

Project Document

Government of Suriname

Ministry of Labour, Technological Development and Environment

United Nations Development Programme

Implementation of the RMP: Technical Assistance Project for the MAC & Refrigeration Service Sectors

Brief description:

The aim of the Technical Assistance Project, envisioned as a component of Suriname's Refrigerant Management Plan (RMP), that was presented and approved at the 41st Meeting of the Executive Committee of the Multilateral Fund, is to train technicians in recovery and recycling of refrigerants, undertake retrofits of CFC based equipment and supply tools and equipment, including recovery and recycling (R&R) infrastructure to the MAC and refrigeration service sectors. Training Workshops for MAC and commercial refrigeration service technicians will be held to familiarise these with the RMP and the R&R Programmes. The co-ordination of the Technical Assistance Project and the overseeing of the monitoring of the RMP, with periodic reports, as provided for within the RMP, will be carried out by the National Ozone Unit (NOU), of the National Institute for Environment and Development in Suriname (NIMOS) of the Ministry of Labour, Technological Development and Environment.

SIGNATURE PAGE

Country: **Suriname**

UNDAF Outcome(s)/Indicator(s):

A comprehensive environmental policy, developed with participation of social partners, including civil society and the private sector.

http://www.undp.org/documents/32-3-Suriname_2002_2006.doc

Expected Outcome(s)/Indicator (s): Suriname meeting its reporting and other obligations under various international environmental conventions

<http://www.undp.org/execbrd/word/CCFSUR2.doc>

Expected Output(s)/Indicator(s): Reduction of the consumption of CFC refrigerant by 16 ODPtonnes (8 ODPtonnes/year)., this in order to meet the Montreal Protocol requirements as to the freeze and subsequent reduction of ODS consumption

Implementing partners:

Ministry of Labour, Technological Development and Environment

UNDP

Other Partners:

National Institute for Environment and Development in Suriname (NIMOS)

Programme Period: 2002-2006 Programme Component: 2004-2005 Project Title: Implementation of the RMP: technical Assistance Project for the MAC & Refrigeration Service Sectors Project Code: SUR/REF/44/TAS/009 Project Duration: 30 months
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Total budget:	US\$ 300,430
Allocated resources: Multi lateral Fund	US\$ 300,430

Agreed by (Government):

Date _____

R. O. van Ravenswaay, Minister of Planning and Development Cooperation

Agreed by (Implementing partners):

Date _____

C.P. Marica, Minister of Labour, Technological Development and Environment

Environment

Date _____

S. Ang, Acting Director NIMOS

Date _____

Inyang Ebong-Harstrup; UNDP Resident Representative

Agreed by (UNDP):

Date: _____

Inyang Ebong-Harstrup; UNDP Resident Representative

List of Acronyms

ATM	Labour, Technological Development and Environment (Arbeid, Technologische Ontwikkeling and Milieu)
CBD	Convention on Biological Diversity
CBO	Community Based Organization
CCF	Country Cooperation Framework
CFC	chlorofluorocarbon
CoP	Conference of the Parties
EU	European Union
GEF	Global Environment Facility
GOS	Government of Suriname
IDB	Inter American Development Bank
MAC	mobile air conditioners
MOP	Multi-Annual Plan
NCSA	National Capacity Self-Assessment
NGO	Non-governmental organization
NIMOS	National Institute for Environment and Development in Suriname
NMR	National Council for the Environment)
NOU	National Ozone Unit
NUES	Non Urban Environment Sector
OAIC	Ozone Action Information Clearinghouse
ODP	Ozone Depletion Potential
ODS	Ozone depleting substances
PIU	Project Implementation Unit
PLOS	Planning and Development Cooperation
R&A/C	Refrigeration and air-conditioning
R&R	Recovery and recycling
RMP	Refrigerant Management Plan
SWAP	Sector Wide Approach
TC	Technical Committee
TPR	Tri- Partite Review
TRAC	Target for Resource Assignment from the Core (UNDP)
UNDP	United Nations Development Programme

Section I

Part I. Situation analysis

1 BACKGROUND, CONTEXT and RELATED WORK

1.1 General

The Republic of Suriname lies on the north coast of South America, bordered by Brazil, Guyana and French Guiana. As a former Dutch colony, it gained independence from the Netherlands in 1975. Suriname is one of the least densely populated countries in the world, with a human population of about 480,000. Roughly 87- 90% of the population is concentrated in the capital city of Paramaribo and along the coastal region, while the remaining 10-13 % of the population lives in the interior, mostly in small villages. The varied population includes Creoles, Indians, Javanese, Maroons - who represent the only intact communities descended from runaway slaves in the New World - Amerindians and Chinese. Almost all-economic activities are concentrated along the coastal zone and the interior of the country has witnessed little development Suriname is highly dependent on resource extraction. Bauxite mining for aluminium production plays a central role in Suriname's economy, and alumina exports make up approximately 60% of revenues and 70% of export earnings. Gold mining and oil production show significant potential and will likely expand in the near future. Agricultural production, which is concentrated in the coastal zone, consists mainly of rice and bananas, and accounts for 27% of export earnings and 15% of employment. Per capita income is estimated at US\$ 2,201 (2002).

1.2 Phase-out of Ozone depleting substances (ODS)

Suriname acceded to the Vienna Convention for the Protection of the Ozone Layer and the Montreal Protocol on Substances that Deplete the Ozone Layer on 14th October 1997. In April 2005, Suriname ratified the London, Copenhagen, Beijing and Montreal Amendments. Suriname's Country Programme for the phase-out of ODS was presented and approved at the 41st Meeting of the Executive Committee of the Multilateral Fund.

The baseline consumption of Annex A Group 1 ODS is 41.3 ODP tonnes, and consumption for the years 2000 – 2003, as reported to the Ozone secretariat were:

Consumption/Year	Baseline	2000	2001	2002	2003
Consumption of Annex A CFCs (ODP tonnes)	41.3	44	46	46	12.34
Of which, R-12 consumption (ODP Tonnes)	37	38	39	40	12

The sharp drop in reported consumption for 2003 is the result of reduced imports made possible because of a number of reasons. Firstly, in anticipation of a ban on imports of CFCs, some importers accumulated stockpiles to meet their anticipated demand. However, through the outreach work of the

National Ozone Unit (NOU), they now understand that the ban will be adopted through a step down approach, and will take place on the basis of quotas which will diminish over time, to reach zero in 2010. As a result, they have drawn down on their stocks, thereby reducing imports and, as a result, reducing the consumption reported. In addition, the work of the NOU has brought to the attention of importers and retailers the seriousness of the illegal trade that was taking place between Suriname and Guyana to the West, and with French Guyana to the East, thereby reducing this activity considerably. The public education and awareness activities of the NOU has also brought matters related to ozone layer depletion and the need to make responsible purchase decisions to the attention of the general public. Although this would have contributed minimally to the reduction reported in 2003, its impact on future demand should be significant.

Given these factors, it was necessary for the purpose of this exercise to undertake a rigorous estimate of the consumption in 2003 by conducting a demand analysis for each sector and sub-sector. This analysis, which yielded a consumption level of 35.875 ODP tonnes in 2003, is presented in paragraph 2 below.

The estimated 35.875 tonnes of CFC-12 consumed in Suriname during 2003, was employed by the refrigeration service sector. Virtually all of this CFC-12 consumption can be attributed to replenishment after leaks and the purposeful venting before and during servicing activities, such as repairs, maintenance, leak detecting and the cleaning of MAC units or refrigeration and air-conditioning (R&A/C) equipment and installations.

The greater proportion of this consumption is in the servicing of vehicles fitted with MACs, including replenishment of the refrigerant charge after leakage. While most of the MAC units are found in cars, other vehicles, such as pick-ups, delivery vans, lorries and buses are also air-conditioned.

1.3 OZONE CONSUMPTION ESTIMATES

1.3.1 MACs.

The Statistical Yearbook of 2000 for Suriname reports that in 2000 there were 78 517 cars, SUVs and Pick-up trucks that reported for inspection. The Road Transport Division and the Vehicle Inspection Division of the Suriname Police Force agree that the actual figure could be about 30% higher, given the proportion of vehicle owners who do not report for vehicle inspections annually, as required by law. With all the records of the Central Statistics Office lost in a recent fire, the above data was extrapolated to give an estimated 115 000 cars, SUVs and Pick-up trucks on the roads in 2003. It should be noted that in Suriname there is a ban on the importation of used vehicles eight years old and over. As a result, CFC-based vehicles were available in Suriname up to 2003. Interviews with service agencies indicate that of the total number of vehicles, 60% have air-conditioning units, 40% of which are based on CFC-12 technology. Further, it is estimated that 60% of these air-conditioning systems are serviced annually and at each service 1.5 kg of gas is used. This unusually high figure is the result of venting of any residual gas prior to servicing, the use of refrigerant for flushing the system, if needed, and a complete re-charge of the system. Further, no recovery or recycling of refrigerants is practiced in Suriname. Based on the above, it is estimated that 24.880 ODP tones of CFC-12 was used in the servicing of MACs in 2003.

Without any interventions and considering a MAC unit's average operative useful life-time of about 10 years, the estimated reduction and remaining quantities of ODS based MAC units would be as given in the table below.

<u>YEAR</u>	2003	2005	2007	2010
Percentage of vehicles with CFC-12 MAC that were still on the road in 2003	100%	78%	56%	22%
CFC-12 Mobile Air-conditioning units in active service (15 years old)	27 600	22 356	18 108	13 200

One can see that a substantial proportion of the MAC equipment present in 2003 will continue to exist by the year 2010.

1.3.2 Buses.

The Statistical Yearbook (2000) reported 2 393 registered buses. Based on estimates of the number of unregistered buses, and extrapolating to 2003, an estimate of 3500 buses is estimated to be in service. Of these, 50% are considered to have CFC-12 air-conditioning systems installed. They require servicing on average every 2 years, and 2 kg of refrigerant is used for each service. Based on these assumptions, 2.625 ODP tonnes of CFC-12 was used to service buses in 2003.

1.3.3 Refrigerated trucks.

There are an estimated 200 refrigerated trucks in Suriname in 2003, imported mainly from Trinidad. Of these, 60% are estimated to have CFC-12 refrigeration systems, with a charge of 5 kg, and requiring service every 2 years. Assuming a full recharge with each service, the estimated consumption in 2003 was 0.300 ODP tonnes of CFC-12.

1.3.4 Commercial sector.

There is an estimated 4000 commercial enterprises, comprising mainly of grocery shops, medium sized supermarkets and similar retail outlets, bars, restaurants and frozen foods outlet in Suriname in 2003, with a total of 10 000 refrigeration units employed. Of these, 35% are estimated to be based on CFC-12 technology, with an initial charge of 1kg, and requiring service once in two years. Assuming a full charge for each service, the demand for 2003 is estimated to be 1.750ODP tonnes of CFC-12.

1.3.5 Industrial Sector.

Industry estimates indicate that there were 2000 industrial refrigeration units in Suriname in 2003, comprising mainly of locally constructed units of 30 – 50 m³ capacity or 20 foot refrigerated containers converted for this purpose. Of these, 40% are believed to have CFC-12 systems with an average initial charge of 10 kg. These systems are estimated to require service once every two years, and require a full charge at each service. Based on these figures, the demand for CFC-12 from the industrial sector in 2003 was 4.0 ODP tonnes.

1.3.6 Domestic Sector.

There was an estimated 96 000 domestic refrigeration units in 2003, of which 50% are believed to have CFC-12 technology. It is further estimated that of these, 25% are serviced annually, and 0.2 kg of refrigerant is used for each service (this includes recharge of the system and the use of the refrigerant to flush the system when necessary). Based on these assumptions, the demand for CFC-12 from the domestic sector in 2003 was 2.40 ODP tonnes.

1.3.7 Summary of Consumption Estimates for 2003.

Sectors	Sub-sector	Consumption estimate (ODP tonnes)	Sector Total	Percentage of total
Mobile Systems	MACs	24.880	27.725	77.3%
	Buses	2.625		
	Refrigerated trucks	0.300		
Fixed Systems	Commercial Sector	1.750	8.150	22.7%
	Industrial	4.000		
	Domestic	2.400		

1.4 ENABLING POLICY FRAMEWORK.

1.4.1 Licensing System.

The Government of Suriname has included CFCs and equipment containing CFCs in the Negative List of imports. As such, all importers of CFCs and related equipment now require a license issued by the Ministry of Trade and Industry prior to importation. A quota system for the importation of CFCs, under which decreasing quotas will be assigned to importers, based on the Protocol limits for Suriname is being developed. These two requirements, along with a ban on the importation of equipment containing CFCs, including CFC-based compressors, have been brought together in a comprehensive import/export licensing system which is being implemented in the form of a State Decree Negative List. The missing element in the effective enforcement of the licensing system is the training of enforcement officers. The urgency of this training is further underscored by the illegal trade between Suriname and its neighbours. This training was approved by the Executive Committee at its 41st Meeting and UNEP expects to conduct this training later this year or early next year.

1.4.2 Price of CFCs and Alternatives.

Based on the discussion above, it is not considered necessary at this stage to adjust the relative prices of refrigerants through consumption tax adjustments in order to encourage changing CFC-based systems to non-CFC technology. Rather, the NOU will monitor the impact of reduced CFC supplies and the unavailability of CFC-based compressors will have on retrofit practices and based on the observations, will decide if this action will become necessary in the future.

1.4.3 Refrigeration Association.

The Government of Suriname, based on a strong call from stakeholders, views the establishment of an End User Refrigeration Association as part of the policy infrastructure required to manage the industry. Through the Association, the Government hopes to set standards for entry into the profession, provide training to those seeking entry and establish guidelines for the purchase and use of refrigerants. The Association could also serve as a policy advisory body to the Government as it moves towards meeting its commitments under the Montreal Protocol.

1.4.4 MAC retrofit technology overview and selection.

The following three options are potentially available to a vehicle owner with a MAC unit to eliminate CFC consumption:

a) Replacement of the existing CFC-12 based MAC unit with a unit designed to employ HFC-134a refrigerant.

This option requires a major investment in new equipment. New MAC units based on zero-ODP refrigerants such as HFC-134a are commercially available and may be considered as a “once off” permanent replacement with no further change in refrigerant necessary during the lifetime of the unit.

b) Retrofit of existing CFC-12 based MAC unit to employ HFC-134a refrigerant.

This option will prolong the useful working lifetime of existing unit, is technically feasible for virtually all existing MAC units designed to employ CFC-12, and in most cases would be more cost effective than replacement with a new unit.

c) Drop-in Ternary Blend Replacement Refrigerants.

The objective of this option is also to prolong the useful lifetime of the existing unit. This would be achieved by the employment of ternary refrigerant blends, typically containing a mixture of HFCs and sometimes HCFCs or Hydrocarbons. Some blends have been especially designed to replace CFC-12 in MAC units. However, in most cases the employment of these blends will also require similar system changes as in a HFC-134a retrofit, namely a change of compressor oil and the filter dryer or the replacement of the expansion device. During the period when HFC-134a was expensive or in short supply, the lower initial cost of using a "drop-in" blend rather than performing a retrofit to HFC-134a might have been attractive, but even in these cases both the operating cost and the future availability of the refrigerant blend had to be considered. Conversion from a CFC refrigerant to a low-ODP refrigerant blend, particularly those containing HCFCs may only be considered as an “interim” conversion that will require a further change to a zero-ODP refrigerant in the future.

It should also be noted that:

- By definition, a “drop-in” refrigerant implies minimal system changes and little more than simple replacement of one refrigerant with another. In this case the conversion can easily be reversed and the elimination of CFC consumption cannot be considered permanent as it may not be sustained.
- “Drop-in” conversions of MAC units from CFC-12 to ternary refrigerant blends have seen limited application in Article 5 countries due to the poor availability and relatively high cost of these refrigerants, particularly considering the high refrigerant loss rates typically found with MAC units in ageing vehicles.
- In many cases, after a leak of a ternary refrigerant blend has occurred, it is necessary to completely replace the full charge rather than simply replenish the lost refrigerant. Extra care is also necessary in the handling, use and the recovery of ternary refrigerant blends containing HCFCs or hydrocarbons and recycling is rarely possible. The employment of a "drop-in" may not be obvious or indicated and appropriate steps must be taken to avoid possible contamination of CFC-12 or HFC-134a refrigerant recovered from other MAC units for recycling under the Recovery and Recycling activities.

The equipment replacement option is relatively expensive in most cases and the level of funding that could be obtained from the Multilateral Fund would only be sufficient to cover the cost of replacing a fraction of the estimated number of CFC-12 MAC units presently in use in Suriname. The permanent retrofit of a CFC-12 based MAC unit to employ HFC-134a refrigerant will be a technically,

environmentally, and financially sound option for a large proportion of vehicle owners. The sustainability of CFC-12 replacement by “drop-in” refrigerants based on ternary blends is uncertain and highly dependent on refrigerant loss rates and the replacement refrigerant's availability. Considering this, the potential for accidental contamination of CFC-12 during recovery and recycling activities, and the limited MLF resource that is available, the funding of “drop-in” conversions to eliminate CFC consumption is not considered the best use of available MLF funds.

Based on the foregoing technology review and in order to make the best use of the potentially available MLF funding to eliminate CFC consumption, this project proposes to build the capacity of service technicians to undertake any of the three options described above. This flexible approach will allow both vehicle owners and service technicians a wider choice when converting from a CFC-based system to a non-CFC alternative, thereby eliminating technical barriers to the choice, and allowing economics and policy to guide the decision.

Part II. Project Strategy

2.1 Project Strategy

The main objective of the project is to train technicians in recovery and recycling of refrigerants, undertake retrofits of CFC based equipment and supply tools and equipment, including recovery and recycling (R&R) infrastructure to the MAC and refrigeration service sectors. The project will achieve a permanent reduction of 16 ODPtonnes (8ODP/tones a year). Indirectly, the Technical Assistance Project will assist the Government to meet its scheduled ODS consumption phase-out commitments for 2005 and 2007 and help achieve a complete phase out of the ODS consumption in 2010.

2.2 Project Objectives

This Technical Assistance Project's objectives are to:

- Achieve an ever more accurate inventory of vehicles with ODS based MAC units and of ODS based commercial refrigeration and air-conditioning installations and their equipment;
- Diffuse information to MAC owners, MAC service enterprises and owners and service agencies servicing fixed systems in Suriname concerning the options that exist to service their equipment in an environment of diminishing CFC supplies and the unavailability of CFC-based compressors;
- Provide 12 MAC R&R machines and other ancillary tools and equipment necessary to the undertaking of a correct retrofit and to recover CFCs during servicing;
- Provide advice and training in the correct procedure for retrofitting MAC and fixed units from CFC-12 to ozone friendly refrigerants and the employment of the equipment provided through the Technical Assistance Project.
- Provide 15 portable recovery machines and other ancillary tools and equipment for employment within the service sector for fixed systems;
- Provide training in correct procedures for recovery and recycling of refrigerants and the employment of the equipment provided through the Technical Assistance Project;
- Upgrade the facilities at the Nature Technical Institute (NATIN) to train refrigeration and air-conditioning technicians;

- Facilitate the establishment of an Association of Refrigeration Technicians in Suriname.

The above objectives are designed to be complementary to, build synergies with and ensure the sustainability of the projects approved under the Refrigerant Management Plan approved by the Executive Committee. Though the above activities might appear to be independent, they represent a set of synergistic activities and interventions to enable Suriname to meet its commitments under the Montreal Protocol.

2.3. Linkages to other activities.

This Technical Assistance Project is an integral part of the overall Refrigerant Management Plan (RMP), which was prepared by the Government of Suriname for the refrigeration sector, and approved at the 41st Meeting of the Executive Committee of the Multilateral Fund. One of the priorities is to stop the unnecessary discharge of CFC refrigerants into the atmosphere due to leaks and servicing emissions. In order to achieve this, the Government is incorporating within the RMP, this Technical Assistance Project for the MAC and refrigeration service sectors, including R&R, presented herewith.

In order to meet the Montreal Protocol requirements as to the freeze and subsequent reduction of ODS consumption, all the traditional importers of CFC refrigerants have been identified. They will be registered and will require import permits, which will be restricted to diminishing annual quotas. This quota system was recently legislated and is being administered by the Ministry of Health.

During the preparation of this Technical Assistance Project a survey was carried out, under the supervision of the NOU, of R&A/C and MAC service enterprises situated in the principal commercial and industrial regions of Suriname. From this it is estimated that there are some 15 large formal enterprises servicing commercial R&A/C installations and equipment and 25 MAC servicing enterprise. Of these MAC servicing enterprises, 12 were considered responsible for carrying out 60 % of the servicing in this sector. A considerable amount of the servicing of MACs and fixed systems is carried out in the informal sector, in which there is an estimated 150 practitioners.

Of the 2003 -estimated consumption of CFC-12 of 35.875 ODP tonnes, 27.725 ODP tonnes (77.3%) was estimated as being employed in the servicing of MAC and other transport vehicles and 8.150 ODP tonnes (22.7%) was estimated as being employed in the servicing of domestic, industrial and commercial R&A/C equipment.

In Suriname the price of CFC-12 refrigerant (US\$5/kg) has risen steadily in recent years and is converging on that of HFC-134a (US\$8/kg). It is to be assumed that, due to import controls and increased world-wide restrictions in supply of CFC-12, this tendency will continue and in the near future HFC-134a could become the more economical of the two. No evidence was found to indicate that, because of the price differential between CFC-12 and R-134a, reverse retrofits from the former refrigerant to the latter is being undertaken. There is, however, reluctance on the part of both vehicle owners and service agencies to retrofit away from CFC-12.

A major concern of the Government is the low skill level of technicians in all sectors, particularly in the informal sector. This deficiency is reflected in a number of areas, including the use of refrigerants for flushing systems during servicing, the absence of any recovery and reuse of refrigerants, the purposeful venting of residual refrigerants in systems during servicing, the reluctance to retrofit away from CFC-12 and the use of drop-in replacement refrigerants without any adjustments to systems. It is therefore considered critical to upgrade the skills of technicians through training workshops as well as by presenting the industry with training opportunities at the NATIN. This latter activity will make it possible for technicians from both the formal and informal sectors that would not have been

exposed to the Training in Good Practices under the UNEP RMP training project or the training in Recovery and Recycling and Retrofitting training under this Technical Assistance project to get exposure to these techniques. Through this approach, synergies and complimentary will be built with the RMP training in Good Practices in Refrigeration, and the sustainability of the skills upgrade initiative assured. It is also considered necessary to establish an Association of Refrigeration Technicians which will, inter-alia, serve as a focal point through which information on technology developments can be passed on to the industry and standards set for entry into the servicing profession.

2.4 Outputs.

This Technical Assistance Project will result in a reduction in the number of CFC-12 based MAC units currently in Suriname and will ultimately assist to eliminate the employment of ODS in the servicing of these.

It is expected that within two years this Technical Assistance Project could encourage the retrofitting of the CFC-12 MAC units of 6 624 vehicles and will have caused a permanent reduction of ODS consumption of 5 ODP tonnes/year. This assessment is based on the industry estimate that 20% of the MACs brought in for servicing suffer from compressor failure and will require a replacement compressor in an environment where CFC-based units are no longer available.

It is also expected that this Technical Assistance Project, due to reduction in servicing emissions brought about by the employment of correct tools and equipment, better servicing practices learnt from the training workshops and the recovery and reuse of CFC-12 refrigerant resultant from the recovery and recycling by the commercial and industrial R&A/C service sector, could have a permanent effect on ODS consumption of a further 6 ODPtonnes (3 ODPtonnes/year).

This Technical Assistance Project will therefore achieve a permanent reduction in ODS consumption of 16 ODPtonnes (8 ODPtonnes/year).

Indirectly, the Technical Assistance Project will assist the Government to meet its scheduled ODS consumption phase-out commitments for 2005 and 2007 and help achieve a complete phase out of the ODS consumption in 2010. However, the Government of Suriname intends to review the situation in 2007 with the view to determining what further actions, if any, will be necessary to achieve a complete phase-out by 2010.

The Technical Assistance Project will also provide 12 MAC R&R machines, 15 recovery machines for fixed systems, and ancillary equipment, that will be also used in the servicing of commercial and industrial refrigeration, and 1 recycling machine, to be stationed at the Nature Technical Institute to allow all CFC-12 refrigerant that is recovered by any means to be purified at that location.

All the recovery and recycling machines purchased will be capable of being converted, with a field service kit, to allow their employment with HFC-134a at a later date, as mandated by Decision 38/38.

The project will also equip the Nature Technical Institute to enable it to offer a higher quality training experience to untrained technicians.

The cost effectiveness for this Technical Assistance Project is calculated for information only. It is expected that the Technical Assistance Project will result in a lasting effect on consumption of 16 ODP tonnes (8 ODPtonnes/year).

Cost effectiveness for the Technical Assistance Project = US \$300 430 ÷ 16.0 ODP tonnes = US \$18.78/kg

2.5 Project activities.

The Technical Assistance Project includes seven basic components.

- i) Training in retrofitting;
- ii) Training in recovery and recycling;
- iii) Equipping of participating MAC and fixed systems service agencies;
- iv) Upgrade of the Nature Technical Institute;
- v) Establishment of an Association of Refrigeration Technicians;
- vi) Information dissemination; and
- vii) Monitoring activities.

2.5.1 Training in Retrofitting and Recovery and Recycling.

Two training activities, each combining experiences in Recovery & Recycling and Retrofitting of both MACs and Fixed Systems will be conducted to ensure that as many of the major service agencies as possible, as well as the staff of the nature Technical Institute (NATIN) are exposed to the training. Selection will be based on interest shown and the volume of trade conducted. The training will take the form of a train-the-trainers programme, and participants will be expected to pass on the skills acquired to their colleagues at their work places. In addition, the staff of the Nature Technical Institute will be exposed to the training and will be expected to include the skills acquired in the curriculum of the Institute.

Participants will be taught best practices in retrofitting of both fixed and MAC systems as well as Recovery and Recycling techniques. Particular attention will be given to the evaluation of alternative non-CFC refrigerants and the system adjustments necessary to ensure optimum performance.

Under the RMP, a training project in Good Practices in Refrigeration was approved and funded, and is to be implemented by UNEP. The training now proposed will build on the UNEP project by expanding the experience to include both Recovery and Recycling and Retrofitting of both MACs and fixed systems .

2.5.2 Equipping of participating MAC and fixed systems service agencies.

Twelve (12) MAC and 15 fixed systems service agencies participating in the training will be provided with equipment, including recovery machines to allow them to practice the skills acquired. The equipment will be given under a contract under which the recipient will be required to provide the NOU with periodic reports on the amount of CFCs recovered and reused as well as the number of retrofits undertaken.

It should be noted that under the project on Good Practices in Refrigeration approved along with the RMP, US\$ 10 000.00 was allocated to the purchase of training equipment. No allocation was made to equip the trainees with the tools necessary to put the acquired training to use. Given the expanded training to be given under this project and the poor state of equipment, including the absence of recovery and recycling equipment in the service sector, the provision of appropriate tools and equipment is necessary if the training is to result in the sustained consumption reductions anticipated.

2.5.3 Upgrade of the Nature Technical Institute.

Following discussions with the local technical colleges and secondary schools that offer technical education, it was agreed that the Nature Technical Institute (NATIN) will be the main centre for the training of refrigeration and air-conditioning technicians. Consequently, under this project, NATIN will be provided with the basic equipment necessary to train its students in Good Practices in Refrigeration, Recovery & Recycling, Retrofitting of MAC and fixed system. The course will be designed along the lines of the training programmes to be conducted under this project and the Training in Good Practices to be implemented by UNEP, and will be incorporated into the regular curriculum. In addition, NATIN will offer this training to untrained technicians in both the formal and informal sectors so that they may acquire the standards to be set by the Refrigeration Association for entry into the profession. This will also assure the sustainability of the training interventions in both the RMP and this project.

2.5.4 Establishment of an End User Refrigeration Association Technicians.

For some time now, technicians in Suriname have been trying to establish an Association with no success. During the data gathering mission to Suriname under this project, interest in this was revived. In addition, the NOU is of the view that such an association will serve a number of purposes, including to:

- a) help regulate industry practices to ensure that minimum standards are set and maintained;
- b) set minimum standards for entry into the profession;
- c) coordinate dialogue on matters that affect the industry, including those related to compliance with the Montreal Protocol, with the Government;
- d) assist the Government with data collection and verification;
- e) provide a formal point of contact between the Government and industry to discuss matters related to the implementation of the Montreal Protocol; and
- f) provide a formal forum where emerging local and international issues, including technological advances can be addressed

Given the above, the Government of Suriname sees the establishment of the Association as an integral part of the enabling framework being established to ensure its compliance with its obligations with the Montreal Protocol. This activity will require a small budget to help catalyze the establishment of the Association. The funds will be used to hire a legal consultant to prepare the Articles of Association and Rules of Procedure for the Association, fund an exchange visit by a representative of a similar Association from the region (such Associations exist in Trinidad and Jamaica) and meet the logistical costs of the first few meetings.

2.5.5 Information dissemination.

This activity is common to all components of this project and will be a key element in the success there-of. No budget is required for this activity because associated costs will be met from the related component budgets.

2.6 PURCHASE OF EQUIPMENT

None of the MAC Service Centres or other service agencies are correctly equipped to ensure that the retrofit operations would be undertaken with a complete recovery of the CFC-12 and the use of good

servicing practices. To ensure that the retrofits are carried out correctly and that the servicing of all systems is done in an environmentally responsible manner, 12 MAC recovery/recycling units and ancillary equipment and tools and 15 similar equipment for fixed systems will be purchased and supplied to the service enterprises as an integral part of the Technical Assistance Project.

2.6.1 Equipment for MAC Service Agencies

Each MAC Service Centre or garage participating in the Programme will be provided with:

- 1, CFC-12 MAC recovery/recycling/evacuation/charging machine incorporating an OFP device and with capacity to fill automatically in one single pass and a continuous process an internal or external cylinder. The unit will incorporate an oil separator, 2 independent filters (1 for acid and 1 for moisture), automatic purging of non-condensable gases, an hour counter and appropriate refrigerant gauges and hoses. The machine will be capable of being field converted to recycle HFC-134a, using a factory-supplied kit;
- 1, portable multi-refrigerant analyser to identify recovered refrigerants as well as the proportional content of refrigerant mixtures and to assure that only CFC-12 is processed by the recycling machine
- 1, DOT standard refillable 50-lb. CFC-12 refrigerant cylinders with two ports and an OFP switch
- 1, two-stage vacuum pump
- 1, digital vacuum gauge
- 1, MAC retrofit equipment kit, including
- 1, electronic leak detector
- 1, manifold gauge for CFC-12
- 1, manifold gauge for HFC-134^a
- 1, hi-side adapter kit (including a GM 1991, etc.)
- 1, set of HFC-134a MAC service couplings
- 1, electronic weighing/charging scale
- 1, valve-core removers
- 2, sets of gloves and goggles
- Related spare parts for all of the above.

2.6.2 Equipment for Service Agencies Servicing Fixed Systems

Each service agency servicing fixed systems will be provided with:

- 1, CFC-12 recovery/evacuation/charging machine incorporating an OFP device and with capacity to fill automatically in one single pass and a continuous process an internal or external cylinder. The unit will incorporate an oil separator, 2 independent filters (1 for acid and 1 for moisture), automatic purging of non-condensable gases, an hour counter and appropriate refrigerant gauges and hoses. The machine will be capable of being field converted to recycle HFC-134a, using a factory-supplied kit;
- 1, portable multi-refrigerant analyser to identify recovered refrigerants as well as the proportional content of refrigerant mixtures and to assure that only CFC-12 is processed by the recycling machine
- 1, DOT standard refillable 30-lb. CFC-12 refrigerant cylinders with two ports and an OFP switch
- 1, two-stage vacuum pump
- 1, digital vacuum gauge
- 1, retrofit equipment kit, including

- 1, electronic leak detector
- 1, manifold gauge for CFC-12
- 1, manifold gauge for HFC-134^a
- 1, hi-side adapter kit (including a GM 1991, etc.)
- 1, set of HFC-134a service couplings
- 1, electronic weighing/charging scale
- 1, valve-core removers
- 2, sets of gloves and goggles
- Related spare parts for all of the above.

2.6.3 Equipping the Nature Technical Institute (NATIN)

The Nature Technical Institute will be provided with the following equipment to upgrade its capability to offer courses in Recovery and Recycling, Retrofitting and Good Practices in refrigeration and Air-conditioning servicing:

- 4, CFC-12 MAC recovery/recycling/evacuation/charging machine incorporating an OFP device and with capacity to fill automatically in one single pass and a continuous process an internal or external cylinder. The unit will incorporate an oil separator, 2 independent filters (1 for acid and 1 for moisture), automatic purging of non-condensable gases, an hour counter and appropriate refrigerant gauges and hoses. The machine will be capable of being field converted to recycle HFC-134a, using a factory-supplied kit
- Portable recovery machine suitable for CFC-12, HFC-134a and HCFC-22
- Mobile single-cycle CFC-12 recycling machine incorporating an OFP device and with capacity to fill automatically in one single pass and a continuous process a 120-lb. cylinder. The unit will incorporate an oil separator, 2 independent filters (1 for acid and 1 for moisture), automatic purging of non-condensable gases, an hour counter and appropriate refrigerant gauges and hoses. The machine will be capable of being field converted to recycle HFC-134a, using a factory-supplied kit.
- 4, portable recovery machines;
- 2, portable multi-refrigerant analyser to identify recovered refrigerants as well as the proportional content of refrigerant mixtures and to assure that only CFC-12 is processed by the recycling machine
- 8, DOT standard refillable 30-lb. CFC-12 refrigerant cylinders with two ports and an OFP switch
- 4, two-stage vacuum pump
- 4, digital vacuum gauge
- 1, retrofit equipment kit;
- 4, electronic leak detector
- 4, manifold gauge for CFC-12
- 4, manifold gauge for HFC-134a
- 4, hi-side adapter kit 4, sets of HFC-134a service couplings
- 4, electronic weighing/charging scale;
- 4, valve-core removers;
- 4, sets of gloves and goggles;
- 4 sets of basic tools;
- Related spare parts for all of the above.

Part III – Management Arrangements

The project will be implemented according to the Assisted Government Execution modality (AGEX) in which UNDP supports the implementation of certain activities and is therefore considered one of the ‘Implementing Agencies’. The implementing partner will be the Ministry of Labour, Technological Development and Environment (ATM) as UNDP’s counterpart on behalf of the Government of Suriname, and will have the final responsibility for the execution of this project in a timely manner in accordance with UNDP Assisted Government Execution procedures.

The National Institute for Environment and Development in Suriname (NIMOS) will be implementing the project and act as another implementing agency and will therefore have the overall responsibility for the technical aspects of the project outputs, including the final review and approval of technical reports. For the effective implementation of the project, the National OZONE focal point will supervise the day-to-day implementation of project activities .

UNDP will provide implementation and monitoring support to the Ministry of Labour, Technological Development and Environment in the following areas:

- Monitoring of support activities to NIMOS
- Procuring of goods and contracting of services under agreed UNDP procedures;
- Reviewing and assessing proposals for services and goods to ensure quality and value;
- Ensuring timely payment disbursements;
- Submit quarterly financial reports to the Ministry of Labour, Technological Development and Environment (ATM) with a copy to the Ministry of Planning and Development Cooperation, and NIMOS
- Preparing and issuing Requests for Proposals (RFPs) internationally for the identification of the Technical assistance;
- Advising NIMOS on the technical content of the work produced by experts;
- Supporting the pre- and ongoing training activities.

All project activities are to be implemented according to Terms of Reference (see list of TORs to be developed as annex to this project document).

Once a year, discussions will be held with responsible persons and institutions for OZONE in Suriname, to ensure synergy and complementarity; likewise with the UNEP OZONE projects.

The project will be subject to an audit at least once during the duration of the project; preferably towards the end of the project activities.

The project will be focus on fact-finding, assessment studies, and consultations with stakeholders to identify needs and proposed action. The implementation of all activities will include mechanisms for stakeholder involvement and consultation.

4 PROJECT TIMETABLE

Activities	Year 1				Year 2				Year 3			
	1	2	3	4	1	2	3	4	1	2	3	4

Contract local consultant													
Project initiation workshop with stakeholders													
Purchase of Equipment													
Workshops on R&R and Retrofitting													
Establishment of Association of Refrigeration Technicians.													
Public education and awareness													
Monitoring and Reporting													

Part IV. MONITORING AND EVALUATION

The implementation of the project will be reviewed periodically. There will be quarterly review meetings between the Implementing partner, NIMOS and UNDP. Minutes will be made from these meeting and be endorsed by all parties, based on which the implementation of the project may be revised

A joint Terminal Report will be prepared by NIMOS. Acceptance of the terminal report will be subject to the technical review and approval by the Implementing Partner and UNDP.

The monitoring of the project will be focused on outcomes and performance measurements of outputs of the project. The APR and the evaluations are the main instruments to assess this and stakeholders are participating in the rating process.

Part V. LEGAL CONTEXT

This project document shall be the instrument referred to as such in Article 1 of the Standard Basic Assistance Agreement between the Government of Suriname and the United Nations Development Programme, signed by the parties on 27, April 1978.

The following type of revisions may be made to this project document with the signature of the UNDP Resident Representative only, provided he or she is assured that the other signatories of the project document have no objections to the proposed changes:

- Revisions in, or addition of any of the Annexes of the Project Document.
- Revisions that do not involve significant changes in the immediate objectives, outputs or activities of the project, but are caused by the re-arrangement of inputs already agreed to or by cost increases due to inflation
- Mandatory annual revisions that rephrase the delivery of agreed project inputs or increased expert or other costs due to inflation or take into account agency expenditure flexibility.

Section II – Results and Resources Framework



UNDP Global core result (MYFF):		1. National Strategies for Sustainable Development for integrating of economic, social and environmental issues adopted and implemented				
Country Cooperation Framework (CCF) Suriname outcome:		Support to Suriname in meeting its reporting and other obligations under various international environmental conventions				
Outcome indicators:		A comprehensive environmental policy, developed with participation of social partners, including civil society and the private sector.				
Applicable MYFF Service Line¹:		3.6. National/sectoral policy and planning to control emissions and ozone- depleting substances and persistent organic pollutants				
Partnership strategy:		This project has been elaborated and will be implemented in an excellent partnership with the Government of Suriname, in particular the Ministry of Labour, Technological Development and Environment, the National Institute for Environment and Development (NIMOS) and numerous stakeholders from Government and non government agencies and institutes and commercial enterprises. The project and the intended follow-up program on institutional strengthening will reflect this partnership.				
Project title and ID:		Implementation of the RMP :Technical Assistance Project for the MAC & Refrigeration Service Sectors (SUR/REF/44/TAS/009)				
Intended Outputs	Output target	Indicative activities	Timframe (quarter)	Input	Budget (USD)	Source
Suriname meets its scheduled ODS consumption phase-out commitments for 2005 and 2007 and achieves a complete phase out of the ODS consumption in 2010: permanent reduction in ODS consumption of 16 ODPtonnes (8 ODPtonnes/year).	Trained technicians in recovery and recycling of refrigerants, undertake retrofits of CFC based equipment and supply tools and equipment, including recovery and recycling (R&R) infrastructure to the MAC and refrigeration service sectors	Training in retrofitting; recovery and recycling;	Y1-Y2	Contracting local Consultant Contracting international Consultant Project initiation workshop with stakeholders Workshops on R&R and Retrofitting Technicians.	7,000 25,000	Multi Lateral Fund (Montreal Protocol)

¹ MYFF: Multi-Year Funding Framework 2004-2007



	MAC and fixed systems service agencies equipped to better servicing practices and the recovery and reuse of CFC-12 refrigerant resultant from the recovery and recycling by the commercial and industrial R&A/C service sector, with a permanent effect on ODS consumption of a further 6 ODPtonnes (3 ODPtonnes/year).	Equipping of participating MAC and fixed systems service agencies; provide 12 MAC R&R machines, 15 recovery machines for fixed systems, and ancillary equipment, that will be also used in the servicing of commercial and industrial refrigeration,	Y1-Y2	Purchase of Equipment	157,500	Multi Lateral Fund (Montreal Protocol)
	Nature Technical Institute trained and equipped to offer a higher quality training experience to untrained technicians .	Upgrade of the Nature Technical Institute with 1 cycling machine, to allow all CFC-12 refrigerant that is recovered by any means to be purified	Y1-Y2	Purchase of Equipment	45,930	Multi Lateral Fund (Montreal Protocol)
	Association of Refrigeration Technicians established;	Establishment of an Association of Refrigeration Technicians;	Y1-Y3	Establishment of Association of Refrigeration	15,000	Multi Lateral Fund (Montreal Protocol)
	Information diffused to MAC owners, MAC service enterprises and owners and service agencies servicing fixed systems in Suriname Project monitored with focus on outcomes and outputs of the project.	Information dissemination; and Monitoring activities.	Y1-Y3	Public education and awareness Monitoring and Reporting	50,000	Multi Lateral Fund (Montreal Protocol)

Section III – Workplan and Budget

Annual Workplan

												
United Nations Development Programme												
Suriname												
Year: 2006												
												
Project number: 000												
Project Title: RMP: TAS for MAC and Refrigerating Sector												
Project ID	Expected Output	Key activities	Time frame				Resp Party	Planned budget				
			Q 1	Q 2	Q 3	Q 4		Fund	Donor	Budget	Description	Amount
00044328	Trained technicians in recovery and recycling of refrigerants, to reduce 16 Ozone Depletion Potential (ODP) tones from the MAC and refrigeration service sectors.	Training in retrofitting; recovery and recycling;			x		NIMOS	63030	10009	71200	International Consultants	15,000
					x		NIMOS	63030	10009	71300	Local Consultants	4,000
		Equipping of participating MAC and fixed systems service agencies;				x	NIMOS	63030	10009	72200	Equipment	70,000
		Establishment of an Association of Refrigeration Technicians;				x	NIMOS	63030	10009	72000	Establishment of Association	5,000
		Upgrade of the Nature Technical Institute;				x	NIMOS	63030	10009	72200	Equipment (Natin)	30,000
		Information dissemination; and Monitoring activities.				x	NIMOS	63030	10009	72000	Training	5,000
		Total										

Multi-Annual Workplan

											
United Nations Development Programme											
Suriname											
Year: 2006-2008											
											
Project number: 000											
Project Title:RMP: TAS for MAC and Refrigerating Sector											
Project ID	Expected Output	Key activities	Time frame			Resp Party	Planned budget				
			y1	y2	y3		Fund	Donor	Budget	Description	Amount
00044328	Trained technicians in recovery and recycling of refrigerants, to reduce 16 Ozone Depletion Potential (ODP) tones from the MAC and refrigeration service sectors.	Training in retrofitting; recovery and recycling;	x	x	x	NIMOS	63030	10009	71200	International Consultants	25,000
		Equipping of participating MAC and fixed systems service agencies;	x	x		NIMOS	63030	10009	71300	Local Consultants	7,000
			x	x		NIMOS	63030	10009	72200	Equipment	157,500
		Establishment of an Association of Refrigeration Technicians;	x	x		NIMOS	63030	10009	72000	Establishment of Association	15,000
		Upgrade of the Nature Technical Institute;	x	x		NIMOS	63030	10009	72200	Equipment (Natin)	45,930
		Information dissemination; and Monitoring activities.	x	x		NIMOS	63030	10009	72000	Training	50,000
		Training in retrofitting; recovery and recycling;									
Total										300,430	

Annex1:

General information on Suriname

Geography and population

Land area	163,840 sq. km
Length of coastline	380 km
Shelf area (to 200 miles)	54, 550 sq. km
Terrain(0-1260m above sea level)	Flat Coastal swamps, savannahs, mountains
Climate	Humid tropical. Rainfall 2400 mm/year.
Population density (2004)	3 persons per sq. km
Population (2004):	493,000
Annual population growth	1.2 %
Urban population	55%
Semi-urban	17%
Rural population	28%
Languages:	Dutch (official), Sranan Tongo Hindustani, Javanese and other

The capital city is Paramaribo, where around 42% of the population lives. Another 13% lives in Nieuw Nickerie and in suburban areas close to the capital. Roughly 10% of the population lives in the southern interior rainforest areas, which covers for 80% of the country's total land area.

Economy

GDP (2003)	US\$ 1044 millions
GDP per capita (2003):	US\$ 2170
GDP index:	0,61
Currency unit (2003):	Suriname dollar (SRD) 2.80 = US\$ 1.00
Main economic activities	mining (bauxite, gold, petroleum), agriculture (rice, bananas),
marine shrimp, timber.	
Exports of goods & services	US\$ 577 millions (2003)
Imports of goods & services	US\$ 662 millions (2003)
External public debt (2003)	US\$ 342 millions (32.7% of GDP)
Domestic public debt (2003)	US\$ 157 millions (15.0% of GDP)

Social Indicators (2000)

Life expectancy at birth	69 yeas
Adult literacy	86 percent
Population without access to potable water	5 percent
HDI rank	74
Calorie intake	2809 cal p.c. per day
Infant mortality	32 per 1000 live births

Annex 2

UNITED NATIONS DEVELOPMENT PROGRAMME

TERMS OF REFERENCE

REGIONAL EXPERT FOR TRAINING ON GOOD SERVICING, RETROFITTING, AND RECOVERY AND RECYCLING FOR THE MOBILE AIR CONDITIONING (MAC) SECTOR WITHIN THE REFRIGERANT MANAGEMENT PLAN IN SURINAME

1. Background

UNDP is one of the four agencies designated by the Multilateral Fund for the Implementation of the Montreal Protocol, to implement projects for the phase-out of ozone depleting substances (ODS). The Executive Committee of the Multilateral Fund has approved additional projects for the RMP for Suriname at its 44th Meeting in December 2004. UNDP is the leading implementing agency for the following projects.

- i. Implementation of the RMP: Technical assistance for the MAC and refrigeration service sectors
- ii. Implementation of the RMP: Monitoring the activities

The main objective of the RMP is to enable the country to comply with the 2005 50% and 2007 85% CFC reduction obligations under the Montreal Protocol, through a series of projects. In the case of Suriname, the following other projects have also been approved within the RMP, and must be monitored under the monitoring project led by UNDP:

- iii. Implementation of the RMP: training of trainers in good practices of refrigeration (led by UNEP)
- iv. Implementation of the RMP: training of customs officers and other relevant stakeholders in monitoring of ODS (led by UNEP)
- v. Implementation of the RMP: development and strengthening of policy and regulatory framework for acceleration of compliance with the Montreal Protocol (led by UNEP)

2. Duties and Responsibilities

The Consultant, under the direct supervision of the Head of the National Ozone Unit (NOU) and the respective UNDP MPU Programme Coordinator, and under the guidance of an external expert contracted by UNDP MPU NY to that end, will assist the National Ozone Unit in the implementation of a “Seminar on Good Servicing, Retrofitting and Recovery and Recycling for the Mobile Air Conditioning (MAC) Sector”. More specifically the consultant will:

- Prepare and/or compile all the handout material for the seminar, and send it to the National Ozone Unit well in advance for photocopying. This material should include at least the following elements: 1) Agenda for the seminar, 2) Training material that will be handed out to the seminar participants, 3) Examination to participants, 4) Seminar evaluation by participants, etc,
- Inform the National Ozone Unit of the facilities and equipment requirements for the seminar well in advance, in order to facilitate procurement,
- Conduct a 1-week long “Seminar on Good Servicing, Retrofitting and Recovery and Recycling for the Mobile Air Conditioning (MAC) Sector”,
- Prepare a Seminar Report as per attached format (Annex 1 of this document).

The “Seminar on Good Servicing, Retrofitting and Recovery and Recycling for the Mobile Air Conditioning (MAC) Sector” will be designed by the consultant and should contain at least the following topics:

- Overview of ozone issues,
- Presentation of projects being implemented within the RMP (presented by NOU),
- Presentation of present and future legal framework for CFC phase out in the country (presented by NOU),
- Review of general good maintenance, servicing and containment practices, including hands-on sessions,
- Effective use of retrofitting techniques from CFC12 to HFC134a refrigerants, including the use of drop-in blends, and hands-on sessions,
- Effective use of R&R techniques, including hands-on sessions,
- Effective use of reporting and monitoring forms necessary for the projects and systems being implemented for the sector (presented by NOU).

3. Duration

Conduct a 1-week long seminar in Suriname

4. Duty Station

Paramaribo, Suriname.

5. Fees

A lump sum according UNDP’s financial regulations shall be paid to the consultant upon delivery of the Seminar Report. Travel to Suriname will be reimbursed under UN rules, and will be in addition to the Consultants fee.

6. Qualifications

Engineering Degree in refrigeration or related field. Working experience of at least 10 years in the mobile air conditioning sector, and the ability to work as an independent consultant are essential. Extensive experience in the mobile air conditioning sector, of good servicing practices, retrofitting techniques and recovery and recycling, are also essential. Knowledge of Montreal Protocol related issues and of environmental policy will be considered an asset.

7. Languages

Excellent command of spoken and written English is a must.

8. Computer Skills

Proficiency in Word, Excel, and other relevant software Programs, and ability to communicate through e-mail are required

FORMAT FOR REPORT OF NON-INVESTMENT PROJECT TRAINING ACTIVITY

(maximum 7 pages long)

TABLE OF CONTENTS

EXECUTIVE SUMMARY (maximum two pages)

Summary of the report, presenting each chapter in a few sentences. When the training is conducted in a language different from English, the report shall be in the original language, and an additional Executive Summary in English shall be included.

1. BACKGROUND (maximum half a page)

Executive Committee meeting where the activity was approved, national and international organizations that participated in the implementation and/or funding of the project, and their specific role.

Strategic framework for the course: how the activity complements the national phase-out plans, and reflects the Government strategies, as contained in the Country Programme and as proposed to meet the Montreal Protocol targets.

Brief description of the situation of the sector that is being addressed by the training: consumption, sector structure, main problems, etc. If more information needs to be provided about the sector, it shall be included in an annex.

2. OBJECTIVES (maximum half a page)

Problems that were being addressed during the training. Long-term and short-term objectives of the project.

3. EXPECTED RESULTS (maximum half a page)

Measurable and concrete outputs that were expected from the course, e.g., % of ODS consumption reduced, development of refrigeration phase out strategy and work plan, development of refrigerant management plan, etc.

4. PARTICIPANTS (maximum half a page)

Number and profile of participants, speakers, trainers and observers. Reference shall be made to ANNEX 10.2, containing the full list and contact information of participants, as well as ANNEX 10.3 containing the full list and contact information of speakers/trainers.

5. METHODOLOGY (maximum half a page)

Description of how the courses were structured, e.g., presentations, discussions, demonstration, practices, field visits, round-tables, conferences, "train the trainer" approach, etc.

6. CONTENT (maximum one page)

General description of the subjects covered by the presentations, with reference to ANNEXES 10.1, 10.4 and 10.5, as well as indication of how to obtain full copies of presentations and training and background documents.

7. RESULTS, CONCLUSIONS, RECOMMENDATIONS AND LESSONS LEARNED (maximum two pages)

Immediate results obtained from the course, as compared to the expected results stated in section 3. Evaluation of the course based on such results. Conclusions, recommendations and lessons learned

8. FOLLOW UP ACTION PLAN (maximum one page)

Actions proposed after the course, in order to ensure that the expected results are achieved, and to evaluate those results, and the time frame and persons/organizations responsible for these actions. Expected additional results shall be indicated.

9. EVALUATION BY PARTICIPANTS (maximum half a page)

Description of how the course was perceived by the participants, based on an evaluation questionnaire given to them. It shall include evaluation of content, trainers, training material, training methods and organization. The evaluation scale shall range from 1 to 5, with 5 as the best possible rating.

10. ANNEXES

- 10.1 AGENDA
- 10.2 LIST OF PARTICIPANTS
- 10.3 LIST OF TRAINERS/SPEAKERS
- 10.4 LIST OF PRESENTATIONS
- 10.5 LIST OF TRAINING AND BACKGROUND MATERIAL

UNITED NATIONS DEVELOPMENT PROGRAMME

TERMS OF REFERENCE LOCAL SURVEYORS FOR MONITORING OF IMPLEMENTATION OF THE REFRIGERANT MANAGEMENT PLAN IN SURINAME

1. Background

UNDP is one of the four agencies designated by the Multilateral Fund for the Implementation of the Montreal Protocol, to implement projects for the phase-out of ozone depleting substances (ODS). The Executive Committee of the Multilateral Fund has approved additional projects for the RMP for Suriname at its 44th Meeting in December 2004. UNDP is the leading implementing agency for the following projects.

- vi. Implementation of the RMP: Technical assistance for the MAC and refrigeration service sectors
- vii. Implementation of the RMP: Monitoring the activities

The main objective of the RMP is to enable the country to comply with the 2006 50% and 2008 85% CFC reduction obligations under the Montreal Protocol, through a series of projects. In the case of Suriname, the following other projects have also been approved within the RMP, and must be monitored under the monitoring project led by UNDP:

- viii. Implementation of the RMP: training of trainers in good practices of refrigeration (led by UNEP)
- ix. Implementation of the RMP: training of customs officers and other relevant stakeholders in monitoring of ODS (led by UNEP)
- x. Implementation of the RMP: development and strengthening of policy and regulatory framework for acceleration of compliance with the Montreal Protocol (led by UNEP)

2. Duties and Responsibilities

The Consultant, under the direct supervision of the local leading consultant, the Head of the National Ozone Unit and the respective UNDP MPU Programme Coordinator, and under the guidance of an external expert contracted by UNDP MPU NY to that end, will assist the National Ozone Unit in the direct monitoring of all the designated beneficiaries, processes and or results within the implementation of the Refrigerant Management Plan.

More specifically, the consultant will carry out the surveys assigned in a particular geographical area, using the forms and procedures provided by the leading consultant.

3. Duration

Part-time dedication from 1st January 2006 August to 30 June 2006. Upon satisfactory results, this contract may be renewed during all of years 2006 and 2007 and 2008.

9. Duty Station

Paramaribo, Suriname.

10. Fees

The local consultant will receive a total lump sum fee of in accordance with UNDP's financial rules and regulations Local travel is required, and reimbursement for such costs will be included in the consultant's fees.

11. Qualifications

Technical Degree in refrigeration or studying the last years of such training. Knowledge of the local refrigeration and air conditioning sector structure and contacts in this sector are also essential.

12. Languages

English as mother language.

13. Computer Skills

Proficiency in Word, Excel, and other relevant software Programs, and ability to communicate through e-mail.