
Total funds requested for approval at this meeting (US$)		Project costs	0	0	0	0	**332,750**	0	0	0	0	0	0	**332,750**
		Support costs	0	0	0	0	**40,140**	0	0	0	0	0	0	**40,140**

Secretariat's recommendation:	Blanket approval

PROJECT DESCRIPTION

1. On behalf of the Government of Mauritius, the Government of Germany as the designated implementing agency, has submitted to the 79th meeting a request for funding for the third tranche of the HCFC phase out management plan (HPMP), at the amount of US $332,750, plus agency support costs of US $40,140.[1] The submission includes a progress report on the implementation of the second tranche of the HPMP, a verification report and the tranche implementation plan for 2017 to 2020.

Report on HCFC consumption

HCFC consumption

2. The Government of Mauritius reported a consumption of 6.04 ODP tonnes of HCFC in 2016. The 2012-2016 HCFC consumption is shown in Table 1.

Table 1. HCFC consumption in Mauritius (2012-2016 Article 7 data)

HCFC	2012	2013	2014	2015	2016	Baseline
Metric tonnes						
HCFC-22	125.94	96.87	140.74	120.58	109.66	143.09
HCFC-123	0	0.20	0.04	0.40	0.20	0.00
HCFC-124	0	0.03	0.07	-0.05	0	0.00
HCFC-141b	1.9	0.95	1.65	1.36	0	1.18
HCFC-142b	0	0.02	0.02	-0.03	0	0.00
Total (mt)	**127.84**	**98.07**	**142.52**	**122.26**	**109.86**	**144.28**
ODP tonnes						
HCFC-22	6.93	5.33	7.74	6.63	6.03	7.87
HCFC-123	-	-	-	0.01	0.00	0.00
HCFC-124	-	-	-	-	-	0.00
HCFC-141b	0.21	0.10	0.18	0.15	-	0.13
HCFC-142b	-	-	-	-	-	0.00
Total (ODP tonnes)	**7.14**	**5.44**	**7.93**	**6.79**	**6.04**	**8.00**

3. The HCFC consumption of 6.04 ODP tonnes in 2016 is 25 per cent below the HCFC baseline for compliance, and 15 per cent below the maximum allowable consumption in the Agreement with the Executive Committee. The overall consumption decrease is mainly on account of controls on imports of HCFCs, the implementation of good service practices in the refrigeration and air-conditioning (RAC) sector and the adoption of HCFC-free alternatives. Up to 2015, small quantities of HCFC-141b was consumed in cleaning/flushing of refrigeration and air-conditioning equipment, which was controlled through the import license system. Negative consumption of HCFC-124 and HCFC-142b in 2015 was on account of export of R-409A[2] in 2015.

Verification report

4. The verification report confirmed that the Government is implementing a licensing and quota system for HCFC imports and exports and that the total consumption of HCFCs for 2016 was 6.04 ODP tonnes. The verification concluded that Mauritius has adequate legislations for controlling and monitoring HCFC consumption; however, the monitoring systems can be further strengthened by having more consultations between the National Ozone Unit (NOU) and stakeholders associated with import and export of HCFCs, and by sharing information among stakeholders on imports and export quantities.

[1] As per the letter dated 5 May 2017 from the Ministry of Social Security, National Solidarity and Environment and Sustainable Development of Mauritius to the Secretariat.

[2] 60 per cent of HCFC-22, 25 per cent of HCFC-124 and 15 per cent of HCFC-142b.

Country programme (CP) implementation report

5. The Government of Mauritius reported HCFC sector consumption data under the 2016 CP implementation report which is consistent with the data reported under Article 7 of the Montreal Protocol.

Progress report on the implementation of the second tranche of the HPMP

Legal framework

6. The NOU is in charge of the review and clearance of the requests for imports of HCFCs and recommends the imports to the Ministry of Health (Dangerous Chemical Control Board). The Government of Mauritius is implementing an HCFC licensing and quota system in line with the targets specified in the HPMP Agreement.

7. One regional train-the-trainer workshop on combating illegal trade of ODS and regulations enforcement for implementing the Montreal Protocol was conducted for 13 customs officers from seven African countries; national training on tracking illegal trade was conducted for 30 customs officers in Mauritius.

Refrigeration servicing sector

8. A train-the-trainer workshop on CO_2-based systems was conducted for 18 engineers from Universite des Mascareignes, Mauritius (UDM), technical institutions and the private sector, covering aspects relating to installation and maintenance of CO_2-based cascade systems; a training workshop on hydrocarbon (HC) technology that included safe installation and commissioning of split domestic air-conditioners designed to operate with R-290 refrigerant and brazing competence was conducted for 23 technicians; a train-the-trainer workshop was organised for training officers/lecturers from five African countries on the safe of use of R-290 based air-conditioning equipment and safe conversion of existing equipment using non-flammable refrigerants to flammable refrigerants and an agreement for training technicians on safe use of ammonia and CO_2-based technology was signed between the UDM and the Government. In addition, UDM conducted training of 14 technicians from the industry on CO_2-based technology. Fifty-five of the 120 technicians planned to be trained were trained.

Project implementation and monitoring unit (PMU)

9. The NOU has been overseeing the implementation of the HPMP with the assistance of the Government of Germany.

Level of fund disbursement

10. As of May 2017, of the US $288,450 so far approved, US $288,017 had been disbursed as shown in Table 2 below. The balance of US $433 will be disbursed shortly.

Table 2. Financial report of stage I of the HPMP for Mauritius (US $)

Agency	First tranche		Second tranche		Total	
	Approved	**Disbursed**	**Approved**	**Disbursed**	**Approved**	**Disbursed**
Germany	157,050	157,050	131,400	130,967	288,450	288,017
Disbursement rate (%)		100.0		99.7		99.85

Implementation plan for the third tranche of the HPMP

11. The following activities will be implemented during the period August 2017 and May 2020:

(a) Three training programmes on controlling HCFC imports, methods of addressing issues experienced by officers in enforcing controls, and better monitoring of HCFC import/export for 60 customs and enforcement officers (US $10,000);

(b) Purchase of one recycling unit, 30 recovery units and 50 cylinders, and training on adopting recovery and recycling programme for 30 technicians from both private sector and the Government aimed at assisting the service technicians in adopting better servicing practices, reducing consumption of HCFCs and facilitating implementation of recovery and recycling programme in the country (US $51,000);

(c) Two two-day train-the-trainers workshops on CO_2 and ammonia-based systems targeting a total of 60 technicians for capacity building of trainers on handling CO_2 and ammonia-based systems to facilitate the adoption of these systems in the country (US $38,000);

(d) Support for training of technicians on ammonia, CO_2 and HC-based technology by local trainers to facilitate adoption of these technologies in the country (US $10,000);

(e) Implementation of an incentive programme to facilitate adoption of natural refrigerant technology mainly for promoting adoption of natural refrigerants (US $20,000);

(f) Demonstration project to convert about 25 refrigerators/chillers in one medium-sized supermarket with CO_2-based systems through an incentive scheme and technical assistance for implementation. This is expected to support the adoption of CO_2-based systems mainly in supermarkets in the country (US $185,000); and

(g) Project monitoring and technical support for project implementation (US $18,750).

SECRETARIAT'S COMMENTS AND RECOMMENDATION

COMMENTS

Report on HCFC consumption

12. The Secretariat discussed the technologies that have substituted HCFC-22 and the country's policy to promote the use of more climate-friendly alternatives to HCFCs. The Government of Germany advised that although HFC are currently the main alternatives being used, training and other technology adoption measures would promote adoption of R-290-based air-conditioning systems, and ammonia and CO_2-based commercial refrigeration equipment.

Progress report on the implementation of the second tranche of the HPMP

Legal framework

13. The HCFC import quota that has been issued for 2017 amounts to 7.14 ODP tonnes.

Refrigeration servicing sector

14. The Secretariat requested clarification on why training of technicians planned in second tranche of the HPMP was not fully implemented. The Government of Germany mentioned that the Government in consultation with the stakeholders adjusted the original plan to purchase additional spares for CO_2-based systems and to train additional trainers on maintenance and servicing CO_2-based systems, and confirmed that additional training would be undertaken during implementation of third tranche of the

HPMP. By the end of the implementation of the third tranche, it is expected that about 30 technicians will be trained on CO_2 technologies.

15. The Secretariat sought clarifications on adoption of low-global warming potential (GWP) technologies in Mauritius. The Government of Germany clarified that adoption of HC, CO_2 and ammonia-based technologies in RAC is currently low but expected to increase in future. The Government is working with importers, equipment suppliers and servicing enterprises to facilitate and encourage adoption of low-GWP technologies through provision of training and incentives.

16. The Secretariat requested information on whether retrofit of HFCF-22 equipment with flammable alternative refrigerants is undertaken in Mauritius noting that training for such retrofits is being provided during implementation of the HPMP. The Government of Germany indicated that the Government of Mauritius is aware of the decisions of the Executive Committee on retrofits[3] and clarified that only trainers have been provided know-how based on EN-378 standards[4] relating to safety while using HC-based technologies. The Government of Germany also confirmed that no HCFC-22 based-equipment were retrofitted with HCs and that this practice is discouraged during the training programmes of refrigeration service technicians. The training programmes implemented so far have equipped the industry in handling flammable refrigerants.

17. The Secretariat requested additional information on the progress of adoption of CO_2-based technology in supermarkets in Mauritius, its technical feasibility given the high-ambient temperatures in the country and its long-term sustainability. The Government of Germany also confirmed that CO_2-based systems are expected to work well in the local ambient conditions in the country. The Government of Germany explained that besides training, incentive schemes for encouraging adoption of CO_2-based equipment in supermarkets are proposed. This is expected to assist conversion of supermarkets to CO_2-based refrigeration system. The Government of Germany also mentioned that the Government would work closely with supermarkets supported under the project for facilitating adoption of CO_2-based refrigeration systems.

18. Regarding HCFC consumption in the fisheries sector, the Government of Germany mentioned that this consumption does not pose an immediate challenge to national compliance target; for the future, the Government would continue to work with the fishing vessels users and servicing industry on regulatory measures, identification of feasible alternative technologies based on experiences of countries with similar HCFC consumption in fisheries sector, including demonstration project approved at the 76th meeting and information outreach on phasing-out HCFCs with HCFC-free/low-GWP technologies.

Conclusion

19. The Secretariat notes that an enforceable system of licensing and quotas for HCFC imports is in place. The HCFC consumption in 2016 was 25 per cent below the HCFC baseline for compliance and 15 per cent below the maximum allowable consumption for that year in the Agreement with the Executive Committee. The HPMP activities are progressing satisfactorily and actions to promote sustainable adoption of low-GWP technologies are under implementation. Additional activities proposed in the third tranche, including equipment support to service agencies, demonstration of CO_2-based technology and incentives for other low-GWP technologies, training of regulatory and enforcement officers on monitoring HCFC imports and exports are expected to help the Government achieve HCFC phase-out in line with the targets and adopt low-GWP technologies. The Government would continue to: train technicians in cooperation with technical institutions, build capacity of technical institutions on training technicians on emerging low-GWP technologies, and work with industry to support HCFC phase-out and adopt low-GWP alternative technologies in a sustainable manner.

[3] Decisions 72/17 and 73/34.

[4] EN-378 standards relates to “Refrigerating systems and heat pumps — Safety and environmental requirements.”

RECOMMENDATION

20. The Fund Secretariat recommends that the Executive Committee takes note of the progress report on the implementation of the second tranche of the HCFC phase-out management plan (HPMP) for Mauritius; and further recommends blanket approval of the third tranche of the HPMP for Mauritius, and the corresponding 2017 – 2020 tranche implementation plan, at the funding level shown in the table below, on the understanding that if Mauritius were to decide to proceed with retrofits and associated servicing to flammable and toxic refrigerants in refrigeration and air-conditioning equipment originally designed for non-flammable substances, it would do so assuming all associated responsibilities and risks and only in accordance with the relevant standards and protocols:

Project title	Project funding (US $)	Support cost (US $)	Implementing agency
HCFC phase-out management plan (stage I, third tranche)	332,750	40,140	Germany