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EXECUTIVE COMMITTEE OF  
THE MULTILATERAL FUND FOR THE  
IMPLEMENTATION OF THE MONTREAL PROTOCOL  
Eighty-sixth Meeting  
Montreal, 2-6 November 2020  
Postponed to 8-12 March 2021<sup>1</sup>

**2020 CONSOLIDATED PROJECT COMPLETION REPORT**

**Background**

1. The issue of outstanding projects completion reports (PCRs) has been addressed by the Executive Committee at each of its meetings. At its 84<sup>th</sup> meeting, the Committee *inter alia* urged bilateral and implementing agencies (IAs) to submit to the 85<sup>th</sup> meeting outstanding PCRs for multi-year agreements (MYAs) and individual projects, or to provide reasons for failing to submit such reports. The Committee also urged lead and cooperating IAs to coordinate their work closely in finalizing their portion of PCRs to allow the lead IA to submit the completed PCRs on schedule (decision 84/43(b) and (c)).

2. Due to the coronavirus disease (COVID-19), the 85<sup>th</sup> meeting was postponed, and the Executive Committee agreed to establish an intersessional approval process (IAP) to consider certain reports and projects. The Executive Committee further agreed that the 86<sup>th</sup> meeting would address the remaining agenda items from the 85<sup>th</sup> meeting noting that documents for the 85<sup>th</sup> meeting related to recurring agenda items, including 2020 consolidated project completion reports, that had not been presented to the 85<sup>th</sup> meeting could be submitted to the 86<sup>th</sup> meeting and should include, where applicable, the information that would have been presented to the 85<sup>th</sup> meeting. Therefore, the present document covers all the submission of PCRs due to the 85<sup>th</sup> and 86<sup>th</sup> meetings.

3. Pursuant to decision 84/43(b) and (c), the list of all PCRs due was sent to bilateral and IAs on 27 January 2020. The Senior Monitoring and Enforcement Officer (SMEO) sent the list of outstanding PCRs as a reminder to the bilateral and IAs on 16 September 2020.

**MYA PCRs received**

4. Of the 205 MYAs completed, bilateral and IAs submitted 194 PCRs prior to the 86<sup>th</sup> meeting, with an outstanding balance of 11 as shown in Table 1. The list of the 10 PCRs submitted after the 84<sup>th</sup> meeting is attached in Annex I to the present report.

<sup>1</sup> Due to coronavirus disease (COVID-19)

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.

**Table 1. Overview of MYA PCRs**

Lead agency	Completed	Received prior to the 84 <sup>th</sup> meeting	Received after the 84 <sup>th</sup> meeting	Outstanding
Canada	3	3	0	0
France	6	5	1	0
Germany	10	9	0	1
Japan	1	1	0	0
UNDP	44	42	2	0
UNEP	61	58	1*	2
UNIDO	56	52	2	2
World Bank	24	14	4	6
<b>Total</b>	<b>205</b>	<b>184</b>	<b>10</b>	<b>11</b>

\* UNEP submitted three MYA PCRs after the deadline.

5. An analysis of the aggregated funds disbursed, ODS phased out and delay in the completion of the ten MYA PCRs is summarized in Table 2.

**Table 2. Overview of the budget, ODS phased out and delay of MYA PCRs submitted after the 84<sup>th</sup> meeting**

Lead agency	MYA funds (US\$)		Consumption ODP tonnes phase-out		Production ODP tonnes phase-out		Average of Delays (in Months)
	Approved	Disbursed	Approved	Actual	Approved	Actual	
France	900,000	900,000	14	47	0	0	4.46
UNDP	80,008,775	77,767,245	518	505	0	0	22.74
UNEP	266,700	262,670	0	0	0	0	39.38
UNIDO	21,424,317	19,717,069	436	436	0	0	23.44
World Bank	260,195,725	260,195,725	885	1,615	26,988	30,958	16.24
<b>Grand Total</b>	<b>362,795,517</b>	<b>358,842,709</b>	<b>1,853</b>	<b>2,603</b>	<b>26,988</b>	<b>30,958</b>	<b>20.20</b>

### Reasons for delays

6. The government's involvement and the place of the national ozone unit (NOU) within the Government have an impact on the timely implementation of projects. In one instance, the Government suddenly revised its national plan to prioritize a ban on HCFCs, showcasing the impact Government involvement may have on project implementation. In another instance, the restructuring of Government agencies combined with the lack of expertise of the NOU affected its ability to create a business relationship with the enterprises and caused implementation delays. The NOU's lack of expertise also impacted the design and monitoring of the projects. Additionally, specific implementation delays may have a snowball effect on subsequent tranches by delaying disbursement.

7. In one case, the slow finalization/revision of standards led to a slow uptake of the alternative technologies in the local market, which in turn delayed the disbursement of the incremental operating costs. Enterprise-related delays were due, *inter alia*, to technical problems and financial issues during the conversion process. In one country, to overcome these barriers, it was agreed to amend the sub-grant agreements (SGAs) to extend some of the sub-projects, and to terminate the SGAs for the beneficiary enterprises that could not overcome these challenges. In another country, the largest enterprise had to cancel the project after two years of financial struggle, which greatly impacted the timely implementation of the project. In a third country, end-users backing out from the agreement, others taking longer to provide the necessary documents or requesting a last-minute change of systems houses for the final retrofit caused the delays.

8. Supplier-related delays were linked to equipment/tool procurement and bidding exercises. Two countries faced unanswered procurement bids due to the unavailability of a suitable local supplier. In the first country, the bid was advertised twice, but as no local enterprises reached out, the equipment was supplied by an international enterprise. Similarly, bidding for a package of servicing equipment and tools was conducted a few times in another country; each time without any bidders until the equipment specifications were reviewed by a national committee to match equipment commonly available on the local market, which took time. A third country faced issues relating to the supplied flushing agent, which damaged the equipment that then had to be replaced, while the training centres faced issues relating to over-heating with their flushing units, further delaying the project. The same country also had to handle insufficient co-financing by obtaining an increase of their incremental capital costs.

#### Production sector

9. With regard to administrative issues, one country had a long-time unfilled vacancy for its PMU's project coordinator position, slowing down project implementation, while another country faced competing national priorities, which impacted the final acceptance of some sub-projects.

10. With regard to financial issues, delays faced by a financial intermediary impeded fund transfers for a project. The financial intermediary had funds in a foreign currency and thus had to abide by the prevailing laws. The introduction of the Real Time Gross Settlement system (November 2005) allowed disbursements to flow directly to the beneficiaries within one or two days, thus resolving the issue.

11. A data discrepancy from one particular CFC producer was spotted by the verification audit and impacted timely implementation. However, once the explanation provided and the material data sheet submitted, the funds for the second half of a year and the approval of the following year's annual plan were granted.

12. The supplier-related delays were linked to a lack of equipment, namely access to large-capacity HFC-32 compressors in one case and, in another, to the procurement of equipment in a country facing an embargo.

#### **Lessons learned<sup>2</sup>**

13. Regular consultations with the IAs and close and frequent supervision and monitoring of the projects facilitate early identification and resolution of issues that may have an impact on the smooth progress of implementation.

14. In large countries, collaboration between projects is an advantage, as in the case of one sector plan where the integration and collaboration of the national and sectoral approaches generated the synergies needed. Another country explained that South-South cooperation, facilitated by UNEP, had proved very important for training customs officers and refrigeration and air-conditioning (RAC) trainers, due to a lack of capacity and resources available within the country.

15. Due to the additional inclusion of small and medium-sized enterprises (SMEs) in stage II of larger projects, the project management and implementation systems may require further streamlining in order to process a larger number of phase-out contracts within the limited time available. A new innovative approach for delivering assistance to SMEs may be required. One country mentioned continuous on-site technical and financial verification of the beneficiary enterprises as a potential means of ensuring their successful conversion. This might not be possible in larger countries.

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<sup>2</sup> Lessons learned from MYA PCRs can be found in the MYA PCR lessons learned database: <http://www.multilateralfund.org/myapcr/search.aspx>

16. Project design is a crucial aspect of successful implementation and requires, *inter alia*, an in-depth understanding of the industry, feasibility studies, a detailed and well-defined work plan and a strong awareness-raising plan. Indeed, project design needs to take into consideration realistic time frames for the processing and approval of revision of standards, policies and regulatory frameworks. While various technology choices are made available, market uptake of products with alternative technologies needs to be assessed properly. An example lies in the diversity of applications of polyurethane (PU) foam products, where timely evaluation and updates on the advances in alternative technologies is needed, based on the particular requirements of PU foam properties in different sub-sectors.

17. Awareness and education campaigns have a direct impact on the project's success. It helps end-users to be mindful of the importance to use qualified/certified service technicians, and teaches the technicians about the benefits of applying good/preventive practices, frequently resulting in higher incomes and a more reliable and efficient system with longer equipment life, thus allowing for long-term savings for the end-users.

18. Lessons relating to the availability of alternative technologies relate, *inter alia*, to: market uptake and the prices of alternatives; maturity of the technology; energy efficiency; and the achievement of minimum energy performance standards (MEPS).

19. For import-dependent countries, the availability of alternatives depends on global and regional technology trends. Many Article 5 countries have price-sensitive markets, which directly impact the penetration of low-GWP technologies (usually more expensive at first), particularly for air-conditioners (AC). Therefore, public awareness and promotion activities should be conducted simultaneously with awareness and market-oriented workshops for importers, trader and sellers of equipment, to promote the marketization of alternative technologies, thus stimulating both the demand and supply side of the equation.

20. The conversion to a mainstream alternative (e.g., R-410A-based AC) can be much easier to implement (especially for smaller import-dependant countries) given the maturity of the technology, which impacts the availability of the main components (i.e., compressor) and refrigerants. This maturity also benefits its energy efficiency due to continuous research and development efforts. One country mentioned that its beneficiary enterprises benefited both from the conversion, and from the associated training leading to improvements in the production process, workers' safety, and good practices in installation and servicing.

21. The introduction of more energy-efficient appliances in one country resulted in a net CO<sub>2</sub> emission reduction of five to 16 per cent annually and contributed to a demand-side drawdown in the country's energy sector. Consequently, the conversion of its AC sector away from HCFC-22 involved a technology upgrade, allowing the beneficiary enterprises to adopt inverter technology to achieve the MEPS.<sup>3</sup> Timing of the AC sector conversion in stage I was appropriate and complementary to the Government's policy on renewable energy and energy efficiency, reaching its 20 per cent energy saving target.

22. Other policy options should be explored to supplement the HCFC phase-out efforts. As such, the Government of one country proposed that the environmental impact assessment of projects, and buildings, be conditional on the elimination of ODS or ODS-based equipment. To effectively implement these policies, it is essential for customs to have the capacity to enforce them, and the control mechanisms must be in place to monitor actual HCFC import statistics and the availability of illegal refrigerant in the domestic market.

23. Lessons relating to capacity-building demonstrated the benefit of having a strong PMU, with adequate expertise for project development and the necessary connectivity with the industry. Capacity-building also ensures that vocational schools, technicians and customs officers are capable of

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<sup>3</sup> The MEPS require a minimum seasonal energy efficiency ratio (SEER) of 4.3.

using the new equipment and tools. Additionally, some countries mentioned the benefits of having online training courses on new and upcoming technologies to enhance technicians' skills.

24. The establishment and operation of an efficient ODS licensing system helps to monitor and control the consumption of controlled substances and initiate the timely action required for the achievement of permanent and sustainable phase-out on schedule, while facilitating close collaboration with customs by increasing information sharing and regular contact. In addition, a licensing system improves the NOU's knowledge of the types and qualities of ODS-containing mixtures entering the country.

25. Another country mentioned that the role of the National Consultant should not be limited to providing technical knowledge, as his or her participation greatly benefits the project by establishing a close and trustworthy links between stakeholders. The same country stressed the importance of having an updated list of clients for each systems house to prevent delays and to allow them to be swift and flexible in their monitoring.

#### Production sector

26. Lessons learned from the production sector related, *inter alia*, to: policies and regulations; monitoring and verification; staff continuity and knowledge retention; communication and coordination with stakeholders; disbursement flexibility; and applying previously learned lessons.

27. The production quota system, implemented in one country, has worked well to curb production; however, the country said that restrictions in annual quota trading between producers was the main reason why the reductions went beyond those mandated by the Montreal Protocol. However, the timing of quotas is essential and should be revisited to prevent artificial restrictions to HCFC production, leading to illegal production and trade. This tends to intensify towards the end of year, when some producers run out of quotas to complete their orders, while others are stuck with unused quotas.

28. As the quota system for large-consuming companies kept demand under control, the control of sales by the producers through regulations in the domestic market played an essential role in meeting consumption-sector targets. Simultaneously controlling and balancing supply and demand has proven effective in achieving the annual Montreal Protocol targets.

29. The complicated chain of custody from HCFC production, to dealer and to final export destination or local market, requires an effective monitoring and verification methodology. This is especially true in larger countries, where the methodology applied in stage I provided a high level of certainty regarding the final annual HCFC export figures, which prompted the country to use this method in subsequent stages to account for, and confirm the annual production and consumption levels.

30. Lessons also showed the importance of continuously reviewing verification procedures to ensure that they remain aligned with current trade practices. For example, due to a 2015 change in customs procedures for monitoring imports and exports, exporters' customs declaration forms could no longer be collected. The verification team had to adapt its review procedures and use the export rebate documents for verification of exports at the producer level.

31. Another lesson from demonstrated that instead of implementing a command-and-control regulation from the start of the project, the bidding process provided an opportunity for proposals from facilities that could close down or reduce their production capacity. The cost-effective nature of this mechanism enabled a larger reduction of HCFC production than originally anticipated and generally led inefficient facilities (e.g., with abundant leakages), which were not as competitive or environmentally sound, to exit the market first. Additionally, the different types of contracts offered to HCFC producers (i.e., production reduction, dismantling of idle capacity and closure), each with different compensation levels, helped the producers to choose the appropriate option for their respective situations.

32. From an administrative standpoint, staff continuity contributed to smooth project implementation, creating a synergy between stakeholders, which stands out when a new counterpart who is unfamiliar with the stakeholders' procedures joins the team.

33. Consequently, coordination and good communication between all stakeholders is necessary. For example, the World Bank mentioned the importance of an invested relationship with their financial intermediary, which has been an important aspect of successful programme implementation over the years. The need for a robust coordination mechanism built into project design came to the fore in the CFC production sector of one country. Structured coordination among multilateral agencies would have led to more effective implementation, especially during the last few years of the project, when CFC production was only allowed for metered dose inhalers (MDIs), and the different bilateral agencies and IAs did not have any contact with the CFC production-sector project conducted by the World Bank.

34. In another country, early CFC production closure was key to reducing ODS availability in the market, which in turn helped to sustain the reduction in ODS consumption. The effect was felt throughout the region in countries dependent on that country's CFC exports. Correspondingly, the performance-based, disbursement-oriented project design of the CFC production closure gave the enterprise the flexibility to arrange for its own implementation procedures, which proved less costly and more efficient.

35. Another important lesson from a production sector project, stemmed from the Agreement between a Government and the Executive Committee on the fact that a particular enterprise producing CFC-11, CFC-12 and HCFC-22 would not have to dismantle entirely its production plant. Rather, some equipment could be reconfigured to be used elsewhere, as long as a record of such a transition was kept. This lesson is of particular interest to similar projects (i.e., production swing plants), as it was agreed that the funding provided was for complete closure of the CFC production and that no additional Multilateral Fund resources will be forthcoming for related activities including *inter alia* the eventual closure of any HCFC facilities that use existing CFC infrastructure. Accordingly, it was not necessary to dismantle the production plant in its entirety, nor to destroy key equipment, as is otherwise required for ODS production phase-out projects.

### Individual PCRs received

36. Of the total 1,856 investment projects that have been completed, bilateral and IAs have submitted 1,850 PCRs, with a balance of six outstanding PCRs, as shown in Table 3.

**Table 3. PCRs submitted for investment projects**

Agency	Completed	Received prior 84 <sup>th</sup> meeting	Received after the 84 <sup>th</sup> meeting	Outstanding
France	13	13	0	0
Germany	20	19	0	1
Italy	11	11	0	0
Japan	6	6	0	0
Spain	1	1	0	0
United Kingdom of Great Britain and Northern Ireland	1	1	0	0
United States of America	2	2	0	0
UNDP	897	895	0	2
UNIDO	448	448	0	0
World Bank	457	452	2	3
<b>Total</b>	<b>1,856</b>	<b>1,848</b>	<b>2</b>	<b>6</b>

37. Of the 1,234 non-investment projects<sup>4</sup> that have been completed, bilateral and IAs have submitted 1,214 PCRs, with a balance of 20 outstanding PCRs, as shown in Table 4.

**Table 4. PCRs submitted for non-investment projects**

Agency	Completed	Received prior 84 <sup>th</sup> meeting	Received after the 84 <sup>th</sup> meeting	Outstanding
Canada	57	56	1	0
France	34	34	0	0
Germany	61	60	0	1
Italy	1	1	0	0
Japan	17	17	0	0
Portugal	1	0	0	1
Russian Federation	1	0	0	1
UNDP	295	289	5	1
UNEP	479	458	11*	10
UNIDO	154	143	11	0
World Bank	44	36	3	5
Others <sup>5</sup>	90	90	0	0
<b>Total</b>	<b>1,234</b>	<b>1,184</b>	<b>31</b>	<b>19</b>

\* UNEP submitted two individual PCRs for non-investment projects after the deadline.

38. The list of 32 investment and non-investment PCRs (including one consolidated PCR for a survey of ODS alternatives at the national level) received after the 84<sup>th</sup> meeting is contained in Annex II to the present document. The aggregated results relevant to disbursement, actual phase-out and delays are shown in Table 5.

**Table 5. Overview of the budget, ODS phased out and delay of individual projects submitted after the 84<sup>th</sup> meeting**

Agency	Number of projects	Funds (US\$)		ODP tonnes phase out		Average delay (months)	
		Approved	Disbursed	Approved	Actual	Duration	Delays
Canada	1	50,000	50,000	0	0	45.70	27.37
IBRD	5	5,659,580	5,301,585	173.3	172.2	86.84	61.09
UNDP	5	3,111,195	3,066,680	1.3	1.8	38.20	13.40
UNEP	11	1,855,000	1,715,857	0	0	20.50	2.80
UNIDO	11	3,240,449	2,235,529	0	0	37.70	17.00
<b>Grand Total</b>	<b>33</b>	<b>13,916,224</b>	<b>12,369,651</b>	<b>174.6</b>	<b>174.0</b>	<b>45.79</b>	<b>24.33</b>

### Reasons for delays

39. Demonstration project reports were delayed for diverse reasons, mainly related to, *inter alia*: administrative processes such as hiring a consultant and the governmental approval to start activities; equipment failure, damaged equipment and fire incidents; enterprises' commitment to the project in defining the scope of their participation and the cancelation of projects; delays of a previous stage impacting the subsequent stage; and difficulty in adopting, or lengthy procurement of, the selected alternative.

40. Verification report delays were mainly related to administrative and governmental issues. Administrative issues were generally due to late data submission and lengthy data compilation, or to the turnover of staff, leading to a loss of institutional knowledge in Government agencies (i.e., NOUs and

<sup>4</sup> Excluding project preparation, country programmes, multi-year projects, networking, clearing-house activities, and institutional strengthening projects.

<sup>5</sup> Including PCRs completed and received from the following countries: Australia (25), Austria (1), Czech Republic (2), Denmark (1), Finland (5), Israel (2), Poland (1), South Africa (1), Spain (4), Sweden (5), Switzerland (3), and United States of America (40).

customs). One country mentioned that governmental restrictions prevented private entities from auditing the government's records and documents, which created delays until the Government approved the contract for a consultant.

41. Surveys of ODS alternatives were also delayed due the lengthy collection of data impacted by: the low response rate of the servicing workshops and end-users of equipment, and the reluctance on the part of importers not regulated by the quota system to communicate information on the quantities of HFCs imported.

42. Administrative processes often caused delays in other individual projects, due to, *inter alia*: the finalization and signature of the financing agreement; a change in the ownership of beneficiary enterprises; the length of the equipment-supplier-selection process; licensing and permit authorizations; lack of communication between stakeholders. In one instance, the change of staff in Government agencies and at the NOU hindered communications and delayed the project. In another, communication issues were the result of multiple obstacles in the legislation, as well as the broader institutional capacity of the country.

43. Delays for ODS disposal projects were caused in part by: incorrect estimates of the quantities to be disposed, as some of the virgin product had been sold for servicing; inadequate regulations controlling the export of the waste, which impeded proper logistics at customs; and the lack of nearby destruction facilities and the high cost of shipments, in part due to the special care needed to ship the ailing containers.

44. Additionally, the optimization of specific test burns for ODS destruction and the financing of those tests resulted in longer delivery times. One specific demonstration project for the destruction and disposal of end-of-life ODS stressed the overly optimistic estimate of implementation time, and the need to plan for a lengthy process for future projects.

45. Other reported factors of delays were, *inter alia*: the supplier's limited availability of compressors, impeding the kick-off of production at commercial scale; complicated design and testing processes; and technical issues associated with the performance of the alternatives (e.g., HFOs in the PU systems).

### **Lessons learned<sup>6</sup>**

46. Lessons learned from individual projects covered a wide range of issues, which are categorized in the subsections below. Recurring lessons stemmed from, *inter alia*: communication between stakeholders and their inclusion in reporting; training requirements; and the thorough monitoring of projects at all stages.

#### CFC-free MDIs

47. Associations of professionals and practitioners have played an important role in the smooth transition to CFC-free MDIs. One country mentioned the importance of the health ministry taking ownership of the projects, while another underlined the usefulness of the MDI manufacturers' contribution to awareness generation for health professionals and other concerned stakeholders.

#### Customs enforcement

48. Lessons from technical assistance projects for customs enforcement included the need for well-informed and trained customs officers, combined with an effective ODS import/export licensing system to ensure efficient control of ODS uses. One country successfully established a national communication channel among customs officers and NOUs to enhance the detection of illegal trade of ODS. Another option would be to hold frequent joint network meetings among customs officers and NOUs to create a cooperation

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<sup>6</sup> Lessons learned from the individual PCRs can be found in the PCR lessons learned database: <http://www.multilateralfund.org/pcrindividual/search.aspx>

framework for the regional effort to prevent illegal trade.

### Demonstration projects

49. The lessons reported from the demonstration projects related to, *inter alia*: the scaling-up and replicability of the projects; the funding flexibility for disposal projects to address local circumstances; the leaking of ODS due to a lack of monitoring; price and market acceptance of alternatives; measured energy savings in trans-critical CO<sub>2</sub>; safety issues and regulations for flammable alternatives; communication and awareness-raising to tackle illegal refrigerants; the pooling of resources for smaller neighbouring countries and other measures to address the lack of international suppliers in their local markets; and the successful use of systems houses in PU foam and retrofitting to low-GWP alternatives in the fishery sector.

50. One country mentioned the close attention paid by smaller neighbouring countries regarding the success of its waste disposal projects for possible future exports for their destruction. While the project was successful, improvements could include additional funding for the collection of waste, and flexibility in funding instead of a strict cost-effectiveness threshold to make it possible to tailor the project's design to the country's reality and needs. It was also reported that monitoring flaws led to some loss of stocked ODS from both beneficiary facilities and during the closure of other enterprises.

51. The global project on trans-critical CO<sub>2</sub> showed that, *inter alia*: the price differential of trans-critical CO<sub>2</sub> systems compared to HFC systems was dropping in most of Latin America;<sup>7</sup> the availability of trans-critical CO<sub>2</sub> system vendors in the local market was low; energy consumption savings were better than expected, encouraging uptake of the technology; in another region, lack of awareness-raising and information had caused reluctance on the part of stakeholders and had led to the closure of the demonstration project; and allowing the installation of CO<sub>2</sub> systems in new supermarkets rather than limiting the demonstration projects to the conversion of old systems would create momentum, and could demonstrate the new system's performance and replicability in high-ambient-temperature countries.

52. Lessons from the demonstration projects for the use of hydrocarbon (HC or R-290) pertained mainly to safety issues such as: designs that facilitate technicians' handling of flammable alternatives; the need for a separate area within facilities to guarantee safe handling conditions; the need to strengthen training in the servicing sector, combined with the required network of training/education centres to certify technicians; the need to update or adopt international standards with respect to the necessary safety and environmental requirements; and the need for a binding monitoring plan for the manufacturing company and the end-users to ensure safe handling and proper risk management .

53. One project successfully demonstrated the design of commercial low-GWP air-cooled chillers (i.e., HFC-32 and R-290) for a variety of cooling capacities and operating conditions, including high ambient temperatures. However, it should be noted that in most commercial applications, the use of highly flammable refrigerants such as R-290 is severely restricted by current safety standards, which is not the case for mildly flammable refrigerants like HFC-32.

54. The global projects on refrigerant quality, containment and introduction of low-GWP alternatives in Eastern Africa and the Caribbean demonstrated the existence of a wide influx of counterfeit refrigerants in the regions. This was due to, *inter alia*: low prices and wide availability of the counterfeit refrigerants; the lack of proper mechanism to detect or avoid low-quality refrigerants; a lack of legislation; and poor awareness on the part of all stakeholders. Lessons learned included the need for effective communication between NOUs and stakeholders, the need for other Government agencies, importers, technicians and end-users to participate in raising public awareness; the need to build trust and exchange information to identify counterfeit refrigerants by creating a network of customs and environmental officers at the national and

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<sup>7</sup> However, the cost of installation due to the high-pressure equipment requirements remains high in some countries (e.g., Argentina).

regional level; and the need to prevent technicians from assuming that cylinders contain good-quality refrigerant until the system develops failures or cooling problems.

55. The Caribbean component of the global project highlighted the need to encourage international suppliers or manufacturers of HC equipment and tools to offer a stronger presence in the region by, namely, developing the appropriate mechanisms and partnerships, and collecting and analyzing RAC market data. Additionally a number of measures would benefit the region as a whole, such as: planning regional group purchases of HC equipment and tools; creating a regional refrigeration association and using social media and other platforms to share the information among technicians; developing mechanisms to encourage local suppliers to distribute HC equipment and tools; formulating monitoring and incentive mechanisms to increase the participation of trainers and trained technicians in awareness-raising and capacity-building exercises; attracting additional financial support from international funding bodies for the introduction of low-GWP alternatives; considering the development of eco-labeling schemes for cooling appliances and reward schemes for consumers who buy energy-efficient and low-GWP cooling appliances; considering fees for appliances that high-GWP refrigerants; formulating compulsory technical requirements for designing, constructing or retrofitting civil buildings (e.g., offices, hotels, hospitals, schools and apartment blocks); reinforcing the presence of RAC technicians in regional meetings; reviewing ODS regulations to include all refrigerants and information on the updated regulations, taxes, safety mechanisms and dangers of illegal ODS; and creating mechanisms to effectively disseminate the information to stakeholders.

56. A conclusion drawn from the conversion from HCFC-141b-based to cyclopentane-based pre-blended polyols in the manufacture of rigid PU foam is that systems-house conversions can be a highly effective tool in facilitating the conversion of SMEs in the sector.

57. Similarly, the demonstration project for HCFC-free low-GWP refrigeration alternatives in the fisheries sector confirmed that the system's performance was slightly enhanced by the replacement of HCFC-22 with R-448A. Additionally, retrofitting the system within a reasonable time frame and without major disruptions to the vessel's operation did not require a complex skill set.

58. Pilot demonstration projects on ODS waste and disposal highlighted the need for a mandatory ODS tracking system included in the country's policies, with data entered by the importers detailing the movement of ODS, and for a national policy that includes the need to recycle ODS and promotes stakeholder's awareness, thus reducing emissions while increasing resource management by establishing a consistent and predictable supply of quality refrigerant.

59. The use of low-cost pentane technology for the conversion to non-ODS technologies in the production of PU foams has demonstrated that the initial capital cost can be reduced by designing a simple, standardized and easy-to-handle compact foaming machine capable of operating with flammable pentane with optimal safety and ventilation systems serving several products, thus eliminating the need for pentane storage and blending and the related equipment.

#### ODS alternative surveys

60. There are several challenges hindering the adoption of ODS alternatives, such as: a lack of explicit incentives; the high cost of alternatives compared to the technology to be replaced; the non-availability of specific alternatives (e.g., one country mentioned that the prevalence of HFC air-conditioning appliances is slowing down the penetration of R-290 in the local market); and the essential development of national standards to guide stakeholders in their use of low-GWP alternatives with higher-energy-efficiency products.

#### Verification reports

61. Verification reports contained a series of recommendations for ongoing and future projects, which

were mainly related to communication and data sharing, more specifically on: favouring a formal channel of communication between stakeholders (i.e., customs, NOUs, IAs and importers); post-clearance customs procedures; and the management of confiscated goods.

62. As for all other projects, coordination, monitoring and constant communication between all stakeholders is crucial to ensure that the auditor has access to the required supporting documents and data and thus, to achieve a successful verification. To do so, importers should be required to regularly submit a record of all imported refrigerants to the NOU, while customs should share its database of imported refrigerants and equipment with the NOU. Furthermore, an online system to process applications for import permits should be required, to allow for the independent verification of reported refrigerant imports.

63. In one project, it was recommended that a mandatory post-clearance reporting requirement be developed to foster the submission of customs declaration forms, thus enabling the NOU to: track the actual import statistics against the licenses issued to importers; cross-check the declaration of harmonised system codes; and reconcile import data with customs statistics to ensure data consistency. This would strengthen the monitoring, reporting, verification and enforcement system and help the country to prepare for HFC controls, which might prove challenging to data accuracy.

64. The management of confiscated goods containing ODS, including HCFCs and the management of consignments in transit through the customs territory needs to be reviewed. Moreover, customs procedures should be adapted to each country's reality. For example, one country suggested that consignments of goods be directed to the appropriate customs control points, which are equipped with identifiers, thus enabling quicker movement of goods at the border. However, identifiers need to be replaced when needed, to enable customs to adapt to new alternatives.

### **Outstanding MYA PCRs and PCRs**

65. The Secretariat notes with appreciation the efforts by some of the bilateral and IAs to address the backlog of outstanding PCRs.<sup>8</sup> The Secretariat stresses, once again, the importance of submitting the PCRs for stage I of the HPMP, as those PCRs are mandatory for the approval of stage II.<sup>9</sup>

### **RECOMMENDATION**

66. The Executive Committee may wish:

- (a) To note the 2020 consolidated project completion report (PCR) contained in document UNEP/OzL.Pro/ExCom/86/22;
- (b) To urge bilateral and implementing agencies to submit to the 87<sup>th</sup> meeting outstanding PCRs for multi-year agreements (MYAs) and individual projects, or to provide reasons for failing to submit such reports;
- (c) To urge lead and cooperating agencies to coordinate their work closely in finalizing their portion of PCRs to allow the lead implementing agency to submit the completed PCRs on schedule;
- (d) To urge bilateral and implementing agencies to enter clear, well-written and thorough

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<sup>8</sup> The SMEO stressed once again at the Inter-agency coordination meeting (Montreal, 25-27 February 2020) the importance of submitting all outstanding PCRs, noting that many projects had been completed several years ago, and that progress and financial reports on completed projects had to be submitted up until the PCRs had been submitted, which increased the workload of the Executive Committee, the bilateral agencies and IAs, and the Secretariat.

<sup>9</sup> Decision 81/29.

lessons when submitting their PCRs; and

- (e) To invite all those involved in the preparation and implementation of MYAs and individual projects to take into consideration the lessons learned from PCRs, if relevant, when preparing and implementing future projects.

**Annex I**

**MYA PCRs RECEIVED**

<b>Country</b>	<b>MYA sector</b>	<b>Lead agency</b>	<b>Cooperating agencies</b>
Brazil	HCFC phase-out plan (stage I)	UNDP	Germany
China	HCFC phase-out plan (stage I) - PU Foam	World Bank	
China	HCFC phase-out plan (stage I) - Industrial, commercial and air-conditioning (ICR)	UNDP	
China	Production HCFC (stage I)	World Bank	
India	Production CFC	World Bank	
Jordan	HCFC phase-out plan (stage I)	UNIDO	World Bank
Kenya	HCFC phase-out plan (stage I)	France	
Mexico	HCFC phase-out plan (stage I)	UNIDO	UNDP
Timor Leste	HCFC phase-out plan (stage I)	UNEP	UNDP
Venezuela (Bolivarian Republic of)	Production CFC	World Bank	



**Annex II**

**INDIVIDUAL PCRs RECEIVED**

<b>Code</b>	<b>Agency</b>	<b>Project Title</b>
ARG/ARS/56/INV/159	IBRD	Phase-out of CFC consumption in the manufacture of aerosol metered-dose inhalers (MDIs)
ARG/REF/18/INV/39	IBRD	Elimination of CFC in the manufacturing plant of domestic refrigerators of Neba, S.A.
ASP/REF/76/DEM/60	UNIDO	Promoting alternative refrigerants in air-conditioning for high ambient countries in West Asia (PRAHA-II)
BDI/PHA/73/TAS/32	UNEP	Verification report on the implementation of the HCFC phase-out management plan
BEN/PHA/77/TAS/34	UNEP	Verification report on the implementation of the HCFC phase-out management plan
BHE/PHA/75/TAS/32	UNIDO	Verification report for stage I of HCFC phase-out management plan
BRU/PHA/75/TAS/19	UNEP	Verification report on the implementation of the HCFC phase-out management plan
CBI/PHA/77/TAS/21	UNEP	Verification report on the implementation of the HCFC phase-out management plan
CHD/PHA/77/TAS/31	UNEP	Verification report on the implementation of the HCFC phase-out management plan
COL/FOA/76/DEM/100	UNDP	Demonstration project to validate the use of hydrofluoroolefins for discontinuous panels in Article 5 parties through the development of cost-effective formulations
COL/REF/75/DEM/97	UNDP	Demonstration of HC-290 (propane) as an alternative refrigerant in commercial air-conditioning manufacturing at <i>Industrias Thermotar Ltda</i>
COL/DES/66/DEM/82	UNDP	Demonstration project on end-of-life ODS management and destruction
CPR/FOA/59/DEM/491	World Bank	Conversion demonstration from HCFC-141b-based to cyclopentane-based pre-blended polyol in the manufacture of rigid polyurethane foam at Guangdong Wanhua Rongwei Polyurethane Co. Ltd
CPR/REF/76/DEM/573	UNDP	Demonstration project for ammonia semi-hermetic frequency convertible screw refrigeration compression unit in the industrial and commercial refrigeration industry at Fujian snowman co. ltd.
EQG/PHA/75/TAS/11	UNEP	Verification report on the implementation of the HCFC phase-out management plan
GLO/REF/76/DEM/333	UNIDO	Demonstration project on refrigerant quality, containment and introduction of low-global warming potential alternatives (Eastern Africa and Caribbean regions)
GLO/REF/76/DEM/335	UNIDO	Demonstration project for the introduction of trans-critical CO <sub>2</sub> refrigeration technology for supermarkets (Argentina and Tunisia)
IDS/ARS/56/TAS/184	IBRD	Technical assistance to implement national transition strategy to CFC-free metered-dose inhalers (MDIs)
IND/ARS/56/TAS/425	UNEP	Implementation of National Strategy for transition to non-CFC MDIs in India
LAC/SEV/51/TAS/38	Canada	Customs enforcement network for the Latin America network. Preventing illegal trade of ODS for the Latin American region
LEB/DES/73/DEM/83	UNIDO	Pilot demonstration project on ODS waste management and disposal
MDV/REF/76/DEM/30	UNDP	Demonstration project for HCFC-free low-GWP alternatives in refrigeration in fisheries sector

<b>Code</b>	<b>Agency</b>	<b>Project Title</b>
MOR/FOA/75/DEM/74	UNIDO	Demonstration of the use of low cost pentane foaming technology for the conversion to non-ODS technologies in polyurethane foams at small- and medium-sized enterprises
MOZ/PHA/77/TAS/28	UNEP	Verification report on the implementation of the HCFC phase-out management plan
NIR/DES/67/DEM/133	UNIDO	Demonstration project for disposal of unwanted ODS
ODS alternative surveys	UNEP	ODS surveys in the Africa Francophone region.
OMA/PHA/80/TAS/34	UNIDO	Verification report on the implementation of the HCFC phase-out management plan
SAU/FOA/76/DEM/27	UNIDO	Demonstration project for the phase-out of HCFCs by using HFO as foam blowing agent in the spray foam applications in high ambient temperatures
SAU/REF/76/DEM/29	World Bank	Demonstration project at air-conditioning manufacturers to develop window and packaged air-conditioners using low-global warming potential refrigerants
SIL/PHA/77/TAS/32	UNEP	Verification report on the implementation of the HCFC phase-out management plan
SOA/FOA/76/DEM/09	UNIDO	Demonstration project on the technical and economic advantages of the vacuum assisted injection in discontinuous panels plant retrofitted from HCFC-141b to pentane
SUD/PHA/80/TAS/41	UNIDO	Verification report on the implementation of the HCFC phase-out management plan
SUR/PHA/75/TAS/24	UNEP	Verification report on the implementation of the HCFC phase-out management plan

**Annex III**

**OUTSTANDING INDIVIDUAL PCRs**

<b>Project Number</b>	<b>Agency</b>	<b>Project Title</b>
ASP/REF/76/DEM/59	UNEP	Promoting alternative refrigerants in air-conditioning for high ambient countries in West Asia (PRAHA-II)
BGD/REF/80/INV/01+	UNDP	Conversion from HFC-134a to isobutane as refrigerant in manufacturing household refrigerator and of reciprocating compressor of HFC-134a to energy efficient compressor (isobutane) in Walton Hi-Tech Industries Limited
BOT/PHA/80/TAS/20	UNEP	Verification report on the implementation of the HCFC phase-out management plan
COI/PHA/80/TAS/26	UNEP	Verification report on the implementation of the HCFC phase-out management plan
CPR/ARS/51/INV/447	World Bank	Phase-out of CFC consumption in the pharmaceutical aerosol sector (2007-2008 biennial programme)
CPR/PRO/69/TAS/531	World Bank	Verification of production of CFCs for essential use
DJI/PHA/80/TAS/24	UNEP	Verification report on the implementation of the HCFC phase-out management plan
DMI/PHA/75/TAS/22*	UNEP	Verification report on the implementation of the HCFC phase-out management plan
DOM/REF/81/INV/63	UNDP	Conversion of a commercial refrigerator manufacturing line at <i>Fábrica de Refrigeradores Comerciales, SRL (FARCO)</i> from HFC-134a and R-404A to propane (R-290) as refrigerant
EGY/FOA/76/DEM/129	UNDP	Demonstration of low-cost options for the conversion to non-ODS technologies in polyurethane foams at very small users
EUR/REF/76/DEM/16	Russian Federation	Development of a regional centre of excellence for training and certification and demonstration of low-global warming potential alternative refrigerants
GAB/PHA/80/TAS/35	UNEP	Verification report on the implementation of the HCFC phase-out management plan
GLO/REF/47/DEM/268	World Bank	Global chiller replacement project (China, India, Indonesia, Malaysia and Philippines)
GLO/SEV/47/TAS/269	Portugal	Communication and cooperation support to Portuguese speaking countries (Angola, Cape Verde, East Timor, Guinea Bissau, Mozambique and Sao Tome and Principe)
GLO/SEV/63/TAS/309	World Bank	Resource mobilization for HCFC phase-out co-benefits study
GUY/PHA/77/TAS/29*	UNEP	Verification report on the implementation of the HCFC phase-out management plan
IND/HAL/34/INV/315	World Bank	Halon production and consumption sector phase out plan
JOR/FUM/29/INV/54	Germany	Complete phase-out of the use of methyl bromide in Jordan
JOR/PHA/38/INV/77	World Bank	National ODS phase-out plan: aerosol, foam, MAC service and solvent sectors
KUW/REF/75/TAS/29	UNEP	Comparative analysis of three not-in-kind technologies for use in central air-conditioning (feasibility study for district cooling)
ODS alternative surveys	World Bank	Survey of ODS alternatives at the national level
SWA/PHA/80/TAS/24	UNEP	Verification report on the implementation of the HCFC phase-out management plan
THA/FOA/76/DEM/168	World Bank	Demonstration project at foam system houses to formulate pre-blended polyol for spray polyurethane foam applications using low-global warming potential blowing agent
TOG/PHA/80/TAS/31	UNEP	Verification report on the implementation of the HCFC phase-out management plan

<b>Project Number</b>	<b>Agency</b>	<b>Project Title</b>
ZIM/PHA/75/TAS/52	Germany	Verification report for stage I of HCFC phase-out management plan

\* These PCRs were received after the deadline.

**Annex IV**

**OUTSTANDING PCRs BY DECISION**

<b>Country</b>	<b>MYA Sector/Title</b>	<b>Lead agency and Cooperating agency</b>
Democratic Republic of the Congo (the)	HCFC phase-out plan (stage I)	<b>UNEP/UNDP</b>
Egypt	Phase-out of CFC consumption in the manufacture of aerosol metered dose inhalers (MDIs)	<b>UNIDO</b>
Iraq*	ODS phase-out plan	<b>UNEP/UNIDO</b>
Iraq	Replacement of refrigerant CFC-12 with isobutane and foam blowing agent CFC-11 with cyclopentane in the manufacture of domestic refrigerators and chest freezers at Light Industries Company	<b>UNIDO</b>
Qatar	HCFC phase-out plan (stage I)	<b>UNIDO/UNEP</b>

\* These PCRs were received after the deadline.



**Annex V**

**OUTSTANDING MYA PCRs**

<b>Country</b>	<b>MYA Sector/Title</b>	<b>Lead agency and Cooperating agency</b>
Argentina	Production CFC	<b>World Bank</b>
Bahamas	CFC phase-out plan	<b>World Bank</b>
Bahrain*	CFC phase-out plan	<b>UNEP/UNDP</b>
Cameroon	HCFC phase-out plan (stage I)	<b>UNIDO</b>
China	CFCs/CTC/Halon accelerated phase-out plan	<b>World Bank/United States of America</b>
China	Process agent (phase I)	<b>World Bank</b>
Guyana*	HCFC phase-out plan (stage I)	<b>UNEP/UNDP</b>
Philippines	CFC phase-out plan	<b>World Bank/Sweden/UNEP</b>
Sudan	HCFC phase-out plan (stage I)	<b>UNIDO</b>
Vietnam	Methyl bromide	<b>World Bank</b>
Yemen	Methyl bromide	<b>Germany</b>

\* These PCRs were received after the deadline.