



HCFC PHASE-OUT MANAGEMENT PLAN – HPMP

**2017-2018 PROGRESS  
REPORT**

**(4° Tranche)**

**&**

**2019-2020 ACTION PLAN**

**(5° Tranche)**

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Prepared by  
**MINISTRY OF ENVIRONMENT AND ENERGY  
COSTA RICA**

With assistance of  
**UNITED NATIONS DEVELOPMENT PROGRAMME -  
UNDP**

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*February, 2019*

**PROJECT COVER SHEET: TRANCHE REQUEST**

<b>COUNTRY NAME</b>	<b>Costa Rica</b>
<b>LEAD IMPLEMENTING AGENCY</b>	<b>UNDP</b>
<b>COOPERATING IMPLEMENTING AGENCY</b>	

<b>SUBMISSION OF COMPLETE DOCUMENTATION</b>		
<b>Document</b>	<b>Yes/No</b>	<b>Comments</b>
<b>Progress report for previous tranche</b>	Yes	
<b>Financial report</b>	Yes	
<b>Verification report (where applicable)</b>	NA	
<b>Plan of action</b>	Yes	
<b>MYA tables (on-line)</b>	Yes	
<b>Revised Agreement (where applicable)</b>	Yes	The agreement for Costa Rica needs to be revised because an error was made in the approved version. The Baseline will remain the same but the starting point will be different. UNDP would like to discuss with the MLFS how this information can be presented to the ExCom.

<b>DATES OF RATIFICATION OF AMENDMENTS TO THE PROTOCOL</b>			
<b>Copenhagen</b>	August 6, 1998, Law 7808	<b>Beijing</b>	October 9, 2008, Law 8670
<b>Kigali</b>	February 14, 2018 Law 9522		
<b>Comments:</b>			

<b>HCFC REGULATIONS IN PLACE</b>		
<b>Regulation</b>	<b>Yes/No</b>	<b>Comments</b>
<b>HCFC licensing system</b>	Yes	Executive Decree No. 35676 SH-MAG-MINAET Regulation Act No. 7223 (adoption of the Montreal Protocol. Concerning Substances that Deplete the Ozone Layer, signed on September 16, 1987) and its amendments.
<b>HCFC quota system</b>	Yes	Executive Decree No. 37614-MINAET Regulation to implement a mechanism IMPORTING fees for phasing out the use of HCFCs listed in Group I of Annex C of the Montreal Protocol.

<b>SUBMISSION OF ODS DATA REPORTS</b>			
<b>Report</b>	<b>Yes/No</b>	<b>Year of data</b>	<b>Comments</b>
<b>Country programme</b>	Yes	2012	
<b>Article 7 data (latest report)</b>	Yes	2018	
<b>ODS data for year of tranche</b>	Yes	2018	
<b>Explain any data discrepancies:</b>			

<b>HPMP DOCUMENT</b>				
<b>Phase-out commitment (%)</b>	Freeze, 10%, 35%	<b>Year of commitment</b>	2013, 2015, 2020	
<b>Servicing only</b>		<b>Manufacturing only</b>	<b>Servicing/manufacturing</b>	X

## PROJECT COVER SHEET

### I. PROGRESS REPORT

(maximum 10 pages)

#### I.1 Background

The HCFC Phase Out Management Plan (HPMP) for Costa Rica, which includes the elimination of HCFC polyurethane foams for the manufacture of domestic refrigerators in Costa Rica, was approved at the 64th meeting of the Executive Committee of the Multilateral Fund, in Montreal in July 2011. For the implementation of this Plan the country pledged to start controlling the consumption of HCFCs with the freezing of its imports starting in 2013, with reference to the baseline reported for the period 2009-2010 (14.1). The first reduction of 10% over the baseline level will be held in 2015 and the second from 35% in 2020. The total amount approved for the implementation of the project was U.S. \$ 1,240,037 (U.S.\$ 1,153,523 for project costs and U.S. \$ 86.514 for support costs). For the project "Elimination of HCFC polyurethane foam for the manufacture of domestic refrigerators" the country's commitment was to eliminate the use of HCFC-141b as a blowing agent for good in the Domestic Refrigeration Sector. Additional projects in the foam sector will be presented in the future according to decisions 61/47 and 63/15.

The United Nations Development Program is the implementing agency of the Management Plan for the Elimination of HCFCs in Costa Rica.

#### I.2 ODS policy/legislative/regulatory and institutional framework

##### I.2.1 Status of ratification of amendments to the Montreal

Costa Rica has ratified the Montreal Protocol and all its amendments by the following summary:

- Ratified the Montreal Protocol in 1991 (Costa Rica 7223 Act)
- London Amendment in 1998 (Costa Rica 7808 Act)
- Copenhagen Amendment in 1998 (Costa Rica 7808 Act)
- Montreal Amendment in 2005 (Costa Rica 8443 Act)
- Beijing Amendment in 2008 (Costa Rica 8670 Act)
- Kigali Amendment in 2017 (Costa Rica 9522 Act)

##### I.2.2 ODS legislation/regulations

Environment care is one of Costa Rica's political pillars, so the country has established a complete legal framework aimed to protect the environment, counting with some norms and regulation to protect specifically the ozone layer.

1. Constitution of the Republic of Costa Rica: Articles 50, 140 clauses 3) and 18) and 146

2. Law No. 6227 of May 2, 1978, "General Law of Public Administration": Article 25 paragraph 1), 27 paragraph 1) and 28 paragraph 2).
3. Law No. 7554 of October 4, 1995, "Environmental Law": Items 1, 2, 3, 4, 5, 49, 59, 60 d), 62, 63 These and related.
4. Law No. 7228 of May 6, 1991, "Approval of Costa Rica's accession to the Vienna Convention for the Protection of the Ozone Layer".
5. Law No. 7223 of April 8, 1991, "Approval of the Montreal Protocol on Substances that Deplete the Ozone Layer".
6. Law No. 7808 of June 11, 1998 "Approval of Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer and its annexes adopted in the Second and Fourth Meeting of the Parties in London and Copenhagen, 1998".
7. Law No. 8443 of May 3, 2005, "Approval of the amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer and its annexes, 1997".
8. Act 8670 of October 9, 2008 "Approval of the amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer (1999).
9. Act "Adoption of the Kyoto Protocol of the UN Framework Convention on Climate Change": Article 1.
10. Law No. 8219 of March 8, 2002: Articles 1, 2, 3, 4, 38 and 39 of Executive Decree No. 35669 of December 4, 2009.
11. "Organic Regulations of the Ministry of Environment, Energy and Telecommunications "and his reforms.
12. Executive Decree No. 35676-SH-MAG-MINAET of August 6, 2009 "Regulations for the control of substances that deplete the ozone layer according to law 7223, as amended": Sections 4, 6, 11, 12, following and related.
13. Executive Order 37614-MINAET "Regulations to implement an import quota mechanism for phasing out the use of HCFCs listed in Group I of Annex C of the Montreal Protocol".
14. Law No. 9522 of February 14, 2018, "Approval of the Kigali amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer and its annexes.

Since 2010, Costa Rica applies a licensing system for the import of HCFC and HFC covered in regulation 35676 S-H-MAG-MINAET. This system is implemented by the National Ozone Unit (NOU), Bureau of Environmental Quality Management (DIGECA) for the Ministry of Environment and Energy (MINAE)), in coordination with the Directorate General of Customs, Ministry of Finance and Trade Office the Ministry of Foreign Trade.

### **I.3 HCFC consumption and production**

Costa Rica does not produce HCFCs. In this sense, the national consumption is based on imports and exports. Table 1 demonstrates the official data reported. As mentioned before, a quota system is in place since January 1st 2013.

**Table 1. HCFC consumption level in Costa Rica (ODP tons)**

HCFC	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
HCFC-22	10,60	9,45	18,62	16,98	9,80	9,80	8,56	8,55	8,43	7,65
HCFC-141b *	3,11	4,06	3,13	5,35	2,58	2,55	2,19	2,23	1,67	1,20
HCFC-142b	0,34	0,46	0,00	0,61	0,16	0,16	0,14	0,10	0,03	0,03
HCFC-124	0,13	0,04	0,00	0,05	0,02	0,02	0,01	0,01	0,00	0,00
HCFC-123	0,01	0,00	0,00	0,01	0,06	0,06	0,05	0,00	0,00	0,00
HCFC-225ca	0,00	0,00	0,00	0,00	0,00	0,02	0,05	0,00	0,00	0,00
HCFC-225cd	0,00	0,00	0,00	0,00	0,00	0,03	0,07	0,00	0,00	0,00
<b>Subtotal</b>	<b>14,20</b>	<b>14,01</b>	<b>21,75</b>	<b>22,99</b>	<b>12,60</b>	<b>12,64</b>	<b>11,08</b>	<b>10,89</b>	<b>10,13</b>	<b>8,88</b>

(\*) Only use as cleaning agent.

Table 1 show the volume of imports of HCFCs for the years 2011 to 2018 in ODP tons compared to the baseline (2009-2010), this behavior was expected, because the HCFC importers were aware of the implementation of the import quota system in 2013. With the implementation of the regulation of import quotas for HCFC consumption of these substances were reduce in 2013 to the maximum permitted levels. Quotas were allocated to importers in the month of November 2012. The total import of HCFCs by 2013 in Costa Rica may not exceed 14.1 ODP tonnes (Baseline), as set out in national legislation.

## **I.4 HCFC phase-out activities**

### **I.4.1 Phase-out activities in the refrigeration servicing sector**

#### **Actions 2017**

- Meeting with refrigeration technicians from Puntarenas to promote the reactivation of the local association.
  - Participation of 22 RAC technicians.
- Mission care of the company Devco to assess the potential of developing in Costa Rica projects of Cold Districts (thermal power plants) in the hospital sector, industrial parks, airport zone, hotel sector, government buildings.
- Workshop Execution: Potential in Costa Rica to establish Districts Cooling.
  - 62 participants (Industrial Sector, Commercial, Services, Academy)
- Presentation to Nicoya's refrigeration technicians at the Beirut Refrigeration Seminar; subject "Refrigerant Gases: international trend, its effects and national regulations"
  - Participation of 35 RAC technicians.
- Reprinting of 500 Good Practice Manuals with interactive DVD for training processes, distributed as follows:
  - National Institute of Learning (INA) 300 units.
  - Technological of Costa Rica, School of Electromechanical Engineering 100 units.
  - University of Costa Rica, Faculty of Mechanical Engineering 100 units.
- Participation in international seminar: "Technological options of low global warming potential for refrigeration systems in supermarkets". Santiago of Chile.
- Execution of 14 training courses in Good Service Practices for refrigeration equipment and refrigerant handling carried out by the INA and Collaborating Centers.
  - 219 trained technicians.

- 241 RAC technicians evaluated in Good Practices and Refrigerant Handling through INA Occupational Certification Tests.
- 125 identification cards were issued, granted by MINAE, for refrigeration technicians who executed the training program on Good Practices and Refrigerant Handling.
- Destruction of 814.60 kg of HCFC-22.

## **2018 Actions**

- Meeting with refrigeration technicians of Limón to present "Regulations and periods of displacement of refrigerants in Costa Rica in response to the Montreal Protocol" and promote the creation of a local association.
  - Participation of 25 RAC technicians.
- Meeting with technical refrigeration personnel of the Monteverde cheese plant to present "Regulations and periods of displacement of refrigerants in Costa Rica in response to the Montreal Protocol".
  - 8 participants.
- Training of professors and engineering students on regulatory issues, actions of the Montreal Protocol and natural refrigerants.
  - 2 workshops.
  - 60 students.
  - 10 teachers.
- Technical visit of engineering students to the NH<sub>3</sub> / CO<sub>2</sub> pilot project in cascade in the food manufacturing sector.
  - 50 students.
- Provision of consumables and spare parts for equipment of the Laboratory of the General Directorate of Customs in response to the Cooperation Agreement between the General Directorate of Customs and the Ministry of Environment and Energy (MINAE).
- Copromotor of the establishment of the National Technical Committee # 86 (CTN 86) of INTECO for the adoption of national regulations for: design, installation and dismantling of closed circuit ammonia systems, currently standards:
  - INTE W68 2019.
  - INTE W69 2019.
  - INTE W70 2019.
- Acquisition of equipment for the preparation of personal identification cards for Refrigeration Good Practices and Refrigerant Handling to refrigeration technicians who apply for a MINAE card.
- Acquisition of recovery equipment and storage tanks for refrigeration laboratories of:
  - School of Electromechanical Engineering, Technological of Costa Rica, a recovery machine, and two tanks.
  - Faculty of Mechanical Engineering, University of Costa Rica, a recovery machine and two tanks.
- Acquisition of 10 domestic refrigeration equipment with natural refrigerants (R-600a) for training practices in schools and technical schools:
  - Professional Technical School of Calle Blancos. (2)
  - National Institute of Learning (INA). (4)
  - CEDES Don Bosco Technical College. (2)
  - Samuel Foundation. (2)
- 18 training courses in Good Service Practices for refrigeration equipment and refrigerant handling carried out by the INA and Collaborating Centers.
  - 226 trained technicians.

- 177 RAC technicians evaluated in Good Practices and Refrigerant Handling through INA Occupational Certification Tests.
- Destruction of 298.00 kg of HCFC-22.
- Execution of a 248 identification card, granted by MINAE, for refrigeration technicians who executed the training program on Good Practices and Refrigerant Handling.
- Training of PINOVA technical staff in the operation, maintenance and safety of NH<sub>3</sub>/CO<sub>2</sub> cascade systems in Guayaquil, Ecuador; through specialized personnel from the Mayekawa company of Ecuador: 6 people trained.
- 3 special handling waste managers with technical capacity to recover, store and transport refrigerant gases CFC, HCFC and HFC to destruction.

#### **I.4.2 Phase-out activities in the industrial manufacturing sector**

During the 76th meeting of the Multilateral Fund's Executive Committee for the Implementation of the Montreal Protocol, Costa Rica's implementation proposal was approved, it consisted in a pilot project called "Replacement of a HCFC-22 refrigeration system by a R-717/R-744 (NH<sub>3</sub>/CO<sub>2</sub> in cascade) system in cold storage warehouse finished product of Premezclas Industriales para Panadería S.A."; this refrigeration system is characterized by using two circuits, one of NH<sub>3</sub> (ammonia) and another of CO<sub>2</sub> (carbon dioxide), being NH<sub>3</sub> in the high temperature system and CO<sub>2</sub> in the low temperature circuit driven by pumps, where CO<sub>2</sub> is used as a heat transfer fluid (Brine). This characteristic makes this project not only innovative but also being the first and only one in the Central American region that has been adopted in the food manufacturing industry.

The project replaced an original refrigeration system that used HCFC-22 as a refrigerant with a cooling capacity of 176 kW (50 TR), responsible for maintaining an average temperature of -11° Celcius in the finished product chamber.

The new NH<sub>3</sub>/CO<sub>2</sub> cascade system began its implementation on June 2017 and it was launched on January 2018.

The project's implementation achieves the displacement of 909 kg of HCFC-22 that were installed in an equipment that exceeded its useful life, for more than 15 years, and reduced the emission of HCFC-22 used in the system's maintenance activities due to the leaks of this refrigerant, whose average consumption during fiscal years of 2015-2016 and 2016-2017 was 1314 kg. Therefore, considering the ODP and GWP of HCFC-22 there is a benefit in the protecting the ozone layer and climate.

The new technology that was adopted allows PINOVA to reach temperatures of -18° Celcius in the finished product chamber, a result never achieved before with the original system and from the energy consumption point of view, the NH<sub>3</sub>/CO<sub>2</sub> system is more efficient than the original installation. During the first two months of 2018 (January and February) PINOVA company reports a 10% reduction in the billed energy with regards to the normal manufacturing levels during 2017. It is expected that when the system stabilizes and there will be administration culture of opening of freezer's doors of the finished product chamber, the energy saving could reach up to 20%, according to the estimate that was made.

It is demonstrated that the use of NH<sub>3</sub>/CO<sub>2</sub> cascade system, with recirculated CO<sub>2</sub> brine, is an innovative solution for medium manufacturing companies in Costa Rica, which can be adopted by other national and/or regional companies that require finding a definitive solution due to the imminent displacement of refrigerants that deplete the ozone and produce atmospheric warming.

The new system provides PINOVA lower production costs due to the reduction of the operational costs by lowering the electricity consumption, fewer maintenance interventions, the non-acquisition of HCFC-22 to replace the refrigerant gas that escapes into the environment and the use of natural gases that cost less with respect to chemical refrigerants.

The alternative selected by PINOVA allows it to contribute to the business commitment of Carbon Neutral and to Costa Rica's Carbon-Neutrality target by 2021.



**Table 2. Summary of activities 2017-2018.**

Project	Activities/Achievements
<b>INDUSTRIAL MANUFACTURING SECTOR</b>	
“Replacement of a HCFC-22 refrigeration system by a R-717/R-744 (NH <sub>3</sub> /CO <sub>2</sub> cascade) system in cold storage warehouse finished product of Premezclas Industriales para Panadería S.A.”	Industrial refrigeration system reconversion achieves the displacement of 909 kg of HCFC-22 that were installed in an equipment that exceeded its useful life, for more than 15 years.
<b>Total foam sector</b>	
<b>REFRIGERATION SECTOR</b>	
Build capacity of service technicians and professionals	4 workshops to promote the association and certification process for 90 RAC technicians (Puntarenas, Limón, Monteverde, Nicoya).
	32 Good Practice courses with 445 trained technicians.
	418 technicians evaluated by occupational training processes to obtain their certificate of Good Practices.
	373 new technicians with a MINAE card, for a total of 1108 to 2018.
	Strengthening of the technical capacity of the customs laboratory for analysis of refrigerant samples for destruction.
	Improvement of technical school equipment with the acquisition of 10 domestic refrigeration units with R-600a.
	Reprinting of 500 Good Practice manuals for training courses
	Adoption of national regulations for the design, installation and dismantling of closed circuit ammonia refrigeration systems, through INTECO.
Establish mechanisms that facilitate users’ selection of efficient equipment, incentives system that promotes the commercialization of equipment with the eco-efficiency seal.	1 workshop to present the potential of Costa Rica to establish cold districts. (62 participants)
	Monitoring of Project Pilot implementation with use NH <sub>3</sub> /CO <sub>2</sub> in two stages in PINOVA.
	3 workshops for engineering students on issues of Montreal Protocol and National Regulations. 70 participants.
	3 technical visits with engineering students to a pilot NH <sub>3</sub> / CO <sub>2</sub> cascade project. (PINOVA) 50 participants.

**Table 3. Summary of activities 2017-2018. (continuation)**

Project	Activities/Achievements
Update the import and export control systems for reliable and easy to access for authorized users	No actions require in this filed.
Strengthen capacity of HCFC recovery and use	Provision of recovery equipment for refrigeration laboratories of the leading engineering universities in Costa Rica.
Establish a mechanism for storage of unwanted ODS including HCFCs	New agreements with stake-holders and industrial sectors for destruction of ODS in cement kiln to increase the time of cooperation destruction phase.
	3 special waste companies with capacity to manage and store HCFC 22, CFC12 and HFC 134a.
	Destruction of 1112.6 kg of HCFC22.
Programme management and monitoring	Hiring of consultants for technical and managerial assistance to HPMP activities. Technical and managerial assistance to project activities.

#### I.4.5 Project management unit

The HPMP is run by the NOU, with the support of an interagency Commission which also involved the DSE and the Department MINAE Climate Change, the Directorate General of Customs, Ministry of Finance, the Chamber of Industries of Costa Rica, the INA's Electrical Core Sector Cooling Area, GIZ, UNDP, the University of Costa Rica (UCR) and the Technological of Costa Rica (TEC).

The Commission discussed the prioritization of activities related for the implementation of the project. The participation of different actors has allowed the establishment a work schedule with the allocation of tasks and responsibilities.

Also the General Customs Directorate worked together with OTO on HCFC Control measures and legal framework.

## I.5 Financial report

**Table 4. Total tranches expenditures (2013-2018) in US\$.**

Component	Total US\$	I Tranche US\$	Expenditures US\$	Tranche I Balance US\$	II Tranche US\$	Expenditures US\$	Tranche II Balance US\$	III Tranche US\$	Expenditures US\$	Tranche III Balance US\$	IV Tranche US\$	Expenditures US\$	Tranche IV Balance US\$	Tranche I, II, III & IV Total Expenditures US\$	Tranche I, II, III & IV Total Balance US\$	Tranche I, II, II & IV Execution %	Total Project Balance SUSD
<b>REFRIGERATION SECTOR</b>																	
Build capacity of service technicians and professionals	\$ 48 000	\$ 43 000	\$ 6 000	\$ 37 000	\$ 18 000	\$ 16 335	\$ 1 665	\$ -	\$ 23 055	\$ (23 055)	\$ 4 000	\$ 3 983,00	\$ 17,00	\$ 49 373	\$ 15 627	76,0%	\$ (17 000)
Establish a mechanisms that facilitate users' selection of efficient equipment, incentives system that promotes the commercialization of equipment with the eco-efficiency seal	\$ 60 000	\$ 10 000	\$ 2 000	\$ 8 000	\$ 30 000	\$ 37 126	\$ (7 126)	\$ 5 000	\$ 1 124	\$ 3 876	\$ 4 000	\$ 4 150,00	\$ (150,00)	\$ 44 400	\$ 4 600	90,6%	\$ 11 000
Update the import and export control systems for reliable and easy to access for authorized users.	\$ 80 000	\$ 29 000	\$ 2 317	\$ 26 683	\$ 20 000	\$ 44 103	\$ (24 103)	\$ 4 000	\$ 1 998	\$ 2 002	\$ -	\$ 255,17	\$ (255,17)	\$ 48 673	\$ 4 327	91,8%	\$ 27 000
Strengthen capacity of HCFC recovery and use.	\$ 105 000	\$ 25 000	\$ 3 847	\$ 21 153	\$ 50 000	\$ 20 016	\$ 29 984	\$ 5 000	\$ 31 990	\$ (26 990)	\$ 20 000	\$ 11 342,00	\$ 8 658,00	\$ 67 195	\$ 32 805	67,2%	\$ 5 000
Establish a mechanism for storage of unwanted ODS including HCFCs.	\$ 155 000	\$ 37 575	\$ 2 000	\$ 35 575	\$ 10 000	\$ 13 590	\$ (3 590)	\$ 24 000	\$ 35 078	\$ (11 078)	\$ 20 000	\$ 17 456,00	\$ 2 544,00	\$ 68 125	\$ 23 450	74,4%	\$ 63 425
Programme management and monitoring	\$ 112 000	\$ 23 425	\$ 5 000	\$ 18 425	\$ 40 000	\$ 55 822	\$ (15 822)	\$ 24 000	\$ 41 833	\$ (17 833)	\$ 58 000	\$ 47 800,00	\$ 10 200,00	\$ 150 455	\$ (5 030)	103,5%	\$ (33 425)
<b>Refrigeration Sector Total</b>	<b>\$ 560 000</b>	<b>\$ 168 000</b>	<b>\$ 21 164</b>	<b>\$ 146 836</b>	<b>\$ 168 000</b>	<b>\$ 186 992</b>	<b>\$ (18 992)</b>	<b>\$ 62 000</b>	<b>\$ 135 078</b>	<b>\$ (73 078)</b>	<b>\$ 106 000</b>	<b>\$ 84 986</b>	<b>\$ 21 014</b>	<b>\$ 428 220</b>	<b>\$ 75 780</b>	<b>85,0%</b>	<b>\$ 56 000</b>
<b>TOTAL TRANCHE</b>		<b>\$ 168 000</b>			<b>\$ 168 000</b>			<b>\$ 62 000</b>			<b>\$ 106 000</b>						<b>56000</b>

**Table 4. Total Project Balance in US\$.**

Total Project budget (5 tranches)	\$ 560 000,00	Dec 2018
Total Tranches recibed (4)	\$ 504 000,00	
Total Project Expenditures	\$ 428 220,44	
Balance	\$ 75 779,56	
Total Ejecution 4th tranche	80%	
Total Project Ejecution	85%	

**II. PLAN OF ACTION**

Table 5. Plan of action fifth tranche.

Agency	Project	Remaining activities from Tranche 4	Balance 2018 to be transferred to 2019 - 2020 (US\$)	Activities for 2019-2020 (Tranche 5)	Requested funds (US\$)	Total Budget 2019 - 2020
<b>REFRIGERATION SERVICING SECTOR</b>						
UNDP	Build capacity of service technicians and professionals	Continue promote the association of certified technicians in refrigeration and air conditioning, including ammonia.	\$ 15,627	Promote the adoption of regulations for the design, installation and service of RAC equipment.	\$ 10,000	\$ 25,627
		Strengthen engineering schools in the use of natural refrigerants.		Establish a regulatory platform for the control of purchase, use and final disposal of refrigerant gases.		
		Continue with design of the structure for the implementation of a certification procedure for RAC technicians.		Generate legislation and / or regulations to establish the mandatory use of the MINAE card for all RAC technicians.		
				Design contents of new mandatory courses for renewal of the MINAE card.		

Table 5. Plan of action fifth tranche. (continues)

Agency	Project	Remaining activities from Tranche 4	Balance 2018 to be transferred to 2019 - 2020 (US\$)	Activities for 2019-2020 (Tranche 5)	Requested funds (US\$)	Total Budget 2019 - 2020
<b>REFRIGERATION SERVICING SECTOR</b>						
UNDP	Establish a mechanism that facilitate users' selection of efficient equipment, incentives system that promotes the commercialization of equipment with the eco-efficiency	Continuous with actions for the adoption of cold districts in institutions and companies with potential to realize the conceptual change.	\$ 4,600	4 workshops to promote the use of equipment with natural refrigerants.	\$ 12,000	\$ 16,600
				4 demonstration activities or companies who installed and use new technologies in the RAC sector (natural refrigerant).		
				Participation in congresses and RAC sector activities in Costa Rica to promote installation of RAC systems with new technologies.		
UNDP	Update the import and export control systems for reliable and easy to access for authorized users.	6 Training sessions to customs officer about the new regulations include in the Montreal Protocol.	\$ 4,327	No more action requires in this field.	\$ 0	\$ 4,327

Table 5. Plan of action fifth tranche. (continues)

Agency	Project	Remaining activities from Tranche 4	Balance 2018 to be transferred to 2019 - 2020 (US\$)	Activities for 2019-2020 (Tranche 5)	Requested funds (US\$)	Total Budget 2019 - 2020
<b>REFRIGERATION SERVICING SECTOR</b>						
UNDP	Strengthen capacity of HCFC recovery and use.	Increase the national capacity to collect non-reusable refrigerant gases.	\$ 32,806	Generate refrigerant gas collection activities in the localities where work groups have been established (technical associations).	\$ 5,000	\$ 37,806
				Promote the destruction of ODS banks as much as possible.		
UNDP	Establish a mechanism for storage of unwanted ODS including HCFCs.	Monitoring the process of destruction of stored refrigerant gas.	\$ 23,450	Monitor the actions of the special handling waste managers (refrigerant gases and RAC equipment)	\$ 10,000	\$ 33,450
				Increase the collection capacity of non-reusable gases. Better equipment and / or quantity of managers.		
				Transfer experience of gas destruction from Costa Rica to other countries in the region.		
UNDP	Implementation of a Monitoring Unit		\$ (5,030)	Technical and managerial assistance to project activities	\$ 19,000	\$ 13,970
<b>TOTAL</b>			<b>\$ 75,780</b>		<b>\$ 56,000</b>	<b>\$ 131,780</b>