

# Project 65: strengthening chemical and biological waste management in Central Asia countries for improved security and safety risk mitigation

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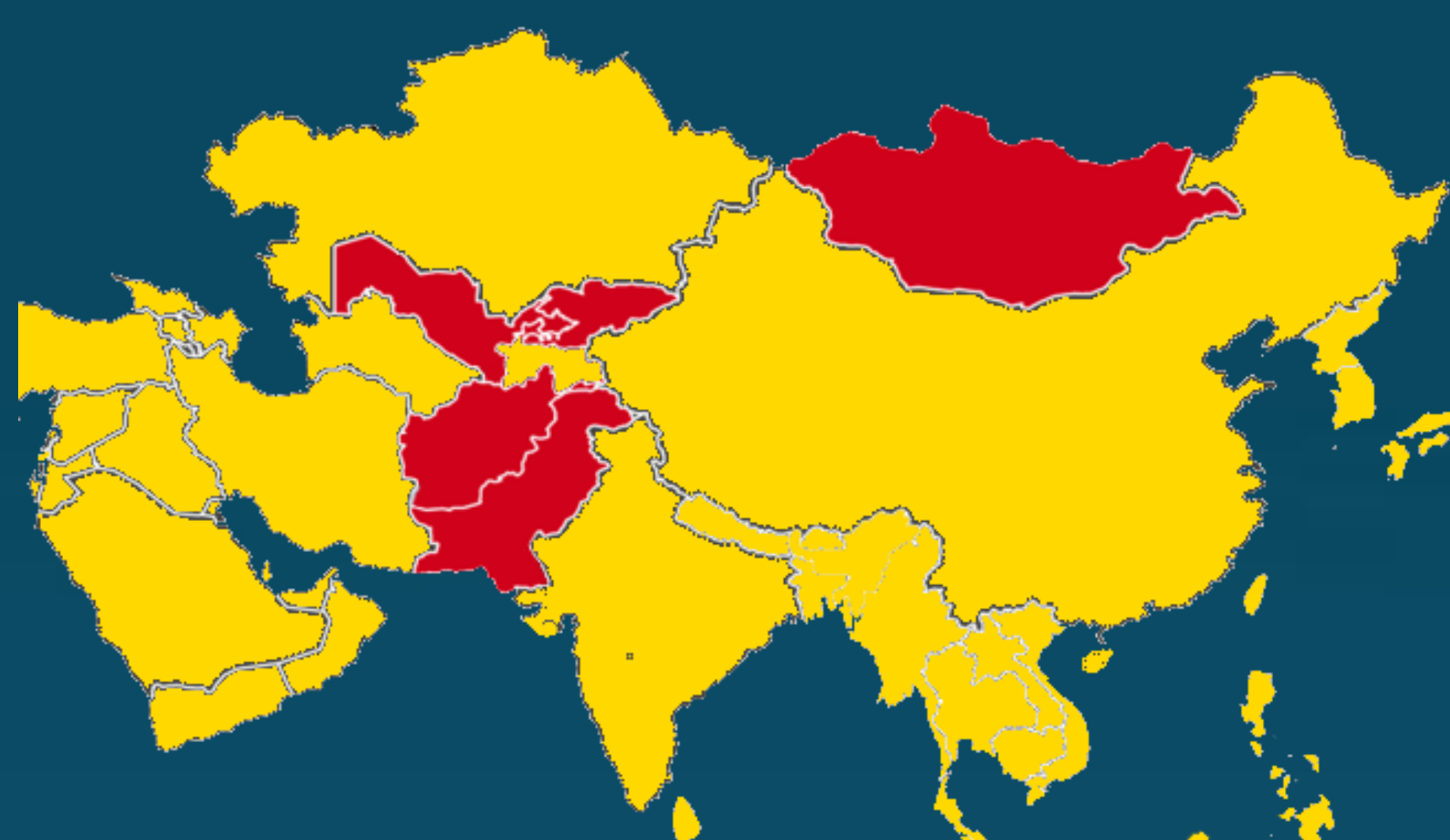
The EU Chemical, Biological, Radiological and Nuclear Risk Mitigation Centres of Excellence (EU CBRN CoE) programme was launched in response to the need to strengthen the institutional capacity of countries outside the European Union to mitigate **CBRN risks**.

**CoE project 65** aims to address the issue of Chemical and Biological waste management in Central Asia (CA) region.

The objectives of the project were agreed with the National Focal Points of the five CA beneficiary partner countries.

**The aim of the project is the need to strengthen existing Chemical and Biological waste management capabilities.**

The activities are carried out in strict cooperation with national institutional stakeholders and decision makers (ministries, universities, industrial facilities, etc.) and rely on both local and European experts for awareness raising and training sessions.



Republic of Afghanistan

Kyrgyz Republic

Mongolian People's Republic

Islamic Republic of Pakistan

Republic of Uzbekistan

## Municipal and Healthcare Waste

In CA countries municipal waste is dumped in **landfills**. These facilities in many cases have exceeded their capacity and already passed their operation management phase. Different types of wastes are often mixed together in dumps, without a proper order of disposal.

End-of-pipe practises like open-air burning and/or dumping cause soil, water, and air pollution. The 3R policy (Reuse, Recover and Recycle) is scarcely undertaken.

**Healthcare waste** management is a common issue in all CA countries. This kind of waste is often hazardous and implies risk of contamination, infection, vector borne diseases. It requires proper post-treatment procedures, like autoclave treatment. Incinerators for biological waste are often old or do not work at the right temperature (with possible release of dioxins and furans).

Anatomical waste (human parts, blood, and animal carcasses) is a critical point as well, which can involve serious health and safety problems if not correctly managed.

## Consortium Partners

**MICHR** Military Institute of Chemistry and Radiometry, Poland  
**MIHE** Military Institute of Hygiene and Epidemiology, Poland  
**FORMIT** Research Foundation for Migration and Integration of Technologies, Italy  
**CNR - ISTM** Institute of Molecular Science and Technologies, Italy  
**FAV** Alessandro Volta Foundation, Italy

## CNR – ISTM Involvement

In order to achieve all the expected goals, Project 65 has been structured around the delivery of nine work packages (WPs). The Institute of Molecular Science and Technologies (CNR-ISTM) is the leading organization of **WP4**, whose main purposes are:

**TASK 1** - To raise the awareness of the main actors across the beneficiary Countries on the correct management of Chemical (C) and Biological (B) wastes.

**TASK 2** - To organize training sessions on safety & security aspects related to the generation, handling, transportation, containment and disposal of C and B waste materials at different levels (from laboratory scale, to minor and major production and treatment sites).

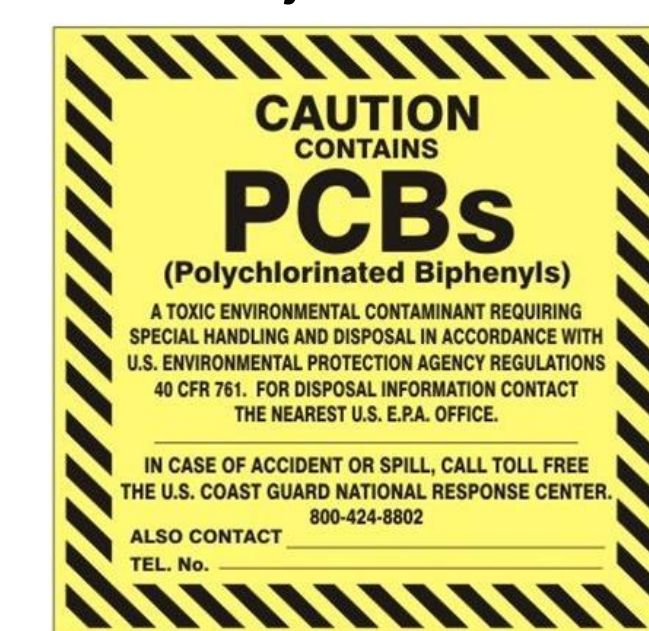
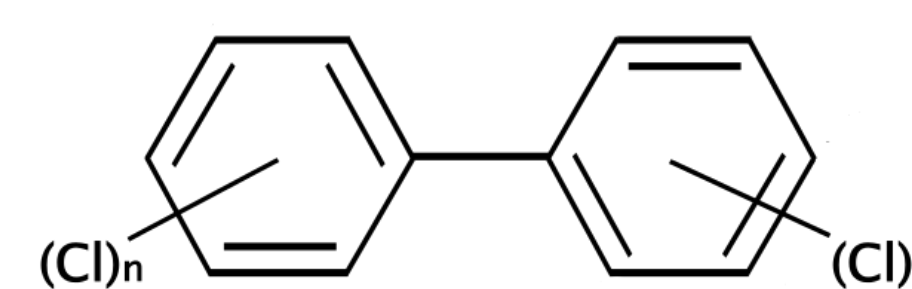


## Electronic Waste

The quantity of e-waste (especially phones and PC) in Central Asia has skyrocketed in the last decade. The content of electronic devices can be a risk for both health and the environment.

No facilities are present with suitable procedures for tackling the disposal of batteries and lamps containing heavy metals (i.e. Hg or Cd).

The widespread use of **PCBs** (polychlorinated biphenyls) in many components of electrical devices (capacitors and transformers) is still a major issue.



## Main Case Studies

### Hazardous Waste – Mining and obsolete chemicals

In CA countries, **mining** is one of the most developed industry. Critical points are:

- Tailing storage, leaching after non-proper mine closure (e.g. metal sulphides mining gives rise to highly acidic residual environmental waters).
  - Use of **mercury** and **cyanide** in gold extraction.
- Involvement of a large quantity of inorganic acid in the copper/molybdenum mining.

**Pesticides**, including **POPs** (Persistent Organic Pollutants) were widely used for agriculture in the Soviet Union. Nowadays there are hundreds of obsolete and unsuitable dumping and storage sites. No inventory exists, and a precise action of survey, identification and monitoring for the management of hazardous agrochemicals is needed.

### POPs – the “Dirty dozen”

#### PESTICIDES

- Aldrin
- Dieldrin
- Chlordane
- DDT
- Endrin
- Heptachlor
- Mirex
- Toxaphene

#### INDUSTRIAL CHEMICALS

- PCBs
- HCBs

#### UNINTENDED BYPRODUCTS

- Dibenzodioxins
- Dibenzofurans



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