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اللجنة التنفيذية للصندوق المتعدد الأطراف
لتنفيذ بروتوكول مونتريال
الاجتماع السابع و الأربعون
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مقترح مشروع: المكسيك

تتكون هذه الوثيقة من تعليقات وتوصيات من أمانة الصندوق بشأن مقترح المشروع الآتي:

الانتاج

اليونيدو

- خطة قطاعية لازالة قطاع انتاج الـ CFC-11 والـ CFC-12 (الشريحة الرابعة)

ان وثائق ما قبل الدورات تصدر دون اخلال بأي قرار تتخذه اللجنة التنفيذية بعد صدورها.

لأسباب اقتصادية، لقد تمت طباعة هذه الوثيقة بعدد محدد، فيرجى من المندوبين أن يأخذوا نسختهم معهم الى الاجتماع وألا يطلبوا نسخا اضافية.

وصف المشروع

1- ان حكومة المكسيك، من خلال اليونيدو، قد طلبت تمويلا يبلغ 11.85 مليون دولار أمريكي وتكاليف مساندة لبرنامج التنفيذ السنوي لعام 2006 في الخطة القطاعية لازالة قطاع انتاج الـ CFC-11 والـ CFC-12.

خلفية الموضوع

2- ان اللجنة التنفيذية في اجتماعها الأربعين في 2003 وافقت من حيث المبدأ على مبلغ اجمالي قدره 31,85 مليون دولار أمريكي لتنفيذ الاتفاق بشأن قطاع انتاج الـ CFC المكسيكي، وصرفت الشريحة الأولى البالغ قدرها 5.3 مليون دولار أمريكي للمشروع. وبموجب الاتفاق تلتزم حكومة المكسيك بشرط مزدوج هو مستوى أقصى من انتاج الـ CFC يبلغ 22,000 طن متري خلال الفترة 2003-2005، وفي الوقت نفسه بالألا تتجاوز أقصى حد مسموح به للانتاج محدد في الاتفاق بالنسبة لكل من السنوات الثلاث. وعلى أثر ذلك أفرجت اللجنة التنفيذية عن شريحتي 2004 و 2005 من التمويل البالغتين 10,7 مليون دولار أمريكي في اجتماعها الـ الثاني والأربعين و 4,0 مليون دولار أمريكي في اجتماعها الخامس والأربعين، بعد اجراء تحقق مرض من مستويات انتاج الـ CFC في 2003 و 2004، أيد أن البلد كان قد أنتج ما مجموعه 8 694 و 8 044 طن متري من الـ CFC-11 و CFC-12 في 2003 و 2004 على التوالي، ولذا قد حقق الشرطين المحددين في الاتفاق.

3- استجابة لطلب من اليونيدو، قررت اللجنة التنفيذية في اجتماعها الخامس والأربعين أن "تتظر في الافراج عن شريحة التمويل النهائية لمشروع ازالة انتاج الـ CFC المكسيكي في الاجتماع السابع والأربعين بعد اجراء تحقق مرض لانتاج الـ CFC في المكسيك في 2005، بشرط أن يسمح بذلك التدفق النقدي لدى الصندوق المتعدد الأطراف في ذلك الوقت". وذكرت اليونيدو أن Quimobasicos، التي هي المصنع الوحيد الذي ينتج الـ CFC، قد أغلق انتاجه من الـ CFC في أغسطس 2005 ولذا فهي تقدم الى الاجتماع السابع والأربعين برنامج العمل السنوي لعام 2006، الذي يتضمن اقتراحا لاستمرار رصد مصنع انتاج الـ CFC حتى عام 2009، بعد كفه عن انتاج الـ CFC، وطلبا للافراج عن شريحة 2006 البالغة 11,85 مليون دولار أمريكي وما يرتبط بها من تكاليف المساندة البالغة 888,750 دولار أمريكي لليونيدو.

4- وفقا لشروط الاتفاق الذي يقضي بأن الافراج عن شرائح التمويل بعد سنة 2003 أمر يقتضي أن يعرض من جانب اليونيدو التحقق المستقل من انتاج السنة السابقة بحيث يكون في حدود ما يقتضيه بروتوكول مونتريال، وفي حدود الانتاج الاجمالي المسموح به بموجب الاتفاق، الى جانب برنامج عمل خاص بالسنة المعنية، فان اليونيدو يقدم التحقق من انتاج الـ CFC لعام 2005 في المكسيك. وبرنامج عمل السنوي لعام 2006 وتقرير التحقق بشأن انتاج الـ CFC في عام 2005 مرفقان. والبيانات المتعلقة بهذا الموضوع بشأن الاتفاق وبرنامج العمل لعام 2006 هما كما يلي:

المكبك	البلد
الخطة القطاعية لازالة قطاع انتاج الـ CFC-11 و CFC-12	عنوان المشروع:
2006	سنة الخطة
3	عدد السنوات التي أتمت
0	عدد السنوات المتبقية من الخطة
22,000 طن متري	أقصى قدر مسموح به من انتاج الـ CFC ما بين 2003 و 2005 في الاتفاق
12,355 طن متري	أقصى قدر مسموح به من انتاج الـ CFC في 2003 و 2004
8,694 طن متري	الانتاج الفعلي من الـ CFC في 2003
8,044 طن متري	الانتاج الفعلي من الـ CFC في 2004
5,262 طن متري	أقصى قدر مسموح به من الانتاج في 2005 في الاتفاق
31.85 مليون دولار أمريكي	مجموع التمويل المعتمد من حيث المبدأ لخطة ازالة الـ CFC
20 مليون دولار أمريكي	مجموع التمويل المفرج عنه حتى مارس 2005
11.85 مليون دولار أمريكي	مستوى التمويل المطلوب للخطة السنوية لعام 2006

التحقق من انتاج الـ CFC في سنة 2005 في المكسيك

5- قام بالتحقق Ess Jay Consultants في سبتمبر 2005، وهو نفس البيت الذي قام بالتحقق عن 2003 و 2004 ويتضمن التقرير موجزا تنفيذيا والتقرير نفسه والبيانات مقدمة بالشكل المنصوص عليه في الخطوط الارشادية للتحقق من ازالة انتاج المواد المستنفدة للأوزون التي وافقت عليها اللجنة التنفيذية في 2000. ويصف التقرير أولا بايجاز تاريخ مصنع الـ CFC، Quimobasicos، الذي كان لديه وحدتان انتاج تستطبعان انتاج الـ CFC والـ HCFC-22. بيد أنه، بسبب وجود طلب غير كاف على الـ CFC ونظرا للطريقة الطويلة وغير الاقتصادية نسبيا للانتقال من احدى سلسلتي الانتاج الى الأخرى، فان مصنعا واحدا فقط قد استمر في انتاج الـ CFCs بعد 1995، بينما يخصص المصنع الآخر لانتاج الـ HCFC-22. وقد غطى فريق التحقق فقط الوحدة المخصصة لانتاج الـ CFC، وقام بزيارة مصنع الـ HCFC ليتأكد من أنه لا ينتج الـ HCFCs.

6- كان المصنع قائما بالتشغيل ما بين يناير وأغسطس 2005 وأغلق انتاجه يوم 25 أغسطس. وبسبب انخفاض الطلب على الـ CFC-11 في السوق، قرر المصنع أن يعدل جهاز التفاعل في العملية، لاعادة تدوير الـ CFC-11 بجعله CFC-12 ونتيجة لذلك، قام بتحويل 382.8 طن متري من الـ CFC-11 الى 326.43 طن متري من الـ CFC-12.

7- ذكر أن فريق التحقق كان له امكانية الوصول الى جميع أماكن المصنع والى الوثائق اللازمة لممارسة مهمته، بما في ذلك سجلات شراء المواد الخام وسجلات الاصدار؛ وسجلات الانتاج اليومي؛ ونقل المخزون وسجلات الخزن؛ وفواتير المبيعات؛ والاستثمارات الشهرية الخاصة بضريبة القيمة المضافة المقدمة الى سلطة الدخل؛ وحصص الواردات والواردات الفعلية من الـ CTC و الـ HF. وقد اختار المراجعون عشوائيا أياما من أربعة أشهر في السنة كعينات تجري مراجعتها. وبدأ الفريق بمراجعة المخزون الافتتاحي من الـ CFC-11 والـ CFC-12 وأحجام الـ CTC والـ HF من المواد المستعملة للتغذية وذلك من السجلات المالية وسجلات مخزن الايداع لعام 2005. وبعد ذلك، يصف التقرير مراجعة توريد المواد الخام بمراجعة قائمة المشتريات من الادارة المالية وبالمراجعة التعامدية مع عدد مختار من الفواتير، حيث أن جميع الـ CTC والـ HF تم استيرادها تحت رقابة نظام الحصص الحكومي. وكان هناك وصف لعملية الانتاج اليومي والتحرك اليومي للمنتج النهائي داخل المصنع، وتسجيل الانتاج الفعلي وصافي الانتاج والخسائر الناجمة أثناء الملاء. ونسبة استهلاك المواد الخام تم أيضا مراجعتها بالرجوع الى السجل التاريخي والمعايير الصناعية وذكر أنها مقبولة.

8- وأعقب ذلك تفحص تعبئة منتجات الـ CFC ووصف للعملية في المصنع. وجرت مراجعة لعينات من سجلات المحاسبة الخاصة بالعبوات، ومراجعة لوزن مختلف العبوات، ولجودة الغاز من خلال كروماتوغرافية الغاز. وأخيرا نظرت عملية المراجعة في فواتير البيع مقابل سجل المبيعات، واستثمارات الضرائب على القيمة المضافة،

ومراجعة المخزون الختامي من منتجات الـ CFC ومن مواد التغذية. وتضمن التقرير أيضا 8 مرافق معها صور من السجلات الأصلية التي جرى تفحصها.

9- ان نتائج عملية المراجعة كانت أن Quimobasicos قد أنتجت 5 201 طن متري من الـ CFC في 2005، تنقسم الى 278 طن متري من الـ CFC-11 و 4 923 طن متري من الـ CFC-12. وكان ذلك أقل من الـ 5 262 طن متري في عام 2005، أي المستوى المتبقي من انتاج 22 000 طن متري للفترة 2003-2005، وهو القدر المستهدف في الاتفاق بعد خصم 8 694 طن متري أنتجت في 2003 والـ 8 044 طن متري أنتجت في 2004. وقد سجل المصنع 4 أطنان مترية كخسائر أثناء عملية الملء، روعيت عند حساب مجموع الانتاج المسموح به.

10- ان البيانات التي تم تجميعها على يد فريق التحقق قد قدمت باستعمال الشكل الوارد في الخطوط الارشادية لمراجعة ازالة انتاج المواد المستنفدة للأوزون، الذي يتضمن الانتاج شهرا بشهر، من الـ CFC والـ HCFC-22، وعدد أيام الانتاج ونسب الاستهلاك من مواد تغذية انتاج الـ CFC و الـ HCFC-22، والتغير في قائمة جرد الـ CTC والـ HF كمواذ تغذية، وذلك كطريقة للتحقق من صحة انتاج الـ CFC.

الكف عن انتاج الـ CFC

11- نظر المراجعون في عملية انهاء انتاج الـ CFC لدى Quimobasicos، وأيدوا مقدار الجرد المتبقي من منتجات الـ CFC ومواد التغذية حتى أغسطس 2005 على النحو الآتي:

CTC	: 48.4 طن متري
HF	: 231.3 طن متري
CFC-11	: 355.7 طن متري
CFC-12	: 3,783.6 طن متري

12- حصل المراجعون على المعلومات الآتية بشأن الالتزام باغلاق دائم لقدرة انتاج الـ CFC، وهي تأييد كتابي من المدير العام لـ Quimobasicos بالكف عن الانتاج، وكتاب من حكومة المكسيك بالغاء حصة استيراد Quimobasicos من الـ CTC. وكانت ثمة مذكرة من المراجعين بشأن التغييرات التي سبق احداثها في المعدات والتغييرات التي سوف تحدث لتحويل المصنع الى انتاج الـ HCFC-22.

13- أوصى المراجعون بمزيد من المراجعات السنوية لكفالة استدامة الاغلاق واقترحوا البرامترات الآتية بالنسبة لعمليات المراجعة في المستقبل:

- لا دخول للـ CTC في المصنع بعد تاريخ اغلاق انتاج الـ CFC؛
- التحقق من المخزون ومن المشتري ومن المستعمل من الـ HF للـ HCFC-22؛
- التحقق من انتاج المصنعين التابعين لـ Quimobasicos؛
- التحقق من المخزون حسب قائمة جرد الـ CFC-11 و CFC-12 وتخفيضات قائمة الجرد على مر السنوات؛
- التحقق من معايير استهلاك الكلوروفورم والـ HF لانتاج الـ HCFC-22؛
- التغييرات التي أدخلت في المصنع، والاضافات والتغييرات على المعدات؛
- أية عمليات مراجعة أخرى تكون لازمة للامتثال الكامل.

برنامج عمل 2006

14- ان برنامج عمل 2006 يشمل ثلاثة أجزاء هي: موجز للمشروع، انجازات برنامج العمل في 2004 ومستوى التمويل لبرنامج عمل 2006. وطبقا للاتفاق، ينبغي ألا يكون هناك ثمة انتاج من الـ CFC في 2006 وما بعدها. ويركز برنامج العمل على استدامة اغلاق انتاج الـ CFC.

15- ان التقرير عن انجازات برنامج العمل لـ 2004 و 2005 يتضمن التدابير المتعلقة بالسياسة العامة وأنشطة المساعدة التقنية والرصد الذي جرى لتنفيذ برنامج ازالة الانتاج. ومما هو جدير بالذكر بصفة خاصة الجهد الذي يجري في 2005 للشروع في حظر انتاج واستيراد الـ CFC.

16- ان البرنامج سوف يستمر في رصد انتاج Quimobasicos لكفالة الاغلاق الدائم من خلال مراجعة مالية وتقنية سنوية تقوم بها الحكومة ويقوم بها اليونيدو في الربع الأول من كل عام من 2006 الى 2009. وسوف تقدم النتائج على شكل تقارير مراجعة الى أمانة الصندوق كي تستعرضها اللجنة التنفيذية للعلم بها. والمراجعات سوف تجري وفقا لتوصيات المراجعين الواردة في الفقرة 12 أعلاه.

17- من المقرر أن يخصص 11,6033 مليون من 11,85 مليون دولار أمريكي لحصة 2006 لتعويض منتج الـ CFC عن إغلاق انتاجه، بينما سوف يستعمل الرصيد البالغ 246,700 دولار أمريكي زائدا 124,436 دولار أمريكي مرحلة من البرامج السنوية السابقة لتمويل برنامج المساعدة التقنية للفترة 2006-2009 والأنشطة المزمعة في المساعدة الفنية واردة في الجدول 9 من برنامج عمل 2006.

تعليقات وتوصيات الأمانة

تعليقات

18- ان التحقق من انتاج الـ CFC في 2005 لدى Quimobasicos يبين أنه أنتج 5 201 طن متري وهو قدر يقل عن أقصى حد مسموح به الذي يبلغ 5 262 طن متري بموجب الاتفاق. وجملة الأمر أن انتاج الـ CFC ما بين 2003-2005 هو 21 939 طن متري (694 8 طن متري في 2003 و 8 044 طن متري في 2004 و 5 201 طن متري في 2005) وهو مقدرا يقل بـ 61 طن متري عن القدر المستهدف البالغ 22 000 طن متري كما هو محدد في الاتفاق. ولذا فان المكسيك قد حققت أهداف الاتفاق.

19- أنهى المصنع انتاجه من الـ CFC في أغسطس 2005 كما بين ذلك المراجعون، واتخذ تدابير لتحويل انتاجه الى انتاج HCFC-22، وهو أمر مسموح به بموجب الاتفاق. وقد اتخذ المصنع خطوات هندسية لكفالة الاغلاق الدائم لقدرة انتاج الـ CFC، وسوف تستمر العملية. وقد اتخذت حكومة المكسيك أيضا تدابير لكفالة استدامة الاغلاق، مثل الغاء ترخيص استيراد الـ CTC، الذي هو مادة رئيسية لتغذية انتاج الـ CFC.

20- ان البرنامج السنوي لعام 2006 قد اقترح استمرار رصد مصنع الـ CFC من جانب اليونيدو وحكومة المكسيك ما بين 2006-2009، بالنسبة لعدد من البرامترات التي أوصى بها المراجعون لكفالة استدامة اغلاق انتاج الـ CFC. وهذا مسلك جدير بالاطراء الشديد، تقترحه الحكومة واليونيدو، وينبغي اتباعه بالنسبة لاغلاق مصانع الانتاج المماثلة التي يمولها الصندوق المتعدد الأطراف. ويذكر برنامج 2006 مرة أخرى المزيد من التدابير المزمعة المتعلقة بالسياسة العامة والتي تشمل الحظر التدريجي للـ CFC في جميع القطاعات وحظر المعدات التي تحوي CFC وحظر استيراد الـ CFC. ومن شأن المبادرات أن تسهل مشروع اغلاق انتاج الـ CFC وكذلك برنامج الازالة الوطني للـ CFC، الذي هو أيضا قيد التنفيذ. بيد أنه لا يقضي بالالتزام بأي تاريخ للتنفيذ والاطتمام.

21- ان التحقق من انتاج الـ CFC لعام 2005 لدى Quimobasicos يجري وفقا للخطوط الارشادية الصادرة عن اللجنة التنفيذية بشأن التحقق من ازالة انتاج المواد المستنفدة للأوزون، وتنطوي على وصف معقول للمنهجية وللوثائق التي تم تححصها للتأكد من تحقيق الأهداف السنوية المنطوية على تخفيض الانتاج. وتتضمن كذلك خطوات موصى بها لمزيد من رصد التخلص من الكميات المتبقية في قوائم جرد منتجات الـ CFC ومواد تغذيتها.

22- وفقا للعرف المعمول به من تقديم تقارير التحقق من ازالة انتاج الـ CFC، تقدم الأمانة فقط البيانات المجمعة وليست المرافق أو البيانات الشهرية المتعلقة بالانتاج وباستهلاك مواد التغذية. غير أن تلك المرافق والبيانات الشهرية يمكن اتاحتها لأي عضو من أعضاء اللجنة التنفيذية اذا طلبها.

توصيات

23- توصى الأمانة بأنه، في ضوء التحقق المرضي الذي يدل على أن برنامج اغلاق انتاج الـ CFC في المكسيك قد حقق هدف التخفيض من انتاج الـ CFC في 2005، وهدف الانتاج الاجمالي من الـ CFC في 2003-2005، كما هو وارد في الاتفاق، وأن Quimobasicos قد كفت عن انتاج الـ CFC وبدأت في تفكيك قدرتها الانتاجية من الـ CFC، قد ترغب اللجنة التنفيذية فيما يلي:

(أ) أن تثني على حكومة المكسيك وعلى اليونيدو للتنفيذ الناجح في تنفيذ اتفاق اغلاق انتاج الـ CFC والاعلاق الدائم للقدرة على انتاج الـ CFC لدى Quimobasicos؛

(ب) أن تطلب من حكومة المكسيك واليونيدو الاستمرار في رصد اغلاق انتاج الـ CFC لدى Quimobasicos ما بين 2006-2009 كما هو مقترح في برنامج العمل السنوي لعام 2006؛

(ج) الموافقة على برنامج العمل لعام 2006 الوارد في اتفاق اغلاق انتاج الـ CFC في المكسيك وذلك بمبلغ 11,85 مليون دولار أمريكي و 888,750 دولار أمريكي كتكاليف مساندة لليونيدو؛ غير أنه نظرا لأن هذا المبلغ انما هو دفعة معجلة مقرر صرفها لخطة الأعمال السنوية لعام 2006، فان مستوى الصرف في هذا الاجتماع سيكون مرتها بالنقد السائل المتوفر لدى الصندوق بعد الوفاء بالالتزامات التي تستحق في 2005، وذلك وفقا لشروط المقرر 62/45.

ANNUAL IMPLEMENTATION PROGRAMME

Sector Plan for Phasing out CFC-11 and CFC-12 Production Sector, Mexico MEX/PRO/40/INV/115

1. PROJECT SUMMARY

1.1 Project data

Country:	Mexico
Year of plan:	2006
# of years completed:	3
# of years remaining under the plan:	0
Substances:	Annex A Group I and Annex B Group I
Target ODS production of the preceding year (maximum):	5,262 metric tonnes
Target ODS production of the year of plan (maximum):	0 metric tonnes
Target ODS aggregate production for the years 2005 and 2006 (maximum):	5,262 metric tonnes
Level of funding requested:	US\$ 11,850,000
National coordinating agency:	SEMARNAT ¹
International implementing agency:	UNIDO

1.2 Project target

Target:	0 METRIC TONNES
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Indicators	Actual in preceding year (2005)	Year of Plan (2006-2009)	Total in years in 2005 and onwards	Total in years 2003 to 2005
Production, metric tonnes	5,201	0	5,201	22,000

The CFC production in 2005 according to the findings of the technical and financial audit was **5,201** metric tonnes. As per the Agreement (see Section 2), the aggregate CFC production in years 2003 to 2005 shall not exceed 22,000 metric tonnes. In the years 2003-2004 the aggregate

¹ Secretaria de Medio Ambiente y Recursos Naturales

CFC-11 and CFC-12 production of Mexico amounted to 16,738 MT. The remainder of the 22,000 MT allocation amounts to 5,262 MT.

Further in accordance with the Montreal Protocol obligations of Mexico, the CFC production in 2005 shall not exceed 50 % of the baseline production of 12,355 metric tonnes, i.e. 6,739 metric tonnes. Accordingly, the 2005 CFC production in Mexico was limited to maximum **5,262** metric tonnes and no production is allowed in 2006 and after.

2. BACKGROUND

The Agreement for the Sector Plan for Phasing out CFC-11 and CFC-12 Production Sector, Mexico (first tranche) was approved at the 40th Meeting of the Executive Committee of the Multilateral Fund for the Implementation of the Montreal Protocol in July 2003².

By approval of the Agreement, Mexico agrees that in exchange for the funding level specified in Table below, it will reduce its total production of the substances of Group I Annex A and Group I Annex B in an accelerated manner as compared to the allowable production indicated in the same Table 1.

Table 1. Agreement for the Sector Plan for Phasing out CFC-11 and CFC-12 Production Sector

Year	2003	2004	2005	2006	2007	2008	2009	2010	Total
Maximum allowable production (metric tonnes)	12,355	12,355	6,739	6,739	2,808	2,808	2,808	0	
Maximum production levels agreed (metric tonnes)	22,000*			0	0	0	0	0	22,000
Verified actual CFC production (metric tonnes)	8,694	8,044	5,201	-	-	-	-	-	21,939
MLF funding US\$ million	5.3	10.7	4.0	11.85	0	0	0	0	31.85
Agency fees US\$	397,500	802,500	300,000	888,750	0	0	0	0	2,388,750

* Total maximum production for the years 2003 to 2005. It is understood that Mexico may not exceed its allowable production limit during any one year.

Through the implementation of the 2005 Annual Program of the Sector Plan for Phasing out CFC-11 and CFC-12 in the Production Sector (third tranche), Mexico has met its year 2005 Annual Implementation Programme target of containing the maximum CFC production level

² Decision 40/54 (h), UNEP/OzI/Pro/ExCom/40/50 Annex V

below **5,262** metric tonnes, since the actual production of CFC-11 and CFC-12 was kept at the level of 5,201 metric tonnes.

In accordance with the Agreement, UNIDO, as the implementing agency, is submitting an Annual Program for the period "1 January 2006 - 31 December 2009" for the consideration at the 47th Meeting of the Executive Committee. This Annual Program has been prepared in cooperation with SEMARNAT.

This document describes the achievements of the 2005 Annual Program by Mexico and details the planned program and activities for 2006 - 2009. It is being submitted for approval and release of the fourth (last) tranche of funds amounting to US\$ 11.85 million including the enterprise compensation and the technical assistance (TA) component for the implementation of the 2006-2009 Annual Programme.

3. 2004 ANNUAL PROGRAM ACHIEVEMENTS

3.1 CFC Production phase-out and disbursement

CFC production in 2005 amounted to 5,201 metric tonnes, against the target production of 5,262 metric tonnes set in the 2005 Annual Implementation Programme.

The disbursement to a CFC producer, Quimobasicos, in 2005 amounted to US\$ 4,000,000 , allocated for enterprise compensation.

The disbursement to the Government of Mexico and the financial obligation on the project during 1 January 2003-31 August 2005 used for the implementation of the TA component was of US\$ 478,864. This grant is has been allocated for the TA activities to be organized by the Government with the assistance of UNIDO:

Activity	Cost, US\$
Project management, local experts	94,140
Design of an information collection system of ODSs	10,415
Equipment acquisition	4,481
Creation of the system to collect data and information of ODSs	217,215
Training, local and international travels	39,991
Awareness programme	49,394
Technical and financial audit of Quimobásicos	63,228
Total	478,864

Table 2. CFC Production phase-out and disbursement in 2003-2004

Year	Production Phase-out		Grant Tranche (US\$)	
	Target (metric tonnes)	Achieved (metric tonnes)	Allocation (US\$ million)	Status of Obligations
2003	12,355	8,694 *	5,300,000	5,300,000
2004	10,400	8,044 *	10,700,000	10,699,873
2005	5,262	5,201 *	4,000,000	3,859,394

* The independent audit team administrated by UNIDO verified CFC production in 2003 and in 2004.

3.2. Policy measures

Overview of the past activity

Mexico holds one of the most advanced CFC phase-out programs among Article 5 Countries. Actions started as early as in 1988 and have become a permanent effort of the Government of Mexico. These actions have been coordinated through the Ministry of Environment (currently SEMARNAT). The Mexican CFC policy framework has been focusing on the use and supply of CFCs rather than on actions to control production. Some of the most important measures implemented, include:

- a) Monitoring on trade of CFCs: Starting from 1993, the Ministry of Environment has required the national CFC producing enterprises to voluntarily report domestic and international commercial activities such as production, imports and exports volumes. The industry is fully compliant with this requirement.
- b) Import control on CFCs and CTC: SEMARNAT has set up an import licensing system on CFCs and CTC, using an inter-ministerial mechanism called CICOPLAFEST. The Ministry of Finance through the Customs Office enforces this regulation. Under the system, only the holder of import rights (namely Quimobásicos) is allowed to import the raw material (carbon tetrachloride) for the production of CFCs, and only the holders of import rights of CFC (namely Quimobásicos and Dupont) are allowed to import these substances. Allocation of rights is based on historical (1990) domestic sales data. Quotas are established according to the average sales of the years 1995-1997 and subjected to the internal goals of SEMARNAT.
- c) Constraints for growth on industrial demand of CFCs: Since 1993, SEMARNAT has played an active role to circumvent the installation of any new CFC consuming facility in the Country, with emphasis on the original equipment manufacturer (OEM) sector. For the installation of any new production facility in the Country Mexican law requires an operation's license, which is granted by SEMARNAT, in order to manage related environmental impact and risks, and to establish emission prevention and control requirements, as well as to define operational conditions and growth. To enable compliance with the Mexican obligations under Montreal Protocol, SEMARNAT has been able to

discourage the use of CFCs, and negotiate in favour of CFC substitutes, thus avoiding new progress on CFC consumption in the OEM sector.

Notwithstanding the current degree of success of controlling and diminishing CFC consumption in the Country, the major concerns of the Government regarding further progress of the phase-out process enabling definite compliance with Montreal Protocol obligations are:

- a) Prohibition of import of CFC containing equipment: Since 1998 the Government has been setting up temporary prohibitions on import of refrigeration, air conditioning and water cooling equipment using CFCs in order to halt new additional CFC demand, and complement efforts in controlling manufacturing industry's demand. Permanent control measures will be established by SEMARNAT to prohibit import of equipment using CFC, including also used cars in addition to refrigeration equipment.
- b) Controlling availability of CFCs on the Mexican market: Although collaboration with CFC producers/importers have provided major advancements on control of CFC availability, an agreement on a definite CFC production and import phase-out schedule will be formalized as an integral part of the present project. Nevertheless, the Government of Mexico is concerned about the uncontrolled introduction of CFCs to the Country, and to that end, is preparing actions to strengthen regulations and enforcement to control illegal trade. Support from the international community is being received as part of this project to enhance and speed-up the implementation of such regulations and enforcement.

Planned activities

The Government of Mexico established additional supporting measures to promote CFC production phase-out in the Country, while considering domestic remnant necessities and consumption phase-out concerns as discussed in the previous chapter. The main objective of the formulation of the regulatory instruments is the strengthening of a policy framework to achieve complete ODS phase-out complying with the obligations under the Montreal Protocol in a gradual and orderly manner to minimize adverse economic affects to all sectors involved.

a) Ozone Depleting Substances (ODS) Regulations: The Mexican Government has initiated formulation of a detailed regulation to monitor and control the production and uses of Ozone Depleting Substances in the Country. Proposed regulations include control mechanisms for several Ozone depleting substances, such as CFCs, carbon tetrachloride, halons, methyl chloroform, and methyl bromide. Salient features of the proposed regulation regarding CFCs are:

- (i) Gradual abandonment of the use of substances that deplete the Ozone layer in all sectors consistent with the Montreal Protocol obligations. The official norm would be compulsory for all producers, importers, exporters, distributors, vendors and commercial and industrial consumers of CFCs.

- (ii) From the date of implementation of the official norm, authorized commercialization of CFCs will be only permitted to satisfy basic internal needs and essential uses in the Country. The regulation will include schedules with maximum allowable quantities permitted for such uses on a yearly basis until 2010.
- (iii) From the date of implementation of the regulation, it will be prohibited to produce or import all kinds of refrigeration equipment, air conditioning equipment, propellant formulations, plastic foam or solvent cleaning operations that use or contain CFCs, except those related to essential uses as defined by the Montreal Protocol.
- (iv) The regulation will establish rules to control the commercialisation of recycled or reprocessed CFCs.

Achievement in 2005

A series of policy measures were adopted and implemented during the course of the year 2003 as summarized below.

a) Production Quota: The Government of México established a CFC production quota to the CFC producing enterprise, Quimobásicos. The production quota system is in place from January 2004.

The monitoring and enforcement mechanism for the production plan involve:

- (i) Quota system operation is established as a production cap issued to the Production Sector by SEMARNAT (production quota);
- (ii) Mandatory reporting of Production Sector on actual production figures to the National Ozone Unit;
- (iii) Monitoring and supervision of implementation of CFC production cap, and on import of raw material (carbon tetrachloride);
- (iv) Sanctioning of the production sector in case of exceeding its and/or import quota; in such cases the quota is correspondingly reduced for the following year taking into consideration also the production Sector phase-out Agreement with the ExCom (ANNEX IV).

b) Regulation for control of ban of production and import of CFCs: The Government of México is promoting an agreement between the CFC importers to close the importation, and only use in the next years the stockpiles produced during the period of 2003-2005.

Table 3. Policy measures achievement in 2005

Legislation	Related Activity	Planned Timing in project proposal	Achievement in 2004
Production Quota	Introduction of production quota	2003 - 2004	Production Quota was put in place. CFC Production has been controlled by import regulation of CTC. Since September 2005 the import of CTC as raw material has been banned, and the possible remnant stockpiles should be returned to the country of origin
Regulation for control and ban of production and import of CFCs	Enactment	By 2005	Draft regulation prepared

3.4 Technical assistance activities

Implementation modality

Following steps have been taken in order to execute the technical assistance activities.

- Project approval: July 2003
- Allocation of the grant for the compensation for the enterprise and the technical assistance activities determined: September 2003
- Detailed technical assistance activities determined: October 2003
- Budget allocation for each activities determined: October 2003
- Mechanism for the grant transfer determined: December 2003
- Recruitment of a national expert initiated: December 2003

Planned key activities and achievement in 2005

Table 4 summarizes achievements and the status of key activities until now.

Table 4. Achievements and the status of key TA activities by August 2005

Activity item	Planned timing as per Project Document	Achievement and status in 2004
a) Design of public awareness campaign to promote phase-out of CFCs.	2003 - 2005	Design of and awareness strategy was designed and approved by the social communication office of SEMARNAT. Video was prepared and demonstrated. Printed materials, advertisements in specialised journals were produced and are in preparation. The official closure of the CFC production in Mexico was organised on 9 September 2005. It was attended by the government, academia, business and industry circles, NGO's, Ozone and Fund Secretariat, representatives from some Latin American countries, UNIDO and other UN agencies.
b) Design and conduct market study to fully characterize remnant demand of CFCs in Mexico.	2003 -2004	Contract of the national expert that will develop the National Strategy for CFC Management in México was issued. Implementation is continuous in 2005 and years after based on the grant to be provided in the 4 th tranche.
c) Prepare consumer sector phase-out plan to submit to MLF for approval of funds necessary for phase-out.	2003 - 2004	Refrigeration sector CFC phase-out plan (NPP) submitted to the 42 nd ExCom and was approved.
d) Customs training programme to control illegal trade in harmony with NPP.	2003 - 2004	The relevant project was included in the NPP submitted to the 42 nd ExCom for assistance from the Multilateral Fund. The training program is being organised to take place in September 2005.

Activity item	Planned timing as per Project Document	Achievement and status in 2004
e) Creation of an information and monitoring system on the production, consumptions imports, exports of CFCs and other ODS including a remote communication system via internet.	2003 - 2004	The information and monitoring system has been designed by an information technology company under a contract awarded last year; The development of the software, procurement of the equipment, installation of the system have been completed, trials were run, system operation was demonstrated to SEMARNAT, Customs, UNIDO etc. The training campaign to all users of this system (Customs, Health Ministry and SEMARNAT) is going on.
f) Regular training programmes for the Government and Industry on regulations and enforcement regarding CFC phase-out matters.	2003 - 2004	Organization of Workshops for Government officials in Health, Agriculture, Economy and Environmental Ministries. Execution planned in 2005 using the third tranche of the grant.

3.5. Monitoring and reporting activities

The monitoring and reporting mechanism undertaken in 2004 is detailed in Table 5.

Table 5. Monitoring and reporting activities in 2005

Activity	By	Timing	Remarks
Financial and technical audit of the 2004 CFC production of Cydsa / Quimobásicos	UNIDO	January 2005	Satisfactory report received. It was submitted to MFS for consideration and was approved at the 45 th ExCom
3 rd Tranche approval	45 th ExCom	April 2005	Completed
Contract with Cydsa Quimobásicos enterprise for compliance, reporting as well as other obligations.	UNIDO Quimobásicos	May 2005	UNIDO Contract No. 2005/069
Progress report to UNIDO based on the contract above	Quimobásicos	May 2005	Satisfactory report received

Activity	By	Timing	Remarks
Financial and technical audit of the 2005 CFC production of Cydsa / Quimobásicos	UNIDO	September 2005	Satisfactory report received. It was submitted to MFS for consideration and approval at the 47 th ExCom
4 th Tranche approval	47 th ExCom	November 2005	Submitted to the Fund Secretariat
Contract with Cydsa Quimobásicos enterprise for compliance, reporting as well as other obligations.	UNIDO Quimobásicos	Upon approval	Planned for December 2005
Supervision	UNIDO SEMARNAT	2005	Several supervision visits were undertaken by SEMARNAT in 2005 and two times by UNIDO (in conjunction with the audits and CFC production cessation.

4. 2006 ANNUAL PROGRAM: OBJECTIVES AND ACTIVITIES

4.1 ODS Phase-out objectives and disbursement allocation

The objective of the 2006 Annual Program is to ensure, monitor and verify that the cessation of CFC production is permanently maintained.

UNIDO, on behalf of the Government of Mexico, is requesting the release of the fourth instalment of US\$ 11.85 million to achieve this objective, which is to be disbursed to the following categories:

- US\$ 11,603,300, which will be disbursed to the beneficiary CFC producing enterprise for reducing keeping the production level in accordance with the annual production allowed for 2005 as well as for the permanent and sustainable cessation of CFC production; and
- US\$ 246,700 for implementation of the TA component.

4.2 CFC production phase-out target

As of 25 August 2005 the Government of México will not authorize any CFC production and CTC import quota to Quimobásicos, the only CFC producer in México.

4.3 Policy measures

A series of policy measures is going to be implemented during the course of the year 2005 as summarized below.

Production Quota: The production quota system is in place from January 2004. The import Quota system of the ODS raw material, CTC is being continued to doubly control the cessation of CFC production in the production sector.

Regulation for control and ban of production and import of CFCs: The Government of México continues promoting an agreement between the CFC importers to close the importation, and use in the next years only the stockpile produced during the period prior to the cessation of CFC production at Quimobásicos.

Table 7. Policy measures to be carried out in 2006

Legislation	Related Activity	Planned timing in project proposal	Plan in 2004
Production Quota	Continue application of the production quota system	2005 onwards	Production Quota system will be used to continue to control cessation of CFC production through imposition of import Quota on CTC and ban of import for the production of CFCs
Regulation for control and ban of production and import of CFCs	Enactment	As of 2005	Proceeding for the approval by the Parliament

4.4 Technical assistance activities

Proposed technical assistance activities to be undertaken during 2006 and the following years are summarized below. These activities have been decided based on the priorities of the Government of Mexico with regard to the national ODS phase out strategy.

a) ODS Information monitoring system.

This system consists of an instrument to monitor permanently the flows and related information of ODS that are imported and exported through all the Mexican customs. It will register the gross sales and use of ODS inside the country and will be capable to follow up the movements in the quota established for the importers of ODS.

The major activities of this item are:

- Regular operation of the ODS information and monitoring system;
- Collection and input of data;
- Supervision and maintenance of the operation of the information system;
- Provision of training on the use of the system, as required;
- Processing import licences through the system;
- Daily use of remote communication system via internet to facilitate training activities and linkage with stakeholders involved.

b) Technical assistance and training of relevant ministries and agencies.

It consists of technical workshops for officials of governmental agencies related to ODS management (Environmental Federal Attorney, Customs, etc.) with the aim to train them in ozone layer protection issues and specifically in detection and identification of ODS.

In the courses the participation of national and international experts is envisaged. It will utilize the specific material developed by UNEP.

c) Technical audit, supervision

It is planned to carry out technical and financial audits at Quimobásicos in the first quarter of each year during the period of 2006-2009, to authenticate compliance with the Agreement between Mexico and the Executive Committee of the Multilateral Fund for the Implementation of the Montreal Protocol. The audits will review compliance of the previous year.

The audits will focus on and verify:

- i) There has been no entry of CTC into the plant after the closure date of CFC production;
- ii) Verification of stock, purchase and use of HF for HCFC-22;
- iii) Production verification of Plants 1 & 2,
- iv) Stock verification of finished goods, CFC-11 and CFC-12, and reduction over the year;
- v) Verify consumption norms of Chloroform and HF for the production of HCFC-22;
- vi) Changes carried out in the plant, equipment additions, modifications, etc;
- vii) Any other checks to be made to confirm full compliance.

Through this instrument SEMARNAT with the assistance of UNIDO will annually verify the cessation of CFC produced in Mexico and take the necessary measures to ensure compliance with the Montreal Protocol.

The results of the verification audits will be submitted in form of audit reports to the Fund Secretariat and for the information of the ExCom.

d) Development and implementation of a communication strategy

This item will allow the Government of Mexico and SEMARNAT through the National Ozone Unit to communicate to specific publics the advances of México in the process of implementation of the Montreal Protocol and in particular, the closure of CFC production in México. This program is implemented in close coordination with the Social Communication Office of SEMARNAT.

The major activities are:

- Design and development of a communication strategy;
- Design and publication of materials in different media;
- Special events.

e) Local and international travels

This item is related to the local travels of the national experts, governmental officials and national ozone unit personnel for the different activities related to this technical assistance program.

f) General project management

Assist the Ozone Protection Unit in coordinating and managing the technical assistance project for the CFC Production Sector Phase-out Plan, specifically in the preparation of reports, design, development and implementation of the different programs included in this project, development and management of databases for ODS and support the technical audits of CFC production closure.

Major activities:

- Recruitment of national experts
- Following up on the Monitoring system, the National Strategy for CFC Management and other related programs.

g) Time schedule

The planned activities will be implemented on continuous basis, except the technical and financial audits, which will be carried out annually in the first quarter of the year with reporting to the second meeting of the ExCom on the compliance of the previous year.

g) Estimated costs of activities

The estimated cost of the project by activity is listed in the table below.

Table 9. Estimated costs of TA activities, US\$

	<u>Activity</u>	<u>2003-2004</u>	<u>2005</u>	<u>2006 - 2009</u>
A	ODS Information and Monitoring System			
	Elaboration of Terms of Reference of the project for ODS Information and Monitoring System	3,500		
	Design, implementation and operating of the ODS Information and Monitoring System	227,000	40,000	46,700
	Acquisition of Remote communication system via internet to facilitate training activities and linkage with stakeholders involved.	30,000		
B	Technical assistance and training of relevant ministries and agencies			
	Training workshop	37,300	10,000	10,000
C	Technical Audit supervision			
	Audit to a CFC production factory	16,000	16,000	70,000
D	Development and implementation of a Communication strategy			
	Implementation of the communication strategy	37,500	89,000	70,000
E	Local travels	12,000	5,000	20,000
F	General project management			
	Recruitment of a national experts	50,000	30,000	30,000
	TOTAL	413,300	190,000	246,700
G	Carry-over from previous approvals (to be used for awareness, monitoring and national experts over the period)			124,436
H	GRAND TOTAL			371,136

4.5. Monitoring and reporting activities

Annual progress reports on the implementation of the programme and cessation of CFC production will be prepared by SEMARNAT and UNIDO for the consideration of the Secretariat and the ExCom prior to the second Meeting of the ExCom each year in 2006-2009.

Table 10. Monitoring and reporting activities in 2006 -2009

Activity	Responsible	Timing	Remarks
Approval of 4 th Tranche and Implementation Programme 2006 - 2009	ExCom	November 2005	47th ExCom
Contract with the enterprise for compliance, reporting as well as other obligation	UNIDO Quimobásicos	December 2005- January 2006	Modality for preparation of the contract and the contractual obligation will follow the previous modality with the addition of the clause of permanent cessation of CFC production.
Progress report to UNIDO based on the contract above	Enterprise	To be decided in the Contract	-
Audit for verification of CFC production phase-out	Auditor	1 st Quarter of each year 2006 – 2009	-
Supervision and regular monitoring	UNIDO SEMARNAT	During 2006 – 2009	Periodically

Technical and Financial Audit of the CFC plant of Cydsa / Quimobásicos Monterrey, Mexico (Year 2005)

Project: MEX/PRO/40/INV/115, “Sector Plan for Phasing out of CFC-11 and CFC-12 in the Production Sector” fourth tranche)”

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Date of submission: 23 September 2005

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EXECUTIVE SUMMARY

BACKGROUND

- 1) The Executive Committee entered into an Agreement with Mexico, by which the only plant producing CFCs in Mexico will be assisted with funds to meet international obligations under the Montreal Protocol.
- 2) The Agreement (UNEP/OzL.Pro/ExCom/40/50) stipulates the CFCs production that is permissible to Mexico for specified years and the funding that will be made available for compliance.
- 3) The cited Agreement uses the following terms to describe the CFC production permitted for the plant.
 - a) “**Maximum Allowable Production**” 2003 to 2010. Annual production limit in accordance with the Montreal Protocol.
 - b) “**Maximum Production Levels Agreed**” 2003 to 2005. This stipulates the maximum production (22,000 MT) permitted under the cited Agreement for the Mexican - Production Sector. The Plant will cease CFC production thereafter.
- 4) The Agreement stipulates a “Maximum Allowable Production” of 6,379 MT in 2005, which is a part of the “Maximum Production Levels Agreed” limit of 22,000 MT in the years 2003-2005.
- 5) As certified by earlier audits approved by the Ex-Com, the plant produced 8,694 MT of CFCs in 2003 and 8,044 MT of CFCs in 2004 against the “Maximum Production Levels Agreed” of 22,000 tonnes for the years 2003-2005. Hence, the permitted total production for CFCs in 2005 is 5,262 MT. With this production in 2005, the “Maximum Production Levels Agreed” of 22,000 MT for 2003-2005 has been utilised and hence the plant is not eligible for CFC’s production in future.
- 6) The disbursement of funds under this Agreement to the beneficiary enterprise is contingent on independent verification and report of CFC production.
- 7) The management of Quimobásicos Factory, Monterrey, Mexico has declared the closure of the plant for CFCs production and their desire to switch over to HCFC-22 production.

OBJECTIVE OF THE AUDIT

- 8) To establish the CFC-11 and CFC-12 production level of Cydsa/Quimobásicos Factory, Monterrey, Mexico for the period 1 January 2005 - 31 August 2005 and verify its compliance with the Agreement, UNEP/Ozl.Pro/ExCom/40/50.

VERIFICATION TEAM

- 9) The audit was carried out by Ess Jay Consultants who were accompanied by UNIDO and SEMARNAT staff to ensure the right process under Ex-Com Guidelines was followed.

PLANTS PRODUCING ODS

- 10) The Quimobásicos Plant at Monterrey has two refrigerant production units of Allied Signal Technology. Both plants have a common control room with sophisticated PLC based integrated control systems. Plant 1 (commissioned in 1963) produces only HCFC- 22, and Plant 2 (commissioned in 1983) produces CFC-11 and CFC-12.
- 11) Both plants have a swing-over capability but are running in the modes indicated, since 1995. The average swing-over time from CFC-11/CFC-12 to HCFC-22 or vice versa is 15 days and the plant deems the swing over time as uneconomical and has decided to dedicate product manufacture in Plants 1 & 2 as indicated above.
- 12) Thus, only the plant producing CFCs (Plant 2) was audited in detail whereas the audit of Plant-1 (producing HCFC-22) was carried out solely to confirm that it produced only HCFC 22.

SUMMARY OUTCOME OF AUDIT

- 13) The plant produces the following ODSs:
CFC-11, CFC-12 and HCFC-22.
- 14) Though, only CFC-11 and CFC-12 is produced by the plant, there is import of other CFCs e.g. CFC-113, CFC-114, CFC-115, CFC- 124 etc. to cater to domestic demand.
- 15) The field verification of January-August 2005 CFCs production at Quimobásicos factory confirms the production, inventory and sales data submitted by the Plant in response to the questionnaire.
- 16) Quimobásicos has produced **5,201 MT** of CFC-11 and CFC-12 in the current audit period.
- 17) The actual production of CFC-11 and CFC-12 is within the “Maximum Allowable Production”, (i.e., the CFC Production Freeze Target for Mexico under the Montreal Protocol) of **6,739 MT** for the year 2005.
- 18) The plant has also adhered to a total production of maximum 22,000 MT in the period 2003-2005 under the Agreement. Against this commitment, the production was:
 - a) 8,694 MT in 2003;
 - b) 8,044 MT in 2004; and
 - c) 5,201 MT in 2005.A total of **21,939 MT**, which is **61 MT less** than the 3-year “Maximum Production Levels Agreed” limit of **22,000 MT**.
- 19) The company produced 5,201 MT from January 05 to 25 August 2005 and has permanently ceased CFC production.
- 20) The CFC-11 & CFC-12 closing stock verified at the end of August 2005 is 4,140 MT. It was reported that there was no incident or occurrence leading to major loss of raw material/ finished product. The auditors verified this by examining relevant records.

- 21) The plant was stopped in the month of June to carry out a modification in the reactor to make it capable of producing a higher ratio of CFC-12 to CFC-11. The critical part of the reactor was lined with Hastelloy C to minimise excessive corrosion in the reactor as a result of the more corrosive nature of CFC-12 production.
- 22) The management of the Plant informs that they plan to produce HCFC-22 in Plant 2 after carrying out necessary modifications. The management indicated their decision to carry out the necessary plant modifications (as mentioned in Para 4.g) and commence production in HCFC-22 mode by the end of September 2005.
- 23) The field verification confirmed and found adequate, the activities planned by the Government and the enterprise for the permanent cessation of CFC production
- 24) The swing over of the operation of Quimobásicos Plant 2 for HCFC-22 production is permitted under the Agreement.
- 25) The Auditors recommend to UNIDO to continue annual monitoring of the plant. Yearly audits in the future will focus on checking and confirming from financial and technical perspectives:
 - i) There has been no entry of CTC into the plant after the closure date of CFC production;
 - ii) Verification of stock, purchase and use of HF for HCFC-22;
 - iii) Production verification of Plants 1 & 2,
 - iv) Stock verification of finished goods, CFC-11 and CFC-12, and reduction over the year;
 - v) Verify consumption norms of Chloroform and HF for the production of HCFC-22;
 - vi) Changes carried out in the plant, equipment additions, modifications, etc;
 - vii) Any other checks to be made to confirm full compliance.

C-11 AND CFC-12 PRODUCTION AUDIT SUMMARY

(January 2005 – August 2005), MT

Table 1: Annual production data

	<u>Item</u>	<u>Data</u>	<u>Remarks</u>
A	Maximum Production Level Agreed for 2005 (MT)	5,262	(Production freeze target for Mexico) (F-D)
B	Actual Production 2005 (MT)	5,201	(Gross production)
C	Difference +/- (MT)	-61	(Under produced)
D	Actual Production in 2003 & 2004 (MT)	16,738	
E	Total Production in 2003-2005 (MT)	21,939	
F	Max. Allowable Production 2003-2005 (MT) under the Agreement (MT)	22,000	(In accordance with the Agreement)
G	Unutilised quota of 2003-2005 "Maximum Production Level Agreed" (MT)	61	
H	Opening Stock as of 1 st January 2005 (MT)	2,435	
I	Other additions	0	
J	Total opening stock as of 1 st January 2005 (MT)	2,435	(H+I)
K	Gross production (MT)	5,201	
L	Filling & other losses (-)/ Surplus(+)*(MT)	-4	Filling loses are accounted as part of gross production and adjusted against Max Production Level Agreed
M	Net production (MT)	5,197	Gross Production minus Losses (K-L)
N	Domestic Sales (MT)	839	
O	Export sales (MT)	2,653	
P	Total sales (MT)	3,492	(N+O)
Q	Closing stock August 2005 (MT)	4,140	Opening stock plus net production minus sales. (J+M-P)

DETAILED REPORT ON THE AUDIT

AUDIT TEAM, DATES OF SITE AUDIT, BROAD VERIFICATION STEPS

26) The audit was undertaken in line with the Guidelines of Executive Committee for verification of ODS production phase out (UNEP/Ozl.Pro/ExCom/32/33, dated 24th October 2000).

a. Site audit team:

27) Ess Jay Consultants:

- i) Mr. V. K. Trehan, Engineer: Technical expert;
- ii) Mr. Hitesh Mahajan, Chartered accountant. Financial expert;

28) The following persons from the Government of Mexico and UNIDO accompanied the audit team to ensure that the right process was conducted in terms of ExCom Guidelines for verification of CFC production phase-out and the Agreement:

- i) Mr. A. Sanchez-Guevara, Ozone Protection Unit Coordinator, SEMARNAT
- ii) Dr. T. Gróf, Unit Chief, Multilateral Environmental Agreement Branch, UNIDO.

b. Dates of audit:

The Audit was undertaken on 5th, 6th and 7th of September 2005 (three days on site).

29) UNIDO prepared a Terms of Reference for the verification mission. The Auditor was selected according to UNIDO's financial rules and based on the Terms of Reference.

c. Broad methodology adopted for audit:

30) Prior to the field visit UNIDO made available to the selected Auditor the Production Sector Closure Agreement, the Guidance Document UNEP/Ozl.Pro/ExCom/32/33, dated 24th October 2000, the results and data of the previous audit, the baseline information and annual data reported by the enterprise.

31) Cydsa / Quimobásicos duly completed the Questionnaire prepared by UNIDO and Ess Jay Consultants in line with UNEP/Ozl.Pro/ExCom/32/33, dated 24th October 2000 and returned it to the auditors prior to the site inspection.

32) During the site visit, the enterprise made available to the team of auditors the services of required managers and experts who answered all queries in an open and professional way. Access was provided to all premises of the Plant and to all documents, daily production logs, sales and financial records requested by the auditors for the purpose of the audit and validation of the data provided by the Plant in the Questionnaire.

33) A round of the Plant was taken for precise understanding of operations and record keeping. The system of measurement for raw material receipt and issues, production, sales and closing stock were reviewed. The following operational and statutory records for the year 2005 up to August 2005 were examined:

- a) Raw material purchase and issue records;
 - b) Daily production logs and production records;
 - c) Process parameters records;
 - d) Quality control records;
 - e) Stock transfer and record for storage of stocks at strategic location (storage on contractual basis outside the Plant), consignment storages - storages at all points of sales (Monterrey and Mexico City);
 - f) Stock register in value as per books of accounts for the year 2004 to check the opening stock and also Audited Balance Sheet for the year 2004 for cross checking;
 - g) Sales invoices;
 - h) Monthly VAT returns filed with revenue authority for claim of IVA, which gives the monthly purchase of raw materials and sales of finished goods;
 - i) Import quotas issued for CTC and HF and actual import entered into Mexico based on the records of Customs.
- 34) The verification of the data provided by the enterprise was carried out as follows. The data is annexed as a part of this report.
- a) Random dates in January, February, June & August were selected for studying in-process parameters, laboratory and analytical records for both plants;
 - b) Volume and value of opening and closing stock was verified;
 - c) Purchase invoices (all invoices for CTC and HF in the year 2005), on randomly selected dates, incoming and issues from plant stores were checked;
 - d) On randomly selected dates in January, February, June & August 05 hourly production records were cross checked and compared with the reported daily production;
 - e) Technical norms were checked for consistency;
 - f) From filled CFC and HCFC stocks, samples were taken to check vapour pressure, weight and gas chromatography analysis.

VERIFICATION OF PLANT RECORDS AND PROCESS ADOPTED

a. Overview of plant and its production activities

- 35) A brief presentation was made by the enterprise about the systems of operation and maintenance. Plant visit was taken for precise understanding of operations and record keeping in various Departments.
- 36) Each department is maintaining material accounting records, and the final consumption of raw materials is arrived through purchase, opening and closing stock at the enterprise level. The overall method of record keeping is found satisfactory. Entries in books of account are matching with the plant record that was ascertained through random verification.

- 37) The enterprise has two plants located in the same premise. The plant is ISO 9001 and ISO 14001 certified. Both plants are very well maintained. CFC-11 and CFC-12 are co-produced by CTC and HF reaction from a single reactor.
 - 38) The raw material storage of HF (Hydrofluoric Acid) is common for both plants. However, flow meters are installed to measure the quantity sent to each plant. HF handling is carried out in an enclosed chamber. HF sensors are installed at various points for sounding alarm signals to detect leakage for timely action.
 - 39) One plant (Plant 1) was commissioned in 1963 and the other (Plant 2) was commissioned in 1983. Each plant has the capacity to produce 11,826 Tonnes / year of CFC11/12. Both plants have a common control room with sophisticated PLC based control system. The hazardous material handled in the plant's equipment and pipelines are located in a closed chamber connected to a central absorption system to handle any emergency safely.
 - 40) Though each plant can be operated in both modes, CFC-11/CFC-12 or HCFC-22, since 1995, the old plant (Plant 1) is being operated solely on HCFC-22 and the new plant (Plant 2) on CFC-11/CFC-12. The feedback from the Plant personnel is that swing-over time is 15 days to get the right quality material. Based on the requirement and economics of operation the enterprise decided to operate the plants in a product-dedicated mode.
 - 41) The Plant 2, which was operating on CFC-11/CFC-12 in 2005, has produced 5,201 MT until August 24, 2005 and thereafter ceased production of CFCs. This is about 66 % of capacity utilization of this plant, for that period. (5,201 / 11,826 / 12*8 months).
 - 42) The ratio of CFC-11 and CFC-12 can be varied as per requirement.. The enterprise took trials in 2004 for production of CFC-12 only, by recycling CFC-11.
 - 43) There has been an increase in the ratio of CFC-12 to CFC-11 in 2005. This is the result of a management decision taken in view of the projection of low demand in the future for CFC-11. The plant was stopped in the month of June/July 2005 to carry out a modification in the reactor to make it capable of producing a high ratio of CFC-12 to CFC-11, based on the experience of the trials in the previous year. The critical part of the reactor was lined with Hastelloy C to minimise corrosion in the reactor as a result of the high proportion of CFC-12 in the mix. The MOC of the original reactor was prone to high levels of corrosion that could affect the safety of the plant. After the reactor was lined to withstand higher levels of corrosion, the plant converted 382.8 MT of CFC11 to 326.43 MT of CFC-12. This was necessitated by the steeply falling demand for CFC-11 in comparison to CFC-12.
 - 44) The management of the plant declared cessation of CFC 11 and CFC 12 production on 25th August 2005 and commenced conversion activities to shift the plant to HCFC-22 production. The management made a presentation to the auditors on the activities to be carried out for permanent changeover from CFC to HCFC. The auditors found them satisfactory and verified the ongoing modification activities till the date of audit.
 - 45) The plant manufacturing CFCs was audited in detail. The methodology adopted and the process verification along with the copies of documents are listed below:
 - b. 2005 Opening Stock Verification
 - 46) The closing stock of December 2004 was verified for both CFC-11 and CFC-12. The stock records in the plant warehouse were checked.
-

- 47) Balance Sheet & Statement of operations Account duly audited by an external auditor for the year ending December 2004 was checked and co-related with inventory valuations (both in quantity and value) with the stock records as per the company's books of account.
- 48) The financial records verified for CFC-11 and CFC-12 for the month of December 2004 are the Audited balance sheet, stock register and last year's data audited by Ess Jay Consultants.
- 49) Based on these financial records and verification of raw material purchases, issues and inventory, the following are the accepted stock values in tons.
- 50) Attached, as Annexure 1 is the audited Balance Sheet for the year 2004 showing the inventory valuations as on January 1, 2005.

Table 2: Opening stock at 1 January 2005

Opening Stock of raw material CTC	763.3 MT
Opening Stock of raw material HF	277.9 MT
Opening Inventory of CFC-11	593 MT
Opening Inventory of CFC-12	1,841 MT

- 51) Attached, as **Annexure 1** is the audited Balance Sheet for the year 2004 showing the inventory valuations as on January 1, 2005.

c. 2005 Raw Material (RM) Procurement Verification

- 52) Both the major raw materials HF and CTC used for manufacture of CFC-11/CFC-12 are procured from outside. The material procured is unloaded in raw material tanks, but if there is no space, the cargo is not unloaded but kept waiting; the stock at any given point of time includes stock in raw material tanks and the cargo waiting to be unloaded.
- 53) The list of total raw material (CTC and HF) purchases was taken from the finance department based on the approved quota from Government of Mexico to import the same. All the invoices for import of raw materials were checked; the quantity on the invoices was cross checked with the purchase figure in the purchase account and also the amount shown in the VAT returns submitted by the company to Revenue Authorities to claim IVA back from the Government and were found to be consistent. The system for raw material consumption accounting was also reviewed and found satisfactory.
- 54) The monthly consumption is calculated as the difference in inventory and purchases made during the month. The allocation of raw material consumption (combined) for CFC-11 & CFC-12 is done by readings on flow meters. The allocation of raw material consumption between CFC-11 and CFC-12 is done by way of norms. The monthly raw material accounting report for the entire year is enclosed as **Annexures 2A & 2B**.

Table 3: Raw material purchases

Total Purchase of CTC in the year 2005	11,219 MT
Total Purchase of HF in the year 2005	7,356 MT

d. CFC Production Verification:

- 55) The hourly feed on the randomly selected days (26th January, 20th February, 11th June and 25th August 2005), was integrated on a day-basis to verify the daily production, which is stocked in a 'day tank' and was found to be consistent with records.
- 56) The daily production is recorded by reading the level gauge installed on day-tanks. The day-tanks have a level measurement facility and with the help of a pre-calibrated level-to-weight chart for each tank, production is calculated for every shift. Daily production is recorded by cumulating such records for all three shifts of the day. Each product has two-day tanks and before transfer to the main tank, quality is approved by quality control lab.
- 57) All final records are based on month-end accounting. The monthly reported production comes from inventory difference in the day tanks, main tanks and the material transferred from plant to filling station. This is counted as gross production. Saleable filled stock is counted as net production and difference is considered as loss / surplus.
- 58) Gross production is measured at the main tank and net production on the sales and final inventory. The enterprise has a good recovery system in the filling station for CFC-12 and HCFC-22, which ensures losses of only insignificant quantity (0.29%).
- 59) The Plant has an excellent recovery system of residual gases in the filling pipeline, returned packages for refilling and the sampling point. Such gases, which are sucked back, are accounted as part of production.
- 60) On these dates, (26th January, 20th February, 11th June and 25th August 2005) verification of process parameters and quality analysis data were checked and found satisfactory. Sample sheets of production logbook, quality records are included as **Annexures 3A & 3B**.
- 61) The raw material consumption norms for HF and CTC were verified and found to be consistent in 2005 over the months. The raw material consumption norms for the year are comparable to the past years.

Table 4: Raw material consumption ratios

<u>Raw Material</u>	<u>CFC-11</u>	<u>CFC-12</u>
Carbon tetrachloride (tones / ton of product)	1.1489	1.3121
Hydrogen fluoride (tones / ton of product)	0.1638	0.3739

- 62) The norms are comparable to good plants in the world.
- 63) The trends of production of CFC-11 and CFC-12 plotted against CTC and HF consumption up to August 2005 is shown graphically at the end of the **Ex-Com Form 4**.

e. Production to packaging transfer

64) Based on requirement, various packages are filled and transferred to the warehouse immediately. No stock is maintained in the filling station. The packaging bottles and cylinders are first evacuated and filled with the required gas. The system is connected for recovery of held up gas in tubes and pipelines. The following non-returnable packagings are used:

Jugs - 15 lbs, 30 lbs & 50 lbs

Bottles / cans 340gms, 1kg

65) The recycled packaging materials are cylinders, tonners and ISO containers for filling bulk quantities. The process for filling bulk containers is the same except that the package is first cleaned, inspected and painted if needed.

66) The enterprise's products brand name is Genetron. However, for export purpose, generic packaging is also used.

67) The filling system is semi-automatic. Records of filled material with different packaging are maintained on daily basis and entered in the system the next day. The cumulative figure at the end of the month gives the total quantity of material filled during the month. This figure is used for calculating the monthly net production.

68) A sample review of the system of record keeping for filled material was carried out at stores and filling station and found to match.

69) Samples of filled material was taken, one each of CFC-11, CFC-12 and HCFC-22. The pressure, weight and gas chromatography analysis was done and the auditors found the results match physical characteristics of the product. A copy of the GC analysis is enclosed as **Annexure 4**.

f. Sales and Closing Stock

70) The actual invoices raised in the month are accounted as sales. The monthly statement of sales is enclosed as **Annexure 5** (Month wise break-up of product wise CFC sales for Domestic and Export markets).

71) Verification was done by random selection of invoices and verifying their account in the sales register and VAT returns.

72) Closing Stock of raw materials and finished goods are computed and verified based on data given and verified as per the stock records and the un-audited balance sheet prepared by the company. The closing stock figures in financial records were then crosschecked with the quantities audited by the technical consultant. They are shown in **Annexure 6** (Monthly plant report, quantity and value of closing stock as per un-audited balance sheet).

Table 5: Closing stock on 31 August 2005

Closing Stock of raw material CTC	48.4 MT
Closing Stock of raw material HF	231.3 MT
Closing Inventory of CFC-11	355.7 MT
Closing Inventory of CFC-12	3783.6 MT

g. VAT Returns

- 73) The company files VAT returns on a monthly basis with the Revenue Authorities. An external auditor duly audits this every month. The return is being filed to claim the difference between tax 'paid' and 'tax to-be-collected' from the Government for extra taxes paid by the company.
- 74) The month of January 2005 was chosen for detailed verification of all the sales invoices to check authenticity of the data and record keeping systems. VAT returns for the month of January 2005 was checked by the auditors during the course of the audit and found that the data for purchase and sales match the figures shown in the books of account. Copy of the duly audited monthly VAT returns for the month of January to May 2005 is attached as **Annexure 7**. (Till the date of audit, June, July & August 2005 VAT returns were not audited by the external auditor).
- 75) The data confirms the sales (both domestic and exports), purchases (both domestic and imports) made by the company during the month. **Attachment 1** shows the checklist of the audit process followed in keeping with the Guidelines and step taken in addition to the Guidelines.

CESSATION OF CFC PRODUCTION AND PLANT TO BE MADE SUITABLE FOR HCFC-22 PRODUCTION

- 76) The Agreement between the Executive Committee and the Government of Mexico pertaining to the sole CFC producer contains two major stipulations:
- a) The 'maximum production level agreed' for the plant is 22,000 MT of CFCs
 - b) This quantity of CFCs production is permitted in the period 2003-2005 only.
- 77) The results of this audit show that the Quimobásicos plant in Mexico has completed CFC production to the permissible level (21,939 MT), in the period January 2003 to 25 August 2005.
- 78) Having done so, they will, from that date, fully comply with the Agreement and cease all production of CFCs.
- 79) The plant will, however, avail the benefit of the proviso in the Agreement allowing it to convert the CFC producing plant to the production of HCFC.
- 80) As a measure of their compliance to the cessation of production stipulation in the Agreement the audit team has obtained the following documents.

- a) Written confirmation from the Director General of Quimobásicos that they have ceased production of CFCs. (**Attachment 6**)
- b) Equipment changes made/and to be made to make the plant compatible to HCFC-22 production (**Attachment 2**). The auditor's note on this subject is presented in **Attachment 5**.
- c) The Ministry of Environment (SEMARNAT) revoked the CTC import licence on 6 September 2005 and banned the import of CTC with immediate effect, including any shipments in transit through the customs authorities. All responsible authorities were duly informed of this decision. Letter from the Government of Mexico confirming that Quimobásicos will not, henceforth, be given a license to import CTC is attached (**Attachment 3**).
- d) The physical stock of CTC at the plant is 47.155 MT which will be sold as CTC in the market by Quimobásicos, rendering the stock level of CTC as NIL at the plant (**Attachment 4-2, 4-4 & 4-5**). (The difference in CTC stock reported in Ex-Com Form-4 is because the book stock figures are based on dipstick readings whereas the stock for disposal is based on actual weight.)

RECOMMENDATION

- 81) Perform yearly audits in the future to check and confirm:
 - a) There has been no entry of CTC into the plant after the closure date of CFC production;
 - b) Verification of stock, purchase and use of HF for HCFC-22;
 - c) Production verification of Plants 1 & 2,
 - d) Stock verification of finished goods, CFC-11 and CFC-12, and reduction over the year;
 - e) Verify consumption norms of Chloroform and HF for the production of HCFC-22;
 - f) Changes carried out in the plant, equipment additions, modifications, etc;
 - g) Any other checks to be made to confirm full compliance.

The above will be carried out from financial and technical perspectives.

EXECUTIVE COMMITTEE FORMATS & COMMENTS

- 82) The Formats as given in Doc No 32/33 dated 24 October 2000 were filled and submitted by the plant prior to the physical verification and were verified at the time of site audit.

Major observations:

(Ex-Com Forms 1, 2, 3 and 4 annexed)

- a) The present verification audit of the 2005 production at Quimobásicos plant was carried out with the aim to verify the implementation of the Agreement between Mexico and the Executive Committee for the phase-out of CFCs in the production sector.
 - b) Data on plant location, names of respondents etc. were given by the plant;
-

- c) The combined annual capacity of both plants in CFC terms is 23,652 MT.
- d) Both plants have equal capacity in CFC terms.
- e) Both plants are in good condition and well maintained.
- f) Data submitted for CFC-11 and CFC-12 from 1995 onwards are for Plant 2, as Plant 2 has been producing CFCs, whereas Plant 1 produces only HCFC-22 and there has been no swing over in the two plants since 1995.
- g) HF in-house production was discontinued from Dec. 2001.
- h) CTC was always imported with import license issued by the Government of Mexico.
- i) The Ministry of Environment (SEMARNAT) revoked the CTC import licence on 6 September 2005 and banned the import of CTC by Quimobásicos with immediate effect, including any shipments in transit, through the customs authorities (see Attachment.3).
- j) The average production per day for the year 2005 has been higher than the average production per day for the year 2004. The plant has been operated at 34.9 TPD against the level of 30.69 TPD in 2004 and the nominal rate of production of 36 TPD (11,826 TPA/330 days).
- k) The enterprise has reduced production in 2005 by around 35% against the year 2004. (2005 production: 5,201 MT; 2004 production: 8,044 MT; 2003 production: 8,694 MT).
- l) The decrease in production in 2005 was achieved by limiting the number of operating days (closing CFC production in August 2005) with the aim to remain within the allocated quota.
- m) Net Loss is 4 MT, which is 0.08% of Gross Production. This loss is comparable to the best plants in the world. The loss is taken as a part of gross production and accounted against the 'Maximum production Agreed'.
- n) CTC and HF norms are consistent over the years and comparable to good plants in the world.

Table 6: CTC and HF norms

<u>Raw Material Consumption ratio</u>	<u>CFC-11</u>	<u>CFC-12</u>
Carbon tetrachloride (tones/ ton of product)	1.1489	1.3121
Hydrogen fluoride (tones/ton of product)	0.1638	0.3739

- o) The ratio of production of CFC-12 to CFC-11 in the years 2003, 2004 & 2005 are shown in Table 7. The change in the ratio of CFC-12 to CFC-11 in 2005 is the result of a management decision taken in view of projected low future CFC-11 demand.

Table 7: Annual ratio of production of CFC-12 to CFC-11

Year	CFC-11 (MT)	CFC-12 (MT)	Ratio (CFC-12 / CFC-11)
2003	1,291	7,401	5.73
2004	1,177	6,867	5.83
2005	278	4,923	17.71

- p) The total year 2005 consumption of CTC by the end of August 2005 was verified as 6,791 MT.
- q) In 2005 the production was accounted in both gross and net basis and the losses were calculated as the difference between the two.
- r) Data of Plant 1 producing HCFC-22 is included in Sheet Ex-Com Form 4. The HF consumption balance was verified for both plants as they have a common storage of the raw material.
- s) The consumption of HF until the end of August 2005 (CFC & HCFC) as verified was 4,446 MT. Verification of consumption of the 2 plants is given in the detailed portion of the report
- t) Based on the data supplied by the enterprise and random checks, review of norms, logbooks and cross-check calculations carried out by the auditors during the verification visit, Ess Jay Consultants confirm the monthly and annual production, sales and inventory data as given in Ex-Com formats attached as Forms 1, 2, 3 & 4.

