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EXECUTIVE COMMITTEE OF
THE MULTILATERAL FUND FOR THE
IMPLEMENTATION OF THE MONTREAL PROTOCOL
Ninety-ninth Meeting
Montreal, 7–11 December 2026
Item 9(c) of the provisional agenda[1]

PROJECT PROPOSAL: PANAMA

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

Phase-down

• Kigali HFC implementation plan (stage I, second tranche)	UNDP	Blanket approval

[1] UNEP/OzL.Pro/ExCom/99/1

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 – MULTI-YEAR PROJECTS

Panama

PROJECT TITLE	AGENCY	MEETING APPROVED	CONTROL MEASURE
Kigali HFC implementation plan (stage I)	UNDP (lead)	93rd [2]	10% phase-out by 2029

ARTICLE 7 DATA (Annex F)	Year: 2025	1,010.43 mt	2,204,866 CO_2-eq tonnes

COUNTRY PROGRAMME SECTORAL DATA (CO_2-eq tonnes)								Year:	2025
Substance	Aerosol	Foam	Fire-fighting	Air-conditioning (AC) and refrigeration				Solvent	Other
				Manufacturing			Servicing		
				Refrigeration	AC	Other			
HFCs		19,431					2,185,436		

CONSUMPTION DATA (CO_2-eq tonnes)			
HFC baseline:	2,543,386	Starting point for sustained aggregate reductions:	TBD
CONSUMPTION ELIGIBLE FOR FUNDING			
Already approved:	254,339	Remaining:	TBD

ENDORSED BUSINESS PLAN		2026	2027	2028	Total
UNDP	HFC phase-down (mt)	47.28	0.00	0.00	47.28
	Funding (US $)	283,422	0	0	283,422

PROJECT DATA			2023	2024-2025	2026*	2027-2028	2029	Total
Consumption (CO_2-eq tonnes)	Montreal Protocol limits		n/a	2,543,386	2,543,386	2,543,386	2,289,047	n/a
	Maximum allowable		n/a	2,543,386	2,543,386	2,543,386	2,289,047	n/a
	Reduction from baseline (%)		n/a	0.0	0.0	0.0	10.0	n/a
Amounts approved in principle (US $)	UNDP	Project costs	331,100	0	264,880	0	66,220	662,200
		Support costs	23,177	0	18,542	0	4,635	46,354
Funds approved by ExCom (US $)		Project costs	331,100	0	0	0	0	331,100
		Support costs	23,177	0	0	0	0	23,177
Total funds recommended for approval at this meeting (US $)		Project costs			264,880			264,880
		Support costs			18,542			18,542

* Recommended for approval at the present meeting

Secretariat's recommendation	Blanket approval

[2] The Agreement was approved at the 98th meeting (decision 98/12(t) and annex XXIII to document UNEP/OzL.Pro/ExCom/98/64).

PROJECT DESCRIPTION

1. On behalf of the Government of Panama, UNDP as the designated implementing agency has submitted a request for funding for the second tranche of stage I of the Kigali HFC implementation plan (KIP), in the amount of US $264,880, plus agency support costs of US $18,542.[3] The submission includes a progress report on the implementation of the first tranche, the verification report on HFC consumption for 2024 to 2025, and the tranche implementation plan for 2027 to 2029.

Report on HFC consumption

2. The Government of Panama reported a consumption of 2,204,866 CO_2-equivalent (CO_2-eq) tonnes of HFCs in 2025, which is 13.3 per cent below the country's HFC baseline for compliance. The 2021–2025 HFC consumption is shown in table 1.

Table 1. 2021–2025 HFC consumption and HFC baseline for Panama (Article 7 data)

HFCs	GWP	2021	2022	2023	2024*	2025*
Metric tonnes (mt)						
HFC-23	14,800	0.00	0.06	0.27	0.00	0.00
HFC-32	675	0.00	0.3	9.62	12.74	16.99
HFC-134a	1,430	384.53	554.54	603.14	321.40	392.66
HFC-245fa	1,030	0.00	0.00	0.00	0.00	5.00
R-404A	3,921.6	107.42	154.85	151.86	125.54	144.35
R-407C	1,773.85	12.07	2.38	13.11	20.59	19.11
R-410A	2,087.5	240.62	375.67	326.71	318.10	326.93
R-507A	3,985	75.84	81.64	82.25	87.09	80.57
CustMix-134	963.82	186.02	200.52	224.02	0.00	20.16
Other**		0.78	0.00	6.42	4.06	4.66
Total (mt)		**1,007.28**	**1,369.96**	**1,417.40**	**889.52**	**1,010.43**
CO_2-eq tonnes						
HFC-23	14,800	0	888	3,996	0	0
HFC-32	675	0	203	6,494	8,601	11,469
HFC-134a	1,430	549,878	792,992	862,490	459,599	561,498
HFC-245fa	1,030	0	0	0	0	5,150
R-404A	3,921.6	421,258	607,260	595,534	492,309	566,077
R-407C	1,773.85	21,410	4,222	23,255	36,524	33,895
R-410A	2,087.5	502,294	784,211	682,007	664,023	682,466
R-507A	3,985	302,222	325,335	327,766	347,052	321,067
CustMix-134	963.82	179,290	193,265	215,915	0	19,431
Other**		1,788	0	16,457	7,533	3,813
Total (CO_2-eq tonnes)		**1,978,141**	**2,708,376**	**2,733,914**	**2,015,641**	**2,204,866**
HFC baseline calculation (CO_2-eq tonnes)						
HFC average consumption in 2020–2022						2,053,523
HCFC baseline (65%)						489,863
HFC baseline						**2,543,386**

* Data from the verification report on HFC consumption, based on which revised 2024 and 2025 Article 7 data was submitted to the Ozone Secretariat on 6 November 2026 and 25 September 2026, respectively.
** Including R-407A, R-417A, R-422D, R-452A, R-454B, R-437A, R-438A, R-448A and R-513A.

[3] As per the letter of 10 September 2026 from the Ministry of Health of Panama to UNDP.

3. The years used to establish the baseline (2020–2022) reflect both the period of lower activity associated with the pandemic and the progressive recovery of national demand for refrigeration and air-conditioning (RAC) service. In 2023, HFC consumption peaked as the first HFC control measure was not yet established; however, in January 2024 consumption dropped significantly due to the consumption freeze at the baseline level and the implementation of the national quota system. In 2025 consumption increased compared with the previous year, although it remained within the allowable limit for the freeze period, likely due to market variability during the first years of implementation of the control measures under the Kigali Amendment.

4. The analysis by substance also shows that demand for refrigerants with high global-warming potential (GWP) remains significant. Between 2024 and 2025, consumption of HFC-134a, R-404A and R-410A increased, refrigerants widely used in mobile air-conditioning (MAC), commercial refrigeration and stationary air-conditioning (AC) applications, as well as HFC-32, a lower-GWP alternative that is being progressively introduced in new AC equipment. However, the market share of HFC-32 remains limited compared with traditional refrigerants, indicating that the transition toward lower-GWP technologies is still at an early stage.

Updated assessment of HFC consumption trends and market demand in Panama (decision 93/72(c))

5. In response to decision 93/72(c), UNDP provided an updated assessment of HFC consumption trends and explanations for the fluctuations in HFC consumption. The updated analysis used official consumption data from 2012–2025 which revealed that the upward trend in 2022 and peak consumption in 2023 coincided with the recovery of commerce, construction, services, and other economic activities that require RAC systems from the severe economic contraction caused by the COVID-19 pandemic and restrictions imposed on various operational activities. The results of the analysis support maintaining the maximum consumption limits approved for 2027–2029, without modifying the reduction schedule or compromising Panama's compliance with the obligations under the Kigali Amendment. This measure will facilitate the gradual transformation of the domestic market, taking into account the needs of user sectors and the conditions necessary for a sustainable technological transition.

6. The analysis concluded that:

(a) National consumption trends show that supply needs are subject to fluctuations linked to economic activity, changes in end-use sectors, and the gradual transformation of the refrigerant market. The 9.39 per cent increase (in CO_2-eq tonnes) recorded in 2025 compared to 2024 demonstrates that a sustained downward trend in demand cannot be assumed based solely on variations observed in specific years. Consequently, the planning of maximum limits must take a medium-term perspective, based on historical consumption trends and the future needs of the domestic market;

(b) The high share of conventional refrigerants with high GWP and the continued use of equipment that relies on these substances are key factors influencing future demand. The operational and maintenance needs of the installed base will continue to require supply during the transition process, while the gradual replacement of these systems will depend on the availability of alternative technologies, technical capabilities, and investment conditions in the user sectors;

(c) The updated projections show that the central demand scenario remains within the maximum limits established for 2027 and 2028. However, by 2029, when the first mandatory 10 per cent reduction is to be implemented, projected potential demand reaches 2,276,729 CO_2-eq tonnes which is 0.54 per cent below the maximum limit of 2,289,047 CO_2-eq tonnes, indicating a narrow margin for absorbing potential fluctuations

in demand. Furthermore, the high-demand scenario identifies potential additional pressures on supply, though this does not constitute a forecast of non-compliance; and

(d) Maintaining the approved maximum limits will allow for the preservation of planning parameters to meet supply needs during the technological transition, without requiring the use of the full permitted volumes. At the same time, the implementation of the measures outlined in the KIP – particularly those related to trade controls, technical training, best practices for refrigerant management, and the promotion of technologies with lower GWP – will help facilitate the gradual reduction of national consumption.

Country programme implementation report

7. The HFC consumption data provided by the Government of Panama in its country programme (CP) implementation report for 2025 is consistent with the data reported under Article 7 of the Montreal Protocol.

Verification report

8. The verification report confirmed that the Government was implementing a licensing and quota system for HFC imports and exports and identified discrepancies in consumption of HFCs reported under Article 7 and CP data for 2024 to 2025. Initial consumption data reported was 1,892,969 CO_2-eq tonnes in 2024, and 1,865,356 CO_2-eq tonnes in 2025. The national ozone unit (NOU) subsequently conducted a detailed review and reconciliation of the underlying import and consumption records and made the applicable corrections to both the Article 7 and CP reports. As a result, the updated national reports now reflect the reconciled HFC consumption data for the years under verification and were submitted to the Ozone Secretariat (as shown in table 1 above). The verification report for 2024 and 2025 confirmed that Panama remained in compliance with the applicable HFC consumption control targets. The verification identified some areas requiring continued strengthening, particularly the consistency and reconciliation of HFC import records and national reporting, as well as the monitoring of HFC trade in free zones. Continued coordination between the NOU and the National Customs Authority, together with strengthened data-management and reconciliation procedures, will support the accuracy, consistency and traceability of HFC consumption data.

Progress report on the implementation of the first tranche of stage I of the Kigali HFC implementation plan

Legal framework

9. A total of 311 officials and staff (including 165 women) from the National Customs Authority and other control institutions were trained on the Kigali Amendment, HFC quota controls, Harmonized System (HS) tariff nomenclature, free-zone regimes and prevention of illegal trade through two training activities in 2026. Participation in HFC trade-control activities was expanded to 10 additional control authorities, broadening the national institutional network involved in the monitoring of controlled substances and preventing illegal trade. Coordination with the Colón Free Zone was also strengthened, creating clearer institutional support to access trade information and improve control procedures applicable to free-zone operations.

10. The technical review of the existing National Commission for Labor Competencies (CONACOM) standard[4] identified specific areas for improvement, particularly requirements related to the safe handling of flammable refrigerants. For the MAC sector, refrigeration-related requirements linked to the Kigali Amendment and environmentally sound refrigerant management were incorporated into the ongoing sectoral discussion through the Electromobility-Automotive Sector Council. In the RAC sector, the consultation

[4] CONACOM-EM-RAC-001-2023: “Buenas Prácticas en Sistemas de Refrigeración y Acondicionadores de Aire” (“Good Practices in Refrigeration and Air-Conditioning Systems”).

process for the review and update of the RAC standard will begin in 2027, following the competency certification process scheduled for the last quarter of 2026, including consideration of requirements for the safe handling of flammable refrigerants.

11. A video on sustainable refrigeration was produced and disseminated through the Ministry of Health (MINSA) communication channels; a national campaign on responsible use of AC equipment and energy savings was implemented jointly with the National Energy Secretariat at Panama Metro facilities; and the second Technical RAC Fair reached approximately 1,200 people, consolidating a national platform for technical exchange on low-GWP refrigerants, energy efficiency, safe refrigerant handling and emerging RAC technologies.

12. A stronger framework for women's participation in the RAC and MAC sectors was also established; the assessment on identifying key barriers affecting women's participation in the sector was completed and validated; and a 2026–2030 roadmap was developed to guide responsive actions across the KIP, HCFC phase-out management plan (HPMP) and institutional strengthening projects. A database of RAC and MAC technicians was developed as part of this roadmap, covering technicians from 12 national institutions.

Refrigeration servicing sector

Enhancing national capacities for good practices and management of alternatives with low global-warming potential

13. In September 2025, a five-day technical training course was delivered to 35 instructors, teachers and technical professionals on energy efficiency, applied electronics and the safe handling of refrigerants, resulting in a competency-based curricular design and learning guide covering good refrigeration practices, leak-tightness, energy efficiency, inverter systems and the safe handling of flammable refrigerants.

14. Practical training capacity was strengthened through the provision of five equipment and tool kits[5] to the National Institute for Vocational Training and Capacity Building for Human Development (INADEH) training centres. Technical assessments were completed in 11 training centres identifying curricular, equipment and instructor-training gaps related to flammable refrigerants and new automotive technologies, the results of which are now guiding the strengthening of RAC and MAC training programmes and the development of supporting technical materials.

15. A five-day, 40-hour technical refresher course for MAC instructors and teachers was developed and scheduled for October 2026. Coordination among MINSA, INADEH and the CONACOM Technical Secretariat established the framework needed to advance the RAC certification process using the existing good-practices standard and to subsequently strengthen the applicable labour competency standards.

Phase-down of demand for HFCs with high global-warming potential

16. Although this component was not included in the approved implementation plan for the first tranche, Panama commenced the preparatory and coordination activities that established a technical and institutional basis for the implementation of the second tranche. In the health sector, the approach for an energy-efficiency and low-GWP programme was defined and coordination was initiated with MINSA units to collect RAC equipment information and identify potential case studies; in public procurement, a technical and legal consultation with the General Directorate of Public Procurement clarified requirements for incorporating energy-efficiency and low-GWP criteria into tender specifications; and, for the food cold chain, potential end users and applications were assessed, technical information was gathered and a call for expressions of interest was prepared.

[5] Practical training equipment, including inverter refrigerators, chest freezers and HFC-32 split AC units; manifolds for R-600a/R-290/R-1270; copper and capillary tubing; Schrader valves; pipe cutters, benders and flaring tools; brazing materials; hand tools and installation supplies; and personal protective equipment.

Promoting reductions in HFC emissions

17. For commercial refrigeration, a methodology was developed to evaluate the impact of good servicing and maintenance practices, including leak reduction, refrigerant recovery and recycling, and measurement of technical and operational performance before and after the intervention, providing a basis for implementation of the planned commercial refrigeration pilot. The MAC good-practices programme was strengthened by the mapping of workshops and technicians, assessment of training needs through consultations and visits to technical training centres and preparation of technical inputs for the programme. Development of the national refrigerant recovery, recycling and reclamation (RRR) framework, in coordination with stage III of the HPMP, was also supported through an information exchange with the Specialized Higher Technical Institute (ITSE), private-sector stakeholders and the NOUs of Chile and Ecuador. Progress toward establishing the national reclaim centre included delivering a presentation to the ITSE Board and approving a refrigerant recovery guide for participating workshops.

Pilot project to enhance energy efficiency (decision 91/65)

18. The project to promote the use of HFC-free, energy-efficient technologies in the San Felipe Neri Municipal Market is in its initial stage. Preliminary discussions have been held with the market administration to evaluate local requirements and define the implementation roadmap. At this stage, project-specific HFC emission reductions and energy-efficiency gains have not yet been quantified, as the relevant pilot and demonstration activities remain under implementation.

Project implementation and monitoring

19. The NOU and UNDP have been monitoring activities, reporting on progress, and working with stakeholders to phase down HFCs. Of the US $30,100 approved for project monitoring activities under the first tranche, US $24,257 was disbursed for international and national consultants (US $17,440) and verification reports (US $6,817).

Level of fund disbursement

20. As of September 2026, of the US $331,100 approved so far for UNDP, US $147,114 (44 per cent) had been disbursed. The balance of US $183,986 has been fully committed and will be disbursed during the implementation of the second tranche.

Implementation plan for the second tranche of stage I of the Kigali HFC implementation plan

21. The following activities will be implemented by UNDP between January 2027 and December 2029:

(a) *Strengthening of the legal framework and inter-institutional coordination*: Continue annual refresher training, maintain annual inter-institutional coordination, follow-up with the Colón Free Zone on access to trade information and control procedures, advance national labor competency standards for MAC and RAC sectors, review and update the RAC good-practices competency standard, complete guidelines for handling HFCs and unwanted RAC equipment, and prepare the national list of GWP indexes for lower-GWP technologies; implement at least one annual awareness-raising campaign and develop and disseminate communication products through social media, technical events and institutional communication platforms; and implement priority actions under the 2026–2030 Gender Roadmap including collecting disaggregated data, targeting measures to address participation gaps, updating the RAC and MAC technician database and continuing engagement with academic institutions (US $34,000 plus funds from the previous tranche);

(b) *Enhancing national capacities for good practices and management of low-GWP alternatives:* Continue curriculum-strengthening actions in three training institutions, including refresher training for RAC and MAC instructors, continue training for remaining RAC and MAC technicians, complete procurement of six RAC and two MAC training kits as per the needs assessment completed under the first tranche, and continue operationalizing the digital registry of RAC and MAC technicians and workshops; finalize and validate the RAC and MAC training programmes by completing the MAC good-practices guide, disseminating and supporting use of the validated curricula, manuals and guides; and align certification activities with the updated RAC and MAC competency-standard process through training and certifying five evaluators on applicable RAC and MAC competency standards, implement competency-based technician certification processes and strengthen assessment centres where required (US $40,000 plus funds from the previous tranche);

(c) *Phase-down of demand for high-GWP HFCs*: Develop and implement a training programme for 20 decision makers and key health-sector stakeholders on energy-efficient and low-GWP RAC technologies, complete one case study at a public health facility, including assessment of installed RAC equipment, monitoring of thermal and energy performance, recommendations for improved maintenance, equipment replacement or improvement and dissemination of the results; prepare, validate and disseminate a set of recommendations and criteria for energy-efficient RAC equipment using low-GWP refrigerants for public procurement; and formalize agreements and implement two cold chain end-user demonstration projects, conduct three technical workshops for 90 participants including instructors, technicians and end users, and prepare a report to disseminate demonstration results (US $116,800);

(d) *Promoting reductions in HFC emissions*: Implement good-practices pilot at a commercial refrigeration end user and prepare recommendations for replication; conduct five good-practices training sessions for personnel from the 15 selected MAC workshops; assess, procure, deliver and provide technical follow-up on nine sets of equipment/tool kits[6] to MAC servicing workshops; strengthen the national HFC RRR network[7] by equipping[8] three collection centres and reinforcing one existing reclaim centre, deliver training to participating centres and workshops, and consolidate operational linkages and refrigerant flow arrangements (US $50,000 plus funds from the previous tranche); and

(e) *Project monitoring*: Maintain national and international technical support for the implementation, procurement, stakeholder coordination, monitoring, reporting and technical review of deliverables (US $14,320); conduct regular coordination meetings, technical missions and field visits (US $3,200); complete independent verification of HFC consumption including verification of compliance with the agreed control targets and preparation of any corrective recommendations where necessary (US $6,000); and other miscellaneous costs (US $560) (total of US $24,080, plus funds from the previous tranche).

[6] Includes a four-way MAC manifold gauge set, refrigerant recovery machine, cylinders, electronic HFC leak detector, valve core replacement tools, vacuum gauges and pumps.

[7] In coordination with the infrastructure, equipment and institutional arrangements being developed under stage III of the HPMP for the national refrigerant RRR network, including the establishment of the reclaim centre and the network of participating RAC workshops.

[8] Equipment includes recovery cylinders, digital vacuum gauges and pumps, HFC refrigerant recovery machine, manifold gauge set, electronic HFC leak detector and digital scales.

SECRETARIAT'S COMMENTS AND RECOMMENDATION

COMMENTS

Report on HFC consumption and verification

22. The Secretariat and UNDP discussed the inconsistencies identified between the Article 7 data, CP data, and the verification report. The NOU submitted the revised data to the Ozone Secretariat and updated the CP data based on the findings of the verification report. The Secretariat enquired whether the consumption of Custom Mix-134 (blend of 93 per cent HFC-365mfc and 7 per cent HFC-227ea) and HFC-245fa was correctly categorized as consumption, and UNDP clarified that the substances were used at polyurethane foam polyol systems houses and intended mainly for export. The verification report identified discrepancies between the NOU's and the customs' records. After a review of declarations for 2024, R-507C was corrected to R-507A, and a record was found of R-410A that was classified under a tariff heading not included in the standard data extract used for the cross-check. In addition, imports of R-600a were included as HFCs and counted toward the total. In 2025, the difference between the NOU and customs data was due to transactions that were processed through the Colón Free Zone, which did not appear in the customs records used to cross-reference this information.

23. The verification report stated that the discrepancies recorded by both institutions were likely due to the fact that those substances and mixtures were just beginning to be regulated in the country, and the entry into force of the regulation entailed an inevitable learning curve; initially, the process slows down as regulators and regulated entities adapt to the new controls. These findings have enabled the NOU staff to immediately and thoroughly review the information in the databases; during this verification process, they made the necessary adjustments, and it was confirmed that steps were being taken to make appropriate corrections to the official reports. Recommendations are being addressed as part of the tranche implementation, including updates to the training programme for customs officials to include the monitoring and recording of the imports and exports of pure and blended HFCs using HS tariff codes and strengthened coordination with the Colón Free Zone by providing the NOU with access to the Electronic Commercial Movement Declaration system.

Assessment of HFC imports in 2022 in light of additional data from 2025

24. While the consumption in 2022 and 2023 shows a marked increase due to the COVID-19 pandemic recovery and likely some stockpiling prior to the freeze, the subsequent fluctuations from 2024 and 2025 reflect continued short-term supply and demand adjustments. Consumption in 2025 is only 13.3 per cent below the baseline; if this consumption grew at a very moderate average rate of 1 per cent per year, by 2029 it would exceed the 10 per cent reduction control measure (2,294,392 vs 2,289,047 CO_2-eq tonnes). Another scenario could be to ignore the 2025 data and apply an average 2.5 per cent growth to the 2024 consumption from 2025 to 2029, in which case, by 2029, consumption would be almost equal to the control measure. It is difficult to assume that consumption reductions will occur as HFC-134a and HFC blends (R-404A, R-507A and R-410A) do not seem to show a decreasing trend. Panama's consumption of HCFC-22 had been steadily decreasing to reach a level of 102 mt in 2025; however, this volume of HCFC-22 consumption indicates the continued need for transitioning out of ozone-depleting substances and a likely rise in HFC consumption prior to 2030. Given that the HFC quotas for 2026 and 2027 have been issued, revising the 2029 target does not appear practical at this juncture.

Progress report on the implementation of the first tranche of stage I of the Kigali HFC implementation plan

Legal framework

25. The Government of Panama has issued HFC import quotas at 2,543,386 CO_2-eq tonnes for both 2026 and 2027 in accordance with the Montreal Protocol control targets.

Refrigeration servicing sector

26. Upon enquiry about the progress of encouraging the inclusion of alternative technologies and energy efficiency in the curricula of the engineering courses of the Panama Polytechnic, UNDP provided clarification that in September 2025, a 40-hour refresher course was delivered to 35 instructors, teachers and professionals from INADEH, Ministry of Education (MEDUCA), Technological University of Panama (UTP) and public- and private-sector representatives. Joint work is planned to design and develop a specialized diploma programme covering Panama's commitments under the Kigali Amendment, COPANIT[9] and ISO 5149 standards, energy efficiency, refrigerant RRR, sustainable buildings and low-GWP alternative technologies. UTP has also been involved, together with ITSE, INADEH and MEDUCA, in organizing the refresher course on the safe and environmentally sound handling of refrigerants and new technologies in MAC systems.

27. Upon enquiry regarding the timeline for training RAC and MAC technicians, UNDP explained that the NOU was working with INADEH and the CONACOM Technical Secretariat to review the RAC-sector occupational competency standards. In parallel, sectoral consultations have begun within the Automotive and Electromobility Sector Council to develop an Occupational Competency Standard covering environmentally sound and safe refrigerant handling in MAC systems, taking account of new automotive technologies. Starting in the first quarter of 2027, the good refrigeration practices competency standard is expected to be reviewed to strengthen requirements for the safe handling of flammable refrigerants. Following the updating and adoption of the competency standards, adjustments to training programmes are expected to begin in the third quarter of 2027, with adoption targeted for the first quarter of 2028. Training to meet the targets of 240 RAC and 45 MAC technicians from the first tranche is planned between the second quarter of 2028 and the second quarter of 2029.

28. Regarding the activity to promote good practices in the handling of refrigerant gases in the servicing of MAC equipment in Panama, UNDP clarified that while the training had originally been scheduled for October 2026, it was postponed following the earthquake of 9 October 2026 and was expected to take place in December 2026, with the participation of technical and academic training institutions including INADEH, ITSE, MEDUCA and UTP.

29. While overall progress was achieved in the tranche implementation, the activity to phase down demand for high-GWP HFCs did not advance as much as the other activities. Progress was made on initial technical and legal consultations, information collection, coordination, and call for expressions of interest by end users for low-GWP demonstration projects in the food cold-chain sector. Upon inquiry, UNDP provided an indicative list of equipment for nine MAC servicing workshops and three HFC refrigerant collection centres, which would be finalized based on the needs of the tender and once the final beneficiaries were identified.

Co-financing

30. Government co-financing has been provided in-kind through the provision of personnel, office and storage space, transportation, administration, and others. Support to all awareness activities has been given through the MINSA's Health Promotion office. With regard to promoting reductions in the HFC emission pilot projects, UNDP indicated that end users who were representative of a sector or a specific application and could provide co-financing would be selected.

Gender policy implementation

31. During the first tranche, Panama completed and validated an assessment on women's participation in the RAC sector and developed a unified 2026–2030 Gender Roadmap and Action Plan that established

[9] Panamanian Commission for Industrial and Technical Standards

four strategic areas of action: governance and institutionalization; responsive information systems and evidence-based decision-making; women's participation, access and opportunities; and safe and inclusive training and working environments. Disaggregated participation data was systematically collected in capacity-building activities, noting that women represented 49 per cent of the 205 participants trained through customs and control-authority workshops in 2025, and 55 per cent of the 106 participants trained during the first semester of 2026. An institutional database of RAC and MAC technicians was also developed, with initial data collection covering technicians from 12 national institutions, strengthening the information base required to identify gaps in women's participation and guide future training, certification and capacity-building measures. The roadmap provides measurable indicators for subsequent implementation, including increased participation by women in technical training, improved access to employment, and strengthened workplace safety and equality.

Sustainability of the HFC phase-out and assessment of risks

32. The national HFC quota system will remain the principal mechanism for controlling consumption, while KIP activities will support a sustained reduction in HFC demand and emissions through improved servicing practices and the gradual transition to lower-GWP technologies. Sustainability will also be reinforced by integrating good refrigeration practices, energy efficiency and the safe handling of flammable refrigerants into national training programmes; strengthening labour competency standards and technician certification in partnership with INADEH and CONACOM; maintaining customs and control-authority capacities; and consolidating the refrigerant RRR network. Coordination with stage III of the HPMP further supports continuity and complementarity in technician training, certification, training-centre strengthening and refrigerant management. Project management will maintain the routine monitoring of results, risks and disbursement and will use progress reports, technical missions and stakeholder consultations to identify delays and implement corrective measures when required.

Conclusion

33. The 2025 consumption of 2,204,866 CO_2-eq tonnes is 13.3 per cent below both the Montreal Protocol consumption limit and the maximum allowable consumption of 2,543,386 CO_2-eq tonnes stated in the Agreement. Based on the additional analysis on HFC imports in 2022 fulfilling decision 93/72(c), the Secretariat recommends that the status quo of the 10 per cent reduction from the baseline is maintained. Activities completed during the first tranche of stage I include the implementation of customs trainings, work toward the development of two national labor competency standards, awareness campaigns, gender assessment, development of the institutional database of RAC and MAC technicians, development of a five-day refresher course for MAC instructors and teachers, procurement of tools and equipment for RAC training institutions, technical visits and equipment needs assessment for 11 training institutions, coordination, assessed opportunities with end users for demonstration projects in the food cold chain, and awareness-raising activities. While overall progress was achieved in the first tranche implementation, the activity to phase down demand for high-GWP HFCs did not advance as much as the other activities and the training of 240 RAC and 45 MAC technicians has yet to be completed. The disbursement rate for the first tranche is 44 per cent. Activities planned for the second tranche include continued training for customs and enforcement officers and RAC technicians, provision of equipment to MAC workshops and HFC collection centres, further development of the use of low-GWP refrigerants in the installation of new cold rooms in the food chain and the HFC RRR network, and continuation of awareness-raising activities.

RECOMMENDATION

34. The Fund Secretariat recommends that the Executive Committee note the progress report on the implementation of the first tranche of stage I of the Kigali HFC implementation plan (KIP) for Panama and further recommends blanket approval of the second tranche of stage I of the KIP and the corresponding 2027–2029 tranche implementation plan for Panama at the funding level shown in the table below.

	Project title	Project funding (US $)	Support costs (US $)	Implementing agency
(a)	Kigali HFC implementation plan (stage I, second tranche)	264,880	18,542	UNDP