**PHASING OUT OF PCBs AND PCB-CONTAINING EQUIPMENT IN THE FYR OF MACEDONIA**

GEF Medium-sized project
Project No. GF/MCD/08/00
Report version: FINAL VERSION


# Terminal Evaluation Report

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**GEF Focal Area: Persistent Organic Pollutants**
GEF Medium-sized Project

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# Executive Summary

The "Phasing-out of PCBs and PCB-containing equipment in the Former Yugoslav Republic of Macedonia" is a GEF Medium-sized Project, initiated by UNIDO and the Government of FYR of Macedonia as part of Macedonia's efforts to fulfill the requirements of Stockholm Convention to phase-out and eliminate the PCBs in Macedonia. The total Project cost is US$3.015 million, which includes US$1 million of GEF financing, and total co-financing (in cash and in-kind) by the Government of Macedonia and other stakeholders of US$2.015 million. UNIDO is the GEF Implementing Agency, and the POPs Office within the Ministry of Environment and Physical Planning is the National Executing Agency. The project was approved by GEF in February 2006 and endorsed by GEF CEO in July 2008. Project implementation started in September 2008 and was closed in November 2013.

A Terminal Evaluation was foreseen in the Project Document. The terminal evaluation was initiated by UNIDO during the sixth year of project implementation, almost two years later than foreseen in the project milestones. This terminal evaluation provides a comprehensive and systematic account of the project performance by assessing its project design, process of implementation, achievements vis-à-vis project objectives endorsed by the GEF, and the relevant evaluation criteria: design, relevance, efficiency, effectiveness, and sustainability. Even more, it also focuses on the future by giving a strong emphasis to the potential of project impacts beyond the initial project objectives.

The terminal evaluation was carried out in English language in the period September 2013 to November 2013 by an independent evaluator, and consisted of the inception phase, mission phase (field mission to Macedonia during October 2013) and final reporting phase. Data and evidence were collected based on a participatory mixed-methods approach including the following key instruments: (i) desk review of reports and documents collected prior and during the field mission, (ii) interviews with project staff and stakeholders, (iii) observations from the field.

According to the Project Document, the proposed overall project objective is to reduce and eliminate the threats to human health and the environment posed by PCBs in the FYR of Macedonia by establishing an environmentally sound management (ESM) system for phasing out 25 transformers in most critical condition identified by the inventory and disposal of 150 tons PCB-containing wastes in the upgraded interim storage and decontamination facility in an environmentally sound manner. The environmentally sound management system for disposal of PCBs and PCB-containing equipment should include legislation, institutional and technical capacity building, awareness raising and assisting in the phase-out process of PCBs-containing equipment from the selected demonstration areas.

**Design**. Project design is rated as MODERATELY SATISFACTORY, its strongest side being strong participation of local stakeholders in project identification, while the Logical Framework and target indicators are not developed adequately (they lack the measurable element of being

a SMART indicator) to allow for proper adaptive management and monitoring of project results. The most important Key impact indicator (technical indicator) is removal of 150 tons of PCB-containing equipment and was set correctly. Some soft target indicators were established correctly as SMART indicators in the Logical Framework.

**Relevance**. Based on the assessment of full project relevance to local and national priorities and policies, full priorities related to relevant international conventions, and to the GEF's strategic priorities and objectives, overall project relevance is considered to be HIGHLY SATISFACTORY.

**Effectiveness.** The project's overall objective is to reduce and eliminate the threats to human health and the environment posed by PCBs in the FYR of Macedonia by establishing an environmentally sound management (ESM) system for phasing out 25 transformers in most critical condition identified by the inventory and disposal of 150 tons PCB-containing wastes in the upgraded interim storage and decontamination facility in an environmentally sound manner. At project closure and by the time of terminal evaluation, the project overreached the overall objectives by decontaminating 167.25 tons of PCB-containing equipment (12 percent more than stated in the project goals). Instead of the mentioned 25 transformers in the project document, 124 PCB-containing transformers in most critical condition were phased out, cleaned and returned to the equipment owners for further service or final disposal by the owners, whereas the contaminated protective equipment for the workers and the substances for cleaning the PCB-contaminated oils and the contaminated oils were disposed of in an environmentally sound manner at a hazardous waste landfill by Polyeco in Greece. A new interim storage facility has been built and suitable non-combustion and decontamination technology for PCB-containing oils and equipment has been installed. Effectiveness of Project Outputs is rated HIGHLY SATISFACTORY, in view of tangible results in delivering planned activities/inputs and overreaching of project objectives.

**Efficiency.** The terminal evaluation has concluded that there were all efforts undertaken to ensure cost-effectiveness of project results both by UNIDO as IA and by POPs Office of MoEPP as NEA. Even more, the amount for co-financing increased to a level of US$2,015,000 instead of the planned US$1,795,000 by 13 percent. However, the cost-effectiveness was impacted by the fact that the project implementation was two years delayed, even though there was no violation of the financial framework. Reviewing the final results from project management and financial management at time of project closure, the project efficiency is rated SATISFACTORY.

**Sustainability.** The sustainability of this project is rated as MODERATELY LIKELY. The reason behind is that the financial risks are moderate. The GEF, MoEPP and Rade Koncar Servis have established all the technical and institutional regulations and possibilities including a sustainable relatively low-cost treatment per kg of PCB-contaminated oils with the non-combustion and decontamination technology. On the other side there is no possibility to predict the financial conditions and stability of the PCB owner companies, and therewith no security on whether their PCB-containing equipment will finally be phased out or not by 2017, as the state

has no financial mechanisms or incentives to support companies with financial difficulties. No socio-political, institutional framework and governance, and environmental (ecological) risks are present.

**M&E**. The implementation of M&E was rated SATISFACTORY. It is noted that the NPC prepared all necessary very detailed reports that provide exhaustive aspects of the periodical achievements of the project with narrative link back to the outcomes elaborated in the logical framework. Proper Monitoring and Evaluation procedures were followed by the Project Manager from IA by writing very detailed and exhaustive Annual Project Implementation Reviews, and especially after forming the Task Team with Sea Marconi for purchasing and installing the non-combustion and decontamination technology, including detailed work plans with measurable goals and evidence of their regular updates, as well as regular minutes and reports of meetings, monitoring and evaluation missions, phone and skype conferences. Both NPC from NEA and PM from IA performed oversight of the main activities especially in the phases of installation, training and decontamination process at the facility in Rade Koncar Servis. On the other side, this project is an example of how much the M&E frameworks and their implementation is crucial for project success, because almost all weakly rated aspects of the project can be directly or indirectly tied back to the M&E framework. Also, Tripartite Reviews were not undertaken. Proper Monitoring and Evaluation could have minimized the two years delay for the outputs of regulation adoption and acquiring the equipment for PCB decontamination.

Project management has been mainly carried out effectively by the committed National Project Coordinator working exclusively on this project as part of the National Executing Agency – the POPs Office of MoEPP. UNIDO performed full support, backstopping and on-site monitoring through the dedicated Project Manager.

Summary of the terminal evaluation conclusions is as follows: The on-time choosing of the proper decontamination technology – best available technique (BAT) is one of the main and time-consuming components of this project. A specific lesson learned from this particular project is that the ToR for choosing a certain technology has to be thoroughly pre-defined by the NEA and UNIDO. All relevant criteria such as size, volume, contamination grade etc. have to be taken into consideration well in advance in order to have a successful tender procedure.

Summary of terminal evaluation ratings

| Criterion | Evaluator's rating |
|---|---|
| **1. Attainment of project objectives and results (overall rating)** | **HS** |
| Design | **MS** |
| Relevance | **HS** |
| Effectiveness | **HS** |
| Efficiency | **S** |
| **2. Assessment of risks to sustainability of project outcomes (overall rating)** | **ML** |
| Financial risks | **ML** |
| Socio-political risks | **L** |
| Institutional framework and governance risks | **L** |
| Environmental (Ecological) risks | **L** |
| **3. Monitoring and Evaluation** | **S** |
| M&E design | **S** |
| M&E implementation (use of adaptive management) | **S** |
| Budgeting and funding for M&E activities | **HS** |
| Project management | **HS** |
| **4. UNIDO specific ratings** | **S** |
| Quality at entry / Preparation and Readiness | **S** |
| Implementation approach | **HS** |
| UNIDO supervising and backstopping | **S** |

A well-structured and independent Mid-Term Evaluation is very important for stating issues in the middle of project implementation, leaving sufficient time to correct them by project closure.

A properly formulated M&E framework has fundamental value to ensure the possibility for adaptive management and to help mitigate identified risks for project implementation, especially delays. The use of SMART project objectives and key impact indicators for future projects, which are crucial for project success is strongly recommended to UNIDO and GEF.

A recommendation is given to Rade Koncar Servis and the MoEPP to promote the newly built interim storage site and facility for non-combustion and decontamination technology as a Regional Center for phasing-out of PCB-containing equipment and PCB-contaminated oils from the whole Balkans region in order to ensure sustainability and replicability of using the GEF funding and the co-financing on a regional level.

It is recommended for UNIDO and GEF to propose a replication of the unique concept of a POPs Office within a Ministry of Environment responsible for project management of diverse international projects for other countries as well, as it was proven to be very successful in FYR of Macedonia.

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# I. Evaluation Objectives, Methodology and Process

## Purpose, Scope and Objective of the Evaluation

1. Terminal evaluations are required elements of the monitoring and evaluation plan for GEF funded projects according to GEF and UNIDO evaluation policy and practice. A terminal evaluation was foreseen in the Project Document of the Phasing out of PCBs and PCB-containing equipment in the Former Yugoslav Republic of Macedonia (Macedonia PCBs Project). The terminal evaluation was initiated by UNIDO during the sixth year of project implementation, almost two years later than foreseen in the project milestones (See Terms of Reference: Annex 1. Required Project Identification and Financial Data and Milestone of Project Document).

2. The purpose of this terminal evaluation is to provide a comprehensive and systematic account of the project performance of the completed project by assessing its project design, process of implementation, achievements vis-à-vis project objectives endorsed by the GEF, and the relevant evaluation criteria: design, relevance, efficiency, effectiveness, and sustainability. Even more, its further scope is to focus on the future by giving a strong emphasis to the potential of project impacts beyond the initial project objectives. The evaluation assesses project results based on the project objectives, as well as any unanticipated results. The evaluation identifies relevant lessons for other similar future projects dealing with the issue of PCBs removal and phase-out based on the requirements of Stockholm Convention in Macedonia and elsewhere. The terminal evaluation also provides recommendations for follow-up future activities beyond Project Completion, as necessary and appropriate.

3. In addition to assessing the main GEF evaluation criteria, the objective of the terminal evaluation is to provide required ratings on key elements of project design and implementation approach requested by UNIDO's Terminal Evaluation ToR. Where possible and relevant, the evaluation assesses the project in the context of key GEF operational principles, for instance country drivenness, and stakeholder ownership.

## Evaluation Approach and Methodology

4. The terminal evaluation was carried out in the period September to November 2013 by an independent consultant, and consisted of the inception phase, the mission phase (field mission to FYR of Macedonia in October 2013) and final reporting phase. Data and evidence were collected based on a participatory mixed-methods approach including the following key instruments: (i) desk review of reports and documents collected prior and during the field mission, (ii) interviews with project staff and stakeholders, and (iii) observations from the field.

5. The GEF evaluation parameters have been operationalized into an evaluation matrix for the goal of performing the terminal evaluation (see Annex 5). This evaluation matrix contains the evaluation questions, sources of verification and relevant indicators that were examined during

the terminal evaluation. Guided by the requirements of the GEF and UNIDO, the project is rated based on the overall ratings table comprised of criteria for attainment of project objectives, sustainability of project outcomes, monitoring and evaluation requirements, as well as following the specific UNIDO requirements from the Terminal Evaluation ToR.

## Information Sources

6. Written documents and reports from this project were reviewed in the inception phase at UNIDO Headquarters. Furthermore, relevant project documents were provided by the NEA (National Executing Agency), the National Project Coordinator, SECO, Sea Marconi, Tehnolab and Rade Koncar Servis in paper and electronic format in English and Macedonian language during the evaluation field mission (List of Documents Reviewed is given in Annex 4). Interviews with project stakeholders were held in Skopje during the evaluation field mission. Some interviews with stakeholders outside Macedonia were held via skype or by phone (A list of interviewed stakeholders is provided in Annex 3). Few site visits were made to the location of new facility for phasing out and decontamination of PCB-containing equipment: "Regional Ecological Center" at Rade Koncar Servis in Skopje. The evaluator was present at the Final Workshop for the Project Closure / Project Completion organized by NEA - the POPs Office at the MoEPP (see Annex 11).

## Encountered Limitations

7. All evaluations face challenges of gathering the most reliable data and building a holistic picture of usually complex projects with limited time and resources. This terminal evaluation is written solely in English language by the independent evaluator Iva Bernhardt. As the evaluator was Macedonian, there were no intense efforts needed in bridging this gap by filling out the details on the specific country context, providing translations of the documents written in Macedonian and translating during the meetings with non-English speaking stakeholders.

## Intended Use of the Evaluation Report

8. This terminal evaluation was conducted in accordance with GEF and UNIDO monitoring and evaluation policies and procedures and in line with United Nations Evaluation Group norms and standards.

9. The intended users of this terminal evaluation are the National Executing Agency, UNIDO Stockholm Convention Unit and the GEF. If relevant, the terminal evaluation report may be disseminated with additional stakeholders to share lessons learned and future recommendations.

# II. Country and Project Background

## Country

10. Situated in the heart of the Balkan Peninsula in Southeastern Europe, bordering with Greece, Bulgaria, Serbia, Kosovo and Albania, with a population of 2.087 million and covering 25.713 square kilometers, FYR of Macedonia is a fairly small country. The country is landlocked, dominated by mountainous territory covered with deep basins and valleys, three large lakes, each divided by a frontier line, and bisected by the Vardar River. The country is subject to extreme variations in weather, with warm climate, dry summers and autumns, and relatively cold winters with heavy snowfall. About a quarter of the population lives in the capital Skopje, and 60% of the population lives in urban areas with a population density of 81 inhabitants per $km^2$. Half of the Macedonian working population works in the sector of services, only around quarter in the industrial sector, and about 16 percent in agricultural sector.

11. Food processing, beverages, textiles, chemicals, iron, steel, cement, energy, and pharmaceuticals production dominate the Macedonian economy. Agriculture is also playing an important part in the Macedonian economy, main products are grapes, tobacco, vegetables, fruits, milk, eggs. The country possesses some reserves of low-grade iron ore, copper, lead, zinc, chromite, manganese, nickel, tungsten, gold, silver, asbestos, gypsum, timber, as well as arable land. Macedonia's economy showed a slight fall in GDP of estimated 0.3 percent in 2012, whereas it had a steady growth in GDP of 2.9 percent both in 2011 and 2010. Around 30 percent of the population lived below the poverty line in 2011, whereas the estimated unemployment rate was at 31.3 percent in 2012.

12. Most of the technologies in the industrial sector in FYR of Macedonia are outdated and do not comply with environmental standards of the European Union (EU). In spite of lower production levels, industries continue to be the major polluters. Old inefficient production technologies, inadequate waste control equipment and weak environmental enforcement are the primary causes for industrial pollution. In general, the areas of significant environmental concerns in Macedonia are located near large urban areas, with industrial sources being the major polluters. The present environmental issues are related to past economic policies and a weak environmental management system. Some of the crucial environmental issues in the country are poor air quality in Veles and Skopje, polluted surface water due to discharge of untreated wastewater, and inadequate solid and hazardous waste management system. The reduced industrial production in the last decade decreased the level of pollutants being discharged in air, water and soil compared to the 1980s. However, if industries resume previous levels of production, without proper environmental checks the pollution load to various media will increase. It is expected that the ongoing economic and social reform will have a favorable influence on the environment in the future. Large polluting industries should be restructured to be more efficient and less polluting. Furthermore, energy and other resource consumption should decline, with price liberalization and industrial reforms promoting sustainable use of natural resources. The introduction of "polluter pays" and "user pays"

principles in the environmental policy will further reduce pollution, minimizing clean-up and promoting rational use of natural resources. Today, in Macedonia there is a willingness to treat environmental issues as an integral part of the overall strategy for economic and social development during the transition to a market economy. Further, Macedonia plans to harmonize its policies, including the ones on environment, with those of EU in order to promote closer integration with other European countries.

## PCBs and Electricity Sector

13. FYR of Macedonia signed the Stockholm Convention (SC) on Persistent Organic Pollutants (POPs) on 23 March 2001, ratified it on 19 March 2004, and adopted its National Implementation Plan (NIP) on reduction and elimination of POPs on 24 January 2005. Considering the provisions of the relevant international commitments, the NIP reviewed the particular POPs issues of the country and developed detailed strategies and action plans, including timetables and costing of their implementation.

14. The NIP identified Polychlorinated Biphenyls (PCBs) as one of the top priorities in managing POPs in the country. It identified the need for conducting an in-depth inventory on PCBs, gradually decontaminating the PCB-containing equipment and their final disposal by the year of 2017.

15. Historically, PCBs have never been produced in the Republic of Macedonia. Most of the PCB electrical equipment (transformers, capacitors) were purchased from the former Yugoslav manufacturers (Minel-Serbia, Rade Koncar-Croatia and Iskra-Slovenia) until 1985. Moreover, the total amount of insulating oils was and is imported. Inventories on PCBs wastes concluded that a considerable amount of PCB oil-containing transformers are still used in the energy supply system. After the POPs preliminary project inventory, over 500 pieces of equipment were analyzed with L2000DX equipment within the framework of the project. The outcome was that 34 transformers (total weight 204,620 kg - 204.62 tons of transformers or 53.098 tons of PCB contaminated oil) or 6.8 percent were identified as PCB-contaminated with PCB-concentration greater than 50ppm. During the full inventory of all transformers, over 8.000 transformers were analysed, out of which 4.8 percent or around 764 tons (382 transformers) of the PCB-contaminated transformers contained over 50ppm of PCBs.

16. The significant quantities of PCB-containing electric equipment require phasing-out, replacement and disposal. Project inventory was performed between 2008 and 2009. The same revealed that there are no disposal facilities for environmentally sound destruction of PCB-containing equipment and wastes. The Former Electrical Power Company was the largest owner of electrical equipment in Macedonia, however it has been divided into three companies: MEPSO (company for transmission of electric energy), ELEM (production of electric energy) and ESM (distribution of electric energy). In 2006 ESM was acquired by the Austrian company EVN and was named EVN Macedonia. Hereby EVN became the largest electrical company in

the country that owns most of relevant electrical equipment in Macedonia. MEPSO and ELEM remained public companies.

## Institutional and Regulatory Framework for PCBs

17. The institutional framework for environmentally sound management (ESM) of PCBs was initiated during the NIP development. However, there were no specific regulations, standards and guidelines addressing PCBs and management of PCB-containing electric equipment to define a progressive phase-out and elimination plan prior to project implementation. Furthermore, there was a lack of human and technical capacities for PCBs monitoring, especially proper interim storage and decontamination technology for PCB-containing equipment and no laboratory services for PCBs analysis.

## Short Project Overview

18. The project was initiated by UNIDO and the Government of FYR of Macedonia as part of Macedonia's efforts to fulfill the requirements of Stockholm Convention to phase-out and eliminate the PCBs in Macedonia. It was a three-year medium-sized project. The PPG was approved by GEF in February 2006 and endorsed by GEF CEO in July 2008. Project implementation started in September 2008. An overview of Project general information is given in Table 1.

**Table 1.** Project general information:

| | |
|---|---|
| Project Name: | **Phasing out of PCBs and PCB-containing equipment** |
| Project's GEF ID Number: | **2875** |
| GEF Agency Project ID | **GF/MCD/08/002** |
| Countries: | **The Former Yugoslav Republic of Macedonia (FYROM)** |
| GEF Focal Area and Operational Program: | **Persistent Organic Pollutants – OP 14** |
| Agency: | **UNIDO** |
| Other Cooperating Agencies: | **Ministry of Environment and Physical Planning (FYROM)** |
| Project Approval Date: | **July, 2008** |
| Date of Project Effectiveness: | **September, 2008** |
| Project duration: | **Three years** |
| Total Project Cost: | **USD 2,742,000** |
| GEF Grant Amount: | **USD 1,000,000** |
| GEF Project Preparation Grant Amount (if any): | **USD 43,000** |

19. Based on interviews with the stakeholders, the project was identified during the NIP implementation and it was developed on a highly participatory manner with relevant national institutions and owners of PCB-containing equipment involved.

**Deadlines and milestones**

20. The information on the main project dates for this project is provided by UNIDO in the Terminal Evaluation ToR as follows in Table 2:

**Table 2.** Phasing out of PCBs and PCB-containing equipment in FYR of Macedonia Project Dates

| Milestone | Expected Date | Actual Date |
|---|---|---|
| Agency Approval date | **July 2008** | **July 2008** |
| Implementation start | **September 2008** | **23 Sep 2008** |
| Midterm evaluation | **March 2010** | **July 2012** |
| Project completion | **August 2011** | **October 2013** |
| Terminal evaluation completion | **October 2011** | **November 2013** |
| Project closing | **February 2012** | **November 2013** |

21. The Project encountered several delays during implementation, among which the most severe delay is related to the selection process and set-up of the facility for decontamination of PCB-containing equipment between 2009 and 2011. There was a delay of approximately two years in the start of decontamination operations because of the problems at choosing a specific decontamination technology of PCBs. The project was successfully completed and has achieved its goals by the time of the terminal evaluation, however this was done with a delay of two years. This issue will be elaborated in details in the assessment of project efficiency.

**Project Stakeholders**

22. According to multiple sources involved in the project design phase, a wide range of stakeholders were consulted during the design. The table below lists the main stakeholders, showing in detail their role in project preparation and implementation. For raising the public awareness issue on POPs and PCBs in the FYR of Macedonia NGOs' were mentioned in the Project Document in the project design phase as one of the main stakeholders. During the project implementation phase no relevant NGO in the FYR of Macedonia could be identified. Therefore POPs Office (the NEA) within the MoEPP overtook the role of the NGOs for raising the public awareness issues on POPs. Details on project stakeholders are given in Table 3.

**Table 3.** Project Stakeholders

| **Project Stakeholders** |
|---|
| Government of FYR of Macedonia |
| NATIONAL EXECUTING AGENCY / COUNTERPART<br>**Ministry of Environment and Physical Planning / POPs Office** |
| IMPLEMENTING AGENCY<br>**UNIDO** |
| INTERNATIONAL DONOR / CO-FUNDER<br>**SECO** |
| INTERNATIONAL DONOR / CO-FUNDER<br>**ENVIO** |
| NATIONAL COUNTERPART / CO-FUNDER **/ HOST FOR PCBs DECONTAMINATION UNIT**<br>**RADE KONCAR SERVIS Ltd** |
| NATIONAL COUNTERPART / CO-FUNDER / NATIONAL HOST COMPANY FOR PCBs DECONTAMINATION OPERATION<br>**EVN** |
| NATIONAL COUNTERPART / CO-FUNDER / NATIONAL HOST COMPANY FOR PCBs DECONTAMINATION OPERATION<br>**FZC** |
| NATIONAL COUNTERPART / CO-FUNDER / NATIONAL HOST COMPANY FOR PCBs DECONTAMINATION OPERATION<br>**BUCIM** |
| NATIONAL COUNTERPART / CO-FUNDER / NATIONAL HOST COMPANY FOR PCBs DECONTAMINATION OPERATION<br>**OKTA** |
| NATIONAL COUNTERPART / CO-FUNDER / NATIONAL HOST COMPANY FOR PCBs DECONTAMINATION OPERATION<br>**ARCELORMITTAL** |
| NATIONAL COUNTERPART / NATIONAL HOST COMPANY FOR PCBs DECONTAMINATION OPERATION<br>**SILMAK (JUGOHROM)** |
| NATIONAL COUNTERPART / NATIONAL HOST COMPANY FOR PCBs DECONTAMINATION OPERATION<br>**MZT LEARNICA Skopje** |
| GEF AND STOCKHOLM CONVENTION FOCAL POINTS |
| Workers in the electricity sector |
| Private sector dealing with electricity, mining and metal industry |

**Implementing Arrangements**

23. UNIDO is responsible for project implementation as the GEF Project implementing agency, while the NEA (National Executing Agency) is the POPs Office at the Ministry of Environment and Physical Planning of Macedonia. The NEA consists of the NPC (National Project Coordinator) or Project Manager (PM) as indicated in the PD, the Project Director and President of the PSC from the POPs Office and national consultants (in the Terminal Evaluation they will be referred to as NEA). The POPs Office is an independent Office at the Ministry of Environment and Physical Planning of Macedonia with a unique structure of a Director and four Project Managers committed solely on performing Project Management tasks for different international projects. The MoEPP established in May 2002 the POPs Unit responsible for the implementation of the national activities dedicated to the reduction, elimination and control of the POPs. The first task of the Unit was to coordinate the preparation of the National Implementation Plan on POPs Reduction and Elimination. The Unit staff worked on different issues: starting from establishment of the Steering Committee and selection and training of the working group members to the definition of the final structure of the NIP. After the adoption of the NIP by the Government (the document contains obligation for "the Ministry of Environment and Physical Planning, through its POPs Unit, to coordinate the activities towards implementation of the action plans in NIP on POPs.") at the beginning of 2005, the POPs Unit undertook a number of activities towards implementation of the NIP's action plans. It prepares concrete projects related to elimination of the different groups of POPs chemicals and participates in providing technical and financial support for activities definition and realization. The MoEPP/POPs Unit gained great experience in the field of PCBs management through active participation in implementation of the project "Efficient Energy Distribution Program" – output on environmentally sound management/disposal of PCB containing equipment (LV and MV capacitors). After successful implementation of the project, the Government will nominate an authority to take over the activities. Therefore, the project aims to build capacity in MoEPP (POPs Unit) and other main actors at the local level to enable them to progressively broaden their activities. NEA was responsible for the day-to-day project implementation and the timely and verifiable attainment of project objectives. Through contract between UNIDO and UNDP, the services of UNDP's country office are used for financial administration and disbursement of project funds at country level. The Project Organizational Chart is given in Image 1.

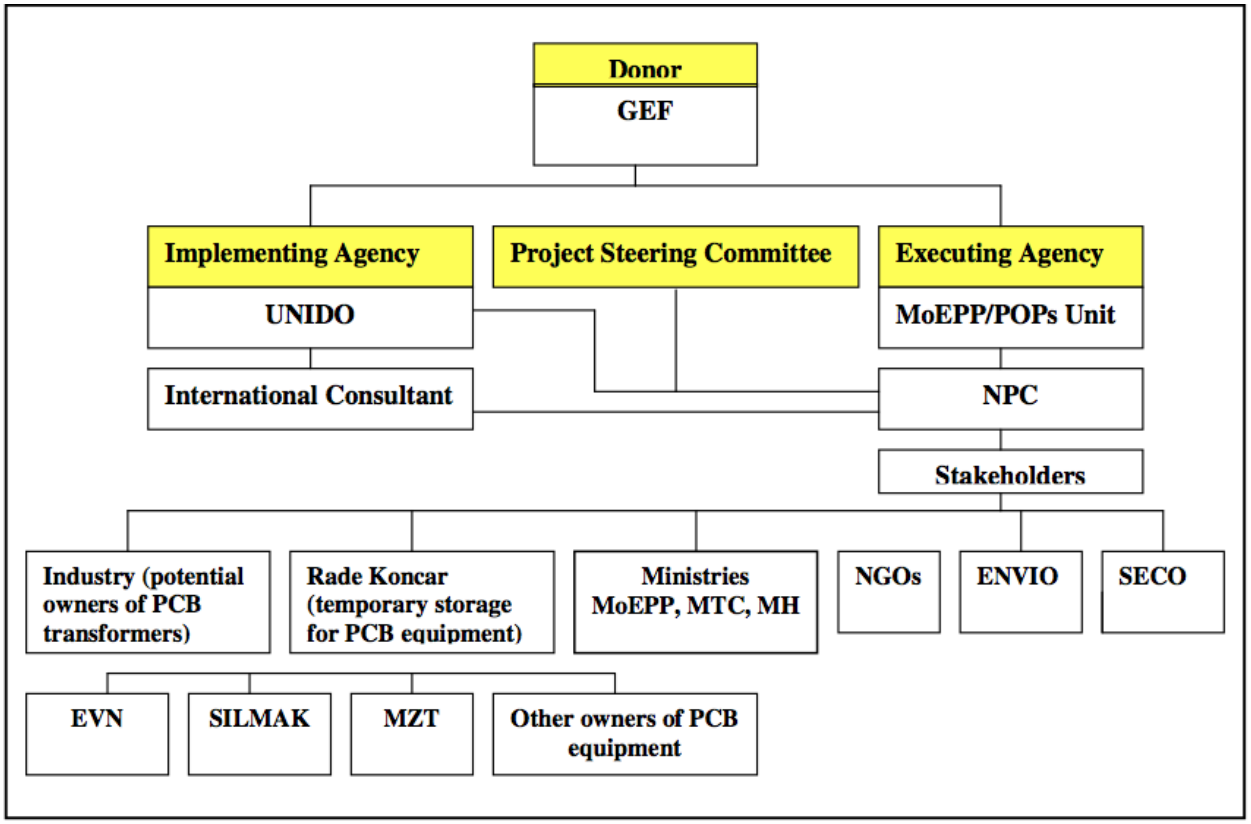



**Image 1.** Project organizational chart (Source: Annual Report for Project: "Phasing out of PCBs and PCB-containing equipment", November 2009)

24. The Project has a Steering Committee, comprised of 7 members belonging to MoEPP and the stakeholders Rade Koncar, EVN, MZT and SILMAK. The Steering Committee convened three times during project implementation. The majority of members of the PSC were present at all formal meetings, workshops, trainings, technical vendor meeting etc., as the same come from the POPs office, Rade Koncar Servis and representatives of the main PCB owners. The Project Steering Committee participated in the selection of the technology for PCB management supported by the project.

# III. Project Assessment

## Design

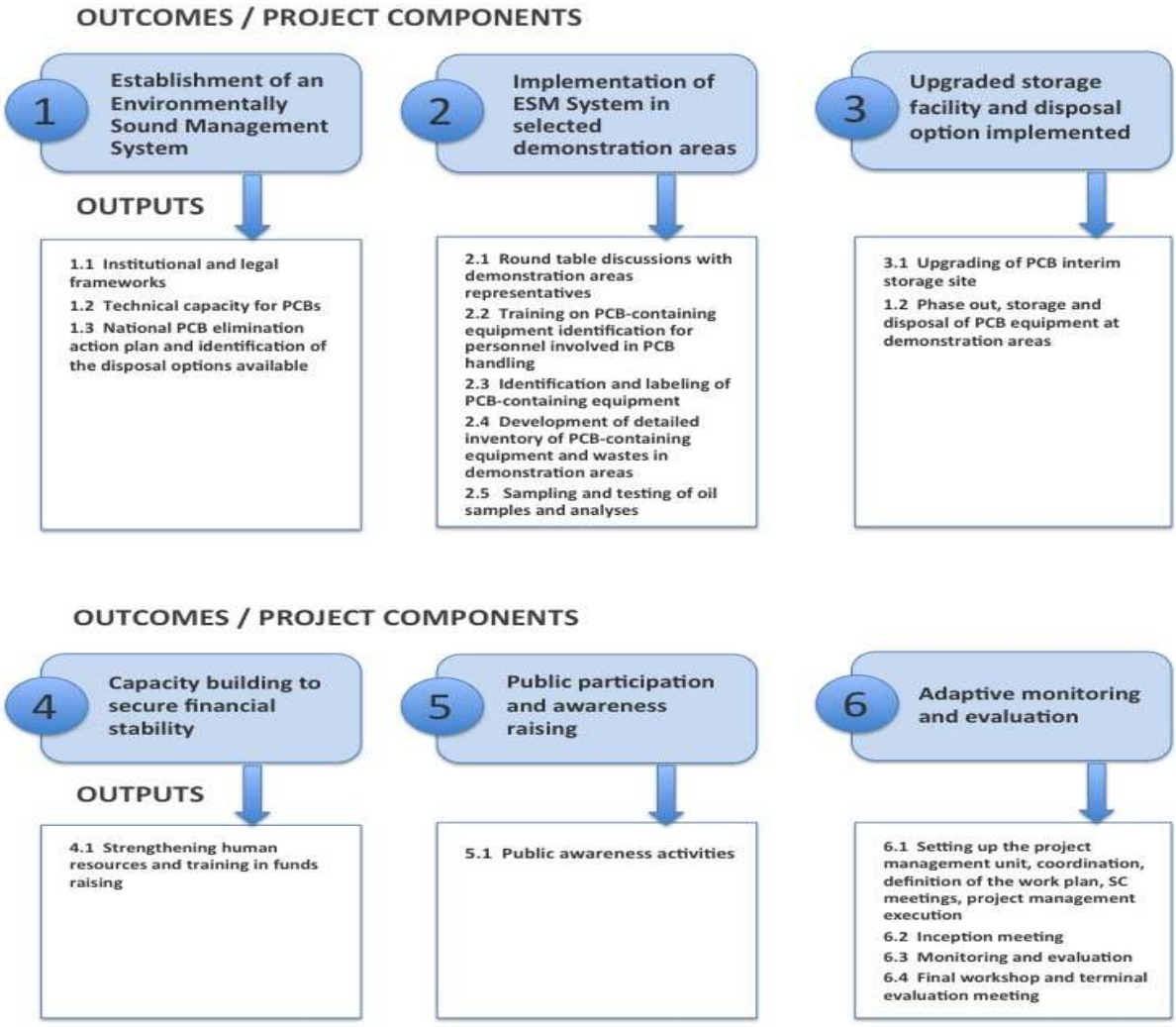
25. ***The assessment of project design evaluates the adequateness of the project to address the imminent problems. GEF-supported projects are required to have and are evaluated against a clear thematically focused development objective, the attainment of which can be determined by a set of verifiable indicators. The projects are expected to be prepared in a participatory manner and with contributions of national stakeholder and/or target beneficiaries. It is required to formulate the project based on the logical framework approach, which was the case with this Medium-sized project.***

**Project objectives, outcomes and outputs**

26. The project aims to reduce and eliminate the threats to human health and the environment posed by PCBs in the FYR of Macedonia by establishing an environmentally sound management (ESM) system for disposal of PCBs and PCB-containing equipment, including legislation, institutional and technical capacity building, awareness raising and assisting in the phase-out process of PCBs-containing equipment from the selected demonstration areas. In detail, there are several main objectives of this project. One of the main objectives of this MSP is to develop a sustainable ESM system to support phasing-out and disposal of PCB-containing electrical equipment, which will be built and implemented in identified demonstration areas that will prove its viability and ability to be used by other potential PCB holders. Moreover, the next most important main objective is to upgrade the storage facility and to implement disposal option in order to phase out the 25 transformers in most critical condition identified in the inventory, and finally dispose of and decontaminate 150 tons of PCB-containing wastes in an environmentally sound manner in the upgraded interim storage and decontamination facility. The Project Document defines the project purpose to consolidate ongoing and planned activities in implementing Macedonia's obligations for phasing out PCBs and PCB-containing equipment through: i) development of close coordination with all parties involved in the implementation; ii) development of an ESM system comprising legislations and technical standards for operation of PCB-containing equipment and treatment of PCB wastes; iii) implementation of an ESM system for PCB-containing equipment within the demonstration areas (collection, transport, interim storage, clean-up and final disposal), including detailed logistic plans for phasing-out of PCB-containing wastes from the demonstration areas; iv) upgrading of an interim storage facility; v) identifying the most efficient disposal technology; vi) establishing a fund generation mechanism for financial sustainability; vii) creating awareness of the environmentally sound management of PCB-containing equipment through intensive communication, training for professionals and NGOs, and public information tools; and viii) continuously evaluating and disseminating project results.

27. The project was approved by GEF in 2008 based on the Project Document (PD), which outlined the project objective, outcomes and outputs. The PPG was agreed upon in 2006 as well. UNIDO and the Government of FYR of Macedonia approved the Project Document in

2008. The Project Identification Form (PIF) for this project does not exist, the PD states that PIF is not applicable (n.a) for this project. According to GEF, PIF is not necessary for Medium-Sized Project, therefore its non-existence will not be considered as negative for the evaluation. Consequently, the evaluation utilizes the Project Document as the only reference point for defining the baseline for the project terminal evaluation. Image 2 shows project outputs as defined in the PD as an image.




28. **Image 2.** Project outputs defined in Project Document (PD) (Source: Own presentation of Outputs/Project Components and Outcomes based on PD)

29. The detailed Project Document Outputs (Project Components) and Outcomes deriving from the PD are shown in Table 4.

**Table 4.** Projects Outputs and Outcomes in PD

| Outputs / Project Components in PD | Outcomes in PD |
|---|---|
| **Component 1: Establishment of ESM system** | |
| 1.1 Institutional and legal frameworks | Legal framework for ESM of PCBs |
| 1.2 Technical capacity for PCBs | Capacity building program designed for ESM development<br>Guidelines for safe PCB management development<br>ESM system is developed and approved |
| 1.3 National PCB elimination action plan and identification of the disposal options available | Reporting and records keeping formats development<br>Action plan upgrade and adjustment |
| **Component 2: Implementation of ESM system in selected demonstration areas** | |
| 2.1 Round table discussions with demonstration areas representatives | The discussion with demonstration area representatives aims towards the identification and a role of separate stakeholders in project participation<br>Help-desk on PCB-related issues<br>Improved monitoring capacity |
| 2.2 Training on PCB-containing equipment identification for personnel involved in PCB handling | Training for the demonstration area – PCB holders<br>Training for PCB equipment maintenance company workers<br>Training for storage workers<br>Guidelines and training manuals |
| 2.3 Identification and labeling of PCB-containing equipment | All tested equipment is reported and labeled<br>Inventory of selected demonstration area |
| 2.4 Development of detailed inventory of PCB-containing equipment and wastes in demonstration areas | PCB inventory report<br>Development of a detailed PCB inventory of the |

| Outputs / Project Components in PD | Outcomes in PD |
|---|---|
| | electrical equipment, articles and wastes<br>Establishment of a central database on the electrical equipment |
| 2.5 Sampling and testing of oil samples and analyses | Laboratory capacity for demonstration area<br>Oil samples tested and analyzed |
| **Component 3: Upgraded storage facility and disposal option implemented** | |
| 3.1 Upgrading of PCB interim storage site | Interim storage site is selected and upgraded, and is in operation with improvements being made to existing storage facility that contains old PCB-containing transformers and capacitors to meet environmental protection needs<br>Most feasible disposal option identified through economic feasibility study on the disposal method |
| 3.2 Phase out, storage and disposal of PCB equipment at demonstration areas | 25 transformers in most critical condition are phased out<br>150 tons of PCB-containing waste is disposed of |
| **Component 4: Capacity building to secure financial sustainability** | |
| 4.1 Strengthening human resources and training in funds raising | Sufficient human resources secured<br>Personnel trained in fund raising<br>Number of trained staff<br>Financial mechanism is in place |
| **Component 5: Public participation and awareness raising** | |
| 5.1 Public awareness activities | Regular work with media and local NGOs - briefings<br>Training for NGOs on ESM of POPs/PCBs<br>Public hearing on project plan and results<br>Activities of local NGOs with public on POPs/PCBs |
| **Component 6: Adaptive monitoring and evaluation** | |
| 6.1 Setting up the project management unit, coordination, definition of the work | Project management established |

| Outputs / Project Components in PD | Outcomes in PD |
|---|---|
| plan, SC meetings, project management execution | Detailed work plan with clear description of activities developed and agreed upon by all stakeholders<br>MoU with the companies in demonstration areas<br>Funds mobilization plan prepared<br>Other sectors financial contributions to the activities reach additional mill. US$1 to mill. US$ 1 from GEF |
| 6.2 Inception meeting | Communication strategy prepared and implemented on three levels: with all stakeholders, with project team and with implementing agencies<br>Report of the Inception Workshop |
| 6.3 Monitoring and evaluation | Monitoring and evaluation policy prepared and agreed upon<br>All required reports as per the M&E policy are available and in file<br>Quarterly Financial Reports including evaluation of co-financing |
| 6.4 Final workshop and terminal evaluation meeting | Final Workshop Report<br>Terminal Evaluation Report |

**Project focus**

30. Project activities, in general, are well-focused on the major issues of PCB-containing electrical equipment – transformers in this case - with PCB-containing oils in the electricity sector in Macedonia, which seem to be the main source of PCB contamination and are potent to generate significant improvement of PCB phase out for the country, as well as to fulfill the requirements of Stockholm Convention. Environmental Sound Management System and Phasing out of PCB-containing equipment is very well explained throughout the PD and adequately transposed into outputs and activities under Output 1 - Establishment of ESM system for PCBs, Output 2 - Implementation of ESM system in selected demonstration areas and Output 3 - Upgraded storage facility and disposal option implemented. In these outputs is clearly explained that the treatment and disposal of PCB-containing equipment is the central matter of the project. However, from the project design perspective, the lack of the same level of focus in the other main project components in Output 4 - Capacity building to secure financial

sustainability and Output 5 - Public participation and awareness raising might suggest that Outputs 1, 2 and 3 are the more meaningful project goals. It should be stated that it is important to have put more emphasis on the Outputs 4 and 5 in the project design stage, as the "Capacity building to secure financial stability" and the "Public awareness raising" are very important factors and essential for the project success and effectiveness, especially for the of the long-term sustainability and ability to replicate the project.

31. While the project goals and outcomes may be defined within a broader context, the activities should be clear and precise. One activity of Output 1 is defined too broadly, which makes it difficult to implement and monitor. For example, one of the activities is to "Amend the legislation in accordance with the approved practices to improve the legal framework for PCB management and disposal" (Activity 1.1.2) from Activity 1.1 – Institutional and legal frameworks. The scope of this activity is not precise and it is hard to quantify its success, as it is not clearly defined which Institutional and legal framework concerning PCBs concretely should be strengthened and which Laws and Regulations should enter into force.

32. Stakeholders' and public awareness raising is the critical aspect of the project, from the design perspective. The information presented in the PD does not ensure confidence that the proper target groups and adequate tools are identified for the project topic and the desired goals. It is suggested that the target group is the broad general public, while the methods of communication/awareness raising are articles, leaflets on information about POPs. The problem of dealing with PCB-containing materials is very much sector-related and applicable to individual groups in terms of direct contamination with PCBs and handling of PCBs. It would be more effective to dedicate the resources to directly communicate with key stakeholder groups, such as local communities under the threat of exposure to PCB containing waste (for example people recovering materials from landfills), or workers, raising their awareness of the implications of PCBs exposure and protection and informing them on the OHSAS system for Occupational Health and Safety Measures. Although national outreach programs may sound attractive, they have little chance of being effective to spawn public interest, especially for a chemical that the public cannot identify. Secondly, the critical aspect of the project design is that in the PD the NGOs should play an active role in raising the public awareness, especially in fulfilling the Article 10 c). of SC, which was found not applicable in the early phase of project implementation, due to the fact that there were no specific NGOs dealing with chemicals issues in FYR of Macedonia. Therefore the NEA - POPs Office in MoEPP overtook the role of the NGOs.

#### Project risk identification

33. Project risks are well identified in the Project Document with appropriate mitigation measures.

#### Participatory identification and preparation of the project

34. The Project was identified and prepared through cooperation with local stakeholders, and through the cooperation previously established within the POPs enabling activities supported by

GEF (implemented with UNIDO involvement as well). The Macedonian Government and the local project team adopted the document. The POPs Office and ministry representatives confirmed participation in project design and preparation of PD.

**Logical framework**

35. The Logical framework approach has been used for the design of activities and measures to implement the project, based in the PD. However, the logical framework developed for this project is rather poor in delivering an operational framework for managers and evaluators to carry out proper monitoring and evaluation. This is mainly due to lack of baseline, target and well defined SMART indicators.

*36. Key impact indicators.* There are no key impact indicators identified as such in the PD. From the whole PD, there are three technical measurable indicators that can be taken as Key impact indicators. One Key Impact Indicator is testing of 500 samples of PCB-containing oil on chlorine [ppm] in the demonstration areas with L2000X equipment (Activity 2.5 "Sampling and testing of oil" on page 16 of PD). Another important Key impact indicator derives from page 17 of PD: Activity 3.2.1 "Phase-out, collection and transportation", in which the inventory database should identify the equipment - approximately 25 pieces, which are in the most critical condition, and should be collected, stored in safe storage containers at the storage facility and kept until their final disposal. The most important Key Impact Indicator is found also on page 17 of PD: Activity 3.2.2 "Packaging, storage and disposal" in which it is estimated that approximately 150 tons of PCB-containing equipment and wastes will be disposed of using an economic and environmentally sound option of decontaminating PCB-containing equipment.

Since the project is dealing with the regulatory framework development, workers health and safety, community health, capacity building, awareness raising etc., as well there are additional equally relevant key impact indicators that could have been set for the them. The existence of key impact indicators built around capacity building would support comprehensive monitoring of project impacts, demonstrate project effectiveness and sustainability, as well as insure long-term changes. For example, taken from Output 1 (from the Logical Framework Analysis and M&E plan): Establishment of ESM system - for the capacity building programme for ESM development, according to the PD the target indicator should be the total number of institutions and human resources who were involved in capacity building activities categorized according to the list of stakeholders. This Key Impact Indicator should have been defined as, for instance 3 Institutions (Ministry of Environmental and Physical Planning, Customs employees and Ministry of Health) with a total number of 20 employees dealing with PCBs who should be involved in capacity building activities. The existence of very few Key impact indicators in the PD will be reflected later in the section Monitoring and Evaluation. Anyhow, the three main key impact indicators, which were not mentioned explicitly, yet were recognizable as they were repeated throughout the PD, are most relevant for the success of this project.

37. *Indicators in the logical framework (Target Indicators).* Logical framework indicators should be designed to reflect the meaning of "SMART" (specific, measurable, achievable, relevant and time-bound). They are the main tool for measuring project impact through observation of

implementation progress and appropriateness of project activities. For instance, a lack of SMART target indicators can be noticed in the Output 4: "Capacity building to secure financial sustainability", where one target indicators is stated: Sufficient human resources secured with Means of verification: Number of new employees / employees dedicated to fund raising. This indicator could have been: 1 or 2 new employees dedicated to fund raising in MoEPP or in POPs office.
From the Output 5: "Public participation, awareness and education", there are two target indicators which are not SMART, because they are not measurable: 1. Regular work with media and local NGOs with Means of verification: Number of NGOs involved, and 2. Training for NGOs on ESM of POPs / PCBs with Means of verification: Number of NGO members trained. The SMART indicators therefore could have been: 1. 5 NGOs involved in the project, and 2. 20 NGO members trained on ESM of POPs / PCBs.
Within the Output 6: "Adaptive Monitoring and Evaluation" there were several SMART target soft indicators, such as: 1. Minutes of meetings of the project steering committee (at least three meetings annually), and 2. ESM concept papers (at least two alternatives for minor users and two for major users of PCBs) which were determined correctly and measurably.
There is another correct soft indicator from output 4: 30 trained administrators from different institutions.
In the Output 2 (from the Logical Framework Analysis and M&E plan): "Implemented ESM system in selected demonstration areas", soft indicators are present: trained staff – 100 professionals and 50 administrators. However, these target indicators do not specifically state the number of trained persons from the PCB holders, PCB equipment maintenance company workers and storage workers. From the PIR (UNIDO Annual Project Implementation Report) it is obvious that 40 people were trained in two trainings that took place during project implementation. In the period between PD submission and approval (2007 to 2008) more than 150 people have been trained on PCBs in over 10 trainings. As a SMART indicator is lacking on how many people exactly or approximately should have been trained from each specific site or institution connected to PCBs, it is impossible to evaluate this outcome of number of trained people.

38. The PD identified six main components, and then elaborated subcomponents and associated Outcomes, Outputs and activities, with specific and measurable indicators to assess progress. The Target Indicators (TIs) associated with the elaborated activities are in many cases not sufficiently specific, or measurable, to allow for proper monitoring or evaluation of progress towards meeting project objectives. An important objective of the project is to establish and implement an ESM for phasing out of PCB-containing equipment, and as noted above, the PD did not identify key impact indicators for this part of the objective other than in the nominal category of "yes/no" indicators – "The ESM system published". Nevertheless, project design appropriately contains numerous trainings and workshops – on new ESM system, new technical guidelines and technology, laboratory techniques for PCB monitoring and inventory etc. Without some specific and measurable targets, for instance "Assessment reports on the performance of X number of people/institutions who participated in the capacity building programs", it is not possible to quantitatively determine progress towards achieving the project's

capacity support for ESM of PCBs and public awareness raising objectives using these indicators. The nominal ('yes/no') category of indicators, for example "Guidelines for safe PCB management" or "Updated PCB action plan" enables to measure project achievement, but they are used to many times.

39. Most indicators fail to provide additional qualitative or quantitative dimension (they are not measurable) to the defined project activities, which is essential for practical application of the indicators during monitoring and evaluation. It seems that the only true and successfully designed target for the project success is the removal of 150 tons of PCB-containing equipment. The terminal evaluation can note that changes to the logical framework and re-formulation of project indicators to better reflect the *status quo* should have been made upon a recommendation from the Mid-term Evaluation. This cannot be done at the time of the Terminal Evaluation, as the project is already closed. However, such a recommendation did not exist in the MTE, thus it shows the importance of performing a proper MTE for defining and revising the future steps in the Project Implementation.

Based on the analysis given above, the **project design cannot be rated more than MODERATELY SATISFACTORY**, its strongest side being strong participation of local stakeholders in project identification, while the Logical Framework and target indicators are not developed adequately (they lack the measurable element of being a SMART indicator) to allow for proper adaptive management and monitoring of project results. The most important Key impact indicator (technical indicator) is the removal of 150 tons of PCB-containing equipment and was set correctly. Some soft target indicators were established correctly as SMART indicators in the Logical Framework.

## Relevance

40. ***The assessment of project relevance takes into consideration the project's contribution to the achievement of national objectives, implementation of the Stockholm Convention obligations, GEF strategic priorities, and the project's relevance to the UNIDO mandate.***

**Relevance to national priorities**

41. FYR of Macedonia is a signatory party to the Stockholm Convention and shows commitment to reduce the use and phase out POPs on its territory, in order to mitigate environmental degradation and adverse consequences to human health. PCBs containing waste management were identified as one of the top priorities in managing POPs in the Macedonian NIP. Furthermore the NIP foresees the following priorities on PCBs: i) preparation and adoption of a strategy for inventory completion, collection, and disposal of PCBs; ii) Preparation and establishment of control mechanisms and cooperation of inspection bodies to oversee PCBs wastes; iii) development of schemes for positive influence of business sector, having active roles and responsibilities in this area; iv) secure effective support of the program

of non-combustion technologies for PCBs destruction; v) disposal of PCBs in the country with state contribution, according to the principles of the Stockholm Convention; and vi) establishment of a system for control of illegal import and application of PCBs.

42. Project objectives are in line with the Law on waste management (2004, "Official Gazette" no. 68/04). Furthermore, the Regulation on PCB was passed in 2007 ("Official Gazette" no. 48/07). A Regulation on waste oils was passed in 2007 ("Official Gazette" no. 156/07). There is also a National Directive for POPs according to Regulative 850/2004 that is going to enter into force in the near future. Planned project activities are in line with its objectives to minimize pollution and facilitate environmental protection. The project has a strong linkage with the Law on the Environmental of the FYR of Macedonia, and especially the Law on waste management. The Law on Waste Management directly transposes the following EU Directives from the POPs issues: Council Framework Directive on Waste (75/442; 91/156), and Council Directive on PCB/PCT (96/59, 01/68). The latest revision of the Law on Environment was undertaken in June 2005. The latest revision of the Law on Waste Management is from October 2004.

43. All project stakeholders, including Government of FYR of Macedonia, SECO, Rade Koncar and electricity sector representatives, as well as other stakeholders who were involved, find the project fully relevant for solving the current issues of PCB contamination and expressed the importance of the project in reaching that goal and solving the PCB issue.

**Relevance to GEF priorities and Stockholm Convention**

44. The project was found fully consistent with GEF Strategic Objectives: POPs SP#1 for strengthening capacity for NIP Development and Implementation, and POPs SP#2 for Partnering in Investments for NIP Implementation, as well as for GEF's Operational Program: OP14 during the identification and design phase. The projects goals and objectives are entirely in line with the obligations under the Stockholm Convention. The project is directly targeted to implement all the measures of Article 6 - "Measures to reduce or eliminate releases from stockpiles and wastes" of the Stockholm Convention, especially points a, b, c and d by developing strategies for identification and actual identification of PCBs, indicating measures to reduce or eliminate releases from stockpiles and wastes of POPs, and PCBs should be handled, collected, transported and stored in an environmentally sound manner. Furthermore, the project corresponds to the Article 10 – "Public information, awareness and education", especially point a, b, d, e, f and g of this Article. Moreover, the project goals and activities are consistent and are aimed to significantly contribute to fulfilling the requirements of Annex A, part II of the SC explicitly providing guidance on treatment of PCBs.

**Relevance to UNIDO's mandate**

45. The project is fully in line with UNIDO's mandate, core competences and can benefit from UNIDO's comparative advantage as GEF's implementing agency in the POPs sector for the organizations' mandate is to support sustainable industrialization, having strong core competences in dealing with the chemical polluting substances, and especially strongly supporting the implementation of the Stockholm Convention.

Based on the assessment of full project relevance to local and national priorities and policies, priorities completely related to relevant international conventions, and to GEF's strategic priorities and objectives, **overall project relevance is considered to be HIGHLY SATISFACTORY.**

## Effectiveness

46. ***Project effectiveness is evaluated against the evidence that shows to what extent the project outcomes are likely to be achieved and do they contribute to the achievement of project objective, based on the final implementation results.***

47. The terminal evaluation of the effectiveness of Macedonia's PCB project has been a demanding task, mainly due to the deficient framework of indicators, as mentioned in the Design section of the report. The logical framework of this project has little baseline information or quantitative targets (except for the identification of 25 transformers in a most critical condition and a treatment of 150 tons of PCB containing equipment), making it very difficult to form statements on the overall project success. In order to partially overcome this problem, the PD was used as a source of information about the project outputs and outcomes to form a more comprehensive analysis of project effectiveness. This was possible since the PD explained in details the outputs / project components, their outcomes and the activities that should be undertaken. The previous table (Table 5 Projects Outputs and Outcomes in PD) provides an overview of the activities and the indicators.

**1. PD Outcome 1 – Establishment of ESM system:** Component includes inputs/activities related to: i) Institutional and legal frameworks; ii) Technical capacity for PCBs; and iii) National PCB elimination action plan and identification of the disposal options available. In all of these areas the targets that were set in the Logical Framework Analysis have been met.

**2. PD Outcome 2 – Environmentally Sound Management (ESM) of PCB-containing electrical equipment:** This component includes inputs/activities related to: i) Round table discussions with demonstration areas representatives; ii) Training on PCB-containing equipment identification for personnel involved in PCB handling; iii) Identification and labeling of PCB-containing equipment; iv) Development of detailed inventory of PCB-containing equipment and wastes in demonstration areas; and v) Sampling and testing of oil samples and analyses. All the goals from this component that were set were reached.

**3. PD Outcome 3 – Upgraded storage facility and disposal option implemented:** This component includes inputs/activities related to: i) Upgrading of PCB interim storage site; and ii) Phase out, storage and disposal of PCB equipment at demonstration area. The project was delayed by 22 months due to major delays in selecting BAT and contracting. There was a newly built interim storage and decontamination site at Rade Koncar, and 167.25 tons of

PCB-containing waste were phased out, stored and disposed of in an environmentally sound manner by the end of the project implementation, thereby overreaching the project objectives by 17.25 tons of phased out PCB-containing equipment.

**4. PD Outcome 4 – Capacity building to secure financial sustainability:** This component includes inputs/activities related to: i) Strengthening human resources and training in funds raising. The goal of strengthening the human resources was reached by NEA dedicating a full-time National Project Coordinator (or PM) for the goals of this project. However, a training in funds raising was not done, which did not jeopardize the project outcomes as the co-financing funding was even exceeded by US$230,000 and reached US$2,015,000.

**5. PD Outcome 5 – Public participation, awareness and education:** This component includes inputs/activities related to: i) Public awareness activities. All the activities for raising the public awareness, participation and education were undertaken, with an exception being made with the NGOs activities that were found to be irrelevant for this project.

**6. PD Outcome 6 – Adaptive monitoring and evaluation:** This component includes inputs/activities related to: i) Setting up the project management unit, coordination, definition of the work plan, SC meetings, project management execution; ii) Inception meeting; iii) Monitoring and evaluation; and iv) Final workshop and terminal evaluation meeting. The MoUs with the companies from the demonstration areas were signed, and all the financial contribution from the co-financing reached US$2.015 million against the US$1 million financed by GEF. However, there were several shortcomings in the development of the detailed work plan with definition of detailed activities shared to all stakeholders, the funds mobilization plan, the project management establishment and execution, and the monitoring & evaluation policy with SMART indicators.

**Table 5** Assessment of project effectiveness per project output

| Outputs / Project Components in PD | Outcomes in PD | Evaluation assessment | Rating |
|---|---|---|---|
| **Component 1: Establishment of ESM system** | | | |
| **1.1 Institutional and legal frameworks** | **Legal framework for ESM of PCBs** | 1. There was a round table discussion workshop within the inception workshop on 9 July 2009 for reaching the most suitable management option accepted by all stakeholders: Government of FYR of Macedonia – represented through MoEPP, the POPs Office of MoEPP, the main PCB owners, Rade Koncar Skopje, NGOs, Sea Marconi, Polyeco and UNIDO representatives.<br><br>2. The legal framework for the PCB control and ESM of PCBs is mainly is given in two legal acts framework Law on Waste Management (Official Gazette of the Republic of Macedonia no. 68/04, 71/04, 107/07, 102/08, 134/08). Even more, a Rulebook on the manner and conditions for handling PCBs, manner and conditions to be fulfilled by the installations and facilities for disposal and decontamination of PCBs, used PCBs and manner of labeling the equipment containing PCBs (Official Gazette of the Republic of Macedonia, no. 48/2007) as the main institutional and legal framework for Environmentally Sound Management of PCBs. Moreover, a further Regulation on waste oils was passed in 2007 ("Official Gazette" no. 156/07). Annex 6 (taken from the National Action Plan on PCBs Management from January 2011) gives a full analysis of the national legislation in regard to Stockholm Convention PCB provisions implementation. As regulated by the Law on Organization of the State Administration, a number of Government institutions are responsible for different aspects of Chemical management in Macedonia. Mainly, the general aspect of PCBs management is responsibility of the Ministry of Environment and Physical Planning: "According to the Decision for NIP on POPs Reduction and Elimination adopted by the Macedonian Government on 25.01.2005 the Ministry of Environment and Physical Planning through its POPs Unit to conduct activities for NIP on POPs Reduction and Elimination implementation.". Concerning PCB Waste: "According to the Law on Waste Management the Ministry of Environment and Physical Planning is responsible for hazardous waste management including Chapter V on Handling of Special types of hazardous waste (Article 69, Handling of PCB/PCT).". Furthermore, for PCB export/import: "According to the Decision for Classification of Goods to Import and Export (OG of the RM no. 8/10) the import and export of the mixtures and preparations, as well as waste containing PCBs could be performed with prior issued permit | **S** |

| Outputs / Project Components in PD | Outcomes in PD | Evaluation assessment | Rating |
|---|---|---|---|
| | | by the Ministry of Environment and Physical Planning. As well, the procedure of the Rotterdam Convention related to PCB external trade will be responsibility of the MoEPP.". The Ministry of Health (MH) is responsible for coordination Implementation of the Law on Chemicals (OG of the RM no. 113/07). The MH/Bureau for Medicinal Products together with other involved institutions (MoEPP, MAFWE) sets the conditions and the method or placing chemicals on the market, the conditions of production of chemicals, the rights and obligations of the legal entities which produce and market chemicals or use, test, assess, classify, mark and package chemicals, as well as supervise, with the objective of protecting the health of people and the environment. The Ministry of Transport and Communication (MTC) controls the conditions and manner for transport of hazardous substances in road and railway traffic, the conditions to be met regarding packaging and vehicles, duties of the persons participating in the transport of hazardous substances, etc. through implementation of the Law on Transport of the Hazardous Substances the MTC (together with MH and Ministry of Interior). The Customs Administration within the Ministry of finance is in charge to control the overall import/export of the goods including PCBs/PCB waste external trade. The control also means control of the PCBs at the border entry points. The Ministry of Foreign Affairs (MFA) provides assistance in fulfillment of the obligations from international treaties (including the Stockholm Convention on POPs) ratified by the Macedonian Parliament and facilitates the communication with the international bodies governing the global treaties.<br><br>3. However, incentives for cost-recovery of investments in PCB management were not developed until the end of project implementation.<br><br>4. Additionally, measures for control of illegal imports of PCB equipment and oils should be applied. Customs officers should be trained to control the illegal import of the PCB equipment and oils, and national legislation should be adjusted accordingly.<br><br>5. A national workshop on the inventory was organized on 23 December 2008 for industries' representatives, government, inspectorates, etc.. The national training workshop on ESM for PCBs was organized on 19 May 2010 for all stakeholders, including Industry, Tehnolab, SECO, POPs Office and Rade | |

| Outputs / Project Components in PD | Outcomes in PD | Evaluation assessment | Rating |
|---|---|---|---|
| | | Koncar Servis.<br><br>**It is recommended that beyond the project implementation a focus should be made on the development of incentives for industry in order to recover the costs of investments in PCB management by MoEPP.**<br><br>**The MoEPP should keep the focus on companies that are not able to finance the phasing out of the PCB-containing equipment as a result of their bad financial situation.**<br><br>**Another important recommendation is that MoEPP, the Customs Administration within the Ministry of Finance, and the Ministry of Transport and Communication (MTC) should strengthen the measures for control of illegal import of the PCB equipment and oils with customs officers being trained on this issue, and national legislation adjusted accordingly.** | |

| Outputs / Project Components in PD | Outcomes in PD | Evaluation assessment | Rating |
|---|---|---|---|
| **1.2 Technical capacity for PCBs** | Capacity building program designed for ESM development<br><br>Guidelines for safe PCB management development<br><br>ESM system is developed and approved | 1. Guidelines and procedures for identifying PCB-containing equipment, as well as methodology for labeling electrical equipment according to relevant international guidelines were developed, and a brochure: "Guideline for Identification of PCBs in electrical equipment" was published in December 2008 in Macedonian and English language. They included procedures for sampling, use of the field test kits and on-site analytical equipment, as well as formats for data collection and reporting, and design for printing of the labels for a) equipment from which samples were taken, b) PCB free equipment and c) PCB containing equipment (above 50ppm of PCB).<br><br>2. A central database based on national inventory results containing all the information on PCB-containing oils and PCB-contaminated or containing equipment accessible for all monitoring and control authorities was developed. It is updated with the phasing out of each PCB-containing transformer.<br><br>3. Standardized procedures for collecting the PCB-containing equipment and wastes, as well as procedures for draining PCB contaminated oils from the transformers and its treatment were developed. The "Handbook on Environmentally Sound PCB Management of electrical equipment" published by the POPs Office of MoEPP in April 2010 includes tools and strategies to manage the environmental and health impacts associated with PCBs. This Handbook was developed as a guide for identification, removal, handling, storage of wastes pending disposal and final destruction of PCB-containing materials. | **HS** |
| **1.3 National PCB elimination action plan and identification of the disposal options available** | Reporting and records keeping formats development<br><br>Action plan upgrade and adjustment | 1. Based on an economic and technical analysis, the project task team identified one country specific BAT - method for treatment and disposal of PCBs – the non-combustion and decontamination technology later purchased from Sea Marconi and installed the same at the new interim decontamination site at the Regional Ecological Center at Rade Koncar Servis.<br><br>2. Due to the size of the country, a replication strategy for PCB ESM of electrical equipment was not needed. It was automatically done in a countrywide approach. A National PCB Elimination Action Plan has been prepared as a National Action Plan of PCB Management in January 2011, which was rather late in the project implementation phase. | **S** |

| Outputs / Project Components in PD | Outcomes in PD | Evaluation assessment | Rating |
|---|---|---|---|
| **Component 2: Implementation of ESM system in selected demonstration areas** | | | |
| **2.1 Round table discussions with demonstration areas representatives** | The discussion with demonstration area representatives aims towards the identification and a role of separate stakeholders in project participation<br><br>Help-desk on PCB-related issues<br><br>Improved monitoring capacity | 1. The main stakeholder – the owner of PCB-containing, equipment EVN Macedonia implemented the ESM system and phased out 116 transformers with 150.9 tons of PCB-containing equipment. Additional demonstration areas were identified throughout the project implementation with the following PCB owning companies: FZC (phased out 4 transformers or 8.9 tons of PCB-containing equipment), Bucim (phased out 4 transformers or 4 tons of PCB-containing equipment. The two demonstration areas in Tetovo and Skopje selected at the beginning of the project implementation: SILMAK DOOEL Export/import, Tetovo and MZT LEARNICA A.D., Skopje, as well as additional two companies owning PCB-containing equipment OKTA and ArcelorMittal remained valid throughout the project implementation going through all the phases of the ESM system, except the final one of phasing out of their transformers.<br><br>**It is highly recommended that the final phase of the ESM system for PCBs – the phasing out of the transformers of the four companies SILMAK, MZT LEARNICA, OKTA and ArcelorMittal is finished as soon as possible.** | **S** |
| **2.2 Training on PCB-containing equipment identification for personnel involved in PCB handling** | Training for the demonstration area – PCB holders<br><br>Training for PCB equipment maintenance company workers<br><br>Training for storage workers<br><br>Guidelines and training manuals | 1. A national workshop for inventory was organized on 23 December 2008 for the government, municipalities, industries, operators, inspectorates, etc..<br><br>2. A training workshop on ESM for PCBs was organized on 19 May 2010 for all stakeholders, including PCB owner companies, Tehnolab, SECO, POPs Office and Rade Koncar Servis.<br><br>3. There were several special training courses provided for fire-fighting brigades, customs officers and NGOs within the Framework of previous projects “Disposal of the low voltage capacitors from the national power distribution company (ESM)” and “Public awareness activities for PCBs Management” financed by the actual co-financing partner in this project SECO.<br><br>**For the future after project completion, it is highly recommended for the POPs Office / MoEPP to adjust future trainings on PCBs to the needs of the stakeholders** | **S** |

| Outputs / Project Components in PD | Outcomes in PD | Evaluation assessment | Rating |
|---|---|---|---|
| | | **/ participants, and to measure the level of capacity built, by primarily defining the target audience, and use of tools to capture the feedback from the workshop participants in order to measure success of the trainings and capacity building.** | |
| **2.3 Identification and labeling of PCB-containing equipment** | All tested equipment is reported and labeled<br><br>Inventory of selected demonstration area | 1. In the phase of the identification and labeling of PCB-containing equipment, based on the laboratory/test kit results, a list of PCB-containing equipment was prepared. The transformer data were registered in a special form, collected, processed and added into the database. Information on risk assessment factors such as age of the electrical equipment, status of the electrical equipment, etc. was also recorded. Electrical equipment in critical conditions was prioritized for immediate actions. Task teams provided the required data to the competent authorities that prepared the follow-up of the activities. The State environmental inspectors at the MoEPP are obliged to inform the local fire-fighting brigade about all PCB-containing devices, which started and should be continued.<br><br>**In the future the competent authorities – State environmental inspectors at the MoEPP should duly inform the local fire-fighting brigades on all PCB-containing devices.** | **HS** |
| **2.4 Development of detailed inventory of PCB-containing equipment and wastes in demonstration areas** | PCB inventory report<br><br>Development of a detailed PCB inventory of the electrical equipment, articles and wastes<br><br>Establishment of a central database on the electrical equipment | 1. A detailed inventory of all PCB-containing equipment and wastes with specifications on quality, quantity, location and conditions at the demonstration areas and throughout the country was prepared. This inventory contains a priority list of equipment containing PCBs for phasing out. Sufficient number of employees from PCB owners companies was trained depending on the size of the company at each demonstration area in order to have a roster of experts. Task team of three members where two members come from the company owner of the PCB equipment to enable access to the facilities, and another from the environmental inspectorate were formed. The PD states that 30 people from each demonstration area should be trained. During the project implementation were trained only the responsible persons handling the PCB-containing equipment. Consequently, the roster of experts is very limited.<br><br>**It is recommended that in the future POPs Office / MoEPP should organize a proper training for all people involved in PCB management and handling of PCB-containing equipment, especially for people working at the PCB** | **HS** |

| Outputs / Project Components in PD | Outcomes in PD | Evaluation assessment | Rating |
|---|---|---|---|
| | | **owner companies, hereby creating a roster of experts for PCB management.** | |
| **2.5 Sampling and testing of oil samples and analyses** | Laboratory capacity for demonstration area<br><br>Oil samples tested and analyzed | 1. Oil samples were primarily tested with L2000DX equipment with prior extensive training to those who undertook field evaluation of electrical equipment on 23 December 2008. Only samples containing chlorine above 50ppm were re-evaluated by gas chromatographic analysis. There were 83 such samples that were sent to an accredited laboratory for gas chromatographic analysis in Cetinje, Montenegro, out of which 34 samples were tested as PCB-containing equipment over 50ppm. No analytical laboratory capacities was identified and sub-contracted in Macedonia for testing the transformer oil samples and for PCB analysis. For the preliminary inventory, exactly 500 samples were tested in all the demonstration areas and newly identified sites, out of which 34 were with a confirmed PCB concentration greater than 50ppm.<br><br>The MoEPP should encourage building a capacity of an accredited laboratory for gas chromatographic analysis of PCB-concentration in the FYR of Macedonia. | **HS** |
| **Component 3: Upgraded storage facility and disposal option implemented** | | | |
| **3.1 Upgrading of PCB interim storage site** | Interim storage site is selected and upgraded, and is in operation with improvements to existing storage facility that contain old PCB-containing transformers and capacitors to meet environmental protection needs being made<br><br>Most feasible disposal option identified through | 1. It was decided that the existing storage facility at Rade Koncar Servis in Skopje, located next to the workshop of the company where maintaining, dismantling, recycling and decontaminating of old transformers takes place will not be upgraded, but newly built in order to meet the ESM principles for environmentally sound safe storage of PCB wastes stated in the feasibility study for Interim Storage Facility (Building Infrastructure, Construction Modalities, Storage Logistics).<br><br>2. The newly built facility is built according to a feasibility study for the design of the facility, emergency precautions, and necessary infrastructures as well as human resources for proper separation, storage and preparation for further disposal of PCB wastes. The facility personnel were fully trained by Sea Marconi on handling PCB-containing wastes. Personal protective equipment is provided and used. Construction Permit of the Municipality of Aerodrom, Permit for Storage, treatment and processing of hazardous waste issued by MoEPP, Decision for Approval of Elaborate for Environmental Impact Assessment issued by MoEPP, and B-integrated ecological permit - IPPC (Integrated, Pollution, Prevention and Control) Permit issued by the Mayor of City Skopje, were | **HS** |

| Outputs / Project Components in PD | Outcomes in PD | Evaluation assessment | Rating |
|---|---|---|---|
| | economic feasibility study on the disposal method | obtained for all stages of project implementation prior to installing the non-combustion and decontamination technology at the newly built interim storage at Rade Koncar Servis.<br><br>3. A PCB monitoring system was established in the selected storage area with the technical requirements identified by the experts in the feasibility study. Possibly contaminated areas were checked in a baseline study before the operational phase, a site investigation study took place after six months of the start of the operation for monitoring of the environmental media for soil, groundwater and air on PCB-contamination. All the taken samples during these studies were within the maximum allowed limits concentration in PPM of PCBs. There is no evidence of monitoring of exposure of employees on PCBs, as there is no facility or institution in FYR of Macedonia that offers such services. Inventory books are controlled by two authorities: City Environmental Inspectors from City Council Skopje and State Environmental Inspectors from MoEPP are provided and updated regularly. All transports of hazardous PCB contaminated wastes (especially the final disposal of the phased out PCB contaminated transformers and oil to the company Polyeco in Greece) was reported to NEA during the project life subsequently in order to fulfill the reporting requirements under the Stockholm and Basel Convention.<br><br>4. The existing storage facility that contains old PCB-containing transformers was newly built based on the developed feasibility study to meet environmental protection needs, providing protective equipment and training for workers.<br><br>**Finding a solution for monitoring of exposure of employees on PCBs by the Ministry of Health and Rade Koncar Servis is recommended.** | |
| **3.2 Phase out, storage and disposal of PCB equipment at demonstration areas** | 25 transformers in most critical condition are phased out<br><br>150 tons of PCB-containing waste is disposed of | 1. The inventory database identified the equipment - 113 transformers - which were in the most critical condition. The equipment was collected, stored in a safe environmentally sound manner and kept until its final treatment.<br><br>2. After a detailed economic and environmental analysis of the alternatives carried out under the project to identify the most feasible options, approximately 167.25 tons of PCB-containing equipment and wastes (124 transformers) were disposed of using the non-combustion and decontamination | **HS** |

| Outputs / Project Components in PD | Outcomes in PD | Evaluation assessment | Rating |
|---|---|---|---|
| | | technology by Sea Marconi, thereby fulfilling the required of the Stockholm Convention to contain PCBs under the maximum allowed concentration of 50 PCBs [ppm]. The maximum allowed concentration of PCBs according to SC is under 50 ppm of PCBs, which is taken also for the Macedonian Handbook for handling PCBs. However, according to the National Legislative - the Rulebook for hazardous waste (contaminated oils) the maximum concentration of PCBs should be less than 20 ppm of PCBs in PCB-contaminated oils. Therefore it was decided to take the lower concentration of less than 20 ppm of PCBs for the goals of the project. All the samples that were decontaminated during the project (167.25 tons of PCB-containing equipment contained less than 20 ppm of PCBs which was confirmed by an independent laboratory abroad: Center for Ecotoxicological Research in Cetinje, Montenegro (See Annex 7 and Annex 8 of the Terminal Evaluation Report).<br><br>3. Within the frames of the project, the NPC (PM) from the POPs Office of MoEPP, Municipality Environmental Inspectors of City Skopje and State Environmental Inspectors from MoEPP were performing regular inspections of the decontamination process of PCB-contaminated oils and PCB-containing equipment at the newly built Interim Storage and Non-combustion and Decontamination Unit at the Regional Eco Center in Rade Koncar Servis.<br><br>**A recommendation is given to Rade Koncar Servis and the MoEPP to promote the newly built interim storage site and facility for non-combustion and decontamination technology as a Regional Center for phasing-out of PCB-containing equipment from the whole Balkans region in order to ensure sustainability and replicability of using the GEF funding and the co-financing on a regional level.** | |

| Outputs / Project Components in PD | Outcomes in PD | Evaluation assessment | Rating |
|---|---|---|---|
| **Component 4: Capacity building to secure financial sustainability** | | | |
| **4.1 Strengthening human resources and training in funds raising** | Sufficient human resources secured<br><br>Personnel trained in fund raising<br><br>Number of trained staff<br><br>Financial mechanism is in place | 1. The POPs Office within MoEPP raises funds for diverse National and International Projects from various donors. The capacity of the POPs Unit of the MoEPP in terms of funds generation and securing financial sources for this program was built.<br><br>2. An example is the exceeding of the target for co-financing of the planned US$1,795,000 to US$2,015,000 by 13%. Additionally, the Law on Waste Management and Law on Environmental stipulated fines for non-compliance with the regulations on PCBs.<br><br>3. POPs Unit has served and will serve as a help desk for technical and financial support for all PCB issues in FYR of Macedonia. It will remain on disposal of PCB owners after the project closure.<br><br>4. Sufficient Human Resources were secured for the functioning of the Regional Eco Center at Rade Koncar Servis where there is a specially trained Waste Manager of the Decontamination Unit, as well as fully trained decontamination site workers.<br><br>**It is recommended that the MoEPP organizes a special fund raising training for the POPs Office Project Managers that would help them in easier fund generation and finding financial solutions for the future projects managed by the POPs Office.** | **S** |
| **Component 5: Public participation and awareness raising** | | | |
| **5.1 Public awareness activities** | Regular work with media and local NGOs - briefings<br><br>Training for NGOs on ESM of POPs/PCBs<br><br>Hearing for public on | 1. All the activities for raising public awareness, participation and education were undertaken. A number of brochures both in Macedonian and English language were published by the POPs Office: "Guideline for identification of PCBs for electrical equipment", "Handbook on Environmentally Sound PCB Management in Electrical Equipment", "PCBs - Reduction and Elimination", as well as numerous newspapers articles. Few national and regional workshops on the national awareness raising campaign for PCBs reduction and elimination were organized before the project implementation started: "National Awareness Raising Workshop- NGOs and Media on 15-16 | **S** |

| Outputs / Project Components in PD | Outcomes in PD | Evaluation assessment | Rating |
|---|---|---|---|
| | project plan and results<br><br>Activities of local NGOs with public on POPs/PCBs | September 2006", "National Awareness Raising Workshop-Health Professionals on 27 October 2006", "National Awareness Raising Workshop-State Institutions and Industrial Stakeholders on 4 December 2006", and "A regional workshop for the Eastern (Kocani) region of Macedonia for professionals dealing with equipment possibly contaminated with PCB and interested members of the general community on 1 February 2007". The reason behind was that the PPG Approval was approved in 7 February 2006, and the project implementation started only in September 2008, two years later. These workshops on the national awareness campaign were organized using the funds from SECO within the Framework of previous projects "Disposal of the low voltage capacitors from the national power distribution company (ESM)" and "Public awareness activities for PCBs Management" within the Framework of previous projects "Disposal of the low voltage capacitors from the national power distribution company (ESM)" and "Public awareness activities for PCBs Management".<br><br>2. NGOs activities were found to be irrelevant for this project. This was decided, as the project implementation started, because there was no specialized NGO for dangerous chemicals and hazardous wastes, and POPs Office and the NPC were 100% committed to the project. The role of NGOs was taken over by the POPs office, which organized training workshops, prepared booklets and raised public awareness activities. During the early phase of Project implementation, it was clear that NGOs will not play any role in this project due to lack of existence of relevant NGOs. However, this was not mentioned in the Mid-Term Evaluation, which resulted in the fact that the first document that reveals the issue with the NGOs is the Terminal Evaluation Report. | |

**Final achievement of anticipated project outcomes**

48. The final achievement of Project Objectives within Component 1 and Component 2 is considered as done, because all of the targets from the Logical Framework Analysis for both Components 1 and 2 were met. Within Component 3, treatment and disposal of 150 tons (also considered as the project goal), there was a newly built interim storage and decontamination site at Rade Koncar, and even 167.25 tons of PCB-containing waste were phased out, stored and disposed of in an environmentally sound manner by the end of the project implementation,

thereby overreaching the project objectives by 17.25 tons of phased out PCB-containing equipment. However, it should be noted that the same was done with major delay of almost two years as a result of late selecting BAT and contracting. The goal of strengthening the human resources within Component 4 was reached by NEA dedicating a full-time National Project Coordinator (or PM) for the goals of this project. However, training in funds raising was not done, which did not jeopardize the project outcomes as the co-financing funding was even exceeded by US$230,000 or 13 %. Furthermore, all the activities related to Component 5 for raising the public awareness, participation and education were undertaken, with an exception being made with the NGOs activities that were found to be irrelevant for this project. Finally, for the Component 6, the MoUs with the companies from the demonstration areas were signed, and all the financial contribution reached US$2.015 million against the US$1 million financed by GEF. There were minor shortcomings from Component 6 in the development of the detailed work plan with definition of detailed activities shared to all stakeholders, the funds mobilization plan, the project management establishment and execution, and the monitor & evaluation policy with SMART indicators. The table above describes in detail the final achievement of all the project outcomes under each component for all project outputs.

**Future reporting to GEF**

49. Relevant Key Impact Indicators and Target Indicators which should be SMART (especially measurable) should be developed within the Monitoring and Evaluation system, and they should be reported to GEF. The evaluator proposes the reporting on the progress of the Key Impact and Target Indicators to be included in UNIDO Annual Project Implementation Report (PIR).

**Contribution to achievement of Global Environmental Benefits**

50. Project outputs and outcomes directly contribute to the implementation of the Stockholm Convention requirements, namely for the phasing out of PCBs from the electricity sector, ban of import and usage. The project is very likely to contribute to total phasing out of PCBs in electricity sector in an environmentally sound way. The only jeopardizing of phasing out of few transformers containing PCB oils can be due to lack of finances of companies that are in financial difficulties and cannot afford the phasing out of their transformers for final disposal or for re-usage. This is the case at least with the two companies MZT Learnica and SILMAK in Macedonia, which also signed MoU's at the beginning of the project implementation, however they did not phase out their PCB-containing transformers due to lack of money. The project stakeholder should find a solution in order to enable these companies to finish their obligations of phasing-out of their PCB transformers.

**Reaching project beneficiaries**

51. The targeted beneficiaries of the project have been reached. Some additional beneficiaries have also been tackled, such as non-electricity sector companies (mining, steel and metal-processing companies, as well as other companies who posses electrical equipment) mainly through the PCB containing equipment inventory and some of the companies by training.

**Assessed long-term impacts**

52. The obvious long-term positive impacts are those to environment and human health. Based on the interviews with project beneficiaries and stakeholders, the contribution to legislation has led to establishment of OHSAS labor health and safety system for PCB-affected occupations, requirements for workers' health and safety, and standardization of requirements for the facilities. It also contributed to increase the awareness on PCBs as a substance harmful to human health, and an occupational hazard for workers dealing with the electric transformers and oil, which has led to increased use and demand for protective equipment by workers. The long-term impacts are also seen through minimizing further contamination or cross-contamination due to introduction of an environmental management system that includes banning and control of import, identification of chemicals already present in the country (for example through identification, inventory, proper labeling and disposal), as well as their final disposal or returning to owners once the PCB oil has been decontaminated through the non-combustion and decontamination technology in the new interim storage and decontamination site for PCBs.

53. Laboratory capacities for Chlorine-content instrumental screenings were established at the new interim storage and decontamination site in Rade Koncar only as primary PCB identification of the transformers and equipment containing PCB-contaminated oils. However, at the moment there is no accredited Laboratory for PCB determination on the territory of the FYR of Macedonia, which did not endanger project results as it was not an immediate project objective. All the decontaminated samples of PCB oils of the 167.25 tons of PCB-containing equipment were sent to an accredited laboratory Center for Ecotoxicological Research in Cetinje, Montenegro for gas chromatographic analysis (see Annexes 7 and 8 of TER).

**Catalytic and/or replicable role of the project**

54. Worldwide various countries are dealing with the issues of POPs and PCBs management, and the Stockholm Convention obliges them to phase out the use of these harmful substances. The methodology and approach developed for the PCBs inventory within this project has a potential to be replicated in other countries where a static decontamination technology of PCB-containing equipment would be sufficient. NEA prepared a short information movie for the project that was presented to UNIDO and on the Final Workshop to all participants. UNIDO itself filmed an information movie on the Macedonian PCB project with short interviews from the main stakeholder and the decontamination facility in Rade Koncar with the Sea Marconi non-combustion and decontamination technology installed. All the information should be further disseminated for sharing best practices and thereby insuring replicability and catalytic role of the project.

55. The project stakeholder Rade Koncar where the new interim storage was built and the decontamination plant was installed also sees the potential in using the acquired technology to clean up the PCB contaminated oils from neighboring countries. They even want to make a future investment in making the decontamination equipment mobile, which can be transported in order to simplify the decontamination of PCB-containing equipment in the neighboring countries,

as well as easy decontamination of large transformers in Macedonia that cannot be moved as a result of transport reasons. Furthermore it is also considered that, since the decontamination unit is equipped with oil restoration function, that after cleaning of the PCBs it can be used for various purposes in the industry dealing with improvement of the oil quality.

One main objectives of this MSP is to develop a sustainable ESM system to support phasing-out and disposal of PCB-containing electrical equipment, which was built and implemented in identified demonstration areas that proved its viability and ability to be used by other potential PCB holders. The second most important main objective is to upgrade the storage facility and to implement disposal option in order to phase out the 25 transformers in most critical condition identified in the inventory, and finally dispose of and decontaminated 150 tons of PCB-containing wastes in an environmentally sound manner in the upgraded interim storage and decontamination facility. In this terminal evaluation it is clear that the project was able to achieve the overall objectives, and even overreached the target by 12 percent by disposing 167.25 tons of PCBs wastes from PCB-containing equipment instead of the planned 150 tons of PCBs waste by the project closure. Instead of the mentioned 25 transformers in the PD, 124 PCB-containing transformers in most critical condition were phased out, cleaned and returned to the equipment owners for further service or final disposal by the owners, whereas the contaminated protective equipment for the workers and the substances for cleaning the PCB-contaminated oils and the contaminated oils were disposed of in an environmentally sound manner at a hazardous waste landfill by Polyeco in Greece. A new interim storage facility has been built and suitable non-combustion and decontamination technology for PCB-containing oils and equipment has been installed. On the other side, a remark is made that the nearly two years delay of project implementation will be taken into consideration for the terminal evaluation in the Efficiency rating. Consequently, **the effectiveness of the project objective and fulfilled outcomes at time of project closure is rated as HIGHLY SATISFACTORY**, in view of the tangible results of delivered planned activities/inputs and overreaching of project objectives.

## Efficiency

56. ***The assessment of efficiency should answer whether the project was cost-effective and the least-cost option. It needs to consider if the project was delayed, and if yes did the delay affect cost-effectiveness. Efficiency also considers adequacy of contributions of government as well as the national executing agency for project implementation.***

57. The cost and financing information was provided by UNIDO through the Annexes of the ToR for this assignment and by the national project team during the field mission to Skopje. Table 6 presents the project framework – overall cost and financing with co-financing (planned and achieved). Table 7 presents the overall cost and financing with co-financing (planned and

achieved), whereas Table 8 shows the overall cost and financing from GEF per budget line (or sponsored class in SAP).

**Table 6** Project Framework - Overall Cost and Financing with Co-financing (planned and achieved)

| Project Components/Outcomes | GEF Financing in (US$) | | Co-financing (US$) | |
|---|---|---|---|---|
| | Approved | Achieved | Promised | Achieved |
| 1. ESM system established | 92,000 | 92,000 | 200,000 | 200,000 |
| 2. Implementation of ESM in selected demonstration areas | 230,000 | 230,000 | 614,000 | 574,000 |
| 3. Upgraded storage facility and disposal option implemented | 470,000 | 470,000 | 803,000 | 1,063,000 |
| 4. Capacity building to secure financial sustainability | 10,000 | 10,000 | 5,000 | 5,000 |
| 5. Public participation and awareness raising | 35,000 | 35,000 | 43,000 | 43,000 |
| 6. Adaptive monitoring and evaluation | 52,000 | 52,000 | 32,000 | 32,000 |
| 7. Project management budget/cost | 68,000 | 68,000 | 88,000 | 88,000 |
| *8.* PDF A | *43,000* | *43,000* | *10,000* | *10,000* |
| **Total project costs** | **1,000,000** | **1,000,000** | **1, 795,000** | **2,015,000** |

**Table 7** Overall Cost and Financing with Co-financing (planned and achieved)*****

| Name of Co-financier (source) | Classification | Type | Project preparation (US$) | Project (US$) | Project (US$) | TOTAL (US$) | TOTAL CO-FINANCING AT THE BEGINNIG OF PROJECT IMPLEMENTATION (%) | TOTAL CO-FINANCING AT PROJECT CLOSURE (%) |
|---|---|---|---|---|---|---|---|---|
| Government of the FYR of Macedonia | National Government | grant | | 670,000 | 670,000 | 670,000 | 38% | 33.25% |
| Government of the FYR of Macedonia | National Government | in-kind | | 100,000 | 100,000 | 100,000 | 6% | 4.96% |
| SECO – Switzerland | International donors | grant | | 150,000 | 150,000 | 150,000 | 8% | 7.44% |
| Envio – Germany | International donors | grant | | 75,000 | 75,000 | 75,000 | 4% | 3.72% |
| EVN Macedonia | Local industry | in-kind | | 400,000 | 400,000 | 400,000 | 22% | 19.85% |
| Rade Koncar Ltd | Local industry | grant | | 240,000 | 240,000 | 490,000 | 13% | 24.32% |
| Rade Koncar Ltd | Local industry | in-kind | | 60,000 | 60,000 | 60,000 | 3% | 2.98% |
| SILMAK | Local industry | in-kind | | 50,000 | 50,000 | 5,000 | 3% | 0.25% |
| MZT Learnica A.D. | Local industry | in-kind | | 20,000 | 20,000 | 5,000 | 1% | 0.25% |
| Bucim | Local industry | in-kind | | | | 15,000 | 0% | 0.74% |
| OKTA | Local industry | in-kind | | | | 5,000 | 0% | 0.25% |
| ArcelorMittal | Local industry | in-kind | | | | 5,000 | 0% | 0.25% |
| FZC | Local industry | in-kind | | | | 35,000 | 0% | 1.74% |
| UNIDO | GEF Implementing Agency | in-kind | 10,000 | 20,000 | 20,000 | | 1% | 0.00% |
| **TOTAL (US$)** | | | **10,000** | **1,785,000** | **1,785,000** | **2,015,000** | **100%** | **112.89%** |

* Expected amounts are those submitted by the GEF Agencies in the original project appraisal document. Co-financing types are grant, soft loan, hard loan, guarantee, in kind, or cash.

**Table 8** Overall Cost and Financing from GEF per budget line (or Sponsored Class in SAP)*

| Budget Line (SAP Sponsored Class) | Item | EXECUTED BUDGET IN 2008 [US$] | EXECUTED BUDGET IN 2009 [US$] | EXECUTED BUDGET IN 2010 [US$] | EXECUTED BUDGET IN 2011 [US$] | EXECUTED BUDGET IN 2012 [US$] | EXECUTED BUDGET IN 2013 [US$] | TOTAL EXPENDITURE [US$] |
|---|---|---|---|---|---|---|---|---|
| **1100** | International Consultants | 7,536 | 31,849 | 3,657 | 1,946 | 42 | -69 | **44,960** |
| **1500** | Travel of project staff | 0 | 12,015 | 13,039 | 7,743 | 1,120 | 0 | **33,918** |
| **1700** | Consultants | 8,882 | 47,392 | 29,989 | 16,771 | 11,353 | 5,832 | **120,221** |
| **2100** | Subcontractors | 0 | 0 | 0 | 691,200 | 0 | 0 | **691,200** |
| **3300-3400 (in SAP 3000)** | Training | 0 | 2,210 | 0 | -143 | 0 | 0 | **2,067** |
| **3500** | Meetings & Workshops | 0 | 0 | 273 | 146 | 0 | 0 | **419** |
| **4500** | Equipment | 15,155 | 6,590 | -16 | -23 | 29,480 | 0 | **51,186** |
| **5100** | Sundries | 70 | 0 | 25 | 0 | 7,720 | 0 | **7,815** |
| | **TOTAL [US$]** | **31,644** | **100,056** | **46,967** | **717,641** | **49,715** | **5,763** | **951,786** |

Source and date of information: UNIDO SAP System, 06 November 2013

* The Total Budget of GEF was US$1,000,000 minus the means for the PDF A of US$43,000 gives a sum of US$957,000, which means that US$5,214 are left from the GEF financing. These US$5,214 will be spent for dissemination of project information, i.e. for making a video for this successful project as an example in order to be replicated for other countries.

**Cost effectiveness**

58. Information and data available for the terminal evaluation from the desk review and interviews with project staff and stakeholders indicate that UNIDO and the project team have taken all possible efforts to ensure project cost-effectiveness. The project financial management is carried according to UNIDO rules and procedures, including contracting and procurement. All indications are that the project is implemented along financial norms and standards for international development projects.

**Least cost option for the project solution**

59. The project solution with the newly built interim storage and the installing of the non-combustion and decontamination technology of Sea Marconi was found to be the least-cost option by the economic analysis in choosing the BAT. If the PCB-containing equipment was to be phased out abroad this would have cost US$4-5 per kg PCB- containing equipment, plus transport costs for hazardous wastes for the final disposed transformers, and double of the transport costs to return them back for the decontaminated transformers. For 150 tons PCB-containing equipment the phasing out of the equipment abroad would amount to US$600,000 to US$750,000. The Sea Marconi non-combustion and decontamination technology amounted to US$675,000. Taking into consideration that the amount of PCB-containing equipment in FYR of Macedonia is 700 tons, this is the least-cost sustainable option for fulfilling the obligations under the SC. Additionally to the facts stated above, the facility with the non-combustion and decontamination technology at the Regional Eco Center at Rade Koncar Servis is planned to become a regional center for phasing out of PCB-containing equipment and decontamination of PCB-contaminated transformer oils. The efficiency of the project will be even more increased herewith, and by choosing this project solution, GEF's and other stakeholders' means were sustainably used.

**Co-financing**

60. Based on the data on co-financing provided by the NEA and NPC during the terminal evaluation field mission, it is evident that the project has been very successful at mobilizing allocated funds from the national counterparts. The amount of contribution of Rade Koncar Servis for the new PCBs decontamination facility was considerably increased from the planned US$300,000 to final US$490,000 of in-kind investment. Another US$50,000 were secured from the new demonstration areas PCB owners companies Bucim, OKTA, ArcelorMittal and FZC, as well as US$10,000 more than previously planned by UNIDO. The amount of contribution that was committed can be considered as highly satisfactory and it demonstrated high ownership by local stakeholders of the project.

The terminal evaluation has concluded that there were all efforts undertaken to ensure cost-effectiveness of project results both by UNIDO as IA and by POPs Office of MoEPP as NEA. Even more, the amount for the co-financing increased to a level of US$2,015,000 instead of the planned US$1,795,000 by 13 percent. However, the cost-effectiveness was impacted by the fact that the project implementation was two years delayed, even though there was no violation of the financial framework. Reviewing the final results from project management and financial management at time of project closure, the **project efficiency is rated SATISFACTORY (S)**.

## Assessment of Sustainability of Project Outcomes

61. The important aspect of sustainability of GEF projects is the sustainability of project results, as well as the likelihood of continued benefits after the GEF project ends. The implication for GEF projects is that results should be sustained indefinitely. The terminal evaluation should assess at minimum "likelihood of sustainability at project termination, and provide a rating for this".

62. The assessment should explain how the risks to project outcomes will affect continuation of benefits after the GEF project ends, including both exogenous and endogenous risks. Based on GEF evaluation policies and procedures, the overall rating for sustainability cannot be higher than the lowest rating for any of the individual components. Therefore the overall sustainability rating for the Macedonia's PCB Project for this terminal evaluation is **MODERATELY LIKELY (ML).**

#### Financial risks to sustainability

63. **Moderately Likely (ML):** The government has contributed significant resources into the Project, however since the project goal of phasing out of 150 tons PCB-containing equipment is reached, and even exceeded to 167.25 tons of phased out PCBs containing equipment, it is upon the PCB equipment owners to financially secure the cleaning of the rest PCB-containing equipment. This leads to certain insecurity if the phasing out of PCB-containing equipment will be secured, even though there is a law obligation that the PCB owners should phase out all PCB-containing equipment until 2017. The GEF, MoEPP and Rade Koncar Servis have established all the technical and institutional regulations and possibilities including a sustainable relatively low-cost treatment per kg of PCB-contaminated oils technology. On the other side there is no possibility to predict the financial conditions and stability of the PCB owner companies, and therewith no security on whether their PCB-containing equipment will finally be phased out or not by 2017. The state has no financial mechanisms or incentives to support companies with financial difficulties; therefore the financial risks to sustainability are rated as Moderately Likely (ML).

#### Sociopolitical risks to sustainability

64. **Likely (L)**: Project stakeholders, including government officials, decontamination unit workers, customs inspectors, electricity and other industrial companies, have developed a strong sense of ownership of the projects interventions. The project has provided targeted training and awareness raising to over 100 persons, including significant technical capacity enhancements through the building of the new interim and PCB decontamination facility and the electricity companies.

#### Institutional framework and governance risk to sustainability

65. **Likely (L):** The current government has demonstrated a strong ownership of the project. While there is no way to know the priorities of future governments, FYR of Macedonia will

remain bound to its obligations to conform to the SC. There are strong reasons to expect that future governments will honor these obligations for proper PCBs and PCB-containing equipment management, and the Project has built capacity within the MoEPP with the POPs Office to fulfill them. However, there are no clear new customs regulations for the importing of PCB-containing equipment for example for servicing at Rade Koncar. Providing such guidelines and targeted training of the customs officers should be set as a proximate priority.

#### Environmental risks to sustainability

66. **Likely (L):** There are no environmental risks to sustainability of the project outcomes identified through the baseline phase study and the operational phase study of the Monitoring of environmental media (air, underground water, soil) at the interim storage for PCB-containing equipment and wastes and PCB treatment facility at Rade Koncar Servis. Throughout the whole phases of the studies there were no samples from air, underground water and soil from the interim storage and PCB treatment facility containing more than the maximum allowed concentration in ppm or ppb of PCB. As there are no maximal allowed concentration limits for FYR of Macedonia defined by law for soil, air and underground water, the same were taken in consultation with UNIDO from the Report issued by UNIDO: "Persistent Organic Pollutants: Contaminated Site Investigation and Management Toolkit".

## Assessment of monitoring and evaluation systems and project management

#### Monitoring and Evaluation (M&E) design

67. The PD contains a project M&E plan, outlining specific M&E activities, responsible parties, budgets, and timeframes. The activities outlined in the M&E plan meet GEF minimum standards for M&E, and the budget of US$69,000 is adequate for a medium-sized project. The PD sufficiently identifies various review and evaluation processes, specific reporting requirements, and responsibilities. Nevertheless, previously described minor shortcomings of the target and baseline indicators, did not allow for fully comprehensive adaptive management, and make the terminal evaluation of the project difficult in some points. Therefore the **M&E design for Macedonia PCB project: "Phasing out of PCBs and PCB-containing equipment" can be considered as SATISFACTORY**.

#### Monitoring and Evaluation (M&E) implementation

68. The assessment found several deficiencies in the implementation of the M&E system. This is partly the result of shortcomings of the framework occurred during the design stage. Still, the PD clearly articulates that the monitoring system could be refined at the Inception Workshop, and throughout the first year of implementation; however there is no evidence that this was done. Overall, the project only partially made use of modern management tools to monitor progress, workplans were very basic, and there is no evidence that they were updated regularly. The NPC submitted semi-annual and annual project progress reports to UNIDO, NEA and PSC.

A total of eight very detailed reports were prepared by the NPC: one Inception Workshop report, six semi-annual reports and one Project Completion Report. The project progress reports do provide exhaustive aspects of the periodical achievements of the project, the narrative link back to the outcomes elaborated in the logical framework. NPC also carefully monitored the building of the new interim storage, the installation of the non-combustion and decontamination technology and the decontamination process itself. Furthermore, NPC sent and monitored all the PCB-contaminated oil samples for the PCB content determination at the independent Laboratory for Ecotoxicological Research in Cetinje, Montenegro, and took care of administering the results thereof. Annual Project Implementation Reviews (PIRs) were regularly undertaken and they contained very exhaustive information on Project Implementation Progress. Yet, none of the annual Tripartite Reviews (which are mandated by GEF) were conducted. The Mid-Term Evaluation (MTE) was delayed by two years because of the delay of project implementation and was done in July 2012, placing it after the end of project implementation (December 2011) as stated in PD. However, it should be noted that there were proper Monitoring and Evaluation procedures followed by the Project Manager from IA for the Task Team with Sea Marconi for purchasing and installing the non-combustion and decontamination technology. These included detailed work plans containing measurable goals with an evidence of their regular updates, as well as regular minutes and reports of meetings, monitoring and evaluation missions, phone and skype conferences. In general, it appears that the success of the project by fulfilling all its objectives has more to do with the efforts of the project management team - NEA in Macedonia and the Project Manager in UNIDO – IA than on the use of adaptive management techniques by the implementing agency. Especially important for the project success was the successful and quick purchasing and installation of the non-combustion and decontamination technology by Sea Marconi and the rapid decontamination of PCB-containing equipment once the technology was installed at Rade Koncar Servis, after the early difficulties in choosing the right technology which caused the project delay of two years.

For all these reasons the **implementation of M&E is rated SATISFACTORY (S)**. It is noted that the NPC prepared all necessary very detailed reports that provide exhaustive aspects of the periodical achievements of the project with narrative link back to the outcomes elaborated in the logical framework. Proper Monitoring and Evaluation procedures were followed by the Project Manager from IA by writing very detailed and exhaustive Annual Project Implementation Reviews, and especially after forming the Task Team with Sea Marconi for purchasing and installing the non-combustion and decontamination technology, including detailed work plans with measurable goals and evidence of their regular updates, as well as regular minutes and reports of meetings, monitoring and evaluation missions, phone and skype conferences. Both NPC from NEA and PM from IA performed oversight of the main activities especially in the phases of installation, training and decontamination process at the facility in Rade Koncar Servis. On the other side, this project is an example of how much the M&E frameworks and their implementation is crucial for project success, because almost all weakly rated aspects of the project can be directly or indirectly tied back to the M&E framework. Also, Tripartite Reviews were not undertaken. Proper Monitoring and Evaluation

could have minimized the two years delay for the outputs of regulation adoption and acquiring the equipment for PCB decontamination.

**Budgeting and Funding for M&E activities**

69. The budget provided for M&E of US$69,000 at the planning stage was sufficient. Adequate funding has been provided for M&E activities during the project implementation, and the necessary monitoring activities have been undertaken. The **aspect of funding M&E is rated HIGHLY SATISFACTORY.**

**Monitoring of long-term changes**

70. Baseline of the monitoring of long-term changes is the inventory transformers database (or the software for PCB-containing equipment and PCB-contaminated oils), where all the transformers in FYR of Macedonia are registered within the inventory that took place before and during project implementation. There is a special procedure of handling the transformers containing PCB-contaminated oils. Once the transformer is sent to the treatment facility, the company owner of PCB-transformers enters in the database that the transformer has been sent for phasing out. As soon as the transformer has been cleaned or finally disposed of, the Regional Eco Center Rade Koncar Servis, enters the data of phasing out of this transformer in the database. The State Environmental Inspectors receive data both from Rade Koncar Servis and the company owner of PCB-transformers and control if everything has been entered correctly into the software database. Herewith is secured a full control of the phasing out of all the PCB-containing transformers in FYR of Macedonia in accord with SC. This system is embedded in a proper institutional structure, i.e. it is part of the information systems of MoEPP and it is financed by the regular budget of Macedonia. These data are used in order to know the degree of the phasing out of PCBs and PCB-containing equipment in FYR of Macedonia, which should be phased out by 2017. The **aspect of monitoring of long-term changes for this project is rated HIGHLY SATISFACTORY.**

**Project management**

71. The Project management unit or National Executing Agency (NEA) was established and placed within the POPs Office at the MoEPP of Macedonia. NPC is part of POPs Office of MoEPP. The POPs Unit is a sustainable unit within the MoEPP that will continue operating after the project ends. During the project implementation and terminal evaluation, NEA demonstrated high potential for sustainability, since it operates as a unit performing Project Management for diverse international bilateral and multilateral projects related to POPs, with the project management for Macedonia PCBs Project being the main duty of the NPC. Besides managing the project, the unit is also in charge for a large portion of technical work, such as carrying out the PCBs inventory, and preparation of information material and publications such as: “Guideline for Identification of PCBs in electrical equipment”, “Handbook on Environmentally Sound PCB Management in Electrical Equipment”, “National Action Plan on PCBs Management”, “PCBs - Reduction and Elimination” and “POPs Management in the Republic of

Macedonia - Summary of Realized Activities", as well as implementing trainings and awareness raising activities as key speakers and lecturers. Even though it is somewhat unusual to have such a wide range responsibilities in one project management unit, the project was implemented efficiently and some of the deficiencies due to lack of information for informed management were overcome by the swift adjustments and flexibility of the team. While the project management unit was not in charge for financial management of the project (all payments were carried out through UNIDO, or initiated by UNIDO through the UNDP office in FYR of Macedonia), this aspect did not obstruct the implementation. All resources required from UNIDO were provided in a timely manner. In the light of terminal evaluation evidence on project management, the project can be rated as **HIGHLY SUCESSFUL** and the note given is **HIGHLY SATISFACTORY.**

72. Given the intended sustainability and future role of the unit in upcoming GEF projects of the PMU / NEA, it would be highly recommended to build human capacities of this unit, especially in utilization of modern management tools, other specific technical knowledge and fund raising. Moreover, it is recommended for UNIDO and GEF to propose a replication of the unique concept of a POPs Office within a Ministry of Environment responsible for project management of diverse international projects for other countries as well, as it was proven to be very successful in FYR of Macedonia.

## Assessment of processes affecting attainment of project results

#### Country Ownership / Driveness

73. It was stated during the terminal evaluation and already elaborated in several sections of this terminal evaluation report, that the level of ownership of the Government of Macedonia and local stakeholders is high. The POPs Office of MoEPP is the national executing agency for the project implementation. Project Steering Committee consisting of representatives of government institutions and of stakeholders and beneficiaries is of key importance for success of the project. All the members of NEA, interviewed representatives of stakeholders express strong ownership of their roles within this project. The country ownership can be rated as HIGHLY SATISFACTORY.

#### Stakeholder involvement

74. Interviewed representatives of stakeholders all demonstrate understanding of the project and show full support to the project team. The project involved all relevant stakeholders in information sharing and consultation. The project implemented appropriate outreach and public awareness campaigns through publishing of brochures, handbooks, manuals, newspapers articles, CD and TV programmes. There was a positive feedback in the community for this project, as it contributes to the improvement of the quality of the environment. The same is mirrored in the Prize of City of Skopje for Environmental Protection and Promotion. Details on the public outreach activities and public awareness campaigns were mentioned in Table 5

"Assessment of project effectiveness per project output", within Component 5, output 5.1, point 1. Stakeholder involvement is rated HIGHLY SATISFACTORY.

**Financial Planning**

75. The project had a well-prepared budget with means committed per project activity as stated in the ToR for Terminal Evaluation. The financial reporting for the project activities was included in the semi-annual and annual project reports at the end of the project reports. Financial audits were not made. UNIDO was responsible for financing and determination of means from GEF funding and this was done in a responsible and cost-effective manner. Financial Planning is rated HIGHLY SATISFACTORY.

**Co-financing and project outcomes and sustainability**

76. The co-financing was topped by 13 percent from the planned US$1,795,000 to US$2,015,000. This increase was mainly due to the exceeded unforeseen at start of project implementation investment costs in the newly built interim storage facility for PCB-containing wastes at Rade Koncar Servis. At the beginning it was planned that the interim storage will be upgraded, however the feasibility study showed that it has to be newly built in order to fulfill the environmental and safety criteria. The increase co-financing affected the project outcomes extremely positively with the newly built interim storage and decontamination plant becoming an environmentally sustainable plant fulfilling all the safety criteria. This was awarded by numerous awards for the PCB-decontamination facility, like the European Corporate Social Responsibility Award, which is awarded for exciting and pioneering initiatives focused on successful partnerships between business and non-business organizations, with particular emphasis on collaborative programmes that tackle sustainability through innovation and it is sponsored by the European Commission (See Annex 9), and the 13 November Prize from City of Skopje in the field of environmental protection and promotion for successful realization of the project "Removal of harmful polychlorinated biphenyls" (See Annex 10). The Co-financing and project outcomes and sustainability is rated HIGHLY SATISFACTORY.

**Delay of the project implementation**

77. The project implementation was delayed by 22 months due to the issues in choosing the proper BAT. The first ToR was prepared middle of 2009 and modified into the End-Version of the first ToR – "Tender Specifications for a Non-Combustion and Decontamination Technology for PCB containing transformers" in September 2010. The first Tender was not successful due to the fact that in the first ToR two big transformers from the companies Feni (the transformer weight was 48,500 kg) and Silmak (the transformer weight was 20,000 kg) were included, and none of the two bidders Sea Marconi or Kinetrics offered acceptable conditions for their technologies. Sea Marconi did not fulfill the technical criteria for treating such transformers, and Kinetrics offered a price that was much over the budget planned for the technology. Therefore it was decided that a second ToR should be prepared by matching the criteria of the size of the PCB-containing equipment to the approximate costs of the technology that could have been accepted as the least-cost option. In the second ToR the two big transformers from the first

ToR were exchanged by smaller transformers, so that the tender can be successful. The second ToR was prepared in March 2011 and the tender procedure was successful by choosing the non-combustion and decontamination technology of Sea Marconi, and the contract was signed on 09 August 2011. After the technology was chosen, all the other activities such as its installation, training of the workers and starting with the decontamination were done in a timely manner. The inauguration of the Regional Eco Center at Rade Koncar Servis was on 7 November 2012, after which the decontamination process started immediately. The Delay of the Project Implementation is rated as UNSATISFACTORY.

## UNIDO's Involvement

**Quality at entry / Preparation and Readiness**

78. Numerous aspects of QAE and readiness for implementation were satisfactory. The Project has clear strategic relevance, and the rationale for focusing on phasing out of PCBs in the electricity sector, as well as the rationale for GEF and UNIDO intervention, is very well explained. The Project design phase included highly participatory stakeholder and beneficiary consultation process, with results from the consultations being incorporated into the design. The choice of the Ministry of Environment and Physical Planning (MoEPP) as the main implementing institution was correct, considering their responsibility for fulfilling Macedonia's obligations to the SC. The Government of Macedonia was clearly motivated to pursue the Project, providing agreed counterpart funding in a timely manner at Project start and throughout Project implementation. In addition, the Risks are well identified and mitigation measures appear appropriate. The Project had a detailed cost plan, with yearly expenditures by GEF, and aggregate expenditures by the counterpart, and the budget is clearly linked with the activities.

79. However, additionally to these positive aspects there are some deficiencies in the logical framework analysis, the monitoring plan, and their indicators, as described in other sections. Particularly important for the QAE is the lack of evidence that the logical framework was subject to any revision or clarification during the Inception Workshop, as described in the PD. On the other side, there is a detailed budget plan for the M&E activities (M&E Plan in the PD).

Primarily because of the clear strategic relevance of the project with highly participatory stakeholder and beneficiary consultation process and the choice of MoEPP of Macedonia as implementing institution, and minor issues with the logical framework analysis not being revised, the **Quality at Entry and Readiness for Implementation is rated SATISFACTORY.**

**Implementation approach**

80. The implementation approach gave the Macedonian counterparts – NEA and NPC the primary responsibility for carrying out the Project activities, with UNIDO providing a dedicated focal point – Project Manager, technical and financial advice and backstopping when needed. The terminal evaluation considers this approach to have been appropriate, as the Macedonian

counterparts had strong ownership of the Project and were able to carry out most of the activities successfully, with minimal oversight. There were only some minor issues on the "process" side of the Project with choosing of the exact appropriate decontamination technology, which would have benefited from more intensive involvement from UNIDO.

**Implementation Approach is rated Highly Satisfactory (HS).**

#### UNIDO Supervision and backstopping

81. The rating for UNIDO's supervision and backstopping is primarily based on regular presence of the Project Manager from IA in the country at crucial times of project implementation. It must be noted that the Focal Point – Project Manager did provide regular and dedicated in-country assistance to the NEA and NPC, especially in the time of the actual choosing of BAT, the building of the new interim storage, installing of the non-combustion and decontamination technology by Sea Marconi, and during the decontamination process of the PCB-containing equipment. Some important "process" issues were not addressed by UNIDO in a timely manner, among which the most important one was the delay in the procedure for choosing the BAT for phasing out of PCBs and PCB-containing equipment which led to a project delay of two years. Consequently, the MTE was carried out two years later and only one year until the project closure, which left very little time for corrective actions prior to Project closing if the MTE was to propose valuable and useful ones. Most of these issues were due to a change of Project Managers at UNIDO. After the present Project Manager fully overtook the project, the project activities began to move in a much more effective and efficient way with the final result being a highly successful project. Therefore for the rating of UNIDO Supervision and backstopping will prevail the very important contribution of the present project manager, as the project success is due to his dedicated work and support of the NEA.

**UNIDO supervision and backstopping is rated Satisfactory (S).**

## Project Terminal Evaluation Ratings

| Criterion (See Annex 5 of the ToR) | Evaluator's Summary Comments | Evaluator's rating |
|---|---|---|
| **1. Attainment of project objectives and results (overall rating)** | | **HS** |
| Design | The overall project design is relevant, with its strongest side being strong participation of local stakeholders in project identification, while the Logical Framework and target indicators are not developed adequately (they lack the measurable element of being a SMART indicator) to allow for proper adaptive management and monitoring of project results. The most important Key impact indicator (technical indicator) is removal of 150 tons of PCB-containing equipment and was set correctly. Some soft target indicators were established correctly as SMART indicators in the Logical Framework. | **MS** |
| Relevance | The project is fully relevant to the local and national environmental priorities and policies, and to GEF strategic priorities in the POPs focal area. | **HS** |
| Effectiveness | Project effectiveness is highly satisfactory in the light of overreaching the project target by 12 percent by decontaminating more PCB-containing equipment (167.25 tons and 124 transformers) than planned. | **HS** |
| Efficiency | Project efficiency is satisfactory as all efforts were undertaken to ensure cost-effectiveness of project results and choosing of least-cost project option both by UNIDO as IA and by POPs Office of MoEPP as NEA, and co-financing increased by 13 percent to US$2,015 million, against the project delay of two years. | **S** |
| **2. Assessment of** | | **ML** |

| Criterion (See Annex 5 of the ToR) | Evaluator's Summary Comments | Evaluator's rating |
|---|---|---|
| **risks to sustainability of project outcomes (overall rating)** | | |
| Financial risks | There are moderate risks that could affect financial sustainability after the project ends. | **ML** |
| Socio-political risks | There are some limited risks to socio-political sustainability. | **L** |
| Institutional framework and governance risks | There are some limited risks to institutional and governance sustainability. | **L** |
| Environmental (Ecological) risks | There are no serious potential risks to environmental sustainability. | **L** |
| **3. Monitoring and Evaluation** | | **S** |
| M&E design | Diverse review and evaluation processes, specific reporting requirements, and responsibilities are sufficiently identified in the PD. Still, the minor shortcomings of the indicators, targets and baseline did not allow for fully comprehensive adaptive management and make terminal evaluation of the project difficult in some points. | **S** |
| M&E implementation (use of adaptive management) | The assessment showed that the NPC prepared all necessary very detailed reports that provide exhaustive aspects of the periodical achievements of the project with narrative link back to the outcomes elaborated in the logical framework. Proper Monitoring and Evaluation procedures were followed by the Project Manager from IA by writing very detailed and comprehensive Annual Project Implementation Reviews, and especially after forming the Task Team with Sea Marconi for purchasing and installing the non-combustion and decontamination technology, including detailed work plans with measurable goals and evidence of their regular updates, as well as regular minutes and reports of meetings, monitoring and evaluation missions, phone and skype conferences. | **S** |

| Criterion (See Annex 5 of the ToR) | Evaluator's Summary Comments | Evaluator's rating |
|---|---|---|
| | Both NPC from NEA and PM from IA performed oversight of the main activities especially in the phases of installation, training and decontamination process at the facility in Rade Koncar Servis. On the other side, this project is an example of how much the M&E frameworks and their implementation is crucial for project success, because almost all aspects of the project rated weakly can be directly or indirectly tied back to the M&E framework. Also, Tripartite Reviews were not undertaken. Proper Monitoring and Evaluation could have minimized the two years delay for the outputs of regulation adoption and acquiring the equipment for PCB decontamination. | |
| Budgeting and funding for M&E activities | The budget provided for M&E at the planning stage was sufficient. Adequate funding has been provided for M&E activities during the project implementation, and the necessary monitoring activities have been undertaken. | **HS** |
| Project management | Project management has been successfully carried out by the National Project Coordinator from National Executing Agency – the POPs Office at the MoEPP, accompanied by a dedicated support from UNIDO's Project Manager. | **HS** |
| **4. UNIDO specific ratings** | | **HS** |
| Quality at entry / Preparation and Readiness | Numerous quality aspects are satisfactory, primarily the clear strategic relevance of the project with highly participatory stakeholder and beneficiary consultation process and the choice of MoEPP of Macedonia as implementing institution, yet there are some minor issues from the logical framework analysis not being revised. | **S** |
| Implementation approach | The implementation approach by giving NEA - NPC primary responsibility for carrying out project activities helped to develop a strong ownership of the project, which led to a highly successfully project combined with | **HS** |

| Criterion (See Annex 5 of the ToR) | Evaluator's Summary Comments | Evaluator's rating |
|---|---|---|
| | the dedicated support from UNIDO's Project Manager. | |
| UNIDO supervising and backstopping | During assessment of UNIDO's Supervision and backstopping prevailed the very important contribution of the present project manager, as the project success is due to his dedicated work and support to the NEA over the minor process issues in delayed choosing of the BAT. | **S** |

**RATING FOR ATTAINMENT OF PROJECT OBJECTIVES AND RESULTS**

**Highly Satisfactory (HS):** The project had no shortcomings in the

| | |
|---|---|
| | achievement of its objectives, in terms of relevance, effectiveness or efficiency. |
| **Satisfactory (S):** | The project had minor shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency. |
| **Moderately Satisfactory (MS):** | The project had moderate shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency. |
| **Moderately Unsatisfactory (MU):** | The project had significant shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency. |
| **Unsatisfactory (U):** | The project had major shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency. |
| **Highly Unsatisfactory (HU):** | The project had severe shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency. |

**RATINGS ON SUSTAINABILITY**

| | |
|---|---|
| **Likely (L)** | There are no risks affecting this dimension of sustainability. |
| **Moderately Likely (ML):** | There are moderate risks that affect this dimension of sustainability. |
| **Moderately Unlikely (MU):** | There are significant risks that affect this dimension of sustainability. |
| **Unlikely (U):** | There are severe risks that affect this dimension of sustainability. |

**RATINGS OF PROJECT M&E**

| | |
|---|---|
| **Highly Satisfactory (HS):** | There were no shortcomings in the project M&E |

system.

| | |
|---|---|
| **Satisfactory (S):** | There were minor shortcomings in the project M&E system. |
| **Moderately Satisfactory (MS):** | There were moderate shortcomings in the project M&E system. |
| **Moderately Unsatisfactory (MU):** | There were significant shortcomings in the project M&E system. |
| **Unsatisfactory (U):** | There were major shortcomings in the project M&E system. |
| **Highly Unsatisfactory (HU):** | The Project had no M&E system. |

**ALL OTHER RATINGS**

| | | |
|---|---|---|
| **HS** | **= Highly Satisfactory** | Excellent |
| **S** | **= Satisfactory** | Well above average |
| **MS** | **= Moderately Satisfactory** | Average |
| **MU** | **= Moderately Unsatisfactory** | Below average |
| **U** | **= Unsatisfactory** | Poor |
| **HU** | **= Highly Unsatisfactory** | Very poor (Appalling) |

# IV. Conclusions, Recommendations and Lessons Learned

82. Identifying and documenting project lessons is a key component of any project evaluation, especially terminal evaluation. This section elaborates the comprehensive set of lessons learned after project closure.

**A. Conclusions**

83. As stated in the field of project design, efficiency and monitoring & evaluation, there were several shortcomings such as: planning, choosing of technology, missing of SMART (especially measurable) objectives etc., which did not affect the achievements in overall effectiveness and relevance of the project that was highly successful by overreaching its goal with phasing out of 167.25 tons of PCBs and PCB-containing equipment (12 percent more than planned in the project objectives).

**B. Lessons Learned**

84. There are several lessons that can be learned from this project. One of them for UNIDO, GEF and a NEA is the on-time choosing of the proper decontamination technology – the best available technique (BAT) as one of the main and time-consuming components of this project. The delay of two years of this project is due to major delays in selecting and procuring adequate technology for decontamination of PCB-containing equipment. A specific lesson learned from this particular project is that the ToR for choosing a certain technology has to be thoroughly pre-defined by the NEA and UNIDO. All relevant criteria such as size, volume, contamination grade etc. have to be taken into consideration well in advance in order to have a successful tender procedure.

85. Another important lesson for GEF and UNIDO is that a well-structured and independent Mid-Term Evaluation is very important for stating issues in the middle of the project implementation (in our example the issue of irrelevance of NGOs for this project), so that there will be sufficient time to implement the proposed corrective actions until the end of the project or make considerate changes in the Project Document.

86. A further notable lesson learned is that the implementation of this project has emphasized the fundamental value of a properly formulated M&E framework to ensure the possibility for adaptive management and to help mitigate identified risks for project implementation, especially delays. This project is an example of how much the M&E framework and its implementation, especially the development of SMART (especially measurable) project objectives and Key Impact Indicators are crucial for project success in the project design phase, because almost all aspects of the project weakly rated can be directly or indirectly tied back to the M&E framework. Especially, delays for over almost two years for choosing and acquiring the equipment for PCB decontamination could have been minimized if the M&E framework had been more clear and operational. The revision of all logical framework indicators and applications to applying SMART criteria by UNIDO, GEF and MoEPP would be recommended for future projects in order to enable proper M&E design and implementation.

**C. Recommendations**

87. These are the recommendations for the future after the project closure:

88. **Recommendation 1:** It is recommended that beyond the project implementation a focus should be made on the development of incentives for industry in order to recover the costs of investments in PCB management by MoEPP. Especially, MoEPP should keep the focus on the companies that are not able to finance the phasing out of the PCB-containing equipment as a result of their bad financial situation.

89. **Recommendation 2:** Another important recommendation is that MoEPP, the Customs Administration within the Ministry of Finance, and the Ministry of Transport and Communication (MTC) should strengthen the measures for control of illegal import of the PCB equipment and oils with customs officers being trained on this issue, and national legislation adjusted accordingly.

90. **Recommendation 3:** It is highly recommended that the final phase of the ESM system for PCBs – the phasing out of the transformers of the four companies SILMAK, MZT LEARNICA, OKTA and ArcelorMittal is finished as soon as possible.

91. **Recommendation 4:** For the future after project completion, it is highly recommended for the POPs Office / MoEPP to adjust future trainings on PCBs to the needs of the stakeholders / participants, and to measure the level of capacity built, by primarily defining the target audience, and use of tools to capture the feedback from the workshop participants in order to measure success of the trainings and capacity building.

92. **Recommendation 5:** In the future the competent authorities – State environmental inspectors at the MoEPP should duly inform the local fire-fighting brigades on all PCB-containing devices.

93. **Recommendation 6:** It is recommended that in the future POPs Office / MoEPP should organize a specialized training for all people involved in PCB management and handling of PCB-containing equipment, especially for people working at the PCB owner companies, hereby creating a roster of experts for PCB management.

94. **Recommendation 7:** The MoEPP should encourage building a capacity of an accredited laboratory for gas chromatographic analysis of PCB-concentration in the FYR of Macedonia.

95. **Recommendation 8:** It is recommended for the Ministry of Health and Rade Koncar Servis to find a solution for monitoring of exposure of employees on PCBs.

96. **Recommendation 9:** A recommendation is given to Rade Koncar Servis and the MoEPP to promote the newly built interim storage site and facility for non-combustion and decontamination technology as a Regional Center for phasing-out of PCB-containing equipment and PCB-contaminated oils from the whole Balkans region in order to ensure sustainability and replicability of using the GEF funding and the co-financing on a regional level.

97. **Recommendation 10:** It is recommended that that the MoEPP organizes a special fund raising training for the POPs Office Project Managers that would help them in easier fund generation and finding financial solutions for the future projects managed by the POPs Office.

98. **Recommendation 11:** For future projects, the project team would benefit from the capacity building on using the modern management tools by UNIDO, GEF and MoEPP that would enable them to have a more systematic approach to project monitoring and adaptive management, and evaluation of results quality and actual impact. This is especially relevant since the project unit is meant to be sustainable in the long-term as it is the case with the POPs Unit at the MoEPP.

99. **Recommendation 12:** It is recommended for UNIDO and GEF to propose a replication of the unique concept of a POPs Office within a Ministry of Environment responsible for project management of diverse international projects for other countries as well, as this concept was proven to be very successful in FYR of Macedonia.

# Annexes

## Annex 1 - List of Abbreviations

| | |
|---|---|
| BAT | Best Available Techniques |
| BEP | Best Environmental Practices |

| | |
|---|---|
| CSR | Corporate Social Responsibility |
| ELEM | Macedonian Power Company for Production of Electric Energy |
| ESM | Environmentally Sound Management |
| EU | European Union |
| EVN (former ESM) | Macedonian Power Company for Distribution of Electric Energy |
| GEF | Global Environmental Facility |
| HCH | Hexachlorocyclohexane |
| IA | Implementing Agency |
| KII | Key Impact Indicator |
| MEPSO | Macedonian Power Company for Transmission of Electric Energy |
| MoEPP | Ministry of Environment and Physical Planning |
| MoU | Memorandum of Understanding |
| MSP | Medium-Sized Project |
| MTE | Mid-Term Evaluation |
| NEA | National Executing Agency |
| NEAP | National Environmental Action Plan |
| NGOs | Non-Governmental Organizations |
| NIP | National Implementation Plan |
| NPC | National Project Coordinator |
| PCBs | Polychlorinated Biphenyls |
| PD | Project Document |
| PDF A | Project Development Facility |
| PIF | Project Identification Form |
| PM | Project Manager |
| PMU | Project Management Unit |
| POPs | Persistent Organic Pollutants |
| POPs EA | POPs Enabling Activities |
| PSC | Project Steering Committee |
| QAE | Quality at Entry |
| SC | Stockholm Convention |
| SECO | Swiss State Secretariat for Economic Affairs |
| SMART | Specific, Measurable, Attainable, Relevant, Time-Bound |
| SWM | Solid Waste Management |
| TE | Terminal Evaluation |
| TI | Target Indicator |
| UNDP | United Nations Development Programme |
| UNEP | United National Environment Programme |
| UNIDO | United National Industrial Development Organization |

## Annex 2 – The Terminal Evaluation ToR

UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

**Terms of Reference**

**Independent Terminal Evaluation of the UNIDO Project:**

**Project Number**: GF/MCD/08/002

# Phasing out of PCBs and PCB-containing equipment

**SEPTEMBER 2013**

**CONTENTS:**

# I. Project Background and Overview

**1. Project summary**

The Stockholm Convention on persistent organic pollutants (POPs) recognizes that POPs including polychlorinated biphenyls (PCBs) "possess toxic properties, resist degradation, accumulate and are transported through air, water and migratory species, across international boundaries and deposited far from their places, where they accumulate in terrestrial and aquatic ecosystems". Exposure to PCBs, due to their biomagnification, contaminates traditional foods, which are of a major public health concern, in particular for women and, through them, upon future generations.

The Republic of Macedonia ratified the Stockholm Convention on POPs in 2004 and adopted the National Implementation Plan (NIP) on POPs Reduction and Elimination in 2005. The NIP identified the polychlorinated biphenyls (PCB) issue as one of the top priorities requiring immediate attention and action.
The main outcomes of the MSP will be strengthened countrywide capacity for PCB management, financial mechanism for PCB management, compliance with the Stockholm Convention obligations related to PCBs, increased public awareness along with well-trained technical personnel involved in PCB management and improved cooperation among key stakeholders, government, public and private enterprises involved in PCB management.

The project will:

a. develop close coordination with all parties involved in the implementation;
b. develop an ESM system comprising legislations and technical standards for operation of PCB-containing equipment and treatment of PCB wastes;
c. implement an ESM system for PCB-containing equipment within the demonstration areas (collection, transport, interim storage, clean-up and final disposal), including a detailed logistic plans for phasing-out of PCB-containing wastes from the demonstration areas;
d. upgrade an interim storage facility;
e. identify the most efficient disposal technology and decontaminate 150 tons of PCB-containing transformers;
f. establish a fund generation mechanism for financial sustainability;
g. create awareness of the environmentally sound management of PCB-containing equipment through intensive communication, training for professionals and NGOs, and public information tools; and
h. Continuously evaluate and disseminate project results.

**2. Project objective**

The long term objective of this Medium Sized Project (MSP) is to assist the FYR of Macedonia to comply with the PCB-related obligations under the Stockholm Convention and reduce at the same time the releases of PCBs into the environment through enhanced national capacity in the management of PCBs-containing equipment and wastes.

The proposed project aims to reduce and eliminate the threats to human health and the environment posed by PCBs in the FYR of Macedonia by establishing an environmentally sound management (ESM) system for disposal of PCBs and PCB-containing equipment, including legislation, institutional and technical capacity building, awareness raising and assisting in the phase-out process of PCBs-containing equipment from the selected demonstration areas.

The proposed MSP is designed to achieve synergies and coordination among activities related to other global chemicals and waste management agreements specifically the Aarhus, Rotterdam and Basel Conventions. The project implementation will provide practical measures to facilitate the development of an integrated national approach for waste management.

### 3. Budget Information

**a) Overall Cost and Financing (including co-financing):**

| Project Components/Outcomes | GEF (US$) | Co-financing (US$) | Total (US$) |
|---|---|---|---|
| 1. ESM system established | 92,000 | 200,000 | 292,000 |
| 2. Implementation of ESM in selected demonstration areas | 230,000 | 614,000 | 844,000 |
| 3. Upgraded storage facility and disposal option implemented | 470,000 | 803,000 | 1,273,000 |
| 4. Capacity building to secure financial sustainability | 10,000 | 5,000 | 15,000 |
| 5. Public participation and awareness raising | 35,000 | 43,000 | 78,000 |
| 6. Adaptive monitoring and evaluation | 52,000 | 32,000 | 84,000 |
| 7. Project management budget/cost | 68,000 | 88,000 | 156,000 |
| *8. PDF A* | *43,000* | *10,000* | *53,000* |
| **Total project costs** | **1,000,000** | **1, 795,000** | **2,795,000** |

**b) UNIDO budget (GEF funding excluding agency support cost):**

| Grant | Fund | Calendar Year | Sponsored Program | Sponsored Class | Released Budget (a) | Commitments (c) | Payments (d) | Expenditure (c+d) | Funds Available (a-b-c-d) |
|---|---|---|---|---|---|---|---|---|---|
| 4000191 | 1000/XP | 2012 | 104045-1-01-02 | 1700 | 4,680.70 EUR | | 4,680.70 EUR | 4,680.70 EUR | 0.00 EUR |
| 4000191 | 1000/XP | 2012 | 104045-1-01-02 | Result | 4,680.70 EUR | | 4,680.70 EUR | 4,680.70 EUR | 0.00 EUR |
| 4000191 | 1000/XP | 2012 | 104045-1-02-02 | 1700 | 8,142.93 EUR | 298.40 EUR | 7,844.53 EUR | 8,142.93 EUR | 0.00 EUR |
| 4000191 | 1000/XP | 2012 | 104045-1-02-02 | Result | 8,142.93 EUR | 298.40 EUR | 7,844.53 EUR | 8,142.93 EUR | 0.00 EUR |
| 4000191 | 1000/XP | 2013 | 104045-1-01-02 | 1700 | 6.54 EUR | | 1,594.00 EUR | 1,594.00 EUR | -1,587.46 EUR |
| 4000191 | 1000/XP | 2013 | 104045-1-01-02 | 2100 | | | 2,792.50 EUR | 2,792.50 EUR | -2,792.50 EUR |
| 4000191 | 1000/XP | 2013 | 104045-1-01-02 | Result | 6.54 EUR | | 4,386.50 EUR | 4,386.50 EUR | -4,379.96 EUR |
| 4000191 | 1000/XP | 2013 | 104045-1-04-01 | 5100 | 3,519.83 EUR | | | | 3,519.83 EUR |
| 4000191 | 1000/XP | 2013 | 104045-1-04-01 | Result | 3,519.83 EUR | | | | 3,519.83 EUR |
| 4000191 | Result | | | | 16,350.00 EUR | 298.40 EUR | 16,911.73 EUR | 17,210.13 EUR | -860.13 EUR |
| 200000267 | 1000/GF | 2012 | 104045-1-01-01 | 1100 | $45,029.21 | $71.03 | $44,958.19 | $45,029.22 | $-0.01 |
| 200000267 | 1000/GF | 2012 | 104045-1-01-01 | 1500 | $33,917.98 | $1,120.44 | $32,797.53 | $33,917.97 | $0.01 |
| 200000267 | 1000/GF | 2012 | 104045-1-01-01 | 1700 | $111,333.42 | | $111,333.42 | $111,333.42 | $ 0.00 |
| 200000267 | 1000/GF | 2012 | 104045-1-01-01 | 2100 | $691,200.00 | $240,000.00 | $451,200.00 | $691,200.00 | $ 0.00 |
| 200000267 | 1000/GF | 2012 | 104045-1-01-01 | 3000 | $2,067.31 | | $2,067.31 | $2,067.31 | $ 0.00 |
| 200000267 | 1000/GF | 2012 | 104045-1-01-01 | 3500 | $419.01 | | $419.01 | $419.01 | $ 0.00 |
| 200000267 | 1000/GF | 2012 | 104045-1-01-01 | 4500 | $21,706.06 | | $21,706.06 | $21,706.06 | $ 0.00 |
| 200000267 | 1000/GF | 2012 | 104045-1-01-01 | 5100 | $6,744.67 | | $6,744.67 | $6,744.67 | $ 0.00 |
| 200000267 | 1000/GF | 2012 | 104045-1-01-01 | Result | $912,417.66 | $241,191.47 | $671,226.19 | $912,417.66 | $ 0.00 |
| 200000267 | 1000/GF | 2012 | 104045-1-02-02 | 5100 | $1,070.27 | | $1,070.27 | $1,070.27 | $ 0.00 |
| 200000267 | 1000/GF | 2012 | 104045-1-02-02 | Result | $1,070.27 | | $1,070.27 | $1,070.27 | $ 0.00 |
| 200000267 | 1000/GF | 2012 | 104045-1-03-02 | 4500 | $29,479.56 | | $29,479.56 | $29,479.56 | $ 0.00 |
| 200000267 | 1000/GF | 2012 | 104045-1-03-02 | Result | $29,479.56 | | $29,479.56 | $29,479.56 | $ 0.00 |
| 200000267 | 1000/GF | 2012 | 104045-1-05-02 | 1700 | $3,054.78 | | $3,054.78 | $3,054.78 | $ 0.00 |
| 200000267 | 1000/GF | 2012 | 104045-1-05-02 | Result | $3,054.78 | | $3,054.78 | $3,054.78 | $ 0.00 |
| 200000267 | 1000/GF | 2013 | 104045-1-01-01 | 1100 | | $-69.20 | | $-69.20 | $69.20 |
| 200000267 | 1000/GF | 2013 | 104045-1-01-01 | 1700 | $70.28 | | | | $70.28 |
| 200000267 | 1000/GF | 2013 | 104045-1-01-01 | 2100 | | $-200,160.00 | $200,000.00 | $-160.00 | $160.00 |
| 200000267 | 1000/GF | 2013 | 104045-1-01-01 | 3000 | $0.01 | | | | $0.01 |
| 200000267 | 1000/GF | 2013 | 104045-1-01-01 | 4500 | $65.89 | | | | $65.89 |
| 200000267 | 1000/GF | 2013 | 104045-1-01-01 | 5100 | $80.01 | | | | $80.01 |
| 200000267 | 1000/GF | 2013 | 104045-1-01-01 | Result | $216.19 | $-200,229.20 | $200,000.00 | $-229.20 | $445.39 |
| 200000267 | 1000/GF | 2013 | 104045-1-05-01 | 1100 | $10,762.00 | | | | $10,762.00 |
| 200000267 | 1000/GF | 2013 | 104045-1-05-01 | Result | $10,762.00 | | | | $10,762.00 |
| 200000267 | Result | | | | $957,000.46 | $40,962.27 | $904,830.80 | $945,793.07 | $11,207.39 |

Source and date of information: UNIDO SAP System, September 2013

## II. Objectives and scope of the evaluation

The purpose of the terminal evaluation is to enable the Government, counterparts, the GEF, UNIDO and other stakeholders and donors to:

(a) Verify prospects for development impact and sustainability, providing an analysis of the attainment of global environmental objectives, project objectives, delivery and completion of project outputs/activities, and outcomes/impacts based on indicators. The assessment includes re-examination of the relevance of the objectives and other elements of project design according to the project evaluation parameters defined in chapter IV.
(b) Enhance project relevance, effectiveness, efficiency and sustainability by proposing a set of recommendations with a view to ongoing and future activities.
(c) Draw lessons of wider applicability for the replication of the experience gained in this project in other projects/countries.
(d) Contribute to the findings of the thematic evaluation of UNIDO POPs activities

The key question of the evaluation is whether the projects have made a significant contribution to reducing the effects of POPs on human health and the environment.

The scope of the evaluation will cover all activities undertaken in the framework of the project. The planned outputs of the project will be compared to actual outputs and the actual results will be assessed to determine their contribution to the attainment of the project objectives. The efficiency of project management will be evaluated, including the delivery of outputs and activities in terms of quality, quantity, timeliness and cost efficiency as well as features related to the process involved in achieving those outputs and the impacts of the project. The evaluation will also address the underlying causes and issues contribution to targets not adequately achieved.
The terminal evaluation report will be a stand-alone document that substantiates its recommendations and conclusions. The report will have to provide convincing evidence to support its findings/ratings.

## III. Methodology

The evaluation is initiated by UNIDO and will be conducted accordingly to the guidelines and policies of the GEF in an independent manner. This evaluation will take a participatory and consultative approach in which project staff will be kept informed and regularly consulted during the evaluation, the evaluation team leader will contact the GEF team for any logistical and methodological basis for properly carry out the review. The reports will be consolidated in close consultation with UNIDO and stakeholders ensuring consistency both in substance and style/form.

The methodology is based on:

1. A review of project documents, including but not limited to: The original project document, **monitoring reports**, **GEF tracking tool**, progress and financial conciliatory monthly reports of UNIDO

and GEF PIR and annual progress reports, reports of PCBs inventory, training workshops and capacity building activities, legal documents (PCBs regulations, standards and guidelines) and relevant correspondence. Other related materials prepared by the project.

2. The evaluation team could use the models available from (or reconstruct, if necessary) the theory of change for different types of intervention (capacity, investment, demonstration). The validity of the theory of change is examined through specific questions in the interviews and, possibly, through a survey of stakeholders.

3. Counterfactual information: In cases where the background information for the benchmarks is not available the evaluation team will aim at establishing a baseline approach through recall and secondary information.

4. Interviews with the Project Coordination Unit (PCU), personnel associated with project management, partner country focal points, project beneficiaries, and other surveys, reviews of documents deemed necessary by the evaluation team and/or UNIDO.

5. Interviews with project partners, in particular those that have been selected for co-financing as shown in the corresponding sections of the project documents.

6. On-site observation of results achieved in project activities, including interviews of actual and potential beneficiaries of improved methods, practices and/or technologies.

7. Other interviews, surveys or document reviews as deemed necessary by the evaluator and/or UNIDO EVA.

## IV. Project Evaluation Parameters

The ***ratings for the parameters described in the following sub-chapters A to E will be presented in the form of a table*** with each of the categories rated separately and with **brief justifications for the rating** based on the findings of the main analysis. An overall rating for the project should also be given. The rating system to be applied is specified in Annex 1.

### A. Project relevance and design

*Relevance to national development and environmental agendas*, recipient country commitment, and regional and international agreements. See possible evaluation questions under "country ownership/driveness" below

*Relevance to target groups*: relevance of the project's objectives, outcomes and outputs to the different target groups of the interventions (e.g. companies, civil society, beneficiaries of capacity building and training, etc.).

*Relevance to the GEF and UNIDO*: In retrospect, were the project's outcomes consistent with the focal areas/operational program strategies of GEF? Were they in line with the UNIDO mandate, objectives and outcomes defined in the Programme & Budget and core competencies? Ascertain the likely nature and significance of the contribution of the project outcomes to the wider portfolio of the GEF Operational Programme (OP) #14

Is the project's design adequate to address the problems at hand?

Was a participatory project identification process applied and was it instrumental in selecting problem areas and national counterparts?

Does the project have a clear thematically focused development objective, the attainment of which can be determined by a set of verifiable indicators?

Was the project formulated based on the logical framework approach?

Was the project formulated with the participation of national counterpart and/or target beneficiaries?

**B. Effectiveness: attainment of objectives and planned results (progress to date).**

Assessment of project outcomes should be a priority:

- What outputs and outcomes has the project achieved so far (both qualitative and quantitative results)? Has the project generated any results that could lead to changes of the assisted institutions? Have there been any unplanned effects?
- Are the actual project outcomes commensurate with the original or modified project objectives? If the original or modified expected results are merely outputs/inputs, the evaluators should assess if there were any real outcomes of the project and, if there were, determine whether these are commensurate with realistic expectations from such projects.
- To what extent have the expected outputs and outcomes been achieved or are likely to be achieved? How do the stakeholders perceive their quality? Were the targeted beneficiary groups actually reached?
- Identify the potential longer-term impacts or at least indicate the steps taken to assess these (see also below "monitoring of long term changes"). Wherever possible, evaluators should indicate how findings on impacts will be reported to the GEF in future.

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- Catalytic or replication effects: the evaluation will describe any catalytic or replication effect of the project. If no effects are identified, the evaluation will describe the catalytic or replication actions that the project carried out. No ratings are requested for the project's catalytic role.

### C. Efficiency

Was the project cost effective? Was the project the least cost option? Was project implementation delayed, and, if it was, did that affect cost effectiveness?

Have the donor, UNIDO and Government/counter
part inputs been provided as planned and were adequate to meet requirements? Was the quality of UNIDO inputs and services as planned and timely?

### D. Assessment of sustainability of project outcomes.

Sustainability is understood as the likelihood of continued benefits after the GEF project ends. Given the uncertainties involved, it may be difficult to have a realistic a priori assessment of sustainability of outcomes. Therefore, assessment of sustainability of outcomes will give special attention to analysis of the risks that are likely to affect the persistence of project outcomes. This assessment should explain how the risks to project outcomes will affect continuation of benefits after the GEF project ends. It will include both exogenous and endogenous risks. The following four dimensions or aspects of risks to sustainability will be addressed:

- ✓ **Financial risks.** Are there any financial risks that may jeopardize sustainability of project outcomes? What is the likelihood of financial and economic resources not being available once GEF assistance ends? (Such resources can be from multiple sources, such as the public and private sectors or income-generating activities; these can also include trends that indicate the likelihood that, in future, there will be adequate financial resources for sustaining project outcomes.)
- ✓ **Sociopolitical risks.** Are there any social or political risks that may jeopardize sustainability of project outcomes? What is the risk that the level of stakeholder ownership (including ownership by governments and other key stakeholders) will be insufficient to allow for the project outcomes/benefits to be sustained? Do the various key stakeholders see that it is in their interest that project benefits continue to flow? Is there sufficient public/stakeholder awareness in support of the project's long-term objectives?
- ✓ **Institutional framework and governance risks.** Do the legal frameworks, policies, and governance structures and processes within which the project operates pose risks that may jeopardize sustainability of project benefits? Are requisite systems for accountability and transparency, and required technical know-how, in place?
- ✓ **Environmental risks.** Are there any environmental risks that may jeopardize sustainability of project outcomes? The evaluation should assess whether certain activities will pose a threat to the sustainability of the project outcomes.

### E. Assessment of monitoring and evaluation systems and project management:

- **M&E design.** Does the project have a M&E plan to monitor results and track progress towards achieving project objectives? The Evaluation will assess whether the project met the minimum requirements for the application of the Project M&E plan (see Annex 2) .
- **M&E implementation.** The evaluation should verify that an M&E system was in place and facilitated timely tracking of progress toward project objectives by collecting information on chosen indicators continually throughout the project implementation period; annual project reports were complete and accurate, with well-justified ratings; the information provided by the M&E system was used during the project to improve performance and to adapt to changing needs; and projects had an M&E system in place with proper training for parties responsible for M&E activities to ensure that data will continue to be collected and used after project closure.
- **Budgeting and Funding for M&E activities.** In addition to incorporating information on funding for M&E while assessing M&E design, the evaluators will determine whether M&E was sufficiently budgeted for at the project planning stage and whether M&E was funded adequately and in a timely manner during implementation.
- **Monitoring of Long-Term Changes.** The monitoring and evaluation of long-term changes is often incorporated in GEF-supported projects as a separate component and may include determination of environmental baselines; specification of indicators; and provisioning of equipment and capacity building for data gathering, analysis, and use. This section of the evaluation report will describe project actions and accomplishments toward establishing a long-term monitoring system. The review will address the following questions:
  a. Did this project contribute to the establishment of a long-term monitoring system? If it did not, should the project have included such a component?
  b. What were the accomplishments and shortcomings in establishment of this system?
  c. Is the system sustainable—that is, is it embedded in a proper institutional structure and does it have financing?
- **Project management.** Were the national management and overall coordination mechanisms efficient and effective? Did each partner have specific roles and responsibilities from the beginning? Did each partner fulfill its role and responsibilities (e.g. providing strategic support, monitoring and reviewing performance, allocating funds, providing technical support, following up agreed/corrective actions…)? Were the UNIDO HQ based management, coordination, quality control and technical inputs efficient, timely and effective (problems identified timely and accurately; quality support provided timely and effectively; right staffing levels, continuity, skill mix and frequency of field visits…)

### F. Assessment of processes affecting attainment of project results

The evaluation will consider, but need not be limited to, the following issues that may have affected project implementation and attainment of project results:

a. **Preparation and readiness.** Were the project's objectives and components clear, practicable, and feasible within its time frame? Were counterpart resources (funding, staff, and facilities), and adequate project management arrangements in place at project entry?

b. **Country ownership/drivenness.** Was the project concept in line with the sectoral and development priorities and plans of the country—or of participating countries, in the case of multicountry projects? Are project outcomes contributing to national development priorities and plans? Were the relevant country representatives from government and civil society involved in the project? Did the recipient government maintain its financial commitment to the project? Has the government—or governments in the case of multicountry projects—approved policies or regulatory frameworks in line with the project's objectives?

c. **Stakeholder involvement.** Did the project involve the relevant stakeholders through information sharing and consultation. Did the project implement appropriate outreach and public awareness campaigns? Were the relevant vulnerable groups and powerful supporters and opponents of the processes properly involved?

d. **Financial planning.** Did the project have the appropriate financial controls, including reporting and planning, that allowed management to make informed decisions regarding the budget and allowed for timely flow of funds? Was there due diligence in the management of funds and financial audits? Did promised co-financing materialize?

e. **UNIDO supervision and backstopping.** Did UNIDO staff identify problems in a timely fashion and accurately estimate their seriousness? Did UNIDO staff provide quality support and advice to the project, approve modifications in time, and restructure the project when needed? Did UNIDO provide the right staffing levels, continuity, skill mix, and frequency of field visits for the project?

f. **Co-financing and project outcomes and sustainability.** If there was a difference in the level of expected co-financing and the co-financing actually realized, what were the reasons for the variance? Did the extent of materialization of co-financing affect project outcomes and/or sustainability, and, if so, in what ways and through what causal linkages?

g. **Delays and project outcomes and sustainability.** If there were delays in project implementation and completion, what were the reasons? Did the delays affect project outcomes and/or sustainability, and, if so, in what ways and through what causal linkages?

## V. Evaluation Team and Timing

The evaluation team will be composed of one international evaluation.

UNIDO evaluation group will be responsible for the quality control of the evaluation process and report. It will provide inputs regarding findings, lessons learned and recommendations from other UNIDO evaluations, ensuring that the evaluation report is useful for UNIDO in terms of organizational learning (recommendations and lessons learned) and its compliance with UNIDO evaluation policy and these terms of reference.

The evaluation team will be able to provide information relevant for follow-up studies, including evaluation verification on request to the GEF partnership up to two years after completion of the evaluation.

The consultant will be contracted by UNIDO. The tasks of the consultant are specified in the job description attached to these terms of reference.

The member of the evaluation team must not have been directly involved in the design and/or implementation of the programme/projects.

The project staff will support the evaluation team. The GEF focal points in the countries and the main Government counterparts of UNIDO will be briefed on the evaluation.

**Timing**

The evaluation is scheduled to take place in the period September 2013 to November 2013. The field mission for the evaluation is scheduled for end of September 2013.

After the field mission, the evaluation team leader will present preliminary findings to project- and UNIDO staff. The draft evaluation report will be submitted 6-8 weeks after the presentation of preliminary findings at the latest.

# VI. REPORTING

**Inception report**

This Terms of Reference provides some information on the evaluation methodology but this should not be regarded as exhaustive. After reviewing the project documentation and initial interviews with project manager(s) the International Evaluation Consultant will prepare a short inception report that will operationalize the TOR relating the evaluation questions to information on what type of and how the evidence will be collected (methodology). It will be discussed with and approved by the responsible UNIDO Evaluation Officer. The Inception Report will focus on the following elements: preliminary project theory model(s); elaboration of evaluation methodology including quantitative and qualitative approaches through an evaluation framework ("evaluation matrix"); division of work between the International Evaluation Consultant and National Consultant; and a reporting timetable[1].

**Evaluation report format and review procedures**

The evaluation report should be brief, to the point and easy to understand. It must explain; the purpose of the evaluation, exactly what was evaluated and the methods used. The report must highlight any

[1] The evaluator will be provided with a Guide on how to prepare an evaluation inception report prepared by the UNIDO Evaluation Group.

methodological limitations, identify key concerns and present evidence-based findings, consequent conclusions, recommendations and lessons. The report should provide information on when the evaluation took place, the places visited, who was involved and be presented in a way that makes the information accessible and comprehensible. The report should include an executive summary that encapsulates the essence of the information contained in the report to facilitate dissemination and distillation of lessons.

Evidence, findings, conclusions and recommendations should be presented in a complete and balanced manner. The evaluation report shall be written in English and follow the outline given in annex 3.

The evaluation report shall follow the structure given in annex 3. The reporting language will be English.

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

***Quality Assessment of the Evaluation Report:*** All UNIDO evaluations are subject to quality assessments by UNIDO Evaluation Group. These apply evaluation quality assessment criteria and are used as a tool for providing structured feedback. The quality of the evaluation report will be assessed and rated against the criteria set forth in the Checklist on evaluation report quality (annex 4).

The draft report will be delivered to UNIDO and circulated to UNIDO staff associated with the project.

### Evaluation Work Plan

The "Evaluation Work Plan" includes the following main products:

1. Desk review and development of methodology: Following the receipt of all relevant documents, and the consultation with the PM about the documentation, including reaching an agreement on the Methodology, the desk review could be completed.
2. Inception report: At the time for departure to the field visit, the complete gamete of received materials have been reviewed and consolidated into the Inception report.
3. Field visit: The principal responsibility for managing this evaluation lies with UNIDO. It will be responsible for liaising with the project team to set up the stakeholder interviews, arrange the field visits, coordinate with the Government.
4. Preliminary findings from the field visit: Following the field visits, the main findings, conclusion and recommendations would be prepared and presented at a Focal Group Discussion.
5. A draft Terminal evaluation report would be forwarded by electronic media to the PM and UNIDO where main findings, conclusions and recommendations would be discussed and agreed upon.

6. Final Terminal evaluation report: It is envisaged that revision of the draft of the report – following consultations with the UNIDO – could be forwarded as soon as the comments from UNIDO and partners have been received.

| Evaluation phases | Deliverables | Location | Timeline/ days |
|---|---|---|---|
| Desk review | Development of methodology approach and evaluation tools | Home Based | 3 |
| Data analysis | Inception Evaluation Report | Home Based | 2 |
| Field visit | Presentation of main findings to UNIDO and key stakeholders | Macedonia | 15 |
| Analysis of the data collected | Draft Terminal Evaluation Report | Home Based | 2 |
| Circulation of the draft report to UNIDO/relevant stakeholders and revision | Final Terminal Evaluation Report | Home Based | 3 |

## Annex 1. Required Project Identification and Financial Data

The evaluation report should provide information on project identification, time frame, actual expenditures, and co-financing in the following format, which is modeled after the project identification form (PIF).

**I. Project general information:**

| | |
|---|---|
| Project Name: | **Phasing out of PCBs and PCB-containing equipment** |
| Project's GEF ID Number: | **2875** |
| GEF Agency Project ID | |
| Countries: | **The Former Yugoslav Republic of Macedonia (FYROM)** |
| GEF Focal Area and Operational Program: | **Persistent Organic Pollutants – OP 14** |
| Agency: | **UNIDO** |
| Other Cooperating Agencies: | **Ministry of Environment and Physical Planning (FYROM)** |
| Project Approval Date: | **July, 2008** |
| Date of Project Effectiveness: | **September, 2008** |
| Project duration: | **Three years** |
| Total Project Cost: | **USD 2,742,000** |
| GEF Grant Amount: | **USD 1,000,000** |
| GEF Project Preparation Grant Amount (if any): | **USD 43,000** |

**II. Dates**

| Milestone | Expected Date | Actual Date |
|---|---|---|
| Agency Approval date | July 2008 | |
| Implementation start | September 2008 | 23 Sep 2008 |
| Midterm evaluation | March 2010 | March 2012 |
| Project completion | August 2011 | |
| Terminal evaluation completion | October 2011 | |
| Project closing | February 2012 | |

## III. Project Framework

| Project Components/Outcomes | Activity Type | GEF Financing in (US$) | | Co-financing (US$) | |
|---|---|---|---|---|---|
| | | Approved | Actual | Promised | Actual |
| 1. ESM system established | | 92,000 | | 200,000 | |
| 2. Implementation of ESM in selected demonstration areas | | 230,000 | | 614,000 | |
| 3. Upgraded storage facility and disposal option implemented | | 470,000 | | 803,000 | |
| 4. Capacity building to secure financial sustainability | | 10,000 | | 5,000 | |
| 5. Public participation and awareness raising | | 35,000 | | 43,000 | |
| 6. Adaptive monitoring and evaluation | | 52,000 | | 32,000 | |
| 7. Project management budget/*cost* | | 68,000 | | 88,000 | |
| 8. PDF A | | *43,000* | | *10,000* | |
| **Total project costs** | | **1,000,000** | | **1, 795,000** | |

Activity types are:

a) experts researches hired
b) technical assistance, Workshop, Meetings or experts consultation scientific and technical analysis, experts researches hired
c) Promised co-financing refers to the amount indicated on endorsement/approval.

## IV. Co-financing

| Name of Co-financier (source) | Classification | Type | Project preparation (US$) | Project (US$) | TOTAL | % |
|---|---|---|---|---|---|---|
| Government of the FYR of Macedonia | Government | grant | | 670,000 | 670,000 | 37% |
| Government of the FYR of Macedonia | Government | in-kind | | 100,000 | 100,000 | 6% |
| SECO – Switzerland | International donors | grant | | 150,000 | 150,000 | 8% |

| | | | | | | |
|---|---|---|---|---|---|---|
| Envio – Germany | International donors | grant | | 75,000 | 75,000 | 4% |
| EVN Macedonia | Local industry | in-kind | | 400,000 | 400,000 | 22% |
| Rade Koncar Ltd | Local industry | grant | | 240,000 | 240,000 | 13% |
| Rade Koncar Ltd | Local industry | in-kind | | 60,000 | 60,000 | 3% |
| SILMAK | Local industry | in-kind | | 50,000 | 50,000 | 3% |
| MZT Learnica A.D. | Local industry | in-kind | | 20,000 | 20,000 | 2% |
| UNIDO | GEF Implementing Agency | in-kind | 10,000 | 20,000 | 30,000 | 2% |
| **TOTAL** | | | **10,000** | **1,785,000** | **1,795,000** | **100%** |

Expected amounts are those submitted by the GEF Agencies in the original project appraisal document. Co-financing types are grant, soft loan, hard loan, guarantee, in kind, or cash.

## Annex 2 - GEF Minimum requirements for M&E[2]

### Minimum Requirement 1: Project Design of M&E

All projects will include a concrete and fully budgeted monitoring and evaluation plan by the time of work program entry for full-sized projects and CEO approval for medium-sized projects. This monitoring and evaluation plan will contain as a minimum:

- SMART indicators for project implementation, or, if no indicators are identified, an alternative plan for monitoring that will deliver reliable and valid information to management;
- SMART indicators for results (outcomes and, if applicable, impacts), and, where appropriate, indicators identified at the corporate level;
- baseline for the project, with a description of the problem to be addressed, with indicator data, or, if major baseline indicators are not identified, an alternative plan for addressing this within one year of implementation;
- identification of reviews and evaluations that will be undertaken, such as terminal reviews or evaluations of activities; and
- organizational set-up and budgets for monitoring and evaluation.

### Minimum Requirement 2: Application of Project M&E

Project monitoring and supervision will include implementation of the M&E plan, comprising:

- SMART indicators for implementation are actively used, or if not, a reasonable explanation is provided;
- SMART indicators for results are actively used, or if not, a reasonable explanation is provided;
- the baseline for the project is fully established and data compiled to review progress reviews, and evaluations are undertaken as planned; and
- the organizational set-up for M&E is operational and budgets are spent as planned.

[2] http://gefeo.org/uploadedFiles/Policies_and_Guidelines-me_policy-english.pdf

**Annex 3 - Outline of an in-depth project evaluation report**

**Executive summary**

- Must provide a synopsis of the storyline which includes the main evaluation findings and recommendations
- Must present strengths and weaknesses of the project
- Must be self-explanatory and should be 3-4 pages in length

**I. Evaluation objectives, methodology and process**

- Information on the evaluation: why, when, by whom, etc.
- Scope and objectives of the evaluation, main questions to be addressed
- Information sources and availability of information
- Methodological remarks, limitations encountered and validity of the findings

**II. Countries and project background**

- Brief countries context: an overview of the economy, the environment, institutional development, demographic and other data of relevance to the project
- Sector-specific issues of concern to the project[3] and important developments during the project implementation period
- Project summary:
  - Fact sheet of the project: including project objectives and structure, donors and counterparts, project timing and duration, project costs and co-financing
  - Brief description including history and previous cooperation
  - Project implementation arrangements and implementation modalities, institutions involved, major changes to project implementation
  - Positioning of the UNIDO project (other initiatives of government, other donors, private sector, etc.)
  - Counterpart organization(s)

**III. Project assessment**

This is the key chapter of the report and should address all evaluation criteria and questions outlined in the TOR (see section III Evaluation Criteria and Questions). Assessment must be based on factual evidence collected and analyzed from different sources. The evaluators' assessment can be broken into the following sections:

A. Design

B. Relevance (Report on the relevance of project towards countries and beneficiaries)

[3] Explicit and implicit assumptions in the logical framework of the project can provide insights into key-issues of concern (e.g. relevant legislation, enforcement capacities, government initiatives, etc.)

C. Effectiveness (Report the achievement of Transboundary Diagnostic Analysis (TDA), field pilot projects, program outreach, and overall impacts commensurate with project objectives and catalytic effects)

D. Efficiency (Report on the overall cost-benefit of the project and partner Countries contribution to the achievement of project objectives)

E. Sustainability (Report on the risks and vulnerability of the project, considering the likely effects of sociopolitical and institutional changes in partner countries, and its impact on continuation of benefits after the GEF project ends)

F. Project coordination and management (Report the current conditions of project M&E implementation, project management conditions and achievements, relevance of partner countries participation)

G. Report on project management conditions, country ownership, stakeholder involvement, partner countries commitment, implementation agency support, and project outcomes benefits and impacts)

At the end of this chapter, an overall project achievement rating should be developed as required in Annex 5. The overall rating table required by the GEF should be presented here.

## IV. Conclusions, Recommendations and Lessons Learnt

This chapter can be divided into three sections:

### A. Conclusions

This section should include a storyline of the main evaluation conclusions related to the project's achievements and shortfalls. It is important to avoid providing a summary based on each and every evaluation criterion. The main conclusions should be cross-referenced to relevant sections of the evaluation report.

### B. Recommendations

This section should be succinct and contain few key recommendations. They should:

- be based on evaluation findings
- realistic and feasible within a project context
- indicate institution(s) responsible for implementation (addressed to a specific officer, group or entity who can act on it) and have a proposed timeline for implementation if possible
- be commensurate with the available capacities of project team and partners
- take resource requirements into account.

Recommendations should be structured by addressees:

- UNIDO
- Government and/or Counterpart Organizations
- Donor

**C. Lessons Learnt**

- Lessons learned must be of wider applicability beyond the evaluated project but must be based on findings and conclusions of the evaluation
- For each lessons the context from which they are derived should be briefly stated

**Annexes** should include the evaluation TOR, list of interviewees, documents reviewed, a summary of project identification and financial data, and other detailed quantitative information. Dissident views or management responses to the evaluation findings may later be appended in an annex.

**Annex 4 Checklist on evaluation report quality**

| Report quality criteria | UNIDO Evaluation Group Assessment notes | Rating |
|---|---|---|
| A. Did the report present an assessment of relevant outcomes and achievement of project objectives? | | |
| B. Were the report consistent and the evidence complete and convincing? | | |
| C. Did the report present assessment the sustainability of outcomes or did it explain why this is not (yet) possible? | | |
| D. Did the evidence presented support the lessons and recommendations? | | |
| E. Did the report include the actual project costs (total and per activity)? | | |
| F. Quality of the lessons: Were lessons readily applicable in other contexts? Did they suggest prescriptive action? | | |
| G. Quality of the recommendations: Did recommendations specify the actions necessary to correct existing conditions or improve operations ('who?' 'what?' 'where?' 'when?)'. Can they be implemented? | | |
| H. Was the report well written? (Clear language and correct grammar) | | |
| I. Were all evaluation aspects specified in the TOR adequately addressed? | | |
| J. Was the report delivered in a timely manner? | | |

Rating system for quality of evaluation reports
A number rating 1-6 is used for each criterion: Highly Satisfactory = 6, Satisfactory = 5, Moderately Satisfactory = 4, Moderately Unsatisfactory = 3, Unsatisfactory = 2, Highly Unsatisfactory = 1, and unable to assess = 0.

## Annex 5. Overall Ratings Table

| Criterion | Evaluator's Summary Comments | Evaluator 's Rating |
|---|---|---|
| **Attainment of project objectives and results (overall rating)** **Sub criteria (below)** | | |
| Effectiveness | | |
| Relevance | | |
| Efficiency | | |
| **Sustainability of Project outcomes (overall rating)** **Sub criteria (below)** | | |
| Financial | | |
| Socio Political | | |
| Institutional framework and governance | | |
| Ecological | | |
| **Monitoring and Evaluation (overall rating)** **Sub criteria (below)** | | |
| M&E Design | | |
| M&E Plan Implementation (use for adaptive management) | | |
| Budgeting and Funding for M&E activities | | |
| **UNIDO specific ratings** | | |
| **Quality at entry** | | |
| **implementation approach** | | |
| **UNIDO Supervision and backstopping** | | |
| **Overall Rating** | | |

**RATING OF PROJECT OBJECTIVES AND RESULTS**

- Highly Satisfactory (HS): The project had no shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.
- Satisfactory (S): The project had minor shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.
- Moderately Satisfactory (MS): The project had moderate shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.
- Moderately Unsatisfactory (MU): The project had significant shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.
- Unsatisfactory (U) The project had major shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.
- Highly Unsatisfactory (HU): The project had severe shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.

**Please note:** Relevance and effectiveness will be considered as critical criteria. The overall rating of the project for achievement of objectives and results **may not be higher** than the lowest rating on either of these two criteria. Thus, to have an overall satisfactory rating for outcomes a project must have at least satisfactory ratings on both relevance and effectiveness.

**RATINGS ON SUSTAINABILITY**

Sustainability will be understood as the probability of continued long-term outcomes and impacts after the GEF project funding ends. The evaluation will identify and assess the key conditions or factors that are likely to contribute or undermine the persistence of benefits beyond project completion. Some of these factors might be outcomes of the project, i.e. stronger institutional capacities, legal frameworks, socio-economic incentives /or public awareness. Other factors will include contextual circumstances or developments that are not outcomes of the project but that are relevant to the sustainability of outcomes.

Rating system for sustainability sub-criteria

On each of the dimensions of sustainability of the project outcomes will be rated as follows.

- Likely (L): There are no risks affecting this dimension of sustainability.
- Moderately Likely (ML). There are moderate risks that affect this dimension of sustainability.
- Moderately Unlikely (MU): There are significant risks that affect this dimension of sustainability
- Unlikely (U): There are severe risks that affect this dimension of sustainability.

All the risk dimensions of sustainability are critical. Therefore, overall rating for sustainability will not be higher than the rating of the dimension with lowest ratings. For example, if a project has an Unlikely rating in either of the dimensions then its overall rating cannot be higher than Unlikely, regardless of whether higher ratings in other dimensions of sustainability produce a higher average.

**RATINGS OF PROJECT M&E**

Monitoring is a continuing function that uses systematic collection of data on specified indicators to provide management and the main stakeholders of an ongoing project with indications of the extent of progress and achievement of objectives and progress in the use of allocated funds. Evaluation is the systematic and objective assessment of an on-going or completed project, its design, implementation and results. Project evaluation may involve the definition of appropriate standards, the examination of performance against those standards, and an assessment of actual and expected results.

The Project monitoring and evaluation system will be rated on 'M&E Design', 'M&E Plan Implementation' and 'Budgeting and Funding for M&E activities' as follows:

- Highly Satisfactory (HS): There were no shortcomings in the project M&E system.
- Satisfactory(S): There were minor shortcomings in the project M&E system.
- Moderately Satisfactory (MS): There were moderate shortcomings in the project M&E system.
- Moderately Unsatisfactory (MU): There were significant shortcomings in the project M&E system.

- Unsatisfactory (U): There were major shortcomings in the project M&E system.
- Highly Unsatisfactory (HU): The Project had no M&E system.

"M&E plan implementation" will be considered a critical parameter for the overall assessment of the M&E system. The overall rating for the M&E systems will not be higher than the rating on "M&E plan implementation."

All other ratings will be on the GEF six point scale.

| | | |
|---|---|---|
| HS | = Highly Satisfactory | Excellent |
| S | = Satisfactory | Well above average |
| MS | = Moderately Satisfactory | Average |
| MU | = Moderately Unsatisfactory | Below Average |
| U | = Unsatisfactory | Poor |
| HU | = Highly Unsatisfactory | Very poor (Appalling) |

## Annex 6. Job Descriptions

# Job Description

**Project** GF/MCD/08/002 (SAP ID 104045)

**Post title** International Evaluation Consultant

**Duration** 30 work days including travel to Skopje for 7 days (inclusive of travel days) over a period until 30 December 2013

**Started date** 10 October – 30 December 2013

**Duty station** Home based in Vienna, Austria, and travel to Skopje, Macedonia

**Duties**

The consultant will evaluate the projects according to the Terms of Reference. S/he will act as leader of the evaluation team and will be responsible for preparing the draft and final evaluation report, according to the standards of the UNIDO Evaluation Group. S/he will perform the following tasks:

| Main duties | Duration/ location | Deliverables |
|---|---|---|
| Review project documentation and relevant country background information (national policies and strategies, UN strategies and general economic data…); determine key data to collect in the field and prepare key instruments (questionnaires, logic models…) to collect these data through interviews and/or surveys during and prior to the field missions | Continuously | List of detailed evaluation questions to be clarified; questionnaires/ interview guide; logic models; list of key data to collect, draft list of stakeholders to interview during the field missions |
| Briefing with the UNIDO Evaluation Group, project managers and other key stakeholders. | Continuously including travel to Skopje, Macedonia | Interview notes, detailed evaluation schedule and list of stakeholders to interview during the field missions<br>Division of evaluation tasks with the National Consultant |

| Main duties | Duration/ location | Deliverables |
|---|---|---|
| Prepare inception report and discuss with UNIDO EVA | Continuously | Inception report |
| Conduct field mission to Skopje, Macedonia in October 2013 | Continuously | Presentations of the evaluation's initial findings, draft conclusions and recommendations to stakeholders in Skopje at the end of the missions.<br>Agreement with the National Consultant on the structure and content of the evaluation report |
| Present overall findings and recommendations to the stakeholders at UNIDO HQ (incl. travel) | Continuously | Presentation slides |
| Prepare the evaluation report according to TOR and template provided by UNIDO EVA<br>Coordinate the inputs from the National Consultant and combine with her/his own inputs into the draft evaluation report | Continuously | 2 Draft evaluation report<br>Brief input report to country evaluation |
| Revise the draft project evaluation reports based on comments from UNIDO Evaluation Group and stakeholders and edit the language and form of the final version according to UNIDO standards | Continuously | Final evaluation report |
| **TOTAL** | **30 days** | |

**Qualifications and skills:**

- ✓ Degree in environmental science, development studies or related areas
- ✓ ***Extensive knowledge and experience in POPs, the Stockholm Convention and environmental projects***

- ✓ ***Knowledge of and experience in environmental projects management and/or evaluation***
- ✓ Experience in GEF projects and knowledge of UNIDO activities an asset
- ✓ Working experience in developing countries.

**Language:** English

**Absence of Conflict of Interest:**
According to UNIDO rules, the consultant must not have been involved in the design and/or implementation, supervision and coordination of and/or have benefited from the programme/project (or theme) under evaluation. The consultant will be requested to sign a declaration that none of the above situations exists and that the consultants will not seek assignments with the manager/s in charge of the project before the completion of her/his contract with the Evaluation Group.

## Annex 3 – List of Interviewees

| Institution | Person | Position |
|---|---|---|
| MoEPP/POPs Unit | Mr. Marin KOCOV | National Project Director |
| MoEPP/POPs Unit | Mr. Aleksandar MICKOVSKI | National Project Coordinator |
| MoEPP | Mr. Darko BLINKOV | Environmental Inspector (Law Implementation) |
| SECO / Swiss Cooperation Office Skopje | Ms. Stanislava DODEVA | National Programme Officer |
| UNIDO, Stockholm Convention Unit | Mr. Fukuya IINO | Project Manager |
| Sea Marconi | Mr. Simone MAINA | Quality Manager |
| Rade Koncar Servis | Mr. Ace ANTEVSKI | General Manager |
| Rade Koncar Servis | Mr. Vlatko TRAJKOSKI | PCB Unit Manager (Manager of the PCB Treatment Facility) |
| Rade Koncar Servis | Mr. Aleksandar KRONOVSKI | PCB Unit Worker |
| EVN | Ms. Hrisanti ANGELOVSKA | Head of Environmental Department |
| Tehnolab | Ms. Magdalena TRAJKOVSKA TRPEVSKA | General Manager |
| Tehnolab | Mr. Marjan GJUROVSKI | Head of Research Laboratory |

## Annex 4 – List of documents reviewed

| Document Title | Author | Type | Date of the Document |
|---|---|---|---|
| PROJECT DOCUMENT: "Phasing out of PCBs and PCB- containing equipment" | GEF, UNIDO | Project Document | 6 June 2008 |
| Guidelines for GEF Agencies in Conducting Terminal Evaluations | GEF | Evaluation Document No. 3 | 2008 |
| UNIDO Evaluation policy | UNIDO EVA | Evaluation Policy | 22 May 2006 |
| UNEG Quality Checklist for Evaluation Reports | UNEG | Checklist | 2010 |
| The GEF Monitoring and Evaluation Policy 2010 | GEF | Evaluation Document No. 4 | November 2010 |
| National Implementation Plan on Reduction & Elimination of POPs in the Republic of Macedonia | MoEPP (Ministry of Environment and Physical Planning of Macedonia), GEF, UNIDO | National Implementation Plan | 2004 |
| Guideline for Identification of PCBs in electrical equipment | POPs Office of MoEPP, Urs Wagner | Guideline | December 2008 |
| Handbook on Environmentally Sound PCB Management in Electrical Equipment | POPs Office of MoEPP | Handbook | April 2010 |
| Regulation on PCB | MoEPP - Government of Macedonia | Rulebook in Official Gazette | 16 April 2007 |
| Change of the regulation on PCBs | MoEPP | Rulebook | 28.10.2009 |
| Rulebook on change of the regulation on PCBs | MoEPP | Rulebook | 08.04.2013 |
| Decision of forming the Project Steering Committee | POPs of MoEPP | Decision Document | 24.06.2009 |
| Results of the Project | Mr. Aleksandar Mickovski | Final presentation | 01.10.2013 |
| Interim Storage Facility (Building Infrastructure, Construction Modalities, Storage Logistics) | UNIDO | Report | |
| PCBs - Reduction and Elimination | POPs Office of | Brochure | May 2006 |

| Document Title | Author | Type | Date of the Document |
|---|---|---|---|
| | MoEPP | | |
| Energetics - Description of device and technology for decontamination of PCB-containing transformer oils at Rade Koncar - Servis | Vlatko Trajkoski | Article | October 2013 |
| POPs Management in the Republic of Macedonia - Summary of Realized Activities | POPs Office of MoEPP | Brochure | February 2011 |
| Terminal Evaluation Report | Ms. Anita Grozdanov | Report | July 2012 |
| National Action Plan on PCBs Management | POPs Office of MoEPP | Report | January 2011 |
| Final Report for the Implementation of the project "Inventory development and initial mainstreaming of the PCB management within the National Policy Framework" | POPs Office of MoEPP | Report | September 2008 |
| Stockholm Convention on Persistent Organic Pollutants | SC | Convention | 2009 |
| Project Final Report from Sea Marconi | Mr. Simone Maina, Mr. Alessandro Capo | Final Report | 22 October 2013 |
| Work plans for the Task Team between UNIDO, POPs Office, Sea Marconi and Rade Koncar | Dr. Fukuya Iino | Work plans | December 2011 |
| Minutes of meetings of the Task Team between UNIDO, POPs Office, Sea Marconi and Rade Koncar | Dr. Fukuya Iino | Minutes of meetings (6 reports) | between 23 September 2011 and 04 September 2013 |
| Monitoring of Environmental Media at Interim Storage for PCB-containing equipment adn waste and PCB treatment facility in Rade Koncar - Servis Report | Tehnolab Ltd Skopje | Presentation Report | 1 October 2013 |

| Document Title | Author | Type | Date of the Document |
|---|---|---|---|
| Report on identification and labeling of PCB-containing equipment and facilitating the process of screening | Mr. Zoran Tripunovski | Report | 1 December 2008 |
| Report on identification and labeling of PCB-containing equipment and process data info software | Mr. Zlatko Georgievski | Report | 1 December 2008 |
| EIA (Environmental Impact Assessment) Study for the interim storage and decontamination plant in Rade Koncar Servis | Mr. Konstantin Siderovski | Study | October 2009 |
| Annual report on project "Phasing out of PCBs and PCB-containing equipment" containing the Inception Meeting Report | Mr. Aleksandar Mickovski | Annual Report | November 2009 |
| Reports on project "Phasing out of PCBs and PCB-containing equipment" | Mr. Aleksandar Mickovski | Reports | September 2010, December 2010, August 2011, April 2012, September 2012, February 2013 |
| Final Report on project "Phasing out of PCBs and PCB-containing equipment" | Mr. Aleksandar Mickovski | Final Report | October 2013 |
| Report of Technical Vendor Consultation Meeting | UNIDO, POPs Office of MoEPP | Meeting Report | 16 February 2011 |
| Contract Nr. 16002329 between UNIDO and Sea Marconi Technologies for the provision of services and supply of equipment and parts related to the set-up of a non-combustion and decontamination technology for PCB containing transformers in Macedonia | UNIDO, Sea Marconi | Contract | 9 August 2011 |
| Permit for treatment of hazardous waste | MoEPP | Permit | 5 November 2012 |
| Decision for approval of the Elaborate for EIA | MoEPP | Decision | 23 February 2012 |

| Document Title | Author | Type | Date of the Document |
|---|---|---|---|
| Decision for issuying of IPPC (Integrated Pollution Prevention and Control) Permit | Mayor of Skopje Mr. Koce Trajanovski | Permit | 28 November 2012 |
| ToR for a Tender Specification for a Non-Combustion and Decontamination Technology for PCB containing equipment | UNIDO, POPs Office of MoEPP | Terms of Reference | 2011 |
| Signed MoU of MoEPP of Macedonia, SECO, Rade Koncar Servis, EVN, MZT Learnica, Silmak | | Signed Memorandums of Understanding | 2006 |

## Annex 5 – Evaluation Matrix

| Evaluation Questions | Indicators | Sources | Data Collection Method |
|---|---|---|---|
| **EVALUATION CRITERIA: Project relevance** | | | |
| 1. Did the project's objective fit within the priorities of the government and project stakeholders? | Level of coherence between project objective and stated priorities of government and project stakeholders | Government representatives and stakeholders | Interviews with government representatives and project stakeholders |
| 2. Did the project's objective fit within national priorities? | Level of coherence between project objective and national policy priorities and strategies, as stated in official documents | National policy documents, such as National Implementation Plan (NIP) of the Stockholm Convention | Desk review<br>National level interviews |
| 3. Did the project's objective fit GEF strategic priorities (focal areas / operational programme strategies)? | Level of coherence between project objective and GEF strategic priorities | GEF strategic priority documents for period when project was approved<br>Current GEF strategic priority documents | Desk review |
| 4. Did the project's objective support implementation of the Stockholm Convention? | Linkages between project objective and elements of the Stockholm Convention, such as key articles and programs of work | Convention website<br>National Implementation Plan of the Stockholm Convention | Desk review |
| 5. Are the project objectives in line with the UNIDO mandate? | Linkages between project objective and UNIDO mission | UNIDO mission and thematic priorities | Desk review |
| **EVALUATION CRITERIA: Project design** | | | |
| 6. Was the project adequate to address the immediate problems? | Adequacy of proposed and implemented project measures, level of impact to the problem as a whole and/or to individual problem segments | Project documents, National policy documents, Government representatives, Project staff, stake- holders | Desk review<br>Interviews Field Mission Interviews |

| Evaluation Questions | Indicators | Sources | Data Collection Method |
|---|---|---|---|
| 7. Was a participatory project identification process applied and was it instrumental in selecting problem areas and national counterparts? | Level of involvement of local and national stakeholders in project origination and development | Project staff<br>Local and national stakeholders<br>Project documents | Field Mission<br>Interviews |
| 8. Did the project have a clear thematically focused development objective, the attainment of which can be determined by a set of verifiable indicators? | Existence of clearly defined project outputs that are attainable and well linked with the project goals | Project documents<br>Project staff | Desk review<br>Interviews with project staff |
| 9. Was the project formulated based on the logical framework approach? | Existence of clearly defined project logical framework with SMART indicators attached to all expected outputs | Project documents<br>Project staff | Desk review<br>Interviews with project staff |
| 10. Was the project formulated with the participation of national counterpart and/or target beneficiaries? | Level of involvement of national counterparts in project origination and development | Project staff<br>National counterparts<br>Project documents | Desk review<br>Interviews with national counterparts |
| **EVALUATION CRITERIA: Effectiveness** | | | |
| 11. Were the project objectives met? To what extent were they met? | Level of progress toward project indicator targets relative to expected level at current point of implementation | Project documents<br>Project staff<br>Project stakeholders | Field Mission<br>Interviews<br>Desk review |
| 12. Have the planned outputs been produced? Have they contributed to the project outcomes and objectives? | Level of project implementation progress relative to expected level at current stage of implementation Existence of logical linkages between project outputs and outcomes/impacts | Project documents<br>Project staff<br>Project stakeholders | Field Mission<br>Interviews<br>Desk review |

| Evaluation Questions | Indicators | Sources | Data Collection Method |
|---|---|---|---|
| 13. Were the final anticipated outcomes achieved? Did the outcomes contribute to the achievement of the project objective? | Existence of logical linkages between project outcomes and impacts | Project documents<br>Project staff<br>Project stakeholders | Field Mission<br>Interviews<br>Desk review |
| 14. What were the key factors contributing to project success or underachievement? | Level of documentation of and preparation for project risks, assumptions and impact drivers | Project documents<br>Project staff<br>Project stakeholders | Field Mission<br>Interviews<br>Desk review |
| 15. What are the key risks and priorities for the remainder of the implementation period? | Presence, assessment of, and preparation for expected risks, assumptions and impact drivers | Project documents<br>Project staff<br>Project stakeholders | Field Mission<br>Interviews<br>Desk review |
| 16. Were the key assumptions and impact drivers relevant to the achievement of Global Environmental Benefits likely met? | Actions undertaken to ad- dress key assumptions and target impact drivers | Project documents<br>Project staff<br>Project stakeholders | Field Mission<br>Interviews<br>Desk review |
| 17. Were impact level results achieved? Were they at the scale sufficient to be considered Global Environmental Benefits? | Environmental indicators | Project documents<br>Project staff<br>Project stakeholders | Field Mission<br>Interviews<br>Desk review |
| 18. How did stakeholders perceive the quality of the outputs and impacts, and overall project success? | Level of satisfaction of project stakeholders with project targets and outputs, and with the project implementation | Project stakeholders | Interviews |
| 19. Were the target beneficiaries reached? | Amount of beneficiaries reached within the project implementation in comparison to planned | Project documents<br>Project staff | Field visit<br>Interviews<br>Desk review |

| Evaluation Questions | Indicators | Sources | Data Collection Method |
|---|---|---|---|
| 20. Were the project's long-term impacts assessed or any steps taken to consider long-term impacts and report on them? | Assessment of long term impacts included in project documents or considered by the project stakeholders | Project documents<br>Project staff<br>Project stakeholders | Interviews<br>Desk review |
| 21. Did the project have any catalytic or replicable effect or the potential for replicability? | Existence of perceived or expected positive changes occurred in the sector at hand and related sectors, as a result of project but not directly supported by project outputs; identified new technical solutions or innovative approaches derived from the project that can be further utilized nationally or internationally | Project staff<br>Project documents<br>Project stakeholders | Field Mission<br>Interviews<br>Desk review |
| **EVALUATION CRITERIA: Efficiency** | | | |
| 22. Was the project cost-effective? Was the project the least cost option? | Quality and adequacy of financial management pro-cedures | Project documents<br>Project staff | Desk review<br>Interviews with project staff |
| 23. Were project expenditures in line with international standards and norms? | Cost of project inputs and outputs relative to norms and standards for donor projects in the country or region | Project documents<br>Project staff | Desk review<br>Interviews with project staff |
| 24. Was the project implementation delayed? If so, did that affect cost-effectiveness? | Project milestones in time<br>Required project adaptive management measures related to delays | Project documents<br>Project staff | Desk review<br>Interviews with project staff |

| Evaluation Questions | Indicators | Sources | Data Collection Method |
|---|---|---|---|
| 25. What was the contribution of cash and in-kind co-financing to project implementation? Was it timely and adequate to meet the project requirements? | Level of cash and in-kind co-financing relative to expected level, timeline of contributions | Project documents<br>Project staff | Desk review<br>Interviews with project staff |
| 26. To what extent did the project leverage additional resources? | Amount of resources leveraged relative to project budget | Project documents<br>Project staff | Desk review<br>Interviews with project staff |
| 27. To what extent did the UNIDO support the project implementation? | Resources and time dedicated to project implementation | Project documents<br>Project staff | Desk review<br>Interviews with project staff |
| **EVALUATION CRITERIA: Sustainability of project outcomes** | | | |
| FINANCIAL RISKS<br>28. To what extent are project results after the project ends likely to be dependent on continued financial support? What is the likelihood that any required financial and economic resources will be available to sustain the project results once the GEF assistance ends? | Financial requirements for maintenance of project benefits<br>Level of expected financial resources available to support maintenance of project benefits<br>Potential for additional financial resources to support maintenance of project benefits | Project documents<br>Project staff Project stakeholders | Field Mission<br>Interviews<br>Desk review |

| Evaluation Questions | Indicators | Sources | Data Collection Method |
|---|---|---|---|
| SOCIOPOLITICAL RISKS 29. Do relevant stakeholders achieve an adequate level of "ownership" of results, and do they have the interest in ensuring that project benefits are maintained? | Level of initiative and engagement of relevant stakeholders in project activities and results | Project documents<br>Project staff<br>Project stakeholders | Field Mission<br>Interviews<br>Desk review |
| 30. Do relevant stakeholders have the necessary technical capacity to ensure that project benefits are maintained? | Level of initiative and engagement of relevant stakeholders in project activities and results | Project documents<br>Project staff<br>Project stakeholders | Field Mission<br>Interviews<br>Desk review |
| 31. To what extent were the project results dependent on socio-political factors? | Existence of socio-political risks to project benefits | Project documents<br>Project staff<br>Project stakeholders | Field Mission<br>Interviews<br>Desk review |
| INSTITUTIONAL FRAMEWORK AND GOVERNANCE RISKS 32. To what extent are the project results dependent on issues relating to institutional frameworks and governance? | Existence of institutional and governance risks to project benefits | Project documents<br>Project staff<br>Project stakeholders | Field Mission<br>Interviews<br>Desk review |
| ENVIRONMENTAL RISKS 33. Are there any environmental risks that can undermine the future flow of project impacts and Global Environmental Benefits? | Existence of environmental risks to project benefits | Project documents<br>Project staff<br>Project stakeholders | Field Mission<br>Interviews<br>Desk review |
| **EVALUATION CRITERIA: Monitoring and evaluation and project management** | | | |

| Evaluation Questions | Indicators | Sources | Data Collection Method |
|---|---|---|---|
| M&E DESIGN<br>34. Did the project have a M&E plan to monitor results and track progress towards achieving project objectives? | Existence of concrete and fully budgeted monitoring and evaluation plan | Project documents<br>Project staff | Desk review<br>Interviews |
| 35. Did the project meet minimum requirements for the application of M&E plan? | Existence of SMART indicators for project implementation<br>Identification of reviews and evaluations that will be undertaken | Project documents<br>Project staff | Desk review<br>Interviews |
| M&E IMPLEMENTATION<br>36. Was the M&E system in place and operational? | Existence of annual project reports that were complete and accurate with well- justified ratings<br>Use of the information provided by the M&E, incl. SMART indicators, to improve performance or adapt to changing needs<br>The budget for M&E is spent as planned | Project documents<br>Project staff | Desk review<br>Interviews |
| 37. Are the prospects ensured for continued use of the M&E system after the project closure? | Provided trainings to parties responsible for M&E | Project documents<br>Project staff | Desk review<br>Interviews |
| BUDGETING AND FUNDING FOR M&E<br>38. Was the amount and timing of funding for M&E appropriate to the scale of project and its needs? | Existence of properly budgeted and executed activities for monitoring and evaluation | Project documents<br>Project staff | Desk review<br>Interviews |
| MONITORING OF LONG-TERM CHANGES<br>39. Did this project contribute to the establishment of a long-term monitoring system embodied in proper institutional structure and ensured financing? | Existence of realistic plans of incorporating long-term monitoring system into regular operation of government bodies and agencies | Project documents<br>Project staff Government representatives | Desk review<br>Interviews |

| Evaluation Questions | Indicators | Sources | Data Collection Method |
|---|---|---|---|
| PROJECT MANAGEMENT<br>NOTE: Treated by set of several questions throughout the evaluation matrix. | | | |
| **EVALUATION CRITERIA: Process affecting attainment of project results.**<br>NOTE: Treated by set of several questions throughout the evaluation matrix. | | | |

# Annex 6 – Analysis of the Macedonian national legislation in regard to Stockholm Convention PCB provisions implementation

| Stockholm Convention on POPs<br>Annex A, Part II related to PCB management | Existing national legislation | Fully in accord? (yes / no/ partially) | If not or partially, foreseen year of full transposition | Responsible institution |
|---|---|---|---|---|
| With regard to the elimination of the use of polychlorinated biphenyls in equipment (e.g. transformers, capacitors or other receptacles containing liquid stocks) by 2025, subject to review by the Conference of the Parties, take action in accordance with the following priorities:<br>(i) Make determined efforts to identify, label and remove from use equipment containing greater than 10 per cent polychlorinated biphenyls and volumes greater than 5 litres; | Law on the Waste Management (Official Gazette of the Republic of Macedonia, no. 68/04, 71/04, 107/07)<br>Article 69 para 1, 2, 3, 4, 5<br>Rulebook on the manner and conditions for handling with PCBs, manner and conditions to be fulfil by the installations and facilities for disposal and decontamination of PCBs, used PCBs and manner of labelling the equipment containing PCBs<br>(Official Gazette of the Republic of Macedonia, no. 48/2007, 130/2010)<br>Article 3 para 1, Article 5, Article 8 para 1 (1), Article 13, Article 14<br>Article 15 | Yes | / | MoEPP / Administration for Environment /POPs Unit |
| With regard to the elimination of the use of polychlorinated biphenyls in equipment (e.g. transformers, capacitors or other receptacles containing liquid stocks) by 2025, subject to review by the Conference of the Parties, take action in accordance with the following priorities:<br>(ii) Make determined efforts to identify, label and remove from use equipment containing greater than 0.05 per cent polychlorinated biphenyls and volumes greater than 5 litres | Law on the Waste Management (Official Gazette of the Republic of Macedonia, no. 68/04, 71/04, 107/07)<br>Article 69 para 1, 2, 3, 4, 5<br>Rulebook on the manner and conditions for handling with PCBs, manner and conditions to be fulfil by the installations and facilities for disposal and decontamination of PCBs, used PCBs and manner of labelling the equipment containing PCBs<br>Official Gazette of the Republic of Macedonia, no. 48/2007, 130/2010<br>Article 3 para 1, Article 5, Article 8 para 1 (1), Article 13, Article 14, Article 15 | Yes | / | MoEPP/ Administration for Environment/ POPs Unit |
| With regard to the elimination of the use of polychlorinated biphenyls in equipment (e.g. transformers, capacitors or other receptacles containing liquid stocks) by 2025, subject to review by the Conference of the Parties, take action in accordance with the following | Law on the Waste Management (Official Gazette of the Republic of Macedonia, no. 68/04, 71/04, 107/07)<br>Article 69 para 2, para 3, para 4, para 5<br>Rulebook on the manner and conditions for handling with PCBs, manner and conditions to | Partially | 2012 | MoEPP/Administration for Environment/ POPs Unit |

| Stockholm Convention on POPs<br>Annex A, Part II related to PCB management | Existing national legislation | Fully in accord? (yes / no/ partially) | If not or partially, foreseen year of full transposition | Responsible institution |
|---|---|---|---|---|
| priorities:<br>(iii) Endeavour to identify and remove from use equipment containing greater than 0.005 percent polychlorinated biphenyls and volumes greater than 0.05 litres | be fulfil by the installations and facilities for disposal and decontamination of PCBs, used PCBs and manner of labelling the equipment containing PCBs<br>(Official Gazette of the Republic of Macedonia, no. 48/2007, 130/2010)<br>Article 5, Article 10, Article 11 | | | |
| Consistent with the priorities in subparagraph (a), promote the following measures to reduce exposures and risk to control the use of polychlorinated biphenyls:<br>(i) Use only in intact and non-leaking equipment and only in areas where the risk from environmental release can be minimised and quickly remedied | Law on the Waste Management (Official Gazette of the Republic of Macedonia, no. 68/04, 71/04, 107/07)<br>Article 69 para 5<br>Rulebook on the manner and conditions for handling with PCBs, manner and conditions to be fulfil by the installations and facilities for disposal and decontamination of PCBs, used PCBs and manner of labelling the equipment containing PCBs<br>(Official Gazette of the Republic of Macedonia, no. 48/2007, 130/2010)<br>Article 9 | Yes | / | MoEPP/State Environmental Inspectorate |
| Consistent with the priorities in subparagraph (a), promote the following measures to reduce exposures and risk to control the use of polychlorinated biphenyls:<br>(ii) Not use in equipment in areas associated with the production or processing of food or feed | Law on Environment<br>(Official Gazette of the Republic of Macedonia, no. 53/05, 24/07)<br>Article 20 para 1 (3), Article 21 | Partially | 2012 | MoEPP/Administration for Environment/ POPs Unit |
| Consistent with the priorities in subparagraph (a), promote the following measures to reduce exposures and risk to control the use of polychlorinated biphenyls:<br>(iii) When used in populated areas, including schools and hospitals, all reasonable measures to protect from electrical failure which could result in a fire, and regular inspection of equipment for leaks | Law on the Waste Management (Official Gazette of the Republic of Macedonia, no. 68/04, 71/04, 107/07)<br>Article 69 para 5<br>Rulebook on the manner and conditions for handling with PCBs, manner and conditions to be fulfil by the installations and facilities for disposal and decontamination of PCBs, used PCBs and manner of labelling the equipment containing PCBs<br>(Official Gazette of the Republic of Macedonia, no. 48/2007, | Yes | / | MoEPP/State Environmental Inspectorate |

| Stockholm Convention on POPs<br>Annex A, Part II related to PCB management | Existing national legislation | Fully in accord? (yes / no/ partially) | If not or partially, foreseen year of full transposition | Responsible institution |
|---|---|---|---|---|
| | 130/2010)<br>Article 9 | | | |
| Notwithstanding paragraph 2 of Article 3, ensure that equipment containing polychlorinated biphenyls, as described in subparagraph (a), shall not be exported or imported except for the purpose of environmentally sound waste management | Law on the Waste Management (Official Gazette of the Republic of Macedonia, no. 68/04, 71/04, 107/07)<br>Article 69 para 1 (1), Article 105<br>Rulebook on the form and content of the Notification for Transboundary Movement of Waste<br>(Official Gazette of the Republic of Macedonia, no. 37/03) | Yes | / | MoEPP/Administration for Environment |
| Except for maintenance and servicing operations, not allow recovery for the purpose of reuse in other equipment of liquids with polychlorinated biphenyls content above 0.005 per cent | Law on the Waste Management (Official Gazette of the Republic of Macedonia, no. 68/04, 71/04, 107/07)<br>Article 69 para 1 (2), (3) | Yes | / | MoEPP/State Environmental Inspectorate |
| Make determined efforts designed to lead to environmentally sound waste management of liquids containing polychlorinated biphenyls and equipment contaminated with polychlorinated biphenyls having a polychlorinated biphenyls content above 0.005 per cent, in accordance with paragraph 1 of Article 6, as soon as possible but no later than 2028, subject to review by the Conference of the Parties | Law on the Waste Management (Official Gazette of the Republic of Macedonia, no. 68/04, 71/04, 107/07)<br>Article 69 para 5<br>Rulebook on the manner and conditions for handling with PCBs, manner and conditions to be fulfil by the installations and facilities for disposal and decontamination of PCBs, used PCBs and manner of labelling the equipment containing PCBs<br>(Official Gazette of the Republic of Macedonia, no. 48/2007, 130/2010)<br>Article 8 para 1 (1), Article 14 para 4 | Yes | / | MoEPP/Administration for Environment/ State Environmental Inspectorate/POPs Unit |
| In lieu of note (ii) in Part I of this Annex, endeavour to identify other articles containing more than 0.005 per cent polychlorinated biphenyls (e.g. cable-sheaths, cured caulk and painted objects) and manage them in accordance with paragraph 1 of Article 6 | Law on the Waste Management (Official Gazette of the Republic of Macedonia, no. 68/04, 71/04, 107/07)<br>Article 69 para 1, 2, 3, 4, 5<br>Rulebook on the manner and conditions for handling with PCBs, manner and conditions to be fulfil by the installations and facilities for disposal and decontamination of PCBs, used PCBs and manner of labelling the | Yes | / | MoEPP/Administration for Environment/ State Environmental Inspectorate/POPs Unit |

| Stockholm Convention on POPs<br>Annex A, Part II related to PCB management | Existing national legislation | Fully in accord? (yes / no/ partially) | If not or partially, foreseen year of full transposition | Responsible institution |
|---|---|---|---|---|
| | equipment containing PCBs<br>(Official Gazette of the Republic of Macedonia, no. 48/2007, 130/2010)<br>Article 5, Article 10, Article 11 | | | |
| Provide a report every five years on progress in eliminating polychlorinated biphenyls and submit it to the Conference of the Parties pursuant to Article 15 | Law on Ratification of the Stockholm Convention on POPs (Official Gazette of the Republic of Macedonia, no. 48/2007) | Yes | / | MoEPP/POPs Unit |
| The reports described in subparagraph (g) shall, as appropriate, be considered by the Conference of the Parties in its reviews relating to polychlorinated biphenyls. The Conference of the Parties shall review progress towards elimination of polychlorinated biphenyls at five year intervals or other period,<br>As appropriate, taking into account such reports. | Not to be scored | | | |

## Annex 7 – Treated transformers at Rade Koncar Servis until 01.10.2013 with PCB content after treatment

| | | | | | Initial | Treatment | | | |
|---|---|---|---|---|---|---|---|---|---|
| ID | Company | Rating (kVA) | Status | Weight (kg) | GC ppm | After flushing Kit SM | GC µg/ 100 cm2 wipe | Single or composite | GC ppm oil |
| 01805 | EVN | 630 | phased-out | 2,149 | 414.00 | 6.2 | 0.5 | single | 4.19 |
| 01726 | EVN | 160 | phased-out | 829 | 98.00 | 7 | n.d. | single | 2.08 |
| 01879 | EVN | 50 | phased-out | 492 | 60.00 | 10.53 | 0.1 | single | 19.06 |
| 02014 | EVN | 1000 | phased-out | 3,600 | 6,759.10 | 18 | 5.7 | single | 17.5 |
| 00047 | EVN | 630 | phased-out | 1,898 | 202.00 | 14.45 | n.d. | single | 3.78 |
| 01894 | EVN | 100 | phased-out | 624 | 59.50 | 18.38 | 0.5 | single | 1.89 |
| 02006 | EVN | 400 | phased-out | 1,445 | 147.40 | 5 | n.d. | single | 7.02 |
| 00121 | EVN | 630 | phased-out | 2,005 | 499.00 | 17.75 | n.d. | single | 3.3 |
| 01896 | EVN | 50 | phased-out | 451 | 68.80 | 14.74 | n.d. | single | 2.04 |
| 02020 | EVN | 400 | phased-out | 1,736 | 62.00 | 12.42 | | single | 6.09 |
| 02850 | EVN | 100 | phased-out | 778 | 5,214.00 | 18 | | single | 7.06 |
| 02933 | EVN | 250 | phased-out | 1,058 | 118.30 | 14.89 | | single | 8.06 |
| 03927 | EVN | 50 | phased-out | 586 | 60.85 | 10 | | single | 4.5 |
| 03721 | EVN | 630 | phased-out | 2,255 | 95.00 | 14.84 | | single | 5.38 |
| 07540 | EVN | 630 | phased-out | 1,693 | 52.20 | 19 | | single | 8.8 |
| 04236 | EVN | 630 | phased-out | 1,919 | 61.00 | 13.05 | | single | 2.38 |
| 04115 | EVN | 100 | phased-out | 733 | 2,133.95 | 15 | | single | 14.75 |
| 02495 | EVN | 400 | phased | 1,600 | 108.30 | <2 | | composite | 2.07 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | -out | | | | | | |
| 06960 | EVN | 400 | phased -out | 1,532 | 79.50 | <2 | | | |
| 03456 | EVN | 250 | phased -out | 1,333 | 60.30 | 9.61 | | | |
| 02514 | EVN | 400 | phased -out | 1,509 | 61.00 | <2 | | | |
| 01784 | EVN | 630 | phased -out | 1,843 | 311.50 | 9.1 | | | |
| 01936 | EVN | 250 | phased -out | 1,089 | 78.20 | <2 | | composite | 2.32 |
| 03936 | EVN | | phased -out | 1,777 | 58.95 | <2 | n.d. | | |
| 04120 | EVN | 250 | phased -out | 1,245 | 99.90 | <2 | | | |
| 06130 | EVN | 250 | phased -out | 1,296 | 329.10 | 9 | | composite | 1.95 |
| 02674 | EVN | 250 | phased -out | 1,046 | 98.00 | <2 | | | |
| 02680 | EVN | 50 | phased -out | 433 | 112.30 | <2 | | | |
| 03747 | EVN | 400 | phased -out | 1,724 | 58.30 | 8.64 | | composite | 3.58 |
| 02667 | EVN | 250 | phased -out | 1,118 | 372.40 | <2 | | | |
| 02809 | EVN | 400 | phased -out | 1,536 | 380.40 | <2 | | | |
| 02929 | EVN | 250 | phased -out | 1,290 | 295.90 | 8 | n.d. | composite | 3.1 |
| 02035 | EVN | 100 | phased -out | 563 | 64.20 | 7.87 | n.d. | | |
| 02673 | EVN | 250 | phased -out | 1,116 | 134.70 | <2 | | | |
| 02799 | EVN | 50 | phased -out | 400 | 106.90 | <2 | | composite | 2.87 |
| 03469 | EVN | 630 | phased -out | 1,952 | 272.00 | 6.07 | n.d. | | |
| 02661 | EVN | 400 | phased -out | 1,289 | 53.30 | <2 | | | |
| 02726 | EVN | 50 | phased -out | 585 | 59.20 | <2 | | composite | 2.97 |
| 03229 | EVN | 400 | phased -out | 1,808 | 106.60 | 5.49 | | | |
| 03357 | EVN | 250 | phased -out | 958 | 61.15 | <2 | | | |
| 03032 | EVN | 630 | phased | 1,992 | 62.70 | <2 | | composite | 1.67 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | -out | | | | | | |
| 03745 | EVN | 250 | phased -out | 1,061 | 367.70 | 5.35 | | | |
| 07534 | EVN | 630 | phased -out | 1,995 | 92.15 | <2 | | | |
| 07536 | EVN | 630 | phased -out | 1,952 | 60.55 | <2 | | composite | 3.47 |
| 03907 | EVN | 630 | phased -out | 2,237 | 72.00 | 5.3 | | | |
| 04122 | EVN | 250 | phased -out | 1,183 | 149.50 | <2 | | | |
| 05990 | EVN | 160 | phased -out | 744 | 74.85 | <2 | | composite | 3.5 |
| 04089 | EVN | 30 | phased -out | 338 | 232.15 | <2 | | | |
| 04116 | EVN | 250 | phased -out | 1,337 | 255.20 | 5.3 | n.d. | | |
| 03765 | EVN | 50 | phased -out | 559 | 65.90 | <2 | | composite | 2.75 |
| 02549 | EVN | 160 | phased -out | 508 | 53.40 | <2 | | | |
| 02617 | EVN | 50 | phased -out | 439 | 52.50 | <2 | | | |
| 04036 | EVN | 100 | phased -out | 671 | 205.60 | 5.2 | n.d. | composite | 2.83 |
| 03854 | EVN | 100 | phased -out | 543 | 133.00 | 4.77 | | | |
| 04020 | EVN | 50 | phased -out | 478 | 72.80 | <2 | | | |
| 04070 | EVN | 50 | phased -out | 359 | 79.25 | <2 | | composite | 3.95 |
| 02099 | EVN | 250 | phased -out | 1,252 | 115.10 | 4.23 | | | |
| 03804 | EVN | 100 | phased -out | 643 | 165.70 | <2 | | | |
| 03882 | EVN | 400 | phased -out | 1,468 | 51.80 | <2 | n.d. | composite | 2.87 |
| 01973 | EVN | 30 | phased -out | 398 | 128.40 | 4.21 | | | |
| 03893 | EVN | 100 | phased -out | 646 | 58.95 | <2 | | | |
| 03926 | EVN | 100 | phased -out | 794 | 50.20 | <2 | | composite | 3.98 |
| 03818 | EVN | 1,000 | phased -out | 4,850 | 122.00 | 2 | | | |
| 04029 | EVN | 400 | phased | 1,092 | 81.75 | 4.19 | | composite | 2.11 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | -out | | | | | | |
| 07798 | EVN | 250 | phased -out | 1,771 | 54.00 | <2 | | | |
| 03872 | EVN | 50 | phased -out | 447 | 97.10 | 2.2 | | | |
| 03759 | EVN | 30 | phased -out | 426 | 92.95 | 4.11 | | | |
| 03896 | EVN | 400 | phased -out | 1,728 | 84.00 | 2.05 | | composite | 3.3 |
| 02818 | EVN | 400 | phased -out | 1,552 | 114.60 | 4.1 | | | |
| 03365 | EVN | 100 | phased -out | 789 | 110.50 | 2.83 | | | |
| 04031 | EVN | 20 | phased -out | 276 | 781.00 | 2.63 | | composite | 4.78 |
| 02652 | EVN | 50 | phased -out | 432 | 65.00 | 3.34 | | | |
| 02644 | EVN | 160 | phased -out | 840 | 79.70 | 3.15 | | | |
| 04053 | EVN | 160 | phased -out | 639 | 135.50 | 4.06 | | composite | 3.36 |
| 01980 | EVN | 100 | phased -out | 617 | 118.00 | 4 | | | |
| 02959 | EVN | 50 | phased -out | 353 | 78.80 | 3.5 | | | |
| 03355 | EVN | 30 | phased -out | 310 | 120.25 | 3.6 | | composite | 2.46 |
| 03063 | BUCIM | 100 | in use | 700 | 2,366.00 | 18.71 | | single | 11.21 |
| 03067 | BUCIM | 630 | in use | 2,330 | 68.50 | 10.29 | | single | 2.09 |
| 03135 | BUCIM | 250 | in use | 900 | 154.20 | 12.32 | | single | 2.11 |
| 02647 | EVN | 30 | phased -out | 356 | 1,137.80 | 12.56 | | | |
| 03370 | EVN | 30 | phased -out | 1,563 | 131.00 | 4.38 | | | |
| 07542 | EVN | | phased -out | 1,912 | 56.00 | <2 | | composite | 5 |
| 04041 | EVN | 250 | phased -out | 1,043 | 75.15 | 8.45 | | | |
| 05127 | EVN | 400 | phased -out | 1,342 | 53.60 | 16.00 | | composite | 1.96 |
| 03944 | EVN | 250 | phased -out | 1,287 | 67.25 | 7.00 | | | |
| 04128 | EVN | 400 | phased -out | 1,824 | 95.00 | 2.00 | | composite | 1.83 |
| 06863 | EVN | 400 | phased -out | 1,544 | 66.05 | 2.00 | | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 04580 | EVN | | phased -out | 1,118 | 107.80 | 7.50 | | | |
| 06987 | EVN | 30 | phased -out | 330 | 108.00 | 2.00 | | composite | 1.7 |
| 04560 | EVN | 400 | phased -out | 1,579 | 83.54 | 2.00 | | | |
| 06932 | EVN | 400 | phased -out | 1,685 | 104.80 | 10.00 | | | |
| 07234 | EVN | 400 | phased -out | 1,488 | 265.30 | 9.90 | | composite | 2.4 |
| 02552 | EVN | 160 | phased -out | 236 | 92.50 | 11.00 | | | |
| 05194 | EVN | 630 | phased -out | 2,135 | 2,308.00 | 10.30 | | | |
| 02653 | EVN | 50 | phased -out | 476 | 141.00 | 2.00 | | composite | 2.47 |
| 06903 | EVN | 30 | phased -out | 349 | 169.00 | 14.00 | | | |
| 06978 | EVN | 30 | phased -out | 145 | 60.00 | 2.50 | | | |
| 06970 | EVN | 50 | phased -out | 189 | 76.00 | 11.00 | | composite | 2.1 |
| 01783 | EVN | 630 | phased -out | 2,278 | 295.00 | 4.00 | | | |
| 03162 | EVN | 630 | phased -out | 2,256 | 163.00 | 6.00 | | | |
| 06955 | EVN | 630 | phased -out | 2,218 | 154.70 | 5.00 | | composite | 1.66 |
| 07962 | EVN | 250 | phased -out | 1,154 | 81.80 | 3.20 | | | |
| 04216 | EVN | 630 | phased -out | 2,003 | 227.45 | 19.00 | | | |
| 06911 | EVN | 630 | phased -out | 2,198 | 198.50 | 11.00 | | composite | 1.73 |
| 02586 | EVN | 400 | phased -out | 435 | 56.00 | 12.00 | | | |
| 07006 | EVN | 400 | phased -out | 1,572 | 1,953.90 | 2.90 | | | |
| 03852 | EVN | 2500 | phased -out | 9,440 | 264.20 | 2.00 | | composite | 1.87 |
| 07249 | EVN | 100 | phased -out | 484 | 57.75 | 5.32 | | | |
| 02668 | EVN | 630 | phased -out | 2,084 | 1,462.90 | 6 | | | |
| 02781 | EVN | 30 | phased -out | 298 | 138.80 | <2 | | composite | 2.33 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 07531 | EVN | 250 | phased -out | 1,032 | 742.20 | 3 | | | |
| 07805 | EVN | 630 | phased -out | 1,970 | 101.30 | 5 | | | |
| 07833 | EVN | 30 | in use | 312 | 83.55 | 4 | | single | 0.67 |
| 04442 | EVN | 630 | in use | 2,029 | 2,018.00 | 10 | | single | 0.71 |
| 05609 | EVN | 400 | in use | 1,565 | 1,103.10 | 11 | | single | 0.83 |
| 06204 | EVN | 630 | in use | 2,164 | 1,421.50 | 9 | | single | 0.74 |
| 04184 | EVN | 630 | in use | 1,921 | 1,815.50 | 14 | | single | 0.74 |
| 03320 | EVN | 630 | in use | 1,904 | 596.60 | 7 | | single | 0.96 |
| 02299 | FZC | 630 | in use | 3,500 | 1,703 | 7 | | | |
| 02314 | FZC | 630 | in use | 3,500 | 1,126 | 4 | | | |
| 02302 | FZC | 630 | in use | 1,890 | 104 | 4 | | | |
| 02316 | FZC | 630 | in use | 3,500 | 828 | 3 | | | |
| **Total:** | | | | **167,250** | | | | | |

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CETI 5100.101.01

LABORATORIJA ZA EKOTOKSIKOLOŠKA ISPITIVANJA I ZAŠTITU OD ZRAČENJA

IZVJEŠTAJ O ISPITIVANJU

| | |
|---|---|
| Vrsta ispitivanja | **Fizičko hemijska analiza ulja na sadržaj PCB** |
| Broj izvještaja | 00-14-222/12/4-53/4 |
| Datum izdavanja izvještaja | 08.02.2013 godina |

| **PODACI O PODNOSIOCU ZAHTJEVA** | |
|---|---|
| Naziv podnosioca zahtjeva | Rade Koncar-Servis<br>Service and repair of electrical products |
| Broj ponude | 00-14-222 |
| Datum podnošenja zahtjeva | 18.01.2013 godina |

| **PODACI O UZORKU** | |
|---|---|
| Datum uzorkovanja | / |
| Vrsta uzorka | **Transformatorsko ulje** |
| Zahtijevano ispitivanje | Sadržaj PCB-a |
| Uzorkovao | / |
| Broj protokola u CETI | 12/4-53/4 |

**Napomena:**

1. **Rezultati ispitivanja se odnose samo na ispitivani uzorak.**
2. **Izvještaj o ispitivanju se može umnožavati isključivo kao cjelina.**

**POMOĆNIK DIREKTORA**
**ZA TEH. I LAB. POSLOVE**
**Danijela Šuković spec.toks. hem.**

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## Annex 8 – CETI – Environmental Laboratory Cetinje – PCB Analysis Report

CENTAR ZA EKOTOKSIKOLOŠKA ISPITIVANJA CETI 5100.101.01

IZVJEŠTAJ O ISPITIVANJU BR. 00-14-222/12/4-53/4

ODJELJENJE ZA LABORATORIJSKU DIJAGNOSTIKU I MONITORING

| | Broj protokola-CETI | ID uzorka | Koncentracija mg/kg | Metod |
|---|---|---|---|---|
| 1. | 12/04 | 01805 | 4.19±0.47 Aroclor 1260 | EN 12766-1, EN12766-2,EN 61619 |
| 2. | 13/04 | 01726 | 2.08±0.23 Aroclor 1260 | EN 12766-1, EN12766-2,EN 61619 |
| 3. | 14/04 | 01879 | 19.06±2.14 Aroclor 1260 | EN 12766-1, EN12766-2,EN 61619 |
| 4. | 15/04 | 02014 | 17.50±1.97 Aroclor 1260 | EN 12766-1, EN12766-2,EN 61619 |
| 5. | 16/04 | 00047 | 3.78±0.42 Aroclor (1260+1254) | EN 12766-1, EN12766-2,EN 61619 |
| 6. | 17/04 | 01894 | 1.89±0.21 Aroclor (1260+1254) | EN 12766-1, EN12766-2,EN 61619 |
| 7. | 18/04 | 02006 | 7.02±0.79 Aroclor 1260 | EN 12766-1, EN12766-2,EN 61619 |
| 8. | 19/04 | 00121 | 3.30±0.37 Aroclor (1260+1254) | EN 12766-1, EN12766-2,EN 61619 |
| 9. | 20/04 | 01896 | 2.04±0.23 Aroclor (1260+1254) | EN 12766-1, EN12766-2,EN 61619 |
| 10. | 21/04 | 02020 | 6.09±0.68 Aroclor 1260 | EN 12766-1, EN12766-2,EN 61619 |
| 11. | 22/04 | 02850 | 7.06±0.79 Aroclor 1260 | EN 12766-1, EN12766-2,EN 61619 |
| 12. | 23/04 | 02933 | 8.06±0.91 Aroclor 1260 | EN 12766-1, EN12766-2,EN 61619 |
| 13. | 24/04 | 02668 | 20.10±2.26 Aroclor 1260 | EN 12766-1, EN12766-2,EN 61619 |

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**CENTAR ZA EKOTOKSIKOLOŠKA ISPITIVANJA** **CETI 5100.101.01**

**IZVJEŠTAJ O ISPITIVANJU BR. 00-14-222/12/4-53/4**

| | | | | |
|---|---|---|---|---|
| 14. | 25/04 | 03927 | 4.50±0.51<br>Aroclor 1260 | EN 12766-1,<br>EN12766-2,EN 61619 |
| 15. | 26/04 | 03721 | 5.38±0.60<br>Aroclor (1260+1254) | EN 12766-1,<br>EN12766-2,EN 61619 |
| 16. | 27/04 | 07540 | 8.80±0.99<br>Aroclor 1260 | EN 12766-1,<br>EN12766-2,EN 61619 |
| 17. | 28/04 | 04236 | 2.38±0.27<br>Aroclor (1260+1254) | EN 12766-1,<br>EN12766-2,EN 61619 |
| 18. | 29/04 | 04115 | 14.75±1.66<br>Aroclor (1260+1254) | EN 12766-1,<br>EN12766-2,EN 61619 |
| 19. | 30/04 | 02495<br>06960<br>03456 | 2.07±0.23<br>Aroclor 1260 | EN 12766-1,<br>EN12766-2,EN 61619 |
| 20. | 31/04 | 02514<br>01784<br>01936 | 2.32±0.26<br>Aroclor 1260 | EN 12766-1,<br>EN12766-2,EN 61619 |
| 21. | 32/04 | 03936<br>04120<br>06130 | 1.95±0.22<br>Aroclor 1260 | EN 12766-1,<br>EN12766-2,EN 61619 |
| 22. | 33/04 | 02674<br>02680<br>03747 | 3.58±0.40<br>Aroclor 1260 | EN 12766-1,<br>EN12766-2,EN 61619 |
| 23. | 34/04 | 02667<br>02809<br>02929 | 3.10±0.35<br>Aroclor 1260 | EN 12766-1,<br>EN12766-2,EN 61619 |
| 24. | 35/04 | 02035<br>02673<br>02799 | 2.87±0.32<br>Aroclor 1260 | EN 12766-1,<br>EN12766-2,EN 61619 |
| 25. | 36/04 | 03469<br>02661 | 2.97±0.33 | EN 12766-1, |

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**CENTAR ZA EKOTOKSIKOLOŠKA ISPITIVANJA** **CETI 5100.101.01**

**IZVJEŠTAJ O ISPITIVANJU BR. 00-14-222/12/4-53/4**

| | | | | |
|---|---|---|---|---|
| | | 02726 | Aroclor 1260 | EN12766-2,EN 61619 |
| 26. | 37/04 | 03229<br>03357<br>03032 | 1.67±0.19<br>Aroclor 1260 | EN 12766-1,<br>EN12766-2,EN 61619 |
| 27. | 38/04 | 03745<br>07534<br>07536 | 3.47±0.39<br>Aroclor (1260+1254) | EN 12766-1,<br>EN12766-2,EN 61619 |
| 28. | 39/04 | 03907<br>04122<br>05990 | 3.50±0.39<br>Aroclor (1260+1254) | EN 12766-1,<br>EN12766-2,EN 61619 |
| 29. | 40/04 | 04089<br>04116<br>03765 | 2.75±0.31<br>Aroclor 1260 | EN 12766-1,<br>EN12766-2,EN 61619 |
| 30. | 41/04 | 02549<br>02617<br>04036 | 2.83±0.32<br>Aroclor 1260 | EN 12766-1,<br>EN12766-2,EN 61619 |
| 31. | 42/04 | 03854<br>04020<br>04070 | 3.95±0.44<br>Aroclor (1260+1254) | EN 12766-1,<br>EN12766-2,EN 61619 |
| 32. | 43/04 | 02099<br>03804<br>03882 | 2.87±0.32<br>Aroclor 1260 | EN 12766-1,<br>EN12766-2,EN 61619 |
| 33. | 44/04 | 01973<br>03893<br>03926 | 3.98±0.45<br>Aroclor (1260+1254) | EN 12766-1,<br>EN12766-2,EN 61619 |
| 34. | 45/04 | 03818<br>04029<br>07798 | 2.11±0.24<br>Aroclor 1260 | EN 12766-1,<br>EN12766-2,EN 61619 |
| 35. | | 03872 | | |

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**CENTAR ZA EKOTOKSIKOLOŠKA ISPITIVANJA** **CETI 5100.101.01**

**IZVJEŠTAJ O ISPITIVANJU BR. 00-14-222/12/4-53/4**

| | | | | |
|---|---|---|---|---|
| | 46/04 | 03759<br>03896 | 3.30±0.37<br>Aroclor 1260 | EN 12766-1,<br>EN12766-2,EN 61619 |
| 36. | 47/04 | 02818<br>03365<br>04031 | 4.78±0.54<br>Aroclor 1260 | EN 12766-1,<br>EN12766-2,EN 61619 |
| 37. | 48/04 | 02652<br>02644<br>04053 | 3.36±0.38<br>Aroclor (1260+1254) | EN 12766-1,<br>EN12766-2,EN 61619 |
| 38. | 49/04 | 01980<br>02959<br>03355 | 2.46±0.28<br>Aroclor 1260 | EN 12766-1,<br>EN12766-2,EN 61619 |
| 39. | 50/04 | 02781<br>07531<br>07805 | 25.33±2.85<br>Aroclor 1260 | EN 12766-1,<br>EN12766-2,EN 61619 |
| 40. | 51/04 | 03063 | 11.21±1.26<br>Aroclor 1254 | EN 12766-1,<br>EN12766-2,EN 61619 |
| 41. | 52/04 | 03067 | 2.09±0.23<br>Aroclor 1254 | EN 12766-1,<br>EN12766-2,EN 61619 |
| 42. | 53/04 | 03135 | 2.11±0.24<br>Aroclor 1254 | EN 12766-1,<br>EN12766-2,EN 61619 |

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## Annex 9 – European CSR Award

# European CSR Award

**25 JUNE 2013 · WILD GALLERY · BRUSSELS**

**This is to certify that the project entitled**

***Eco Ray on the Balkan Peninsula***

**submitted by**

**Rade Koncar – Service and repair of electrical products**

**in partnership with**

**Persistent Organic Pollutants Unit – Ministry of Environment and Physical Planning of Macedonia, Global Environment Facility, United Nations Industrial Development Organization, Swiss Cooperation Office – Macedonia**

**is awarded winner of the European CSR Award in The former Yugoslav Republic of Macedonia**

*This certificate was presented on 25 June 2013 by*

Antonio Tajani

***Antonio Tajani***
*Vice-President of the European Commission and Commissioner for Entrepreneurship and Industry*

The European CSR Award recognises exciting and pioneering initiatives focused on successful partnerships between business and non-business organisations, with particular emphasis on collaborative programmes that tackle sustainability through innovation. It is sponsored by the European Commission.

## Annex 10 – 13 November Prize from City of Skopje in the field of environmental protection and promotion for successful realization of the project “Removal of harmful polychlorinated biphenyls”

ГРАД СКОПЈЕ
QYTETI I SHKUPIT

ГРАДОТ СКОПЈЕ ЈА ДОДЕЛУВА НАГРАДАТА
13 НОЕМВРИ
НА ГРАД СКОПЈЕ
ЗА 2013 ГОДИНА

QYTETI I SHKUPIT NDAN ÇMIMIN
13 NËNTORI
I QYTETIT TË SHKUPIT
PËR VITIN 2013

ОД ОБЛАСТА НА ЗАШТИТАТА И УНАПРЕДУВАЊЕТО НА ЖИВОТНАТА СРЕДИНА

NGA FUSHA E MBROJTJES DHE AVANCIMIT TË MJEDISIT JETËSOR

НА

РАДЕ КОНЧАР-Сервис за поправка на електрични производи ДОО

RADE KONÇAR-SERVIS PËR RIPARIMIN E PRODHIMEVE ELEKTRIKE SHPK

*за успешно реализирање на проектот „Отстранување на штетни полихлорирани бифенили“*

*për realizim të suksesshëm të projektit „Mënjanim i bifenileve të poliklorinuar të dëmshëm“*

ОДБОР ЗА ДОДЕЛУВАЊЕ НА НАГРАДАТА "13 НОЕМВРИ" НА ГРАД СКОПЈЕ
ПРЕТСЕДАТЕЛ НА ОДБОРОТ
ПРОФ. Д-Р ЗОРАН ТОДОРОВСКИ

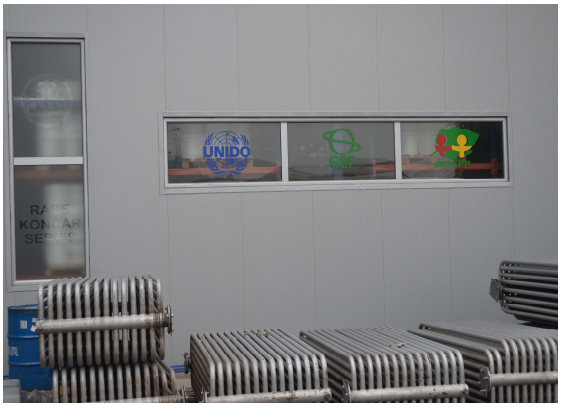
KËSHILLI PËR NDARJEN E ÇMIMIT "13 NËNTORI" I QYTETIT TË SHKUPIT
KRYETARI I KËSHILLIT
PROF. DR ZORAN TODOROVSKI

ГРАДОНАЧАЛНИК НА ГРАД СКОПЈЕ
КОЦЕ ТРАЈАНОВСКИ

KRYETARI I QYTETIT TË SHKUPIT
KOCE TRAJANOVSKI

СКОПЈЕ, 13 НОЕМВРИ, 2013
SHKUP, 13 NËNTOR, 2013

## Annex 11 – Evaluation Documentation


Location of the new PCB treatment facility at Rade Koncar Servis in Skopje (15 October 2013)

Non-combustion and decontamination technology of Sea Marconi at Rade Koncar Servis in Skopje (30 September 2013)

Final Workshop for Project Closure in Skopje (1 October 2013)