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# POPs Legacy Elimination and POPs Release Reduction Project



## Persistent Organic Pollutants

# Persistent Organic Pollutants (POPs):

Persistent organic pollutants (POPs) are organo-chlorine compounds regulated at the international level by the Stockholm Convention due to their:

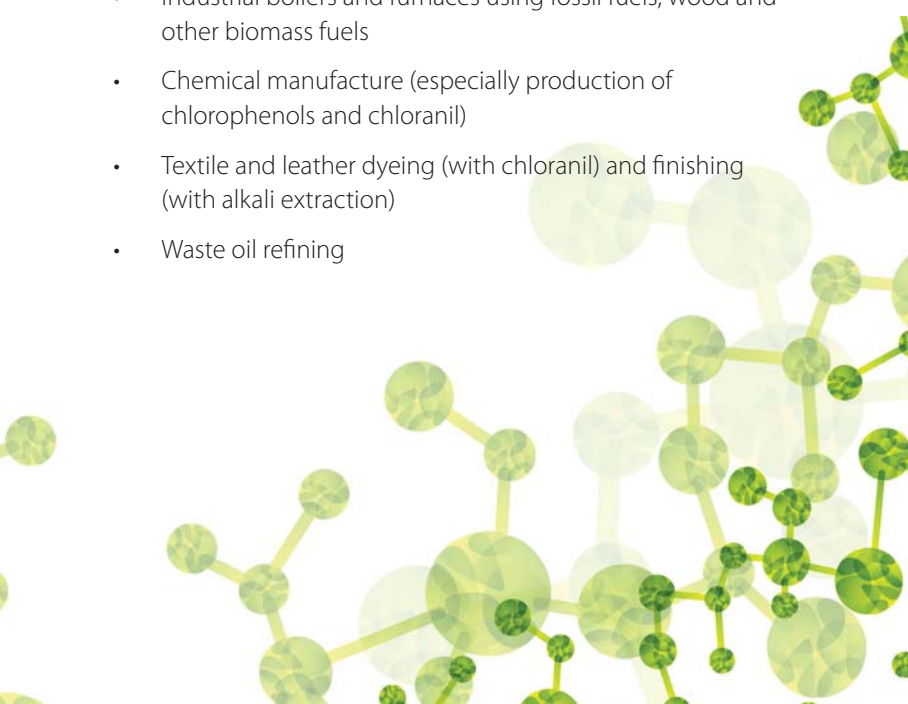
- Toxic effects on living organisms and the environment
- Bioaccumulative properties, especially in fat tissues
- Persistence in the environment, resisting biodegradation
- Semi-volatile characteristics, capable of long-range transboundary atmospheric transport and deposition.

These substances can cause birth defects, various cancers, disruption of immune systems and reproductive system problems.

## First POPs Sources

Since the first half of the last century, POPs have been intentionally developed and used in a wide range of applications (e.g. pesticides, insecticides, dielectric and hydraulic fluids in industrial machinery, capacitors and transformers) and recently as chemicals in products, such as flame retardants and water repellents. They are unintentionally generated in a wide range of processes involving combustion. The following industrial processes are potential sources:

- Waste incinerators including cement kilns burning hazardous waste
- Production of pulp using elemental chlorine or chemicals generating chlorine during bleaching
- Thermal processes in the metallurgical industry
- Industrial boilers and furnaces using fossil fuels, wood and other biomass fuels
- Chemical manufacture (especially production of chlorophenols and chloranil)
- Textile and leather dyeing (with chloranil) and finishing (with alkali extraction)
- Waste oil refining



# The Stockholm Convention and Turkey

The Stockholm Convention (SC), adopted on 22 May 2001 and entered into force on 17 May 2004, initially focused on eliminating or reducing releases of 12 POPs, the so-called "Dirty Dozen". Then, 9 new pollutants called "nasty nines" were added to the Convention list in 2009. Finally, amendments were made to the Convention in 2011 and 2013 and two new pollutants were included under the Convention. The 23 pollutants listed in the annexes of the Convention are presented in the table 1. As of today, 152 countries signed and 179 countries ratified the Convention.

Turkey signed and ratified the SC in 2001 and 2009 respectively. The first National Implementation Plan (NIP) prepared with Global Environment Facility (GEF) assistance along with UNIDO support, addressing the inventories and strategic action plan for the initial POPs, was prepared in the period of 2004-2007 and submitted to the Convention Secretariat in 2011. Currently, Turkey has drafted a NIP update with GEF assistance along with UNIDO support to reflect the current status of POPs management and address the newly annexed POPs included in the amendments to the SC that came into force in 2012. Subsequently, it was revised in the framework of an EU Project in order to focus on the management of POPs problems in Turkey and the implementation of the Stockholm Convention on POPs, Convention on Long Range Transboundary Air Pollution (CRLTAP)/POPs Protocol and EU POPs Regulation. In the framework of the EU POPs Project, a draft by-law for implementation of EU POPs Regulation, Sectorial and Regulatory Impact Assessment (SIA and RIA) Reports, Regulatory Gap Analysis (LGA) has been prepared for effective implementation of POPs Regulation in Turkey.

Between 2013 and 2015, the project entitled "Sound Management of Polychlorinated Biphenyl (PCB) in Turkey" has been realized under "MedPartnership" which was led by UNEP/MAP. The following activities have been carried out under the project: elimination of 634 tons of PCBs, PCB inventory, public awareness raising and capacity building.



Table 1. Persistent organic pollutants listed under the Stockholm Convention

## Stockholm Convention

<b>Annex A (Prohibition)</b>	Aldrin	Chlordane	Chlordecone
	Dieldrin	Endrin	Heptachlor
	Hexabromobiphenyl	Hexabromodiphenyl ether and heptabromodiphenyl ether	Hexachlorobenzene (HCB)
	Alpha-hexachlorocyclohexane	Beta-hexachlorocyclohexane	Lindane
	Mirex	Pentachlorobenzene	Polychlorinated biphenyls (PCBs)
	Technical endosulfan and its related isomers	Tetrabromodiphenyl ether and pentabromodiphenyl ether	Toxaphene
	Hexabromocyclododecane (HBCDD)	Hexachlorobutadiene	Perfluorooctane sulfonic acid, its salts and perfluorooctane sulfonyl fluoride
<b>Annex B (Restriction)</b>	DDT	Perfluorooctane sulfonic acid, its salts and perfluorooctane sulfonyl fluoride	
<b>Annex C (Reduction)</b>	Polychlorinated dibenzo-p-dioxin (PCDDs)	Polychlorinated dibenzofurans (PCDFs)	Hexachlorobenzene (HCB)
	Pentachlorobenzene	Polychlorinated biphenyls (PCBs)	Polychlorinated Naphthalenes (PCNs)

■ Industrial Chemicals

■ Pesticides

■ Unintended POPs





## POPs Legacy Elimination and POPs Release Reduction Project

The objective of the project is to protect human health and the environment globally as well as locally by addressing POPs legacies including the elimination of POPs pesticide and PCB stockpiles. This includes initiating the clean up of associated POPs and chemical pollutant contaminated sites, as well as dealing with longer term PCB phase out consistent with the country's SC obligations. Another targeted area is the reducing of U-POPs release in major industrial sectors as well as strengthening institutional, regulatory and technical capacity within a sound chemicals management framework.

POPs Legacy Elimination and POPs Release Reduction Project is executed by the Ministry of Environment and Urbanization with the financial support of GEF in cooperation with UNIDO and UNDP.

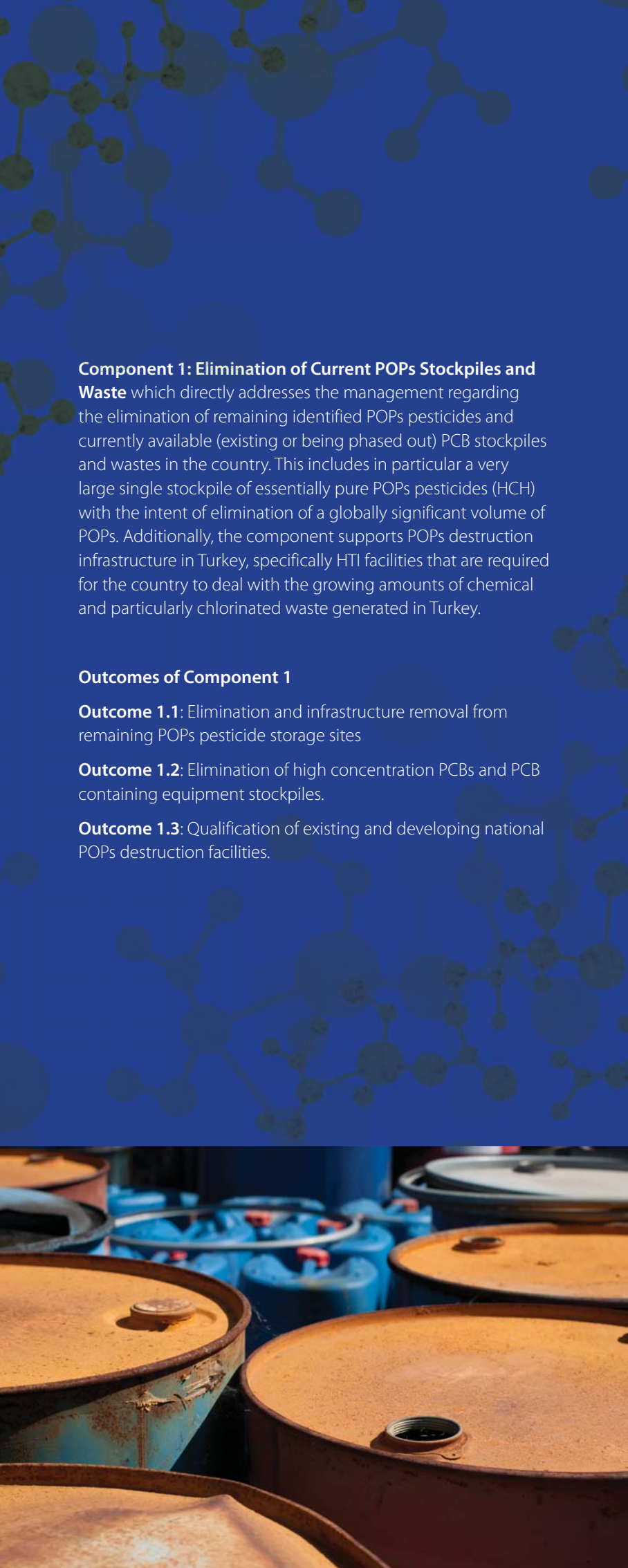
## Strategy and Design of the Project

The overall strategy and outlined project design is consistent with the Project's objectives related to the elimination of POPs legacies, such as POPs stockpiles, waste and contaminated sites as defined in Article 6 of the SC, and reduction of POPs release from major long term sources (Article 5 of the SC). It also recognizes the need for targeted national capacity strengthening to support this strategy and Turkey in upholding its long term obligations under the SC.

## Project Components

The project strategy is implemented through a project design involving five principle components as well as an additional monitoring and evaluation component:

- Component 1: Elimination of Current POPs Stockpiles and Waste
- Component 2: Planning and Capacity Building for Environmentally Sound Management of Future PCB Stockpiles
- Component 3: Unintended POPs Release Reduction
- Component 4: Management Capacity for Contaminated Sites
- Component 5: Institutional and Regulatory Capacity Strengthening for Sound Chemicals Management

A decorative graphic of a molecular structure with various sized spheres and connecting lines, set against a dark blue background. The spheres are in shades of blue and grey, and the lines are thin and light blue.

**Component 1: Elimination of Current POPs Stockpiles and Waste** which directly addresses the management regarding the elimination of remaining identified POPs pesticides and currently available (existing or being phased out) PCB stockpiles and wastes in the country. This includes in particular a very large single stockpile of essentially pure POPs pesticides (HCH) with the intent of elimination of a globally significant volume of POPs. Additionally, the component supports POPs destruction infrastructure in Turkey, specifically HTI facilities that are required for the country to deal with the growing amounts of chemical and particularly chlorinated waste generated in Turkey.

#### **Outcomes of Component 1**

**Outcome 1.1:** Elimination and infrastructure removal from remaining POPs pesticide storage sites

**Outcome 1.2:** Elimination of high concentration PCBs and PCB containing equipment stockpiles.

**Outcome 1.3:** Qualification of existing and developing national POPs destruction facilities.







## **Component 2: Planning and Capacity Building for Environmentally Sound Management of Future PCB Stockpiles**

**Stockpiles** covers the planning required for Turkey to complete the phasing out of PCBs in the country and particularly in regards to addressing the need to deal with residual PCB contamination in non-PCB equipment through the demonstration of required de-halogenation technology, consistent with the SC. The general objective of this Component is to support the longer term management of PCBs in Turkey recognizing the ultimate national obligation under the SC to eliminate PCBs in use by 2025 and have them destroyed by 2028.

### **Outcomes of Component 2**

**Outcome 2.1:** Implementation of national PCB regulations

**Outcome 2.2:** Systematic approach for the analytical determination of PCBs in electrical equipment, labelling and inventory

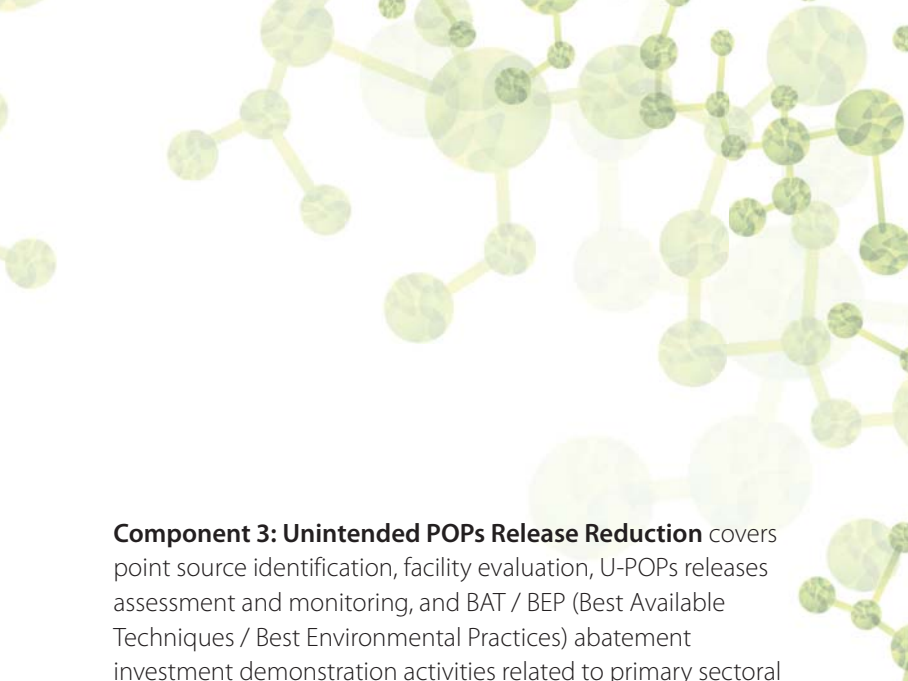
**Outcome 2.3:** Development and adoption of national PCB equipment treatment, phase out and retirement plan

**Outcome 2.4:** Improvement of storage and maintenance of cross contaminated PCB equipment

**Outcome 2.5:** Verification of decontamination technology for PCB contaminated transformers remaining in service and its pilot demonstration







**Component 3: Unintended POPs Release Reduction** covers point source identification, facility evaluation, U-POPs releases assessment and monitoring, and BAT / BEP (Best Available Techniques / Best Environmental Practices) abatement investment demonstration activities related to primary sectoral sources of U-POPs release as identified in the NIP. BAT/BEP will be demonstrated in priority sectors with the general purpose to show their effectiveness and their cost. The demonstration will follow an experimental design, based on the thorough characterisation of operational conditions, emission sampling and analysis for both the “business as usual” and BAT/BEP conditions.

### **Outcomes of Component 3**

**Outcome 3.1:** Determination and verification on an enterprise level of source and technology specific U-POPs emissions.

**Outcome 3.2:** Provision of training and technical assistance on BAT/BEP for priority industrial sectors.

**Outcome 3.3:** Development of a national U-POPs release reduction plan.

**Outcome 3.4:** Demonstration of BAT/BEP in industrial priority source categories.





#### **Component 4: Management Capacity for Contaminated Sites**

**Sites** covers supporting the implementation of the regulatory framework now being put in place to deal with contaminated sites, particularly those related to chemical and POPs waste.

This entails support for key technical management tools along with undertaking demonstration assessment, clean-up design, containment, and monitoring of several priority POPs and chemicals waste contaminated sites and analysis of potential sites and implementation of remediation studies in pilot scale. This targeted technical assistance is delivered with extensive support form private sector in this area.

#### **Outcomes of Component 4**

**Outcome 4.1:** Implementation of the “Soil Pollution Control and Point-Source-Contaminated Sites Regulation”

**Outcome 4.2:** Undertaking of priority POPs contaminated sites assessments and clean up measures under the “Soil Pollution Control and Point-Source-Contaminated Sites Regulation”



**Component 5: Institutional and Regulatory Capacity Strengthening for Sound Chemicals Management** covers supporting technical assistance related to improvement of the general legal/regulatory framework and technical capacity for hazardous waste and contaminated sites management within the national chemicals management framework. This Component encompasses the final stage of Turkey's efforts to be fully compliant with the SC from an institutional and regulatory perspective. It is based on a strategy that adopts a path of harmonization of the national legal and regulatory environmental framework on sound chemicals management with that of the EU. Another important part of this component is to increase the POPs monitoring capacity of the country.

### **Outcomes of Component 5**

**Outcome 5.1:** Legislative framework updated consistent with the Convention's obligations.

**Outcome 5.2:** Strengthened technical capacity including operational POPs monitoring, supporting analytical capability, and planning related research and development capability.

**Outcome 5.3:** Development and implementation of modern tools for a national sound chemicals management framework

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General Directorate of Environmental Management,  
Department of Chemical

**[www.csb.gov.tr/projeler/Chemicals](http://www.csb.gov.tr/projeler/Chemicals)**

United Nations Development Programme (UNDP)

**[http://www.tr.undp.org/content/turkey/tr/home/operations/projects/environment\\_and\\_energy/pops-legacy-elimination-and-pops-release-reduction-project.html](http://www.tr.undp.org/content/turkey/tr/home/operations/projects/environment_and_energy/pops-legacy-elimination-and-pops-release-reduction-project.html)**

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