Insufficient involvement of Public Health authorities on the issue of heavy metals’ presence in the vicinity of industrially contaminated sites in Serbia - need for HBM capacity building

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Mining-smelting hot spots located at western and eastern border-line;

**West** (River Drina, natural borderer with B&H):
- Zajača (Sb, Pb) tailing dam
- Krupanj, Stolice (Kostajnik) (Sb) closed, tailing dam – cracked

**East** (Romania/Bulgaria):
- Bor, Majdanpek, Cerovo
- Potential transboundary effect

Coal Mining & Coal-burning power plants (lignite):
Central part of the country, close to Belgrade;
- **Obrenovac**: 2 power plants
- **Grabovac**: PP ash landfill
- **Kolubara**: mine & power plant
- **Kostolac**: mine & power plant

Oil refinery & Petrochemical complex: Pančevo, Novi Sad
PM\textsubscript{10} concentrations above ALV of 40.00 \mu g/m\textsuperscript{3}
## Irregular monitoring of heavy metals in PM10 at ICSs

<table>
<thead>
<tr>
<th>Location</th>
<th>Metals</th>
<th>Years</th>
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Cd in PM$_{10}$ (ng/m$^3$)

- **Rakovica Livnica**: 0.7, 1.3
- **Veliki Crljeni**: 0.1, 0.3
- **Sevojno**: 0.63, 1.89, 2.4, 4.71
- **Pančevo**: 1, 1.3
- **Novi Sad**: 2
- **Lazarevac**: 0.5, 0.52
- **Kosjerić**: 0.27, 0.24
- **Grabovac**: 0.2, 0.44
- **Bor**: 2.8, 5.07, 6.9, 7.4, 7.9

Individual cases of HBM in Serbia

- Matic B., Jovanovic D.; Role of HBM in Managing Contaminated Sites: Exposure to Lead close to Antimony and Lead Mining and Metal-processing Complex in Serbia (conference paper, 2018)
- Matic B., Dejanovic S., Djonovic N.; Blood lead levels in children living close to the antimony and lead mining-milling-smelting complex in Serbia DOU: 105937/TEHNIKA 1803436M
- Matic B., Gojkovic M., Separovic N.; Influence of lead in suspended particles on blood lead levels in children living in the vicinity of a secondary lead smelter (conference paper, 2007)
Activities in 2018 approved by the MoH

• National Portfolio of Actions in Environmental Health (Ostrava Declaration, WHO commitments)
• Roadmap for sound management of contaminated sites (OD)
• Project: *Strengthening Serbian national capacities and inter-sectorial synergies for safe management of contaminated sites and related hazardous substances to prevent negative impact on human health and the environment* (supported by UNEP/WHO/SAICM)
Choice of a pilot contaminated site Bor – why?

- Copper mining-smelting complex works in full capacity since 1903
- It is located in the town center!
- Availability of data much better than for the other CSs
- Outcome – The Bor study (epidemiological study: SENTIERI approach)
Future of the HBM in Serbia – fro AP to activities

What needs to be done: Act according to 2 mentioned documents (Roadmap & NPA):

• **Consensus** of stakeholders and decision-makers on the need, scope and type of HBM to be made

• **A set of legal acts** enabling the procedures of sampling human tissues for the purpose of HBM and defining a systemic approach to HBM

• **Capacity building**, primarily in the Network of IPHs and relevant stakeholders – it complies to the SAICM Nairobi strategy (2012) of involving health sector in sound management of chemicals in the means of exposure of vulnerable population groups to hazardous chemicals
THANKS FOR YOUR ATTENTION!