



Photo P. Ioakimidis

## PCBs Sound Management and Disposal

### AT A GLANCE

The Strategic Partnership for the Mediterranean Sea Large Marine Ecosystem (MedPartnership) is a collective effort of leading environmental institutions and organizations together with countries sharing the Mediterranean Sea to address environmental challenges that Mediterranean marine and coastal ecosystems face.

The project's 78 demonstration and the promotion and replication of good practices will maximize impact and ensure the sustainability of the project beyond its lifespan.

**Total budget:** 48 millions USD.  
13 million USD: Global Environment Facility  
35 million USD: Participating countries, executing agencies, and donors.

### ABSTRACT

PCBs are pollutants more specifically known as polychlorinated biphenyls. They are highly toxic, very long lasting (over 100 years) and bioaccumulative, and one of the most harmful persistent organic chemicals to be manufactured by man. PCBs have been proven to be damaging to the environment. They cause immunotoxicity, skin problems, reproductive alterations and cancer in humans and animals. PCBs were manufactured worldwide by a number of companies in many industrialized countries and were mostly used as cooling and isolating agents in transformers and capacitors and many more applications.

This activity aimed to introduce environmentally sound management (ESM) to all stages of the "life-cycle" of electrical equipment containing or being contaminated with PCBs in four Mediterranean countries (Albania, Bosnia and Herzegovina, Egypt and Turkey), providing training for more than 390 people, taking and analyzing more than 500 PCB oil samples, identifying more than 1000 tonnes and disposing of 931 tonnes of PCBs in order to support countries to meet obligations of the Stockholm and Barcelona Conventions.

## ACTIVITY DESCRIPTION

This activity seeks to build technical capacity for ESM of PCBs equipment and PCBs phase-out and disposal programs and PCB awareness raising in Albania, Bosnia and Herzegovina, Egypt and Turkey.

The activity also has implemented demonstration projects to improve management including the final disposal of at least 931 tons of PCBs. In addition, the project promotes the reviewing and re-forming of institutional and legal frameworks for the implementation of ESM of PCBs in participating countries. The delivery of all activities is expected by the end of 2015.



Photo: Manolo Clar

## THE EXPERIENCE

Transboundary pollution of PCBs is a fact. PCBs can travel hundreds and even thousands of kilometers by wind, river and ocean currents and by the grasshopper effect (attached to dust particles). The project seeks to address the PCB problem by acting along its life cycle to actively prevent the release of PCBs into the environment by all means and in all phases.

### Methodology

PCBs might be carried away by transboundary pollution from a heavy emitter and deposit in a country further away and whose emissions are relatively low. The heavy pollution that is evident in the developed world also becomes evident in remote areas. For example, transboundary pollution of PCBs becomes visible in a remote area like the Arctic where PCBs are causing great damage to the environment. In order to avoid local and also transboundary pollution of PCBs, they must be inventoried and destroyed.

As stated above, in order to prevent the release of PCBs into the environment, the project intervenes along its life cycle going from awareness and training to sampling, analysis, inventory, handling, transport and final disposal, partnering with all key stakeholders involved in the PCB problem and final solution.

The project seek first to raise awareness on the importance of ESM of PCBs equipment by providing knowledge and understanding to all stakeholders involved in the PCB life cycle, from public servants to private sector, academia, civil society and media.

Second, the project is also building the technical capacity for ESM of PCBs equipment of key stakeholders such as Ministries of Environment, Ministries of Energy, customs, electric utilities, industry, laboratories, transformer repairing shops and others by providing specific theoretical and practical training and skills on PCB site audit, sampling, analysis and inventory.

Third, the project has already build national capacity to implement PCBs phase-out and disposal programs for the Government including PCB inventory, database and phase-out and final disposal of PCB stocks.

Fourth, the project is implementing demonstration projects to improve management and disposal of PCBs, including handling, transport and destruction of 931 tons of PCBs in Bosnia-Herzegovina, Egypt and Turkey. This task includes practical training on the notification procedure for import/export of PCBs, PCB handling and transformers draining, packing, labeling and loading.



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## RESULTS

This activity has resulted in the development of 17 awareness and training workshops in Albania, Bosnia and Herzegovina, Egypt and Turkey on theoretical and practical PCBs management with 392 local experts trained. In addition, 363 local experts were trained in transformers and capacitors auditing, 38 local experts were trained in PCB handling and 77 local experts trained in import and export of PCBs (notification procedure). More than 60 awareness and training documents including presentations, brochures, guides, manuals, handouts, inventory forms, videos and other documents were translated to local language and placed online at the project website for countries and other stakeholders use.



Photo Urs Wagner

The project also granted 12 PCB analyzers and reagents for approximately 2000 oil samples. More than 500 oil samples were taken and analyzed during the project while identifying more than 1000 tonnes of PCB equipment and liquids. Another task included the packaging, collection and transport for final disposal of identified PCBs. In particular, 931 tonnes of PCBs in Bosnia-Herzegovina, Egypt and Turkey will be sent shortly for final disposal. In addition to this achievement and project impact, the project aims at revising legal, regulatory and administrative instruments in four participant countries at the end of the project.

## LESSONS LEARNED

Several important lessons learned can be extracted from project experience.

First, **ownership and leadership of the project by the country is a must**. Country ownership and leadership in this project has been relevant. The project attempted to be implemented as country-driven as compared to donor-driven. This is also expressed in the interest and willingness of Governments to participate in a possible second phase of the project. The activity has been successful on striving to cover the whole life cycle of PCBs management from inventory, sampling, analysis, to handling, transport and final disposal of PCBs, generating information, knowledge, building capacity, ownership, leadership, sustainability and fostering cooperation among PCBs key stakeholders in participating countries. It is encouraging to note that PCBs management and inventory are at present still on-going and implemented in some countries, using national funding, which also attests to successful country-ownership of project activities and results and to project sustainability.

Another important lesson learned is that **the lack of human resources, budget and time from the involved Ministries must be supported to attain project objectives**. Most of international projects are usually facing, especially at the beginning of the project, lack of human resources, budget and time from the Ministry or Ministries involved to efficiently implement the project. The project has solved this usual problem by hiring local and international consultants to provide support and sometimes act as “catalysts” in most of implemented activities. It is important to mention that the sustainability of project results at medium term will largely depend on funding made available from participating governments, funding agencies and/or donors, as well as investments from the publicly owned companies and the private sector owning PCBs. In addition, commitment from Government to keep complying with international and national obligations regarding POPs and PCBs is required and also expected, but it will need additional resources to enforce or generate legal compliance, despite the fact many governments are facing relevant economic problems at the moment.

Finally, **PCB reliable inventory data was not available in all countries and is key to prepare a realistic plan**. In most industrial countries, inventories of PCB containing electrical devices such as transformers and capacitors have been conducted and most of the PCB equipment eliminated over the past 30 years. However, in developing and transition countries, there are several million tonnes of equipment containing or contaminated with PCBs still in use. Therefore, detailed and reliable inventories of PCB containing or contaminated equipment are a top priority in these countries. This was the case in participating countries, where PCB inventory data was not reliable at the beginning of the project. This reliability has significantly advanced in all participating countries thanks to conducting awareness and training activities for PCB key stakeholders, wise planning of site visits, sampling and inventory, PCB data compilation as well as legal enforcement.

## IMPACTS

This activity aimed to introduce environmentally sound management (ESM) to all stages of the "life-cycle" of electrical equipment containing or being contaminated with PCBs is already causing an effect on countries strategies, international compliance on PCBs management and final disposal and project sustainability. Several countries are already implementing additional project national inventory, sampling and analysis activities. In a specific case, an electricity distribution company in a participating country has acquired a PCB analyzer and is already sampling and analyzing oil from incoming transformers ready for repair to avoid cross-contamination. Also, some customs authority already require for any import or export of transformers and capacitors, a declaration of PCB free before approve its import or export. This action is crucial to control PCB cross contamination. Some Basel Convention focal points implemented for the first time, the administration procedure to export PCB (hazardous waste) according to the requirements of the Basel Convention. The PCBs management process to comply with the Stockholm and Barcelona Conventions is advancing in participating countries.



Photo: Manolo Clar

## REFERENCES

Guidelines for updating National Action Plans for the implementation of the LBS Protocol and its Regional Plans in the framework of SAP MED to achieve Good Environmental Status for pollution related ECAP ecological objectives, UNEP(DEPI)/MED WG.404/7, Annex IV

Report of the Regional meeting on applying methodology for programmes of measures and economic analysis in the NAP update, UNEP(DEPI)/MED WG.414/5

Relevant websites: [www.pcbsmed.org](http://www.pcbsmed.org)

## KEYWORDS

Polychlorinated biphenyls, PCBs, Environmentally Sound Management (ESM), Hazardous waste

## EXECUTING PARTNERS

**MEDPOL** Programme for the assessment and control of marine pollution in the Mediterranean aims to assist Mediterranean countries to implement three major protocols of the Barcelona Convention: Land based sources Protocol, dumping Protocol and hazardous waste Protocol.

**SCP/RAC** the Regional Activity Centre for Sustainable Consumption and Production works to contribute to pollution prevention and sustainable and efficient management of services, products and resources based on the sustainable consumption and production integrated approach adopted by UNEP.

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Strategic Partnership for the Mediterranean Sea Large Marine Ecosystem

Together for the Mediterranean Sea

# MedPartnership



**Executing partners:** FAO, UNESCO/IHP, UNIDO, GWP-Med, MIO-ECSDE, WWF MedPO, UNEP/MAP's MEDPOL programme and regional activity centres (SCP/RAC, SPA/RAC and PAP/RAC).

**Participating countries:** Albania, Algeria, Bosnia and Herzegovina, Croatia, Egypt, Lebanon, Libya, Morocco, Montenegro, Palestine, Syria, Tunisia and Turkey.