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COMITÉ EJECUTIVO DEL FONDO MULTILATERAL
PARA LA APLICACIÓN DEL
PROTOCOLO DE MONTREAL
Sexagésima novena reunión
Montreal, 15 – 19 de abril de 2013

PROPUESTA DE PROYECTO: REGIÓN DE EUROPA Y ASIA CENTRAL

Este documento consiste en las observaciones y las recomendaciones de la Secretaría del Fondo sobre las siguientes propuestas de proyecto:

Destrucción

- Demostración de una estrategia regional para la gestión y destrucción de desechos de SAO — ONUDI/PNUMA

HOJA DE EVALUACIÓN DE PROYECTO - PROYECTO NO PLURINUAL

REGIÓN DE EUROPA Y ASIA CENTRAL

TÍTULO DEL PROYECTO	**ORGANISMO DE EJECUCIÓN**
Demostración de una estrategia regional para la gestión y destrucción de desechos de SAO	ONUDI/PNUMA

ORGANISMO NACIONAL DE COORDINACIÓN: Dependencias Nacionales del Ozono de Bosnia y Herzegovina, Croacia y Montenegro

DATOS DE CONSUMO MÁS RECIENTES PARA SAO OBJETO DEL PROYECTO

A: DATOS CONFORME AL ARTÍCULO-7 (TONELADAS PAO en 2011)

Anexo I, CFC	0		

B: DATOS SECTORIALES DEL PROGRAMA DE PAÍS (TONELADAS PAO, 2011)

SAO	**Subsector/cantidad**	**Subsector/cantidad**	**Totales**
CFC			0

PLAN ADMINISTRATIVO DEL AÑO EN CURSO: Financiamiento total: 374 915 $EUA Eliminación total 40,0 toneladas PAO

TÍTULO DEL PROYECTO

USO DEL SAO EN LA EMPRESA		n/c
SAO POR ELIMINAR-SAO POR AGREGAR		n/c
PROYECTO EN PLAN ADMINISTRATIVO ACTUAL		Sí
SECTOR		Desechos de SAO
SUBSECTOR		Sector de servicios de refrigeración
IMPACTO DE PROYECTO		14,54 toneladas PAO
DURACIÓN DEL PROYECTO		24 meses
PROPIEDAD LOCAL		100%
COMPONENTE DE EXPORTACIÓN		%
DONACIÓN PEDIDA DEL FML ONUDI PNUMA	$EUA	364 480 274 480 90 000
COSTOS DE APOYO DEL ORGANISMO DE EJECUCIÓN		
ONUDI (7%) PNUMA (13%)	$EUA $EUA	19 214 11 700
COSTO TOTAL DEL PROYECTO PARA EL MLF	$EUA	395 394
RELACIÓN DE COSTO A EFICACIA	$EUA/kg	12,54
HITOS DE SUPERVISIÓN DEL PROYECTO		Incluidos

RECOMENDACIÓN DE LA SECRETARÍA:	Para consideración individual

DESCRIPCIÓN DEL PROYECTO

1. En nombre de los gobiernos de Bosnia y Herzegovina, Croacia y Montenegro, la ONUDI, en calidad de organismo de ejecución principal, presentó a la 69ª reunión una propuesta de proyecto para un proyecto de demostración experimental regional sobre la gestión y destrucción de desechos de las sustancias que agotan la capa de ozono (SAO), por un costo total de 542 154 $EUA, más los costos de apoyo del organismo de 27 102 $EUA, para la ONUDI, y de 20 147 $EUA, para el PNUMA, según lo presentado originalmente.

Antecedentes

2. En la 65ª reunión, el Comité Ejecutivo examinó pedidos para preparación de proyectos para el desarrollo de una estrategia destinada a SAO y a aplicarse en cuatro países de bajo consumo en la región de Europa y de Asia Central (Bosnia y Herzegovina, Croacia, Montenegro y Turkmenistán), presentado en común por el gobierno de la República Checa (cooperación bilateral) y la ONUDI. Durante las deliberaciones sobre el proyecto, se observó *inter alia* que la cantidad de información detallada disponible para estudiar el proyecto era insuficiente, no cumplía con los requisitos de la decisión 58/19, y el volumen de SAO por destruir no quedaba muy claro para los cuatro países. No obstante, el proyecto representó la primera actividad regional de destrucción de SAO y serviría como ejemplo interesante para otros países de bajo consumo. Posteriormente, el Comité decidió aprobar la propuesta de proyecto en el nivel de financiamiento de 70 000 $EUA, más los costos de apoyo del organismo de 4 550 $EUA, para el gobierno de la República Checa, y de 2 625 $EUA, para la ONUDI, a condición de que, al presentar el proyecto de demostración completo, se proporcionase la información exigida por la decisión 58/19 (decisiones 65/14 a) y 65/15).

3. Durante la etapa de preparación del proyecto, el gobierno de Turkmenistán retiró su participación del proyecto pues no podría cumplir con las directrices establecidas bajo la decisión 58/19.

Descripción del proyecto

4. El objetivo del proyecto es demostrar que un enfoque regional puede ser una solución eficaz en función de los costos y sostenible para la eliminación de desechos de SAO, especialmente en países de bajo consumo, donde las cantidades de SAO recolectadas por lo general son insuficientes para establecer instalaciones locales de eliminación. En esas circunstancias, los desechos de SAO se exportan de ordinario para su destrucción con costos fijos y de gestión muy elevados.

Cantidad de desechos de SAO

5. Los sistemas actuales de recolección de desechos en Bosnia y Herzegovina, Croacia y Montenegro se encuentran en diversas etapas de desarrollo: Croacia tiene un sistema avanzado de recolección con una acumulación constante de 10 toneladas métricas de desechos de SAO por año. Bosnia y Herzegovina no cuenta con un sistema institucionalizado de recolección de desechos, pero está en una etapa avanzada del establecimiento de lineamientos de recuperación y reciclado (como componente del plan de gestión de eliminación de los HCFC, ejecutado con el apoyo de la ONUDI). Montenegro tiene un sistema de recolección, que se encuentra en una primera etapa de su desarrollo.

6. Con el fin de alcanzar este objetivo, el proyecto regional propone la destrucción de 43,22 tm de desechos de SAO (19 271 tm ya se han recolectado y 23 950 tm se recolectarán durante los dos años de ejecución del proyecto), como se indica en el Cuadro 1.

Cuadro 1: Cantidades estimadas de desechos de SAO que se destruirán durante el proyecto

País	Cantidad de SAO (tm)					
	CFC-11	**CFC-12**	**Mezclas**	**HCFC-141b**	**MB***	**Total**
Ya recolectadas						
Croacia		5,772	7,249		0,395	13,416
Bosnia y Herzegovina		0,095				0,095
Montenegro				5,760		5,760
Total (de recolección)	-	5,867	7,249	5,760 **	0,395	19,271
Por recolectar						
Croacia			23,000			23,000
Bosnia y Herzegovina	0,400					0,400
Montenegro	0,440	0,110				0,550
Total (de recolección)	0,840	0,110	23,000	-	-	23,950
Total general	0,840	5,977	30,249	5,760	0,395	43,221

(*) Metilbromuro.
(**) Esta cantidad fue comprada por una compañía que anteriormente había convertido al pentano sus operaciones con espumas y posteriormente se había cerrado sin usar el HCFC-141b que ya había importado.

Actividades del proyecto

7. Las actividades específicas que se ejecutarán bajo este proyecto se dividen en cuatro componentes:

a) Componente 1: Agregación de los desechos de SAO en los niveles nacionales, inclusive la identificación y la selección de instalaciones para controlar las existencias nacionales de desechos de SAO, suministro de equipos (bombonas ISO) y asistencia técnica para el análisis de la composición de existencias de desechos de SAO, y la preparación de la documentación necesaria;

b) Componente 2: Transporte y destrucción de desechos de SAO, inclusive la evaluación de los medios óptimos para trasladar los desechos de SAO a una instalación que se encuentre dentro de la Unión Europea, dado que ninguno de los países cuenta con instalaciones de destrucción de SAO, para cada uno de los tres embarques programados, teniendo en cuenta los requisitos del Convenio de Basilea. Se estudiaron dos opciones de destrucción, a saber: cargar los desechos agregados de SAO de tres países en un vehículo de transporte; e identificar a dueños locales de desechos peligrosos, como agentes contaminantes orgánicos persistentes que deseasen cotransportar dichos desechos con los agregados de SAO del proyecto. Se expedirá un certificado que declare la cantidad de desechos de SAO que fueron destruidos;

c) Componente 3: Establecimiento de un foro de cooperación regional para la destrucción de SAO, para compartir experiencias, proporcionar capacitación y pericia y organizar operaciones comunes de destrucción de SAO entre los tres países. Se espera que el proyecto proporcione apoyo institucional y desarrolle la capacidad apropiada de los recursos técnicos y humanos para la gestión de SAO, como la agregación, el almacenamiento y la destrucción de dichas sustancias; y

d) Componente 4: Concientización, capacitación y supervisión del proyecto. Para asegurar que los desechos de SAO recolectados y destruidos se justifiquen correctamente, el proceso se supervisará meticulosamente cerca y se registrarán los datos (se creará un sistema de control en cada país y se consolidará a partir de una perspectiva regional).

8. En el Anexo I de este documento se incluye un resumen de los antecedentes de los tres países participantes en la recolección y el manejo de desechos de SAO.

Convenio de Estocolmo

9. Al ejecutar el proyecto experimental, la atención también se concentrará en el hecho de que los tres países son Partes en el Convenio de Estocolmo. Croacia ya ha finalizado su plan de ejecución nacional requerido en virtud del Artículo 7 del Convenio de Estocolmo, que había indicado una cantidad considerable de existencia de contaminantes orgánicos persistentes (especialmente bifeniles policlorados (PCB)). Bosnia y Herzegovina y Montenegro desarrollan sus planes de ejecución donde se identificaron bifeniles policlorados. Esto es importante, dado que el proyecto propone investigar el establecimiento/ fortalecimiento común y provisional de arreglos para el almacenamiento de SAO, y organizar operaciones conjuntas/comunes de destrucción de dichas sustancias.

Supervisión y verificación de la destrucción

10. Como se menciona en el apartado 7 anterior, después de la destrucción de cada lote de desechos de SAO, las instalaciones de destrucción expedirán un certificado que detalla la cantidad de SAO que se ha destruido. Para asegurar que todos los desechos de SAO se justifican correctamente, el proceso se supervisará minuciosamente y se registrarán los datos. En cada país se iniciará un sistema de supervisión y se consolidará también a partir de una perspectiva regional. No hay riesgo de que haya volúmenes inflados o de existencias inadmisibles, dado que no hay instalaciones de producción en ninguno de estos tres países.

Gestión financiera del proyecto

11. La estrategia financiera y de gestión del proyecto se basa en un enfoque de cooperación regional para la destrucción armonizada de SAO. El proyecto se propone armonizar esfuerzos nacionales de agregación entre los países participantes para optimizar la cantidad de desechos que se envían para su destrucción. Demostrará que los precios de destrucción de SAO podrían reducirse considerablemente si las cantidades son grandes, o podrían enviarse conjuntamente a la instalación de destrucción junto con otros contaminantes orgánicos persistentes. Se diseñará un sistema financiero a partir de los resultados de proyecto, que abordará los desechos acumulados recientemente para su eliminación futura sin depender de fuentes de financiamiento externas. El financiamiento del Fondo Multilateral cubrirá los costos de destrucción de los desechos de SAO actualmente disponibles, exportándolos a una instalación acreditada para este fin y situada en la Unión Europea. Se suministrará financiamiento adicional proveniente de socios de los tres países, lo que constituye una cierta forma de cofinanciamiento.

Costo del proyecto

12. El financiamiento total pedido para el proyecto se calculó en 542 154 $EUA, como se indica en el Cuadro 2.

Cuadro 2: Costo propuesto del proyecto

Descripción	**Costo ($EUA)**		
	FML	**Cofinan-ciamiento**	**Total**
Componente 1			
Esfuerzos nacionales de recolección, contribución proveniente de centros de recuperación y reciclado	-	259 324	259 324
Bombonas ISO de 950 litros para agregación, con certificado de	69 000	-	69 000

Descripción	Costo ($EUA)		
	FML	Cofinan-ciamiento	Total
seguridad			
Bombonas ISO de 200 litros para agregación, con certificado de seguridad	3 400	-	3 400
Alquiler de los contenedores ISO para transporte internacional	18 000	-	18 000
Herramientas y equipos para agregación	8 400	-	8 400
Transporte nacional para agregación	2 620	-	2 620
Costos de recursos humanos para agregación de existencias en los centros nacionales de recuperación y reciclado	24 000	-	24 000
Pruebas de existencias antes de la exportación	5 000	-	5 000
Documentación, etiquetado	3 000	-	3 000
Imprevistos (5 por ciento)	3 221	-	3 221
Subtotal del Componente	136 641	259 324	395 965
Componente 2			
Transporte a la instalación de destrucción, con rastreo por GPS y seguro (tres embarques)	18 000	-	18 000
Purificación y prueba de las cisternas ISO en la instalación de destrucción	4 500	-	4 500
Destrucción	216 103	-	216 103
Imprevistos (5 por ciento)	11 930	-	11 930
Subtotal del Componente 2	250 533	-	250 533
Componente 3			
Establecimiento del foro de cooperación regional inclusive sus tres talleres	45 000	-	45 000
Estudio de caso para la difusión de los resultados del proyecto en otros países al amparo del Artículo 5.	20 000	-	20 000
Imprevistos (5 por ciento)	3 250	-	3 250
Subtotal del Componente 3	68 250	-	68 250
Componente 4			
Capacitación en mitigación de riesgos y laboratorio para los centros nacionales de recuperación y reciclado	10 000	7 000	17 000
Cursos de capacitación locales en Bosnia y Herzegovina y Montenegro para difundir experiencias del sistema croata de recuperación y reciclado	10 000	3 000	13 000
Desarrollo y ejecución de un concepto para un programa conjunto de establecimiento de inventario, recolección, destrucción de SAO-contaminantes orgánicos persistentes, y concientización	5 000	6 000	11 000
Inspecciones reglamentarias intensificadas para la gestión de SAO	6 600	10 800	17 400
Gestión, coordinación y supervisión de la ejecución de proyecto	51 000	35 000	86 000
Imprevistos (5 por ciento)	4 130	-	4 130
Subtotal del Componente 4	86 730	61 800	148 530
Total general	**542 154**	**321 124**	**863 278**

OBSERVACIONES Y RECOMENDACIÓN DE LA SECRETARÍA

OBSERVACIONES

Decisiones pertinentes sobre la destrucción de SAO

13. La Secretaría hizo amplios comentarios y observaciones respecto al proyecto presentado, basado en las decisiones siguientes:

a) Las directrices provisionales para el financiamiento de los proyectos de demostración para la destrucción de SAO, de acuerdo con el apartado 2 de la decisión XX/7 de la vigésima reunión de las Partes[1] (decisión 58/19);

b) Ventana establecida para la destrucción de SAO para los países de bajo consumo, conforme a la decisión XXI/2 de la vigésimo primera reunión de las Partes, por un monto de tres millones $EUA (decisión 63/5 c)); y

c) Condición dada por el Comité al aprobar el financiamiento para la preparación del proyecto que indica que, al presentar el proyecto de demostración completo, se proporcionaría la información necesaria conforme a la decisión 58/19 (decisiones 65/14 a) y 65/15).

14. De acuerdo con un examen inicial, la Secretaría tomó nota de que la información provista en la propuesta no cumplió con todos los requisitos de la decisión 58/19 y deliberó largamente con la ONUDI y el PNUMA sobre los detalles del proyecto.

Recolección de desechos de SAO y cantidades

15. Al deliberar sobre los esfuerzos y programas actuales de recolección de SAO que están en una etapa avanzada de creación y con qué actividades de este proyecto se relacionarían, la Secretaría tomó nota de que de los tres países, sólo Croacia tiene un sistema bien documentado de recolección mientras que los otros dos países carecen de una organización institucionalizada. Aun reconociendo que los sistemas de recolección de Bosnia y Herzegovina y de Montenegro no coinciden completamente con las directrices, la ONUDI puso de relieve que durante la preparación del proyecto se había avanzado para acercar a los países lo más posible a los requisitos de las directrices. La ONUDI reconoció además que se había anticipado que esos dos países tendrían dificultades en cumplir con las directrices de la decisión 58/19, especialmente en lo que respecta al establecimiento de un sistema de recolección avanzado, ya que tenían pocas cantidades de desechos debido a su pequeño nivel de consumo. No obstante, ambos países habían hecho esfuerzos para asegurar que un sistema de recolección se implantase en este momento, aunque dicho sistema fuese simple. La ONUDI reiteró además el compromiso de los gobiernos de ambos países en asegurar que el sistema de recolección funcionaría plenamente cuando se terminase el proyecto, asegurando de este modo la sustentabilidad de las actividades de destrucción de SAO.

16. La Secretaría también recordó a ambos organismos la situación específica de Croacia, que actualmente es un país al amparo del Artículo 5, pero que apenas está terminando el proceso de adhesión para convertirse en el 28º Estado Miembro de la Unión Europea, programado para fines de junio de 2013

[1] La decisión XX/7 afirma que los proyectos experimentales podrían abarcar la recolección, transporte, almacenamiento y destrucción de SAO, concentrándose en las existencias con alto potencial neto de calentamiento atmosférico, y en una muestra representativa de diversos países al amparo del Artículo 5 en forma regional.

(esta cuestión se planteó inicialmente durante la preparación del proyecto). Esta situación es importante pues probablemente afecte la cantidad de desechos admisibles para el proyecto total, observando que Croacia representa más del 90 por ciento del total de los desechos de SAO que se destruirán. En consecuencia, la Secretaría había sugerido que en Croacia se ajustase la cantidad de desechos admisibles de SAO para destrucción para reducirla para la fecha en que se llevase a cabo la adhesión a la Unión Europea.

17. Asimismo la Secretaría manifestó ciertas reservas con respecto a los desechos estimados de SAO que se recolectarían durante el periodo de ejecución del proyecto para Croacia, que alcanzarían 23,0 tm, y trató de aclarar esto sobre la base de este cálculo tomando en consideración lo siguiente:

a) Que la propuesta de proyecto no proporcionó la información sobre los equipos básicos que serían la fuente de futuros flujos de desechos de SAO para Croacia; y

b) Que en su Plan de gestión de eliminación de los HCFC para eliminación acelerada en 2016, aprobado en la 61ª reunión, el gobierno de Croacia había indicado la existencia de una legislación nacional que ordenaba la adaptación de equipos que utilizaban CFC para cumplir un plazo de enero de 2011 de no utilizar más los CFC en el país.

18. La ONUDI explicó que no era posible conseguir datos sobre la cantidad de equipos que utilizan CFC en el país, y reconoció que las cantidades indicadas en el Cuadro 1 antedicho se basaron en cálculos hechos por un experto, utilizando los esfuerzos de recopilación reales a provenientes de un gran centro de recuperación y reciclado lo que representa la mayoría de los desechos de SAO ya recolectados. Asimismo el experto también tomó en consideración el hecho de que hay dos otros centros de recuperación y reciclado que se establecieron recientemente con capacidad casi similar al primero y, por lo tanto, las cantidades que se recolectarían en el futuro podrían extrapolarse a partir de los esfuerzos de recolección actuales.

19. Con respecto a la cuestión de la legislación nacional y cómo ésta afecta los cálculos de desechos de SAO, la ONUDI indicó que la información proporcionada por el gobierno de Croacia indica que, en realidad, desde el 1 de enero de 2011, el Ministerio de Medio Ambiente podría asegurar sólo la aplicación de esta legislación para un pequeño subsegmento de equipos que utilizan CFC, compuesto principalmente de los equipos que funcionan en las instalaciones de gobierno. No fue posible que el Ministerio asegurarse que los equipos todavía en funcionamiento que utilizan CFC se hubieran adaptado a las alternativas sin esas sustancias. Esto explicó por qué todavía había un número de electrodomésticos que utilizaban CFC y que sólo entrarían en el flujo de desechos al final de su vida útil cuando alcanzarán los centros de recuperación y reciclado. Ésta fue la base para estimar las cantidades de desechos de SAO que se generarían en Croacia para el período de ejecución del proyecto.

20. De acuerdo con la explicación proporcionada por la ONUDI, que también se aplica al cálculo de desechos de SAO en Bosnia y Herzegovina y Montenegro, la Secretaría tomó nota de que no sería posible tener una base clara para los futuros desechos que se recolectarían para el proyecto. Por lo tanto, se acordó en principio una cantidad reducida de desechos de SAO que se recolectará y destruirá a condición de que una verificación realizada al final del proyecto permitiese que se devolviesen fondos en caso de que el nivel comprometido para destrucción no se hubiera alcanzado.

21. Con respecto a las cantidades de desechos de SAO que el proyecto manejaría, particularmente la inclusión de unas 5,8 tm de HCFC-141b a granel para Montenegro, y 0,4 tm de metilbromuro para Croacia, la Secretaría tomó nota de que a menos que hubiera una razón legal que impidiese la reexportación de estas dos SAO, esa cantidad no podría destruirse dado que las SAO son todavía útiles y pueden venderse en el exterior del país. La ONUDI indicó que desconocía que hubiese una legislación

nacional prohibiendo la reexportación de esta sustancia, y acordó sacarla del flujo de desechos que manejará el proyecto. La ONUDI también incluyó 280 kilogramos más de CFC-11 en los desechos ya recolectados de Montenegro sobre la base de la información actualizada provista por el país.

22. Conforme a las deliberaciones antedichas, la cantidad estimada de desechos que manejaría el proyecto se ajustó a 29,07 tm, como se indica en el Cuadro 3.

Cuadro 3: Cantidades revisadas de desechos de SAO que se destruirán durante el proyecto

País	Cantidad de SAO (tm)			
	CFC-11	**CFC-12**	**Mezclas**	**Total**
Ya recolectadas				
Croacia		5,772	7,249	13,021
Bosnia y Herzegovina		0,095		0,095
Montenegro	0,280			0,280
Total (de recolección)		5,867	7,249	13,396
Por recolectar				
Croacia			15,000	15,000
Bosnia y Herzegovina	0,400			0,400
Montenegro	0,160	0,110		0,270
Total (de recolección)	0,560	0,110	15,000	15,670
Total general	0,840	5,977	22,249	29,066

Cuestiones sobre las actividades propuestas

23. La Secretaría pidió varias aclaraciones sobre las actividades específicas propuestas. Particularmente, pidió detalles sobre la agregación de los desechos de SAO, de qué manera se transportarían a la instalación seleccionada y cómo esto optimizaría los costos de transporte. La ONUDI explicó que los dos países con flujos de desechos de SAO más pequeños los mandarían a una instalación de almacenamiento situada en Croacia; de allí se transferirían a una cisterna más grande y se transportaría al sitio de destrucción. Para optimizar los costos de transporte, la selección de las instalaciones de destrucción se limitará a aquéllas situadas a no más de 1 500 kilómetros de distancia de Zabok, Croacia.

24. Con respecto a la operación y a la funcionalidad del foro de cooperación regional, la Secretaría buscó pidió una aclaración sobre el grado en que el enfoque del proyecto era regional, tomando en consideración que sólo participaban tres países. La ONUDI, en nombre del PNUMA, indicó que el foro de cooperación regional se ampliará para incluir otros países, una vez que se hubiesen terminado los resultados del proyecto experimental. Asimismo explicó que dado que los dos países más pequeños necesitarían más asistencia técnica a lo largo de la duración del proyecto, este foro también les permitiría aprender de las experiencias de Croacia. Además, se prevé que el foro sirva de plataforma regular para el intercambio de información que muestre otros esfuerzos de destrucción en la región. Esto se coordinará de cerca con la operación de los oficiales de las SAO de la red regional de Europa y Asia.

25. Con respecto a las sinergias y enlaces con el Convenio de Estocolmo y la preparación de los Planes nacionales de ejecución de los países en cuestión, la Secretaría preguntó de qué manera esto facilitaría más la recolección y destrucción de desechos de SAO. La ONUDI explicó que la idea de sinergias podría ligarse con la labor institucional actual para el Protocolo de Montreal y el Convenio de Estocolmo, que ayudaría a ejecutarse de manera más eficaz. La ONUDI reiteró el firme compromiso de los tres gobiernos de los países participantes de asegurar que en sus países existan arreglos institucionales para consolidar tales sinergias.

Cuestiones relativas a los costos

26. La Secretaría tomó nota de que el costo del proyecto, tal como se presentó era de 12,54 $EUA/kg, lo cual era inferior al monto previsto en la decisión 58/19, 13,2 $EUA/kg. La ONUDI indicó que esa relación de costo a eficacia más baja era posible debido a la manera en que se ha diseñado el proyecto y que éste era un aspecto que se demostraría en el proyecto general.

27. Se acordó que el costo final del proyecto para el Fondo Multilateral era de 364 480 $EUA, compuesto de 274 480 $EUA, para la ONUDI, y 90 000 $EUA, para el PNUMA, más los costos de apoyo del organismo. La propuesta identificó otros 238 560 $EUA como fondos de cofinanciamiento, como se indica en el Cuadro 4:

Cuadro 4: Costo final propuesto del proyecto experimental de destrucción de SAO en la región de Europa y Asia Central

Componente	**Costo ($EUA)**			
	FML		**Cofinancia-miento**	**Costo total**
	ONUDI	PNUMA		
Agregación en los niveles nacionales	93 240		176 760	270 000
Transporte internacional y destrucción	166 240		-	166 240
Foro de Cooperación Regional		56 175	-	56 175
Concientización, capacitación y supervisión	15 000	33 825	61 800	110 625
Subtotales	274 480	90 000	238 560	
TOTAL		**364 480**	**238 560**	**603 040**

Propuesta de proyecto revisada

28. La ONUDI y el PNUMA tuvieron en cuenta las observaciones y sugerencias hechas por la Secretaría, y presentaron una propuesta de proyecto revisada, que se adjunta al presente documento.

RECOMENDACIÓN

29. El Comité Ejecutivo podría:

a) Tomar nota con beneplácito de la presentación de los gobiernos de Bosnia y Herzegovina, Croacia y Montenegro sobre un proyecto experimental regional de gestión y destrucción de desechos de SAO para la región de Europa y de Asia Central destinado a destruir un total de 29,07 toneladas métricas de desechos de SAO;

b) Aprobar o no la ejecución del proyecto regional para la gestión y destrucción de desechos de SAO de la región de Europa y Asia Central para la destrucción de 29,07 toneladas métricas de SAO, por un monto total de 395 394 $EUA, que comprende 274 480 $EUA, más costos de apoyo de 19 214 $EUA, para la ONUDI, y 90 000 $EUA, más costos de apoyo de 11 700 $EUA, para el PNUMA, observando que la aprobación es a condición de que:

i) No haya otros fondos disponibles para Bosnia y Herzegovina, Croacia y Montenegro para ningún otro proyecto futuro de destrucción de SAO;

ii) La ONUDI y el PNUMA presentasen a la 73ª reunión un informe general con la información actualizada de las cantidades reales de desechos de SAO recolectadas, por sustancia, partir de la fecha de aprobación del proyecto;

iii) La ONUDI y el PNUMA presentasen un informe al Comité Ejecutivo al terminar el proyecto y no después de la última reunión de 2015, suministrando información sobre las cantidades verificadas de desechos de SAO que se destruyeron durante el proyecto, teniendo en cuenta de que si las cantidades informadas de SAO destruidas no eran iguales a las aprobadas en el subpárrafo ii) anterior, los fondos correspondiente al tonelaje no destruido se devolverían al Fondo Multilateral, calculados al 12,54 $EUA/kg;

iv) Toda comercialización de reducciones de emisiones de gases de efecto invernadero generadas por el proyecto o asociadas con el mismo se sujetaría a una decisión del Comité Ejecutivo; y

c) Pedir a los gobiernos de Bosnia y Herzegovina, Croacia y Montenegro, a través de la ONUDI y el PNUMA, que establezcan un sistema de supervisión para la operación y las actividades relacionadas con el proyecto de demostración de destrucción de SAO, y pedir a la ONUDI que informe al respecto al Comité Ejecutivo al finalizar el proyecto en 2015, asegurando que no se habían comercializado las reducciones de emisiones de gases de efecto invernadero.

Anexo I

Anexo I

Panorama de la situación de los países participantes

Área	País		
	Croacia	**Bosnia y Herzegovina**	**Montenegro**
Medidas para recuperación de SAO	• SAO contenidas en todo equipo deben ser recolectadas durante el mantenimiento, servicio o la puesta fuera de servicio por empresas registradas o técnicos de servicio. • Los técnicos de servicio acreditados tienen que documentar las cantidades recolectadas de SAO y gases fluorados recuperados/reciclados. • Se pide a los técnicos de servicio que despachen las cantidades recolectadas de SAO en bombonas reutilizables etiquetadas a los centros de recuperación y reciclado. • Los centros transfieren las SAO y/o gases fluorados a bombonas de almacenamiento adecuadas y devuelven las reutilizables a los técnicos de servicio. Los centros expiden un certificado con la cantidad recibida de SAO y/o gases fluorados. • Se permite a las compañías acreditadas recuperar el refrigerante de equipos usados y entregarlo a los centros locales de recuperación y reciclado. • En 2008 se suministró a los centros de recuperación y reciclado herramientas y equipos de recuperación para una buena recuperación de refrigerantes desde el punto de vista ambiental. •	• Se ha preparado los requisitos de funcionamiento de los centros de recuperación y reciclado, y se planea establecer centros móviles de recuperación y reciclado. • Se han establecido centros de capacitación para técnicos de servicio y se ha llevado a cabo la capacitación de instructores. • Se han establecido y acordado los términos de referencia para los equipos de recuperación y reciclado.	• Las SAO deben recuperarse durante el servicio, reparación o al menos antes de su destrucción, y tienen que recolectarse en un envase sellado. • Los talleres de servicio que recibieron equipos del Organismo de protección del medio ambiente/Dependencia Nacional del Ozono tienen la obligación de almacenar los refrigerantes recuperados bajo condiciones adecuadas, hasta que se tome la decisión de su destrucción. • El país identificó la compañía Hemosan Company d.o.o. Bar como la única empresa autorizada para la recolección y transporte de los desechos de SAO en el país

Área	País		
	Croacia	**Bosnia y Herzegovina**	**Montenegro**
Lineamientos de incentivos para recuperación de SAO	• Los centros de recuperación y reciclado pagan 1,00 HRK/kg (0,17 $EUA/kg) de refrigerantes recolectados a los técnicos de servicio que los trajeron al centro de recuperación y reciclado independientemente de la calidad del refrigerante. • Los importadores de las nuevas SAO y/o gases fluorados pagan un honorario de importación de 3,00 HRK por kilogramo (0,51 $EUA/kg) de SAO/gases fluorados importados que se coloquen en el mercado nacional. • Las tarifas del importador van al Fondo de Protección del Medio Ambiente y de Rendimiento Energético.	• Durante el proyecto, Bosnia y Herzegovina investigará la posibilidad para introducir este mecanismo. • Se ha formado un grupo de trabajo para investigar las legislaciones existentes sobre las SAO y para proponer lineamientos para su adopción.	• Montenegro también explorará el desarrollo de lineamientos de incentivos para la recuperación y reciclado de SAO en el país, aprovechando las lecciones aprendidas en la interacción con Croacia.
Gestión, transporte e importaciones de desechos de SAO	• Los desechos de SAO se tratan como desechos peligrosos • La gestión y el transporte de desechos peligrosos requiere una licencia. • El movimiento de desechos peligrosos dentro y fuera de las fronteras se hace conforme al Acuerdo Europeo sobre el Transporte Internacional de Mercaderías Peligrosas por Carretera (ADR, por su sigla en inglés). • La exportación de desechos peligrosos es controlada por el Ministerio de Protección Ambiental y de la Naturaleza según el Convenio de Basilea. • En Croacia se prohíbe la	• Los desechos de SAO se clasifican como desechos peligrosos. • Disposiciones específicas sobre gestión de los desechos de SAO bajo el sistema de supervisión y control para la gestión dentro del país de las SAO y de los equipos que contienen esas sustancias. • Procedimientos y responsabilidades de los dueños de equipos que contienen SAO, inclusive la destrucción de desechos con SAO. • Disposiciones específicas sobre	• Los desechos de SAO se clasifican como desechos peligrosos. • El Organismo de protección del medio ambiente expide permisos para la recolección y el transporte de los desechos de SAO; los autorizados están obligados a enviar informes al Organismo de protección del medio ambiente sobre las cantidades de desechos almacenadas • El marco reglamentario estipula las infraestructuras y los recursos humanos necesarios para la recolección, envasado,

Área	País		
	Croacia	**Bosnia y Herzegovina**	**Montenegro**
	importación de desechos peligrosos.	desechos de SAO con respecto a los procedimientos para la gestión de equipos que contienen SAO y requisitos de notificación.	etiquetado y transporte de desechos peligrosos, inclusive las medidas preventivas y protectoras (conforme al ADR). • La exportación y el tránsito de desechos peligrosos se pueden realizar sólo en base de un permiso expedido por el Organismo de protección del medio ambiente de acuerdo con el procedimiento especificado por el Convenio de Basilea.
Instalaciones de destrucción de SAO en el país	• Ninguna.	• Ninguna.	• Ninguna.
Medidas específicas del país sobre la gestión de contaminantes orgánicos persistentes	• El plan nacional de ejecución estipula que los dueños de bifenilos policlorados deberían eliminar gradualmente los equipos que contienen dichas sustancias. • El plazo para el almacenamiento provisional de bifenilos policlorados, desechos de los mismos o los equipos que contuviesen bifenilos policlorados se ha limitado a dos años antes de la destrucción, descontaminación o reciclado y/o eliminación definitiva • La ONUDI proyecta: -posibilitar actividades para facilitar la intervención temprana de la aplicación del Convenio de Estocolmo sobre	• El FMAM ha aprobado un proyecto concentrado en posibilitar actividades para el desarrollo del plan nacional de ejecución. • Inventario nacional para evaluar bifenilos policlorados que se emprenderá durante el proceso de desarrollo del plan nacional de ejecución. • El Ministerio de Comercio Exterior y Relaciones Económicas es el centro de coordinación para el Convenio de Estocolmo y el Protocolo de Montreal • La ONUDI proyecta: - posibilitar las	• El plan nacional de ejecución todavía está en su fase de desarrollo y la recopilación de datos se está llevando a cabo (fecha de adopción prevista: marzo de 2013).

Área	País		
	Croacia	**Bosnia y Herzegovina**	**Montenegro**
	contaminantes orgánicos persistentes; - Gestión y eliminación de bifenilos policlorados del sector eléctrico en la República de Croacia	actividades para facilitar la intervención temprana de la Aplicación del Convenio de Estocolmo sobre contaminantes orgánicos persistentes.	

MULTILATERAL FUND FOR THE IMPLEMENTATION OF THE MONTREAL PROTOCOL ON SUBSTANCES THAT DEPLETE THE OZONE LAYER			
PROJECT COVER SHEET			
REGION	Europe and Central Asia (ECA)	**IMPLEMENTING AGENCIES**	UNIDO (lead) UNEP
COUNTRIES	Bosnia and Herzegovina Croatia Montenegro		
PROJECT TITLE	Demonstration of a Regional Strategy for ODS Waste Management and Disposal in the ECA Region		
PROJECT IN CURRENT BUSINESS PROGRAMME		Yes	
SECTOR		ODS destruction	
SUB-SECTORS		Refrigeration and Air Conditioning sub-sector	

ODS DESTROYED	CFC-11	0.84	Metric tonnes
	CFC-12	5.98	Metric tonnes
	Mixed CFC-11 and CFC-12	22.25	Metric tonnes
	Total	29.07	Metric tonnes
		29.07	ODP tonnes
PROJECT IMPACT	Net ODP value per annum	14.54	ODP tonnes
	Annual emissions (CO_2 equivalent)	96,626	tonnes CO_2e
PROJECT DURATION – Demonstration Project			24 months
PROJECT COSTS	Incremental Capital Costs	US$	490,690
	Contingencies	US$	17,350
	Incremental Operating Costs	US$	
	Policy and Management Support	US$	95,000
	Total Project Costs	US$	603,040
LOCAL OWNERSHIP			100%
EXPORT COMPONENT			0%
REQUESTED MLF GRANT	UNIDO	US$	274,480
	UNEP	US$	90,000
	TOTAL	US$	364,480
COST EFFECTIVENESS		US$/kg	12.54
IMPLEMENTING AGENCY SUPPORT COSTS	UNIDO (7%)	US$	19,214
	UNEP (13%)	US$	11,700
	TOTAL	US$	30,914
TOTAL COST OF PROJECT TO THE MULTILATERAL FUND		US$	395,394
STATUS OF COUNTERPART FUNDING		Committed – Provided by project participants to support project activities as detailed in Project Document	
PROJECT MONITORING MILESTONES (Y/N)		Y	
NATIONAL COORDINATING BODIES		National Ozone Units of the participating countries	

Project summary:

UNEP and UNIDO, on behalf of the Governments of Bosnia and Herzegovina, the Republic of Croatia, and Montenegro, are submitting the project document "Demonstration of a Regional Strategy for ODS Waste Management and Disposal in the ECA Region" to the 69th Meeting of the Executive Committee.

The main objective of the project is to demonstrate that a regional approach can be a cost efficient and sustainable solution for ODS waste disposal in the ECA Region, particularly in LVCs like the ones participating in this project. In these countries, the amounts of collected ODS are usually not high enough for the establishment of local disposal facilities. Facing limited options for ODS disposal, the most common of which is export for disposal, these countries face very high management and overhead costs for ODS waste disposal.

In order to achieve this objective, the project will cover the disposal of **29.07 metric tonnes of ODS waste** over a period of two years. The amount of ODS waste to be destroyed consists of 0.84 tonnes of CFC-11; 5.98 tonnes of CFC-12; and 22.25 tonnes of CFC-11 and CFC-12 mixtures. This amount of ODS waste has already been collected or will be available during the implementation period as a result of well-documented on-going collection initiatives.

This demonstration project provides a unique opportunity to set up a **destruction strategy** that will allow countries to undertake ODS waste disposal in the long term in line with regulations applied in the European Union, on account of the obvious links between the countries in the ECA Region and the EU. The project strategy consists of four components:

- Component #1 (ODS aggregation at the national level): the project will support identified facilities at each country to aggregate the collected stocks, providing them with the necessary equipment (ISO cylinders) and supporting them in the analysis of the composition of the stocks and preparation of required documentation.
- Component #2 (Transportation and disposal of the ODS stocks in an appropriate licensed destruction facility within the European Union): the project will investigate the optimization of combined ODS waste transport in three shipments to a facility within the European Union, where a certificate declaring the amount of ODS waste destroyed will be issued for each disposal activity.
- Component #3 (Establishment of a Regional Cooperation Forum): the objective is to establish a platform to share experiences, provide trainings and know-how to the participating countries, and to organize common disposal operations. This will allow countries to undertake ODS waste disposal activities in a more cost-efficient way.
- Component #4 (Awareness raising, training and monitoring).

The scope of a regional cooperation scheme such as the one described in this project document can be broadened thematically to cover other chemicals such as POPs, in order to be more resource- and cost-efficient, as well as geographically to cover other interested countries in the ECA Region.

The **demonstration value** of the project goes beyond the three participating countries and can be summarized as follows:

- The project will showcase how a regional approach can significantly increase the cost efficiency by as much as 35% compared to a baseline (country-by-country) scenario, which is a key issue for LVC countries in the ECA Region, but also applies to non-LVC ECA countries;
- The project will develop a strategy aligned with the EU Regulation for ODS waste management, which will be of interest to those countries in the ECA Region which are candidate EU Member States, as well as to countries which, despite not being potential EU Member States, may be interested in aligning their environmental policies with those of the EU;
- The project will develop a concept for joint ODS-POPs inventory, collection, disposal and awareness. Because joint ODS-POPs shipments are more economic for the incinerators, their inclusion in the programme of the regional cooperation forum beyond project completion will significantly contribute to the sustainability of ODS waste destruction activities in the region.

PREPARED BY UNIDO (S. Fejes and M. Caballero) **DATE** 13 March 2013
UNEP (M. Tushishvili)

Project Document

United Nations Industrial Development Organization
United Nations Environment Programme

Demonstration of a Regional Strategy for ODS Waste Management and Disposal in the ECA Region

March 2013

TABLE OF CONTENTS

LIST OF ACRONYMS AND ABBREVIATIONS

BAT	Best Available Technique
BEP	Best Environmental Practice
CFC	Chlorofluorocarbons
CTC	Carbon tetrachloride
EWC	European Waste Classification
F-gases	Fluorinated greenhouse gases
GPS	Global Positioning System
HCFC	Hydrochlorofluorocarbons
HBFC	Hydrobromofluorocarbons
HFC	Hydrofluorocarbons
IA	Implementing Agency
MP	Montreal Protocol
MLF	Multilateral Fund
NIP	National Implementation Plan
NOU	National Ozone Unit
NPC	National Project Coordinator
ODS	Ozone Depleting Substances
PCB	Polychlorinated Biphenyls
POP	Persistent Organic Pollutants
PMO	Project Management Office
PPER	Project Performance and Evaluation Report
PSC	Project Steering Committee
PTT	Project Technical Team
RCF	Regional Cooperation Forum
RPM	Regional Project Manager
RTA	Regional Technical Advisor
RRR	Recover, Reclaim and Recycle
SAA	Stabilization and Association Agreement
SC	Stockholm Convention
(P)SW	Project Start-up Workshop

1. INTRODUCTION

The Meeting of Parties to the Montreal Protocol requested the Executive Committee in its Decision XXI/2 to set a window for funding for disposal and destruction of ODS. This window is reserved to Low-Volume Consuming countries (LVCs). Pursuant to this request, in its Decision 63/5 (c), the Executive Committee decided "to set a window for ODS destruction for low-volume-consuming countries, pursuant to decision XXI/2 of the Twenty-first Meeting of the Parties, amounting to US $3 million;"

This opportunity allows Parties and Implementing Agencies to come up with environmentally sound, cost and resource efficient ways for disposal of ODS waste. In many occasions, the amounts of collected ODS in LVCs are not high enough for the establishment of local disposal facilities. For those LVCs which lack appropriate destruction facilities there are limited options for ODS disposal, the most common of which is export for disposal. In many cases the management and overhead cost of these operations can be very expensive.

Many countries have adopted legal measures concerning the period during which hazardous wastes can be stored. For example, according to the Law on Waste Management (Off. Gaz. MNE, No. 64/2011) in Montenegro, waste owners are allowed to temporarily store their waste up to one year before its transportation to a final disposal site; licensed waste operators can store the collected wastes up to three years. Similarly in Bosnia and Herzegovina waste can be stored for a period of up to three years. In Croatia hazardous waste can be stored for one year. Limiting the time during which hazardous waste can be stored has positive environmental impacts but at the same time it reduces the cost-efficiency of the disposal, due to the fact that many times the accumulation of stocks up to a quantity for which export for disposal would be cost efficient cannot be reached.

Regional cooperation for organized hazardous waste disposal can be a cost efficient solution to address these challenges, particularly for ODS disposal in LVCs that lack disposal/destruction facilities. The scope of a regional cooperation scheme can be broadened to cover other chemicals, such as POPs, in order to be more resource efficient.

Four countries in the ECA Region, realising the potential that lies in regional cooperation in waste disposal operations, were interested in finding a common strategy and solution for present and future disposal of ODS stocks. The Executive Committee, at its 65th meeting, provided funds for the preparation of the project proposal "Strategy for disposal and destruction of ODS for 4 LVC countries in the Europe and Central Asia region (Bosnia and Herzegovina, Croatia, Montenegro and Turkmenistan)". Turkmenistan withdrew its participation from the project during the preparatory phase as it could not respond to the requirements set in the criteria and guidelines for the selection of ODS disposal projects as reflected in Decision 58/19.

Based on the UNEP-led data collection, through the Recovery and Recycling Programme in Croatia 13,021 kg of ODS waste had already been collected as of 31 August 2012. Due to the ongoing collection program in this country, another 15,000 kg of ODS waste is expected to be available for disposal as of 1 January 2014. Bosnia and Herzegovina has identified 95 kg of CFC-12, and 400 kg of CFC-11 are expected due to the ongoing collection efforts. In Montenegro 280 kg. of CFC-11 have already been collected and stored; the collection efforts during project implementation are expected to result in 160 kg of CFC-11 and 110 kg of CFC-12. The project in total will dispose of 29,07 tonnes of ODS waste.

2. COMPLIANCE OF THE PROJECT CONCEPT WITH THE FUNDING GUIDELINES (DECISION 58/19)

The Executive Committee, at its 58th Meeting, approved a set of interim guidelines for the funding of demonstration projects for the disposal of ODS in accordance with paragraph 2 of decision XX/7 of the Meeting of the Parties. The following information is provided to show the project's compliance with all the requirements as set out by the above mentioned Decision 58/19.

a) Updated and more detailed information for all issues mentioned under project preparation funding

i. An indication of the category or categories of activities for the disposal of ODS (collection, transport, storage, destruction), which will be included in the project proposal.

The primary focus of the project is to demonstrate the feasibility and added value of regional cooperation in ODS disposal compared to a country by country approach. Project activities will concentrate on ODS storage, transport and disposal. The project will seek to set up a regional approach organized ODS waste disposal. It will strengthen the available RRR centres in each country so that they can securely hold ODS until final disposal is undertaken. In this regard the input of the private sector is also foreseen.

As hazardous waste disposal is controlled by free-market rules, generally the unit cost of disposal could be greatly reduced if larger amount of waste is under negotiation. At regional level, a harmonized disposal operation would render larger amount of ODS stocks that could be grouped under a single tender exercise. At the same time the administration costs for tendering and corresponding evaluation could be reduced.

The project will further demonstrate the cost-efficiency of organized waste ODS transport from the national RRR centres to the disposal facility. The intention is to reduce the transportation costs by optimizing transportation loads and costs. In this way sealed aggregated stocks of the countries would be uploaded on the same transportation vehicle along its way to the disposal facility. The Regional Cooperation Forum (RCF) established under this project will be responsible to organize the packaging of each country batch of ODS waste on a way that the transportation capacity of the vehicle is fully utilized. By shipping the ODS waste in larger shipments, the necessary paperwork according to the Basel Convention on the Control of Transboundary Movements of Hazardous Waste and its Disposal could be greatly reduced.

It is expected that the participating countries will coordinate their actions in the context of the RCF that will be used to request quotations for ODS transport and disposal. At a later stage, the scope of the platform can be broadened thematically to cover POPs and other hazardous waste disposal operations, as well as geographically to cover other interested countries in the ECA Region.

Baseline data collection highlighted significant differences in ODS collection systems in the participating countries:

- There is an advanced collection system in Croatia which results in a steady 10,000 kg of ODS waste collected annually;

- In Montenegro the collection system is currently being set up, and equipment and trainings have been provided to the service technicians. The forthcoming report on the collected amount is expected during the first half of 2013;
- In Bosnia and Herzegovina the legal infrastructure has been recently put in place. The collection system has yet to be developed, and the establishment of the RRR centres is ongoing. Because the NIP development for the Stockholm Convention is going to start in 2013, ODS and POPs inventory exercise will be undertaken jointly.

In order to mitigate the differences in the current collection systems the project is expected to disseminate the Croatian experiences and lessons learned in other participating countries. These activities will receive in-kind contribution from the recipient countries.

ii. An indication of whether disposal programmes for chemicals related to other multilateral environmental agreements are presently ongoing in the country or planned for the near future, and whether synergies would be possible.

All participating countries are Parties to the Stockholm Convention (SC). Article 7 of the SC requests Parties to the SC to prepare and implement a National Implementation Plan (NIP). The NIP of Croatia has indicated significant stocks of POPs, in particular polychlorinated biphenyls (PCBs). In Bosnia and Herzegovina where the NIP development will commence in 2013, significant stocks of PCBs have been identified during the preparation of the NIP development project document. In Montenegro the presence of PCBs in the electrical network has been confirmed.

Recently the SC adopted amendments to the treaty to include ten new chemicals. Among these chemicals, several are industrial chemicals, which are used mostly as flame retardants in polyurethane foams, in fire fighting foams, electric and electronic parts, photo imaging, hydraulic fluids and textiles. They are widespread in several applications where ODS might also be found. A mechanism for making inventories of the new POPs and the ways for POPs collection, storage and disposal is currently building up and has strong synergies with ODS.

The PCB action plan of Croatia foresaw establishment of interim storages for POPs. As POPs disposal facilities are lacking in these countries, the most preferred option is export for disposal. The project will investigate establishing/strengthening common interim storages for POPs and ODS and to organize common/joint disposal operations.

The incineration costs of POPs and ODS in the same shipment could be lower than shipping them separately. POPs have high calorific value, while ODS have very low calorific value. Their co-incineration is very resource efficient for the incinerators as they can reduce their fuel consumption. This advantage of POPs and ODS co-incineration can be translated to lower disposal costs which the project aims to investigate.

The project document provides detail on potential synergies with POPs destruction during implementation of the project, taking into account the constraints posed by the chosen strategy, as well as by the different status of implementation of ODS and POPs waste disposal activities.

UNIDO is in a position to maximize such synergies during implementation based on the fact that it is currently implementing POPs-related projects not only in the participating countries, but also in other countries in the ECA Region, including other neighbouring

countries within the Balkan Region. Examples are the following:

- Croatia:
  - Enabling Activities to Facilitate Early Action on the Implementation of the Stockholm Convention on Persistent Organic Pollutants;
  - Management and Elimination of PCBs from Electrical Sector.
- Bosnia and Herzegovina
  - Enabling Activities to Facilitate Early Action on the Implementation of the Stockholm Convention on POPs.
- Serbia:
  - Enabling Activities to Review and Update the National Implementation Plan for the Stockholm Convention on Persistent Organic Pollutants;
  - Environmentally Sound Management of PCBs and Obsolete Pesticides.
- The Former Yugoslav Republic of Macedonia:
  - Enabling Activities to Review and Update the National Implementation Plan for the Stockholm Convention on Persistent Organic Pollutants;
  - Phasing-Out and Elimination of PCBs and PCB-Containing Equipment.

iii. An estimate of the amount of each ODS that is meant to be handled within the project.

The project will cover 29.07 tonnes of ODS waste. The amount of ODS to be destroyed is distributed as follows:

- 0.84 tonnes of CFC-11;
- 5.98 tonnes of CFC-12;
- 22.25 tonnes of CFC-11 and CFC-12 mixtures;

The available and expected stocks that the project aims to destroy are presented in the following table:

Table 1: Amounts of ODS waste to be destroyed during project implementation

Location	Amount of ODS already collected (kg.)			
	CFC-11	**CFC-12**	**CFC Mixture**	**Total Weight (kg)**
Croatia		5,772	7,249	13,021
BiH		95		95
Montenegro	280			280
Total existing stocks	**280**	**5,867**	**7,249**	**13,396**
Location	**Amount of ODS collected during project implementation (kg.)**			
	CFC-11	**CFC-12**	**CFC Mixture**	**Total Weight (kg)**
Croatia			15,000	15,000.0
BiH	400			400.0
Montenegro	160	110		270.0
Total collection efforts	**560**	**110**	**15,000**	**15,670**
Grand Total	**840**	**5,977**	**22,249**	**29,066**

iv. The basis for the estimate of the amount of ODS; this estimate should be based on known existing stocks already collected, or collection efforts already at a very advanced and well-documented stage of being set up.

As it has been stated above, the project will cover 29.07 tonnes of ODS waste:

- 13.40 tonnes have already been collected in the three countries as of 31 August 2012;
- Collection efforts will result in the storage of additional 23.95 tonnes of ODS waste during the project life, out of which a total of 15.67 tonnes will be disposed of under this project.

In Croatia, 13.02 tonnes of ODS waste have already been collected as of 31 August 2012. In addition, 23 tonnes will be collected during project implementation through the well-established collection system set up in the country. Based on data provided by the NOU and the existing R&R centres, the expert who has reviewed the baseline situation in the country has concluded that the collection system in Croatia allows for the collection of 10 tonnes of ODS waste annually. Taking into account the time lag between completion of the survey and expected project approval, and that the proposed timeline for project implementation is two years, that results in an estimate of projected amounts of ODS to be collected during the project approval process and implementation equal to 23 tonnes. However, taking into account the expected date when Croatia will formally become non-Article 5 country under the Montreal Protocol (1 January 2014), this project will only request funds for the destruction of the additional amount collected up to that date, i.e. 15 tonnes.

In Montenegro the collection system is currently in its early stage, as the trainings for the service sector are ongoing. It is estimated that, in addition to the 0.28 tonnes of CFC-11 collected as of 31 August 2012, 0.16 tonnes of CFC-11 and 0.11 tonnes of CFC-12 will be available for destruction during project implementation (estimate by expert, endorsed by the NOU), coming from the following sources:

- CFC-11 from chiller replacement under the Project "Demonstration project for chillers in Eastern Europe";
- CFC-11 and CFC-12 from the scaling up of the collection system already in place.

These amounts are expected to be stored at *Hemosan Company d.o.o. Bar*, which is the sole authorized enterprise for collection and transportation of ODS waste in the country. The collection capacity of this facility in Bar is 7,000kg

In the case of Bosnia and Herzegovina, taking into account the schedule for the establishment of a recovery and recycling scheme with support from UNIDO, an estimate of 0.4 tonnes of CFC-11 was taken as a conservative estimate of the potential amount of ODS waste to be collected in the country during project implementation. The collection efforts will consider various institutions in Sarajevo where ODS waste has been identified,

In the case of Bosnia and Herzegovina and Montenegro, the project adopts a conservative approach for the estimate of future amounts of ODS waste to be collected during project implementation.

v. For collection activities, information regarding existing or near-future, credible collection efforts and programmes that are at an advanced stage of being set up and to which activities under this project would relate.

Existing and planned collection activities are described in Sections 3.3. and 3.4 of this document.

vi. For activities that focus at least partially on CTC or halon, an explanation of how this project might have an important demonstration value

The project will not address any halons or CTCs. In Bosnia and Herzegovina stocks of halons have been identified; however, these stocks have been reserved for critical uses.

b) Specific information required for project submissions

i. A detailed description of the foreseen management and financial set up.

The project financial and management strategy is based on a regional cooperation for harmonized ODS disposal. The project intends to harmonize national aggregation efforts among the participating countries in order to optimize the amount of waste that is being shipped for disposal. The project is going to address it in three complementary ways:

1. Disposal prices could be significantly reduced if the amounts are large. The regional cooperation among the participating countries aims to tender the joint aggregated amounts for the three countries. The project hypothesis is that by this a lower disposal price could be achieved than on a country by country approach;
2. Secondly, if low calorific value waste such as ODS waste could be jointly sent to the disposal facility together with high calorific value waste such as PCBs or other POPs, the disposal prices could be further reduced;
3. If the transportation of the waste is undertaken in a manner that optimizes the load of the transportation vehicles, cost efficiency of the disposal operations could be increased. The project aims to dispose of 29,066 kg of ODS waste; the total cost of the project activities is 364,480 USD; the unit cost of disposal is 12.54 USD/kg of ODS waste, which is below the 13.20 USD/kg limit set by Decision 58/19 and significantly lower than the country-by country approach which was estimated at 18.6 USD/kg.

Concerning the total cost of the disposal activity including costs not covered by the Multilateral Fund, as well as the sources of funding for covering these costs, the following table summarizes this information:

Table 2: Project Budget

Component	Cost (USD)		
	MLF	Co-financing	Total cost
1. Aggregation at the national levels	93,240	176,760	270,000
2. International transportation and destruction	166,240	-	166,240
3. Regional Cooperation Forum	56,175	-	56,175
4. Awareness raising, training and monitoring	48,825	61,800	110,625
Sub-Totals	**364,480**	**238,560**	**603,040**

Information on the distribution of co-funding by country is available in Section 8.2.

The Regional Cooperation Forum (RCF) will be assigned with the task of arranging bidding processes and evaluation of offers. Contracts for services will be signed between UNIDO and the companies undertaking the destruction activities, after clearance from the RCF.

ii. A clear indication how the project will secure other sources of funding.

The project will secure in-kind contributions from the Governments and from private sector partners such as RRR centres. The Governmental partners will allocate in-kind resources, such as office spaces, human resources costs, project management related to transportation and other office and communication related costs.

The private sector co-funding will come from those partners, mostly already existing RRR centres, that are willing to establish/upgrade their interim ODS stocks. They are expected to provide technical infrastructure for ODS storage, human resources for ODS handling, packaging, site maintenance including site security and ODS-related documentation and reporting. Project in-kind contributions are provided in the following table:

Table 3: Budget breakdown of national stakeholders' in-kind contributions

Sl.No.	Component	Unit	Unit quantity	Unit cost (USD)	Total cost (USD)
1	National Collection Efforts, contribution from RRR centres	kg	29,460	6	176,760
2	Laboratory and risk mitigation trainings at the national RRR centres in Croatia	Training sessions	1	7,000	7,000
3	Local trainings in Bosnia and Herzegovina and Montenegro to disseminate experiences of the Croatian RRR system	Training sessions	2	1,500	3,000
4	Development of a concept for joint ODS-POPs inventory, collection, disposal and awareness programme	Awareness programme	1	6,000	6,000
5	Intensified regulatory inspections for ODS management	Week	3	3,600	10,800
6	Management, coordination and monitoring of project implementation	n/a		35,000	35,000
	Total				**238,560**

iii. A concept for monitoring the origin of recovered ODS for future destruction, with the objective of discouraging the declaration of virgin ODS as used ODS for destruction.

In the three participating countries the economic benefits of selling virgin ODS is high compared to the potential benefit of having such stocks declared as used ODS for disposal, due to the following factors:

- None of the participating countries produce ODS;
- In Croatia, there is an import fee of 3 HRK (0.51 USD) on every kilogram of virgin ODS, which makes fairy unlikely that virgin ODS are declared for destruction.

- In Montenegro the administrative fee is 50 EUR (66 USD) for each batch of imported ODS consignment. Further there is an import fee of 0.9 EUR/kg (1.2 USD/kg) on imported controlled substances;

Monitoring of the origin of the ODS waste will be undertaken at two levels:

- Decentralized monitoring: each RRR keeps records of the origin of the ODS waste recovered in the centres. The project plans to provide trainings for the RRR centres and major collectors of ODS in order to avoid health and environmental risks during service, handling, transportation and storage. In order to further strengthen compliance to the legal obligations, intensified regulatory inspections are planned in the project once the necessary trainings have been provided;
- Centralized monitoring system: this will be done through the Regional Cooperation Forum (RCF). The implementation of a unified electronic monitoring system will be discussed during project implementation, based on the experience provided by the project.

iv. Valid assurances that the amount of ODS mentioned in the proposal will actually be destroyed, and the agencies should submit proof of destruction with the financial closure of the project.

In order to ensure that this requirement is met during project implementation, detailed procedures have been designed as described in Section 6 of this project document.

v. An exploration of other disposal options for the used ODS such as recycling and reuse opportunities;

The ODS waste included in the project proposal are those for which alternative uses are not deemed feasible.

In the case of Croatia where the vast majority of ODS waste to destroy comes from, RRR centres are responsible to make an analysis of the collected ODS gases. Based on the analysis the refrigerant can be recovered, recycled, reclaimed, or stored for final disposal. For those that can be re-released in the market, RRR centres issue a certificate of analysis defining the quality of the refrigerant. Those that cannot be released on the market are considered waste and RRR centres are required to ensure that they would be disposed of according to the specified waste legislation.

Because none of the participating countries have licensed facilities for ODS disposal and they do not intend to construct one, there are two options for ODS destruction:

1. Export disposal. The advantage of this option is that, due to the availability of many licensed facilities in neighbouring countries, it is quick, the disposal prices are moderate and due to the well-developed road network, the transportation is easy. The disadvantage of this option is that hazardous waste is transported in large distances, which increases the associated environmental risks, disposal prices may vary based on the market demand and transportation falls under the Basel Convention and thus involves additional documentation and overhead costs.
2. Treatment with mobile destruction technologies. The advantage of this option is that instead of moving the waste to the disposal facility the destruction technology is transported to the waste. It reduces the environmental risks, the packaging waste, as

well as transportation and documentation costs. On the other hand this option is more time consuming, particularly because the disposal technology should be approved by the respective environmental authorities in each country and in each location where it will be used, which is very time consuming and includes the risk of regulatory rejection.

At the preparatory meeting of the project development, the participating countries decided that export disposal would be the most cost-efficient and environmentally sound disposal strategy, and therefore the preferred one for the disposal of their ODS stocks.

3. BACKGROUND

3.1. Ratification of Amendments to the Montreal Protocol

The following table summarizes the ODS phase-out schedules set by the Montreal Protocol for Article 5 and non-Article 5 countries, as well as the real and planned phase-out schedules for the EU and the three countries participating in the project:

Table 4: ODS Phase-Out Schedule for the Participating Countries

ODS	Montreal Protocol					
	Non-A5 Countries	A5 Countries	EU	Bosnia and Herzegovina	Croatia	Montenegro
CFC[1]	1996	2010	1995	2009	2006	2010
Halons	1994	2010	1994	2007	2010	2008
CFC[2]	1996	2010	1996	2009	1999	2010
Carbon Tetrachloride	1996	2010	1995	2007	2010	2010
Methyl Chloroform	1996	2015	1996	2007	2010	2008
HCFC[3]	2030 (2020)	2040 (2030)	2010	Not yet determined	2013	2040 (2030)
HBFC	1996	1996	1996	Not yet determined	1999	2008
Bromo Chloromethane	2002	2002	2002	Not yet determined	2002	2008
Methyl Bromide	2005	2015	2005	2007	2006	2008

[1] Group I, chlorofluorocarbons R-11, R-12, R-113,R-114, R-114a, R-115
[2] Group II, other fully halogenated chlorofluorocarbons (R-13, R-111, R-112, R-211, R-212, R-213, R-214, R-215, R-216, R-217)
[3] Group VIII, hydrochlorofluorocarbons (HCFCs)

All three participating countries are categorized as operating under Article 5 paragraph 1 of the Montreal Protocol. The following table shows the status of ratification by the participating countries of the various amendments to the Montreal Protocol:

Table 5: Status of Ratification of Amendments to the Montreal Protocol

Agreement/ Amendment	Entry into force	Status and date of ratification		
		Bosnia and Herzegovina	Croatia	Montenegro
Vienna Convention	November 1988	(Sc) September 1994	(Sc) 21 September 1992	(Sc) 23 October 2006
Montreal Protocol	January 1989	(Sc) September 1994	(Sc) 21 September 1992	(Sc) 23 October 2006
London Amendment	August 1992	(Ac) August, 2003	(R) 15 October 1993	(Sc) 23 October 2006
Copenhagen Amendment	June 1994	(Ac) August, 2003	(R) 11 February 1997	(Sc) 23 October 2006
Montreal Amendment	November 1995	(Ac) August, 2003	(R) 8 September 2000	(Sc) 23 October 2006
Beijing Amendment	February 2002	(Ac) September, 2011	(R) 25 April 2002	(Sc) 23 October 2006

(Sc) succession, (Ac) accession

3.2. Status of Accession to the European Union

The planned accession of all three participating countries to the European Union has a significant impact on the way in which they will be allowed to undertake ODS waste disposal activities in the future.

- **Croatia** applied for EU membership in 2003 and the European Commission recommended making it an official candidate in early 2004. Croatia finished accession negotiations on 30 June 2011 and on 9 December 2011 signed the Treaty of Accession to become the EU's 28th Member State. The ratification process, by the Parliaments of all 27 EU Member States, is expected to be concluded by the end of June 2013.

  In the past ten years Croatia has significantly updated its legal, administrative and economic infrastructure and thus it has today the most advanced system for ODS management among the participating countries.

- **Bosnia and Herzegovina** has been recognised by the EU as a "potential candidate country" for accession since the decision of the European Council in Thessaloniki in 2003. Bosnia and Herzegovina takes part in the Stabilization and Association Process, and the relative bilateral SAA agreement has been signed in 2008 and ratified in 2010. Bosnia has not yet formally applied for EU membership, and it thus remains a potential candidate country.

- **Montenegro** officially applied to join the EU on 15 December 2008. On 1 May 2010, the Stabilisation and Association Agreement (SAA) between Montenegro and the European Union came into force, after all the 27 Member States of EU had ratified the SAA. The European Commission on 9 November 2010 recommended Montenegro as candidate country. This candidate status was officially granted on 17 December 2010.

3.3. Measures for ODS recovery

Although the three participating countries are neighbours and have a common history, there are significant differences at the level of ODS management in terms of economical, political and administrative aspects.

3.3.1. Croatia

Croatia has established a phase-out programme for CFCs, methyl bromide, halons, CTC and HCFCs. It includes comprehensive measures for an appropriate legal framework, technology conversion from CFCs and HCFCs to non-CFCs and non-HCFCs in foam and aerosol production, complete phase-out of methyl bromide in tobacco cultivation and phase-out of CTCs. Training and certification of custom officers and service technicians are in place and a RRR scheme (recover, reclaim and recycle) has been fully implemented.

The **Regulation on Ozone Depleting Substances and F-gases** (OG 92/12) banned the releases of any ODS, new substances or F-gases into the air. All ODS and F-gases contained in refrigeration and air conditioning equipment, heat pumps, solvent equipment, fire extinguishers and in any other system including high voltage switchgears need to be collected during the maintenance, servicing or decommissioning by registered companies or service technicians holding a licence of the Ministry of Environmental and Nature Protection.

The above-mentioned regulation superseded the **Regulation on Substances that deplete the ozone layer** (OG 120/05), which included provisions for permanent disposal of CFCs and halons after permanent withdrawal from cooling and air-conditioning units, fire fighting systems and fire extinguishers by 1 January 2011. Practical implementation of these specific provisions posed a number of challenges from the point of view of enforcement and related inspection. The Ministry of Environment and Natural Protection is aware of the need for a transitional period to meet the requirements set in these provisions, as by 1 January 2011 there were still a number of appliances which were still operating on CFCs and halons and that had not yet reached their end of life.

ODS or F-gas contained in household refrigeration equipment should be disposed of according to the **Ordinance on Electronic Waste** (OG 74/07). Licensed service technicians are required to collect the refrigerants from the unit. In line with the recovery of ODS and F-gases, it is necessary to recover the oil from the equipment during maintenance or repair operations, and prior to their final disposal.

The same Ordinance (OG 74/07) established a cost-free collection system for used equipment. Owners of electronic waste can call a toll-free number and request the disposal of their ODS-containing equipment. The call, transportation and the disposal are free of charge. Only certified companies are allowed to recover the refrigerant from the unit and to deliver them to the local RRR centres.

All necessary tools and equipment for the environmentally sound recovery of refrigerants were provided to the RRR centres in 2008; the system is in place, but laboratory trainings on ODS analysis are necessary for the centres.

The **Code of Good Practice** (COGP) defines the appropriate management of ODS, other refrigerants and equipment containing them. It includes their handling, collection, recovery, recycling and reclaim. Licensed service technicians have to document the whole process of handling and replacement of refrigerants. They need to record the collected amounts, the used virgin or recovered/recycled ODS and F-gases. Documentations must be kept for five years. Licensed service technicians should file an annual report at the country's Environment Agency on forms prescribed by the Regulation (OG 92/12).

The service technicians are requested to ship the collected amounts of ODS and F-gases in labelled re-usable cylinders to the RRR centres. The centres transfer ODS and/or F-gases into

suitable storage cylinders and return the re-usable cylinders to the service technicians. The centres issue a certificate which includes the received amount of ODS and/or F-gases.

The RRR centres are responsible to make an analysis of the collected ODS and F-gases. Based on the analysis the refrigerant can be recovered, recycled, reclaimed, or stored for final disposal. For those that can be re-released in the market, RRR centres issue a certificate of analysis defining the quality of the refrigerant. Those that cannot be released on the market are considered waste and RRR centres are required to ensure that they would be disposed of according to the specified waste legislation.

The **Air Protection Act** (OG 130/11) sets out the competences for inspectoral supervision of RRR centres. According to this act, inspectors perform the supervision of RRR centres according to their annual work plan. When conducting the supervision, inspectors review relevant permits and conditions of the RRR centres based on their operating permit and check whether controlled substances or fluorinated greenhouse gases are handled in the prescribed manner. Fines range from HRK 30,000 to 100,000 (US$ 5,455 to 18,182).

3.3.2. Bosnia and Herzegovina

Legislative Framework

Jurisdiction in the field of environmental protection in Bosnia and Herzegovina is decentralised, with the legal framework being set up at the state level.[1] International cooperation and implementation of Multilateral Environmental Agreements is under the jurisdiction of the Ministry of Foreign Trade and Economic Relations. The legal framework for ODS phase-out is set up at the state level by the Decision of the Council of Ministers through by laws in both the entities and in Brčko district. The ministry is also nominated to coordinate environment-related matters at the state level.

Ministries at state level are competent in implementing ratified or accepted environment-related international agreements. These organizations are as follows:

- Federation of Bosnia and Herzegovina: Ministry of Environment and Tourism;
- Republika Srpska: Ministry of Construction, Spatial Planning and Ecology;
- Brčko District: Department for Municipal Affairs.

Bosnia and Herzegovina has no specific legislation in the field of environmental protection and natural resources at the national level. This issue is regulated by state-level legislations. Key legal measures in Bosnia and Herzegovina in this field are the following:

- **Law of the Federation of Bosnia and Herzegovina on the Protection of Air** adopted by the Parliament of the Federation of Bosnia and Herzegovina in 2003 and amended in 2010 (Off. Gazette Federation of Bosnia and Herzegovina No. 33/03 and 4/10);
- **Law of the Republika Srpska on the Protection of Air**, adopted by the Parliament of the Republika Srpska in 2002 (Off. Gazette RS No. 53/02);
- **Law of the Brcko District of Bosnia and Herzegovina on the Protection of Air** adopted in 2004 and amended in 2005 (Off. Gaz. of Brcko District No. 25/04 & 1/05).

[1] In Bosnia and Herzegovina, the word "state" is applied to the two entities within the country (the Federation of Bosnia and Herzegovina and the Republika Srpska) and the Brčko District (an independent administrative unit directly connected to the Bosnia and Herzegovina State institutions).

These Laws also regulate the overarching and political tasks concerning the protection of the Ozone Layer. In each entity and district specific by-laws are in place to regulate operational measures of ODS management and phase-out.

The Multilateral Fund, through UNIDO, supported the establishment of the National Ozone Unit of Bosnia and Herzegovina under the Ministry of Foreign Trade and Economic Relations in 2000. Two branches of the National Ozone Unit are located in the two Entity Ministries, the Ministry of Physical Planning and Environment of the Federation of Bosnia and Herzegovina, and the Ministry for Physical Planning, Housing, Construction and Ecology of Republika Srpska. The Ministry of Foreign Trade and Economic Relations appointed the Manager of the National Ozone Unit.

Current Status

The establishment of the national R&R (recovery and recycling) system for ODS is ongoing; the operating requirements have been prepared, and it is planned to establish R&R mobile centres after UNIDO's international tendering and to provide the necessary equipment to the best 15 servicing companies to implement the R&R model. In order to support the establishment of the R&R system, training centres have been established for service technicians and training of trainers have been performed.

The establishment of the R&R system was subject to an in-depth analysis during the preparation of the HPMP for Bosnia and Herzegovina. As it was discussed with the MLF Secretariat during HPMP preparation, the implementation of the country's NPP was severely hindered by the fact that Bosnia and Herzegovina changed their legislation for imports of goods in 2008, but had failed to allow for the import of equipment including that required for NPP implementation. As a consequence of that, the supply of recovery and recycling equipment had to be stopped from 2009 onwards.

In order to optimize the use of funds under the HPMP, UNIDO and the country are currently redirecting the recovery and recycling system originally planned under the NPP to cover stationery refrigeration and air conditioning and, in particular, the recovery and recycling of HCFCs in addition to CFCs. At the time of approval of the HPMP, the terms of reference for recovery and recycling equipment had been established and agreed, and further delays in the implementation of the remainder of the NPP and in the HPMP are not anticipated.

In the case of halon, the national R&R system is in place. *Financ d.o.o. Mostar* was nominated to be the national halon bank; this centre however lacks significant capacities for handling other ODS. Four enterprises/organizations have reported halon stocks; the total halon 1211 stock is 649 kg and the total halon 1301 stock is 805.8 kg. Halon stocks at the project preparation was 1,454.8 kg, which will be reserved for national use.

3.3.3. Montenegro

Legislative Framework

In accordance with the **Law on Air Protection** (Off. Gaz. of MNE, No. 25/2010) the Environmental Protection Agency is the responsible authority to issue licenses for maintenance, repair and putting out of use products containing controlled substances such as ODS. Conditions which must be met by the licensee are stipulated in the **Decree on ODS and Alternative Substances** (Official Gaz. of MNE, No. 5/11) which regulates, inter alia, the following:

- Phasing out of the consumption of substances that deplete the ozone layer;

- Handling of substances that deplete the ozone layer and alternative substances;
- Handling of products that contain such substances or are produced with them ;
- Import, export and marketing of such substances and products;
- Handling of such substances at the end of life of the products containing them;
- Measures for collecting, using and permanently disposing of ODS; which includes the requirements that must be met by those who undertake maintenance, repair and withdraw from use of products containing controlled and alternative substances;
- Method of labelling products that contain alternative substances;

The Law on Air Protection also bans the release of ozone depleting substances and alternative substances. In line with this, the decree on ODS and alternative substances stipulates that ODS and alternative substances contained in products shall be collected during the maintenance, repair or putting out of use, and in any event at the disposal site at the latest, into a device intended for that purpose, for their recycling, reclamation or destruction. The collection of controlled and alternative substances shall be carried out by a legal person or entrepreneur authorized for the maintenance and/or repair and putting out of use of the products containing controlled and alternative substances.

In the event of putting out of use of the products containing controlled substances, except for household products, the collection of controlled and alternative substances shall be arranged by the owner and/or user, in the manner prescribed by this Decree. In contrast, the collection of controlled and alternative substances from the disposed household products shall be arranged by the owner and/or user of the disposal site, in the manner prescribed by this Decree.

The legal person or entrepreneur authorized for the maintenance and/or repair and putting out of use of the products containing controlled and alternative substances shall temporarily keep the controlled and alternative substances in dedicated collection cylinders, until further re-use or permanent destruction is undertaken. Authorized entities shall keep records of the types and amounts of collected substances, their handling and the amounts of virgin or recycled substances introduced into new products. Annual reports shall be filed at the EPA by not later than 31 January for data related to the previous year.

Trainings are organized annually for the service technicians on good refrigeration practices. Trainees receive a certificate which is required to get a licence from EPA for maintenance, repair and putting out of use of the products containing controlled and alternative substances.

In accordance with the Decree, the collected controlled and alternative substances that cannot be recycled shall be handled in accordance with regulations governing hazardous waste disposal.

The **Law on Waste Management** (Off. Gaz. MNE, No. 64/2011) is a framework law that controls municipal and hazardous waste management. It regulates issues related to the type and classification of waste, waste management planning, conditions under which waste management shall be conducted, rights, obligations and responsibilities of legal and natural persons, terms and procedures for issuance of permits, monitoring and other issues of relevance to waste management. Export and transit of hazardous waste can be performed only on the basis of a permit issued by EPA in accordance with the procedure specified by the Basel Convention.

In accordance with the Law on Waste Management, each company which produces hazardous waste, including ODS waste, is obliged to manage its waste through a company that has a license for collection and transportation of hazardous waste.

Under the regulation on waste classification and waste catalogue (Off. Gaz. of MNE, No. 35/2012) waste CFCs, HCFCs, HFCs are classified as a hazardous waste. Phased-out equipment which contains CFCs, HCFCs and HFCs are also considered as hazardous waste.

Regulation Off. Gaz. of MNE, No. 24/2012 (**Regulation on the procedure for registration of putting electrical and electronic products on the market, the establishment of collection systems, and treatment of waste from electrical and electronic products and operation of the system)** regulates the registration, putting on the market of electronic and electrical equipment. This piece of legislation established a collection and treatment system for the waste electrical and electronic equipment. This regulation covers refrigerators, freezers, air conditioner appliances and foresees the pre-treatment of waste equipment. It stipulates that hazardous substances, such as CFCs, HCFCs, HFCs, etc., must be removed in an environmentally sound manner.

Current Status

In Montenegro the collection system is currently in its early stage, as the trainings for the service sector are ongoing. Organized trainings on Good Refrigeration Practice were held for service technicians in 2009, 2010, 2011 and 2012.

It is important to note that, due to the fact that Montenegro became a new member country of the Montreal protocol in 2006, by mean of succession, the country only started the preparation and implementation of CP/TPMP in 2007.

As a framework strategy for the collection system, it was decided that the main service shops would be better equipped, especially for refrigerants recovery and recycling. In accordance with the TPMP, service shops that have received equipment from EPA/NOU have an obligation to store recovered refrigerants under suitable conditions, until the decision is made for their destroying.

The country has identified the company *Hemosan Company d.o.o. Bar* as the sole authorized enterprise for collection and transportation of ODS waste in the country (national RRR centre). This is in accordance with the TPMP, which advocated for the establishment of one single storage centre, where the used refrigerants recovered all around Montenegro will be stored. The collection capacity of this facility in Bar is 7,000kg.

3.4. Incentive Schemes for ODS Recovery

3.4.1. Croatia

In Croatia RRR centres pay 1.00 HK/kg (0.17 USD/kg) of collected refrigerants to the service technicians who brought it to the RRR centre regardless of the quality of the refrigerant. The centres maintain their operation from the income they receive by selling the recovered/recycled/reclaimed refrigerants (ODS and F-gases).

Importers of new ODS and/or F-gases pay an import fee of 3.00 HRK per kilogram (0.51 USD/kg) of imported ODS/F-gases which are placed in the domestic market. The fee goes to the Environmental Protection and Energy Efficiency Fund (hereinafter: the Fund) The Fund may contribute to the sustainability of the national collection and destruction efforts of waste ODS and F-gases in the future.

3.4.2. Bosnia and Herzegovina

The treatment of electronic and electrical waste is regulated; waste operators have to provide a free collection system from the end users of such products. At the time of preparing this project proposal, there is no incentive scheme for ODS recovery/recycling or reuse. During the project Bosnia and Herzegovina is going to investigate the possibility to introduce such a mechanism. A working group has been established to investigate the existing ODS legislations and to propose an adoption scheme.

3.4.3. Montenegro

In accordance with Decree Off. Gaz. of MNE, No. 05/2011, ODS and alternative substances have to be recovered during service, repair or at least before their final disposal. ODS have to be collected into a sealed container. Currently there is no incentive schemes put in place to facilitate ODS collection.

In accordance with Regulation Off. Gaz. of MNE, No. 24/2012 electronic and electrical waste can be collected by the distributor (person that supplies the equipment to the end user), the utility company or a waste operator:

- End-users are obliged to hand over the electronic or electrical waste from households to the distributor during the procurement of new equipment or to the utility company;
- Distributors are obliged to take over electronic and electrical waste free of charge from the end-user at his request or during procurement of a new equipment
- Waste operators authorized by EPA take over the electronic waste or electrical equipment free of charge from the distributor. Waste operators undertake the collection of waste equipment, its pre-treatment, further treatment, preparation for reuse, or removal of the waste equipment at their own expense.

During the implementation of the terminal phase-out management plan (TPMP) (2009/2010), three tenders were announced in daily newspapers for supplying recovery and recycling equipment for service shops. In this programme 15 portable R/R machines and 15 MAC unit, as well as vacuum pumps, service cylinders, service tools, manifold set with connectors, electronic leak detectors, set of refrigerant analysers, complete brazing unit and refrigerant identifiers were delivered to 30 service shops.

3.5. Management, Transport, Imports and Exports of ODS Waste

3.5.1. Croatia

ODS Waste Management

Waste ODS are treated as hazardous waste according to the European Waste Classification. ODS are listed under EWC 14 06 01* and 16 02 11*. All hazardous wastes-related provisions apply to ODS waste. Management of hazardous wastes requires a licence according to Article 41. of the Waste Act (OG 178/04, 111/06, 60/08 and 87/09). The licence for hazardous waste management is issued by the Ministry of Environmental and Nature Protection, and includes the following information:

1. Type of waste the licensee can manage;
2. Annual amounts of waste the licensee can handle based on its available capacity at each of its waste managing locations;
3. Prescribed requirements for operation such as technical requirements, methods and system for monitoring;
4. Precautionary measures that need to be undertaken for safety reasons;
5. Technologies the licensee uses at its waste managing locations, such as recovery procedure and/ or disposal or other waste management methods;
6. Reference to applicable legal obligations the licensee should follow including necessary documentations and reporting.

The approval of the licensing requests usually takes a few months.

ODS Waste Transport

Waste transportation has to be licensed as well. The same entity, the Ministry of Environmental and Nature Protection, issues hazardous waste transportation permits. The Ministry maintains the list of registered entities that are authorized to transport hazardous waste locally. The permitting procedure normally takes a couple of weeks.

ODS Waste Imports and Exports

Domestic and trans-boundary movement of hazardous wastes are in line with the European Agreement concerning the International Carriage of Dangerous Goods by Road, commonly known as ADR which governs transnational transport of hazardous materials.

Export of hazardous waste is controlled by the Ministry of Environmental and Nature Protection according to the Basel Convention. The issuance of a permit for export or transit usually takes 2-3 months.

According to Article 47, Paragraph 2 of the Waste Act, import of hazardous waste is prohibited in Croatia, except environmentally sound recovery when the material is either recovered or is used to create a new product or raw material. As Croatia lacks appropriate licensed facilities for recovery or disposal of ODS, the import of such waste is prohibited.

3.5.2. Bosnia and Herzegovina

ODS Waste Management

In Bosnia and Herzegovina the European Waste Classification system has been adopted and ODS waste is classified as a hazardous waste. Laws on waste management are enforced in both entities and in Brcko District.

At **State level** ODS management is regulated by the "Decree on Conditions and Procedures for the Implementation of the Montreal Protocol and Phase-out of Substances that Deplete the Ozone Layer in Bosnia and Herzegovina" (Off. Gazette Bosnia and Herzegovina No. 36/07). The Decree regulates the following aspects of ODS:

- Conditions for import and export of ODS. It includes procedures for an enterprise licensing, import quotas and import permits;
- Conditions for import and export of products and equipment which contains or

functionally uses ODS;

- Plan and Programme of Bosnia and Herzegovina for the implementation of the Montreal Protocol and phase-out of ODS;
- Monitoring and control system of ODS and equipment containing ODS import use, distribution and export;
- Maintenance of the list of controlled ODS and the list of equipment containing ODS based on custom codes, which are harmonized with Annex A, B, C, D and E of the Montreal Protocol and the respective European Union Regulations;
- Establishing reporting procedures and reporting formats for the relevant domestic and international authorities, organizations or bodies concerned with import/export and use of ODS.

This decree includes specific provisions on management of ODS waste under the sub-section on the monitoring and control system for in-country management of ODS and equipment containing ODS.

At **Entity level**, in the Federation of Bosnia and Herzegovina and Republika Srpska, the "Decree on Phase-out of Substances that Deplete the Ozone Layer (Off. Gazette Federation of Bosnia and Herzegovina No. 39/05 and Off. Gazette RS No. 94/05)" regulates the management of ODS. This piece of legislation regulates, among others, the following aspects:

- Conditions and procedures for phase-out of ODS and their substitution with alternatives;
- Procedures and responsibilities of owners of ODS containing equipment, especially during charging, discharging of the refrigerant and disposal of ODS-containing wastes;
- Procedures for the management of ODS containing equipment;
- Registration of ODS import/export and ODS consumption;
- Terms and conditions for registration of ODS related operational activities, i.e. services in Republika Srpska;
- The role and responsibility of the Ministry of Environment of Bosnia and Herzegovina and Republika Srpska in issuing licenses, import quotas and permits;
- Responsibilities of ODS importers regarding the registration of imported substances and the reporting requirements.

This decree includes ODS waste-specific provisions with regard to the procedures and responsibilities of owners of ODS containing equipment, including for the disposal of ODS-containing wastes. The same decree also includes ODS waste-specific provisions in the sub-sections on procedures for the management of ODS containing equipment and reporting requirements.

ODS Waste Transport

ADR requirements are in place in Bosnia and Herzegovina. A new Law on chemicals in Republika Srpska includes some procedures for transportation of chemicals. It also incorporates the requirements for packaging and labelling as per the adopted European Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures (CLP regulation). Republika Srpska is currently preparing the adoption of the EU Directive on Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) of 18 December

2006.

ODS Waste Imports and Exports

The permit system for import, transit and export of hazardous waste is under the jurisdiction of relevant entity ministries and Brcko District. Transboundary movements of hazardous wastes should be performed in accordance with the Basel Convention and related national legislations. Hazardous waste management enterprises are registered. Each import, export or transboundary movement of hazardous wastes should be authorized including border entry and exit.

3.5.3. Montenegro

ODS Waste Management and Transport

In accordance with the Regulation on Waste Classification and Waste Catalogue (Off. Gaz. of MNE, No. 35/2012) waste CFC, HCFC, HFC and phased-out equipment containing CFC, HCFC, HFC are classified as a hazardous waste. According to the European Waste Classification ODS are listed under EWC 14 06 01* and 16 02 11* and .they are treated as hazardous waste.

The EPA issues permits for collection and transportation of ODS waste; these permits are valid for 5 years. Permit holders are obliged to:

- Send reports to EPA on quantities of waste stored;
- Secure a storage in a way that protects the environment and human health;
- Perform transportation in accordance with the Law on Transportation of Dangerous Substances (Off. Gaz. of MNE, No.5/2008);
- Carry out classification and labelling of waste;
- Take into account physical and chemical properties of collected waste, in order to avoid leakage, heat release, discharges of toxic substances or any other dangerous situation.

According to the Law on Waste Management (Off. Gaz. of MNE, No. 64/2011) during collection, transport and temporary storage hazardous waste has to be packed and labelled in accordance with the Law on Transportation of Dangerous Substances (Off. Gaz. of MNE, No.5/2008). Transportation of hazardous waste must be done in a way regulated by the same law. The Law on Transportation of Dangerous Substances lays down conditions under which transportation of dangerous substances ought to be performed. Further it elaborates on how hazardous wastes should be prepared, loaded, unloaded and secured during transportation including the necessary risk prevention measures. This Law also stipulates the necessary infrastructures and human resource needs for collection, packaging, labelling and transportation of hazardous wastes, including the preventive and protective measures. This law requires the adherence to the ADR requirements.

ODS Waste Imports and Exports

Import of hazardous waste including ODS waste is prohibited in Montenegro according to the Law on Waste Management (Off. Gaz. of MNE, No. 64/2011). Export and transit of hazardous waste can be performed only on the basis of a permit issued by the EPA in accordance with the procedure specified by the Basel Convention.

In accordance with the Decree on ODS and alternative substances (Official Gaz. of MNE, No. 5/11) import and placing on the market of ODS is banned except for HCFC - 22. Import and

placing on the market of ODS containing equipment is banned since 1st January 2012. Import quotas for HCFC-22 have been introduced since 2011.

3.6. ODS Destruction Facilities in the Participating Countries

None of the participating countries have disposal facilities for ODS destruction. There are several incineration facilities in the neighbouring countries licensed for ODS disposal, particularly in the new member states of the EU. Because the EU legislation allows import of ODS for environmentally sound destruction, the project development team investigated the availability of the closest facilities. Soon it turned out that Hungary, Romania and the Czech Republic have stricter national legislation than the EU and import of hazardous waste for disposal is prohibited in these countries. The project focus will therefore turn to facilities in other EU countries (Germany, France, Netherlands, Poland and Spain) where hazardous waste import is allowed and the facilities have expertise in dealing with imported hazardous waste.

3.7. Disposal Programmes for Other Chemicals

3.7.1. Persistent Organic Pollutants under the Stockholm Convention

Persistent organic pollutants (POPs) are organic compounds that are resistant to environmental degradation through chemical, biological, and photolytic processes. POPs persist in the environment for long periods, are capable of long-range transport, bioaccumulate in human and animal tissues and biomagnify in food chains, and have potentially significant impacts on human health and the environment.

The Stockholm Convention entered into force on 14 May 2004 listing twelve chemicals causing adverse effects on humans and the ecosystem. Such chemicals are grouped under three distinct categories:

- Pesticides: aldrin, chlordane, DDT, dieldrin, endrin, heptachlor, hexachlorobenzene, mirex, toxaphene;
- Industrial chemicals: hexachlorobenzene, polychlorinated biphenyls (PCBs); and
- By-products: hexachlorobenzene; polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans (PCDD/PCDF), and PCBs.

At its fourth meeting of the SC held from 4 to 8 May 2009, the Conference of the Parties adopted amendments to Annexes A, B and C to the SC to list nine new persistent organic pollutants (SC-4/10-SC-4/18). At its fifth meeting held from 25 to 29 May 2011, another chemical (endosulfan) and its related isomers were included to Annex A of the SC (decision SC-5/3).

The list of the new chemicals is as follows:

- Pesticides: chlordecone, alpha hexachlorocyclohexane, beta hexachlorocyclohexane, endosulfan, lindane, pentachlorobenzene;
- Industrial chemicals: hexabromobiphenyl, hexabromodiphenyl ether and heptabromodiphenyl ether, pentachlorobenzene, perfluorooctane sulfonic acid, its salts and perfluorooctane sulfonyl fluoride (PFOS), tetrabromodiphenyl ether and pentabromodiphenyl ether; and
- By-products: alpha hexachlorocyclohexane, beta hexachlorocyclohexane and

pentachlorobenzene.

Synergies between the Montreal Protocol and the Stockholm Convention could be established in the case of pesticides and industrial chemicals, especially for the latter.

- PCBs are used in industry as heat exchange fluids, in electric transformers and capacitors, and as additives in paint, carbonless copy paper, and plastics. Their persistence in the environment corresponds to the degree of chlorination, and half-lives can vary from 10 days to one-and-a-half years.
- Hexabromobiphenyl is an industrial chemical that has been used as a flame retardant, mainly in the 1970s. According to available information, hexabromobiphenyl is no longer produced or used in most countries due to restrictions under national and international regulations.
- Tetrabromodiphenyl ether and pentabromodiphenyl ether are the main components of commercial pentabromodiphenyl ether. They belong to a group of chemicals known as "polybromodiphenyl ethers" (PBDEs). Polybromodiphenyl ethers including tetra-, penta-, hexa-, and heptaBDEs inhibit or suppress combustion in organic materials and therefore are used as additive flame retardants. The production of tetra- and pentaBDEs has ceased in certain regions of the world, while no production of hexa- and heptaBDEs is reported.
- PFOS is both intentionally produced and an unintended degradation product of related anthropogenic chemicals. The current intentional use of PFOS is widespread and includes: electric and electronic parts, fire fighting foam, photo imaging, hydraulic fluids and textiles. PFOS is still produced in several countries.

Except for PFOS, where the production and use are allowed under restriction, industrial POPs chemicals need to be phased out immediately for Parties to the SC. Simultaneously production, import, and export other than for environmentally sound disposal should also be ceased. Parties to the SC are required to make inventories of the POPs stocks and to develop action plans as part of their National Implementation Plans (NIP) for their phase-out and disposal. Croatia has developed its inventories and action plans for the initial twelve POPs. For the new POPs the inventory and NIP updates are ongoing.

As industrial POPs can also be found in fire fighting appliances, in electrical and electronic goods and in the high voltage electrical grid, their management can be linked to ODS substances, particularly F-gases.

3.7.2. Country-Specific Actions on POPs Management

The total amount of PCBs in closed systems in **Croatia** is 1,391,593 kg. It includes 22,859 capacitors with total mass of 655,705.9 kg and 311 transformers with total mass of 735,887.8 kg. *Hrvatska Elektroprivreda* is the biggest owner of the capacitors batteries with PCBs; it is the owner of 3,660 pieces (100 tons) of the capacitors which makes 15% of the total weight of all capacitors in the country. Major owners of the transformers in Croatia belong to the chemical industry with 56 transformers with a total weight of 238.5 tons. It is 33 % of the total weight of all transformers in the country.

The NIP of Croatia stipulates that PCB owners should gradually phase-out and eliminate PCB-containing equipment. The top 10 owners indicated that they would gradually, in line with the Stockholm Convention, eliminate the use of the equipment with PCB. Interim storages of PCB

wastes are located within the owners' production sites, all over Croatia. In accordance with the Ordinance on management of polychlorinated biphenyls and polychlorinated terphenyls (Article 7) the time period for temporary storage of PCBs, waste PCBs or equipment containing PCBs has been limited to 2 years prior to decontamination or recycling and/or final disposal. This creates an increasing need for PCB disposal and thus the available amounts for PCB disposal will increase in the future.

In the context of Croatia's activities on POPs management, it is worth noting that UNIDO is currently supporting Croatia in the implementation of the following projects:

- Enabling Activities to Facilitate Early Action on the Implementation of the Stockholm Convention on Persistent Organic Pollutants;
- Management and Elimination of PCBs from Electrical Sector in the Republic of Croatia.

In **Bosnia and Herzegovina**, a country-wide inventory to assess PCBs will be undertaken during the NIP development process. The Global Environment Facility has approved a project focused on enabling activities for the development of the NIP. In this process both the initial and the new POPs inventories will be developed.

Preliminary data collection concluded that the major user of PCBs is the *PE Elektroprivreda B&H*. The identified 70,000 kg of equipment filled with PCBs and approximately 10,000 kg have been dismantled and exported from Sarajevo to France for final disposal. Other enterprises have also identified PCB stocks and have exported part of their POPs waste to France.

The Ministry of Foreign Trade and Economic Relations Bosnia and Herzegovina is the focal point for the SC and MP which will facilitate the establishment of linkages between the two conventions. In order to optimize the use of international financial resources the POPs and ODS inventory process in 2013 will be combined and undertaken jointly.

In the context of Bosnia and Herzegovina's activities on POPs management, it is worth noting that UNIDO is currently supporting Bosnia and Herzegovina in the implementation of project "Enabling Activities to Facilitate Early Action on the Implementation of the Stockholm Convention on POPs".

In **Montenegro**, the Ministry for Sustainable Development and Tourism is the focal point for the Stockholm Convention. The NIP is still in its development phase and data collection is ongoing. The NIP will include new POPs as well. Adoption of the NIP is expected in March 2013 when all the data on PCBs will be available.

The country-specific information shows that there is commitment at the national level to replace POPs and ODS; however, the efforts might not be as cost- and resource-efficient as they could be. Probably waste disposal operations are not tendered and the amounts at the national level are not combined. This is an important aspect, because disposal prices could be cheaper if the amounts are high. Combining these efforts at the national and regional level can lead to significant cost savings which this project aims to demonstrate.

4. PROJECT OBJECTIVES AND EXPECTED OUTCOMES

The project "Demonstration of a Regional Strategy for ODS Waste Management and Disposal in the ECA Region" aims to achieve the following **objectives**:

- Destruction of 29.07 tonnes of ODS waste;
- Establishment of a regional cooperation forum for ODS disposal among the participating countries to harmonize disposal of ODS waste (with the possibility of expanding the concept to other types of hazardous wastes at a later stage);
- Awareness and training programme for ODS collection, storage, transportation and disposal for relevant stakeholders to increase their commitment towards ODS recovery, recycle reclaim, collection and disposal.

Successful project implementation will lead to the achievement of the following **outcomes**:

- Reduction of the global ODS stock by disposing 29.07 tonnes of ODS waste in an environmentally sound manner;
- Significant cost reduction in the ODS disposal prices and increase in the pace of ODS phase-out and recovering due to the regional cooperation and information sharing;
- Participating countries will develop the appropriate technical and human resources capacity for ODS management, including aggregation, storage and disposal, which will lead to better compliance with the Montreal Protocol.

5. PROJECT STRATEGY

5.1. Outline of the Project Strategy

In order to achieve the objectives listed in the previous section, the project will be implemented following a strategy consisting of four components:

- Component #1: ODS aggregation at the national level [2];
- Component #2: Transportation and disposal of the ODS stocks in an appropriate licensed destruction facility within the European Union;
- Component #3: Establishment of a Regional Cooperation Forum;
- Component #4: Awareness raising, training and monitoring.

The two Implementing Agencies, in close cooperation with the NOUs of the participating countries, will distribute responsibilities as follows: UNIDO will be responsible for the implementation of Components #1 and #2, whereas UNEP will be responsible for the implementation of Components #3 and #4.[3] The project management structure, as detailed in Section 6.1., will ensure that all activities are implemented in full coordination among the

[2] The concept "aggregation" as defined in this project document cannot be linked to "collection" as defined in Annex VIII of document UNEP/OzL.Pro/ExCom/58/53. In the scenario described in the project, collection takes place outside the scope of the project, in the various RRR centres and companies owning ODS stocks. In the context of this project, aggregation is understood as a first stage of the transportation activities which aims at minimizing transportation costs.

[3] Activities related to management, coordination and monitoring of project implementation (included in Component #4) will be undertaken jointly by UNEP and UNIDO.

Implementing Agencies and the participating countries.

During project preparation, UNEP and UNIDO looked into the possibilities of taking stock of the lessons learned in the projects in Mexico and Nepal since the very early stage of project preparation. These two projects follow a similar approach, that is, export of the ODS waste to a facility in the United States in order to generate voluntary carbon credits through registration of the project under the Climate Action Reserve (CAR).

An initial analysis of the approach applied for Mexico and Nepal proved not to be sustainable over time for the countries participating in this project. As it has been stated before, Croatia will become an EU Member State as of 1 July 2013; Montenegro is a candidate EU country and Bosnia and Herzegovina is a potential candidate EU country. Therefore, in the short to mid-term these countries will have to meet the requirements for ODS waste destruction set by the EU in Regulation (EC) 1005/2009. Such requirements are not in line with the strategy applied in the projects in Mexico and Nepal.

This demonstration project provides a unique opportunity to set up a destruction strategy that will allow countries to undertake ODS waste disposal in the long term, in line with Regulation (EC) 1005/2009. Such an opportunity does not only apply to the three participating countries, but also to other countries in the region in a similar status vis-à-vis the European Union. In this regard, it is worth noting that both the Former Yugoslav Republic of Macedonia and Serbia have shown their interest in participating in those activities to be undertaken under the project which are open to non-participating countries (namely participation in the Regional Cooperation Forum). These two countries have an obvious geographical link with the three participating countries (they all belong to the Balkan region), and both of them are EU candidate countries.

In addition to the expression of interest by Macedonia and Serbia, Component #3 of the project allows for other countries in the ECA Region to benefit from the project. Needless to say, a strategy focused on supporting future EU Member States to be in line with EU regulation with regard to ODS waste disposal will in principle have a stronger appeal for those countries within the ECA Region which are potential EU candidate countries. In this regard, there is a strong coordination between this project and the destruction project in Georgia, as the latter showcases a destruction strategy more appealing to those ECA Region countries whose mid-term policies do not have to be aligned with EU ones.

Therefore, both destruction projects cover a wide spectrum of the feasible strategies for ODS waste disposal for the countries in the region. For this reason, the dissemination activities considered under Component #3 of the project will also serve as a platform to display the lessons learned from the project in Georgia.

5.2. Component #1: ODS Aggregation at the National Level

5.2.1. Availability of ODS Banks

The ODS stock and collection patterns in the participant countries show significant differences.

Croatia

Data collection during the project preparation concluded that the total stored ODS waste amount in Croatia (as of 31 August 2012) is 13,021 kg, distributed as follows:

- 5,772 kg of CFC-12 and 6,428 kg of CFC mixture stored in the RRR centre *C.I.A.K d.o.o.* in Zabok;

- The RRR centre *Frigomotors d.o.o.* in Dugopolje stores 821 kg of mixed CFC waste;
- The third RRR centre (*IND-EKO d.o.o.* in Rijeka) does not currently have any stocks;

According to the data above, a total of 7.25 tonnes of ODS waste was classified as CFC mixture. The composition of these mixtures has been determined through the following testing procedures:

- 6.43 tonnes stored at the R&R Centre *C.I.A.K. d.o.o.* were subject to a standard sampling and analysis undertaken by one of the country's certified laboratory for physical and chemical analysis (*ANT Laboratorij za analitiku i toksikologiju d.o.o.*);
- The composition of the 0.82 tonnes stored at the R&R Centre *Frigomotors d.o.o.* was determined with an advanced refrigerant identifier (model Neutronics Ultima ID Pro HVAC/R - RI-700H).

The results of the analysis showed that the refrigerant mixtures stored in the two R&R centres mentioned above varies depending on the origin of the refrigerant recovered, with CFC-12 being predominant in some cases and CFC-11 predominant in others. The mixtures also contained small amounts of other refrigerants (e.g. HFC-134a and HFC 32). For the purpose of the project document, the amounts of HFC refrigerants have been excluded from the tonnage reflected in Table 1 to ensure the adequate calculation of the project's cost-effectiveness.

In addition to the stocks already identified, and based on data provided by the NOU and the existing R&R centres, the expert who has reviewed the baseline situation in the country has concluded that the collection system in Croatia allows for the collection of 10,000 kg of ODS waste annually; justification for this estimate can be found in the Annex to this project document.

Taking into account the time lag between completion of the survey and expected project approval (ExCom 69), and that the proposed timeline for project implementation is two years, that results in an estimate of projected amounts of ODS to be collected during the project approval process and implementation equal to 23 tonnes. For this amount of additional mixed CFC waste, the assumption has been made that its composition will be similar to that of the already collected mixtures.

Taking into account the expected date when Croatia will formally become non-Article 5 country under the Montreal Protocol (1 January 2014), this project will only request funds for the destruction of the portion of those 23 tonnes that are expected to be collected up to that date, i.e. 15 tonnes. Keeping in mind these amounts, 950 liters ISO cylinders will be required for storage and transportation of the ODS waste.

The following table summarizes the existing stocks of ODS and the collection efforts in Croatia:

Table 6: Amounts of ODS Waste Available for Destruction in Croatia

Location	Amount of ODS already collected (kg.)			
	CFC-11	**CFC-12**	**CFC Mixture**	**Total Weight (kg)**
C.I.A.K. d.o.o. Zabok		5,772	6,428	12,200
IND-EKO d.o.o. Rijeka				0
Frigomotors d.o.o. Dugopolje			821	821
Total existing stocks	**0**	**5,772**	**7,249**	**13,021**
Location	**Amount of ODS collected during project implementation (kg.)**			
	CFC-11	**CFC-12**	**CFC Mixture**	**Total Weight (kg)**
Total collection efforts			**15,000**	**15,000**
Grand Total	**0**	**5,772**	**22,249**	**28,021**

Bosnia and Herzegovina

In Bosnia and Herzegovina, private companies in the Mostar region reported 95 kg of CFC-12. Although the company *Financ d.o.o.* Mostar was nominated to be the national RRR centre, this centre lacks significant capacities for ODS aggregation, handling and management.

A field survey conducted during the project development identified 400 kg of CFC-11 stocks at various institutions. Taking into account the schedule for the establishment of a recovery and recycling scheme with support from UNIDO, an estimate of 0.4 tonnes of CFC-11 was taken as a conservative estimate of the potential amount of ODS waste to be collected in the country during project implementation.

The following table presents the existing stocks of ODS and the amounts the collection efforts would result. The aggregation and disposal of these stocks will have an important demonstration value in Bosnia and Herzegovina as this will be the first time when proper disposal of ODS waste will be undertaken.

Table 7: Amounts of ODS Waste Available for Destruction in Bosnia and Herzegovina

Location	Amount of ODS already collected (kg.)			
	CFC-11	CFC-12	CFC Mixture	Total Weight (kg)
Private companies in Mostar region		95		95
Total existing stocks	**0**	**95**	**0**	**95**
Location	**Amount of ODS collected during project implementation (kg.)**			
	CFC-11	**CFC-12**	**CFC Mixture**	**Total Weight (kg)**
Institutions of BiH, Sarajevo	400			
Total collection efforts	**400**	**0**	**0**	**400**
Grand Total	**400**	**95**	**0**	**495**

Montenegro

The low volume of ODS stocks in Montenegro is generally due to the lack of appropriate implementation of the legal measures. Incentives are also missing from the ODS collection system which significantly hinders collection and environmentally sound management of ODS. Another factor behind the low collected volumes could be the low income level of the citizens and the de-capitalized enterprises, which has forced continuing the use of outdated equipment.

280 kg of CFC 11 has already been collected in the country. In addition, further 160 kg of CFC-11 and 110 kg of CFC-12 are expected during project implementation, according to an estimate by the expert supported by the NOU, coming from the following sources:

- CFC-11 from chiller replacement under the Project "Demonstration project for chillers in Eastern Europe";
- CFC-11 and CFC-12 from the scaling up of the collection system already in place.

The data for Montenegro are presented in the following table:

Table 8: Amounts of ODS Waste Available for Destruction in Montenegro

Location	Amount of ODS already collected (kg.)			
	CFC-11	CFC-12	CFC Mixture	Total Weight (kg)
Hemosan d.o.o, Bar	280			**280**
Total existing stocks	**280**	**0**	**0**	**280**

Location	Amount of ODS collected during project implementation (kg.)			
	CFC-11	CFC-12	CFC Mixture	Total Weight (kg)
Hemosan d.o.o, Bar	160	110		**270**
Total collection efforts	**160**	**110**	**0**	**270**
Grand Total	**440**	**110**	**0**	**550**

Total amount of ODS waste available for destruction under this project

The following table shows the type and weight of ODS waste the project is planning to dispose of:

Table 9: Amounts of ODS Waste Available for Destruction under the Project

Location	Amount of ODS already collected (kg.)			
	CFC-11	CFC-12	CFC Mixture	Total Weight (kg)
Croatia		5,772	7,249	13,021
BiH		95		95
Montenegro	280			280
Total existing stocks	**280**	**5,867**	**7,249**	**13,396**
Location	**Amount of ODS collected during project implementation (kg.)**			
	CFC-11	**CFC-12**	**CFC Mixture**	**Total Weight (kg)**
Croatia			15,000	15,000.0
BiH	400			400.0
Montenegro	160	110		270.0
Total collection efforts	**560**	**110**	**15,000**	**15,670**
Grand Total	**840**	**5,977**	**22,249**	**29,066**

The table shows that the current ODS stocks in the participating countries is 13,396 kg. Due to the collection efforts, further 15,670.0 kg of ODS waste will be aggregated.[4] The project target therefore is the destruction of 29,066 kg of ODS waste.

5.2.2. Strategy for the Implementation of Component #1

The project plans to aggregate the national stocks at one location in each country:

- In Croatia, the RRR centre in Zabok would be the best location as it stores more than 90% of the national ODS stocks;
- In Bosnia and Herzegovina *Financ d.o.o.* in Mostar was selected to be the national aggregation point as it also holds the national halon bank;
- In Montenegro, aggregation will take place at *Hemosan d.o.o.* facilities in Bar.

Due to the differences in volumes among countries, the critical choice is that of the aggregation centre in Croatia. The choice of *C.I.A.K. d.o.o. Zabok* as the RRR centre where aggregation will take place is, due to the following reasons:

- This RRR centre currently stores the largest amount of ODS waste to be disposed of under this project, and is expected to be the one which will collect a largest amount during project implementation due to its geographical location (near the capital city of Zagreb) as well as its baseline equipment; therefore, transportation costs at national level

[4] Taking into account only the CFC waste that is expected to be collected in Croatia before 1 January 2014.

will be reduced by reducing the tonnage of ODS waste to be transported for aggregation;

- In the event of undertaking road transport of the ODS waste to a destruction facility within the EU, this centre is the one with the best location, thus also reducing transportation costs.

Taking as a reference the RRR centre of Zabok, distances from other points of collection and storage to this RRR centre are the following:

- Rijeka: 190 kilometers;
- Dugopolje: 419 kilometers;
- Soblinec: 67 kilometers.

In order to prepare the RRR centres for the aggregation activities, the project will provide:

- 10 ISO cylinders (950 liter each) for the RRR centres in Croatia; this size is large enough for international transportation and small enough for local move with forklifts;
- 2 ISO cylinders (200 liter each) for *Financ d.o.o.* in Mostar, Bosnia and Herzegovina; other tools (e.g. pumps) will also be provided for this RRR centre;
- 2 ISO cylinders (200 liter each) and other tools and equipment for the aggregation exercise for *Hemosan d.o.o.* Bar in Montenegro. HCFC 141b stocks will be shipped directly from the *Obod* factory.

Stock transportation and aggregation at the national levels will be undertaken with the leadership of the NOUs and RRR centres. The stocks will be analytically tested before the documentation is prepared for the international transport. The last activity of the ODS aggregation component will be the preparation of the necessary documents, certificates and permits from the national authorities for the international transport.

5.3. Component #2: International Transport and Destruction

5.3.1. International Transport

As it was mentioned above, the countries participating in the project do not posses any ODS disposal/destruction facilities, and in neighbouring countries local legislation strictly prohibit the import of hazardous wastes for disposal purposes. In a 1,500 km radius from Zagreb several internationally well-known hazardous waste incinerators are located i.e. in France, Germany, the Netherlands, Poland and Spain. This distance was used as the base for calculating transportation costs in the budget.

Three options –railway, sea and road transportation- were examined for transportation modalities:

- Sea transportation has the following disadvantages:
  - It is a slow means of transport;
  - Due to the relatively small amount of each shipment, the vessel would dock in several ports before arriving at the country of disposal; the administrative work would therefore be similar to the one required for mainland transportation.
- The railway transportation has similar disadvantages, and does not have a possibility for a partner-to-partner delivery, as the RRR centres in the participating countries usually do not have direct access to a railway network.

- Mainland road transportation is quick and can allow partner-to-partner delivery enabling joint shipment of waste unless it is prohibited by local legislations.

The project will investigate the optimization of ODS waste transport:

1. The first option is to upload aggregated ODS wastes of the participating countries into one transportation vehicle. In this scenario, the aggregated amount of ODS waste cylinders would be packed into regular ISO shipping containers and then sealed by the customs. These sealed containers would then be uploaded in each country onto the transportation vehicle on its way to the disposal facility;
2. Option two would be to identify local owners of hazardous wastes, such as POPs, which would be willing to co-transport their wastes with the aggregated ODS wastes of the project. In this case, full loaded 40" ISO shipping containers would be organized from each participating country. ODS wastes and other hazardous wastes would be packed into the container and then sealed by customs. A project activity on development of a concept for joint ODS-POPs inventory, collection, disposal and awareness raising programme will be designed to identify local owners of POPs for joint ODS-POPs disposal.

In both cases, transportation costs will be reduced by optimizing transportation loads. In this way sealed aggregated stocks of the countries will be uploaded on the same transportation vehicle along its way to the disposal facility.

Two shipments are planned during implementation of the project:

- The first shipment would take all of the already collected stocks. This will be carried out once necessary tools and trainings have been provided and the aggregation of this amount is ready, i.e.: in the fourth/fifth project months;
- A second shipment is planned at a date to be defined beyond the thirteenth project month depending on the development of the collection efforts.

Transportation means and route of the waste ODS will be decided during the project implementation; project budget considers three road shipments of 1,500 km. The route of the consignment will be registered with the designated authorities and controlled by on-line GPS routing. The shipments, once arrived at the destruction facility, will be weighed and analytically checked. ISO cylinders will be emptied, cleaned and returned to the owners.

5.3.2. Destruction in a licensed destruction facility

Incinerators generally prepare a mixture of different types of wastes before incineration; such a mixture is called "cocktail", and it is based on the calorific value, chlorine, bromine and other chemical composition, the explosiveness and other characteristics of the waste. ODS have very low calorific value and thus their incineration requires additional fuel. To reduce operational costs, incinerators generally co-incinerate ODS with other high calorific value wastes. Because PCB-containing oils have very high calorific value their co-incineration with ODS in the cocktail is much cost efficient, which can translate to lower ODS disposal price if ODS and PCB-containing oils are shipped together for disposal. The project will investigate the advantages of sending POPs and ODS wastes jointly to the incinerators.

UNIDO is going to publish a tender document for the transportation and destruction of the ODS stocks. During the tendering the technical capacity, human resources, risk management and other relevant expertise of the applicants will be investigated. The destruction will only take place in a facility that has regulatory license for ODS disposal, has introduced best available technology (BAT) and operates with best environmental practices (BEP) according to the principles

prescribed by the Basel Convention.

After the destruction of each batch of ODS waste, the destruction facility will issue a certificate detailing the amount of ODS that has been destroyed.

During project preparation, the first criterion to select potential destruction facilities is the fact that, in line with the project strategy, destruction has to take place in a facility within the EU. The basis to prepare the list of facilities to be taken into consideration within the EU is the information provided in documents published by the European Commission.[5]

All the facilities included in the above-mentioned documents are in line with the TEAP requirements for destruction technologies, as requested by the EU for a facility to be licensed to destroy ODS waste.

The second limiting criterion to narrow down the possible destruction facility is the fact that some EU Member States do not allow imports of ODS waste. This is the reason why the project document has based the cost estimate for transportation and destruction in those facilities located in countries where imports of ODS waste is possible and which are within a specific radius of action (1,500 kilometers) from the regional aggregation centre of Zabok in Croatia; this involves considering destruction facilities in France, Germany, the Netherlands, Poland and Spain.

5.4. Component # 3: Establishment of a Regional Cooperation Forum (RCF)

The Regional Cooperation Forum (RCF) plays a dual role:

- Firstly, it is defined as a platform that will ensure information exchange on success stories and lessons learned regarding ODS destruction activities in the ECA Region. Although the focus will be on this project, room and time will be available for showcasing other destruction efforts (e.g. project in Georgia, experience with the destruction facility in the Former Yugoslav Republic of Macedonia);
- Secondly, the RCF will help countries and implementing agencies to hold discussions on the practical aspects of implementation of this project to organize common disposal operations, such as coordination for national and supra-national aggregation, launching of bidding tenders, evaluation of offers, etc.

For those meetings with a focus on the first role of the RCF, provisions will be made to ensure the maximum level of outreach (e.g. organization during Regional Network Meetings and / or specific thematic meetings in the ECA Region). However, some aspects concerning the second role of the RCF require that the discussion will be held by those countries participating in the project, unless there is an agreement to include in the discussions other countries in the ECA Region.

It is important to note that the RCF will not be hosted by a specific country. Sustainability is given by the fact that the administration of the RCF will require little additional effort from the point of view of the participating countries. Strictly speaking, the RCF is an umbrella concept to refer to all required coordination activities at regional level rather than to an entity per se.

[5] "Identifying and Assessing Policy Options for Promoting the Recovery and Destruction of Ozone Depleting Substances (ODS) and Certain Fluorinated Greenhouse Gases (F-Gases) Banked In Products and Equipment", prepared by ICF International for the European Commission in May 2010; and "Further Assessment of Policy Options for the Management and Destruction of Banks of ODS and F-Gases in the EU", prepared by SKM Enviros for DG Clima (Office of the European Commission for Climate Change) in March 2012.

5.4.1. Activities of the Regional Cooperation Forum for Project Implementation

The project strategy foresees a regional cooperation among the participating countries to optimise the disposal operations. Without the project, ODS disposal in each participating country would be undertaken on a case-by-case basis. It would mean at least one international transport of half or less than a half-loaded truck of ODS to a disposal facility from each participant country annually. The cost analysis of the harmonized, regional waste disposal operations compared to the country-by-country approach concluded that the regional approach could reduce the costs by approximately 35%. In order to tap the full potential that lies in harmonized regional approaches in waste management and disposal, the project plans to establish an information sharing and cooperation network – the Regional Cooperation Forum (RCF).

The establishment of such a mechanism at the regional level requires minimal additional resources as it builds on the current infrastructures and human resources: the National Ozone Units in each participating country will form the RCF, and a focal point will be designated in each country for information sharing under the RCF. This forum will be used to facilitate information exchange which would enable participant countries to organize disposal operations.

The main objective of this forum will be to share information concerning the types and amounts of ODS waste that is on stock in each country. Once the stocks aggregate to an amount that could be cost-efficiently transported and disposed of, the RCF will be responsible for requesting quotations and for organizing the transportation and disposal of the aggregated stocks. During the project the cost reduction of this approach to the country-by-country approach will be quantified. If the system proves to be cost and resource efficient, annual contracts will be signed with a selected disposal facility for a bulk amount of ODS waste based on the national collection efforts.

The RCF will also be responsible to share expertise and experiences of ODS management within the participating countries, as well as facilitate training and bilateral trading of certain ODS such as halons. The RCF could promote combined POPs and ODS disposal operations in the future.

The establishment of the regional cooperation forum will take place at the **project start-up workshop**. At this workshop stakeholders will set an appropriate organization structure for the forum, agree on the tasks and responsibilities of each stakeholder, agree on the tender documents for international ODS transport and disposal and outline the working procedures of the RCF. Simultaneously at this workshop the detailed work plan and project implementation details will be discussed and agreed.

The RCF will have a chairing organization which would be responsible for its day-to-day activities and, during the project, for its implementation. The proposal is to rotate the chairing to distribute the additional workload evenly. Through this, close ties could be established between the implementation of the POPs and ODS disposal activities. The RCF will provide further opportunities to broaden such cooperation and to exploit all possible synergies between the SC and MP. To this end the main stakeholders of the POPs NIP implementation teams will be invited to the project workshops.

Two further workshops are planned during the project implementation. The **second workshop** will be held at the mid-term of the project, after the first batch of the ODS stocks have been disposed of. At this meeting, stakeholders will discuss the experiences of the first aggregation, transportation and disposal and take decisions if the project implementation should be altered. They will also evaluate the work of the RCF and may revise/update or amend its guiding roles.

This meeting will also be utilized to make the first rotation in the chairing.

Croatia will chair the first term partly because it has the largest stocks of ODS, the most advanced collection, recycling and reclaim system among the participating countries, and partly because the NOUs in Bosnia and Herzegovina and in Montenegro will be busy with the planned trainings and aggregation activities in this period. The second chairing country will be decided during the first workshop.

The **third workshop** of the RCF will be held at project closure. At this meeting the whole project implementation will be assessed and the lessons learnt concluded. Upon successful project implementation this meeting will also be used to further adjust the self management of the forum and for preparation for its enlargement both geographical wise and objective wise.

5.4.2. Case Study for Dissemination of Project Results in other Article 5 Countries

The Regional strategy for disposal and destruction of ODS for 3 LVCs in Eastern Europe is one of two regional projects/strategies approved by the MLF under the existing window for LVC countries. In this regard, it is important to develop a project case study which will include good practices and lessons/experiences to other countries in line with the objective of Decision 58/19.

The case study will be covering the following issues/questions:

- Contribution of the regional destruction initiatives to the compliance under the Montreal Protocol;
- Added value provided by a regional approach *vis à vis* national strategies: the case study will demonstrate both advantages and disadvantages of the regional approach and lessons learned for other A5 LVC countries;
- Analysis of how regulatory measures should be strengthened for long term management of ODS stocks in line with the requirements of the Montreal Protocol and other related conventions and protocols ratified by Article 5 LVC countries;
- Present the key steps for implementation of disposal activities: data survey, changes in policy framework and legislation, laboratory analysis, training activities, aggregation, transportation, verification, destruction, and monitoring;
- Role of the R/R programme and incentive schemes for retrofit/replacement of end-user equipment in contributing to the success of disposal actions at the national and regional levels;
- The case study will examine how availability and skills of trained technicians in LVCs would contribute to the achievement of the disposal objectives;
- Analysis of how regional actions contribute to the long-term sustainability of ODS destruction activities in the participating countries;
- Analysis of how synergies should be addressed with other chemical destruction activities, especially in LVCs;
- Present possibilities of co-financing to the Multilateral Fund e.g. national participation, voluntary carbon markets, GEF, other chemical management financing taking into account global ozone and climate benefits.

The case study will be prepared in English and disseminated among Article 5 LVC countries.

5.5. Component #4: Awareness Raising, Training and Monitoring

5.5.1. Laboratory and Risk Mitigation Trainings at the National ODS Centres

Data collection for the project preparation concluded that even in Croatia the laboratory capacity for ODS analysis at the RRR centres is not sufficient. Consequently, for a disposal project like this one it is crucial that the project management staff receives an intensive risk assessment and management training to minimise/ avoid human and environmental exposure.

Croatian RRR centres require additional training for handling identifiers, recycling and reclaim equipment and gas chromatographers. Whereas training for identifiers could be done by a national expert, training for operating RR equipment and gas chromatographers would need to be conducted by an international expert. A two-day training will be organized that would gather responsible staff from all three RRR centres in Croatia and provide both training for operating the identifier, RRR machine and the gas chromatographer. Laboratory samples in Bosnia and Herzegovina and Montenegro will be sent to accredited laboratories. In Croatia samples will be analysed by the RRR centres as part of the private sector national contribution.

5.5.2. Local Trainings in Bosnia and Herzegovina and Montenegro to Disseminate Experiences of the Croatian Recycling and Recovery System

Due to the strong national commitment and efforts in Croatia, the ODS recycling and recovery system is well-developed and functional. The collected amount of CFCs and the complete phase out and disposal of halons proves that this system, including the incentives part, is working. This experience, its advantages and barriers, will significantly enhance national recycling and recovery actions in Bosnia and Herzegovina and Montenegro if shared.

During the national stock aggregation, two trainings will be held in Bosnia and Herzegovina and in Montenegro in order to disseminate experiences of the collection and aggregation system applied in Croatia. The project believes that this can further facilitate the collection efforts and amounts during the project life and beyond. The training can further encompass the necessary labelling and documentation needs for international transport of waste ODS.

5.5.3. Joint Efforts for ODS-POPs Inventory, Collection, Disposal and Awareness Programme

From project initiation to its completion, the project plans to invite the POPs teams that are working on the NIP development and updating exercise in the participating countries. After the mid-term workshop of the project, a concept will be developed to identify those areas in ODS and POPs management, particularly inventory making, data collection and maintenance, handling, transportation, storage and disposal where joint efforts will lead to resource and cost reduction.

The intention is that due to this activity, owners of POPs (particularly PCB stocks) would join the project. The project will offer space on the shipments, negotiate reduced disposal prices, offer expertise in preparing export documentation for the joint ODS-POPs stocks. POPs owners would pay the disposal of POPs and share the management costs. The benefit in this way would be reduced disposal and transportation costs.

The concept will be developed and implemented in the first project year. Its results and lessons

learned will be discussed in the mid-term project workshop. If necessary, modifications will be undertaken in the second year of the project. At the final project workshop, conclusions will be drawn which may set the enlargement of the regional cooperation forum with POPs.

5.5.4. Targeted Inspections for Complying with the RRR Scheme

RRR centres and service technicians cooperation in ODS management is crucial. To increase such commitment, the project plans to implement training programmes. It will provide tools and equipment and international expertise will also be there for consultative purposes.

On the other hand, the project will also facilitate the regulatory "presence" in ODS management. In this regard, intensified environmental inspections are planned at the second part of the project implementation, after all the stakeholders have had necessary time to develop their own expertise and practice.

This activity has two objectives:

1. To signal the private sector that the rules of ODS management have to be followed. This will facilitate "fair play" in the ODS management among competing parties and reduce the intentional venting of ODS;
2. To develop and implement standardized inspection practices at the respective national authorities; this will intensify environmental inspections of compulsory registration of the ownership over equipment with ODS and POPs. With this capacity at hand national authorities will have a more appropriate mechanism to monitor the implementation of ODS related legislations.

6. PROJECT IMPLEMENTATION

6.1. Project Management

6.1.1. Responsibilities

UNEP and UNIDO will jointly implement the project as Implementing Agencies (IA). A project focal point will be established within UNIDO and UNEP for project management. These focal points will consist of dedicated core professional staff, supported by other staff as required by the project needs and supervised by a senior professional engaged in the management and coordination of the organizations' Montreal Protocol management program.

Project implementation requires involvement of a broad range of stakeholders at both national and regional level.

At **national level**, the principal responsible partners for the achievements of the objectives of the project are the following:

- Ministry of Environmental and Nature Protection of Croatia;
- Ministry of Foreign Trade and Economic Cooperation of Bosnia and Herzegovina;
- Environmental Protection Agency of Montenegro;
- Stakeholders from the private environmental sector such as the RRR centres, owners of ODS wastes will also play a key role in achieving the technical objectives of the project.

At **regional level**, a part time Regional Technical Advisor (RTA) will be nominated to oversee the project related technical matters. His/her responsibilities will be the following:

- Coordinate project activities with the NOUs;
- Facilitate cooperative interaction among stakeholders and provide the stakeholders with centralized project related management;
- Conduct data collection and maintenance at the regional level concerning project deliverables;
- Obtain transportation approvals of the ODS waste consignments for international transportation;
- Prepare tender documents for the IAs concerning procurement of tools, hardware and services not available at project stakeholders;
- Establish and maintain a project related information sharing network;
- Provide individuals, agencies and companies with technical and project management related information;
- Exchange information with international organizations;
- Facilitate the organization of proliferation activities, trainings, workshops and seminars, such as developing training programmes, brochures, or information materials;
- Develop -in consultation with the NOUs – the concept for joint ODS-POPs inventory, collection, disposal and awareness programme;
- Monitor and assess the implementation progress, the achievement of the deliverables including the responsibilities and duties of stakeholders and regularly report to relevant governmental authorities and IAs.
- Prepare and submit the final project report to the IAs .

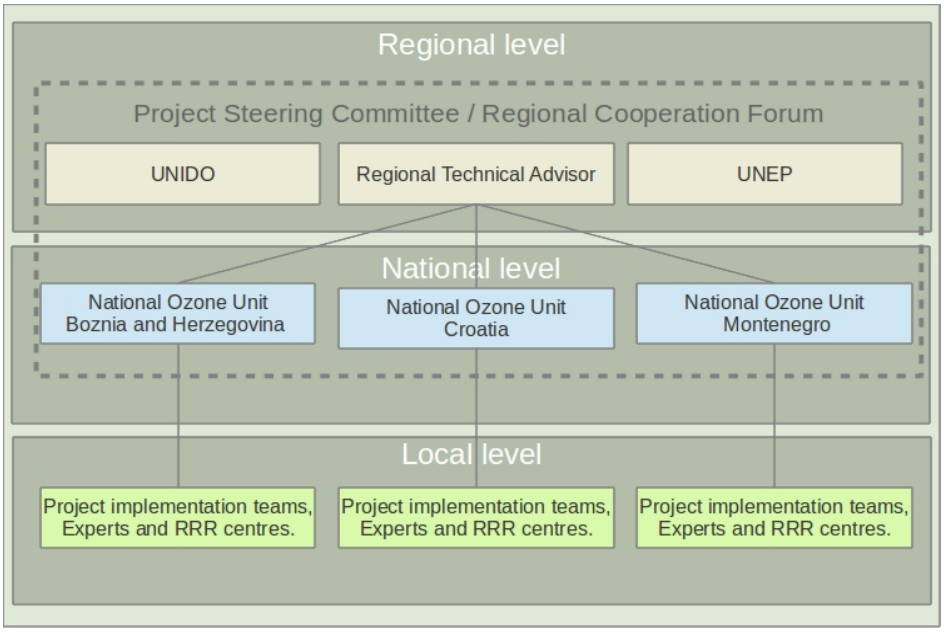
The **coordination between the national and regional management levels** will be achieved through the National Ozone Units. The NOUs will manage and execute the project at the national level, and perform the following duties:

- Nomination of a National Contact Person (NCP); The NCP under the supervision of the NOU will report to the RTA and to the IAs;
- Provision of technical support to the project, such as facilitating national aggregation exercise and preparation of the international transport, and for organizing training programmes for the RRR centres;
- Organization of project-related workshops and to facilitate project implementation at the policy making level.
- Organization of and technical assistance to the national aggregation process, such as local transportation, stock transfer, laboratory training, risk assessment and management training for the stakeholders, procurement and provision of equipment and tools to the national stakeholders.
- Organization of project meetings specifically the meetings of the RCF.
- Organization of national stakeholders meetings.

- Preparation of progress and financial reports.

The project management structure is given in the figure below:

Figure 1: Project Management Structure



6.1.2. Decision-Making at the Regional Level

A Project Steering Committee (PSC) will be established and will act as the coordinating committee for the project implementation. This entity will be the decision making body of the project. The NCPs, the IAs and the RTA will form the Steering Committee. The structure and decision-making mechanism of the RCF will be the same as of the project. The PSC will have meetings in the first, the twelfth and the last project months. Additional meetings can be held if necessary.

The PSC will oversee the project-related work of the RTA and NCPs. The PSC will review, comment on and approve the detailed project work plan. All decisions of the committee, such as respective responsibilities, timelines and the budget will be clearly communicated to those concerned. Activities will be implemented through sub-contracts. Submitted tenders, contracts and ToRs will be reviewed and evaluated by the PSC.

Any major changes in the project plans or programmes will require approval from the PSC to take effect. PSC members will facilitate the implementation of project activities in their respective organizations, ensure that cooperative activities are implemented in a timely manner and facilitate the integration of project-inspired activities into existing programmes and practices. Representatives of partner and co-funding organizations not represented in the PSC will be invited to attend the meetings as needed.

6.1.3. Implementation at the National Level

At the national level the implementation of the project is entrusted to the NOUs. The NOUs will work jointly with the national RRR centres as they are the key stakeholders to the project. Decisions at the national levels will be undertaken by the NOU in consultation with the national

project stakeholders and contributing partners.

The NOUs can directly consult with the RTA or the IAs provided that the communication is copied to all project implementing partners (PSC members).

Project Implementation Teams (PITs) will be formed during the first month of the project. They will assist the following activities:

- Supervise national aggregation activities;
- Provision of technical support for the establishment of an enabling policy framework, institutional strengthening, demonstration activities, aggregation technology selection and implementation, awareness raising and education, experience dissemination, project monitoring and evaluation, and project management;
- Periodic appraisal of project implementation progress;
- Support for the development of training materials;
- Give assistance to the RRR centres in obtaining transportation permits;
- Arrange local trainings in Bosnia and Herzegovina and in Montenegro;
- Prepare and submit national project follow-up reports to NCP.

Technical expertise not available at the NOUs and national stakeholders might be subcontracted. The RTA will be available to assist the PITs on technical matters.

6.2. Project Monitoring and Evaluation

Monitoring of project activities and evaluation of their results will be undertaken by UNEP and UNIDO; this will serve a dual function:

1. It will facilitate tracking implementation progress toward the outcomes and objectives;
2. It will facilitate learning, feedback, and knowledge sharing on results and lessons among the primary stakeholders to improve knowledge and performance.

This section of the project document presents a monitoring and evaluation plan (see table below).

Table 10: Monitoring and Evaluation Plan

M&E Activity	Responsible Parties	Time Frame
Organize Project Start-up Workshop	RTA, UNEP	At project start
Measure impact indicators	RTA, NOUs, UNIDO	Bi-annually
Prepare project reports	RTA	Bi-annually
Organize second workshop and carry out mid-term evaluation	UNIDO, UNEP, RTA, NOUs	At mid-point of the project implementation
Organize third workshop and carry out final evaluation	UNIDO, UNEP, RTA, NOUs	Project completion
Carry out final external evaluation	UNIDO in cooperation with UNEP	Within 3 months of completion of external evaluation
Complete Project Terminal Report	RPM	Within 3 months after the completion of the project implementation

Project Start up: A Project Start-up Workshop (SW) will be conducted by UNEP with the full project team, relevant government counterparts, co-financing partners, and UNIDO.

The fundamental objective of this workshop besides the establishment of the regional cooperation forum will be to assist the project team in understanding and assimilating the goals and objectives of the project, as well as to finalize the preparation of the project's work plan.

Additionally, SW will: (i) introduce project staff, which will support the project during its implementation; (ii) delineate the roles, support services, and complementary responsibilities of the project stakeholders; (iii) provide a detailed overview of UNIDO reporting and Monitoring and Evaluation (M&E) requirements. Equally, the SW will provide an opportunity to inform the project team on UNEP/UNIDO project related budgetary planning, budget reviews and mandatory budget re-phasing.

The SW will also provide an opportunity for all parties to understand their roles, functions, and responsibilities within the project's decision-making structures, including reporting and communication lines and conflict resolution mechanisms. The Terms of Reference (TOR) for project staff and decision-making structures will be discussed, as needed, in order to clarify each party's responsibilities during the project's implementation phase. The working roles of the regional cooperation forum will also be developed and approved.

Impact indicators: UNIDO will monitor and evaluate the implementation of the project in accordance with established UNIDO procedures. Monitoring and evaluation will be based on measurable performance indicators described in the following table:

Table 11: Impact Indicators

Key Impact Indicator	Baseline	Target	Means of Verification	Sampling Frequency
Amount of ODS aggregated for final disposal (kg)	0	29,460.6	Progress reports by the RPM	Bi-annually
Weight of collected ODS (kg)	13,790.6	29,460.6	Progress reports from stakeholders and inspections	Bi-annually
Weight of disposed ODS (kg)	0	29,460.6	Progress reports from RTA	Bi-annually

Monitoring: Day-to-day monitoring of the implementation progress will be the responsibility of the RTA based on the project's work plan and its indicators. The indicators with their means of verification will be approved at the Start-up Workshop, which will also be the first meeting of the PSC.

UNIDO, in cooperation with UNEP, will be responsible to monitor the implementation progress and undertake monitoring and evaluation missions. During these missions, policy-level meeting of stakeholders directly involved in the implementation of the project will be required. The first of such meetings will be held within the first three months of project implementation. The meeting will also help to make all involved parties acquainted with the reporting procedures.

Reporting: RTA will prepare a Project Start up Report immediately following the Start up Workshop. The workshop report will include:

- A detailed work plan for the project;
- Detailed project budget;
- Detailed narrative on the regional cooperation forum, institutional roles, responsibilities, coordinating actions and feedback mechanisms.

All elements of the project will also be subject to evaluation measures of the Implementing Agencies. This will include the Project Performance and Evaluation Review (PPER) and external

evaluations. The mid-point project review would focus on the lessons learned from project experience to that date, including lessons about the project design, implementation and overall management. The final report prior to the end of the project will focus on similar issues but will give strong emphasis to the potential for project impacts beyond the initial objectives. Recommendations for follow-up activities will be included in each of these reports. RTA will be responsible for the production of Bi-annual Project Reviews including Financial Reports. This report is a UNIDO requirement and is the most important reflection of the progress of the project.

Evaluation: Project evaluation will be based on Bi-annual Project Review/Financial Reports, technical reports, workshop reports and personal communications. At least one UNIDO field evaluation will be carried out to safeguard project adherence to the work plan and the use of funds. The final evaluation will also look at impact and sustainability of results.

Audit: The project may be subject to financial audits as required in accordance with the IAs rules and regulations.

6.3. Work Plan

The project work plan is shown in the following table:

Table 12: Work Plan

	Activities	Duration of Project (Project Months)																							
	Completion of major activities	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**
1	**Aggregation at the national levels**																								
1.1	ISO cylinders of 950 litres for aggregation, including safety certificate																								
1.2	ISO cylinders of 200 litres for aggregation, including safety certificate																								
1.3	Renting ISO shipping containers for international transport																								
1.4	Domestic transportation for aggregation																								
1.5	Human resources costs for stock aggregation at the national RRR centres																								
1.6	Testing of the stocks before export																								
1.7	Documentation, labelling																								
2	**International transportation and destruction**																								
2.1	Transportation to final destruction facility including GPS tracking and insurance (three shipments)																								
2.2	Purification and testing of the ISO tanks at the destruction facility																								
2.3	Destruction																								
3	**Regional Cooperation Forum**																								
3.1	Establishment of the regional cooperation forum including its three workshops																								
3.2	Case study for dissemination of project results in other Article 5 countries.																								
4	**Awareness raising, training and monitoring**																								
4.1	Laboratory and risk mitigation training for the national RRR centres in Croatia																								
4.2	Local trainings in Bosnia and Herzegovina and Montenegro to disseminate experiences of the Croatian RRR system																								
4.3	Development and implementation of a concept for joint ODS-POPs inventory, collection, disposal and awareness raising programme																								
4.4	Intensified regulatory inspections for ODS management																								
4.5	Management, coordination and monitoring of project implementation																								

7. PROJECT SUSTAINABILITY AND DEMONSTRATION VALUE

7.1. Regional Demonstration Value

The project presents a strategy which highlights the importance (in terms of cost-efficiency gains) of adopting a regional approach for LVC countries in the ECA Region undertaking ODS destruction activities.

Specific figures of cost-efficiency gains by following a regional approach (from 18.6 US$/kg to 12.54 US$/kg, as explained below) are defined for the sub-set of countries participating in the project, because those are the countries for which the MLF has provided funding to undertake the necessary data collection. However, similar gains will also exist for other countries in the region opting for a coordinated regional approach with other countries.

Therefore, the project has a regional demonstration value. Needless to say, it cannot be expected that a region so diverse and large like the ECA Region can find a one-size-fit-all solution to the issue of ODS waste disposal. Notwithstanding this, the proposed project has a strong regional demonstration value to the following sub-groups of countries within the ECA Region:

1. The project has a direct demonstration value for countries which plan to become EU Member States in the short to mid-term, and which therefore have to aligned with the requirements in Regulation (EC) 1005/2009;
2. The demonstration value also applies to countries which, despite not being potential EU Member States, may be interested in aligning their environmental policies with those of the EU;
3. Last but not least, the project also has a demonstration value on the basis of cost-efficiency improvements for any LVC in the ECA region.

Taking into account the number of countries in the ECA Region that fall under any of these three sub-groups listed above, it is clear that the project has a demonstration value that goes beyond the three participating countries. Every country in the ECA Region will benefit from the demonstration value in terms of setting up a regional strategy, with the lessons learnt in the implementation of Components #1, #2 and #4 of the project being disseminated through Component #3. This component further strengthens the regional utility by serving as a tool to disseminate other destruction activities in the ECA Region, such as the destruction project in Georgia or the experience with the destruction facility in the Former Yugoslav Republic of Macedonia.

The regional approach for demonstrating ODS disposal in Low Volume Countries in the ECA Region has two major benefits compared to a country by country approach:

1. Improved information sharing;
2. Financial gains.

As it was described earlier, all participating countries have ratified the most important international agreements concerning environment protection. Although - due to political and economic reasons - there are significant differences in the level of legislative infrastructure in the countries, commitment of adhering to the Montreal Protocol is strong in all of them.

The RCF of the project will share ODS management related information and experiences of the advanced countries with the ones that are less prepared. Croatia's EU accession resulted in quick

and deep changes in the legal and economic sectors. This led to a successful recycling and reclaiming system for ODS. The incentive scheme removes the possibility of selling virgin ODS as used. Three RRR centres are enough to serve the whole country, and as a result of this system 10,000 kg of ODS waste, mostly CFCs, are collected annually. In those countries where the ODS collection system is less advanced, this experience could be utilized especially in the field of collection and /or replacement programs of household appliances, A/C equipments or industrial chillers.

The regional nature of the project has financial advantages especially in the case of Low Volume Consuming countries. Because hazardous waste disposal and transportation sectors are market-based systems, bigger quantities can achieve more competitive prices. Reducing transportation costs can also lead to significant savings especially if the transportation is coordinated and the vehicles are appropriately loaded.

The following table shows the baseline projects of the participating countries; data shows what would happen without this project i.e. in a country by country approach:

Table 13: Baseline on a Country-by-Country Approach – Aggregation Costs

Sl.No.	Component	Unit	Unit quantity	Unit cost (USD)	Total cost (USD)
1	Aggregation (Croatia)	Occasion	2	95,000	190,000
2	Aggregation (BiH)	Occasion	2	40,000	80,000
3	Aggregation (Montenegro)	Occasion	2	40,000	80,000
	Total				**350,000**

In the baseline scenario, each country would have its own aggregation activities, which would probably result in two-three stocks in the country from where the ODS wastes would be sent to the final disposal facility in an uncoordinated manner. Vehicles would travel half loaded, and the amounts of waste would be too small for negotiation with the disposal facility. This would result in extra documentation costs and extra resources from the authorities as well.

Calculations are based on the national data collection of the project development phase. The unit disposal cost of the baseline project was set to 6.0 USD/kg, as the national stocks alone would not form ground for a thorough negotiation.

Table 14: Baseline on a Country-by-Country Approach – Transport and Destruction Costs

Sl.No.	Component	Unit	Unit quantity	Unit cost (USD)	Total cost (USD)
1	Transportation to final disposal facility (Croatia)	km	1,700	2	3,400
2	Transportation to final disposal facility (Montenegro)	km	2,400	2	4,800
3	Transportation to final disposal facility (BiH)	km	2,200	2	4,400
4	Purification and testing of the ISO tank at the destruction facility	occasion	6	1,500	9,000
5	Destruction	kg	29,461	6	176,764
	Total				**198,364**

Grand total	**548,364**
Unit cost of disposal (USD/kg)	**18,6**

The total baseline project cost would be 548,364 USD; the unit cost of disposal would therefore be 18.6 USD/kg, which is high and would not allow for a gradual increase in ODS phase-out and disposal.

The project scenario will consolidate these efforts, harmonize the aggregation efforts, negotiate a better disposal price and organize appropriately loaded tracks for disposal. This is expected to reduce the disposal costs by approximately 35%. The final figure of the project budget, which includes not only aggregation at national level and export disposal, but the establishment of the regional cooperation forum, is 369,429 USD, with a cost efficiency is 12.54 USD/kg.

This also justifies the financial sustainability of the project which is discussed below.

7.2. Sustainability of the Business Model

The most important part of project sustainability is always its financial scheme. As it was demonstrated in the earlier chapter the regional cooperation forum is expected to reduce the unit cost of ODS disposal by approximately 35%. This will probably have a positive effect on the collection efforts in the participant countries and thus those countries, which have not yet started to phase out CFCs will start to shift to this end and significantly higher amounts are expected to be collected in the future.

Simultaneously, due to the training and information sharing project components, the collection efforts in Bosnia and Herzegovina and Montenegro will increase. This will result in higher amounts of ODS waste to be disposed of and, due to market structure of disposal activities, unit prices are expected to go down.

To further boost the sustainability of the project and the regional cooperation, a concept for joint ODS-POPs inventory, collection, disposal and awareness programme will be developed. Because joint ODS-POPs shipments are more economic for the incinerators, their inclusion in the programme of the regional cooperation forum beyond project completion seems adequate.

The regional cooperation forum can also be enlarged geographical wise. In this regard the project aims to invite NOUs from neighbouring countries to its final workshop. The case study for disseminating project results in other Article 5 countries foreseen in the second half of the project implementation may further facilitate project sustainability. Representatives of the NOUs of the neighbouring countries will be invited to the closing workshop of the project to disseminate the project's lessons learned and to further enlarge the scope of the RCF.

Provided that harmonized disposal operations under the RCF generate enough resources for its maintenance, the objectives of the RCF could be integrated into existing institutional infrastructures such as UNEP/UNIDO National Cleaner Production Centres [6] in the participating countries; this option will be investigated during the implementation of the project.

The training and awareness component of the project will provide Bosnia and Herzegovina and Montenegro with key information about the strengths and challenges of the operating collection system working in Croatia. This will help other participating countries to set up their own comprehensive system and thus to maximise the collected, reused, reclaimed and recycled

[6] Since 1994, UNEP and UNIDO have established and supported National Cleaner Production Centres/Programmes (NCPCs/NCPPs) in developing countries and economies in transition to build local capacity to implement Cleaner Production and to provide core CP services at the national level. To date, Croatia hosts one of the National Cleaner Production Centre, with National Cleaner Production Programmes being currently implemented in Montenegro, and under preparation in Bosnia and Herzegovina.

amounts, while minimizing or avoiding the venting of ODS gases. Laboratory trainings are also planned for the RRR centres in order to better prepare them for the aggregation and export disposal operations.

8. PROJECT BUDGET

The project budget is presented in two sections: the first section provides the cost estimation for the funding requested from the Multilateral Fund, whereas the second part provides an estimate of the in-kind contributions from the stakeholders.

The total project budget is presented in the following table:

Table 15: Total Project Budget

Cost Item	Costs (USD)
Aggregation at the national levels	93,240
International transportation and destruction	166,240
Regional Cooperation Forum	56,175
Awareness raising, training and monitoring	48,825
Project funding requested to the Multilateral Fund	**364,480**
-UNIDO	**274,480**
-UNEP	**90,000**
Project in-kind contributions	**238,560**
Total project costs	**603,040**
Project support costs	**30,914**
-UNIDO 7%	**19,214**
-UNEP 13%	**11,700**
Total requested from the Multilateral Fund	**395,394**

The total project cost is 603,040 USD; the total project funding requested to the MLF is 364,480 USD; Implementing Agency support costs for UNIDO is 19,214 USD and for UNEP 11,700 USD. The total funding requested to the MLF is 395,394 USD.

The cost efficiency of the project is 12.54 USD/kg of ODS waste, which is below the 13.2 USD/kg set by Decision 58/19.

8.1. Financial Resources from the Multilateral Fund

The budget is presented for each project component namely: aggregation at the national levels; international transportation and destruction; Regional Cooperation Forum; and awareness raising, training and monitoring. The budget lines for each activity are presented in the following tables.

Table 16: Project Budget – Component #1

Aggregation at the national levels					
Sl.No.	**Component**	**Unit**	**Unit quantity**	**Unit cost (USD)**	**Total cost (USD)**
1.1	ISO cylinders of 950 litres for aggregation, including safety certificate	piece	10	4,600	46,000
1.2	ISO cylinders of 200 litres for aggregation, including safety certificate	piece	4	850	3,400
1.3	Renting ISO shipping containers for	piece	2	6,000	12,000

Aggregation at the national levels					
Sl.No.	**Component**	**Unit**	**Unit quantity**	**Unit cost (USD)**	**Total cost (USD)**
	international transport				
1.4	Tools and equipment for aggregation	piece	2	4,000	8,000
1.5	Domestic transportation for aggregation	km	2,400	1	2,400
1.6	Human resources costs for stock aggregation at the national RRR centres	person week	36	250	9,000
1.7	Testing of the stocks before export	test	20	250	5,000
1.8	Documentation, labelling				3,000
1.9	Contingency (5%)				4,440
	Total				**93,240**

Table 17: Project Budget – Component #2

International transportation and destruction					
Sl.No.	**Component**	**Unit**	**Unit quantity**	**Unit cost (USD)**	**Total cost (USD)**
2.1	Transportation to final destruction facility including GPS tracking and insurance (three shipments)	km	5,000	2	10,000
2.2	Purification and testing of the ISO tanks at the destruction facility	occasion	3	1,000	3,000
2.3	Destruction	kg	29,460	5,0	145,330
2.4	Contingency (5%)				7,910
	Total				**166,240**

Table 18: Project Budget – Component #3

Regional Cooperation Forum					
Sl.No.	**Component**	**Unit**	**Unit quantity**	**Unit cost (USD)**	**Total cost (USD)**
3.1	Establishment of the regional cooperation forum including its three workshops	meeting	3	15,000	43,500
3.2	Case study for dissemination of project results in other Article 5 countries.	subcontract	1	10,000	10,000
3.3	Miscellaneous (5%)				2,675
	Total				**56,175**

Table 19: Project Budget – Component #4

Awareness raising, training and monitoring					
Sl.No	**Component**	**Unit**	**Unit quantity**	**Unit cost (USD)**	**Total cost (USD)**
4.1	Laboratory and risk mitigation training for the national RRR centres in Croatia	training	1	5,500	5,500
4.2	Local trainings in Bosnia and Herzegovina and Montenegro to disseminate experiences of the Croatian RRR system	training	2	4,000	8,000
4.3	Development and implementation of a concept for joint ODS-POPs inventory, collection, disposal and awareness	awareness programme	1	3,000	3,000

Awareness raising, training and monitoring					
Sl.No	**Component**	**Unit**	**Unit quantity**	**Unit cost (USD)**	**Total cost (USD)**
	raising programme				
4.4	Management, coordination and monitoring of project implementation			30,000	30,000
4.5	Miscellaneous (5%)				2,325
	Total				**48,825**

The total financial resources the project requests from the Multilateral Fund is 369,429 USD, with a total cost efficiency of 12.54 USD/kg of ODS waste.

Project funding under the Multilateral Fund (USD)	**364,480**
Unit cost of disposal (USD/kg)	**12.54**

8.2. Project In-Kind Contributions

The project expects in-kind contributions from several sources:

- Government organizations will provide in-kind contributions to the project by providing office space, human resources, transportation of the project staff, printing and other miscellaneous costs;
- RRR centres finance will support the national collection efforts which will lead to the collection of 15,670 kg ODS waste for disposal on top of the current 13,396 kg already collected;
- Public and private sector co-financing partners will provide resources to the replacement of ODS containing equipment.

In-kind contributions are detailed in the following table:

Table 20: Project In-Kind Contributions

Sl.No.	Component	Unit	Unit quantity	Unit cost (USD)	Total cost (USD)
1	National Collection Efforts, contribution form the RRR centres	kg	29,460	6	176,760
2	Laboratory and risk mitigation trainings at the national RRR centres in Croatia	training	1	7,000	7,000
3	Local trainings in Bosnia and Herzegovina and Montenegro to disseminate experiences of the Croatian RRR system	training	2	1,500	3,000
4	Development of a concept for joint ODS-POPs inventory, collection, disposal and awareness programme	awareness programme	1	6,000	6,000
5	Intensified regulatory inspections for ODS management	week	3	3,600	10,800
6	Management, coordination and monitoring of project implementation			35,000	35,000
	Total				**238,560**

The following table provides, for each of the items identified in as in-kind contributions, a budget breakdown by country:

Table 21: Project In-Kind Contributions (Breakdown by Country)

Sl.No	Component	Cost (USD)			
		Total	Bosnia and Herzegovina	Croatia	Montenegro
1	National Collection Efforts, contribution form the RRR centres	176,760	2,970	170,490	3,300
2	Laboratory and risk mitigation trainings at the national RRR centres in Croatia	7,000	-	7,000	-
3	Local trainings in Bosnia and Herzegovina and Montenegro to disseminate experiences of the Croatian RRR system	3,000	1,500	-	1,500
4	Development of a concept for joint ODS-POPs inventory, collection, disposal and awareness programme	6,000	2,000	2,000	2,000
5	Intensified regulatory inspections for ODS management	10,800	3,600	3,600	3,600
6	Management, coordination and monitoring of project implementation	35,000	11,667	11,667	11,667
	Total	**321,124**	**21,737**	**242,760**	**56,627**

8.3. Total Budget

The following table details the total budget (MLF contribution and in-kind contributions) for each of the four project components, taking into account the information in Sections 8.1. and 8.2.:

Table 22: Total Budget per Project Component and Project Item

Component #1: Aggregation at the national levels				
Sl.No.	Component	Cost (USD)		
		MLF	Co-financing	Total cost
1.0.	National Collection Efforts, contribution form the RRR centres	-	176,760	176,760
1.1	ISO cylinders of 950 litres for aggregation, including safety certificate	46,000	-	46,000
1.2	ISO cylinders of 200 litres for aggregation, including safety certificate	3,400	-	3,400
1.3	Renting ISO shipping containers for international transport	12,000	-	12,000
1.4	Tools and equipment for aggregation	8,000	-	8,000
1.5	Domestic transportation for aggregation	2,400	-	2,400
1.6	Human resources costs for stock aggregation at the national RRR centres	9,000	-	9,000
1.7	Testing of the stocks before export	5,000	-	5,000
1.8	Documentation, labelling	3,000	-	3,000
1.9	Contingency (5%)	4,440	-	4,440
	Sub-Total Component #1	**93,240**	**176,760**	**270,000**

Component #2: International transportation and destruction				
Sl.No.	**Component**	**Cost (USD)**		
		MLF	**Co-financing**	**Total cost**
2.1	Transportation to final destruction facility including GPS tracking and insurance (three shipments)	10,000	-	10,000
2.2	Purification and testing of the ISO tanks at the destruction facility	3,000	-	3,000
2.3	Destruction	145,330	-	145,330
2.4	Contingency (5%)	7,910	-	7,910
	Sub-Total Component #2	**166,240**	**-**	**166,240**
Component #3: Regional Cooperation Forum				
Sl.No.	**Component**	**Cost (USD)**		
		MLF	**Co-financing**	**Total cost**
3.1	Establishment of the regional cooperation forum including its three workshops	43,500	-	43,500
3.2	Case study for dissemination of project results in other Article 5 countries.	10,000	-	10,000
3.3	Miscellaneous (5%)	2,675	-	2,675
	Sub-Total Component #3	**56,175**	**-**	**56,175**
Component #4: Awareness raising, training and monitoring				
Sl.No.	**Component**	**Cost (USD)**		
		MLF	**Co-financing**	**Total cost**
4.1	Laboratory and risk mitigation training for the national RRR centres	5,500	7,000	12,500
4.2	Local trainings in Bosnia and Herzegovina and Montenegro to disseminate experiences of the Croatian RRR system	8,000	3,000	11,000
4.3	Development and implementation of a concept for joint ODS-POPs inventory, collection, disposal and awareness raising programme	3,000	6,000	9,000
4.4	Intensified regulatory inspections for ODS management	-	10,800	10,800
4.5	Management, coordination and monitoring of project implementation	30,000	35,000	65,000
4.6	Miscellaneous (5%)	2,325	-	2,325
	Sub-Total Component #4	**48,825**	**61,800**	**110,625**

The following table summarizes this information, showing the total cost of the disposal activity including costs not covered by the Multilateral Fund, as well as the sources of funding for covering these costs, with a breakdown by country:

Table 23: Summary of the Project Budget

Component	Cost (USD)								
	MLF				Co-financing				Total cost per Component
	BiH	Cr	Mn	Sub-Total MLF	BiH	Cr	Mn	Sub-Total Co-financing	
1. Aggregation at the national levels	18,047	57,146	18,047	93,240	2,970	170,490	3,300	176,760	270,000
2. International transportation and destruction	8,634	129,418	28,187	166,240	-	-	-	-	166,240
3. Regional Cooperation Forum	18,725	18,725	18,725	56,175	-	-	-	-	56,175
4. Awareness raising, training and monitoring	17,608	13,608	17,608	48,825	18,767	24,266	18,767	61,800	110,625
Sub-Totals	**MLF: 369,429**				**Co-financing: 238,560**				**603,040**

ANNEX: BASIS FOR THE ESTIMATE OF CFC WASTE TO BE COLLECTED IN CROATIA

The HPMP document for Croatia includes the following table:

Recovered refrigerant containing CFCs [kg] in *Frigomotors d.o.o.*		
Year	**CFC**	**Blends**
2002	1265.54	948
2003	1187.98	936.58
2004	1378.81	1117.32
2005	1274.06	1547.27
2006	1129.17	1769.04
2007	1468.02	1912.77
2008	1541.33	2005.89

The table shows that, as a consequence of the 2006 ban on consumption of a number of ODS, including substances from group 1 (CFCs), there is a significant increase in the amount of CFCs and blends recovered in 2007, and that the increase tends to stabilize for those two flows of recovered ODS in 2008.

The amount of CFCs in the flow "blends" is calculated from sample analysis undertook in the only RRR centre operating in those years (*Frigomotors d.o.o.*, established in 2001). It is observed that the proportion of CFCs decreases over time and stabilizes at a level of around 60% of the total tonnage for the "blends" flow.

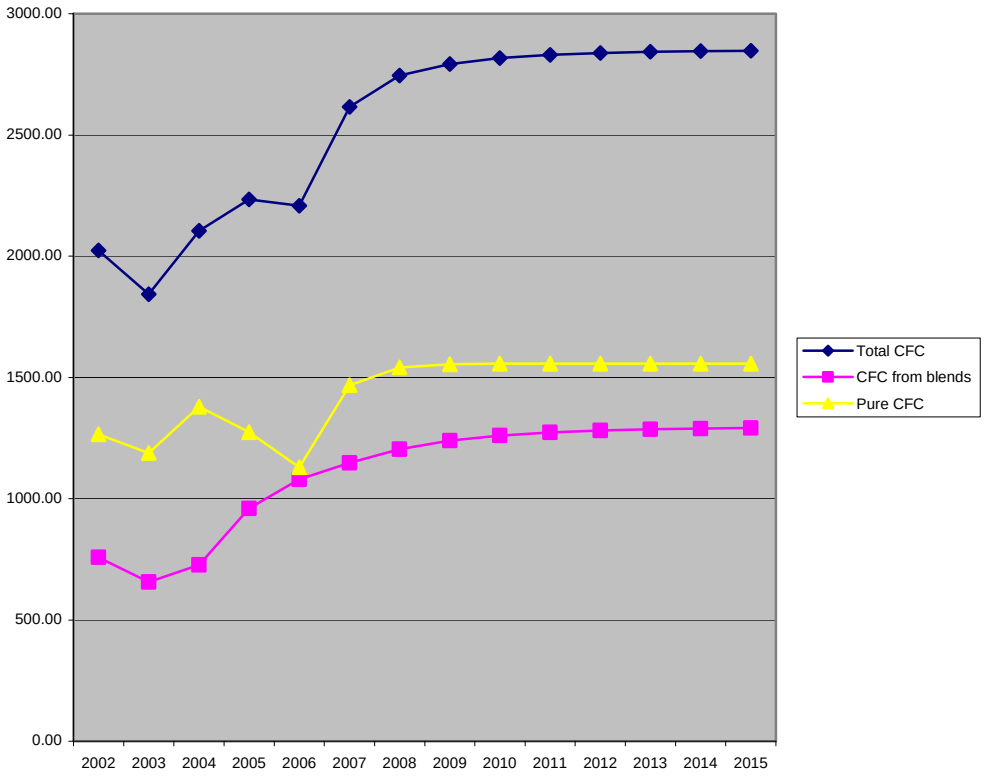
Therefore, the total amount of CFCs recovered during the period 2002-2008 is shown in the following table:

Recovered CFCs [kg] in *Frigomotors d.o.o.*			
Year	**CFC**	**CFC in blends**	**Total**
2002	1265.54	758.40	2023.94
2003	1187.98	655.61	1843.59
2004	1378.81	726.26	2105.07
2005	1274.06	959.31	2233.37
2006	1129.17	1079.11	2208.28
2007	1468.02	1147.66	2615.68
2008	1541.33	1203.53	2744.86

This table is the basis for the calculation of the CFCs that will be collected during the period 2009 – 2015, based on the assumption that the stabilization of the CFC flow arriving at the RRR centre will occur as per an asymptotic function.

Recovered CFCs [kg] in *Frigomotors d.o.o.* (estimate)			
Year	**CFC**	**CFC in blends**	**Total**
2009	1554.14	1238.64	2792.78
2010	1556.29	1260.29	2816.58
2011	1556.65	1273.49	2830.14
2012	1556.71	1281.48	2838.19
2013	1556.72	1286.30	2843.02
2014	1556.72	1289.20	2845.92
2015	1556.72	1290.94	2847.66

The following graph shows the data collected in the two previous tables:



As the HPMP points out, in December 2007 MEPPPC announced a request for proposals for two additional RRR centres, which started full-scale operations in 2009. The two new RRR centres were equipped to have a recovery capacity similar to that of *Frigomotors d.o.o.* In addition to this, it is worth noting that, in the context of the HPMP implementation, two of the RRR centres received additional equipment in 2011, which allowed them to increase their recovery capacity by 25% of their baseline.

Therefore, the estimated total amount of CFCs collected during the period 2009 – 2015 has to be amended as follows:

Recovered CFCs [kg] in the three RRR centres in Croatia (estimate)			
Year	**Frigomotors**	**C.I.A.K. d.o.o. and IND-EKO d.o.o.**	**Total**
2009	2792.78	5585.56	8378.34
2010	2816.58	5633.16	8449.74
2011	2830.14	7075.35	9905.49
2012	2838.19	7095.48	9933.67
2013	2843.02	7107.55	9950.57
2014	2845.92	7114.80	9960.72
2015	2847.66	7119.15	9966.81

This is the basis for the estimate of a collection capacity of 10 MT/ year in Croatia during the project implementation period.