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THE MULTILATERAL FUND FOR THE  
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**EXTENDED DESK STUDY ON INCENTIVE PROGRAMMES FOR RETROFITS**

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## Executive Summary

1. The extended desk study on incentive programmes for retrofit/replacement of refrigeration equipment in the industrial and commercial end-user sectors is part of the 2007 Monitoring and Evaluation Work Programme approved by the Executive Committee at its 50<sup>th</sup> Meeting (Decision 50/9). It is well recognized that the total phase-out of remaining CFC consumption used for servicing commercial and industrial end-user refrigeration equipment until 2010 as required by the Montreal Protocol will be a challenge for Article 5 countries. For some of them, especially low-volume consuming (LVC) countries, the CFC phase-out in the end-user sector is also of great importance in meeting the 85% reduction target by the year 2007.
2. The objective of the extended desk study is to review the experience available to date in implementing the incentive programmes approved by the Executive Committee as individual activities under existing or new RMPs. Many National and Terminal Phase-out Plans (NPPs and TPMPs) approved so far contain a component addressing CFC consumption in the end-user refrigeration sub-sector but few activities have been implemented and reported yet. It is therefore timely to determine whether the implementation modality used in completed or well advanced projects of this type has proven to be successful, and thus can be recommended for replication or whether adjustments may be required in light of lessons learned.
3. The approach chosen in preparing the extended desk study included a review of project documents, progress reports, progress completion reports, and other relevant information available in the Secretariat's database regarding the implementation of incentive programmes for end-users. From the total of 20 incentive programmes approved, three programmes are completed (Georgia, Mauritius and Seychelles) and five programmes are well advanced (Costa Rica, Ghana, Kyrgyzstan, Moldova, Uruguay). All others are in early stages of implementation. Four countries have been selected for field visits: Costa Rica, Ghana, Kyrgyzstan and Moldova, located in four geographical regions. All programmes evaluated are implemented by UNDP.
4. The objectives of the incentive programmes were achieved for completed projects and are expected to be achieved in several on-going projects with regard to phase-out targets. The case studies confirmed that it is possible and also essential for a country to meet the pre-requisites established by the Executive Committee for approval of incentive programmes. Without these pre-conditions being in place, the necessary close cooperation with the potential beneficiaries will be very difficult or impossible to realize, as some other countries experienced. Required is also an active and transparent approach of the Ozone Unit to overcome hesitations of the end-user target group. Defining conditions for the incentive programme without prescribing a strict methodology to be followed by the country allowed the Governments the flexibility to adapt the implementation of the programme to local circumstances.
5. Incentive projects do not have specific cost-effectiveness identified as target. The cost-effectiveness could be used, nevertheless, as a measurement of efficiency in implementing incentive programmes in different Article 5 countries. The average planned cost-effectiveness of incentive programmes seems to be at par with other activities traditionally included in RMPs, TPMPs and National Phase-out Plans, such as recovery and recycling or training in good practices.

6. Incentive programmes addressing CFC consumption in the refrigeration servicing sector should be considered as one of the priorities jointly with other phase-out activities such as training of refrigeration technicians and providing basic tools and recovery and recycling equipment where still needed. The retrofit or replacement of CFC-based equipment brings sustainable conversions. Incentive programmes are also capable to bring additional benefits by stimulating non-funded units to convert on their own, re-using recovered refrigerant as well as enabling lower operating costs, better performance and life time extension of converted equipment.

7. On the basis of these findings, the Executive Committee might wish to consider:

- (a) urging Article 5 countries and respective implementing agencies to intensify their efforts to advance the implementation of approved incentive programmes in order to meet the established targets and phase-out schedules;
- (b) drawing the attention of Article 5 countries for which TPMPs have been approved or will be approved in the near future to incentive programmes as a promising modality for achieving CFC phase-out in the refrigeration servicing sector, provided the necessary pre-conditions are in place and lessons learnt from previous programmes are taken into account;
- (c) requesting the implementing and bilateral agencies concerned to disseminate the lessons learned from the implementation of incentive programmes among Article 5 countries, including through the regional network meetings;
- (d) requesting UNDP in co-operation with the Fund Secretariat:
  - (i) to provide as part of the guidelines a template for calculating estimated operating savings and efficiency gains resulting from retrofitting or replacing a given refrigeration system as well as economic benefits from extending the life-time of retrofitted equipment;
  - (ii) to clarify during the preparation of incentive programmes the methodology of calculating planned and actual CFC phase-out, taking into account local circumstances;
  - (iii) to include in the guidelines the preparation of country specific implementation milestones in order to facilitate monitoring and to avoid delays;
  - (iv) to foresee in the guidelines the possibility of adapting the scale and sequence of payments to local situations, and to increase the maximum limit of US \$ 10,000 for large-sized end-users in order to motivate them to proceed with the conversion where the total cost might significantly exceed their maximum entitlement;
  - (v) to incorporate in the guidelines the use of HCFC ternary blends as drop-in substitutes for CFC-12 under specific circumstances.

## **I. Objectives, Background and Methodology**

8. The objective of the extended desk study is to review the experience available to date in implementation of the incentive programmes approved by the Executive Committee as individual activities under existing or new RMPs. As per the 2006 progress reports, national CFC phase-out plans under implementation in 33 non-LVC countries have unspent balances amounting to about US\$88 million. TPMPs under implementation in 29 LVC countries have unspent balances of about US \$6.7 million. These balances are to be used mainly to facilitate the phase-out of remaining CFC consumption in the refrigeration servicing sector. Many TPMPs and NPPs approved so far contain a component addressing CFC consumption in the end-user refrigeration sub-sector but few activities have been implemented and reported yet. It is therefore timely and appropriate to determine whether the implementation modality used in completed or well advanced projects of this type has proven to be successful, and thus can be recommended for replication or whether adjustments may be required in light of lessons learned. The desk study also reviews the fulfilment of conditions imposed on the approved incentive projects by decisions of the Executive Committee.

9. At its 28<sup>th</sup> Meeting, the Executive Committee considered a policy paper on circumstances for the consideration of ODS phase-out in the commercial refrigeration end-user sector and adopted guidelines in its Decision 28/44 for end-user conversion to non-CFC refrigerants for an initial period of 18 months to be followed by a review. The guidelines outlined the relevant circumstances which must prevail in an Article 5 country before priority could be accorded to end-user conversion activity. Only a few end-user conversion projects have been considered and approved by the Executive Committee within the established 18 month period. No formal review of the existing guidelines has been considered by the Executive Committee.

10. The CFC phase-out in the refrigeration servicing sector was and remains the major challenge for Article 5 countries in meeting their Montreal Protocol commitments. The concept of refrigerant management plans (RMP) has been developed as the main instrument to address this challenge. At its 31<sup>st</sup> Meeting, the Executive Committee adopted decision 31/48 on RMP activities for the period until the year 2007 when CFC consumption has to be reduced by 85% of the established baseline. Decision 31/48 had important implications for the development and implementation of end-user conversion projects.

11. UNDP developed the concept of incentive programmes for retrofit/replacement of refrigeration equipment in the commercial and industrial end-user sectors and submitted three projects for Burkina Faso, Ghana and Sri Lanka to the 32<sup>nd</sup> Executive Committee Meeting. The Executive Committee decided that project proposals for incentive programmes to encourage retrofitting could be submitted under decision 31/48. The three projects were approved by Decision 32/28 with three specific provisos. Decisions 28/44, 31/48 and 32/28 of the Executive Committee are presented in Annex II.

12. The approach chosen in preparing the extended desk study included a review of project documents, progress reports, progress completion reports, and other relevant information available in the Secretariat's database in relation to the implementation of incentive end-user programmes. UNDP has taken the initiative and responsibility for formulating refrigeration end-

user incentive programmes in Burkina Faso, Chad, Costa Rica, Georgia, Ghana, Guinea-Bissau, Kyrgyzstan, Maldives, Mauritania, Moldova, Sierra Leone, Sri Lanka, Togo and Uruguay, which have been submitted as part of RMPs or RMP up-dates. In RMPs for Cambodia and Brunei Darussalam, UNDP developed incentive programmes using the system of vouchers with the focus on retrofitting CFC-based MAC systems. Several incentive programmes have been approved for implementation as bilateral activities by Germany in Angola, Liberia, Mauritius and Seychelles. The incentive programme in Mauritius was approved as part of the TPMP and related to retrofitting of chillers in governmental buildings. The total allocations approved for the implementation of the above end-user programmes are about US\$3.33 million to phase out 130.85 ODP tonnes.

13. The analysis of the Fund Secretariat's data base demonstrated that from the total of 20 incentive programmes approved, three programmes have been completed (Georgia, Mauritius and Seychelles) and five programmes are well advanced (Costa Rica, Ghana, Kyrgyzstan, Moldova, Uruguay). All others are in early stages of implementation. A review of all approved incentive programmes and their status of implementation is provided in Annex I.

14. It can be discerned from Annex I that phase-out targets of on-going incentive programmes represent a significant portion of the remaining total CFC consumption varying from 4% to 70% averaging at 25%. In general, the share of CFC consumption in the end-user sector has a propensity to grow while the total consumption is declining. Thus, the timely implementation of incentive programmes could facilitate considerably the achievement of 2007 and 2010 Montreal Protocol targets. However, the implementation of projects in 15 countries has been delayed by 15 months on average. The reasons for delay are primarily related to the lack of preconditions which are necessary for the successful start of incentive programmes. The last column of Annex I shows the status of implementation indicating that the necessary preconditions have been building up by implementing activities under RMPs such as adoption of legislative measures, training of refrigeration technicians and custom officers, establishment of a recovery/recycling system and others. A well positioned and effectively functioning NOU has to be in place in order to provide the management and monitoring of programmes like the implementation modality for incentives for retrofits developed by UNDP. The following section provides more detailed information with regard to pre-requisites and requirements.

15. The Secretariat's data base specifies that at least 10 LVC and non-LVC Article 5 countries incorporated incentive programmes and activities for retrofitting/replacement of refrigeration equipment in their approved TPMPs and National CFC Phase-out Programmes. These countries are Argentina, Cameroon, Cuba, Dominica, Egypt, Jamaica, Mexico, Panama, Saint Kitts and Nevis, Venezuela. The information contained in annual progress reports on implementation of the NPP in Cuba indicates that the retrofitting and conversion programme, including drop-in alternatives, is under active implementation. UNIDO also reported that the implementation of the incentive programme in Mexico is stimulating the replacement of obsolete domestic refrigerators and air-conditioners with new energy efficient appliances. The programme is being implemented in close co-operation with the National Energy Saving Fund (NESF) and is coupled with the establishment of the recovery and recycling scheme for CFC-12 and HCFC-22 from the disposed equipment. As incentives, the NESF provides preferential credits to end-users for the replacement of old CFC-based and energy wasting appliances with new CFC free and efficient units. UNIDO's responsibilities are related to implementing the training of technicians

involved in recovering CFC from the obsolete appliances and funding the refrigerant recovery equipment. The incentive programme for the replacement of chillers is on-going in Mexico as well as in other Article 5 countries under the funding window of US \$15.2 million for additional demonstration projects in the chiller sub-sector. These projects are not analyzed in the present document.

16. Given the advanced status of implementation of incentive programmes implemented by UNDP and the information available in the Secretariat, four Article 5 countries have been selected for field visits: Costa Rica, Ghana, Kyrgyzstan and Moldova, located in four geographical regions. Questionnaires were used for interviews with NOUs, government and UNDP officials, members of national refrigeration associations, and end-users.

17. The draft case studies resulting from these visits, including conclusions and recommendations have been discussed with the Ozone Units and implementing agencies concerned. The comments received have been taken into account in preparing the final versions. The case studies then have been synthesized and reflected in the present document together with final conclusions and recommendations. The case studies are available at the Fund Secretariat upon request and also on the Intranet in the section Executive Committee, evaluation document library.

## **II. Policy Guidelines: Pre-requisites Required by Decisions of the Executive Committee for Programmes**

18. Decisions 28/44, 31/48 and 32/28 provided a framework and general guidelines for the development and implementation of incentive programmes. The salient parts of relevant Executive Committee's decisions formed the required pre-requisites and were typically reflected in project documents while seeking approval of incentive programmes by the Executive Committee. The analysis of the situation in four Article 5 countries visited (Costa Rica, Ghana, Kyrgyzstan and Moldova) with regard to prevailing circumstances and fulfilment of other relevant provisions is presented in the following paragraphs.

- (a) *The country has production and import controls on CFCs and CFC-based equipment in place and effectively enforced, and restricts the deployment of new CFC component*

19. Laws establishing imports controls for ODSs and products containing ODSs have been adopted in Ghana, Kyrgyzstan and Moldova. These laws have been enforced through establishing import quota and licensing systems providing annual quotas for ODSs imports to recognized importers. The laws also established bans for imports of new and used CFC-based equipment for commercial use. In Costa Rica, the Montreal Protocol has been ratified acquiring the commitment to implement a legal framework establishing the control and phase-out of ODSs. In 1998, the Government instructed the Customs Department to require an import license issued by the National Ozone Unit to allow any import of ODS to the country. In 2002, comprehensive legislation addressing all the necessary measures with regard to control and phase-out of ODSs has been developed by the Government to be signed by the President. The legislation is yet to be adopted. In 2004, as an interim measure, the Government strengthened the existing licensing system, introducing a quota system assigning annual import quotas to registered CFC importers.

- (b) *At the time of seeking compensation in the form of grants for end-user conversions, the country can establish that its major remaining CFC consumption is for the servicing of refrigeration and air-conditioning equipment*

20. It was established that at the time of approval of incentive programmes for the refrigeration end-user sub-sector, virtually all the remaining CFC consumption in the four countries visited was in servicing refrigeration equipment in domestic, commercial and industrial applications and in mobile air-conditioning. The data were provided in project documents submitted for the consideration of the Executive Committee showing the distribution of CFC consumption among different applications. The share of CFC consumption varied from 18% to 86% in the commercial and industrial end-user sectors being a target for the implementation of incentive programmes in four countries. The relative share of CFC consumption in the end-user sector has continuously increased while the total consumption tended to decline.

- (c) *The comprehensive data on the profile of all remaining consumption has been determined and made available to the Executive Committee*

21. Prior to submission of project documents, comprehensive surveys were undertaken in the countries identifying and establishing the profile of potential beneficiaries of incentive programmes operating in the commercial and industrial refrigeration sectors, including their location, ownership, date of establishment, baseline equipment and quantity and type of refrigerant in use.

- (d) *That either no other possible activities would allow the country to meet its CFC control obligations, or the comparative consumer price of CFCs, relative to substitute refrigerants, has been high for at least 9 months and is predicted to continue to increase*

22. The incentive programmes for end-users in the commercial and industrial refrigeration sub-sectors were an important part of or complementary to the overall phase-out strategy outlined in the respective RMPs. The implementation of incentive programmes draws from the experience gained from execution of RMP components and individual activities approved in the refrigeration servicing sector. The direct CFC phase-out in completed end-user conversions represented a tangible direct contribution to the overall reduction in CFC consumption. Completed conversions demonstrated new technological solutions to the refrigeration community providing a catalysing and cascading impact, which indirectly also contributed to the achievement of 2005 and 2007 control targets.

23. The trend in consumer prices of CFC-12 shows a steady increase relative to substitute refrigerants. On average, the price of CFC-12 increased two fold in the four countries since the date of approval of incentive programmes. The following table shows the current prices of CFC-12, HFC-134a, HCFC-22 and ternary blends. Some of them can be used as drop-in alternatives.



| <b>Table 1: 2006 Refrigerant Prices (US \$/Kg)</b> |        |         |          |       |       |        |        |        |       |
|--|--------|---------|----------|-------|-------|--------|--------|--------|-------|
|  | CFC-12 | HCFC-22 | HFC-134a | R-502 | R-404 | R-406A | R-409A | R-407A | R-507 |
| Costa Rica   | 18.4   | 3.45    | 10.7     | 51.2  | 13.1  | 11.0   | 8.9    | 16.2   | 16.7  |
| Ghana  | 10.0   | 3.6     | 20.4     | 10.4  | 22.4  | 4.0    | n.a.   | 22.0   | 21.6  |
| Kyrgyzstan   | 9.5    | 5.0     | 16.0     | n.a.  | 17.0  | 9.0    | n.a.   | n.a.   | n.a.  |
| Moldova  | 14.0   | 7.1     | 14.0     | 17.0  | 20.0  | 13.0   | n.a.   | 20.0   | 20.0  |
| Source: Evaluation Missions                        |        |         |          |       |       |        |        |        |       |

### III. Criteria for Selecting Beneficiaries and Modalities for the Implementation of Incentive Programmes

24. Apart from UNDP, no information was obtained from implementing agencies regarding criteria for selecting beneficiaries for the implementation of incentive programmes. UNDP's guidelines stipulate that applications by end-users for incentive payments have to be assessed against several criteria. These criteria are listed in Annex III to this document.

25. UNDP employed flexibility in applying the eligibility criteria related to the date of establishment of an enterprise in some countries. In Moldova, enterprises have been recognized as eligible for an incentive payment if they existed on or before 1 January 2005 and the existing equipment to be replaced, or permanently retrofitted, had been installed before 1 January 2003. In Kyrgyzstan the dates were 2003 and 2000 respectively. Proof of this must be attached to the application. It is understood that the gap of two years between the time of establishment of an enterprise and the installation of equipment has been set by UNDP in order to ensure that CFCs were consumed for at least two years by a potential beneficiary preceding the application for assistance. The Executive Committee took Decision 17/7 whereby a cut off date of 25 July 1995 was established when determining the eligibility for financial assistance from the Multilateral Fund to convert any manufacturing capacity of ODS-based equipment in recently erected plants. UNDP clarified that incentive programmes are dealing with end-users sometimes using second-hand equipment and do not possess any manufacturing capacity falling into the category of "recently erected plants". Therefore, Decision 17/7 had not been applied in determining the eligibility of end-users in the two countries.

26. The analysis of the documentation demonstrates that most of the requirements listed in Annex III have been fulfilled. It was noted that the information on purchased refrigerants during the three years preceding conversion (item (f) in Annex III) could not always be easily provided by end-users. In Kyrgyzstan, the initial charge has been used in several instances as a measure of annual CFC consumption. In Costa Rica, estimates of CFC consumption in the previous year were applied. The modality used to implement the incentive programme, including the selection of beneficiaries, involved the steps also listed in Annex III. The modality varied taking into account country specific circumstances. These steps were meant to ensure transparency, accountability and the need to meet the project approval criteria and other technical requirements of the incentive programme.

27. Some of the end-users operated separate refrigeration units in different locations. In order to achieve operational efficiency following conversion, end-users were advised to rationalize their operations where feasible, through consolidation into larger units.

#### **IV. Funding Criteria and Payment of Incentives**

28. In line with UNDP guidelines, upon receipt of an application for an incentive payment by an enterprise, 40% of the estimated cost can be paid up front if the documentation is found to be satisfactory and if the application itself is acceptable. The eligible balance will be paid after:

- (a) the conversion to non-CFC refrigerant-based equipment has been completed;
- (b) the actual total cost data have been reviewed and the International Consultant has made a formal recommendation on the level of the incentive payment;
- (c) the replaced baseline CFC refrigerant-based equipment has been destroyed/dismantled/rendered unusable according to MLF policy decisions and guidelines.

29. A Certificate will need to be signed by the National Ozone Unit, the National Consultant, and the enterprise together with appropriate photographic evidence. It is clearly understood that the replaced baseline equipment will never be sold to another enterprise, neither within the country nor abroad. Since the MLF payment is only an incentive, the enterprise will be allowed to keep any scrap value of the destroyed ODS-based equipment.

30. There have been no advanced payments in Costa Rica, although it would have been probably easier for the owners of fishing boats to start the conversions if some funds had been advanced as in other countries. However, at the time of project preparation no advanced payments were requested and representatives of the fisheries sector stated that this was probably a wise decision unless a guarantee scheme would have been introduced (as was done in Ghana), where all the funds would be returned by the guaranteeing bank in case the conversion was not be completed as agreed.

31. Incentive payments are to be provided according to a scale from US \$500 for up to 9 kg ODP of annual CFC consumption phased-out to US \$10,000 for 200 kg or more of ODP consumption phased out against invoices confirming costs incurred. In Kyrgyzstan, the maximum payment of US \$10,000 has been provided for 400 kg or more of ODP phase out. The formula for calculating payment of the incentives was based on either the quantity of the initial refrigerant charge or the three-year average of the annual quantity of refrigerant used, whichever was lower. It was understood that this modality, while addressing the concerns over possible unfair financial advantage that enterprises with high leakage rates might have, ensured that the limited financial resources would provide incentives to a larger number of prospective applicants. All the applicants requested and were paid the 40% up-front payment approved by UNDP's international consultant, except in Costa Rica. In Ghana, the applicants have to fulfil the payment conditions of posting bank guarantees on the initial 40% of the incentive package. The bank guarantee was made by the applicants using the special form designed by EPA for the

purpose. This requirement was a measure taken in part to ensure that funds paid to beneficiaries could be retrieved in case of non-performance and at the same time that the beneficiary was committed to completing the project. Indeed, one of the 38 applicants reneged and the advance paid to him was retrieved with interest. It was evident at all the cold stores facilities visited that the introduction of the Bank Guarantee committed the beneficiaries not only to complete the conversions but also to carry out expansion or related improvements. Ghana was the only country where the bank guarantee scheme was applied.

32. The remaining 60% of incentives was paid to the end-users following documented and certified completion of the conversions. Payment was made directly by the UNDP country office to the end-users after it was satisfied that the required conditions had been met.

33. In Kyrgyzstan, the NOU experienced difficulties in finding beneficiaries in 2003, 2004 and 2005. At the request of the NOU, since March 2006 UNDP increased the level of up-front payment to 60% of the total amount resulting in a growing number of applicants.

34. In Costa Rica, payments have been made in one instalment after the conversion of a refrigeration system in a fishing boat was completed and certified. The amount of compensation represented up to 50% of the total expenditures incurred by the owner notwithstanding the level of annual CFC consumption. The maximum level of compensation of \$5,670 was established from the experience in implementing the first phase of the programme by retrofitting three refrigeration systems to HCFC-22 technology. As this is a standardized type of conversion, it was possible to agree on a generally applicable and acceptable list of eligible equipment and materials.

35. It was observed in the interviews with owners of fishing vessels in Costa Rica that the access to funds to implement the conversion was a problem. The beneficiaries experienced difficulties in raising the necessary funds to pay for the conversion and expressed reluctance to resort to bank loans for this purpose. It must be noted that the majority of the boats are owned by small companies or sole owners, with limited financial resources. This situation was not apparent during the pilot phase, but became an issue during the second phase, and may have a negative effect during the implementation of the 2007 conversion plan. There are indications that the shrimp fishing industry in Costa Rica is experiencing some difficulties, mainly due to the availability of cultivated shrimps, unfavourable gas prices and decreasing stock of wild shrimps involving ever longer boat trips.

36. A representative of the National Bank clarified that in view of the relatively small amounts required for conversion, the Bank could provide loans at 13% interest rate, without mortgage guarantee, if the loan would be guaranteed by a co-signer. The Bank informed further that fishing vessels, due to hard operating conditions, are subject to heavy bank depreciation as collateral.

## V. Selection of Technology

37. UNDP identified in the project document the following three technological options potentially available to end-users in the commercial and industrial refrigeration sector to eliminate CFC consumption:

- (a) The replacement of the existing CFC based refrigeration system with a system designed to use a zero-ODP, or low-ODP refrigerant requires a major investment in new equipment. Typically, the funding that could be made available under the incentive programme would cover only a fraction of eligible end-users in the commercial and industrial refrigeration sector in the four countries evaluated.
- (b) The retrofit of existing refrigeration equipment using zero-ODP refrigerants or an HCFC with a low ODP such as HCFC-22 can prolong the useful lifetime of equipment. This option is technically feasible for some but not all existing equipment. The age of the equipment and the economics of retrofit versus replacement need to be considered.
- (c) “Drop-in” conversion using ternary refrigerant blends containing HCFCs have seen limited application in Article 5 countries by the time of formulation of the project due to poor availability and relatively high cost of these refrigerants, especially given the high leakage rate of aging refrigeration equipment. Extra care is also necessary in handling such refrigerants, as well as in undertaking recovery and recycling operations to avoid potential cross contamination. The sustainability of a ‘drop-in’ conversion option has been recognized as uncertain especially considering the potential “backsliding” to CFC-12 and, therefore, ineligible for funding under the incentive programme.

38. The available technological options were evaluated against the baseline information provided in the application forms submitted by the end-users and verified by the national consultant through on-site visits. Specific circumstances have been taken into account in selecting the appropriate conversion technology. In Ghana, on the basis of the evaluation of the existing equipment, only the replacement option was selected and endorsed by UNDP’s international consultant. The “drop-in” conversion option was not considered for reasons given in paragraph 37(c) above. Almost all enterprises had semi-hermetic compressors using CFC-12 refrigerant while a few others used both CFC-12 and R-502 refrigerants. The CFC-12 -based systems were converted to use HFC-134a, while those based on R-502 systems were converted to R-404a replacing the compressors. The selection of only two technological routes has obvious advantages, including ease of conversion, evaluation and monitoring and improved prospects of commercial availability of refrigerants.

39. In Kyrgyzstan and Moldova, two options (retrofitting and replacement) have been used for converting end-users to non-CFC technology. The replacement option has been selected typically to address old refrigeration installations which frequently have an excessive leakage rate and high demand for servicing. New equipment based on HCFC-22 and R-404 has been installed depending on the required temperature range. In some cases, old cold storages facilities have also been replaced with new and better insulated ones, leading to significant energy

savings. The replacement option in some instances has proved to be very cost-effective. The costs associated with replacement of cold rooms or improvement of insulation have not been counted in calculating eligible compensations under the incentive programme.

40. In Kyrgyzstan and Moldova, the retrofit option to HCFC-22 as alternative has been selected by some end-users for refrigeration equipment furnished with CFC-12 semi-hermetic compressors in relatively good condition, since these compressors were predominantly designed for using both CFC-12 or HCFC-22 refrigerant. Therefore, they are capable of withstanding the higher discharge pressure and temperature associated with HCFC-22. Typically, the retrofit to HCFC-22 involved the change of system components such as a filter-dryer, an expansion valve, modification of heat exchangers (condensers, sometime evaporators) as well as the replacement of the refrigerant and lubricant. The retrofit option required not as much capital investment as the replacement but its economic viability is limited by the remaining life time of the existing equipment.

41. The conversion of the fishing fleet in Costa Rica has been established as a priority sector for the implementation of the incentive programme under the RMP. Most CFC-12-based refrigeration equipment in the fishing fleet in Costa Rica is old demanding frequent servicing and maintenance. Retrofitting to HCFC-22 technology involved a change of system components such as a filter-dryer, an expansion valve, modification of heat exchangers (condensers, evaporators) as well as the replacement of the refrigerant and lubricant. Due to harsh working conditions, in some instances the piping has to be replaced partially or completely. Bitzer compressors installed on fishing vessels are compatible with HCFC-22 refrigerant. But many compressors required repair and reconditioning due to their age to accommodate more demanding working parameters associated with HCFC-22 refrigerant. The technical procedure has been discussed and agreed upon with the international consultant and implemented by local contractors.

42. Ternary blends such as R-406, R409 and recently emerged C-10M1 produced under the trade mark ASTRON in Russia are becoming more and more available at US \$5.00 to US \$15.00/kg depending on the source of supply and the quality. These blends are based on HCFC refrigerants and have an ODP within the range of 0.04 to 0.055, and are therefore transitional in nature. All three blends are generally compatible with mineral oil and considered as “drop-in” substitutes for CFC-12 refrigerant, requiring only minor adjustments of the refrigeration system. In some instances, the price of the blends is lower than CFC-12. The refrigeration community in Moldova and Kyrgyzstan is becoming aware of and expressed interest in using these refrigerants, especially for servicing refrigeration systems with low leakage rates and equipped with hermetic or semi-hermetic compressors. The issue of “backsliding” to CFC refrigerants should not be of concern since the price of some drop-in refrigerants is getting more competitive. UNDP guidelines on technology options need adjustments to reflect these new developments in availability, applicability and prices of drop-in blends for retrofit and servicing of end-user equipment.

## **VI. Project Impact**

43. The direct impact of incentive programmes was calculated in terms of quantities of CFC-12 avoided for servicing the refrigeration equipment of end-users in completed projects. Table 2

shows that the phase-out targets have been already surpassed in Kyrgyzstan and Moldova through implementation of completed projects. The phase-out will be further increased upon completion of on-going projects. The direct impact in reduction of CFC consumption has been supplemented through the re-use of recovered CFC refrigerant avoiding imports of virgin CFC refrigerants. The indirect impact is difficult to quantify since some quantities of recovered refrigerant have not been recorded when used either by end-users or refrigeration technicians for servicing other CFC-based systems. The phase-out target in Ghana has not been achieved by a margin due to cancellation of a couple of conversions. The overall reduction in ODS consumption in the end-user sector in Ghana appears to be less than the direct phase-out from the incentive programme. Supposedly, this is because the consumption in the end-user sector was under-estimated at the time of the project approval. In Costa Rica the target of direct phase-out of 36 ODP tonnes as formulated in the project document has not been achieved so far and probably will not be achieved even upon completion of remaining conversions. However, CFC consumption in the fishing fleet has been reduced from 63 ODP tonnes in 2002 to about 11 ODP tonnes in 2006 due to additional conversions being made by owners themselves and drastic improvements in servicing practices attributed to the training this sub-sector has received during the implementation of the incentive programme and RMP activities. In addition to the direct phase-out there is a significant reduction in consumption by the end-user sectors reported by the four countries in 2006. This reduction in CFC consumption can partly be attributed to the catalyzing and cascading effect of incentive programmes as well as to the re-use of CFC-12 recovered from converted equipment.

| <b>Table 2: CFC Consumption and Phase-out Planned and Achieved</b>                                |                   |                 |                   |                 |
|---|-------------------|-----------------|-------------------|-----------------|
|   | <b>Costa Rica</b> | <b>Ghana</b>    | <b>Kyrgyzstan</b> | <b>Moldova</b>  |
| Total CFC consumption by the time of project approval (ODP tonnes)                                | 132.3 (in 2002)   | 43.63 (in 1999) | 53.45 (in 2000)   | 17.43 (in 2003) |
| End-user consumption by the time of project approval (ODP tonnes)                                 | 68.15             | 10.00           | 46.00             | 12.0            |
| ODS phase-out targets as per project document (ODP tonnes)  | 36.5              | 4.00            | 2.5               | 1.25            |
| Percentage ODS phase-out target to total consumption (%)  | 27.6              | 9.1             | 4.6               | 7.1             |
| CFC phase-out in completed conversions projects (direct impact) (ODP tonnes)                      | 6.3               | 3.7             | 3.1               | 1.4             |
| Expected additional CFC phase out from on-going conversions projects upon completion (ODP tonnes) | 2.8               | 0               | 0.7               | 0.4             |
| 2006 total consumption (ODP tonnes)   | 48.45             | 17.5            | 8.1               | 14.4            |
| 2006 end-user consumption (ODP tonnes)  | 19.97             | 7.0             | 6.5               | 7.87            |
| Percentage 2006 end-user sector consumption to total (%)  | 41.2              | 40.0            | 80.2              | 54.6            |
| Source: Inventory, Progress Reports, Evaluation Missions  |                   |                 |                   |                 |

44. At the enterprise level beneficiaries confirmed the significant economic benefits derived from the conversions. Savings are primarily related to the lower price of HCFC-22 refrigerant in cases where refrigeration systems were retrofitted to HCFC-22 technology. In cases of conversion to HFC-134a or R-404, owners of refrigeration equipment advised that even though the price per kg of new alternatives was currently higher than that of CFC-12, the economic benefits derived from the operational efficiency of the new systems far outweigh the differences in the prices of the refrigerants and should be an incentive for converting to new alternatives. Almost all companies reported that refrigerant leakages and frequent breakdowns have been reduced or completely stopped resulting in drastic reductions of operational expenses and periodic losses of stored products. A detailed report illustrating increased refrigeration efficiency and energy savings is contained in an annex to the Moldova case study.

45. According to the beneficiaries, the converted facilities are experiencing improved performance as a result of the technical assistance received from the refrigeration contractors during the conversion process. Maintenance staff have become technically more competent than before, putting into practice the information and knowledge acquired with regard to good practices, including the identification of mislabelled refrigerants which are widespread in many Article 5 countries. Due to much lower leakage rates and better performance of converted units, the demand for servicing has been reduced to the extent that some end-users stopped employing permanent refrigeration technicians.

46. The implementation of the programme has further consolidated the expertise in the country, both at the government/institutional and technical levels. The implementation modalities and technical conversion procedures were developed with the NOUs and associated governmental institutions. Established local refrigeration engineering services companies got the opportunity to put their expertise to use more widely, gaining more experience and confidence in their technical capabilities.

47. It appears that the implementation of the projects has also raised the profile of the NOUs. Entrepreneurs and end-users are now seeking more frequently advice from the NOUs and national refrigeration consultants regarding new refrigeration installations and refrigerant imports and use, thus contributing to the effort to control the import of CFCs.

48. Table 2 demonstrates that the percentage of CFC phase-out target to total consumption varied between 4.6% and 27.6% at the time of project approval. Currently the share of the end-user sector consumption in the total consumption represents between 40% and 80%. It shows the importance of continuing end-user incentive programmes to achieve the CFC phase-out targets established by the Montreal Protocol. NOUs reported their intention to continue the implementation of incentive programmes under approved or future TPMPs.

## **VII. Project Cost and Cost-effectiveness**

49. The data on the status of implementation of incentive programmes, the number of completed conversions, total expenditures, incentives paid, total direct phase out achieved and cost-effectiveness is provided in the table 3 below. Allocations approved for the implementation of incentive programmes apart from end-user incentive funds usually include cost of

international and local consultants, travel, awareness campaign, workshops with end-users, and dissemination of printing material. Analysis of the data shows that per average about 75% of total approved funds was paid directly to end-users as incentives ranging from US \$1,000 to US \$10,000 per enterprise. In Ghana, the ratio of incentives paid to total expenditures stands at 19.9% versus about 45% in the other three countries. Such a low ratio is explained by fact that total expenditure in many instances included cost of new insulation and expansion not counted in other three countries.

50. Incentive projects do not have specific cost-effectiveness identified as a target. The cost-effectiveness could be used, nevertheless, as a measurement of efficiency in implementing incentive programmes in different Article 5 countries. As shown in Table 3, there is a significant gap in cost-effectiveness values between Costa Rica and Moldova. It should be noted that the estimated annual consumption of CFC-12 has been used in calculating the impact of the project in Costa Rica and its cost-effectiveness. In some instances, the estimated annual consumption reached about 600% of the initial charge due to very high refrigerant leakage rates reported by owners of fishing vessels. In Moldova, the annual consumption has been established from refrigerant purchase invoices verified with CFC distributors. In general, the annual consumption for servicing has been established at the level of about 50% of the initial charge of the system. There are two beneficiaries in Moldova with low CFC consumption (40 and 50 kg) that replaced their equipment at the average cost of about US \$7,000 resulting in very poor cost-effectiveness. If these two cases are not considered, the average cost-effectiveness in Moldova would be about US \$51/kg.

|  | <b>Costa Rica</b> | <b>Ghana</b> | <b>Kyrgyzstan</b> | <b>Moldova</b> |
|--|-------------------|--------------|-------------------|----------------|
| Total allocations approved (US \$)                                 | 200,000           | 198,000      | 187,242           | 142,808        |
| Funds not yet disbursed (US \$)                                    | 78,172            | 0.00         | 30,000            | 15,486         |
| Disbursement rate (%)  | 60.9              | 100          | 84                | 89.2           |
| Number of beneficiaries with completed conversions                 | 17                | 38           | 11                | 9              |
| Total expenditures incurred by end-users (US \$)                   | 126,846           | 994,500      | 173,729           | 193,464        |
| Incentives received by end-users (US \$)                           | 64,423            | 198,000      | 76,497            | 71,944         |
| Incentive to total expenditures (%)                                | 50                | 19.91        | 44                | 37.2           |
| CFC phase out (direct impact) (ODP tonnes)                         | 6.4               | 3.7          | 3.1               | 1.4            |
| Cost-effectiveness (Incentives received/CFC phased out) (US \$/kg) | 10.07             | 53.51        | 24.68             | 51.39          |
| Source: Evaluation Missions  |                   |              |                   |                |

51. For comparison purposes, the planned cost-effectiveness of on-going incentive programmes in 17 Article 5 countries has been calculated and compared with expected cost-effectiveness of phase-out activities other than incentive programmes included in on-going NPPs



and TPMPs. The calculated values of cost-effectiveness in both cases appear to be almost the same (see details in Annex IV).

### **VIII. Project Implementation, Management and Monitoring**

52. It was agreed between UNDP and the respective NOUs that the incentive programmes will be nationally executed with assistance from international consultants and local UNDP offices. The NOUs assigned national consultants who established contacts with end-users and local contractors through the existing lines of communication provided by national refrigeration associations. The awareness on incentive programmes was raised through the workshop for refrigeration technicians and end-users. UNDP has developed detailed procedures for evaluating applications, including requirements for the selection of technology and beneficiaries and the payment of incentives. The implementation procedures have been presented to national experts and potential beneficiaries at national workshops conducted by UNDP and NOUs. Public awareness campaigns have been organized by the NOUs promoting the programmes through periodic advertising in the media and direct communication with prospective participants.

53. In Ghana, a project management committee (Technical Review Committee) chaired by the Executive Director of the Environment Protection Agency (EPA) was established to implement the incentive programme. The committee included representatives of the NOU, Technical University, National Refrigeration Association and representatives of several ministries. The committee introduced a bank guarantee scheme for use by beneficiaries to secure the funds received under the programme. This scheme ensured transparency and accountability as well as the confidence of the beneficiaries in the project's implementation. The implementation of the programme was organized in groups or batches of companies and appeared to have been an efficient mode of implementation given the number of end-users involved and the resulting peer interaction. The success of the incentive programme in Ghana has been related to the fact that the programme was run by an executing government agency rather than a Ministerial department with restrictive administrative procedures.

54. The milestones for monitoring the progress in the implementation of incentive programmes have been established in each project and measured in months from the time of project approval. The approved duration of projects is 12 to 74 months and the actual (including still on-going projects) varies from 22 to 97 months, with an average delay of 11 months compared to the planned completion date and eight projects 12 months and more beyond their planned completion date. Project completion was achieved in Georgia, Mauritius and Seychelles. The projects in Costa Rica, Kyrgyzstan and Moldova are on track and expected to be completed in 2007. The NOUs in Kyrgyzstan and Moldova pointed out that monitoring missions organized by UNDP facilitated greatly the successful implementation of incentive programmes in these countries. However, milestones established for intermediate processes have not been met in the majority of cases. The causes for delays have been reported in UNDP progress reports and further explained during the evaluation missions. More time was required than envisaged to comprehend the requirements associated with the implementation of programmes, to raise awareness among end-users and refrigeration communities, to determine the barriers and to make the necessary adjustments to the projects to put them back on track.

55. The reasons for delays are related to institutional problems in the countries and the absence of the pre-requisites necessary for the successful implementation of incentive programmes. The Fund Secretariat is closely monitoring project implementation delays. The circumstances associated with the delays are briefly described in the last column of Annex I.

## **IX. Sustainability**

56. Neither NOUs nor end-users foresaw any problems with the sustainability of the programme as the prevailing economic and market conditions were favourable to sustaining the conversions. Documented evidence is available showing that measures have been taken to destroy/render unusable the CFC-based equipment. The companies have invested considerable amounts in counterpart funding to either improve or expand their facilities and it is in their interests to safeguard this investment using CFC alternatives. The strict enforcement of the licensing and ODS import quota system, and steadily increasing prices of CFC-12 are the driving force to diminish the supply and demand of CFC refrigerants. All these circumstances help to sustain the conversions.

## **X. Lessons Learned**

57. Lessons learned reflect particular circumstances in each of the Article 5 countries visited. The incentive programme, by its nature, requires counterpart funding on behalf of end-users. Initially, the availability of resources proposed through the incentive scheme and UNDP modalities have not been proven sufficiently attractive for end-users in Moldova and Kyrgyzstan creating the following barriers for the implementation of the programme:

- (a) The countries experienced significant economic difficulties due to the transitional nature of their economies. Subsequently, problems existed in accessing inexpensive bank credits to match the advance provided by UNDP in order to start the conversion. The bank interest rate was high (about 20% or more).
- (b) High value added tax on purchased equipment and parts.
- (c) Low income of enterprises due to low living standards was making the period of repayment of their investments prohibitively long.
- (d) Many owners have only a vague idea about future costs and benefits resulting from the replacement of old equipment with new and more efficient units and retrofits.
- (e) Some beneficiaries were confused about the level of incentives due to misinterpretation of UNDP Guidelines in relation to the calculation of CFC phase-out.

58. In Costa Rica, similar problems hamper implementation, aggravated by the fact that no advance payments are envisaged in UNDP's modalities to start the conversions of the fishing fleet. Boat owners are reluctant to ask for credit, because there have been cases where the National Bank has recovered assets, including boats, to cover defaulting loans and can now even confiscate fishing licenses so closing the particular business and making it difficult to restart in

better times. The reason for the current delays might be related to the seasonal fluctuations of the fishing business and the longer-term planning of maintenance work on boats. When an owner takes the decision to reconvert his refrigeration system in the vessels, this is often accompanied by a larger package of maintenance and repair work in dry dock. This includes a period of 2- 4 weeks (or more) where the owner will not receive any income from the vessel. The total cost of this package is therefore much higher than the cost of converting the refrigeration system to HCFC-22. The owner takes this into consideration before signing up to the incentive programme. Currently 20 vessels have signed up and are awaiting the right moment to do the conversion.

59. The concerted efforts of Governments in implementing CFC import quota systems and the awareness campaigns conducted by NOUs in close co-operation with national refrigeration associations created a positive environment to proceed with the projects. Several factors motivated the end-users once they were better informed:

- (a) Limited remaining life time of existing equipment and associated problems of servicing and rising costs of maintenance;
- (b) The increase in price of CFC-12 refrigerant and comparatively low price of HCFC-22;
- (c) Increased awareness of owners regarding the obligations of the Government towards the Montreal Protocol and associated future shortage of CFC refrigerants;
- (d) The relatively simple procedures established by UNDP in getting funds under the incentive programme;
- (e) Increased awareness about additional benefits resulting from the replacement of old units with new and more efficient equipment such as energy savings, lower cost of maintenance, reduced leakages, and emerging business opportunities associated with better performance of the replaced or retrofitted refrigeration equipment. The retrofit of existing equipment resulted in extension of its life-time and deferral of otherwise inevitable investments in equipment in the food processing industry, which is extremely important for the economy of Article 5 countries.
- (f) Availability of alternative technology and local contractors providing quality service for replacement and retrofit;
- (g) Good connection of local consultants with servicing technicians and local refrigeration contractors through the national refrigeration association.

60. Once the owner decides to replace or retrofit refrigeration equipment, the recovery and re-use of CFC refrigerants is typically becoming very attractive since the unit is still in working condition and contains the full charge of refrigerant.

61. The following specific lessons learned were noted from the implementation of the project in Ghana. They are reproduced with the understanding that these lessons might prove to be

pertinent for those Article 5 countries in Africa where no substantial progress is observed in the implementation of incentive programmes approved:

- (a) In Ghana the commercial/industrial refrigeration sector activities (mainly cold stores) are seen by the enterprises as a strictly commercial activity that hardly attracts any form of grant from the government. Hence the initial attempts to attract participants were met with scepticism and suspicion. This required some measure of education through personal interaction, especially through the national refrigeration consultant of the NOU and the workshop stressing the source and purpose of funding and the inherent economic benefits.
- (b) The programme gained wide acceptance once the end-users realized that its introduction was timely and that it made economic sense to undertake the proposed changes even with substantial financial contribution by themselves.
- (c) The 40% advanced payment was organized as a public presentation in a group setting which enhanced the project's transparency and helped to gain more confidence of the end-users in the management of the project.
- (d) The bank guarantee requested by EPA as a condition for receiving the advance payment gained wide acceptance because the procedure enabled beneficiaries to gain additional credits from their banks through participation in the programme.

## **XI. Conclusions**

62. It can be concluded that the objectives of the incentive programmes were achieved for completed projects and are expected to be achieved in several on-going projects with regard to phase-out targets. The objectives of UNDP's implementation modality was to ensure that the phase-out of ODS through the incentive programme was consistent with the decisions of the Executive Committee. Defining boundary conditions for the incentive programme without prescribing a strict methodology to be followed by the country allowed the Governments the flexibility to adapt the implementation of the programme to local circumstances. This assured success while meeting the conditions of approval of the programme.

63. The cost-effectiveness of incentive programmes might prove to be at par and even more attractive than other activities traditionally included in RMPs, TPMPs and National Phase-out Plans. Incentive programmes addressing CFC consumption in the refrigeration servicing sector should be considered as one of the priorities jointly with other phase-out activities such as training of refrigeration technicians and recovery and recycling equipment. The retrofit or replacement of CFC-based equipment brings sustainable conversions. Incentive programmes are also bringing additional benefits in terms of indirect phase-out by converting non-funded units and through re-using recovered refrigerant as well as lower operating costs, better performance and extension of life time of converted equipment. Such additional benefits have to be taken into consideration in assigning priorities in on-going and future NPPs and TPMPs.

64. Ternary blends are becoming more and more available at competitive prices vis-à-vis CFC-12. These alternatives are generally compatible with mineral oil and considered as "drop-

in” substitutes for CFC-12 refrigerant. They are based on HCFC refrigerants and still transitional in nature. The refrigeration community in Article 5 countries is becoming more aware of them and expressed interest in using drop-in ternary blends for servicing existing CFC-12 based equipment, especially for systems with low leakage rates and equipped with hermetic or semi-hermetic compressors. It would expand the life-time of refrigeration equipment and help in coping with shortages in CFC-12 supply in the near future. The application of ternary blends has certain specific features and, therefore, requires to up-date the curricula for training programmes of refrigeration technicians.

65. The incentive programmes could meet the needs of only a portion of eligible end-users. The success perceived among the end-users has given rise to more demand for similar assistance. The countries intend to draw on the experience gained from the implementation of the programme to address the needs of the remaining end-users within the national ODS phase-out priorities and the resources available under its approved or expected TPMPs.

66. The implementation of incentive programmes raised awareness about mislabelled refrigerants among end-users and servicing technicians. The latter represents a serious problem in many Article 5 countries and requires attention of the implementing agencies.

67. Involvement of commercial banks and refrigeration associations in the implementation of incentive programmes in some countries enhanced transparency and helped to gain more confidence of the end-users in the management of the funds. Also, the involvement of local contractors and refrigeration technicians in retrofitting and conversion operations enhanced their expertise and served as a practical training tool. Given the growing demand for retrofits and conversion of end-user equipment, on-going training programmes have to be supplemented to meet this demand, including the use of “drop-in” refrigerants.

68. The case studies confirmed that it is possible and also essential for a country to meet the pre-requisites established by the Executive Committee for approval of incentive programmes, such as strict enforcement of quotas and other measures that provide disincentives for CFC consumption, availability of relevant expertise through implementation of past related projects, etc. Without those pre-requisites being in place, success cannot be guaranteed. Enforced legislation regulating imports of CFCs and CFC-based products, high price of CFC and adequate availability of CFC alternatives, and awareness of end-users regarding the Montreal Protocol control measures are the main pre-conditions for the successful implementation of incentive programmes in other Article 5 countries listed in Annex 1. Also an active and transparent approach from the Ozone Units is required for working with potential beneficiaries and adapting the guidelines to the local situation.

## **XII. Recommendations**

69. The recommendations are presented in para 7 of the Executive Summary above.

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As of May 26, 2007

**Overview of Approved End-User Incentive Programmes \***

| Country           | Code              | Date Approved | Meeting | Agency  | Status | Funds Approved (US\$) | Approved Phase-Out (ODP Tonnes) | Latest CFC Consumption (ODP Tonnes) | Approved Phase-Out/Consumption Ratio (%) | Disbursement Rate (%) | Approved Durations (Months) | Actual Durations (Months) | Delays (Months) | Status of Implementation  |
|-------------------|-------------------|---------------|---------|---------|--------|-----------------------|---------------------------------|-------------------------------------|--|-----------------------|-----------------------------|---------------------------|-----------------|---|
| Angola            | ANG/REF/39/TAS/04 | Apr-03        | 39th    | Germany | ONG    | 85,000                | 2                               | 42.1                                | 5%                                       | 42%                   | 61                          | 61                        | 0               | Additional Training course conducted in Huige and Hu campagne has been launched. Huambo, Bie and Malange interministerial support group has been formed in order to related legislation and regulation. Office have been established. Customs Training. |
| Burkina Faso      | BKF/REF/32/TAS/11 | Dec-00        | 32th    | UNDP    | ONG    | 132,250               | 3.0                             | 5.2                                 | 58%                                      | 91%                   | 62                          | 73                        | 11              | It was not possible to implement ExCom meeting it was decided ExCom meeting and balance meeting.  |
| Brunei Darussalam | BRU/REF/44/TAS/10 | Dec-04        | 44th    | UNDP    | ONG    | 255,570               | 16.0                            | 39.0                                | 41%                                      | 0%                    | 29                          | 49                        | 19              | There has been no progress document despite numerous Country Office and the MP Officer has indicated that h Attorney General's office on Document by July 07.   |
| Chad              | CHD/REF/38/TAS/09 | Nov-02        | 38th    | UNDP    | ONG    | 184,416               | 6.0                             | 11.3                                | 53%                                      | 21%                   | 49                          | 63                        | 14              | Seven end-user application necessitates time as invoice eligibility criteria are hard to and at the end of 2006, one approved. More progress of 2007.   |
| Costa Rica        | COS/REF/41/TAS/27 | Dec-03        | 41st    | UNDP    | ONG    | 200,000               | 36.5                            | 55.7                                | 66%                                      | 50%                   | 37                          | 50                        | 13              | Project execution on track been retrofitted in 2006, a up for the retrofit program of the fishing sector is del   |
| Guinea-Bissau     | GBS/REF/43/TAS/07 | Jul-04        | 43rd    | UNDP    | ONG    | 131,000               | 8.8                             | 12.5                                | 70%                                      | 0%                    | 24                          | 43                        | 18              | Approved in July 04. Awa ExCom condition. Extensive with a breakthrough, and G supposed to sign the project UEMOA regional legislation that Impcom has accepted it continues in 2007 and we h April/May 07.   |
| Georgia           | GEO/REF/35/TAS/10 | Dec-01        | 35th    | UNDP    | COM    | 101,000               | 1.5                             | 8.2                                 | 18%                                      | 99%                   | 38                          | 38                        | 0               | Completed in 2005.  |
| Ghana             | GHA/REF/32/TAS/14 | Dec-00        | 32th    | UNDP    | ONG    | 198,000               | 4.0                             | 17.5                                | 23%                                      | 99%                   | 62                          | 73                        | 11              | Incentive Programme extended applications were approved. Evaluation conducted. Pr   |

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**Overview of Approved End-User Incentive Programmes \***

| Country      | Code                  | Date Approved      | Meeting    | Agency  | Status | Funds Approved (US\$) | Approved Phase-Out (ODP Tonnes) | Latest CFC Consumption (ODP Tonnes) | Approved Phase-Out/Consumption Ratio (%) | Disbursement Rate (%) | Approved Durations (Months) | Actual Durations (Months) | Delays (Months) | Status of Implementation   |
|--------------|-----------------------|--------------------|------------|---------|--------|-----------------------|---------------------------------|-------------------------------------|--|-----------------------|-----------------------------|---------------------------|-----------------|--|
| Cambodia     | KAM/REF/41/TAS/05     | Dec-03             | 41st       | UNDP    | ONG    | 632,000               | 19.2                            | 28.5                                | 67%                                      | 33%                   | 49                          | 55                        | 6               | Project is ongoing and by M services centers have retrof recovered/recycled approxi number of awareness works conducted as well as refres The incentive scheme is no expected and the NOU will better address the needs of |
| Kyrgyzstan   | KYR/REF/37/TAS/02     | Jul-02             | 37th       | UNDP    | ONG    | 187,242               | 2.5                             | 8.1                                 | 31%                                      | 91%                   | 61                          | 61                        | 0               | <b>Six additional application incentives processed, bring to 15. Project should be co</b>  |
| Liberia      | LIR/REF/41/TAS/05     | Dec-03             | 41st       | Germany | ONG    | 130,000               | 2.0                             | 5.0                                 | 40%                                      | 24%                   | 61                          | 55                        | 6               | Customs training have fina the end user workshop whic for the implmnetation of th  |
| Mauritius    | MAR/PHA/41/INV/15 &16 | 12/1/2003; 1/20/05 | 41st& 45th | Germany | COM    | 101,000               | 1.5                             | 0.0                                 |  | 100%                  | 12                          | 22                        | 10              | Two hydrocarbon trainings finally started the process o through a subsidy scheme p   |
| Mauritania   | MAU/REF/41/TAS/12     | Dec-03             | 41st       | UNDP    | ONG    | 100,000               | 4.0                             | 6.1                                 | 66%                                      | 23%                   | 37                          | 50                        | 13              | National consultant on boar at awareness workshop whi of an int. consultant. Applic incentive amounts was just only). It was then decided a of incentive payments and f candidates will come forwa                         |
| Maldives     | MDV/REF/38/TAS/05     | Nov-02             | 38th       | UNDP    | ONG    | 115,000               | 2.2                             | 0.0                                 |  | 23%                   | 30                          | 69                        | 39              | There was a lapse in the pro Government and change in NOO was conducted and sh contract is signed so that th middle or end of 2008.  |
| Moldova      | MOL/REF/44/TAS/12     | Dec-04             | 44th       | UNDP    | ONG    | 142,808               | 1.25                            | 12.0                                | 10%                                      | 81%                   | 24                          | 31                        | 7               | <b>Thirteen companies subm incentives in 2006; 13 com payments, and 9 compani 2006. Balance will be use</b>  |
| Seychelles   | SEY/REF/40/TAS/08     | Jul-03             | 40th       | Germany | COM    | 10,707                | 2.4                             | 0.0                                 |  | 100%                  | 42                          | 42                        | 0               | Seychelles has successfully Trainings have been provid the customs to ensure that z PCR will be submitted in 2   |
| Sierra Leone | SIL/REF/41/TAS/06     | Dec-03             | 41st       | UNDP    | ONG    | 107,350               | 2.0                             | 26.2                                | 8%                                       | 0%                    | 61                          | 61                        | 0               | Prodoc signed. Mission wa legislation. See SIL-05.   |



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**Overview of Approved End-User Incentive Programmes \***

| Country                                 | Code              | Date Approved | Meeting | Agency | Status | Funds Approved (US\$) | Approved Phase-Out (ODP Tonnes) | Latest CFC Consumption (ODP Tonnes) | Approved Phase-Out/Consumption Ratio (%) | Disbursement Rate (%) | Approved Durations (Months) | Actual Durations (Months) | Delays (Months) | Status of Implementation  |
|---|-------------------|---------------|---------|--------|--------|-----------------------|---------------------------------|-------------------------------------|--|-----------------------|-----------------------------|---------------------------|-----------------|---|
| Sri Lanka                               | SRL/REF/32/TAS/15 | Dec-00        | 32th    | UNDP   | ONG    | 250,000               | 5.0                             | 135.0                               | 4%                                       | 19%                   | 62                          | 97                        | 36              | The project is ongoing with the small value of the incentive to adjust the equation that is ongoing.  |
| Togo                                    | TOG/REF/38/TAS/06 | Nov-02        | 38th    | UNDP   | ONG    | 110,000               | 5.0                             | 18.6                                | 27%                                      | 25%                   | 49                          | 63                        | 14              | The international consultant awareness workshop was conducted with the active participation of the batch of applicants for an incentive towards the end of 2006 and a consultant in Feb 2007.   |
| Uruguay                                 | URU/REF/34/TAS/37 | Jul-01        | 34th    | UNDP   | ONG    | 154,934               | 6.0                             | 81.9                                | 7%                                       | 10%                   | 74                          | 79                        | 5               | Out of the 17 companies that the six ones with most relevant incentives were calculated. Companies signing agreements started. Two of the six selected converted, and the Ozone Unit equipment. At the same time remaining conversions continued. |
| * Countries Visited in Bold             |                   |               |         |        |        |                       |                                 |                                     |  |                       |                             |                           |                 |   |
| Source: Inventory, Progress Report 2006 |                   |               |         |        |        |                       |                                 |                                     |  |                       |                             |                           |                 |   |



### Related Decisions of the Executive Committee

1. The Executive Committee considered the policy paper “Circumstances for the consideration of ODS phase-out in the commercial refrigeration end-user sector: additional considerations” presented in the document (UNEP/OzL.Pro/ExCom/28/47). Having taken note of the comments and recommendations of the Sub-Committee on Project Review, the Executive Committee decided to adopt the following guidelines for end-user conversion in the commercial refrigeration sector:
  - (a) that the country has production and import controls on CFCs and CFC-based equipment in place and effectively enforced, and restricts the deployment of new CFC components;
  - (b) that, at the time of seeking compensation in the form of grants for end-user conversions, the country can establish that its major remaining consumption is for the servicing of refrigeration and air-conditioning equipment;
  - (c) to establish the above, that comprehensive data on the profile of all remaining consumption has been determined and made available to the Executive Committee;
  - (d) that either no other possible activities would allow the country to meet its CFC control obligations, or the comparative consumer price of CFCs, relative to substitute refrigerants, has been high for at least 9 months and is predicted to continue to increase.
2. “For an initial period of 18 months, the relevant circumstances which must prevail before priority will be accorded to end-user conversion activities are:
  - (a) that the country has production and import controls on CFCs and CFC-based equipment in place and effectively enforced, and restricts the deployment of new CFC components;
  - (b) that, at the time of seeking compensation in the form of grants for end-user conversions, the country can establish that its major remaining consumption is for the servicing of refrigeration and air-conditioning equipment;
  - (c) to establish the above, that comprehensive data on the profile of all remaining consumption has been determined and made available to the Executive Committee;
  - (d) that either no other possible activities would allow the country to meet its CFC control obligations, or the comparative consumer price of CFCs, relative to substitute refrigerants, has been high for at least 9 months and is predicted to continue to increase.
3. The guidelines for the initial period of 18 months are:
  - (a) retrofitting of commercial refrigeration equipment should continue to be assessed on a case-by-case basis;
  - (b) training of refrigeration technicians should be recognized as part of end-user conversion activity in the refrigeration sector;
  - (c) retrofitting of commercial refrigeration equipment would be considered for funding based on the experience gained from implementation of the relevant parts of a refrigerant management plan;
  - (d) for the initial period, pending review, priority should be given to projects for the conversion of cold stores in the agricultural, fisheries or other food-chain industries which are important for the economies of the countries concerned;
  - (e) for the initial period, the costs associated with replacement of the refrigerant, replacement of the oil and minor capital items where necessary, and labour at

the local labour rate, will be eligible as incremental costs. More extensive conversions including reconditioning or replacement of compressors and major overhaul of refrigeration systems will not be considered under the initial guidelines. Incremental operating costs and savings should be calculated as for other commercial refrigeration projects for a two-year period;

- (f) enterprise consumption will be the average annual quantity of CFC refrigerant which can be established as having been added to the refrigeration system as per existing Executive Committee guidelines;
- (g) no cost-effectiveness threshold needs to be established for this initial period but all existing baseline conditions and eligibility criteria will be applied. The funding for the initial period of 18 months will be limited to US \$10 million;
- (h) these guidelines should be reviewed after being in operation for 18 months.”

**(Decision 28/44)**

4. At its 31<sup>st</sup> Meeting, the Executive Committee discussed the issue of refrigerant management plans presented in the working paper UNEP/OzL.Pro/ExCom/31/57, containing draft guidelines on refrigeration management plans. Following a discussion, the Executive Committee took **Decision 31/48**. Extracts from this decision related to development of incentive retrofitting programmes in the refrigeration end –user sector are reproduced below.

“A. Already approved refrigerant management plans (RMPs) for low-volume-consuming countries (LVCs)

- (a) That LVCs (or groups of LVCs) with already approved RMPs may submit to the Executive Committee requests for funding additional activities necessary to reduce consumption and thereby ensure compliance with the Protocol. Such additional activities should be essential parts of their comprehensive strategy for phase-out in the refrigeration sector. Additional funding shall not exceed 50% of the funds approved for the original RMP or, where relevant, RMP components. With the possible exception of the post-2007 period noted in subparagraph (d) below, no further funding beyond this level, including funding related to retrofits, would be considered for activities in this sector;
- (b) That requests for additional funding consistent with subparagraph (b) above should be accompanied by:
  - (i) A justification for the additional activities to be funded in the context of the country’s national phase-out strategy;
  - (ii) A clear explanation of how this funding, together with the initial RMP funding and steps to be taken by the government, will ensure compliance with the Protocol’s reduction steps and phase-out;

B. Preparation and approval of new RMPs for LVCs

- (a) That in lieu of the ability given to already approved RMPs to request additional funds, the total level of funding for the implementation of new RMPs could be increased by up to 50% compared to the level of RMP funding typically approved to date, with flexibility for the country in selecting and implementing the RMP components which it deems most relevant in order to meet its phase-out commitments. With the exception of the post-2007 phase noted in section A, subparagraph (d) above, no further funding beyond this level, including funding for retrofits, would be considered for activities in this sector.”

**(Decision 31/48)**

5. The Executive Committee at its 32<sup>nd</sup> Meeting considered three project proposals containing incentive programmes to encourage retrofitting of refrigeration systems, two as part of existing RMPs and one as part of a new RMP. The Executive Committee decided that project proposals for incentive programmes to encourage retrofitting of refrigeration equipment could be submitted within an RMP, on the understanding that, where the project was to make use of the 50 per cent additional funding for an existing RMP available under Decision 31/48:

- “(a) The implementing agency concerned should consult with the country and all other agencies implementing components of the RMP;
- (b) The country concerned was fully informed about all the investment and non-investment activities which might be available;
- (c) The timing of the proposed activity was appropriate for the country’s circumstances.”

**(Decision 32/28)**

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### Criteria for selecting beneficiaries and implementation modality

1. The following criteria for selecting beneficiaries are included in UNDP Guidelines for the implementation of incentive programmes:

- (a) End-users to be in the commercial/industrial sector;
- (b) The ODS to be eliminated is limited to CFC's and R-502;
- (c) The duration of the programme has been determined depending on the date of approval and the scope of work;
- (d) Enterprises' applications will be made to the Ozone Unit and the local UNDP office and will be evaluated on a first-come first-served basis;
- (e) The criterion on the date of establishment of an enterprise has been set up by UNDP depending on the date of approval of programmes. In Ghana, enterprises will only be eligible if they existed before 25 July 1995 and the end-user equipment to be replaced had been installed before 25 July 1995. In Kyrgyzstan and Moldova, these dates were established as 2000 and 2003 or 2005 respectively;
- (f) Information on CFC consumption is supported by documentation on purchases of CFC refrigerants during the three calendar years preceding the year of application used for servicing and repair of the existing equipment;
- (g) Information should be provided with regard to the baseline equipment, including the nature of the equipment, model, brand, and year that the equipment was installed, as well as the purchase price, serial number, capacity, and ODS-charge;
- (h) Mandatory recovery and recycling of the CFC charge is co-coordinated through the National R&R Programme and operated under the auspices of the NOU.

2. In addition, the end-user enterprise wishing to apply for an incentive grant will have to include the following information in its application:

- (a) Details of the proposed conversion, which must be based on proven and mature technology;
- (b) Details of the costs of the proposed equipment replacement, or retrofit;
- (c) Details of the costs of the current CFC refrigerant, and the proposed replacement refrigerant;
- (d) An estimate of the changes in performance efficiency and refrigeration capacity that will result from the conversion;

- (e) Confirmation that the retrofitted equipment can meet established local and international safety, health, and environmental standards.
3. According to the UNDP Guidelines all the information listed above has to be reflected in the documentation attached to the initial application and/or to the statement submitted upon finalization of the conversion.
4. The modality used to implement the incentive programme involved the following steps:
- (a) Review of the applications by the national consultant and NOU (and by the Technical Review Committee of EPA in case of Ghana);
  - (b) Review of applications, selection of eligible beneficiaries (and approval of the level of incentive grants by the Technical Review Committee);
  - (c) Review and endorsement by UNDP's International Consultant of applications selected by NOU and approval of the level of incentive grants;
  - (d) Conclusion of the grant award agreement between the UNDP local office and the beneficiary (a copy of an agreement is attached in Annex IV).
  - (e) Payment of the advance by UNDP; in Ghana, submission by selected end-users to obtain bank guarantees for the 40% advance payment of incentives of approved applications; in Costa Rica no advance has been paid, and in Kyrgyzstan up to 60% in the second phase (see para. 28-30 below for more details);
  - (f) Implementation of the conversion by beneficiary end-users and designated contractors, with assistance from local refrigeration consultants;
  - (g) Supervision, inspection and monitoring of the conversion process by the NOU and local refrigeration consultants, and certification of completion by NOU and UNDP with subsequent payment of the balance of incentive grant to beneficiaries;
  - (h) Post-project monitoring by the NOU through visits to the completed projects to ensure sustainability of the programme.

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**Funds Available, Phase-out Planned and Cost-effectiveness of On-going Incentive Programmes**

1. The analysis of data on on-going incentive programmes in 17 countries (excluding completed projects) in Annex I indicates that funds approved for on-going activities amount to US \$3.11 million. The anticipated direct impact would be 125.45 ODP tonnes phase-out. This represents 25% of the total latest consumption in these 17 countries (504.7 ODP tonnes). The planned cost-effectiveness would be US \$24.84/kg ODP. It was noted that the implementation of incentive programmes results in indirect supplementary phase-out and generates additional benefits for end-users and national economies as outlined in Section VI on Project Impact.

2. The table below contains information on funds approved and disbursed for all on-going incentive projects and activities in the 17 countries, as well as information on funds for TPMPs approved and disbursed as well as anticipated requests based on eligible funding as per Decision 45/54. The total expected expenditures have been calculated as the balance available from unspent allocations for on-going activities in the refrigeration servicing sector under TPMPs already approved or potentially available to these countries. The total available and expected resources provided under the above categories would be about US \$12.43 million. Thus, the future resources available for the implementation of other activities would be US \$9.32 million. All these resources are expected to be spent to phase-out the total remaining consumption of 379.25 ODP tonnes associated with non-incentive programme phase-out targets ( $504.7 - 125.45 = 379.25$  ODP tonnes) in 17 Article 5 countries with an overall cost-effectiveness of US \$24.58/kg ODP. The cost-effectiveness of incentive programmes and of general activities under RMPs has been calculated for comparison purposes only.

**FUNDS AVAILABLE, PHASE-OUT PLANNED AND COST-EFFECTIVENESS OF ON-GOING INCENTIVE PROGRAMMES**

| COUNTRY            | Other            |                  |                  | TPMP             |                 |                  | Amount Eligible for TPMP** | On-going Incentive Projects |                           |                          |
|--------------------|------------------|------------------|------------------|------------------|-----------------|------------------|----------------------------|-----------------------------|---------------------------|--------------------------|
|                    | Funds Approved   | Funds Disbursed  | Balance          | Funds Approved*  | Funds Disbursed | Balance          |                            | Funds Approved              | CFC Phase-out Planned (t) | 2006 CFC Consumption (t) |
|                    | (a)              | (b)              | (c)              | (d)              | (e)             | (f)              |                            | (h)                         | (i)                       | (i)                      |
| Angola             | 834,400          | 294,334          | 540,066          | 30,000           |                 | 30,000           | 520,000                    | 85,000                      | 2.00                      | 42.10                    |
| Brunei Darussalam  | 566,000          | 27,119           | 538,881          |                  |                 | 0                | 520,000                    | 255,570                     | 16.00                     | 39.00                    |
| Burkina Faso       | 72,410           | 0                | 72,410           | 199,400          | 0               | 199,400          |                            | 132,250                     | 3.00                      | 5.20                     |
| Cambodia           | 737,667          | 319,398          | 418,269          | 30,000           | 0               | 30,000           | 520,000                    | 632,000                     | 19.20                     | 28.50                    |
| Chad               | 244,416          | 39,627           | 204,789          | 30,000           | 0               | 30,000           | 345,000                    | 184,416                     | 6.00                      | 11.30                    |
| Costa Rica         | 770,513          | 436,905          | 333,608          | 30,000           | 4,058           | 25,942           | 565,000                    | 200,000                     | 36.50                     | 55.70                    |
| Ghana              | 154,555          | 4,198            | 150,357          | 204,394          | 0               | 204,394          |                            | 198,000                     | 4.00                      | 17.50                    |
| Guinea-Bissau      | 562,900          | 54,024           | 508,876          | 30,000           | 0               | 30,000           | 295,000                    | 131,000                     | 8.80                      | 12.50                    |
| Kyrgyzstan         | 303,072          | 169,711          | 133,361          | 366,600          | 9,660           | 356,940          |                            | 187,242                     | 2.50                      | 8.10                     |
| Liberia            | 609,556          | 326,570          | 282,986          | 30,000           | 13,000          | 17,000           | 345,000                    | 130,000                     | 2.00                      | 5.00                     |
| Maldives           | 175,000          | 26,644           | 148,356          | 30,000           | 0               | 30,000           | 205,000                    | 115,000                     | 2.20                      | 0.00                     |
| Mauritania         | 429,465          | 200,025          | 229,440          | 30,000           | 0               | 30,000           | 295,000                    | 100,000                     | 4.00                      | 6.10                     |
| Moldova            | 262,714          | 140,514          | 122,200          | 30,000           | 2,119           | 27,881           | 520,000                    | 142,808                     | 1.25                      | 12.00                    |
| Sierra Leone       | 535,253          | 42,655           | 492,598          | 30,000           | 0               | 30,000           | 520,000                    | 107,350                     | 2.00                      | 26.20                    |
| Sri Lanka          | 436,208          | 56,882           | 379,326          | 1,015,000        | 242,166         | 772,834          |                            | 250,000                     | 5.00                      | 135.00                   |
| Togo               | 396,333          | 158,934          | 237,399          | 30,000           | 0               | 30,000           | 345,000                    | 110,000                     | 5.00                      | 18.60                    |
| Uruguay            | 521,534          | 135,370          | 386,164          | 430,000          | 12,629          | 417,371          |                            | 154,934                     | 6.00                      | 81.90                    |
| <b>Grand Total</b> | <b>7,611,996</b> | <b>2,432,910</b> | <b>5,179,086</b> | <b>2,545,394</b> | <b>283,632</b>  | <b>2,261,762</b> | <b>4,995,000</b>           | <b>3,115,570</b>            | <b>125.45</b>             | <b>504.70</b>            |

|  |            |
|--|------------|
| Total balance available from refrigeration ongoing projects, TPMPs approved and TPMP amount eligible for funding (c)+(f)+(g) in US\$ | 12,435,848 |
| Funds approved for ongoing incentive programmes in US\$  | 3,115,570  |
| Funds available for other activities in the refrigeration sector than incentive programmes in US\$                                   | 9,320,278  |
| Total latest CFC consumption in ODP tonnes   | 504.70     |
| Anticipated direct impact of incentive programmes in ODP tonnes  | 125.45     |
| Remaining total consumption in ODP tonnes  | 379.25     |
| Cost effectiveness of other projects than incentive programmes (US\$/kg ODP)   | 24.58      |
| Cost effectiveness of incentive programmes (US\$/kg ODP)   | 24.84      |

\* US\$ 30,000 is for preparation of a TPMP

\*\* As per Decision 45/54

Source: Inventory, Progress Report 2006

United Nations Development Programme  
Programul Național Unitate pentru Dezvoltare



Moldova

MOL/00043948

Chișinău, 2006

AWARD AGREEMENT

Nr. [redacted]

Under the project

MOL/00043948/ "Implementation of the RMP"

Dear [redacted],

The United Nations Development Programme (hereinafter referred to as "UNDP") desires to conclude this agreement with your enterprise [redacted], duly incorporated under the laws of the Republic of Moldova, (hereinafter referred to as the "Beneficiary") in order to implement the Project "Implementation of the RMP" in accordance to the following Grant Award.

This Grant Award is subject to the UNDP General Conditions for Grant Award and is signed in accordance with "Implementation of the RMP" Project objectives, attached hereto as Annex I.

1. Object of the Agreement

1.1 The general object of the present agreement is accordance of financial assistance by the UNDP to the Beneficiary with the purpose of ozone layer protection in accordance with Vienna Convention for the Protection of the Ozone Layer, concluded in Vienna in 1985 and the Montreal Protocol on Substances that Deplete Ozone Layer (ODS) /1987/ and the disposals of the Country Programme for ODS Phase out in the Republic of Moldova, approved by the Government of RM Decision no. 1064 dated 11.11.1999.

1.2 The special objective of the agreement is offering of incentive payment to the beneficiaries who consumes refrigerant CFC-12 or R-502 for serving of own refrigeration equipment, for retrofit purpose and/or conversion of these installations for using of non-CFC agents (R-22, R-134a, etc.).

1.3 The practically realization of the established objective in p. 1.1, 1.2 will be performed through providing to the Beneficiary of incentive payment by instalments for conversion of refrigeration equipment which contains CFC refrigerant (R-12, R-502) which will operate with non-CFC refrigerants (R-22, R-134a, etc) with obligatory recovery of CFC or for equipment retrofit that operate with CFC (extraction of CFC from equipment and its loading with non-CFC refrigerant).

1.4 The present agreement is signed for realization of the Project, financed by UNDP, enclosed by the Annex I at the agreement. The technical procedure of realization of the agreement's objective will be completed, after case with disposals of the project to the Annex I.

- 1.5 The execution of the agreement's objective supposes financial investments from the both parts of the agreement. So, the UNDP will grant to the Beneficiary no more than 50% of the final cost of the retrofit or conversion.
- 1.6 The incentive payment provided by the UNDP will have the form of a grant (financial assistance with free title) non-reimbursable, which will present a incentive payment for performed works. The volume of the grant will be calculated according to the table, contained in p. 4.1.8 of the Annex nr.1 to the present agreement.

2. Entry into force and duration

- 2.1 The agreement duration is 5 months, beginning with August 24, 2006 and fill December 24, 2006.
- 2.1.1 The agreement duration can be prolonged through additional act signed by the agreement's parts at least before 30 days till the fulfillment of the initial term. The agreement prolongation could be possible, if only the realization of the objective, established in chapter II is not possible in the established term.
- 2.1.2 In case when the additional act foreseen in p. 2.1.1 wasn't concluded, the agreement is no more valid.
- 2.2 The agreement objective will be achieved in 2 successive stages.
- 2.2.1 In the first stage, the UNDP will grant to the Beneficiary the first portion of the grant, equal to 40% of its total value, calculated according to p.4.1.8 from Annex nr.1. The Beneficiary will cover the difference for realization of conversion or retrofit of the equipment from own sources. At this stage the Beneficiary will realize integrally the conversion/ retrofit works, indicated in p.1.3.
- 2.2.2 The second stage begins after the integral realization of the objectives, indicated in p.1.3, fact established through signing by the parts of a protocol of works execution. After that, the UNDP will grant to the Beneficiary the quote of 60% of the established sum according to the graie from p.4.1.8 of the Annex I through transferring of calculated sum in the bank account of the Beneficiary with the title of non-reimbursable grant.

3. Financial provisions

- 3.1 The value of the grant is 133.214.0 (one hundred thirty-three thousand, two hundred and fourteen MDL).
- 3.2 At the first stage, according to p. 2.2.1, the UNDP will pay to Beneficiary 40% of the indicated sum in p.3.1 and the Beneficiary will cover the difference for realization of conversion or retrofit of the equipment from own sources.
- 3.3 At the second stage of the agreement according to p.2.2.2, UNDP will pay to Beneficiary 60% of the indicated sum in p.3.1 through transferring of calculated sum in the bank account of the Beneficiary with the title of non-reimbursable grant.
- 3.4 In case when the total cost of the re-equipment or retrofit performed by the Beneficiary is less than value of the grant, than the value of the grant will be limited at the verified eligible cost divided between two.



#### 4. Parts obligations

4.1 The UNDP has following obligations:

- a) To pay to the Beneficiary the sum of financial assistance according to plan, portions and established quote in the present agreement.
- b) To provide the Beneficiary with technical, legislative, etc. information, necessary for realization of agreement objective.
- c) To issue to the Beneficiary necessary accounting documents, account extracts of the performed operations, and also another acts with financial character, necessary for accounting evidence.

4.2 The Beneficiary has following obligations:

- a) To respect the provisions of the present agreement, of annexes, also another additional acts.
- b) To assure and to participate with own resources at the objective realization, according to p.1.3.
- c) To use the received credit in purpose for which it was approved by UNDP, indicated in chapter II of the agreement.
- d) To prevent the protocol of destruction of equipment, also visual (photo) proves of the destruction. The protocol will be signed by the Beneficiary, representatives of the Ozone Office and the national authorized consultants.
- e) To provide information regarding cost of the retrofit or conversion.
- f) To assure recovery and/or recycling of the refrigerant CFC (R-12 or R-502)
- g) To communicate the UNDP all necessary information for obtaining of financial assistance.
- h) To reflect daily and correctly in his accounting evidences, all operations bounded to the utilization of accorded financial credit in conformity with legal norms in force.
- i) To permit non-conditioned the access of the representatives of the UNDP, Ozone Office and national authorized consultants at the place of realization of the agreement object.
- j) During the realization of the present agreement to allow the UNDP to check the economic-financial situation and the accounting documents which will reflect the realization stages of the object of present agreement.
- k) Not to commit acts, that will compromise the realization of the agreement objective or will lead to the damage of image or reputation of the UNDP.

#### 5. Rights of the Parties

5.1 The UNDP has following rights:

- a) To interrupt immediately without notice the accordance of financial assistance to Beneficiary when he breaks the agreement's conditions.
- b) To solicit the Beneficiary non conditioned return of money in case when he don't execute the agreement's conditions.
- c) To supervise the Beneficiary activity bounded to the realization of object of the agreement.
- d) To solicit the Beneficiary the communication of any information, data, reports about execution of the object of the agreement.
- e) To use the name of the Beneficiary in his reports and communications for publicity of realized financial assistance.

f) The UNDP doesn't take the political risk or that provoked by natural disasters and doesn't respond for authenticity of the documents, which present the Beneficiary.

5.2 The Beneficiary has following rights:

- a) To solicit the payment of financial assistance according to the clauses of the present agreement.
- b) To use the sum of the granted credit for realization of agreement's objects.
- c) To solicit the UNDP all necessary accounting documents, account extracts of the performed operations, and also another acts with financial character, necessary for accounting evidence.

#### 6. Clause of confidentiality and restrictions

6.1 The parts are obliged to keep the confidentiality of the data, information and documents that they will detain as a result of execution of the clauses of the present agreement. As confidential are considered the following information:

- a) Financial situation.
- b) Acts and accounting reports
- c) Business projects
- d) Licenses or letters patents
- e) Processes of fabrication
- f) Information which represent the market position of the Beneficiary

6.2 The people involved in the agreement execution, respectively managers, book-keepers, lawyers and other categories of people which could not divulge the confidential information, with exception when the UNDP and the Beneficiary approves in written this possibility.

6.3 The Beneficiary will not use the name, acronym or official stamp of UNDP or UN in no purpose. He would not make publicity any other aspect without special permission of the UNDP in each particular case.

#### 7. Force major

7.1 None of the agreement's parts is responsible for non execution on term or /and non execution in inappropriate mode- totally or partially- of any obligation what is up to them according to the present agreement, if non-execution or inappropriate execution of the respective obligation was caused by a major force, as defined by the law.

7.2 The part, that invokes major force, is obliged to notify another part in term of 3 days the production of the event and to undertake all possible measures for limitation of their consequences.

7.3 If during 60 days from the production of the respective event doesn't stop, the parts have the right to notify the legal cessation of the present agreement without the right that anyone of them could pretend interest damages.

8. Settlement of Disputes

8.1 Amicable Settlement

The Parties shall use their best efforts to settle amicably any dispute, controversy or claim arising out of, or relating to this agreement or the breach, termination or invalidity thereof. Where the parties wish to seek such an amicable settlement through conciliation, the conciliation shall take place in accordance with the UNCITRAL Conciliation Rules then obtaining, or according to such other procedure as may be agreed between the parties.

8.2 Arbitration

Unless, any such dispute, controversy or claim between the Parties arising out of or relating to this agreement or the breach, termination or invalidity thereof is settled amicably under the preceding paragraph of this Article within sixty (60) days after receipt by one Party of the other Party's request for such amicable settlement, such dispute, controversy or claim shall be referred by either Party to arbitration in accordance with the UNCITRAL Arbitration Rules then obtaining, including its provisions on applicable law. The arbitral tribunal shall have no authority to award punitive damages. The Parties shall be bound by any arbitration award rendered as a result of such arbitration as the final adjudication of any such controversy, claim or dispute.

9. Privileges and immunities

Nothing in or relating to this agreement shall be deemed a waiver, express or implied, of any of the privileges and immunities of the United Nations, including its subsidiary organs.

10. Penalties

In case if the Beneficiary violates the provisions of the present agreement, UNDP shall terminate the agreement.  
UNDP Moldova may monitor the execution of this agreement and the implementation of funded project. In this view, the Beneficiary will grant access to UNDP Moldova designated representatives to its premises, equipment and/or appliances, will submit any required documents, including financial and bank related ones and will undertake any other actions as required by UNDP Moldova. In case of infringement of provisions of this agreement the Beneficiary will be prescribed to remedy the deficiencies within a reasonable period as required by UNDP Moldova. In the event UNDP Moldova finds that the Beneficiary is unable to remedy the revealed deficiencies, UNDP Moldova may initiate grant revocation procedure through issuing a writ of restitution. Within 10 banking days at most from the day the writ of restitution is issued the Beneficiary must give back to UNDP Moldova or any other assignee whatever was received in accordance with this agreement.

11. Notifications

For the purposes of notifications under the agreement, the addresses of UNDP and the [redacted] as follow:

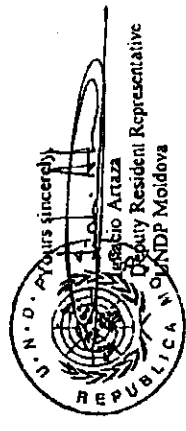
For the UNDP:

UDNP Moldova  
131, 31 August str.,  
2012, Chisinau, Moldova  
Tel.: 22 00 45  
Fax: 22 00 41

BC "Eximbank" S.A Chisinau  
Account: 22244007  
c/b EXMMMD22  
C/F 12626016

Mr. Ignacio ARTAZA  
Deputy Resident Representative  
UNDP Moldova

If the above terms and conditions meet with the Agreement of your organisation, please sign this Agreement and initial every page of the Agreement and the annexes.



For the [redacted]  
Agreed and Accepted:

Signature: [redacted]  
Name: [redacted]  
Title: [redacted]  
Date: [redacted]

