

Independent thematic review

UNIDO ozone depleting substances projects under the Montreal Protocol with emphasis on countries in the European and in the Latin American and Caribbean regions



UNIDO OFFICE FOR INDEPENDENT EVALUATION

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European and in the Latin American and Caribbean
regions**



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Environmental consciousness leading to adopting environmentally sound technologies should be the principle of the entire industrial world.

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This report is the product of an independent team that acted in its personal capacity. It is up to the evaluators to make use of the comments received by the parties involved and to reflect upon them as they consider the report in the most precise way. However, the evaluation team is responsible for correcting any factual errors brought to their attention prior to the finalization of the report.

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Abbreviations and acronyms

A5	Article 5 [countries under the Montreal Protocol]
CEITs	Countries with economies in transition
CFCs	Chlorofluorocarbons
CO ₂	Carbon dioxide
CSR	Corporate social responsibility
EU	European Union
GEF	Global Environment Facility
GHG	Green-house gas
GWP	Global warming potential
HCFC	Hydrochlorofluorocarbon
HFA	Hexafluoroacetone (gas)
HQ	Headquarters
hr	Hour
IAs	Implementing agencies
IMLF	Interim Multilateral Fund
ISID	Inclusive and sustainable industrial development
ISED	Industrial Sectors and Environment Division
kg	Kilogram
MDIs	Metered-Dose Inhalers
M&E	Monitoring and Evaluation
MEAs	Multilateral Environmental Agreements
MIPRO	Ministerio de Industrias y Productividad [Ecuador]
MMT	Million metric tons
MP	Montreal Protocol
MPMLF	Montreal Protocol Multilateral Fund
MLF	Multilateral Fund [for the Implementation of the Montreal Protocol]
NGOs	Non-governmental organizations
NIP	National Implementation Plan
NOOs	National Ozone Officers
NOUs	National Ozone Units
ODSs	Ozone depleting substances
PM	Project manager
PPS/OSS/PRO	Procurement Services Division (of UNIDO)
PTC	Programme Development and Technical Cooperation Division (of UNIDO)
PTC/ENV	Department of Environment (of UNIDO)
SMART	Specific, measurable, attainable, relevant and time-bound
SMEs	Small and medium-size enterprises

UNACEM	Union Andina de Cementos
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNIDO	United Nations Industrial Development Organization
WB	The World Bank
WMO	World Meteorological Organization
USD	United States dollar

Glossary of evaluation-related terms

Term	Definition
Baseline	The situation, prior to an intervention, against which progress can be assessed.
Effect	Intended or unintended change due directly or indirectly to an intervention.
Effectiveness	The extent to which the development intervention's objectives were achieved, or are expected to be achieved.
Efficiency	A measure of how economically resources/inputs (funds, expertise, time, etc.) are converted to results.
Impact	Positive and negative, intended and non-intended, directly and indirectly, long term effects produced by a development intervention.
Indicator	Quantitative or qualitative factors that provide a means to measure the changes caused by an intervention.
Lessons learned	Generalizations based on evaluation experiences that abstract from the specific circumstances to broader situations.
Logframe (logical framework approach)	Management tool used to facilitate the planning, implementation and evaluation of an intervention. It involves identifying strategic elements (activities, outputs, outcome, impact) and their causal relationships, indicators, and assumptions that may affect success or failure. Based on RBM (results based management) principles.
Outcome	The likely or achieved (short-term and/or medium-term) effects of an intervention's outputs.
Outputs	The products, capital goods and services which result from an intervention; may also include changes resulting from the intervention which are relevant to the achievement of outcomes.
Relevance	The extent to which the objectives of an intervention are consistent with beneficiaries' requirements, country needs, global priorities and partners' and donor's policies.
Risks	Factors, normally outside the scope of an intervention, which may affect the achievement of an intervention's objectives.
Sustainability	The continuation of benefits from an intervention, after the development assistance has been completed.
Target groups	The specific individuals or organizations for whose benefit an intervention is undertaken.

Executive summary

The independent thematic review of UNIDO ozone depleting substances (ODS) projects under the Montreal Protocol (MP) with emphasis on countries in the European and in the Latin American and Caribbean regions was approved by the Executive Board and thus included in the UNIDO Independent Evaluation Work Programme for 2015.

The thematic review focused primarily on non-ODS effects and actual synergies with other UNIDO interventions and implementation of technical cooperation activities in the area of ODS phase-out, with emphasis on countries in the European and in the Latin America and Caribbean regions.

The purpose of the present review is to extract lessons and provide information on UNIDO's contribution, implementation results and impact of UNIDO ODS projects. Specifically, this review will primarily look into addressing the ODS-issues but is not limited to:

- Improved enterprise competitiveness; overall environmental performance, including energy efficiency aspects; productivity improvements and fostering innovation;
- Contributing to employment; Sustainable industrial development (ISID) and synergies with other UNIDO interventions;
- How the recommendations from previous review exercises influenced implementing UNIDO MP activities and how lessons learnt have been applied.

The Evaluation included visits to four countries: Bosnia and Herzegovina and Turkey in the Europe region and Argentina and Ecuador in the Latin America and Caribbean region. The case studies were selected on the basis of the size of the portfolio being implemented and the variety of sectors covered by MP projects in those countries.

The evaluation tried to determine as systematically and objectively as possible the relevance, efficiency, effectiveness, impact and sustainability of the programme regarding:

- Whether the chosen strategies and target groups had been properly selected or should different strategies have been promoted or should other target groups had been selected.
- Whether the inputs provided (expertise, training, equipment) were of good quality.

- Which activities had been the most successfully applied (information, awareness raising, training, technical advice, procurement of equipment, technological conversion).
- How institutional strengthening and capacity building had been implemented and the corresponding guidelines developed.
- Evidence of the application by the enterprises of the safety measures developed for avoiding ODS releases.
- The strengthening of the national capacities for environmental sound management of ODS, to ensure maintenance of equipment does not create environmental risks.
- Quality of the professional and managerial competence utilized to develop the activities.

Background

The ozone layer, mainly located in the lower stratosphere approximately 10-50 kilometres above the Earth's surface, absorbs approximately 93-99 percent of the sun's high-frequency ultraviolet radiation which, if allowed to pass through, would end life on Earth. Free radical catalysts such as nitric oxide, hydroxyl, atomic chlorine, and atomic bromine - called ozone depleting substances - can destroy the ozone layer.

On 16 September 1987, the treaty to phase out Ozone Depleting Substances, known as the Montreal Protocol, was signed that was unique in the annals of international diplomacy. Knowledgeable observers had long believed that this particular agreement would be impossible to achieve because the issues were so complex and the initial positions of the negotiating parties so widely divergent.

The 1985 Vienna Convention led to the Montreal Protocol that entered into force 1 January 1989. The MP addressed the need for a firm signal and a stable regulatory environment to give the confidence to invest in new and safer technologies.

In the early 1990s, an environment program was introduced for the first time in UNIDO when the Environment Coordination Unit was established. In 1992, UNIDO signed an agreement with the Interim Multilateral Fund (IMLF) for the Implementation of the Montreal Protocol, thus beginning its function as an MP implementing agency.

In recent years, the link between ozone depleting chemicals and climate change has increased significantly with the recognition that many of the ozone depleting chemicals also have significant global warming potential that is many hundreds to thousands times greater than carbon dioxide.

Initially the IMLF, and later on the Multilateral Fund (MLF) for the Implementation of the Montreal Protocol finances interventions in countries that are eligible for receipt of such assistance.

This work is carried out by the four implementing agencies that have contractual agreements with the Executive Committee of the Fund: United Nations Environment Programme (UNEP), United Nations Development Programme (UNDP), United Nations Industrial Development Organization (UNIDO) and World Bank (WB).

At the end of 2014 UNIDO's cumulative portfolio of MP implemented projects included 134 and 132 projects in Europe and Latin America and the Caribbean regions respectively. In financial terms, this represents a total value of disbursements of some USD 36 and 96 million respectively.

Key findings

The MP Program is an environmental programme with a clear mandate. However, to achieve the MP goals, its implementation sets clear targets to change patterns of industrialization by introducing alternative environment-friendly technologies. It invites the industry of developing countries to phase out all ODS-based technologies and replacing them with safe technologies.

In addition to its technological contribution, UNIDO has also introduced new approaches to operational issues. Based on its in-house technical expertise, UNIDO introduced a new scheme aimed at reducing the operational costs of industry investment projects by shortening the period of CFC phase-out from the previous norm of three to four years to a maximum period of six months, which was in accordance with practice in industry. The contribution of UNIDO has had a strong impact on the accelerated phase-out of chlorofluorocarbons (CFCs) from industry.

The UNIDO MP-related activities are closely linked to activities carried out under UNIDO programmatic priorities with the common aim of ensuring sustainability. These include:

- Conversion of technologies used by refrigerator manufacturers that enables them to produce more efficient appliances and achieve energy reductions at national levels consistent with UNIDO's approach to industrial energy efficiency;
- Identification and application of non-ODS production technologies consistent with the objective of the programmatic priority of investment and technology promotion as well as technology transfer;
- Assistance to the local authorities in institutional strengthening for preparing regulations, codes of good production and maintenance practices, environmental protection and occupational health. These are all consistent with UNIDO's goal to strengthen the legal and regulatory framework for conformity;
- Provision of capacity building services to strengthen SMEs.

The Protocol did not prescribe limits on these chemicals based on “best available technology” – the traditional way of reconciling environmental goals with economic interests - but rather it established target dates for replacing the products. Continuous technological innovation has been a hallmark of the success of the MP.

The MP interventions have produced benefits such as global warming potential reduction, competitive economy, technology transfer, plant level capability building and building national capabilities.

Among the positive side effects of addressing the ODS-issue, the Evaluation Team noted:

- There are some energy savings and a better quality of the production process and of the final product owing to the introduction of conversion technology. Phasing out ODSs includes simultaneous support to the productivity and competitiveness of the assisted enterprises.
- The increase of persons employed was rather small, but in several cases the production went from two to three shifts.
- Better production quality is related to improved competitiveness. The conversion to alternative, environmentally better technologies was applied owing to the assistance and advice of the National Ozone Units (NOUs) and UNIDO.
- There are recognized links between global climatic phenomena resulting from mankind-driven activities such as ozone depletion and global warming that are associated with certain types of chemicals.
- Synergies between different strategies are available through commonly suitable alternative technologies that can be combined with the activities of the objectives of other international conventions (Stockholm). Generally, greenhouse emissions have been reduced.
- Due to the ODS phase-out efforts, there is a strengthening of capacities in ministries of the countries concerned. In addition, through the assistance offered there has been a general upgrading of skills, capacity and knowledge in strengthening SMEs.
- Some multinational companies have provided general training (also if this was only related to the maintenance of their own products), thus expanding the general objective of the MP.
- The participation of National Ozone Units in international fora has enlarged the awareness of the general problems related to ODS, including potential links, and has encouraged cooperation among the countries.
- It has built up a network among entities in the countries and on a regional as well as on an interregional basis. Institutional strengthening has been useful at the legislative and operational levels.
- UNIDO has gained an added value owing to its catalytic and coordination role.

Key conclusions and recommendations

It appears that cooperation with other environment-related financing options (such as the Global Environment Facility (GEF)) should be enhanced in order to have the possibility to receive additional funds for projects related to environment and climate change. The first source of documentation and material for proving the need for additional interventions might come from the NOUs. Most of the countries in the visited areas share similar obstacles. Therefore, this opens the possibility to generate common documents for consolidated proposals at the regional level. Such cooperation could allow the implementation of policies and goals that could lead to emissions reduction in countries or regions where more than one ODS destruction alternative is available. In several instances it has occurred that the Ozone Unit of a given country possessed the complete information and passed it on to the relevant national institutions (training, chambers, etc.) in order to promote the project with the GEF Focal Point of the country.

The key recommendations from this review are:

- UNIDO should explore options to enhance cooperation with GEF in order to open additional funding windows for projects related to energy and environment. Any GEF project identified and proposed by the relevant national authority (e.g., GEF Focal Point, National Ozone Unit) should also consider the possibility of linking it with the ongoing ODS programme in the country. Support of government entities to the NOUs is of primary importance to generate activities in cooperation with public universities for standards validation, data gathering and measurements certification.
- UNIDO and NOUs should consider activities to transfer to other countries the knowledge developed in countries such as Colombia, Ecuador and Mexico in gas destruction experiences (cement kilns and arc plasma technologies). UNIDO should also transfer the experience of awarding recognized national green initiatives and energy efficiency linkage for ozone layer protection (for instance, a green seal on the product to be sold).
- UNIDO has accumulated experience in destructing CFCs and in recycling and destructing ODS. Therefore, it should enlarge its support for collecting information and its distribution to other relevant bodies (national and international).
- All UNIDO MP projects should draw upon the services of medium- or large-sized entrepreneurs, who are ready to offer advice and assistance to other small entrepreneurs to find alternatives, generate dialog and replicate successful practices related to the use of chemical products. Due to some chemical products being not sustainable and a possible lack of knowledge of new environmentally trending substances that are applied worldwide with specific standards, it is recommended that a better coordination and more

technical support is provided that involves not only proprietors and technicians in training but also managers and representatives of financial institutions. Knowledge diffusion should be done through the support of formal institutions (such as national universities). This should not exclude experts who work free-lance, or have their own companies and are not part of a formal institution).

- Strengthening the control of illegal imports of ODS should be periodically updated through: continuous training updating of the customs officers; offering technical assistance, providing control equipment; and also periodically comparing the rates of consumption that could be registered with the national ODS import quotas regulated by the relevant ministries. UNIDO should periodically inform the NOUs and/or customs offices on how the illegal importers present the merchandise.
- Checks on equipment delivery need to be strengthened as in some cases the suppliers did not deliver the equipment according to the specifications of the bidding.
- UNIDO should retain between 20 and 25 per cent of the final payment for equipment, to be released after successful commissioning. At present only 10 per cent is retained. Not all the providing companies that have won the bidding have complied with the installation works foreseen in the contract. In some cases these works were completed by the recipient companies themselves. In some cases some materials were missing (e.g. user manuals, annexes, some drawings). The UNIDO contract for supplying the machinery should be precisely defined, including a specific delivery time. The warranty specification in the UNIDO bidding process should be extended to two years. As indicated by some companies, that time limit was the current international warranty standard.
- Continuous training is necessary for promoting dissemination of knowledge, harmonization of experiences on a regional basis, competitiveness, energy savings and prevention of illegal import and distribution of ODSs.
- Regular training exercises at the regional level should be introduced for new technologies and for upgrading the knowledge of the custom officers because their efforts gave impetus to positive non-ODS effects. In some countries it could be useful to identify local training and research institutions (owing to their wide experience and equipment available) for implementing periodical training and training of trainers programmes in the framework of regional cooperation with the neighbouring countries. Some training centres were visited by the Evaluation Team during the field mission and it was observed that some have the potential to be actors for possible regional cooperation.

Resumen ejecutivo

La evaluación temática independiente sobre los proyectos relativos a las sustancias agotadoras del ozono (SAO) ejecutados por la ONUDI en el marco del Protocolo de Montreal (PM) con especial atención a los países de las regiones de Europa y de América Latina y el Caribe fue aprobado por la Junta Ejecutiva de ONUDI e incluido en el programa de trabajo del Programa de Evaluación Independiente para 2015.

La evaluación temática se centró principalmente en los efectos no relacionados con las SAO y en las sinergias efectivas con otras intervenciones de la ONUDI y con la puesta en marcha de las actividades de cooperación técnica en la esfera de la eliminación gradual de las SAO, en particular en los países de las regiones de Europa y América Latina y el Caribe.

La finalidad de la presente evaluación es extraer enseñanzas y proporcionar información sobre la contribución, los resultados de la ejecución y las repercusiones de los proyectos de la ONUDI relacionados con las SAO. Concretamente, esta evaluación prestará especial atención a las cuestiones relativas a las SAO, pero no se limitará a lo siguiente:

- Aumento de la competitividad empresarial; comportamiento ecológico general, en particular en materia de eficiencia energética; mejora de la productividad y fomento de la innovación;
- Contribución al empleo; desarrollo industrial sostenible y sinergias con otras intervenciones de la ONUDI;
- Efecto de las recomendaciones formuladas en anteriores exámenes en la ejecución de las actividades de la ONUDI relacionadas con el PM y puesta en práctica de la experiencia adquirida.

La evaluación incluyó visitas a cuatro países: Bosnia y Herzegovina y Turquía en la región de Europa y la Argentina y el Ecuador en la región de América Latina y el Caribe. Los estudios de casos se seleccionaron sobre la base del tamaño de la cartera de proyectos que habrían de ejecutarse y de la variedad de sectores abarcados por proyectos relacionados con el PM en esos países.

En la evaluación se trató de determinar, con la mayor sistematicidad y objetividad posibles, la pertinencia, eficiencia, eficacia, repercusión y sostenibilidad del programa en términos de:

Si las estrategias y los grupos de destinatarios seleccionados habían sido apropiados o si se hubiera debido promover estrategias distintas o seleccionar a otros grupos de destinatarios.

- Si los insumos proporcionados (expertos, capacitación, equipo) fueron de buena calidad.

- Qué actividades se ejecutaron con mayor éxito (información, sensibilización, capacitación, asesoramiento técnico, adquisición de equipo, conversión tecnológica).
- De qué forma se efectuaron el fortalecimiento institucional y la creación de capacidad y cómo se elaboraron las directrices conexas.
- Indicios concretos de la puesta en práctica de las medidas de seguridad destinadas a evitar las emisiones de SAO por las empresas.
- Fortalecimiento de las capacidades nacionales para la gestión ambientalmente segura de las SAO a fin de evitar que el mantenimiento del equipo ponga en peligro el medio ambiente.
- Calidad de la competencia profesional y directiva del personal utilizado para llevar a cabo las actividades.

Antecedentes

La capa de ozono, ubicada principalmente en la estratosfera inferior aproximadamente entre 10 y 50 kilómetros sobre la superficie de la Tierra, absorbe entre un 93% y un 99% de la radiación solar ultravioleta de alta frecuencia que si traspasara ese umbral pondría fin a la vida sobre la Tierra. Los catalizadores radicales como el óxido nítrico, el hidroxilo, el cloro atómico y el bromo atómico –las llamadas sustancias agotadoras del ozono—pueden destruir la capa de ozono.

El 16 de septiembre de 1987 se firmó el tratado para la eliminación de las sustancias agotadoras del ozono, conocido como Protocolo de Montreal, que significó un hito en los anales de la diplomacia internacional. Los observadores informados creyeron durante mucho tiempo que sería imposible lograr un acuerdo de esa índole debido a la complejidad de los problemas que entrañaba, así como a la gran divergencia existente entre las posiciones de las partes en la negociación.

El Convenio de Viena de 1985 abrió la vía para el Protocolo de Montreal, que entró en vigor el 1 de enero de 1989. El PM respondió a la necesidad de dar una señal clara en ese sentido y proporcionar un entorno estable a fin de fomentar la confianza para hacer inversiones en tecnologías nuevas y más seguras.

A principios del decenio de 1990 la ONUDI creó por primera vez un programa para el medio ambiente al establecer la Dependencia de Coordinación del Medio Ambiente. En 1992 la ONUDI firmó un acuerdo con el Fondo Multilateral Provisional para la Aplicación del Protocolo de Montreal, a raíz de lo cual inició sus funciones como organismo de ejecución del PM.

En años recientes, el vínculo entre las sustancias químicas que agotan el ozono y el cambio climático se ha intensificado notablemente pues se ha reconocido que muchas de esas sustancias agotadoras del ozono también tienen un potencial de calentamiento atmosférico mundial que es muchos cientos o miles de veces mayor que el causado por el dióxido de carbono.

La financiación de las intervenciones en los países a los que corresponde prestar esa asistencia provino inicialmente del Fondo Multilateral Provisional, hasta que se creó el Fondo Multilateral para la Aplicación del Protocolo de Montreal. Esta labor está a

cargo de los cuatro organismos de ejecución que han suscrito acuerdos contractuales con el Comité Ejecutivo del Fondo, a saber: el Programa de las Naciones Unidas para el Medio Ambiente (PNUMA), el Programa de las Naciones Unidas para el Desarrollo (PNUD), la Organización de las Naciones Unidas para el Desarrollo Industrial (ONUDI) y el Banco Mundial.

A fines de 2014, la cartera total de proyectos ejecutados por la ONUDI en el marco del PM incluyó 134 proyectos en la región de Europa y 132 proyectos en la región de América Latina y el Caribe. En términos financieros, esto representa un valor total de desembolsos de unos 36 millones y 96 millones de dólares de los Estados Unidos respectivamente.

Principales conclusiones

El programa del PM es un programa ambiental con un mandato claro. Sin embargo, para alcanzar las metas del PM, la aplicación del programa establece objetivos precisos con miras a modificar los patrones de industrialización mediante la introducción de tecnologías alternativas que no dañen el medio ambiente. El programa invita a la industria de los países en desarrollo a eliminar todas las tecnologías basadas en SAO y a sustituirlas por tecnologías inocuas.

Además de su contribución tecnológica, la ONUDI también ha promovido nuevos enfoques para abordar los problemas operacionales. Basándose en los conocimientos técnicos de sus propios expertos, la ONUDI ha formulado un nuevo plan para reducir los costos operacionales de los proyectos de inversión industrial que consiste en acortar el período para la eliminación gradual de los CFC reemplazando la duración de tres a cuatro años prescrita anteriormente por un período máximo de seis meses, lo que se aviene a la práctica industrial. De este modo, la ONUDI ha contribuido notablemente a la rápida eliminación de los clorofluorocarbonos (CFC) en la industria.

Las actividades de la ONUDI relacionadas con el PM están estrechamente vinculadas a las actividades previstas en el marco de las prioridades programáticas de la Organización con el objetivo común de garantizar la sostenibilidad. Esas actividades incluyen las siguientes:

- Conversión de las tecnologías utilizadas por los fabricantes de refrigeradores, lo que les permite producir aparatos electrodomésticos más eficientes y lograr reducciones de energía a nivel nacional de conformidad con el enfoque de la ONUDI en materia de eficiencia energética industrial;
- Identificación y aplicación de tecnologías de producción no basadas en SAO, de acuerdo con el objetivo expresado en el marco de la prioridad programática relativa a la promoción de la inversión y la tecnología, así como a la transferencia de tecnología;
- Asistencia a las autoridades locales en el fortalecimiento institucional para la formulación de reglamentos, códigos de buenas prácticas de producción y mantenimiento, protección ambiental y salud ocupacional. Todas estas

actividades están en consonancia con la meta de la ONUDI de reforzar el marco jurídico y normativo en aras de la conformidad;

- Prestación de servicios de creación de capacidad a fin de fortalecer las pymes.

En vez de fijar límites de esas sustancias químicas sobre la base de la “mejor tecnología disponible” –la manera tradicional de conciliar las metas ambientales con los intereses económicos— el Protocolo estableció plazos para la sustitución de los productos. La continua innovación tecnológica ha sido una clara señal del éxito del PM.

Las intervenciones realizadas en el marco del PM han tenido consecuencias beneficiosas, como una potencial reducción del calentamiento global, una economía competitiva, la transferencia de tecnología, la creación de capacidad a nivel de fábrica y el fortalecimiento de las capacidades nacionales.

Entre los efectos secundarios positivos de las medidas adoptadas para hacer frente al problema de las SAO, el Equipo de Evaluación observó lo siguiente:

- Se habían logrado algunos ahorros energéticos y una mejor calidad del proceso de producción y del producto final gracias a la introducción de la tecnología de conversión. La eliminación gradual de las SAO suponía el apoyo simultáneo a la productividad y la competitividad de las empresas participantes.
- Si bien el aumento del personal contratado no fue muy considerable, en algunos casos los turnos de trabajo pasaron de dos a tres en la fase de producción.
- El mejoramiento de la calidad de la producción está relacionado con una mayor competitividad. La conversión a tecnologías alternativas menos dañinas para el medio ambiente se realizó gracias a la asistencia y el asesoramiento prestados por las Dependencias Nacionales del Ozono y la ONUDI.
- Existen vínculos probados entre los fenómenos climáticos globales resultantes de las actividades humanas, como el agotamiento del ozono y el calentamiento global, y ciertos tipos de sustancias químicas.
- Existen sinergias entre distintas estrategias cuando se utilizan tecnologías alternativas generalmente idóneas en combinación con las actividades previstas en el marco de los objetivos de otras convenciones internacionales (Estocolmo). En general, se han reducido las emisiones de gases de efecto invernadero.
- Gracias a los esfuerzos de eliminación gradual de las SAO se ha reforzado la capacidad de los ministerios de los países interesados. Además, la asistencia brindada ha permitido lograr un mejoramiento general de las aptitudes, las capacidades y los conocimientos en el contexto del fortalecimiento de las pymes.
- Algunas empresas multinacionales han prestado capacitación general (incluso si esta se relacionaba únicamente con el mantenimiento de sus propios productos), lo que redundó en una ampliación del alcance del objetivo general del PM.

- La participación de las Dependencias Nacionales del Ozono en foros internacionales ha aumentado la sensibilización sobre los problemas generales relacionados con las SAO, incluidas sus potenciales vinculaciones, y ha fomentado la cooperación entre los países.
- Se ha creado una red entre las entidades de los distintos países, tanto a nivel regional como a nivel interregional. El fortalecimiento institucional ha sido provechoso en los planos legislativo y operacional.
- La ONUDI ha adquirido y añadido valor gracias a su papel catalizador y coordinador.

Principales conclusiones y recomendaciones

Es evidente que debería reforzarse la cooperación con otras opciones de financiación de actividades en pro del medio ambiente (como el Fondo para el Medio Ambiente Mundial (FMAM)) a fin de tener la posibilidad de obtener fondos suplementarios para proyectos relacionados con el medio ambiente y el cambio climático. La primera fuente de documentación y material en apoyo de la necesidad de realizar un mayor número de intervenciones son las Dependencias Nacionales del Ozono. Dado que la mayoría de los países de las zonas visitadas enfrentan obstáculos similares, es posible elaborar documentos comunes para la formulación de propuestas consolidadas a nivel regional. Esa cooperación podría dar lugar a la aplicación de políticas y metas que permitan reducir las emisiones en los países o regiones en que existe más de una alternativa de destrucción de las SAO. Se han dado varios casos en que la Dependencia del Ozono de un determinado país disponía de toda la información pertinente y la transmitió a las instituciones nacionales competentes (organismos de capacitación, cámaras, etc.) a fin de promover el proyecto juntamente con el Centro de Coordinación del FMAM en ese país.

Las principales recomendaciones emanadas de la presente evaluación son las siguientes:

- La ONUDI debería explorar diversas opciones para intensificar la cooperación con el FMAM a fin de abrir vías de financiación adicionales para proyectos relacionados con la energía y el medio ambiente. En todo proyecto seleccionado y propuesto en el marco del FMAM por la autoridad nacional competente (por ejemplo, el Centro de Coordinación del FMAM, la Dependencia Nacional del Ozono) también debería considerarse la posibilidad de establecer una vinculación con el programa relativo a las SAO en curso en el país. El apoyo de las entidades de gobierno a la Dependencia Nacional del Ozono es de importancia capital para la puesta en marcha de actividades en cooperación con las universidades públicas en las esferas de la validación de normas, la reunión de datos y la certificación de mediciones.
- La ONUDI y las Dependencias Nacionales del Ozono deberían considerar posibles actividades destinadas a transferir a otros países los conocimientos adquiridos por países como Colombia, el Ecuador y México en el marco de su experiencia en destrucción de gases (incineradores de cemento y tecnologías

de arco de plasma). La ONUDI también debería transferir su experiencia relativa a la concesión de premios en reconocimiento de las iniciativas adoptadas por los países para proteger el medio ambiente y vincular la eficiencia energética a la protección de la capa de ozono (por ejemplo, la utilización de un sello verde para identificar los productos ecológicos ofrecidos al consumidor).

- La ONUDI ha acumulado experiencia en la destrucción de los CFC y en el reciclaje y la destrucción de las SAO. Por consiguiente, debería aumentar el apoyo prestado a la reunión de información y a la distribución de esta a otros órganos competentes (tanto nacionales como internacionales).
- Todos los proyectos de la ONUDI en el marco del PM deberían aprovechar los servicios de empresas medianas o grandes que estén dispuestas a brindar asesoramiento y asistencia a otras empresas más pequeñas a fin de hallar alternativas, promover el diálogo y reproducir las prácticas satisfactorias relacionadas con la utilización de productos químicos. Debido a la no sostenibilidad de algunos productos químicos y a una posible falta de conocimientos sobre las nuevas sustancias ecológicas que se vienen aplicando recientemente en el mundo con sujeción a normas específicas, se recomienda mejorar la coordinación y aumentar el apoyo técnico prestado, no solo en lo que respecta a los propietarios y técnicos que reciben capacitación sino también a los directores y representantes de las instituciones financieras. La divulgación de conocimientos debería hacerse con apoyo de las instituciones formales (como las universidades nacionales). Ello debería incluir asimismo a los expertos que trabajan por contrata o que son propietarios de empresas y no están vinculados a una institución formal.
- El control de las importaciones ilícitas de SAO debería reforzarse periódicamente mediante lo siguiente: la capacitación permanente a fin de actualizar los conocimientos de los funcionarios de aduanas; la prestación de asistencia técnica, incluido equipo de control; y la comparación periódica de las tasas de consumo registradas con las cuotas de importación de SAO a nivel nacional de conformidad con las normas establecidas por los ministerios competentes. La ONUDI debería informar periódicamente a las Dependencias Nacionales del Ozono y/o a las oficinas de aduanas acerca de las modalidades que utilizan los importadores ilícitos para presentar sus productos.
- Es necesario reforzar la vigilancia de las entregas de equipo dado que en algunos casos los proveedores no entregan el equipo conforme a las especificaciones previstas en la licitación.
- La ONUDI debería retener entre el 20% y el 25% del pago final por concepto de equipo y solo entregarlo una vez efectuada la puesta en servicio del producto en cuestión. Actualmente solo se retiene el 10%. No todas las empresas proveedoras a las que se ha adjudicado la licitación han cumplido el requisito de instalación previsto en el contrato. En algunos casos la propia

empresa receptora del equipo ha tenido que encargarse de terminar la instalación. En otros casos no se han entregado todos los materiales necesarios (por ejemplo, manuales de uso, apéndices, ciertos dibujos). El contrato de la ONUDI para el suministro de maquinaria debería redactarse de manera precisa e incluir un plazo de entrega explícito. En el proceso de licitación de la ONUDI debería extenderse a dos años el plazo de garantía especificado. Como lo han señalado varias empresas, ese es el plazo de garantía actualmente en vigor a nivel internacional.

- La capacitación permanente es necesaria para promover la difusión de conocimientos, la armonización de experiencias a nivel regional, la competitividad, el ahorro de energía y la prevención de las importaciones ilícitas y la distribución de las SAO.
- Deberían organizarse sesiones de capacitación periódicas a nivel regional para presentar las nuevas tecnologías y actualizar los conocimientos de los funcionarios de aduanas, habida cuenta de que sus esfuerzos contribuyen a multiplicar los efectos positivos de las sustancias no dañinas para el ozono. En algunos países podría ser útil identificar las instituciones locales de capacitación e investigación (dada su amplia experiencia y disponibilidad de equipo) para la puesta en marcha de programas periódicos de capacitación y formación de instructores en el marco de la cooperación regional con los países vecinos. Durante la misión sobre el terreno, el Equipo de Evaluación visitó algunos centros de capacitación y observó que algunos de ellos tienen potencialidades de desempeñar un papel activo en eventuales actividades de cooperación regional.

1. Introduction

1.1 Global background leading to the Montreal Protocol

On 16 September 1987, a treaty to phase out ozone depleting substances (ODSs) was signed that was unique in the annals of international diplomacy. Knowledgeable observers had long believed that this particular agreement would be impossible to achieve because the issues were so complex and arcane and the initial positions of the negotiating parties so widely divergent. Those present at the signing shared a sense that this was not just a conclusion of another important negotiation, but rather a historic occasion. It was hailed as “the most significant international environmental agreement in history,” a “monumental achievement,” and “unparalleled as a global effort”.

A number of years back, by the mid-1970s, it was known that ODSs such as chlorofluorocarbons (CFCs) were accumulating in the atmosphere gradually to amounts of concern. However, CFC industry stakeholders and some scientists contended there was no need for an urgent response. Specifically, in the early years of the ozone history, some industrialists were resolutely opposed to controls over CFCs. It was almost as if business leaders simply could not bring themselves to believe that these seemingly ideal chemicals - with so many benefits to society - could be capable of inflicting a remote outrage on the environment.

In general, the response of industry to an environmental problem is conditioned by a complex of considerations and pressures generated by the market, which is itself directly influenced by consumer preferences and by government regulatory actions. Underlying these immediate influences are educational activities of the media and environmental organizations.

Finally, industry, having committed to resolving the uncertainties raised by the scientists, strongly promoted international scientific research. As a result the 1985 Vienna Convention was promulgated, which subsequently led to the Montreal Protocol entering into force on 1 January 1989. Industry thus needs a firm signal and a stable regulatory environment to establish the confidence to invest in new and safer technologies.

1.2 The Montreal Protocol and UNIDO

It was in the early 1990s when an environment program was introduced for the first time with the establishment of the Environment Coordination Unit within the organizational set up of UNIDO. Also UNIDO's involvement with the Montreal Protocol can be traced back to a meeting on technology transfer among agencies hosted by the United Nations Conference on Trade and Development (UNCTAD) in

Geneva, March 1990 that a high-level UNIDO official attended. The United Nations Conference on Environment and Development (the so-called Earth Summit) held in Rio de Janeiro, Brazil, in June 1992 and its ground-breaking outputs – Agenda 21 and the Rio Declaration on Environment and Development – highlighted the importance of integrating environmental concerns into technical assistance delivery programs such those of UNIDO, the specialized agency of the United Nations for industrial development. In 1992 UNIDO signed an agreement with the Interim Multilateral Fund (IMLF) for the Implementation of the Montreal Protocol, thus beginning its function as an implementing agency of the Protocol.

1.3 ODS and situation of their elimination at the starting of the programme

To understand what was happening to the ozone layer, researchers needed to go far beyond atmospheric chemistry; they had to examine the planet as a system of interrelated physical, chemical, and biological processes taking place on land, in water, and in the atmosphere, processes that are themselves influenced by economic, political and social forces. In late 1984, a cooperative international scientific effort was launched. The result, published by WMO and UNEP in 1986, was the most comprehensive study of the stratosphere ever taken. A major finding was that accumulations of CFCs 11 and 12 in the atmosphere had nearly doubled from 1975 through 1985. The document indicated that the ozone layer was threatened also by other fully halogenated alkanes, which, *inter alia*, included the related CFCs 113, 114 and 115 and two bromine compounds, halons 1211 and 1301, both having a substantially higher potency than CFCs for breaking down ozone.

1.4 Barriers existing at the start of the program

At the eighth meeting of the IMLF Executive Committee in Montreal, the advent of UNIDO as the fourth implementing agency of the Montreal Protocol was approved and the agreement between UNIDO and the IMLF Executive Committee was signed at the same meeting on 22 October 1992. The agreement invited UNIDO to commence discussions with the IMLF to develop their cooperation program for consideration at the ninth meeting of the Executive Committee. According to the agreement UNIDO would concentrate on the development and implementation of small-scale projects under the IMLF, making clear that UNIDO was unable to engage in large-scale projects, as was the case for UNDP and the World Bank. UNIDO had a difficult task ahead to change the views of the Executive committee and the agencies on this matter. In November 1992 the “interim” prefix to the Fund was dropped as the Copenhagen Amendment to the Montreal Protocol formally created the Multilateral Fund (MLF).

UNIDO decided to take this situation as a challenge and thus embarked on intensive development of the program by creating the knowledge base and the mass to advance UNIDO’s vision of being allocated a larger share of the MLF. Hard work and

professionalism brought about the positive result that transpired in the years to come. Recognition by the Executive Committee and the implementing agencies of UNIDO's special and professional contribution to MLF program delivery during 1993/1994 provided the base for changing the views of the Executive committee and the agencies, resulting in an increase in UNIDO's share from 4 per cent as the fourth implementing agency in 1992 to 25 per cent in 1995.

The period 1992 to 1997, during which a fundamental and progressive evolution within UNIDO showed the success of the Montreal Protocol program, was very challenging for UNIDO. Development plans prepared by the relevant Management of UNIDO for the efficient and effective implementation of MLF policies outlined the required organizational and technical capacity changes needed to respond to the challenge ahead for UNIDO. The Organizational Management committed fully to the development of the Montreal Protocol program within UNIDO including the training of specialist staff, allocated 3 per cent of the income from the MLF to implementation of the development plan during the period 1993-1997. The mechanisms and procedures developed and the training of staff and supporting staff carried out during that time provided the Organization with a sound basis for continuity of growth of its Montreal Protocol programme.

1.5. Program design

In 1994, UNIDO management combined all environment-related activities with the ongoing sectoral ones to form an Industrial Sectors and Environment Division (ISED). For the first time the environmental and technical components of UNIDO were merged, focusing the organization on sustainable development and raising the visibility of the environment issues in such areas as the Montreal Protocol, energy, clean technologies, chemical safety and industry. In parallel, with a political upgrade, this new set-up received an added political clout in negotiations related to the ongoing diverse environment-related programs, treaties and conventions developed during the period 1992-1999 in such areas as chemicals, water, energy and global climate.

In this context, UNIDO's Montreal Protocol program was initially developed using a relatively slim management operation within ISED. Development and delivery of the Montreal Protocol program demonstrated a new management approach that integrated all related activities including negotiation, approval and fund allocation within one major operational set-up (one division). A major task under this new approach (that was aimed at securing Montreal Protocol delivery) was to develop a new roster of experts, consultants and companies unknown to UNIDO prior to 1993 and to introduce, at the time, a new financial rule required for Protocol-funded project development and implementation. In this connection, the most relevant policy to be implemented in 1993 was development and training of the required technical staff, especially as regards the calculation of the incremental cost of Montreal Protocol projects. This was a new situation to UNIDO and its technical staff

and was totally different from the prevailing systems operating under the other technical cooperation funding programmes.

Parallel to these and other internal actions, a further requirement was needed to ensure an effective development, approval and implementation of the program. To assist with this process the Montreal Protocol Coordination Unit was created with the aim to give full attention to the coordination, development and approval of the Montreal Protocol programme according to the MLF agreement. All this major work of adjustment was completed by the end of 1995. These adjustments have provided UNIDO with the program development and monitoring structure as well as capacity for ensuring the development and expansion of the Montreal Protocol program and other major multilaterally financed program delivery. Some special strengths and selected associated results of this partnership follow in chapter 3.1.

1.6. Operational framework of Montreal Protocol and UNIDO

The ozone layer is part of the Earth's atmosphere and contains high concentrations of ozone. This layer is mainly located in the lower stratosphere some 10-50 kilometres above the Earth's surface. It absorbs approximately 93-99 percent of the sun's high-frequency ultraviolet radiation which, if allowed to pass through, would end life on Earth. Free radical catalysts such as nitric oxide, hydroxyl, atomic chlorine, and atomic bromine (so-called ozone depleting substances (ODSs)) can destroy the ozone layer.

It was primarily the human health and crop production threats that led to intergovernmental action that culminated in the development of the Montreal Protocol on Substances that Deplete the Ozone Layer, in 1987. Since 1 January 1989, when the Montreal Protocol entered into force, it has proven to be one of the most successful environmental agreements to date. Its widespread adoption and implementation are an example of exceptional international cooperation. In recent years, the link between ozone-depleting chemicals and climate change has increased significantly with the recognition that many of the ODS also have significant global warming potential that is many hundreds to thousands times greater than carbon dioxide.

The Multilateral Fund (MLF) for the Implementation of the Montreal Protocol finances interventions in Article 5¹ countries that are eligible for receipt of such assistance.

This work is carried out by the four implementing agencies that have contractual agreements with the Executive Committee of the Fund:

¹ The Article 5 countries are developing countries that are parties to the Montreal Protocol and who are eligible for financial and technical support through the MLF in order to assist them to fulfil their obligations under the Protocol.

- United Nations Environment Programme (UNEP);
- United Nations Development Programme (UNDP);
- United Nations Industrial Development Organization (UNIDO);
- The World Bank (WB).

Each of them is represented at Executive Committee meetings of the Multilateral Fund for the Implementation of the Montreal Protocol as observers, and also at the meetings of Parties to the Montreal Protocol.

The Executive Committee is composed of Representatives of seven parties from developed countries (Article 2) and seven from developing countries (Article 5). The Executive Committee oversees the operations of the MLF, sets policies, prepares budgets, allocates resources among the implementing agencies and approves projects.

According to the latest consolidated progress report prepared by the Multilateral Fund Secretariat and the progress report of UNIDO as of 31 December 2014, since 1993, UNIDO's total cumulative number of completed investment projects² has grown to 641. Out of total of USD 414,824,681 of approved MLF financing for all completed investment projects, 99 per cent of these funds were disbursed. The vast majority of completed investment projects have been implemented with disbursements of funds during implementation. Out of the aforementioned total of completed investment projects, 74 investment projects with a total value of USD 29,901,183 were completed in the European region and 103 investment projects with a total value of USD 91,435,405 in Latin America and the Caribbean region, with 100 per cent of funds disbursed in both regions (see Table 1).

Table 1: MP investment projects in Europe and Latin America and the Caribbean regions as of end 2014

Region	No. of investment projects	Total value (USD)	Disbursement (per cent)
Europe	74	29,901,183	100 per cent
Latin America and the Caribbean	103	91,435,405	100 per cent

Also since 1993, UNIDO's cumulative number of all completed non-investment projects is 210. Out of a total of USD 35,413,794 of approved Multilateral Fund financing, 96 per cent of funds have been disbursed. Disbursement took place during implementation for all completed non-investment projects. Out of the

² Investment projects are projects in which purchase of the equipment is foreseen for the implementation of the activities, while non-investment projects are the ones in which the activities are of institutional strengthening, technical assistance/cooperation, networking/information dissemination or training.

aforementioned total of completed non-investment projects, 60 non-investment projects with a total value of USD 6,567,391 were completed in the European region and 29 non-investment projects with a total value of USD 5,253,616 in Latin America and the Caribbean region, with 100 per cent and 95 per cent of funds disbursed in the two regions, respectively (see Table 2).

Table 2: MP non-investment projects in Europe and Latin America and the Caribbean regions as of end 2014

Region	No. of investment projects	Total value (USD)	Disbursement (per cent)
Europe	60	6,567,391	100 per cent
Latin America and the Caribbean	29	5,253,616	95 per cent

According to the same reference document, by the end of 2014, UNIDO's cumulative portfolio of ongoing investment, demonstration and recovery and recycling projects included 138 projects. Out of this total, the European region had 17 ongoing projects and Latin America and the Caribbean region 29 ongoing projects. In parallel, UNIDO's cumulative portfolio of ongoing non-investment projects contained 45 projects. Out of this total, the European region had 12 ongoing projects and Latin America and the Caribbean region 5 projects. (see Table 3).

Table 3: MP on-going projects in Europe and Latin America and the Caribbean regions as of end 2014

Region	No. of ongoing projects (Investment + Non-investment)	No. of countries where UNIDO implements ongoing projects
Europe	17+12	7
Latin America and the Caribbean	29+5	12

Currently UNIDO is engaged in seven countries in the European region, in eight countries in Central and South America, and in four Caribbean countries.

In general, UNIDO's performance as implementing agency of the Multilateral Fund for the Implementation of the Montreal Protocol is frequently highly rated by the Executive Committee of the Multilateral Fund. For example, out of ten evaluations conducted by the MLF between 2001 and 2010, UNIDO was ranked as the top implementing agency eight times and as second twice. Also in the 2014 weighted assessment of performance based on the MLF Secretariat's methodology, UNIDO was ranked as the top implementing agency.

2. Evaluation scope and approach

The independent thematic review of UNIDO ozone depleting substances projects under the Montreal Protocol with emphasis on countries in the European and in the Latin American and Caribbean regions was approved by the Executive Board and included in the UNIDO Independent Evaluation Work Programme for 2015.

2.1 Evaluation scope

Projects of the Montreal Protocol are subject to specific evaluation procedures defined by the Multilateral Fund of the Protocol (MLF). Monitoring and Evaluation (M&E) of Multilateral Fund-financed projects and activities constitute an essential part of the Multilateral Fund Secretariat's work. The process of the M&E ensures that two important aspects are addressed, namely that the funds disbursed are actually being used to meet the project objectives and that the overall effectiveness of the Fund in phasing out ozone depleting substances is properly assessed. The UNIDO interventions are covered by evaluations carried out by the MP Secretariat. However, since all projects implemented by UNIDO fall under the Organization's responsibility and the MP projects encompass a large and dynamic part of UNIDO's technical assistance portfolio, it is of high importance to capture lessons learnt and best practices for the purpose of organizational learning.

The thematic review of UNIDO MP projects is different from the purpose of MP projects' evaluations carried out by the Multilateral Fund (MLF) Secretariat. The latter focuses on the reduction in emissions of ozone depleting substances (ODS), phase out results with no particular reference to agency-specific issues (such as efficiency of implementation). However, the present thematic review will cover a sample of UNIDO Montreal Protocol projects and focus primarily on non-ODS effects and actual synergies with other UNIDO interventions and implementation of technical assistance activities in the area of ODS phase-out, with emphasis on countries in the European and in the Latin American and Caribbean regions.

Therefore, the purpose of the present review is to extract lessons learnt and provide information on UNIDO's contribution, implementation results and impact of UNIDO ODS projects. Specifically, this review will primarily look into addressing the ODS-issue, but is not limited to:

- Improved enterprise competitiveness;
- Overall environmental performance, including energy efficiency aspects;
- Productivity improvements;
- Fostering innovation;
- Contributing to employment;

- Inclusive and sustainable industrial development (ISID) and potential synergies with other UNIDO interventions;
- How the recommendations from previous review exercises influenced implementing UNIDO MP activities and how lessons learnt have been translated into action.

In the light of budgetary considerations and significant time requirements associated with possible visits to all countries with UNIDO projects in the targeted two regions, two review tools were opted for: (1) physical visits would be confined to a total of four countries, two in each region, and (2) in parallel, relevant questionnaires would be dispatched to all the countries in the two regions with UNIDO ongoing and/or completed projects funded by the Multilateral Fund. Appropriate questionnaires were also sent to relevant UNIDO Headquarters and field staff.

The selection criteria used for the countries visited were:

- Classification as an Article 5 country (A5 country);
- Size and degree of diversification of the UNIDO Montreal Protocol (MP) program in each country;
- In-country arrangements for the Montreal Protocol implementation;
- Size of production capacity in the country.

Based on the above considerations, the Evaluation Team decided to visit the following four countries: Turkey and Bosnia and Herzegovina in Europe, and Ecuador and Argentina in Latin America and Caribbean.

2.2. Purpose and objectives of the thematic review

The tasks of the current review are outlined in the terms of reference of the evaluation and in the job descriptions of the evaluation team members.

The purpose of an independent review is to enable the programme stakeholders to take informed decisions on a possible reorientation of a given activity through the analysis of its achievements or through its exposed weaknesses.

The main focus of the evaluation is to assess the current situation and to evaluate the alternative scenarios and feasibility for the future sustainability of the operations.

An evaluation process offers the opportunity to the project stakeholders to learn about the possibilities of future re-orientation of the related activities and, should it be necessary, reconsider alternative approaches. The evaluation process will provide lessons and experiences for the eventual implementation of similar projects aiming at building capacities for environmentally sound management.

Overall, the primary purposes of an independent evaluation are:

- To assess the achievements against the objectives and the expected results;
- To identify factors that have facilitated the achievements of the project's objectives or reversely, the factors that hindered the fulfilment of the objectives;
- To determine which lessons can be learnt from the existing experience in order to improve the activities in a further phase, giving particular regard to the capacity of the structures supported to ensure self-sustainability.

Further, the present review aims to determine as systematically and objectively as possible the relevance, efficiency, effectiveness, impact and sustainability of the programme with regard to:

- Whether the chosen strategies and target groups had been properly selected or should different strategies have been promoted or should other target groups had been selected;
- Whether the goals set in the project document and in the work plan have been reached;
- Whether the inputs provided (expertise, training, equipment) were of good quality;
- Whether the activities had been undertaken in a coordinated manner by protecting human health and the environment from the harmful effects of ODSs;
- Whether a feasible management system for safe and environmentally sound phase-out of ODSs was put into practice;
- The efficiency of the programme coordination;
- Which activities of the programme were the most useful and most successful applied (e.g., information, awareness raising, training, technical advice, procurement of equipment, technological conversion, policy advice);
- How the elements of the environmental management system had been put into practice;
- How institutional strengthening and capacity building had been implemented and the corresponding guidelines developed;
- Evidence of the application by the enterprises of the safety measures developed by the project for avoiding ODSs releases;
- How is advancing the phase out of ODSs;
- The strengthening of the national capacities for environmental sound management of ODSs to ensure continued operation and maintenance of equipment in use does not create a global environmental risk;
- The quality of the professional and managerial competence utilized to develop and sustain the activities;
- The arrangements made to strengthen the sustainability of the activities implemented.

2.3. Evaluation approach

The review is based on the following sources of data and information:

- Document review (UNIDO reports to MLF, UNIDO MP project documents);
- Interviews with staff at UNIDO HQ;
- Interviews with stakeholders in the 4 selected countries (Government counterparts, beneficiaries);
- Surveys sent to UNIDO Staff, National Ozone Unit staff and beneficiaries targeting all countries in the European and in the Latin America and Caribbean regions;
- Field observations.

The Evaluation Team analysed the results obtained in the implementation of the activities foreseen and based the report on the following points:

- Development of capacity building for implementing the phase out of ODSs;
- Capacity building carried out in regulatory and institutional development, strengthening monitoring capabilities and comprehensive data management;
- Increased awareness of danger of ODSs among policy makers, stakeholders, and target affected populations, as well as information dissemination to environmental NGOs and media;
- Provision of equipment to convert or change the technology for the interested enterprises;
- The above-mentioned activities have been analysed, inter alia, together with the complemented training, information, capacity building, technical advices, and policy advice.

The interviews with the stakeholders of the activities provided the evaluators with a valuable tool regarding the self-appraisal of the results obtained and of the difficulties or obstacles encountered.

In the field missions, comprehensive discussions were held with the UNIDO Project managers, the National Ozone Offices, the national consultants, the national counterparts and the staff of national institutions, and meetings were held with national counterpart institutions, Ministries and high-ranking officials.

In addition, visits were taken to some target beneficiaries where, in addition to relevant enterprise visits, meetings were held with their managers during which related problems of technology transfer and its application and their global experiences were discussed.

2.4. Evaluation team and schedule

As established in the ToR, the present review was carried out by a group of professionals in their own capacities. The views and opinions of the team do not necessarily reflect the views of the representatives of the Governments of the countries visited, of UNIDO or of the management of the project.

The evaluation team was composed of the following members:

- Mr. Mario Marchich, International evaluation consultant and team leader
- Mr. Georgios Anestis, International evaluation consultant
- Mr. Javier Guarnizo, Chief, UNIDO Independent Evaluation Division

The composition of the team assured uniformity, impartiality and the guarantee that the views of the concerned parties were considered under the assumption of an informed point of view.

The team assembled on March 2016 in Vienna at UNIDO Headquarters to start its work that covered reviewing the relevant documentation such as country evaluations, project documents, previous evaluation and other MP documents. Concurrently, questionnaires were prepared and sent to selected UNIDO staff members (Headquarters and field), to the National Ozone Officers of the two regions selected and to the beneficiary enterprises and institutions supported through the activities of the programme in the two regions under review.

The places visited and persons met at UNIDO HQ and in the four countries visited (Argentina, Bosnia and Herzegovina, Ecuador and Turkey) are contained in Annexes B and C.

The first part of the mission was implemented in April 2016 to Bosnia and Herzegovina and to Turkey; the second field visit took place in May 2016 to Argentina and Ecuador.

During June 2016 the Evaluation Team worked in Vienna analyzing the answers to the questionnaires, preparing the preliminary presentation of the results and drafting the final report.

The preliminary conclusions were presented on 4 July 2016 at UNIDO in a general debriefing meeting with the participation of the relevant UNIDO staff. The presentation was followed by clarifying discussions with the participants, the results of which have been taken into account in the present report.

3. Comparison of UNIDO cooperation with MLF and with GEF in phasing out ODSs

3.1 Special strengths of the partnership between the MLF and UNIDO

The Montreal Protocol Program is an environmental programme with a clear mandate. However, to achieve the Montreal Protocol goals, its implementation sets clear targets to change patterns of industrialization by introducing alternative environment-friendly technologies. It invites the industry of developing countries to phase out all ODS-based technologies and replacing them with safe technologies. The Multilateral Fund (MLF) – known earlier as the Interim Multilateral Fund (IMLF) - was established to finance those adjustments and guarantee the inclusiveness of sustainable growth and development of industry in developing countries. Therefore, almost all environmental programmes call for a change of the concept of industrial development to one that is in harmony with the environment being, last but not least, also in line with today's UNIDO's mandate of inclusive and sustainable industrial development. One of the greatest assets UNIDO has been able to bring to its work as one of the four implementing agencies (IAs) of the Montreal Protocol has been its technological background and knowledge as well as its congruence with industry and its diversified operations. As a result the Organization has been at the forefront of innovation in combating ODS and indirectly supporting productivity and improving competitiveness of beneficiary enterprises.

Already as of 1993 UNIDO started moving away from transitional substances when preparing its projects. UNIDO thus brought to the MLF Secretariat a new understanding and awareness of available technological options for the conversion task to non-ODS. For example, UNIDO was the first agency to introduce hydrocarbon technologies in the refrigeration sector, particularly in the area of foam blowing for insulation purposes. UNIDO has actively promoted the use of natural substances, particularly hydrocarbon technologies in the refrigeration and foam sectors, while great attention was placed at the same time on safety concerns. Safety concepts were developed and strict safety measures were applied in the relevant projects. In the manufacture of refrigeration appliances, UNIDO has promoted the use of cyclopentane as an insulation foam-blowing agent and the use of isobutene and R-134a as refrigerants.

In addition to its technological contributions, UNIDO has also introduced new approaches to operational issues. Based on its in-house technical expertise, UNIDO introduced a new scheme aimed at reducing the operational costs of industry investment projects by shortening the period of CFC phase-out from the previous norm of three to four years to a maximum period of six months, which was in accordance with practice in industry. The contribution of UNIDO has had a strong impact on the accelerated phase-out of chlorofluorocarbons (CFCs) from industry,

enabled considerable savings for the MLF and Member States and made possible an increase in the number of approved projects as well as in the number of Article 5 countries that receive assistance over a budget cycle of the MLF. UNIDO, based on its solid relevant knowledge pertaining to agro-industries, also pioneered that part of the Montreal Protocol that is directed at phasing out the use of methyl bromide as a soil and storage fumigant. The conclusions drawn from UNIDO's demonstration projects carried out in 22 countries and funded by the MLF are being used as guidelines for the implementation of investment projects in this sector.

In general, the UNIDO Montreal Protocol-related activities are closely linked to activities carried out under UNIDO programmatic priorities with the common aim of ensuring sustainability. These include:

- Conversion of technologies used by refrigerator manufacturers that enables them to produce more efficient appliances and achieve energy reductions at national levels consistent with UNIDO's approach to industrial energy efficiency;
- Identification and application of non-ODS production technologies consistent with the objective of the programmatic priority of investment and technology promotion as well as technology transfer, thus bringing advanced and more appropriate technologies to the marketplace;
- Assistance to the local authorities in institutional strengthening for preparing regulations, codes of good production and maintenance practices, environmental protection and occupational health and work place safety. These are all consistent with UNIDO's goal to strengthen the legal and regulatory framework for conformity;
- Provision of capacity building services to strengthen SMEs, which is consistent with UNIDO's goal to assist developing countries in providing an enabling environment for growth of the private sector;
- Contribution to the UNIDO programmatic framework for 2016-2019: Creating shared prosperity; advancing economic competitiveness; Safeguarding the environment.

3.2 The GEF approach in the phase-out of ODS

Background of GEF Funding: When the Montreal Protocol was approved in 1987, the countries of Eastern Europe were not classified as developing countries (Article 5) under the Protocol and therefore had to fulfil the same phase-out schedule as industrialized countries (Article 2). In 1989 and 1990 following significant political changes, those countries introduced market mechanisms. Many of them were in the political and economic stress of transition and did not have the resources to implement the Protocol, yet were not eligible for financing from MLF.

The Global Environment Facility (GEF) stepped in to complement the work of the

Multilateral Fund (MLF) and enable these so-called countries with economies in transition (CEITs) to meet Protocol targets.

The GEF ODS funding began in the GEF pilot phase (1991-1994) with an initial country operation implemented through the World Bank in the Czech Republic [n.b. Czech Republic came into existence on 1.1.1993] and a regional monitoring and research project implemented through UNDP. In 1995, the Montreal Protocol's Technology and Economic Assessment Panel established a working group to examine existing ODS uses and quantities in the CEITs and estimate the cost of ODS phase-out. The working group used overall and sector distributions of ODS consumption in CEITs, and the cost-effectiveness threshold values established by the MLF Executive Committee in industrial sectors and subsectors. In providing assistance to the CEITs, GEF cooperated with the Implementation Committee of the Montreal Protocol, making project financing dependent on approval by the committee. Furthermore, under the 1995 GEF Operational Strategy, ratification of the London Amendment of the Montreal Protocol (that demands phase-out of all major ODS) was a precondition for receiving GEF assistance. It was assumed that market forces would result in the phase-out of one-third of 1994 consumption levels, and that phase-out of the remaining two thirds would be financed by international funds. Consequently, the GEF-1 (1995-1998) replenishment period saw a considerable growth in ODS funding for projects across Eastern Europe and the Russian Federation. In GEF-2 (1998-2002), there was a marked decrease in ODS funding because major CEIT initiatives were already under way or completed. The eventual decline in funding over time reflects the completion of major operations to phase out ODS consumption.

The GEF provided financial resources for the ODS phase-out projects of these countries in accordance with the program of compliance drawn up for each of these countries by the Meetings of the Parties to the Montreal Protocol. The GEF portfolio of ODS phase-out projects includes a range of activities that aim to phase out ODS on a country or regional level. These activities, similarly as in the case of the Article 5 countries supported by MLF, include production of country programs for ODS phase-out, building institutional strength, technology transfer, training and outreach, improving enterprise sustainability, supporting recovery, recycling and reclamation of ODS, and GEF funding to individual CEITs was determined on the basis of each country's level of ODS consumption and the specific priorities identified in the respective country program, government commitment, co-financing, and other factors such as political and economic development priorities.

Comparative Approach of GEF: The Programming Strategies of the sixth replenishment of the GEF Trust Fund (GEF-6) covering 1 July 2014 to 30 June 2018 encompass the following focal areas: Biodiversity, Climate Change, Chemicals and Waste, International Waters, Land Degradation, Non Grant Instruments Pilot, Corporate Programs. Contamination by chemicals is a global issue. The Montreal Protocol on Substances that deplete the Ozone Layer controls about 100

anthropogenic chemicals used worldwide in industrial processes and consumer products. Accordingly, the GEF-funded ODS phase-out program in CEIT countries falls under the Chemicals and Wastes Focal Area Strategy, whereas the term „waste“ refers to waste generated from the production, use and consumption of the chemicals covered by the Multilateral Environmental Agreements (MEAs) for which the GEF is the financial mechanism. At the same time, global environmental issues overlap and converge. Therefore GEF, being the largest funder of projects to protect the global environment in developing countries and economies in transition and providing support for the implementation of several MEAs, is increasing its work across focal areas, drawing on synergies among technologies, sectors, and issues to deliver simultaneously multiple environmental benefits. Accordingly, the GEF increasingly encourages projects that combine focal areas and trust funds to help deliver multiple benefits within the chemical and waste cluster and with other focal areas. One example is the opportunity of the financial mechanisms of the GEF and the Montreal Protocol MLF (MPMLF) to cooperate on mobilizing resources to maximize the climate benefits of the ODS phase-out and ODS destruction, ensuring the sound management of chemicals within a context of sustainable development. The **Chemicals and Wastes Focal Area** addresses the issues by means of **six programs**, with **Program 5** addressing the ODS issue with dual benefits, ODS phase out (Ozone protection) and near-zero global warming potential (GWP). Specifically, **Program 5** reads: *Complete the phase out of ODS in CEITs and assist Article 5 countries under the Montreal Protocol to achieve climate mitigation benefits.*

While the Multilateral Fund for the Implementation of the Montreal Protocol focuses only on costs essential to the elimination of the use and production of ODS and it funds only the additional or 'incremental' costs incurred in converting to non-ODS technologies, extended cooperation by GEF to A5 countries could be possible with GEF assistance that could form complementary financing to that provided by the MPMLF, e.g. establishment of special programs promoting linkages between MPMLF and GEF in A5 countries.

The Multilateral Fund has indeed financed a limited number of ODS destruction projects in Article 5 countries, mainly in pilot projects. That financial mechanism does not have the mandate to fund projects to address ODS destruction in a comprehensive manner, therefore it is evident that tackling the bulk of ODS banks will require additional sources of funding.

According to GEF, the opportunity to benefit from the most cost effective approach to this problem should take place prior to 2010-2025 when other contributions and forms on non-MLF could help catalyze ODS bank destruction activities in Article 5 countries. The GEF may support the destruction of ODS banks in GEF-6 to leverage ozone and climate benefits that are funded by the Multilateral Fund in a limited manner. In such cases certain potential risks should be identified/recognized and assessed. Four levels of such risks can be considered as common in a GEF portfolio:

- First, there is the so-called, normal commercial and technical risk associated with any development project. Such risks are addressed through appropriate project design, insurance, and guarantee schemes in the normal course of project development.
- Second, the recipient may experience an additional project risk as a result of opting for a measure that also protects the global environment. For example, there may be increased technical risk when a new renewable energy technology is used as a substitute for a familiar fossil-fuel technology. Such an additional risk being in the example specifically attributable to the GEF involvement, should be addressed by appropriate project design (e.g. additional capacity building to manage new systems, recurrent disbursements made on monitored incremental costs, or reimbursement for the increased cost of insurance).
- Third, in some projects the expected global environmental benefits may not materialize or may not be incremental. For example, the GEF may pay the incremental costs of protecting a wetland from development activities in the expectation that this will provide cost-effective protection for the wetland's biodiversity, only to discover many years later that the project agreement had been breached and the wetland drained for an alternative economic use.
- Fourth, the GEF runs a portfolio risk in that the measure it has adopted may not prove to be the best or most cost effective in meeting its overall objectives. For example, if all of the GEF's resources for climate change were devoted to one or two very specific technologies that were expected to reduce greenhouse gases very effectively in the long term, and these technologies failed to become financially self-sustaining as expected, the entire portfolio in climate change would have failed. This type of risk is best handled by having a diverse portfolio. There is a trade-off between the diversity of programs (which reduces portfolio risk) and the strategic concentration of resources within each program (where synergy and scale can increase the chances of market take-off for alternatives and their integration with sustainable development).

Examples of related UNIDO-GEF cooperation: Two ongoing projects in the Russian Federation, approved already under the GEF-4 cycle for UNIDO implementation, are referred to here as examples of projects with at least dual benefits, going beyond the ODS phase-out.

- a) In the full-sized project entitled *“Global (Russian Federation): TT-Pilot (GEF-4) Phase-out of HCFCs and promotion of HFC-free energy efficient refrigeration and air conditioning systems in the Russian Federation through Technology Transfer”*, for USD 18,000,000 from the GEF Trust Fund and co-funding of USD (equiv.) 40,000,000, out of which USD 37,500,000 to come from the private sector, two main objectives are established: The primary objective is: (a) the direct phase-out of 600 ODP tons of HCFCs in the foam

and refrigeration manufacturing sectors in the Russian Federation to meet the relevant Montreal Protocol target; (b) the direct GHG emissions reduction resulting from the phase-out of HCFCs of approximately 15.6 MMT CO₂. The secondary objective of the project is to introduce more energy efficient designs, through technology transfer, during the conversion of refrigeration and air conditioning manufacturing facilities. In doing so, the project aims to achieve indirect GHG emissions reduction through reduced electricity consumption in the commercial and industrial refrigeration sectors, of approximately 10 MMT CO₂ in 5 years.

- b) Also in the project “Phase out of CFCs Consumption in the Manufacture of Aerosol Metered-Dose Inhalers (MDIs) in the Russian Federation”, two main project objectives are established. The primary main objective comprising (a) to phase out the consumption of 212 ODP tons of CFC-11 and CFC-12 used in the manufacture of Aerosols Metered-Dose Inhalers (MDIs) in the Russian Federation through appropriate technology transfer and (b) to manage the transition from CFC-based MDIs to CFC-free MDIs in the country. The secondary objective is to reduce future GHG emissions by approximately 1.9 MMT CO₂ t/equivalent, by developing and introducing through technology transfer a lower GHG propellant, a new HFA-based MDI.

3.3 The Global Value of the Montreal Protocol

Over time, the 1987 Montreal Protocol has become widely recognized as a global environmental accord that has produced tangible results in terms of reductions in ODS. It did not simply prescribe limits on these chemicals based on “best available technology” - the traditional way of reconciling environmental goals with economic interests - but rather it established target dates for replacing products that had become synonymous with standards of living.

The dynamic evolution of the Protocol including its role in technology innovation, its close relationship with industry partners, its approach to accessing and presenting relevant science, economics and technology information in a timely manner, and its innovative funding mechanism, have made the MP, in the opinion of many observers, one of the world’s best environmental treaties.

The Montreal Protocol has succeeded for many reasons, but especially for its strong scientific foundation, its clear regulatory signals to the market that encourage technology innovation, and its dedicated funding mechanism to pay full incremental costs for transferring technology innovations to developing countries. In parallel, the ozone treaty has already done a lot to reduce greenhouse gas emissions. In the process, the ozone depletion treaty has delayed global warming by up to 12 years.

The climate dimension of the Montreal Protocol is a story that is not widely known, but one that deserves more consideration by the community involved in ozone and climate protection.

Continuous technological innovation has been a hallmark of the success of the MP. It demonstrated many ways to promote innovation and diffusion of technology and to remove legal and institutional barriers.

The strong commitment by many parties of the MP, NGOs, and multinational and domestic enterprises to protect the ozone layer made the legal obligations of the Montreal Protocol more an expression of the will of the citizens of the world rather than an imposition.

In addition, and this has been largely unrecognized and so far undocumented, there have been other benefits best characterized within a sustainable development framework. Such benefits are global warming potential reduction, competitive economy, productive employment and cross-sectoral issues including technology transfer, plant level capability building and building national capabilities.

It is in this overall context that, in connection with UNIDO-executed MLF projects, it has been observed and recorded that those projects have contributed as expected to reducing the threat of stratospheric ozone depletion. In addition they all have contributed to other aspects and dimensions of sustainable development. Some projects have reduced the potential for other environmental risks (e.g. reduction of volatile organic compounds, reduction of groundwater contamination), increased the competitiveness of enterprises in domestic and international markets and sustained and in some cases created employment opportunities. Associate training programs in some cases have contributed to strengthening the management and technical skills needed to absorb and adopt new operational information.

4. Evaluation findings

4.1 General considerations

Among the positive side effects of addressing the ODSs issue, the Evaluation Team took note of the following considerations:

- The involvement of the Government in developing the projects is critical. The ownership of a project belongs to the relevant Government.
- There are some energy savings and a better quality of the production process and of the final product owing to the introduction of conversion technology implemented by UNIDO projects. Combating and phasing out ODSs includes simultaneous support to the productivity and the competitiveness of the assisted enterprises.
- The increase of persons employed was rather small, but in several cases the production went from two to three shifts.
- Better production quality is related to improved competitiveness. The conversion to alternative, environmentally better technologies was applied owing to the assistance and advice of the National Ozone Units and UNIDO.
- There are recognized links between global climatic phenomena resulting from mankind-driven activities such as ozone depletion and global warming that are associated with certain types of chemicals.
- Synergies between different strategies are available through commonly suitable alternative technologies.
- Synergies with the activities of other international conventions (Stockholm) have developed. Generally, greenhouse emissions have been reduced.
- In view of global ODS phase-out systemic efforts there is a strengthening of capacities in ministries of the countries concerned.
- The support of government entities to the NOUs is of primary importance so as to generate activities in cooperation with public universities in the field of standards validation, data gathering and measurements certification.
- The first source of documentation and material for proving the need for additional interventions might come from the NOUs. They may demonstrate whether the proposed project activity is the first of this kind and validate the project alternatives in the country, together with the investment and economic feasibility. Most of the countries in the areas visited share similar obstacles. Therefore, this opens the possibility to generate common documents for consolidated proposals at the regional level. Such cooperation could allow the implementation of policies and goals that could lead to emissions reduction in countries or regions where more than one ODS destruction alternative is available.

- Through the training and assistance offered by the Programme there has been a general upgrading of skills and knowledge. Provisions of capacity building services (training) help to strengthen SMEs.
- Some international and multinational companies have provided general training (even if this was only related to the maintenance of their own products), thus expanding the general objective of the Montreal Protocol.
- The participation of NOUs in international forums has enlarged the knowledge and awareness of the general problems related to ODS, including potential links among those, and has encouraged cooperation among the countries.
- Addressing the ODS issue has contributed to building up a network among entities in the countries involved and in an interregional context. Institutional strengthening has been materialized at the legislative and operational levels.
- UNIDO has gained an added value owing to its catalytic and coordinating role.
- When providing the equipment, the equipment providers claim that they do not know who to contact for technical details in the UNIDO Procurement Services Division. According to the statements given to the Evaluation Team their only contact is the Procurement Committee that is sometimes not qualified to give a technical answer. During the bidding phase a technical specialist should be indicated by the provider in order to give necessary clarifications on technical specifications. The equipment providers should deliver the same equipment described in the offer and not, as in some cases reported to the Evaluation Team, a product of less value and not according to the specifications required. The local national technicians sometimes had to adapt the equipment upon installation.
- Training on the new equipment received for converting to a new technology is necessary for a better knowledge of the functioning and maintenance of the equipment. Considering that a new technology might be more expensive, the sustainability of the conversion relies on a competitive environment. However the conversion also promotes upgraded capacities and industrial production that result in increased competitiveness.
- Some NOUs have requested that the Procurement Services Division of UNIDO should perform a better control of the technical details in the bidding offers. In fact, in several cases the beneficiaries and the NOUs have ascertained that the providers assume that nobody will control them and in several cases the technical details provided did not fully correspond to the actual requirements.
- The beneficiary companies visited expressed their “surprise” that the evaluation was conducted three/ four years after project completion. The private sector is dynamic and people change companies following the skills upgrade received from their employer(s) as a result of the conversion of the production to non-ODS technologies. The managers of the factories claimed that they did not remember the details of the procurement process that resulted in the acquisition of the non-ODS technology and its related costs.

4.2 UNIDO Staff perspectives (Source: Country visit and surveys)

The questionnaire for selected UNIDO staff (including field offices staff) was sent to 151 persons and 60 answers were received by the end of the review. Distribution of responses is presented in Figure 1.

Answer Choices	Responses	
PTC staff	31.67%	19
EFR/RPF staff	10.00%	6
Other UNIDO HQ staff	15.00%	9
Field Office staff	43.33%	26
Other (please specify)	1.67%	1
Total Respondents: 60		

Figure 1: Distribution of respondents to survey to UNIDO Staff

The UNIDO PTC staff sent 32 per cent of the answers. Globally the HQ staff represented 55 per cent of the answers, while the field staff constituted 45 per cent.

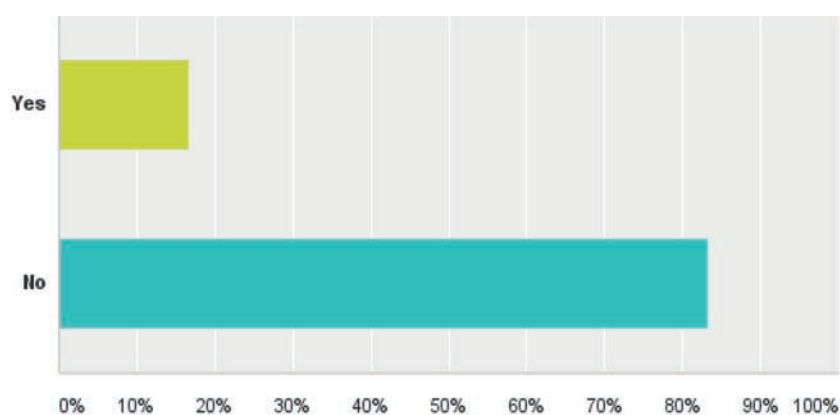


Figure 2: Survey responses to: “Have you received any training on MP issues?”

In relation to training on MP related issues (see Figure 2), according to the answers received 83 per cent of the staff did not receive training on Montreal Protocol issues. The UNIDO management of the division involved in the MP activities should investigate this point and take the appropriate action, particularly considering that 49 per cent of the persons who have answered stated that they had been directly involved in the design, implementation and monitoring of MP activities as

project managers (30 per cent) and as assistants to the project manager (25 per cent).

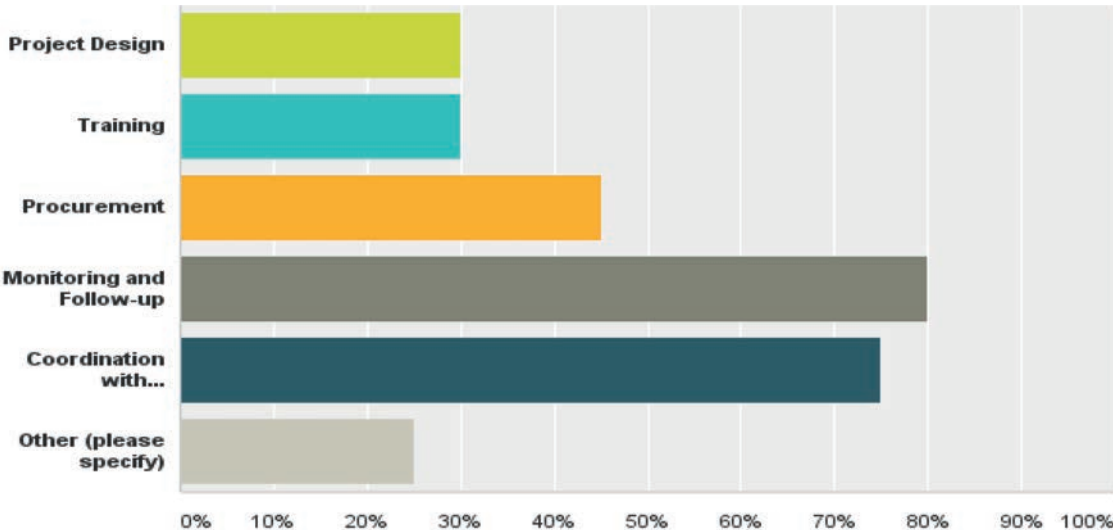


Figure 3: Survey responses to: “What kind of activities are/were you involved in with MP projects?”

Out of the staff involved in the activities of MP projects 3 per cent were involved in project design, 30 per cent in training, 45 per cent in procurement, 80 per cent in monitoring and 75 per cent in coordination activities with the stakeholders. As can be seen in the statistics, there was a great overlap in involvement because most staff contributed to more than one type of activity.

	Highly satisfactory	Satisfactory	Moderately satisfactory	Moderately unsatisfactory	Unsatisfactory	Highly unsatisfactory	N/A
How would you rate your working experience with UNIDO Division(s)/Unit(s) dealing with MP?	50.00% 10	30.00% 6	10.00% 2	0.00% 0	10.00% 2	0.00% 0	0.00% 0
How would you rate your experience with UNIDO field offices?	16.67% 3	27.78% 5	5.56% 1	11.11% 2	11.11% 2	0.00% 0	27.78% 5
How would you rate the coordination/synergies with other UNIDO initiatives for environmental protection?	0.00% 0	35.00% 7	25.00% 5	20.00% 4	10.00% 2	5.00% 1	5.00% 1

Figure 4: Survey responses to: “Overall satisfaction”

Concerning the appreciation of the staff about the satisfaction of the cooperation with the UNIDO Department of Environment, 80 per cent considered it satisfactory,

10 per cent moderately satisfactory and 10 per cent unsatisfactory, as presented in Figure 4.

In the cooperation with the UNIDO field offices, it appears that there is room for improvement: such staff rated the experience highly satisfactory (17 per cent) or satisfactory (28 per cent) with a total of 45 per cent. A total of 5.5 per cent rated the experience moderately satisfactory and 22.5 per cent unsatisfactory. The remaining 27 per cent does not work with field offices.

Finally, regarding the appreciation of the coordination and synergies with other UNIDO initiatives for the environmental protection, 35 per cent of respondents considered it to be satisfactory, 25 per cent moderately satisfactory and 35 per cent unsatisfactory. Apparently in this sector there is also room for improvement. Presently the area where cooperation is considered satisfactory is mainly that with GEF and the Cleaner Production Centers programme.

With regard to the non-ODSs results obtained with the phase-out of ODSs, thanks to the implementation of the MP projects, the results indicated general satisfaction from the UNIDO staff perspective.

Concerning the results from the assisted enterprises the following was observed:

- The improved competitiveness of the beneficiary enterprises was rated as satisfactory or moderately satisfactory in about 80 per cent of the questionnaires returned and moderately unsatisfactory or unsatisfactory in about 10 per cent.
- The impact of the non-ODS environmental performance, thanks to the phase-out, was rated as satisfactory in about 80 per cent of the questionnaires returned and moderately unsatisfactory in about 5 per cent.
- The improvement of the productivity of the concerned enterprises, due to energy savings and a better quality of the production process, was rated as satisfactory (highly and moderately) by 75 per cent in the questionnaires returned. The remaining 25 per cent indicated no opinion because they were not directly involved in this matter.
- The increase in employment as a side effect owing to the phase-out of ODS, was rather small and mainly in administrative aspects. The increment was rated between highly satisfactory and moderately satisfactory by 55 per cent, by 10 per cent as unsatisfactory and 35 per cent did not know.

A continuous cooperation with the National Ozone Officers was reported to take place by 90 per cent of the staff.

4.3 National Ozone Units perspectives (Source: Country visit and surveys)

The questionnaire was sent to the 41 National Ozone Officers (NOOs) covering the regions Europe and Latin America and Caribbean. Replies were received from 11 NOOs. Their answers have been integrated with the interviews of the nine NOOs met during the field visits of the Evaluation Team. In fact, some countries have more than one Ozone Officer. To facilitate understanding, the questionnaire was also translated into Spanish. The percentages of answered questionnaires received were 63 per cent from the European region and 37 per cent from the Latin American and the Caribbean region (Figure 5).

Answer Choices	Responses
Europe	63.64% 7
Latin America and Caribe	36.36% 4
Total	11

Figure 5: Distribution of answers from National Ozone Offices

Regarding the role and responsibilities of the Ozone Officers in the MP projects the answers were as follows: (some Ozone Officers indicated more than one role)

- 75 per cent attended MP relevant meetings
- 62 per cent were involved in the overall project cycle management
- 37 per cent were involved in project identification and design
- 25 per cent were involved in project implementation and supervision
- 12 per cent were involved in giving specific technical inputs and in the training of counterparts

About the duration of their involvement in ODS issues:

- 50 per cent over 10 years
- 37 per cent from 6 to 10 years
- 13 per cent from 1 to 5 years

The time dedicated to ODS issues is:

- 50 per cent full time
- 50 per cent part time

Concerning the rating of the usefulness of the NIP, the HCFC phase-out and the efficiency of the activities:

- 88 per cent were very satisfied with the NIP (National Implementation Plan) for developing ODS phase-out projects;

- 100 per cent were satisfied (38 per cent highly satisfied) for the HCFC phase-out management plan strategies for developing ODS phase-out projects;
- 100 per cent stated that implementing MP strategies had improved the efficiency of the activities of the beneficiaries, of which 25 per cent rated the situation as highly satisfactory.

Concerning the achievement of the project objectives expected, their opinion was as follows:

- 100 per cent (of which 12 per cent somewhat) agreed that the projects had been effective in contributing to capacity building for introducing appropriate strategies.
- 100 per cent (of which 75 per cent somewhat) agreed that Government capacity related to chemicals management had been strengthened.
- 100 per cent agreed that the projects contributed to the establishment of better industrial policies that enabled compliance with multilateral conventions.
- 100 per cent (of which 37 per cent somewhat) agreed that effective legislative and policy frameworks were in place owing to the projects.
- 100 per cent (of which 25 per cent somewhat) agreed that the capacity to enforce legislation had improved.
- 38 per cent completely agreed that the programme contributed to generating employment by sustaining existing jobs or creating new ones. A total of 25 per cent agreed partially, while 25 per cent did not agree and 12 per cent did not know.
- 100 per cent agreed that the phase-out of ODSs had produced energy efficiency improvements.
- 100 per cent (37 per cent somewhat) agreed that MP activities had contributed to climate benefits.

Regarding how the MP programme has contributed to the following points, the answers of the national Ozone Officers were:

- 86 per cent completely agreed that the programme addresses effectively local problems for phasing out ODSs. Only 14 per cent somewhat agreed.
- 75 per cent agreed that through eliminating ODSs, the programme had increased industrial productivity, e.g. lowered operational costs, required less maintenance, and improved product quality. 25 per cent declared that they did not know.
- 100 per cent agreed (of which 37 per cent partly) that the projects contributed to the establishment of better industrial policies for complying with multilateral conventions.
- 100 per cent agreed that the projects contributed to enforcing legal mechanisms to ensure compliance.

- 12 per cent completely agreed that the projects contributed to promulgating policies offering economic incentives for sustainability. A total of 50 per cent somewhat agreed while 25 per cent did not agree and 13 per cent did not know.

Concerning the contribution of the MP projects to achieve the results forecast the rating of the NOOs was as follows:

- 75 per cent considered that the projects contributed to improving energy efficiency and cleaner energy while 12.5 per cent did not agree and 12.5 per cent did not know.
- 50 per cent of the ozone Officers who answered, completely agreed that the MP activities had contributed to climate benefits, 37 per cent only somewhat agreed and 13 per cent do not acknowledge the existence of those climate benefits.
- 100 per cent (however, only 37 per cent partly) recognized that the projects contributed to partnerships between private and public sector.
- 100 per cent (with 25 per cent only partly) agreed that the activities developed in the framework of the MP projects had contributed to raising awareness among industrial workers, farmers and communities about the danger of ODSs.
- 100 per cent (of which 50 per cent partly) was to some extent aware that the programme cooperated with other international initiatives on similar objectives within UNIDO (cross organizational activities) or in the general area of MP activities.
- 25 per cent stated that the projects contributed to employment generation, while 25 per cent stated that the contribution to generate employment was only partial, 37.5 per cent did not agree that new employment was generated and 12.5 per cent did not know. The above findings were fully confirmed during the interviews the Evaluation Team conducted while on the field visits.

Regarding the elimination of the ODSs:

- 88 per cent of the Ozone Officers considered that the UNIDO MP projects had been effective in the phase-out of production and consumption of ODSs while 12 per cent agreed only partly.
- 88 per cent considered that the ODSs had been eliminated in an environmentally sound manner, and 12 per cent did not know.
- 100 per cent (37 per cent partially) agreed that the conversion of technologies to reduce ODSs and improve industrial energy efficiency had been effective.
- 75 per cent (12 per cent partially) agreed that the assistance to local authorities for preparing regulations, maintenance practices, occupational health and environmental protection had been effective and successful,

thanks to the activities of the projects, 12, 5 per cent did not agree and 12.5 per cent did not know.

- 75 per cent stated that the provision of capacity building services to the beneficiaries to phase out the ODSs had enabled the growth of the enterprises while 12.5 per cent did not agree and 12.5 per cent did not know.
- 88 per cent stated that the application of non-ODSs technologies promoting environmentally sustainable technology and the related investment had been very effective for the environment and for the development of the business itself. A total of 12 per cent stated that they did not know.

Concerning the question whether the MP activities had produced sustainable results and replications, the answers of the Ozone Officers were:

- 100 per cent completely agreed that the MP activities to phase out production and/or consumption of ODSs had been successful.
- 100 per cent agreed that the MP activities generated tangible ex-post benefits such as improvement in terms of capacity, policy and legislation.
- 100 per cent agreed that the MP-funded activities led to replication of methods and good practices to other non-ODSs projects.

Regarding the question concerning which were the most common threats/risks and obstacles for obtaining positive MP project results, the Ozone Officers replied as follows:

- 37.5 per cent stated that the lack of policy and legal frameworks is quite common.
- 50 per cent stated that it is not so common and 12.5 per cent found this risk absent.
- 62.5 per cent rated that poor or unsustainable enforcement capacity is very common, while 25 per cent considered it not so common and 12.5 per cent found it completely absent.
- 37.5 per cent considered poor socio-economic incentives as a quite common obstacle while 37.5 per cent considered this not so common, 12.5 per cent did not consider it as an obstacle and 12.5 per cent did not know.
- 25 per cent considered the lack of know-how for ODS management to be a fairly common risk while 62.5 per cent considered it to be an uncommon risk and 12.5 per cent considered it to be completely absent.
- 25 per cent considered low government priority for the ODSs issue as being a fairly common problem, 25 per cent as not so common and 50 per cent as absolutely absent, since the Government gave high priority to the ozone issues.
- 12.5 per cent consider the lack of awareness of dangers among users leading to lack of behavioral changes to be very common. While 37.5 per cent deemed it to be a problem, 25 per cent found it not so common. A total of

12.5 per cent considered the consciousness of the danger as absolutely present and 12.5 per cent did not know. The discrepancies in this reply demonstrate that there is still a lot of room for improvement of awareness among the users concerning the dangers of ODSs.

- 25 per cent of the Ozone Officers estimated the lack of the private sector interest as a serious risk. 62.5 per cent considered that risk is not so common and 12.5 per cent find that it is completely absent.

Regarding the aspects that commonly influence the UNIDO MP projects' efficiency (processes, time and resources) the opinion of the Ozone Officers is the following:

- 100 per cent agreed that the project preparation process was adequate.
- 100 per cent agreed that the project approval process was efficient.
- 100 per cent agreed that the National / government counterpart had sufficient readiness and capacity.
- 100 per cent agreed that in the country there was availability of specific technical consultancy expertise.
- 100 per cent agreed that in the country were established adequate contracting and procurement procedures.

Regarding the design of the projects, which is of paramount importance to have a correct, coherent and successful implementation, the opinion of the Ozone Officers is as follows:

- 100 per cent considered that the projects were well designed.
- 100 per cent considered that the projects were coherent in their approach.
- 100 per cent considered that the projects had good linkages between inputs, outputs, outcomes and impact.
- 100 per cent considered that baselines and milestones were properly indicated.
- 100 per cent (however, 37.5 per cent partly) agreed that the monitoring and evaluation systems adhere to SMART (specific, measurable, attainable, relevant and time-bound) principles.
- 100 per cent agreed that the project documents adequately address the policy and legal framework issues.
- 100 per cent agreed that the project documents adequately address the institutional and technical capacity issues.

Concerning the related UNIDO added value to the projects the opinions of the Ozone Officers are the following:

- 100 per cent agreed that the project concept and design is always appropriate.

- 100 per cent agreed that the project implementation is well done and in line with the requirements.
- 57 per cent agreed that the local UNIDO representation, when present in the country, is helpful. 43 per cent cannot judge because in their country there is no UNIDO representation.
- 100 per cent agreed that the UNIDO's technical expertise is an important added value.
- 100 per cent agreed that the supervision and monitoring of implementation of the projects conducted by UNIDO is an added value that guarantees the achievement of the expected results.

It is worth noting that during 2001 and 2010 UNIDO was ranked as the top implementing MP agency eight times and rated in second place twice.

Regarding the resources to disseminate information, develop, implement, attend trainings, supervise and monitor the UNIDO MP projects, the National Ozone Officers stated the following opinions:

- 75 per cent agreed that the administrative budget was sufficient for the development/implementation of the projects while 12.5 per cent did not agree and 12.5 per cent did not know.
- 100 per cent agreed that the number of staff was sufficient to develop, prepare, manage and implement the projects
- 100 per cent agreed that the technical expertise possessed by the beneficiaries was sufficient for the project development and implementation.
- 100 per cent agreed that there is an adequate monitoring and decision system at the beneficiary level to ensure that the project/programme was effectively implemented.
- 87.5 per cent agreed that there are sufficient resources at the National Ozone Units (NOUs) for adequate supervision of MP projects while 12.5 per cent did not agree.
- 87.5 per cent agreed that there are sufficient resources to attend training for NOUs (management and technical training). 12.5 per cent did not agree.
- 25 per cent agreed that there are sufficient resources to attend training (management and technical) for the beneficiaries and 37.5 per cent partially agreed while 12.5 per cent did not agree and 25 per cent did not know.
- 100 per cent agreed that there are adequate consultations with national stakeholders.
- 100 per cent (however, 37.5 per cent only partially) agreed that there are sufficient resources for dissemination of information about good/bad practices.
- 100 per cent agreed that there is adequate availability of qualified national experts.

Regarding the contribution of the UNIDO Field offices to the implementation and the monitoring of the projects, the Ozone Officers expressed the following opinions:

- 87.5 per cent agreed that UNIDO Field offices have positively contributed to project implementation and 12.5 per cent did not know.
- 87.5 per cent agreed that the UNIDO Field offices have positively contributed to project monitoring and 12.5 per cent did not know.

4.4 Beneficiaries perspectives (Source: Country visits and surveys)

The questionnaire for the beneficiary enterprises was sent to 3,400 addresses covering the regions under review: Europe and Latin America and the Caribbean. Thanks to the support and cooperation of the Ozone Officers it was possible to ascertain their names and addresses, as at UNIDO Headquarters those names and addresses were not available in full. 119 responses were received despite of two reminders. The answers have been integrated with the interviews made at 41 beneficiary enterprises visited during the field visits of the Evaluation Team. Globally, the results can be considered as fully satisfactory.

Type of activity of the beneficiaries:

Of the answers received, the activities in which the beneficiaries are involved can be depicted as follows:

Type of Activities of beneficiaries (Figure 6):

- Nearly 70 per cent were engaged in the field of services (maintenance, gas for refrigerants)
- 16 per cent were engaged in the manufacturing sector
- 12 per cent were in Government institutions that received material for training
- 24 per cent were involved in the sector of commerce, sales and training.
- Some of the respondents indicated more than one type of activity.

Answer Choices	Responses	
Services	68.64%	81
Manufacturing	16.10%	19
Government institution	11.86%	14
Other (please specify)	23.73%	28
Total Respondents: 118		

Figure 6: Distribution of answers from Beneficiaries

Size of the beneficiary enterprises (Figure 7):

- 50 per cent were micro enterprises (from 1 up to 5 employees)
- 22 per cent were small (from 5 to 20 employees)
- 8 per cent were medium (from 21 to 100 employees)
- 20 per cent were large (over 101 employees)

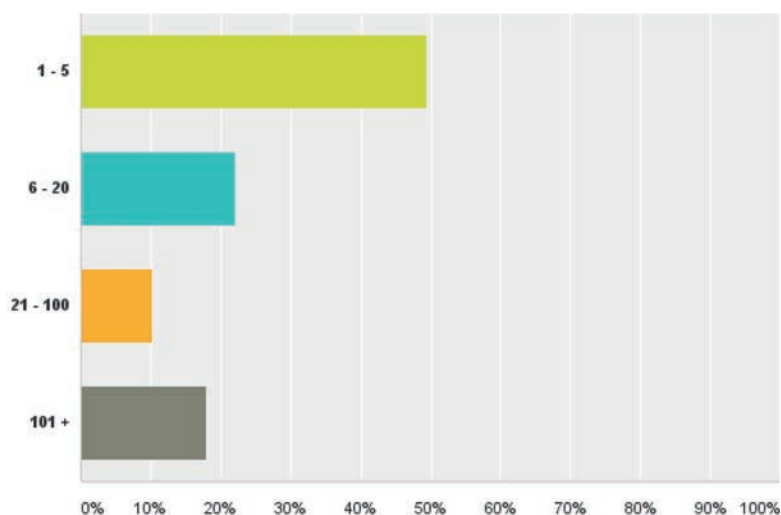


Figure 7: Beneficiaries' size by No. of employees

How the companies have learnt about MP activities and the possibility to receive assistance for technological conversion:

- 26 per cent were approached by the Ministry or by the Ozone Unit
- 25 per cent learnt about such activities through colleagues or other companies
- 21 per cent were approached by the agency
- 7 per cent learnt about such activities through the media
- 21 per cent: other

Regarding the type of assistance/services they have received from the projects:

- 27 per cent received staff training
- 52 per cent received assistance to participate in seminars or study tours
- 42 per cent concerned ODS phase-out
- 14 per cent received on-the-job training in laboratories
- 13 per cent received other assistance (e.g., maintenance of refrigeration appliances, training in management of gas)

Some companies received more than one type of service.

How often the beneficiaries had been visited by the National Ozone Officers:

- 70 per cent never
- 19 per cent 1-2 times per year
- 9 per cent 3-6 times per year
- 1 per cent more than 6 times
- 1 per cent other (contacts for networking)

How often the beneficiaries have been visited by the UNIDO Project manager:

- 70 per cent never
- 19 per cent 1-2 times per year
- 5 per cent 3-6 times per year
- 6 per cent other (contacts for networking)

How often had beneficiaries been visited by the UNIDO technical expert:

- 69 per cent never
- 18 per cent 1-2 times per year
- 5 per cent 3-6 times per year
- 1 per cent more than 6 times
- 7 per cent (for networking arrangements)
-

During the interviews the beneficiaries stated that they very much appreciated visits of the UNIDO technical staff, who provided assistance in selecting equipment and in solving some technical points.

How timely was the delivery of the equipment (Figure 8)?

Answer Choices	Responses	
No delay. Received on time as planned	44.44%	52
Some delay (less than 3 months)	11.97%	14
moderate delay (from 3 to 12 months)	10.26%	12
Significant delay (one year or more)	7.69%	9
Other (please specify)	25.64%	30
Total		117

Figure 8: Timeliness of equipment delivery

- 45 per cent as planned
- 12 per cent with a delay of less than 3 months
- 10 per cent with a moderate delay (from 3 - 12 months)
- 8 per cent with significant delay (more than one year)

- 25 per cent (not applicable because they did not expect to receive equipment)

From the above it appears that the delivery of the equipment for the projects can be considered as satisfactory.

Regarding the areas of the enterprises that had improved owing to the activities of the projects, the following are the opinions of the beneficiaries (Figure 9):

	Achieved/implemented	Total
Production	50.98% 26	51
Processes, maintenance	69.70% 46	66
Guidelines, safety	68.00% 34	50
Staff skills	75.51% 37	49
Investments	55.81% 24	43
Employment (e.g. for vulnerable groups, such as women and youth)	48.65% 18	37
Energy savings	64.58% 31	48
Enterprise competitiveness	65.91% 29	44
Environmental performance	78.79% 52	66

Figure 9: Areas where improvement is acknowledged by beneficiaries

- Production achieved an improvement of 51 per cent
- Maintenance improved by 70 per cent
- Guidelines and the safety achieved an improvement of 68 per cent
- Staff skills improved by 76 per cent
- Investments increased by 56 per cent
- Employment (of women and youth) increased by 49 per cent
- Energy savings were estimated to be 65 per cent
- Competitiveness of the enterprises was estimated to have increased by 60 per cent
- Environmental performance improved by 79 per cent

All the above results may be considered as very satisfactory and more than planned. **Concerning the strategy of the MP Programme, the professional knowledge of the UNIDO staff members and managerial and technical competencies gained by the**

beneficiary staff for phasing out ODSs, the rating expressed by the clients was as follows:

The strategy of the UNIDO MP projects was rated:

- Satisfactory by 79 per cent of the respondents
- Not fully satisfactory by 16 per cent
- Not satisfactory by 5 per cent

The professional knowledge of UNIDO staff was rated:

- Satisfactory by 88 per cent
- Not fully satisfactory by 8 per cent
- Not satisfactory by 4 per cent

The managerial and technical competencies gained by the staff of the assisted enterprises for the ODS phase out was rated:

- Satisfactory by 67 per cent
- Not fully satisfactory by 24 per cent
- Unsatisfactory by 9 per cent

The above answers document sufficiently well the good achievements of the MP Programme.

The answers received from the beneficiaries demonstrated the positive and relevant results achieved by the awareness activities promoted by the MP Programme through all its projects, as follows:

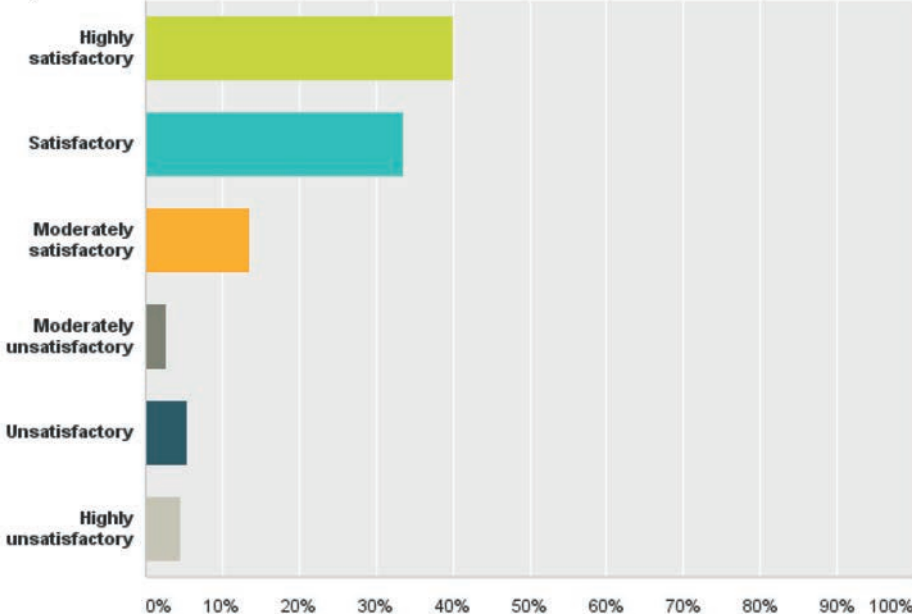


Figure 10: Beneficiaries' overall satisfaction of assistance from UNIDO MP projects

- 97 per cent stated that they will continue using the ODS elimination skills acquired.
- 82 per cent stated that the facilities established or upgraded have improved the infrastructure for the elimination of the ODSs.
- 85 per cent stated that they do not know of any other institutions offering similar assistance.
- 87 per cent rated as fully satisfactory (13 per cent as moderately satisfactory) the support received by UNIDO through the MP projects.

Overall level of satisfaction from beneficiaries is satisfactory and highly satisfactory on more than 70% of respondents, as presented in Figure 10.

4.5 Interesting examples of positive results

A successful investment in new technology

The company *Alternativa* in Bosnia and Herzegovina is 100 per cent locally owned and was established in 1997. In 2005 they began manufacturing polyurethane insulated panels. The conversion to pentane, as the alternative technology selected, included provision for pentane storage, pre-mixing, retrofit of the foam equipment and of presses, and introduction and installation of safety-related systems (e.g., ventilation, gas detection, fire protection equipment, lighting protection and a stand-by electric generator). Technology transfer to establish optimized operating parameters for blending and foaming, safety audit, trials and commissioning are planned to be introduced (incl. installation) by the firm.

Thanks to UNIDO intervention and by the National Ozone Office in the framework of the assistance activities of the Montreal Protocol, *Alternativa* improved its production in terms of quality and quantity. Owing to the introduction of new technologies, the company currently exports its products to the EU market, as it is now in compliance with relevant EU legislation. The number of employees has also doubled to 12, as a result of increased production.

The company has benefited from learning about ODS-free technologies from NOU of Bosnia and Herzegovina, from UNIDO and from the supplier of the new equipment. Training processes during installation of the equipment and in trial production were very useful for the management and operational personnel of *Alternativa*. Their know-how and awareness of ODS and climate change impact improved significantly through this process. The management of *Alternativa* visited the supplier upon its invitation on their own costs. In this way the management learnt more about new technologies and trends in the EU, especially considering that Bosnia and Herzegovina is a potential candidate for EU membership. The EU market is a very important market for *Alternativa*, in addition to its neighboring countries and Africa. After the visit to the supplier, the Director of *Alternativa* decided to extend the

production lines. They considered the visit to the supplier as a very good business connection.

In January 2015 the production of thermo insulation panels began in the new facility, with the application of the new technology. *Alternativa* now utilizes a new component, cyclo pentane, which, when mixed with a polyol component, provides a better quality of polyurethane foam in the manufacture of sandwich panels. The advantage compared between the old and new systems can be demonstrated by the increase in production from 58,005 m² to more than 100,000 m² in one year. In addition to increasing the quality and production of thermo insulation panels, *Alternativa* increased its thermo insulation panel assortment by also producing agro-panels in which the inner side is of plastic, or FIBROSER ECO PAN material. These agro-panels and the standard panels are used for roofing, wall and refrigeration panels with various ranges of thickness.

The NOU in Bosnia and Herzegovina indicated great satisfaction to UNIDO for promoting the cooperation with this modern and innovative company. She especially appreciated *Alternativa's* high performance, professionalism and readiness to invest on their own for some additional construction works during the installation of the equipment.

The account above shows that the company is motivated and has a sense of ownership. This experience can be considered as a successful example of sustainability for the transfer of an effective new environment-friendly technology.

This is a good example that networking UNIDO – NOU provides an added value, promotes technological innovation, and facilitates proper identification of technical issues, all resulting in a satisfactory accomplishment that is appreciated fully by the final beneficiary.

Initiative for destruction of ODSs through a new technological cycle

The appropriate destruction of ODSs in a controlled and safe way is a challenge for many Article 5 countries of the Montreal protocol. Many activities have led to the creation of ODS banks that will be eliminated in a friendly environmental manner. However, the lack of destruction options has created environmental liabilities.

UNIDO, based on past experience gained in countries in the Latin American region, in particular, in Mexico and Venezuela as regards ODS collection and ODS destruction, both in the concerned country, or in a third country, recognized that a strategic approach for the issue of ODS destruction can be beneficial to a concerned country and the donor community at large. Against this background, UNIDO and the Government of Ecuador took an interesting initiative that resulted in commercial, social and environmental finalities. The initiative aims at replacing old and inefficient domestic refrigerators with new locally produced ones. The plan, called

RENOVA, aims at reducing energy consumption. Initially the plan of the Government of Ecuador had the economic purpose of exchanging outdated refrigerators, thus increasing efficiency while lowering costs.

The idea of the project for recuperating and destroying the refrigerant gases originated from UNIDO jointly with the local Ozone Unit, in the framework of the Montreal Protocol regulations and to demonstrate how to deal with the ODS. There was a similar programme in Mexico for energy efficiency, whereby outdated refrigerators and air conditioners were exchanged for new ones. The gases recuperated in that programme were destroyed by applying a new technology that uses the system of arc plasma of argon to avoid venting which would deplete the ozone layer and increase the GWP.

The purpose of RENOVA is to increase efficiency and to lower costs. The project aims to exchange 330,000 domestic refrigerators in five years (2013-2018). To achieve this goal, some conditions apply: the family wishing to take advantage of RENOVA has to have a medium income, the refrigerator must be more than 10 years old, be still functioning and recipients can only receive one specific size-model. The Government offers a subsidy of USD 200 per refrigerator (which is of Ecuadorian production) and the difference of some USD 300 for the new equipment would be paid by the client along with its electricity bill.

This plan has several purposes and beneficiaries: the market is stimulated, middle income families are assisted in a country where, in some areas with hot temperatures, necessitate a refrigerator, and important quantities of dangerous ozone depleting gases are recuperated. On average there are some 80 grams of gas in each refrigerator. Gas recuperation is accomplished by qualified persons using appropriate equipment in cooperation with ADELCA (Steel Mill of Ecuador). The workers who currently recover the gas are paid according to the amount of gas they recover. In this manner the company ensures that the workers guard against gas leakage. In doing so, the workers can demolish an average of 100 refrigerators per day and they simultaneously recover the metal scrap in their facilities. At the end of 2015 some 90,000 refrigerators had been destroyed and replaced. Owing to the successful RENOVA programme, ADELCA began cooperating with the Ministry of Industry and the National Ozone Officer, who is located in the same Ministry.

Through this programme, UNIDO has assisted in building capacities and thanks to this activity some 25 persons were trained at the national level. Additionally UNIDO has helped in providing the refrigerant recovery equipment and now is offering training and technology for the destruction of the gases that have been recuperated and stored in the premises of the plant. As of the writing of the present report 2.7 tons of CFC-12 had been recovered.

To complete the cycle the environmentally friendly destruction of these gases is necessary. Therefore, in 2012 UNIDO, in cooperation with the NOU, decided to install equipment for recuperating the gases.

However, owing to the quantity of the old refrigerators that were exchanged and the low destruction capacity of the plasma induced machine, it was decided to utilize studies and analysis of the cost/efficiency/environment experiments previously

made with plasma-induced devices and with cement kilns use in Mexico and other tests performed in a UNIDO project in Venezuela.

UNIDO, with the support of national expertise in Ecuador, started looking for efficient, cost attractive and environmentally friendly options for destruction of CFCs. The first option was a plasma induced device. The unit was installed and tested in Quito in December 2012. However, the rate of destruction was very low, with only 1 kg/hr.

Due to the high amount of CFCs being recovered and stored, further more rapid solutions were sought and the option to use the rotary cement kilns was explored as a possible alternative for destruction of CFCs by UNIDO. With the aim of sharing the experience and tests of previous ODS destruction in cement kilns in Venezuela, UNIDO presented experiences with supporting material of well recognized sources that indicated rotary cement kilns as a feasible alternative for ODS destruction. As a result of the UNIDO initiative, the Union Andina de Cementos (UNACEM) accepted the challenge and the project and the outcomes of the previous experiences were presented. In November 2015 a successful test took place. In that test some 33 kg of gas were destroyed with the normal process of clinker production and no problems were reported. The preliminary results were positive and even exceeded expectations. The cement producer plans to request a license from the Ecuadorian Ministry of Environment and a green seal for this environment-supporting process.

The destruction of the presently stored amount of ODSs of the RENOVA Plan will prevent the emission of some 29,400 tons of equivalent CO² in the atmosphere. The RENOVA Plan and the destruction of gases at UNACEM will recognize Ecuador as the first country in Latin America able to regularly destroy ODSs in rotary cement kilns through an authorized process of clean and sustainable production.

This initiative shows that the benefits offered by the Montreal Protocol may well be utilized using the combined cooperation of the Government, National Ozone Officer and UNIDO.

5. Conclusions and recommendations

Based on the observations and the analysis on the achievements of the Programme, the surveys and the interviews made in the field, the Evaluation Team presents the following conclusions and recommendations:

General outcomes regarding the effects, implementation of the activities, awareness rising and training, procurement and delivery of the equipment.

Conclusion 1: Considering that Spanish is an official working language of UNIDO and that it is widely spoken in Latin America and the Caribbean, all technical manuals of the equipment delivered under UNIDO projects for the activities in this region should be in the Spanish language. Further, it should also be considered that when the equipment is delivered, a monitoring schedule for equipment performance during the following year should be foreseen.

Recommendations to UNIDO

Recommendations to UNIDO Project managers and the Procurement Services Division (PPS/OSS/PRO)

1. In each bidding and contract for a Spanish-speaking country, a clause should be included providing that the equipment should be accompanied by instruction manuals in Spanish.
2. It is recommended that the monitoring schedule of the equipment during the following year of the delivery should include not only technical guaranties but also a technical evaluation of equipment performance and an assessment by the technicians involved concerning its functioning in the post-warranty period. Presently, monitoring/maintenance operations are missing in several cases, leading to technical problems and to non-compliance in national standards.

Recommendation to PPS/OSS/PRO

3. UNIDO should enhance the quality assurance and continual improvement aspects of the procurement process.

Conclusion 2: In several cases, the companies that have received equipment are pointing out the necessity of visiting the factory of the potential provider before taking the final decision about the equipment to be selected.

Recommendation to UNIDO Project managers and PPS/OSS/PRO

4. During the phase of selection of the equipment, familiarity with equipment options should be seen in both sides of the bidding process, thus ensuring the correct match of engineering provided (offer) and the receiving engineering (demand). In some cases the lack of detail of the existing engineering situation where the equipment would be installed could generate future unplanned needs for corrective interventions.

Recommendation to PPS/OSS/PRO

5. UNIDO should closely monitor the performance of the top twenty performance suppliers.

Conclusion 3: In order to apply good environmental practices a continuous exchange of information and knowledge between the parties involved is necessary. It is a good publicity for several private companies to receive the stamp of the Montreal Protocol on their products that indicates their attention to the environment. Several countries have accepted the obligations under the Montreal Protocol that provide for adequate measures to protect human health and the environment against the dangerous effects of human activities that might affect the ozone layer.

Recommendation to NOUs

6. In countries where there is more than one ministry dealing with matters directly affecting the environment it is recommended that a strong cooperation be developed among those ministries, particularly with regard to energy efficiency, clean production and environmental management.

Recommendation to UNIDO

7. It is recommended that all UNIDO MP projects should draw upon the services of medium- or large-sized entrepreneurs, who are ready to offer advice and assistance to other small entrepreneurs to find alternatives, generate dialog and replicate successful practices related to the use of chemical products.
8. Due to some chemical products being not sustainable and a possible lack of knowledge of new environmentally trending substances that are applied worldwide with specific standards, it is recommended that a better coordination and more technical support is provided that involves not only proprietors and technicians in training but also managers and representatives of financial institutions. Knowledge diffusion should normally be done through the support of formal institutions (such as national associations, universities). This should not exclude experts who work free-lance, or have their own companies and are not part of a formal institution).

Conclusion 4: Illegal trade threatens to undermine gains in ODS reduction. The illegal importers are continuously updating their tricks to import illegal substances and it is necessary to manage the network of the customs authorities and data collection on consumption and imports at the regional level.

Recommendation to UNIDO, NOUs and beneficiaries

9. Strengthening the control of illegal imports of ODSs should be periodically updated through continual training and updating of the customs' offices and offering customs' offices technical assistance including the provision of control equipment. Such control can also be achieved through periodically comparing the rates of ODS consumption that is established by the national ODS import quotas and regulated by the relevant ministries. UNIDO should periodically inform the customs' authorities on how illegal importers present the merchandise in other countries.

Conclusion 5: The choice and procurement of equipment for converting to a new technology is of paramount importance for the beneficiaries. Globally all NOUs and beneficiary companies are very satisfied with the assistance offered by UNIDO in the selection process of equipment and related services. This is even more important in case of high value equipment.

Recommendation to UNIDO Project managers and PPS/OSS/PRO

10. It is recommended that the providers of equipment visit the countries prior to commissioning the equipment. This personnel should have technical qualifications and not be of an administrative nature. The providers should provide a legal declaration at the time of selection that they have a technical representative in the country where the equipment will be delivered. This will ensure that there is technical service available in the country of delivery.
11. It is recommended that the offer by a provider also include the shipment or transportation cost of the equipment. This is of particular importance in cases where the cost of the overseas shipment is high and, if the shipment or transportation cost were included in the bidding process, a local company or another company could have won the bidding as the most economic and technically acceptable proposer.
12. It is further recommended that within the scope and obligations of the relevant UNIDO contract (issued by the Procurement Services Division) that covers the procurement and installation of the equipment, the personnel who will use the equipment, receives adequate training on its proper handling and use. If possible, it would be convenient and useful if the staff who will utilize the equipment can be trained before the finalization at the factory of the provider, in

order to learn how the equipment has to be used and if any adaptation has to be made.

13. Sometimes stronger equipment allows for an optimization of energy efficiency and productivity on site. Therefore, it is recommended that in case a beneficiary company realizes that stronger equipment would provide more flexibility and better technical performance leading to an increase in the output capacity, the beneficiary company should be offered options, such as being allowed to make a direct external payment of the difference for such stronger equipment. This procedure should be acceptable and relevant provisions should be established by UNIDO.
14. To improve further the good cooperation (some beneficiary companies are claiming that the quality of the product, after the technology conversion, is inferior due to the negative side effects of using new gases), it is recommended that beneficiary companies are requested to produce a report describing the changes after the conversion to the new technology.
15. Some beneficiary companies claim that fire prevention safety is not as good as previously warranted owing to the new technology. Should such a claim be received, it is recommended that the UNIDO project manager ascertains its validity. In this connection, the UNIDO project manager should visit this project beneficiary and assign an expert for the technical verification of the installation with the purpose to verify the validity of the claim. Such a visit should take place at an early stage, following project approval by the Executive Committee of the MLF.
16. It is recommended that the UNIDO Procurement Services Division reviews the procurement process and procedures that involve a tender and to monitor closely the delays that were experienced in the procurement process. Some beneficiary companies claimed on to the long duration of the process (in some cases more than 1.5 years of delay were experienced).

Conclusion 6: In some cases the suppliers did not deliver the equipment according to the specifications of the bidding. Presently 10 per cent are retained as final payment that is to be released after successful commissioning. Not all the selected providers of equipment that have won the bidding have complied with the installation works foreseen in the contract. In some cases these works were completed by the recipient companies themselves in order to ensure a timely implementation of the project. Also, in some cases material was missing (e.g., user manuals, annexes, some drawings)

Recommendation to UNIDO Project managers and PPS/OSS/PRO

17. Therefore, it is recommended that:

- a) The UNIDO contract for supplying the machinery should be precisely defined, including a specific delivery time;
- b) UNIDO retains between 20 and 25 per cent of the final payment for equipment, to be released after successful commissioning;
- c) The warranty specification in the UNIDO bidding process should be extended to two years. As indicated by some companies, that time limit was the current international warranty standard.

Conclusion 7: In principle, there are always new appliances on the market for recovering and recycling refrigerants and new alternative gases.

Recommendation to UNIDO Project managers and NOUs

18. To conduct periodical training of a group that represents technicians of the country involved in the good practices for maintenance of equipment. Emphasis has to be placed on continuous updating of the requisite capabilities of the technicians responsible for reducing refrigerants emissions.

Conclusion 8: UNIDO has established several Cleaner Production Centres and is presently negotiating the establishment of new Centres in Argentina and Ecuador. (Example: Good cooperation with the National Ozone Unit in Ecuador with the Central University in Quito in cooperation with MIPRO).

Recommendation to UNIDO Project managers

19. The UNIDO representative should monitor and ensure in the country (or countries) for which he/she is responsible, so that when a new Centre for cleaner production and energy efficiency is established, it is of paramount importance that there is cooperation with the National Ozone Unit of the country, with a public university.

Conclusion 9: Continuous training is necessary for promoting dissemination of knowledge, harmonization of experiences on a regional basis, competitiveness, energy savings and prevention of illegal import and distribution of ODS.

Recommendation to UNIDO Project managers and NOUs

20. It is recommended to implement regular training exercises for new technologies and for upgrading the knowledge of custom officers as their efforts gave impetus to a positive step towards achieving and maintaining ODS targets.

21. Some training centres have the potential to be considered important actors for a possible regional cooperation on capacity-building and skills upgrading of technicians.

a) It is recommended to identify in some countries of the two regions visited local training and research institutions (owing to their wide experience and equipment available) for implementing periodical training and training-of-trainers programmes in the framework of regional cooperation with the neighboring countries; eventually bringing together beneficiary companies of Article 5 countries funded by the MLF with companies from countries with economies in transition funded by GEF.

b) Funding of such periodic training and training-of-trainers programmes could, for example, be sought by UNIDO in cooperation with the relevant funding mechanisms, e.g., GEF, MLF, bilateral (e.g., donors),

22. It is recommended to make a further evaluation of the commercial and technological effects of training offered in countries, in which common practices of ODS handling and recovery rate would be assessed to ascertain how the country is recovering, destructing or recycling the ozone depleting substances/gases. In this context, it is recommended that the validation of a common register of the eliminated quantities and the final destination of ODS recuperated are continued as per concurrent decision(s) of the Executive Committee of the Multilateral Fund.

Conclusion 10: As a non-ODS effect, it was noted that energy efficiency improved in all the companies assisted by UNIDO owing to cleaner production practices. It was reported to the Evaluation Team by the majority of the beneficiary companies that as a result of the conversion they have increased their production (for instance moving from two to three shifts) at the same level of energy cost before conversion. This benefit in terms of energy consumption was acknowledged and confirmed during the field visits of the Evaluation Team.

Recommendation to UNIDO Project managers

23. Although the beneficiary companies considered that there was not a big difference in the cost of their energy consumption (unless electricity costs dramatically increased as it had occurred in Argentina in 2015), these other parameters (increased production, better quality, improved competitiveness) should be considered. Therefore, it is recommended that UNIDO, upon verification of relevant demand and in consultation with NOUs, organizes specialized short training on business and financial management for beneficiary companies.

Conclusion 11: It was observed that non-EU European A5 countries have full awareness about the environmental effects associated with ODS use. However, since these same countries are also interested in entering the EU as full members as soon as possible, they are attempting to accelerate their efforts to reach compliance with relevant environmental EU legislation and standards.

Countries that do not have an industrial policy in place, UNIDO with the assistance of NOU(s), could play an impartial, catalytic role to overcome local political issues. This could be achieved by reinforcing training and upgrading capacities and cooperation among the Ozone Unit(s) in those countries. Promoting coordination and harmonization of internal administrative processes could lead to further achievements

Recommendation to UNIDO Project managers and NOUs

24. It is recommended that NOUs assume a liaison role in promoting the adaptation of local legislation and regulations to the legislation, policies and standards of all aspects of ozone layer protection already in force in the EU. This takes into account that the integration of countries that are not members of the EU can pose a challenge for their markets.

Conclusion 12: The cooperation with GEF through its relevant funding windows should be enhanced to ensure the possibility of potential synergies with other mechanisms, such as MLF, for projects related but not limited to energy and environment.

Recommendation to UNIDO, NOUs and relevant Ministries

25. It is recommended to enhance cooperation with GEF in order to open additional funding windows for projects related to energy and environment. Any GEF project identified and proposed by the relevant national authority (e.g., GEF Focal Point, National Ozone Unit) should also consider the possibility of linking it with the ongoing ODS programme in the country.

Recommendations to UNIDO and NOUs

26. It is recommended that UNIDO continues assisting Article 5 countries in the recovery and destruction of ODS. In doing so, UNIDO should transfer its experiences gained (cement kilns and arc plasma technologies) from the implementation of relevant projects in countries of the Latin American and Caribbean region (e.g., Colombia, Ecuador and Mexico).
27. It is also recommended that UNIDO should transfer the experience of national green initiatives and link those with ongoing/future ODS phase-out projects, as one example to enhance non-ODS effects and related benefits.

28. Regarding the destruction of ODSs it is recommended that UNIDO enlarge its project portfolio aiming at CFC destruction and may rely, inter alia, in this respect on the experience gained through its relevant programme in the Latin American and Caribbean region.

General recommendations

Recommendations to UNIDO

29. In progressing with its work the Evaluation Team encountered some difficulties in obtaining full names and addresses of the beneficiaries assisted by the programme. Thus it is recommended that the responsible Department in UNIDO establishes and keeps an updated list of beneficiaries (companies and institutions) for the projects implemented by UNIDO under MLF funding. The (continuously updated) list should be prepared per country and per sector of activity.
30. It is recommended that UNIDO considers inviting representatives of the MLF Secretariat and its Executive Committee to the main meetings of the Organization's policymaking organs. This could have the effect of strengthening UNIDO cooperation with the MLF.
31. According to the results of the survey to Staff, 83 per cent of Headquarters staff had not received training or awareness events on Montreal Protocol issues. Thus it is recommended that the UNIDO divisions involved in MP activities should investigate this issue and take the appropriate course of action to address it.
32. It is recommended to seriously consider establishing one UNIDO desk office in Argentina and one in Bosnia and Herzegovina given the size of MP projects implemented by UNIDO in those countries. In the 1990s there was a UNIDO Representative in Argentina. The establishment of offices in these countries could contribute to speeding up some matters concerning procurement and assuming liaison effectively with the NOUs and other relevant government authorities and potential stakeholders.

6. Lessons learned

The following lessons were derived from the present review:

- 1) Implementation or adaptation of technological changes normally involves investments and consequently the problem of financing evolves for interested enterprises. Technology development or conversion of the technology utilized is a serious consideration for the beneficiaries. It may require choice and procurement of equipment, which is of paramount importance for the application of the new technology, but at the same time, it might be opposed by the beneficiaries for economic reasons.
- 2) Improving the available national technological capabilities is a considerable assistance for countries in achieving a safer and healthier environment, and reducing the operational industrial risks for enterprises and for human beings.
- 3) Proper and regular monitoring of projects gives the opportunity to timely adjust the outcomes foreseen in the initial planning and to appropriately select technology.
- 4) Positive and satisfactory results obtained may create opportunities for developing mechanisms at the national and regional levels to promote utilization of co-financed resources in cooperation with other institutions.
- 5) Relevance: a long-term approach is needed to achieve full application of the concept of ODSs elimination and destruction. This will result in environmental benefits for the countries involved and healthier life conditions for the population.
- 6) Awareness always has to be followed by training and continuous implementation. In this way, the purpose of the project may transfer the corresponding consciousness and knowledge of the problem to the persons involved directly in the operations and generally to the population.
- 7) Updating and use of appropriate technology and methodology require genuine willingness to cooperate. Sometimes this cooperation has to be promoted by legislation to protect the environment, but a conviction that supports corollary economical business benefits of the entrepreneurs and operators is absolutely necessary.
- 8) The regular and continuous training of personnel involved in sound environmental management at all working levels is a standard requirement for all environment-related projects. The exchange of information gained regarding the analysis, results and methodologies applied should be disseminated to assure the general application of best environmental practices. An example of such practice can be the case of the ODS destruction in cement kilns.

Annex A. Terms of Reference (excerpt)

Thematic review

UNIDO ozone depleting substances projects under
the Montreal Protocol with emphasis on
countries in the Latin American and Caribbean
and in the European region

SAP ID 150088

Office of the Director General
Office for Independent Evaluation (ODG/EVA)

2 February 2016

I. Background and justification

1. The UNIDO Office for Independent Evaluation (ODG/EVA) has foreseen under its work programme 2014-2015, a **thematic review of a sample of Montreal Protocol (MP) projects with a focus on countries in the Latin American and Caribbean and in the European region**. This review is, inter alia, in line with the provisions stipulated in the individual Agreements signed between governments and the Executive Committee of the Multilateral Fund stating that “The country agrees to evaluations, which might be carried out under the monitoring and evaluation work programmes of the Multilateral Fund or under the evaluation programme of any of the agencies taking part in this Agreement”.

2. It is noted that the thematic review of UNIDO MP projects will be different from the purpose of MP projects’ evaluations carried out by the Multilateral Fund (MLF) Secretariat. While the latter focuses on the reduction in emissions of ozone depleting substances (ODS) phase out results with no particular reference to agency-specific issues (such as efficiency of implementation), the UNIDO review will primarily look into:

- Non-ODS effects (not related to the reduction of ODS, i.e. improved enterprise competitiveness and environmental performance, productivity improvements, employment, and at large, inclusive and sustainable industrial development (ISID)) and the actual and potential synergies with other UNIDO interventions;
- How the recommendations from the previous review exercise influenced the implementation of UNIDO MP activities and how lessons learned have been translated into action; and
- Whether there are any noticeable differences between the traditional MLF-funded and the rather recent Global Environment Facility (GEF)-funded ODS projects and if yes, in how far this requires specific action from UNIDO.

3. During 2008/2009, ODG/EVA carried out a review of a sample of MP projects with a view to learn more about the theory of change applied and the non-ODS effects achieved by MP projects. This review clearly confirmed the existence of important non-ODS effects and showed that MP projects represent an untapped learning potential for UNIDO (e.g. in the field of practical methods for technology transfer).

4. During the 2010/2011 biennium and as part of its work programme, reviews of MP projects were included in the country evaluations.

5. The present review will consider the findings of the 2008/2009 review and of the MP project reviews that formed part of country-level evaluations (and other relevant evaluations that addressed MP activities) and, in particular, lessons learned and recommendations that were addressed by these review exercises.

Origin and context of UNIDO Montreal Protocol³

6. Until about two decades ago, the lack of knowledge about atmospheric chemistry and processes led to a significant depletion of stratospheric ozone levels. Man-made chemicals, especially chlorine and bromine compounds, such as chlorofluorocarbons (CFCs), halons, and a broad range of industrial chemicals attack the ozone layer and are recognized as ozone depleting substances (ODS). Moreover, by enhancing the process of climate change they disturb food chains and so have an effect on agriculture, fisheries and biological diversity. Without the Montreal Protocol the levels of ozone-depleting

³ <http://www.unido.org/montreal-protocol.html>

substances would have been five times higher than they are today, and surface ultraviolet-B radiation levels would have doubled at mid-latitudes in the northern hemisphere. On current estimates the CFC concentration in the ozone layer is expected to decline to pre-1980 levels by 2050.

7. The activities carried out by UNIDO are primarily concerned with the issue of eliminating ODS. However, the activities also enable the industries concerned to achieve increased productivity and an improved economic performance in terms of lower operating costs, less maintenance and higher product quality and reliability. The UNIDO Montreal Protocol-related activities include:

- Phasing-out of methyl-bromide, which is used for soil fumigation and post-harvest protection treatment, thereby contributing to a better development of the food processing industry through the use of safer raw materials;
- Conversion of technologies used by refrigerator manufacturers, which enables them to produce more efficient appliances and achieve energy reductions at national levels consistent with UNIDO's approach to industrial energy efficiency;
- Identification and application of non-ODS production technologies consistent with the objective of the service module for investment and technology promotion to bring advanced and more appropriate technologies to the marketplace;
- Assistance to local authorities in institutional strengthening for the preparation of regulations, codes of good production and maintenance practices, environmental protection, and occupational health and work place safety, which is consistent with UNIDO's goal to strengthen the legal and regulatory framework for conformity; and
- Provision of capacity building services to strengthen small and medium-sized enterprises (SMEs), which is consistent with UNIDO's goal to assist developing countries in providing an enabling environment for the growth of the private sector.

The objectives of UNIDO MP initiatives

8. There is a need to phase out the production and consumption of ODSs, which lead to a continuing degradation of human health and the natural environment. The Vienna Convention and the Montreal Protocol provide a response to that need. This programme component assists the Governments of developing countries that are signatories to the Montreal Protocol to comply with its requirements through projects financed by the Multilateral Fund of the Protocol.

9. In 2013, UNIDO was ranked the top implementing agency of the Multilateral Fund for the Implementation of the Montreal Protocol, with a historically high score of 100 out of 100 points. UNIDO is currently providing assistance to nearly 80 countries through Montreal Protocol projects, funded by the Multilateral Fund of the Montreal Protocol and bilateral agencies.⁴

10. The first control measure of the Montreal Protocol, which was to freeze hydrochloro-fluorocarbon (HCFC) consumption at baseline level by 2013, has been met without any reports of non-compliance. The next target as per HCFC phase-out management plans (HPMPs) is a 10 per cent consumption reduction to be met by the beginning of 2015 to enable concerned countries to comply with their obligations under

⁴ UNIDO. (2013). UNIDO activities related to the environment. Report by the Director General (GC.15/6, 13 September 2013)

the Montreal Protocol. The different tranches of the HPMPs account for more than half of all ongoing UNIDO projects. UNIDO implements HPMPs and activities in a number of countries, inter alia, in the Latin American and Caribbean (LAC) and in the European regions.

11. As per UNIDO Programme and Budgets 2012 – 2013, Programme Component C.3 – Environment and Energy, UNIDO is to “... provide assistance to developing countries in implementing multilateral environmental agreements, such as the Montreal Protocol of the Vienna Convention with regard to the phasing-out of the production and consumption of ozone-depleting substances (ODS)”⁵.

Table 1 – Expected country-level outcomes⁶

Policy outcome	Performance indicators⁷	Sources of verification
Industrial sustainability policies and practices: Industrial policies, plans and regulations internalize environmental considerations and the sustainable use of goods and services.	<ul style="list-style-type: none"> • Industrial policies define verifiable environmental objectives and comply with multilateral environmental conventions, protocols and agreements. • Legislation and enforcement mechanisms ensure compliance with environmental agreements. • Policies and regulations provide incentives for sustainability. • Energy policies give priority to energy efficiency and access to clean energy for productive energy use. 	Company records and statistics Data reports of relevant Government agencies UNIDO annual Business Plan and progress and financial report Project Completion Reports
Institutional outcome	Performance indicators⁸	
Green industry support services: Public and private institutions support industry in complying with environmental agreements and provide services to mitigate negative industrial externalities and adapt to climate change.	Support organizations serve increased numbers and types of enterprises <ul style="list-style-type: none"> • Environmental and other enterprise support services delivered in integrated manner. • Enterprises have increased access to clean energy. • Enterprises demonstrate increased energy efficiency. • Enterprises have adopted ODS-free technologies. • National institutions are effectively implementing international environmental agreements. 	

12. While primarily concerned with the issue of eliminating ODSs, it is assumed that the activities carried out by UNIDO in the area of MP also enable the industries concerned

⁵ UNIDO. (2011). Programme and budgets 2012-2013. Revised proposals of the Director-General (IDB39/13/Rev.1, 2 June 2011)

⁶ ibid

⁷ Based on regular assessments and reporting in legislative documents, including in the Annual Report.

⁸ ibid

to achieve increased productivity and an improved economic performance in terms of lower operating costs, less maintenance and higher product quality and reliability. Likewise, MP projects also have a potential to make contributions to generating employment, both by sustaining existing jobs and creating new ones.

II. Objectives and scope of the review

13. The present thematic review will focus primarily on non-ODS effects and the actual and potential synergies with other UNIDO interventions and the design and implementation of technical assistance activities mainly in the area of ODS phase out with emphasis on countries in the Latin American and Caribbean and in the European regions.

14. Projects of the Montreal Protocol are subject to specific evaluation procedures defined by the Multilateral Fund and UNIDO interventions are covered by evaluations carried out by the MP Secretariat. However, since all projects implemented by UNIDO fall under the Organization's responsibility and the MP projects encompass a large part of UNIDO's technical assistance portfolio, it is vital to capture lessons learned and best practices for the purpose of organizational learning.

15. Furthermore, it is important for UNIDO to access systematically information about results and outcomes in line with its results based management (RBM) policy and implementation strategy and to convey this information to various stakeholders.

16. The purpose of this review will be to extract lessons learned, information on UNIDO's contribution to development results and impact and other strategic information.

UNIDO's phase-out programmes in Latin America and the Caribbean

17. In the Latin American and Caribbean (LAC) region, UNIDO has continued to assist countries in reaching their compliance targets under the MP and to implement Management plans and other phase-out activities with the objective to adopt clean and environmentally sustainable processes and technologies. Thus, reducing the use/production of ODS and carbon dioxide (CO₂) emissions and meeting the expected policy and institutional level outcomes agreed by the individual country.

18. Overall, UNIDO has completed nearly 70 projects in eight different Central and South American countries to eliminate the use of CFCs in domestic and commercial refrigerators. Currently, UNIDO is engaged in the implementation of HCFC phase-out management plans in eight countries in the region, namely Argentina, Ecuador, Guatemala, Honduras, Mexico, Nicaragua, Suriname and Venezuela.

19. UNIDO has also always cultivated a strong relationship with Caribbean countries and completed over 15 Montreal Protocol projects, including in Cuba and in the Dominican Republic to phase out of use of methyl bromide. UNIDO is currently responsible for the implementation of the HCFC Phase-out Management Plans in Bahamas, Saint Lucia and Saint Vincent and the Grenadines.

Europe regional

20. UNIDO's work in fifteen countries of the region covers the whole palette of activities to phase out ODSs according to the schedule of the Montreal Protocol. Over the last decades, several projects have been implemented to eliminate CFCs and halons and to phase-out methyl bromide, methyl chloroform and HCFCs.

21. In the region, UNIDO currently implements HCFC Phase-out Management Plans in seven countries (i.e., Albania, Bosnia and Herzegovina, Croatia, Montenegro, Serbia, Turkey, and The Former Yugoslav Republic of Macedonia).

22. These efforts have always been completed with institutional strengthening, trainings and awareness raising activities. Besides the country specific programmes, UNIDO has also been implementing regional projects. One of such projects targeted the replacement of CFCs in centrifugal chillers in Croatia, Macedonia, Montenegro, Romania and Serbia; another regional activity related to the formulation of a strategy for the disposal and destruction of ODSs with a bilateral component in the Czech Republic, in Bosnia and Herzegovina, and in Croatia, Montenegro and Turkmenistan.

23. The European region is a good example of the cooperation between UNIDO and the Global Environment Facility (GEF). With the financial support of GEF two projects are being implemented in the Russian Federation that aim at the phase-out of CFC consumption in the manufacture of aerosol metered dose inhalers and at the phase-out of HCFCs and the promotion of HCFC-free energy efficient refrigeration and air-conditioning systems.

III. Key review questions

24. The key evaluation questions are:

Regarding the design, intervention logic and the underlying theory of change:

- Is there one or are there several typical intervention logics that are applied to MP projects? How can it/they be described? How do they compare with the GEF ODS projects' intervention logic?
- Is the design of the overall programme and of individual projects consistent with the underlying theory of change?
- What progress has been made towards the development of a suitable scheme for accounting climate benefits from Montreal Protocol-related activities and leveraging financial support from outside the scope of the Multilateral Fund (e.g., combining the phase-out of ODSs and energy efficiency improvements)?
- To what extent has gender been mainstreamed at the design stage of MP activities/interventions?

Regarding the implementation and the results of MP interventions

- Are individual MP interventions implemented in line with the underlying theory of change?
- What are the effects of MP projects in terms of enterprise competitiveness, productivity, employment, and at large, inclusive and sustainable industrial development?

- Can a clear and precise statement be made on part of UNIDO Montreal Protocol in relation to achievements to date to each specific anticipated outcome as noted in project documents?
- What effects did the software for a computerized system connecting customs and National Ozone Units' (NOUs) databases to which UNIDO provided support in the development have as regards implementation and monitoring of MP activities and beyond?⁹ What other effects of MP projects can be commonly observed?
- To what extent has gender been mainstreamed during the implementation of MP activities/interventions?

Regarding the learning processes

- How are lessons learned from MP projects currently extracted and how can the Organization ensure that lessons learned from MP projects can contribute to organizational learning in the future?
- Is the information on MP interventions and their results sufficient and relevant (M&E) for learning?
- What learning could the Organization take out of the 2008/2009 review? At the time of the 2008/2009 review, it was realized that though projects of the MP are subject to specific evaluation procedures, defined by the Multilateral Fund, UNIDO would need to capture lessons learned and best practices for the purpose of organizational learning, in particular, as MP projects encompass a large part of UNIDO's technical assistance portfolio. The review indicated a high level of results achievement for ODS reduction and also clearly confirmed the existence of important non-ODS effects (e.g., productivity improvements, improved environmental performance of enterprises) and showed that MP projects represent a largely untapped learning potential for UNIDO (e.g., in the field of practical methods for technology transfer). Annex B provides a summary of the feedback received to recommendations issued as part of the 2008/2009 review (source: Management response sheet).

IV. Methodology

25. During stage one (desk study and preparation of review) the evaluation consultants will analyze the existing documentation and interview the responsible UNIDO project management teams and solicit views on project management modalities, performance and impact from a wide variety of stakeholders (e.g., various Ministries, Departments, NOUs, project management units, private sector, associations, training institutes, SMEs, FIs), representatives from the Secretariat and will prepare a report with specific conclusions and recommendations on any further issues that need to be tackled during field visits. The consultants will use open-ended and/or structured interviews; observation; focus groups and group discussions as appropriate. The review will consist of four main components:

⁹ UNEP. (2013). Final evaluation report of multi-year agreement projects (UNEP/OzL.Pro/ExCom/69/12, 25 March 2013 - <http://www.multilateralfund.org/69/English/1/6912.pdf>)

i. Review of documents and UNIDO staff interviews

26. The document review will be carried in order to: a) extract information with regard to the results of MP projects, focusing primarily on non-environmental effects at the enterprise level (e.g., productivity); b) compile information that allows to describe the UNIDO programme theory and compare it with those of other organizations involved in ODS phase-out; and to c) prepare individual country desk review reports that are to summarize above findings to feed into the main report of this review. This component will include:

- Review of UNIDO project-related documentation (e.g., project documents, project progress and completion reports, MLF and other ODS phase-out related evaluation and monitoring reports, technical reports from subcontractors), institutional arrangements, bidding procedures and experiences with supplier companies; sustainability of conversion and cross-cutting effects. A generic reference framework on possible project level review parameters is provided under annex A;
- Review of methodological documents, tools and training kits, reference documents and guidelines;
- Analyze the effectiveness of institutional arrangements in facilitating project implementation, including the functionality and feasibility of the collaboration of regional UNIDO offices, NOUs, intergovernmental institutions, other implementing/co-operating agencies;
- Assess the effectiveness of existing monitoring and surveillance systems;
- Review of ODS-related documents of other organizations (incl. United Nations Environment Programme (UNEP), GEF and the World Bank);
- Additional information and clarifications gathered from discussions with members of the UNIDO MP, the MLF Secretariat, implementing agencies and NOUs.
- Preparation of individual country desk review reports to feed into the main review report and for potential use by other evaluation activities.

27. With regard to project-related documentation, a representative sample of UNIDO MP projects that were/are implemented in countries of the concerned geographical regions will be drawn during the inception phase of the review and in consultation with concerned colleagues in PTC/ENV.

Main criteria for the selection of projects are:

- Main project categories to be covered (phase-out plans and projects, including investment, umbrella, and institutional projects, and capacity activities);
- Availability of comprehensive information and documentation;
- Availability of MLF evaluation reports.

ii. Development of UNIDO MP programme theory of change

28. Based on the review of documents and discussions with project managers, logical models will be developed to describe the cause-effect linkages by which UNIDO ODS projects intend to achieve their objectives¹⁰.

10 UNIDO, ODG/EVA developed a programme theory for the 2008/2009 review of Montreal Protocol activities. The consultant will take this as a basis for his/her draft of the UNIDO programme theory of change.

29. When developing the programme theory, emphasis will be placed on describing also the non-environmental effects of MP projects, e.g., effects on productivity and economic performance in terms of lower operating costs, less maintenance and higher product quality and reliability, employment generation by sustaining existing jobs and creating new ones, cross-cutting effects.

30. The draft programme theory will be discussed with UNIDO project managers before it is validated through a survey.

iii. Stakeholder survey

31. The survey design will be developed in close cooperation with concerned colleagues who implement MP activities and ODG/EVA in order to ensure that appropriate terminology is used and that survey results are useful for the in-house learning process. Concerned colleagues whose MP activities will form part of the review will provide a list of stakeholders and partners for the selected sample projects.

32. The survey will be carried out for two main purposes:

- Capture non-environmental effects of MP projects and activities
- Validate the UNIDO MP programme theory

iv. Regional field visits

33. Due to budgetary constraints only a few countries per region can be visited for case study purposes. During the inception phase of the review, and in close consultation with UNIDO MP staff, a list of countries to be visited will be established.

34. Two evaluation teams will visit a sample comprising of countries in the Latin American and Caribbean and European region. The teams will prepare individual country (case study) reports and the synthesis of these reports will feed into the main review report. The main purpose of the field visits is to:

- Collect data and examine issues proposed in the terms of reference
- Consult and analyze additional documents available at the country level and meet various categories of stakeholders
- At the end of the field work the evaluation team will prepare a case study report for each country visited that will feed into the main review report.

V. Review team and timing

Review team

Consultants for this evaluation will be selected according to their knowledge of the objectives and functioning of the Multilateral Fund. Work experience is required in environmental sciences with focus on atmospheric sciences, environmental management, law, institutional strengthening, project implementation and a strong knowledge in evaluation of projects and programmes. In addition they should have excellent analytical and writing skills.

The review team will be composed of one senior international expert with strong knowledge of the objectives and functioning of the Multilateral Fund and equally strong

experience in the evaluation of technical assistance projects/programmes in this field who will act as team leader; one international expert with strong evaluation experience in the evaluation of technical assistance projects/programmes and knowledge related to MP activities, and staff of UNIDO, ODG/EVA. The tasks of the international experts are specified in the job descriptions attached to these terms of reference (annex D).

UNIDO, ODG/EVA will be responsible for the quality control throughout the review process. It will provide inputs regarding findings, lessons learned and recommendations from other UNIDO evaluations, ensuring that the final report is useful for UNIDO in terms of organizational learning (recommendations and lessons learned) and its compliance with ODG/EVA reporting standards and these terms of reference.

Members of the review team must not have been directly involved in the design and/or implementation of a programme/project considered by this review.

Timing

The review is scheduled to take place in the period February to June 2016. The review report will be presented to UNIDO stakeholders by July 2016. The final review report will be completed by 3rd quarter 2016.

VI. Reporting

The review report should be brief, to the point and easy to understand. It must explain the purpose of the review, exactly what was evaluated and the methods used. The report must highlight any methodological limitations, identify key concerns and present evidence-based findings, consequent conclusions, recommendations and lessons learned. The report should provide information on when the review took place, the places visited, who was involved and be presented in a way that makes the information accessible and comprehensible. The report should include an executive summary that encapsulates the essence of the information contained in the report to facilitate dissemination.

Evidence, findings, conclusions, recommendations and lessons learned should be presented in a complete and balanced manner. The main review report shall be written in English and follow the structure detailed in annex E.

Review of the draft report: Draft reports submitted to ODG/EVA are shared with the corresponding Programme and Project Officer for initial review and consultation. They may provide feedback on any errors of fact and may highlight the significance of such errors in any conclusions. The consultation also seeks agreement on the findings and recommendations. The evaluators will take the comments into consideration when preparing the final version of the report.

Quality assessment of the report: All UNIDO evaluations/reviews are subject to a quality assessment by ODG/EVA. Quality assessment criteria are applied and used as a tool for providing structured feedback. The quality of the report will be assessed and rated against the criteria set forth in the checklist on evaluation report quality.

Project level review parameters

The following is a generic reference framework to be applied for the assessment of individual technical cooperation projects as part of the review.

A. Effectiveness and impact: attainment of objectives and planned as well as unplanned results:

The assessment of project results seeks to determine the extent to which project objectives were achieved, or are expected to be achieved, and assess if the project has led to any other positive or negative consequences, in particular as regards non-environmental effects as regards productivity, enterprise competitiveness, and employment.

B. Assessment of sustainability of project outcomes:

Sustainability is understood as the probability of continued long-term project-derived outcomes and impacts after the project funding ends. The review will verify whether information on sustainability of project results can be extracted from project documentation.

C. Assessment of monitoring and evaluation systems:

- **M&E design.** Does the project have a sound M&E plan to monitor results and track progress towards achieving project objectives? Is the project document and the logical framework useful as a management and M&E tool? Was a baseline study carried out at inception?
- **M&E implementation.** Assessment of the quality of project monitoring and (self-) evaluation, including an assessment of risk management based on the assumptions and risks identified in the project document. Are mandated project reports complete, accurate and with well justified ratings? Has the information provided by the M&E system been used during the project to improve project performance and to adapt to changing needs? Are the main assumptions of the programme theory being monitored?
- **Budgeting and funding for M&E activities.** Have adequate budget provisions been made for M&E and have such resources been made available in a timely fashion during implementation?

D. Assessment of quality at entry

Was the design consistent with the methodologies, strategies and the overall theory of change of UNIDO MP activities/initiatives?

Were the project's objectives and components clear, practicable and feasible within its timeframe? The review should also assess whether outcomes specified in the project document and/or logical framework are actually outcomes and not outputs or activities.

Were capacities of the executing institutions and counterparts properly considered when the project was designed? Were lessons and recommendations from other relevant project evaluations conducted by the MLFS and/or by co-operating agencies, partners properly incorporated in the design? Were the partnership arrangements properly identified and the roles and responsibilities negotiated prior to implementation? Was availability of counterpart resources (funding, staff, and facilities), passage of enabling legislation, and adequate project management arrangements in place at project entry?

Summary of feedback received to recommendations issued as part of the 2008/2009 review (source: Management response sheet)

I. Exploit the learning potential of MP projects

1. UNIDO should more systematically pursue sharing of lessons learned between programs and branches.

- *Fully accepted. We have started cooperation between branches (Environment-Energy cluster)*
- *Completed. PTC/MPB launched a carbon initiative whereby the Branch called upon PTC/ECC to contribute and a contact group was established.*

2. The MP Programme should adopt a systematic approach to compile lessons learned from MP projects (cooperation, technology transfer, institution building, subcontracting, role of UNIDO experts, etc.) and to disseminate this information in the MP Branch and to other UNIDO programmes and relevant stakeholders.

- *Fully accepted. An International Professional Development Event Linking Chemicals, climate change, carbon markets and Energy management, has taken place in October 2010 for that particular purpose.*
- *Completed. PTC/MPB is also looking into some recently approved projects such as a destruction of obsolete ODS in Mexico whereby technology for destruction of chemicals could be shared with PTC/EMB and the carbon credit with PTC/ECC.*

3. The experience of the MP programme, the specific approaches used and the potential linkages with UNIDO's organisational objectives and outcomes should be distilled into a concise programme document. Such a document could be used as a tool for communication with project staff, national stakeholders, new UNIDO MP staff and other UNIDO branches who currently know little about the MP approaches.

- *Fully accepted. We have issued a number of documents compiling the MP experience during the past, including a manual. We will also produce an updated document on the new developments of the program.*
- *Completed. See comment provided under point 1, above*

II. Enhance Synergy & Collaboration within UNIDO and with other stakeholders

4. UNIDO management should formulate a clear strategy to induce cooperation between the MP branch and other UNIDO branches and programmes aiming at synergetic benefits. Also institutional guidelines for intra- and inter-agency cooperation should be prepared.

- *Fully accepted. The Management strongly supports the coordination of the so called Environment-Energy Cluster. We will develop joint activities in the near future.*
- *Ongoing. See comments provided under points 1 and 2, above*

5. The Programme should pursue a culture in which program managers take advantage of the multitude of potential partnerships and collaborative efforts that can be established with international, national and local stakeholders.

- *Fully accepted. The international event mentioned above has the ambition to look into potential partnerships, particularly at a national level.*
- *Completed. It is also worth for the [evaluation] consultant to note that PTC/MPB has recruited National Programme officers in 11 countries funded by the Branch to contribute to the implementation of MP activities (we have also agreed that they will assist URs in dealing with non-MP activities).*

6. UNIDO should consider capacitating the Field Offices and enable them to play an important role in pursuing non-ODS effects through local involvement and additional funding. Field Offices could also be instrumental in involving stakeholders and for post-project monitoring of outcome.

- *Fully accepted. Efforts to integrate the field Office to MP activities have been carried out already since 2009. The new vision of the field should strengthen this integration effort.*
- *Completed. PTC/MPB has already transferred a number of activities to the field and the Branch is ready to do more. It is believed that the process is following its own path.*

7. Paving the road for increased internal and external cooperation UNIDO MPB should compile good case stories, initiate pilot projects, develop and test tools and approaches for cooperative efforts, and prepare a MPB guideline for cooperation.

- *We fail to understand this recommendation. What kind of test tools or cooperative efforts are we referring to? Compiling good case studies should be done by professionals outside the Branch*
- *Not completed*

8. A fast track cooperation mechanism is needed to enable swift establishment of interagency partnerships. This could also allow for co-funding from other donors to cover non-ODS components of more integrated projects and programmes.

- *We are ready to cooperate with donors on non-ODS components, however one should not lose track of our agreement with the Multilateral Fund which is exclusively enabling developing countries to be in compliance with their MP obligations.*
- *Not completed*

III. Use the leverage of MP projects to promote sustainable industrial development

9. UNIDO should consider formulating guidelines for the design, implementation and monitoring of MP projects. In order to ensure maximum impact of MP projects on sustainable industrial development, such guidelines should address especially the issues of a) how to address non-ODS issues and b) how to cooperate with other UNIDO branches and initiatives on the ground.

- *We fail to understand this recommendation. Guidelines for the design and implementation are already in place and thoroughly enforced by the Multilateral Fund. UNIDO should be careful that such guidelines are implemented to ensure positive evaluation of its program. Cooperation with other Branches does not require guidelines.*
- *Not completed. PTC/MPB made it quite clear to the [evaluation] consultant that the Branch has to abide to strict procedures and guidelines whereby UNIDO should be looking EXCLUSIVELY into the phase out of ODS and cannot even look into technology upgrades. Now if your unit [ODG/EVA] or anybody else could assist the Branch in generating interest from donors to look into non-ODS impacts we will be glad to accommodate that on top of our very heavy workload.*

10. UNIDO should initiate a dialogue with the MLF to fully clarify the present room for inclusion of cost free non-ODS targets in MP efforts.

- *Again we fail to understand this recommendation. What do we mean by cost free non-ODS targets?*
- *Not completed*

11. For new projects MP branch should consider submitting to UNIDO STC a complementary note (in parallel to MLF submission) on how the project will contribute to sustainable development. This would include possible linkages to other UNIDO activities in the country.

- *We do not agree with this recommendation since MP projects follow the MLF guidelines and being reviewed against such guidelines with tight deadlines. We do not see the added value of a complimentary note that will only delay submissions. The issue of sustainability is part of the requirements of the MLF.*
- *Not completed.*



UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

**TERMS OF REFERENCE FOR PERSONNEL UNDER INDIVIDUAL SERVICE AGREEMENT
(ISA)**

Title:	Senior evaluation consultant and team leader
Main duty station and location:	Home-based, UNIDO Headquarters
Mission/s to:	LAC/EUR (selected countries)
Start of contract:	February 2016
End of contract:	June 2016
Number of working days:	34 days (spread over four months)

ORGANIZATIONAL CONTEXT

The consultant will work under the supervision of the Senior Evaluation Officer, ODG/EVA and in collaboration with other members of the evaluation team.

MAIN DUTIES	Concrete/ Measurable outputs to be achieved	Expected duration (in w/d)	Locatio n
Phase 1: Desk study and preparation of review			
<ul style="list-style-type: none"> Review of methodological documents (incl. tools), reference documents and guidelines. Review of ODS-related documents of other organizations, including UNEP, GEF and World Bank Review of UNIDO project-related documentation: project documents, project completion reports, MLF evaluation reports, technical reports Group meetings and interviews with project managers Identification of sample countries to be visited by evaluation team Develop a draft programme theory, i.e. a logical model for cause-effect linkages by which ODS projects intend to achieve their objectives¹¹. Discuss theory with UNIDO project managers 	<ul style="list-style-type: none"> Overview of relevant literature, summary of extractable information from UNIDO documents, including information gaps. Individual country desk review reports Draft programme theory as part of the inception report 	8	UNIDO HQ and home-based Home-based UNIDO HQ Home-based

¹¹ UNIDO, ODG/EVA developed a programme theory for the 2008/2009 review of Montreal Protocol activities. The evaluation consultant will take this as a basis for his/her draft of the UNIDO programme theory of change.

Phase 2: Stakeholder survey			
<ul style="list-style-type: none"> Verify programme theory through a user friendly stakeholder survey, testing main assumptions and cause-effect relations Collect information on non-environmental project results through survey 	Survey conducted and analyzed	3	Home-based
Phase 3: Field missions			
<ul style="list-style-type: none"> Field missions 		14	Selected countries in LAC/EUR
<ul style="list-style-type: none"> Working meeting with the ODG/EVA and PTC/ENV (MP) to discuss preliminary findings at UNIDO HQ 		2	UNIDO HQ
Phase 4: Synthesis of findings and evaluation report			
<ul style="list-style-type: none"> Prepare a document on preliminary findings, conclusions and lessons. Prepare draft report Send out draft report to ODG/EVA and PTC/ENV (MP) for comments, respond to comments Prepare final report 	<ul style="list-style-type: none"> Preliminary findings and conclusions elaborated Draft review report Feedback generated Final report 	7	Home-based
TOTAL		34	

MINIMUM ORGANIZATIONAL REQUIREMENTS

Education: Advanced university degree in a field related to environmental protection or related field. Knowledge of evaluation and excellent drafting skills.

Technical and functional experience:

A minimum of ten years practical experience in the area of multilateral environmental agreements, in particular, Montreal Protocol and GEF. Knowledge of technical cooperation projects/programmes, including evaluation, in the area of environmental sustainability and multilateral agreements, in particular, Montreal Protocol and GEF, and of activities in the area of cleaner production, chemicals in general, and climate change. Exposure to the needs, conditions and problems of developing countries.

Languages: Fluency in written and spoken English and Spanish is required.

REQUIRED COMPETENCIES

Core values:

1. Integrity
2. Professionalism
3. Respect for diversity

Core competencies:

1. Results orientation and accountability
2. Planning and organizing
3. Communication and trust
4. Team orientation
5. Client orientation



UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

**TERMS OF REFERENCE FOR PERSONNEL UNDER INDIVIDUAL SERVICE AGREEMENT
(ISA)**

Title:	Evaluation consultant
Main duty station and location:	Home-based, UNIDO Headquarters
Mission/s to:	EUR region (selected countries)
Start of contract:	February 2016
End of contract:	June 2016
Number of working days:	27 days spread over four months

ORGANIZATIONAL CONTEXT

The consultant will work under the supervision of the Senior Evaluation Officer, ODG/EVA and in collaboration with other members of the evaluation team.

MAIN DUTIES	Concrete/ Measurable outputs to be achieved	Expected duration (in w/d)	Location				
Phase 1: Desk study and preparation of review							
<ul style="list-style-type: none"> Review of methodological documents (incl. tools), reference documents and guidelines. Review of ODS-related documents of other organizations, including UNEP, GEF and the World Bank Review of UNIDO project-related documentation: project documents, project completion reports, MLF evaluation reports, technical reports from sub-contractors. Group meetings and interviews with project managers Identification of sample countries to be visited by evaluation team Contribute to the development of a draft programme theory, i.e. a logical model for cause-effect linkages by which ODS 	<ul style="list-style-type: none"> Overview of relevant literature, summary of extractable information from UNIDO documents, including information gaps. Individual country desk review reports Draft programme theory as part of the 	8	<table border="1"> <tr> <td>Home-based</td> </tr> <tr> <td>Home-based</td> </tr> <tr> <td>UNIDO HQ</td> </tr> <tr> <td>Home-based</td> </tr> </table>	Home-based	Home-based	UNIDO HQ	Home-based
Home-based							
Home-based							
UNIDO HQ							
Home-based							

projects intend to achieve their objectives ¹² . Discuss theory with UNIDO project managers.	inception report		
Phase 2: Stakeholder survey			
<ul style="list-style-type: none"> Verify programme theory through a user friendly stakeholder survey, testing main assumptions and cause-effect relations. Collect information on non-environmental project results through survey 	Survey conducted and analyzed	2	Home-based
Phase 3: Field mission			
<ul style="list-style-type: none"> Field missions 		9	Selected countries in EUR region
<ul style="list-style-type: none"> Working meeting with the ODG/EVA and PTC/ENV (MP) to discuss preliminary findings at UNIDO HQ 		2	UNIDO HQ
Phase 4: Synthesis of findings and evaluation report			
<ul style="list-style-type: none"> Prepare a document on preliminary findings, conclusions and lessons. Contribute in the Preparation of the draft report Send out draft report to OSL/EVA and PTC/MPB for comments, respond to comments Contribute to the Preparation of the final report 	<ul style="list-style-type: none"> Preliminary findings and conclusions elaborated Draft review report Feedback generated Final report 	6	Home-based
TOTAL		27	

MINIMUM ORGANIZATIONAL REQUIREMENTS

Education: Advanced university degree in a field related to environmental protection, or related field. Knowledge of evaluation and excellent drafting skills.

Technical and functional experience:

A minimum of eight years practical experience in the field of environmental development and evaluation, including experience at the international level and involving technical cooperation in developing countries. Experience of technical cooperation projects/programmes, including evaluation, in the field of environmental sustainability and multilateral agreements, in particular Montreal Protocol and GEF. Exposure to the needs, conditions and problems of developing countries.

Languages: Fluency in written and spoken English. A second UN language would be an asset.

¹² UNIDO, ODG/EVA developed a programme theory for the 2008/2009 review of Montreal Protocol activities. The evaluation consultant will take this as a basis for his/her draft of the UNIDO programme theory of change.

REQUIRED COMPETENCIES

Core values:

1. Integrity
2. Professionalism
3. Respect for diversity

Core competencies:

1. Results orientation and accountability
2. Planning and organizing
3. Communication and trust
4. Team orientation
5. Client orientation



UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

TERMS OF REFERENCE FOR PERSONNEL UNDER INDIVIDUAL SERVICE AGREEMENT (ISA)

Title:	Senior/evaluation consultant – filled by ODG/EVA staff
Main duty station and location:	Home-based
Mission/s to:	LAC/EU region (selected countries)
Start of contract:	February 2016
End of contract:	June 2016
Number of working days:	27 days spread over four months

ORGANIZATIONAL CONTEXT

The senior evaluation consultant will work under the supervision of the Senior Evaluation Officer, ODG/EVA and in collaboration with other members of the evaluation team.

MAIN DUTIES	Concrete/ measurable outputs to be achieved	Expected duration (in w/d)	Location
Phase 1: Desk study and preparation of review			
<ul style="list-style-type: none"> Review of methodological documents (incl. tools), reference documents and guidelines. Review of ODS-related documents of other organizations, including UNEP, GEF and the World Bank Review of UNIDO project-related documentation: project documents, project completion reports, MLF evaluation reports, technical reports from sub-contractors. Group meetings and interviews with project managers Identification of sample countries to be visited by evaluation team Contribute to develop a draft programme theory, i.e. a logical model for cause-effect linkages by which ODS 	<ul style="list-style-type: none"> Overview of relevant literature, summary of extractable information from UNIDO documents, including information gaps. Individual country desk review reports Draft programme theory as part of the inception report 	8	Home-based
			Home-based
			UNIDO HQ
			Home-based

projects intend to achieve their objectives ¹³ . Discuss theory with UNIDO project managers.			
Phase 2: Stakeholder survey			
<ul style="list-style-type: none"> Verify programme theory through a user friendly stakeholder survey, testing main assumptions and cause-effect relations. Collect information on non-environmental project results through survey. 	Survey conducted and analyzed	2	Home-based
Phase 3: Field mission			
<ul style="list-style-type: none"> Field missions 		9	Selected countries in LAC/EU region
<ul style="list-style-type: none"> Working meeting with the ODG/EVA and PTC/ENV (MP) to discuss preliminary findings at UNIDO HQ 		2	UNIDO HQ
Phase 4: Synthesis of findings and evaluation report			
<ul style="list-style-type: none"> Prepare a document on preliminary findings, conclusions and lessons. Contribute in the Preparation of the draft report Send out draft report to OSL/EVA and PTC/MPB for comments, respond to comments Contribute to the Preparation of the final report 	<ul style="list-style-type: none"> Preliminary findings and conclusions elaborated Draft review report Feedback generated Final report 	6	Home-based
TOTAL		27	

MINIMUM ORGANIZATIONAL REQUIREMENTS

Education: Advanced university degree in a field related to environmental protection, or related field. Excellent knowledge of evaluation and drafting skills.

Technical and functional experience:

A minimum of ten years practical experience in the field of environmental development and evaluation, including experience at the international level and involving technical cooperation in developing countries. Experience of technical cooperation projects/programmes, including evaluation, in the field of environmental sustainability

¹³ UNIDO, ODG/EVA developed a programme theory for the 2008/2009 review of Montreal Protocol activities. The evaluation consultant will take this as a basis for his/her draft of the UNIDO programme theory of change.

and multilateral agreements, in particular Montreal Protocol and GEF. Exposure to the needs, conditions and problems of developing countries.

Languages: Fluency in written and spoken English and Spanish. A second UN language would be an asset.

REQUIRED COMPETENCIES

Core values:

1. Integrity
2. Professionalism
3. Respect for diversity

Core competencies:

1. Results orientation and accountability
2. Planning and organizing
3. Communication and trust
4. Team orientation
5. Client orientation

Annex B. List of persons met

Name	Institution	Location	Title
UNIDO Headquarters			
Mr. Philippe Scholtes	UNIDO	Vienna	Managing Director, Programme Development and Technical Cooperation Division – PTC/OMD
Mr. Stephan Sicars	UNIDO	Vienna	Director, Department of Environment - PTC/ENV/OD
Mr. Ole Nielsen	UNIDO	Vienna	Chief, Montreal Protocol Division - PTC/ENV/MPD
Mr. Dalibor Kysela	UNIDO	Vienna	Industrial Development Officer, PTC/ENV/MPD
Ms. Rodica-Ella Ivan	UNIDO	Vienna	Industrial Development Officer, PTC/ENV/ECR
Mr. Guillermo Castella Lorenzo	UNIDO	Vienna	Chief, Emerging Compliance Regimes Division - PTC/ENV/ECR
Mr. Rodrigo Serpa Fonnegra	UNIDO	Vienna	Industrial Development Officer, PTC/ENV/MPD
Mr. Akos Koeszegvary	UNIDO	Vienna	Industrial Development Officer, PTC/ENV/MPD
Ms. Michaela Berndl	UNIDO	Vienna	Senior Evaluation Assistant ODG/EVQ/IEV
Ms. Simone La Rosa Monier	UNIDO	Vienna	Senior Evaluation Assistant ODG/EVQ/IEV
TURKEY			
Mr. Süleiman Yilmaz	UNIDO field office in Turkey	Ankara	Representative of UNIDO in Turkey & Director of the Centre for Regional Cooperation
Mr. Ecer Mehrali	Ministry of Environment and Urbanization	Ankara	Head of the Department of Climate Change
Ms. Dogan Pervin	Ministry of Environment and Urbanization	Ankara	Chief of Division for Protection of the Ozone Layer
Ms. Özge Tümöz Gündüz	Ministry of Environment and Urbanization	Ankara	Ozone Officer
Ms. Zeynep Gökçen Emre	Ministry of	Ankara	National Consultant

Name	Institution	Location	Title
	Environment and Urbanization / UNIDO		
Ms. Sebahat Meral	Ministry of Environment and Urbanization / UNIDO	Ankara	National Consultant
Mr. Ahmet Codal	Ministry of Environment and Urbanization	Ankara	Ozone Expert
Ms. Selami Alagoz	Turkish Halon Bank	Ankara	Environmental Engineer
Mr. Kemal Oz	SOSIAD (Association of Refrigeration Industry)	Ankara	Manager
Mr. Ucaner Baris	Cantas (Association refrigeration systems RAC)	Ankara	Procurement manager
Mr. Katirci Celalettin Hakan	Mekpan Panel	Konya	General Manager
Mr. Ünübol Salih Emre	Mekpan Panel	Konya	Factory Manager
Mr. Karagöz Halil	Mekpan Panel	Konya	Foreign Trade Executive
Mr. Medina Elio	Purtek	Istanbul	Chemical Engineer and Manager
Mr. Karademir Ilker	NGIM / Nuhpanel	Gebze- Kocaeli / Istanbul	Quality systems manager
Mr. Balta Serkan	NGIM / Nuhpanel	Gebze- Kocaeli / Istanbul	Project engineer
Mr. Barman Kivan	NGIM / Nuhpanel	Gebze- Kocaeli / Istanbul	Plant manager
Mr. Özyilmaz Mustafa	Poliser polyurethane	Istanbul	Deputy General Manager
Mr. Iscan Engin	Poliser polyurethane	Istanbul	Production Director
Mr. Cikvasvili Beno Ruben	Pürtiz	Istanbul	General Manager
Mr. Otaran Ugur	Iseda (Society for training consulting and research)	Istanbul	Chairman of the Board
BOSNIA & HERZEGOVINA			
Ms. Azra Rogovic Grubic	Ministry of Foreign Trade and Economic Relations of Bosnia and Herzegovina	Sarajevo	Ozone Officer

Name	Institution	Location	Title
	(MoFTER BiH)		
Ms. Nermina Skejović-Hurić	MoFTER	Sarajevo	Ozone Officer
Ms. Almira Kapetanović	Federal Ministry of Environment and Tourism	Sarajevo	Ozone Officer and Head of Dept of Strategic planning and Air protection, Climate change and ozone layer protection
Mr. Ibro Čengić	Independent Expert for Energy and environment	Sarajevo	Former National Ozone Officer
Mr. Salih Lemeš	Alternativa (Production of sandwich panels and profiles sheets)	Sarajevo	Director
Mr. Harun Lemeš	Alternativa	Sarajevo	Marketing Director
Ms. Mersiha Isanovic	Alternativa	Sarajevo	Head of technical Department
Mr. Miroslav Nogulić	Kuća Leda (refrigeration recycling)	Mostar	Director and owner
Mr. Nedim Efica	Kuća Leda	Mostar	Co-owner and certified trainer for RAC technicians
Ms. Ana Mrnjavac	Customs Dept. Regional office of Sarajevo Indirect Taxation Authority	Sarajevo	Chief of Customs post clearance control and National Focal Point for Montreal Protocol
Ms. Fadila Muftic	Federal Ministry of Environment and Tourism	Sarajevo	Advisor Ozone Officer
Ms. Tica Gordana	University of Banja Luka Mechanical engineering faculty. Training Centre for RAC technicians	Banja Luka	Prof. of Thermodynamics and refrigeration cooling system
Mr. Sascha Kostic	Frigoklima (SMI which received assistance)	Banja Luka	Manager and owner
Mr. Goran Sobot	Master Frigo (Designing, engineering and installation of refrigerant equipment) Beneficiary	Banja Luka	Managing Director

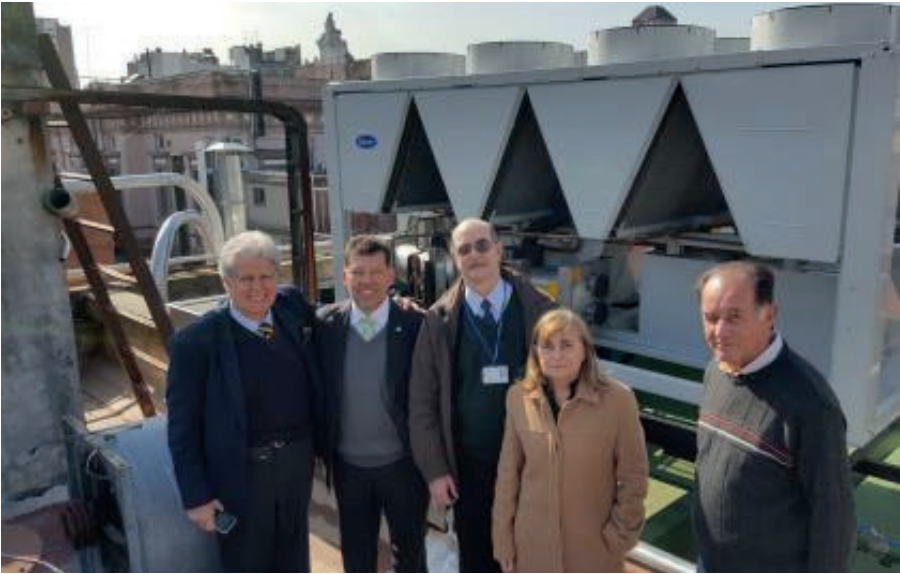
Name	Institution	Location	Title
	company		
Mr. Nenad Džilit	Elektrofrigo Beneficiary company	Banja Luka	Director of Elektrofrigo
Mr. Igor Džilit	Elektrofrigo	Banja Luka	Refrigeration expert
ECUADOR			
Mr. Xavier Arcos	UNIDO field office in Ecuador	Quito	Representative of UNIDO in Ecuador
Ms. Ana Correa	Ministerio de Industrias y Productividad (MIPRO)	Quito	Ozone Officer y Directora de Producción más limpia y eficiencia de recursos
Mr. Alexis Dimitri Valencia Moreno	Ministerio de Industrias y Productividad (MIPRO)	Quito	Subsecretario de Eficiencia e Inversión Industrial
Mr. Jorge Chávez Ledesma	Ministerio de Industrias y Productividad (MIPRO)	Quito	Asesor
Mr. Luis Bedoya	Ministerio de Industrias y Productividad (MIPRO)	Quito	Asistente de Ozone Officer y eficiencia de recursos
Mr. Luis Serrano	Sunrite Farms Ecuador	Quito	Ingeniero Proyecto alternativa al uso de bromuro de metilo
Mr. Santiago Saa	Expoflores Escuela de Floricultura	Quito	Director Ejecutivo
Mr. Alejandro Martinez	Expoflores	Quito	Presidente Ejecutivo de la Asociación Nacional de Productores Y Exportadores de Flores del Ecuador
Ms. Liliana Munoz	SECAP (Servicio Ecuatoriano de Capacitación Profesional)	Quito	Directora zonal de SECAP
Ms. Maritzas Cabeza	SECAP (Servicio Ecuatoriano de Capacitación Profesional)	Quito	Analista de zona
Mr. Mario Vinueza	SECAP (Servicio Ecuatoriano de Capacitación Profesional)	Quito	Responsable de Bodega
Mr. Fernando Cerón	RENOVA	Quito	Director de diseno y

Name	Institution	Location	Title
	Refrigeradoras (Recuperación de gases refrigerantes en neveras domesticas)		evaluación de proyectos industriales. Representante del MIPRO ante Comité Gestion Refrigeradoras.
Mr. Edy Paltan	INDUGLOB (Refrigeradoras Domesticas)	Orellana (en video conferencia)	Gerente de Planta
Ms. Verónica Villacis	Consultor UNIDO para Protocolo de Montreal	Quito	Consultor independiente
Mr. Marco Oleas	ADELCA (Acería del Ecuador) Recuperación de gases refrigerantes	Matriz (Cumbayá)	Director de Gestion Integral
Mr. Oswaldo Arandi	ADELCA (Acería del Ecuador)	Matriz (Cumbayá)	Supervisor de Seguridad Industrial
Ms. Laura Cadilhac Leoti	Ministerio del Ambiente	Quito	Coordinadora del proyecto "Tercera comunicación Nacional sobre cambio climatico"
Mr. José Antonio Piedra	Ministerio del Ambiente	Quito	Tecnico Especialista en Mitigación para preparación Informe de actualización Bienal
Mr. Telmo Talavera	Quimipac	Quito	Representante Linea PYU y Refrigerantes
Mr. Patricio Diaz	Unacem	Otavaló (video conferencia)	Coordinador de proyecto
Mr. Pablo Viteri	Pacific Bouquet (flowers)	Yaruqi (Quito)	Manager floricultor
Mr. Andrés Moreano	Eternal flower	Quito El Quinche	Manager
Mr. Adrián Moreano	Eternal flower	Quito El Quinche	Sales director
Mr. Fernando Guerra	Eternal flower	Quito El Quinche	Técnico de finca
Ms. Maria Lavan	Hilsea	Quito Finca el Chivan	Responsable de Laboratorio
Mr. Luis Serrano	Sunrite Farms	Quito	Manager Biofertilización y Biofumigación
Mr. William Pulupa	Ministerio de Industrias SENA (Servicio Nacional de Aduanas de Ecuador)	Guayaquil (en video conferencia)	Director Técnicas Aduaneras

Name	Institution	Location	Title
ARGENTINA			
Ms. Laura E. Berón	Subsecretaría de Cambio Climático y Desarrollo Sustentable Ministerio de Ambiente y Desarrollo sustentable	Buenos Aires	Coordinadora - Oficina Programa Ozono
Ms. Graciela Garau	Subsecretaría de Cambio Climático y Desarrollo Sustentable Ministerio de Ambiente y Desarrollo sustentable	Buenos Aires	Consultora Técnica - Oficina Programa Ozono
Mr. Miguel Sangiacomo	INTA (Instituto Nacional de tecnología agropecuaria)	Buenos Aires	Coordinador del proyecto de Alternativas al Bromuro de Metilo
Mr. Julio Hatanaka	Tecnoflor (Cooperativa agropecuaria)	La Plata	Presidente
Ms. Julieta Redolatti	INTA (Instituto Nacional de tecnología agropecuaria)	La Plata	Asesora
Mr. Robert Fernandez	INTA (Instituto Nacional de tecnología agropecuaria)	La Plata	Asesor Quinta "La Abundancia"
Mr. Pablo Delmazzo	INTA (Instituto Nacional de tecnología agropecuaria)	La Plata	Asesor "Quinta "La Abundancia"
Mr. Prola Rodrigo Hernan	DOSIVAC (Bombas de vacío)	Buenos Aires	Sales Director
Ms. Marta Comte	Experto del proyecto Ozono	Buenos Aires	Consultora en refrigerantes
Mr. Ariel Iantosca	WESTRIC (Acondicionadores de aire) MULTICONTROL SA. Producer Air Cond. Equipment	Buenos Aires	Gerente de Producción
Mr. Carlos Degrossi	Grupo Garbarino	Buenos Aires	Engineering Manager

Name	Institution	Location	Title
	Producer Air Cond. Equipment		
Mr. Sergio Pagot	Radiovictoria Fueguina S.A. Producer Air Cond. Equipment	Buenos Aires	Head Home Appliances Division – Engineering Dept.
Mr. Guillermo Duodero	Newsan Producer Air Cond. Equipment	Buenos Aires	Engineering Manager
Mr. Pablo Guerra	Grupo Miagor Producer Air Cond. Equipment	Buenos Aires	Manager
Mr. Daniel Toer	Hospital de Pediatria Garrahan	Buenos Aires	Director medico adjunto
Mr. Gabriel Pettinari	Hospital de Pediatria Garrahan	Buenos Aires	Gerente de Mantenimiento
Mr. Alfonso Seoane	Hospital de Pediatria Garrahan	Buenos Aires	Mantenimiento
Mr. José Berlinger	Consultor Independiente	Buenos Aires	Experto en uso de CFC
Mr. Enrique Vasquez	Hospital Italiano de B.A.	Buenos Aires	Jefe Dpto. Instalaciones Gerencia Ingenieria de Planta
Mr. Juan Carlos Reinhardt	UBAJAY S.A. consulting Company in ODS issues	Buenos Aires	Presidente
Mrs. Florencia Giacomino	GIACOMINO SRL , ODS importer and reclaim center	Buenos Aires	President
Ms. Leila Devia	National Institute for Industrial Technology, INTI, training provider	Buenos Aires	Program Director
Mr. Miguel D'Elía	National Technical School N° 14, training provider	Buenos Aires	Professor

Annex C. Pictures of some MP beneficiaries visited



ARGENTINA: Non-ODS chillers provided to two hospital beneficiaries



ARGENTINA: Kits provided to refrigeration technicians



ECUADOR: Arc plasma of argon for gas destruction equipment at SECAP



ECUADOR: R134 recovered and stored for destruction at Cement plant



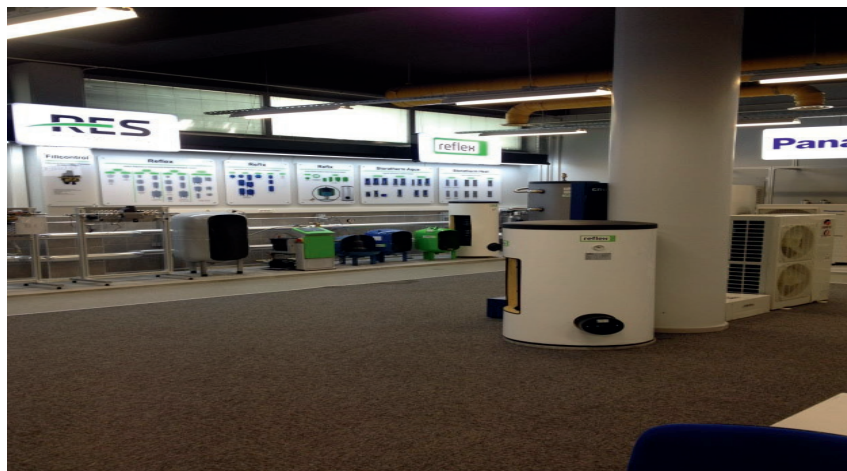
BOSNIA AND HERZEGOVINA: Production of sandwich panels for insulation



BOSNIA AND HERZEGOVINA: Manufacture of PU foam insulated sandwich panels



TURKEY: System house for polyurethane mixture



TURKEY: Training Center on Refrigeration

Annex D. Questionnaire for UNIDO Staff¹⁴

INFORMATION AND GENERAL QUESTIONS

1. Please enter your name (optional):
2. Please indicate your position:
 - PTC staff
 - EFR/RPF staff
 - Other UNIDO HQ staff
 - Field Office staff
 - Other (please specify)
 - For Other (please specify)
3. Please enter your location (Country/City):
4. Have you received any training on Montreal Protocol (MP) issues?
 - Yes
 - No
5. Have you been directly involved in projects (Design, Implementation, Monitoring) under the MP?
 - Yes
 - No

INVOLVEMENT IN MP ACTIVITIES

- Project number/SAP ID:
 - Project number/SAP ID:
 - Project number/SAP ID:
6. If yes, please indicate the three main MP projects you were involved in:
 7. What is/was your role(s) in MP projects?
 - Project Manager
 - Support to project manager
 - Expert
 - Supervisor to MP project manager
 - Other (please specify)
 8. What kind of activities are/were you involved in with MP projects?
 - Project design
 - Training
 - Procurement
 - Monitoring and follow-up
 - Coordination with stakeholders
 - Other (please specify)

¹⁴ Excerpt from on-line survey

9. Please comment on your experience. Please use the following criteria for each question:

Highly satisfactory/Satisfactory/Moderately satisfactory/Moderately unsatisfactory/Unsatisfactory/Highly unsatisfactory/N.A.

- How would you rate your working experience with UNIDO Division(s)/Unit(s) dealing with MP?
- How would you rate your experience with UNIDO field offices?
- How would you rate the coordination/synergies with other UNIDO initiatives for environmental protection?
- Comments/suggestions on future possible improvements:

10. Please rate and indicate the Non-ODS (Ozone Depleting Substances) achievements or results obtained with the phase-out of ODSs by the implementation of MP projects. Please use the following criteria for each question:

Highly satisfactory/Satisfactory/Moderately satisfactory/Moderately unsatisfactory/Unsatisfactory/Highly unsatisfactory/N.A.

- Improved enterprise competitiveness
- Non-ODS environmental performance
- Productivity improvements (e.g. energy savings)
- Employment (e.g. for vulnerable groups, such as women and youth)
- Others

11. Have you cooperated with National Ozone Officers?

- Yes
- No

12. If yes, please describe positive/negative experiences:

OTHER INFORMATION/GENERAL COMMENTS

13. Having or not been directly involved in MP projects, what would you recommend/suggest to UNIDO on this area?

14. Please provide other comments, if any:

Annex E. Questionnaire for National Ozone Officers¹⁵

1. Please enter your name (Optional) (Nombre y apellido) :
 2. Your location (Country/City) (País y ciudad):
 3. Your region (Región):
 4. What is your role and responsibility (-ies) in project implementation? (¿Cuál es su función en la implementación de los proyectos?):
 - Project identification/design (Identificación)
 - Project implementation and supervision (Implementación y supervisión)
 - Overall project cycle management (Design, implementation, supervision, monitoring and evaluation) (Gestión general)
 - Specific technical inputs (in design and/or implementation & monitoring) and training of counterparts (Contribuciones técnicas específicas)
 - Attendance of MP relevant meetings (e.g. Regional NOUs meetings) (Participación en reuniones de MP)
 5. How long have you been working on ODS issues? (¿Cuánto tiempo se ha ocupado de asuntos de SAO?):
 - 0 - 5 years
 - 6 - 10 years
 - More than 10
1. Please indicate your time dedication to ODS issues (Indique el tiempo que Ud. dedica a asuntos de SAO):
 - Full time (100%)
 - Part time
 2. Please rate the usefulness of the following aspects (Estime la utilidad de). Please use the following criteria for each question:

Highly satisfactory/Satisfactory/Moderately satisfactory/Moderately unsatisfactory/Unsatisfactory/Highly unsatisfactory/n.a.

 - The National Implementation Plan (NIP) for developing ODS phase out projects (El programa nacional de implementacion para destruccion de SAO)
 - The National Implementation Plan (NIP) for developing ODS phase out projects (El programa nacional de implementacion para destruccion de SAO)
 - Implementing MP strategies improved the efficiency of the activities of beneficiaries? (Implementación de estragias de MP mejoro la eficiencia de las actividades de los beneficiarios?)
 3. Please indicate the extent to which you agree with the following MP project objectives (capacity building, demonstration, and phase-out) (¿En qué medida está Ud. de acuerdo con los siguientes objetivos de MP - Capacitación, demostración y eliminación de SAO?).

¹⁵ Excerpt from on-line survey

Please use the following criteria for each question:

Completely agree/Somewhat agree/Do not agree/N/A

- The projects have been effective in contributing to capacity building for the introduction of appropriate strategies / Los proyectos han sido efectivos creando capacidades para aplicar estrategias apropiadas
- Government capacity related to chemicals management has been strengthened /La capacidad del gobierno en la gestion de sustancias quimicas ha sido reforzada
- The projects contributed to the establishment of better industrial policies to comply with multilateral conventions / Los proyectos han contribuido a establecer politicas industriales mejores, conformes a las convenciones multilaterales
- Effective legislative and policy frameworks are in place thanks to the project / Politicas legislativas efectivas se lograron gracias al programa MP
- Capacity to enforce legislation is improved (Capacidad de cumplir las legislaciones fue mejorada)
- The programme contributed to generate employments by sustaining existing jobs or creating new ones / El programa ha contribuido a crear empleo
- The phase out of ODSs has produced energy efficiency improvements / La eliminacion de SAO a producido mejoras en eficiencia energetica)
- MP activities have contributed to climate benefits / las actividades de MP han contribuido a beneficios climaticos)

4. Please indicate the extent to which you agree with the following statements of UNIDO-MP results (Indique en qué medida está de acuerdo con las siguientes afirmaciones). Please use the following criteria for each question:

Completely agree/Somewhat agree/Do not agree/N/A

- The programme addresses effectively local problems for phasing out ODSs (El programa es efectivo para resolver los problemas locales para la eliminacion de SAO).
- In eliminating ODSs the programme increased industrial productivity, e.g. lower operational costs, less maintenance, better product quality (Eliminando SAO, el programa ayudo a aumentar la productividad industrial. Por ej. reduccion de gastos).
- The projects contributed to the establishment of better industrial policies to comply with multilateral conventions (Los proyectos han contribuido a establecer mejores politicas industriales).
- The projects contributed to enforcing legal mechanisms to ensure compliance (Los proyectos conttribuyeron a hacer cumplir los mecanismos legales).
- The projects contributed to promulgating policies offering economic incentives for sustainability (Los proyectos han contribuido a establecer politicas para ofrecer incentivos economicos).

5. Please indicate the extent to which you agree with the following statements of UNIDO MP results (¿En qué medida esta Ud. de acuerdo con las siguientes afirmaciones sobre los resultados de ONUDI MP?). Please use the following criteria for each question:

Completely agree/Somewhat agree/Do not agree/N/A

- The projects contributed to improving energy efficiency and cleaner energy / Los proyectos han contribuido a mejorar la eficiencia energética y energía más limpia
- MP activities have contributed to climate benefits / Las actividades de MP han contribuido a beneficios climáticos
- The projects contributed to partnerships between private and public sector / Los proyectos han contribuido a asociaciones entre sector público y privado

- The projects contributed to raising awareness among industrial workers, farmers and communities about the danger of ODSs / Los proyectos han contribuido a aumentar conocimientos de trabajadores en industria, agricultores y comunidad sobre peligros SAO
- The programme cooperated with other international initiatives on similar objectives within UNIDO (cross organizational activities) or in the area of MP activities / El programa ha cooperado con otras iniciativas internacionales con objetivos similares
- The projects contributed to generate employment / Los proyectos han contribuido a generar empleos

6. To what extent the UNIDO MP projects have been effective in contributing to the respective areas of implementation? (¿En qué medida los proyectos de ONUDI MP han contribuido eficazmente?) Please use the following criteria for each question:

Completely agree/Somewhat agree/Do not agree/N/A

- Phase out production and consumption of ODSs (Eliminación y consumo de SAO)
- ODSs eliminated in an environmentally sound manner (Eliminación de SAO de manera ambientalmente adecuada)
- Conversion of technologies to reduce ODSs and improve industrial energy efficiency (Conversión de tecnologías para reducir SAO y mejorar eficiencia energética industrial)
- Assistance to local authorities for preparation of regulations, maintenance, occupational health and environmental protection (Asistencia a autoridades locales para reglamentar, mantener, y proteger la salud ocupacional y el ambiente)
- Provision of capacity building services to beneficiaries, enterprises enabling their growth (Formación de beneficiarios y empresas para facilitar su desarrollo)
- Application of non ODSs technologies promoting environmentally sustainable technology and related investment (Aplicación de tecnologías non-SAO, y promoviendo tecnologías ambientalmente sostenibles y con inversiones respectivas)

7. To what extent UNIDO MP Activities have produced sustainable results? (¿En qué medida las siguientes actividades de ONUDI-MP han producido resultados sostenibles?). Please use the following criteria for each question:

Completely agree/Somewhat agree/Do not agree/N/A

- MP activities to phase out production and/or consumption of ODSs been successful (Las actividades de MP para eliminación, producción y consumo de SAO han sido exitosas)
- MP activities generated tangible ex-post benefits, such as improvement in terms of capacity, policy and legislation (Las actividades del MP han generado beneficios como mejora de capacidades, políticas y legislación)
- MP-funded activities led to replication of methods and good practices to other non-ODSs projects (Las actividades de MP han conducido a la réplica de métodos y buenas prácticas en otros proyectos non-SAO)

8. Which of the following are the most common threats/risks for obtaining positive MP project results? ¿Cuáles son los riesgos más comunes para los resultados positivos de los proyectos MP? Please use the following criteria for each question:

Very common/Fairly common/Not so common/Completely absent/Don't know

- Lack of policy and legal frameworks (Falta de políticas o marco legal)
- Poor or unsustainable enforcement capacity (Débil capacidad de hacer cumplir los reglamentos)
- Poor socio-economic incentives (Insuficientes incentivos socio-económicos)
- Lack of know-how for ODSs management (Falta de conocimiento para la gestión de SAO)
- Low government priority (Baja prioridad del Gobierno)

- Lack of awareness of dangers among users leading to lack of behavioural change (Falta de conocimiento de los peligros entre los usuarios)
- Lack of private sector interest (Falta de interes del sector privado)

9. Below some statements regarding aspects that commonly influence UNIDO MP project efficiency (processes, time and resources. Please indicate the extent to which: (¿En qué medida está de acuerdo con las afirmaciones abajo, sobre los aspectos que más influyen la eficiencia de los proyectos ONUDI MP?) Please use the following criteria for each question:

Completely agree/Somewhat agree/Do not agree/Don't know

- The project preparation process was adequate (La preparación del proyecto fue adecuada)
- The project approval process was efficient (El proceso de aprobación fue eficiente)
- National / government counterpart has sufficient readiness and capacity (Contrapartes nacionales o del gobierno tenían suficientes capacidades)
- Availability of specific technical consultancy expertise (Disponibilidad de consultores técnicos específicos)
- Adequate contracting and procurement procedures (procedimientos de contratación y compra adecuados)

10. To what extent do you agree with the following statements related to the project design? (¿En qué medida está de acuerdo con las afirmaciones abajo sobre el diseño del proyecto?) Please use the following criteria for each question:

Completely agree/Somewhat agree/Do not agree/Don't know

- Project was well designed (El proyecto estaba bien diseñado)
- Project coherent in its approach (El proyecto fue coherente en su enfoque)
- Project had good linkages between inputs, outputs, outcomes and impact (El proyecto tuvo buenas relaciones causa-efecto entre insumos, productos, resultados e impacto)
- Baselines and milestones were properly indicated (Las líneas de base y los hitos estaban bien indicados)
- Monitoring and evaluation systems adhere to SMART (specific, measurable, attainable, relevant and time- bound) principles (Los sistemas de monitoreo y evaluación son SMART (específicos, medibles, realizables, pertinentes y acotados en tiempo)
- Project documents adequately address the policy and legal framework issues (Los documentos del proyecto enfocan los asuntos de política y marco legal)
- Project documents adequately address the institutional and technical capacity issues (Los documentos del proyecto enfocan adecuadamente los asuntos institucionales y técnicos)

11. To what extent you agree about the following statements, related to the UNIDO added value through? (¿En qué medida está de acuerdo con las siguientes afirmaciones sobre el valor añadido de ONUDI?) Please use the following criteria for each question:

Completely agree/Somewhat agree/Do not agree/Don't know

- Project concept and design (Concepto y diseño del proyecto)
- Project implementation (Implementación del proyecto)
- Local UNIDO representation, if present (Representación local de la ONUDI)
- UNIDO's technical expertise (Expertise técnico de la ONUDI)
- Supervision and monitoring of implementation (Supervisión y monitoreo de la implementación)

12. To what extent do you agree about the following statements, regarding resources (incl. administrative budget or seed funds) to develop, implement and monitor the UNIDO MP

projects? ¿En qué medida está de acuerdo con las afirmaciones siguientes, sobre recursos e implementación de proyectos? Please use the following criteria for each question:

Completely agree/Somewhat agree/Do not agree/No answer

- Administrative budget was sufficient for development/implementation of projects (El presupuesto era suficiente para la implementación de los proyectos)
- Staff is sufficient to develop and prepare projects (El personal era suficiente para diseñar y preparar los proyectos)
- Staff is sufficient to manage/implement projects (el personal era suficiente para gestionar/implementar los proyectos)
- Technical expertise at beneficiaries is sufficient for project development and implementation (El expertise técnico de los beneficiarios fue suficiente)
- There is an adequate monitoring and decision system at beneficiaries to ensure that the project/programme is effectively implemented (Hubo un monitoreo adecuado en los beneficiarios para asegurar que el programa se implementa efectivamente)
- There are sufficient resources at NOUs for adequate supervision of MP projects (Hubo recursos suficientes a nivel de las oficinas nacionales de Ozono para la supervisión adecuada)
- There are sufficient resources to attend trainings for NOUs (management and technical) (Hubo recursos suficientes a nivel de las oficinas nacionales de Ozono para participar en cursos de capacitación)
- There are sufficient resources to attend trainings for beneficiaries (management and technical) (Hubo recursos suficientes a nivel de los beneficiarios para participar en cursos de capacitación)
- There are adequate consultations with national stakeholders (Se dieron las consultas adecuadas con los diferentes actores nacionales)
- There are sufficient resources for dissemination of information about good/bad practices (Hubo suficientes recursos para la divulgación de la información sobre buenas prácticas)
- Adequate availability of qualified national experts (Adecuada disponibilidad de expertos nacionales calificados)

13. To what extent do you agree with the following statements? (¿En qué medida está de acuerdo con las siguientes afirmaciones?) Please use the following criteria for each question:

Completely agree/Somewhat agree/Do not agree/No answer

- UNIDO Field offices have positively contributed to project implementation (Las oficinas o representantes de la ONUDI en los países han contribuido positivamente a la implementación de los proyectos)
 - UNIDO Field offices have positively contributed to project monitoring (Las oficinas o representantes de la ONUDI en los países han contribuido positivamente al monitoreo de los proyectos)
14. Please provide any other comment you wish to add that you may consider relevant. (Por favor indique cualquier otro comentario que considere relevante):

Annex F. Questionnaire for beneficiaries¹⁶

1. Please enter the name of your company/institution (optional)/ Nombre de la empresa o institución:
2. Please indicate your location (Country/City)/ País/Ciudad:
3. Year of establishment of your company/institution/Año de establecimiento de la empresa/institución:
4. What is your type of activity? ¿A qué tipo de actividades se dedica?
 - Services
 - Manufacturing
 - Government institution
 - Other (please specify)
5. Number of employees/ Número de empleados:
 - 1 - 5
 - 6 - 20
 - 21 - 100
 - 101 +
6. How did you first learn about the Montreal Protocol and Multilateral Fund activities? ¿Cómo se enteró de las actividades del Fondo Multilateral del Protocolo de Montreal?
7. When (year) did you first learn about the UNIDO-MP programme? ¿En qué año se enteró de los programas de ONUDI en el área de MP?
8. Which service(s) did you receive or participate in? ¿En qué tipo de servicios/areas de proyectos de MP ha participado?
9. How often have you received visits or met the National Ozone Unit (NOU) staff? ¿Con qué frecuencia ha recibido visita del personal de la Oficina Nacional de Ozono – NOU?
10. How often have you received visits or met the UNIDO project manager? ¿Con qué frecuencia ha recibido visita del project manager de ONUDI?
 - 1-2 times per year
 - 3-6 times per year
 - More than 6 times per year
 - Other (please specify)
11. How often have you received visits from Technical Experts(s) of UNIDO? ¿Con qué frecuencia ha recibido visitas de personal técnico de ONUDI?
 - 1-2 times per year
 - 3-6 times per year
 - More than 6 times per year
 - Other (please specify)
12. What has been your experience in the timeliness/delay from the selection until the arrival of the equipment to your premises? ¿Qué experiencia ha tenido en

¹⁶ Excerpt from on-line survey

general con la demora en la entrega de equipamiento?)

- No delay. Received on time as planned.
- Some delay. Less than 3 months.
- Moderate delay. From 3 to 12 months.
- Significant delay. One year or more.
- Other (please specify)

13. What areas of your company have improved thanks to the contribution of the UNIDO MP projects? ¿Qué áreas de su institución han mejorado gracias al apoyo de los proyectos de ONUDI en MP?

- Production
- Processes, maintenance
- Guidelines, safety
- Staff skills
- Investments
- Employment
- Energy savings
- Enterprise competitiveness
- Environmental performance

14. How do you rate the following? ¿Cómo calificaría los siguientes aspectos?

Highly satisfactory/Satisfactory/Moderately satisfactory/Moderately unsatisfactory/Unsatisfactory/Highly unsatisfactory

- UNIDO MP project strategy/approach (Estrategia de los Proyectos ONUDI-MP)
- Professional knowledge of the UNIDO staff assigned to the activities (Nivel de conocimiento técnico/profesional de ONUDI relacionado con los proyectos MP)
- Managerial and technical competencies (Gained by your personnel through UNIDO project) to perform ODS elimination activities? (Competencias de gestión en ODS adquiridas por su institución gracias a los proyectos ONUDI-MP)
- Other (Please specify any relevant aspect)

15. Please indicate the following (Por favor indique los siguientes aspectos):

- Will you be able to continue using the acquired ODS elimination skills? ¿Seguirá utilizando los conocimientos adquiridos para eliminación de ODSs?
- Were facilities established/upgraded for the elimination of ODSs? ¿Mejóro la infraestructura para la eliminación de ODSs?
- Are there other institutions (other than UNIDO) offering similar assistance in your country? ¿Existen otras organizaciones -además de ONUDI- que ofrezca apoyos similares?)

YES/NO

16. How would you rate the assistance received through the project? (¿Cómo calificaría el apoyo recibido de los proyectos ONUDI-MP?)

Highly satisfactory/Satisfactory/Moderately satisfactory/Moderately unsatisfactory/Unsatisfactory/Highly unsatisfactory

What did you appreciate most/least? Please explain:

17. Please provide suggestions, if any, for further improvements and sustainability of UNIDO MP activities. Por favor, indique cualquier sugerencia o área para mejorar futuras actividades de ONUDI/MP.

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