



Regional Team Meeting on Program Progress

15-16 May 2008, Becici

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Interim Technical Summary of “Hot Spot” sites, Baseline, Monitoring and other Characteristics.

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Site Visits



- Albania - Bajza 14 March 08
- Bosnia & Hercegovina – Uglevik & Tuzla 4 March 08
- Macedonia – Bucim - Lojane 23 April 08
- Montenegro – Mojkovacs 11 March 08
- Serbia – Vrbas 24 March 08
- Kosovo – Mitrovica & Artana 11 April 08

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- Regional Context of Hotspots
- Baseline
- Environmental Monitoring Standards
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Regional Context

- Pollution has no respect for borders*.
- The proximity of the Western Balkans and the connected waterways, air sheds and resources (including food) mean a pollution problem in your neighbours yard can often be a problem for you.
- Contamination moves through air, dust, water, and in agricultural products across borders.
- There is a vested interest in knowing what the problems are regionally both in making an informed decision on the risks they present and in making use of the ideas used in the region to solve such problems.



Regional Context

- The sites at Stari Trg, Artana, Lojane, Bucim and Mojkovac present a regional threat in the toxic heavy metals that can be carried through waterways, dust and contaminated agricultural products.
- Combustion pollutants (sox, nox, vocs) from Tuzla can contribute to the air pollutant load in adjoining West Balkan Countries as well as to other European air sheds.
- The pesticide and chemical stores in Bajza can threaten internationally protected sites (RAMSAR) and internationally shared waterways.
- Salt and nutrient loads from Vrbas and Ugljevik can impact on water use in neighbouring countries increasing health risks, decreasing usability and increasing treatment costs.



Regional Context

- The 'hot spot' topics are not unique to each of the countries in which they occur.
- Mining site impacts, air pollution, industrial waste water, chemical stockpiles and contaminated sites occur in each of the countries across the Western Balkans.
- The lessons learnt in each hotspot, resources used, innovations made, costings and procedures can be reused to great benefit across the region.



Baseline – what is it?

The existing site condition and human/environmental health status. That is the situation you are starting with.

- What pollution sources are impacting on the site (includes historic and ongoing emissions, chemical and waste stockpiles etc);
- What are the current contaminant types and concentrations (in air, water, soil, food and body burden);
- Reported human or environmental health impacts (cancer rates, fish and stock deaths, poor or absent vegetation);

Baseline - who has what?



- The baseline existing at the beginning of this project varies widely for each of the hotspots with some hotspots having a very good baseline and others with almost no information.
- Generally this is a function of what studies have previously been undertaken and is not a reflection on the 'team' tasked with a particular 'hotspot'.
- The level of baseline that exists does however impact on the ability to make an informed decision and to decide on what the 'next steps' and 'priorities' will be.

Baseline - Country Summary



- Albania – virtually no baseline for Bajza – no previous environmental impact or other studies. Just a record of events.
 - address gaps through preliminary site investigation and stockpile characterization.
- Bosnia Hercegovina – low to moderate baseline – industry and regional monitoring – no previous environmental impact or other studies.
 - address gaps through carrying out an environmental impact assessment and conducting targeted local air monitoring.

Baseline - Country Summary



- Macedonia – moderate to good baseline comprehensive feasibility studies carried out.
 - address gaps through document translation and targeted environmental monitoring (down stream and soil contamination from dust).
- Montenegro – moderate baseline – University feasibility study carried out.
 - address gaps through targeted environmental and performance monitoring (performance & structural integrity of cap & containment approach).

Baseline - Country Summary



- UNATSCR1244 Kosovo – good baseline – environmental impact study/literature review compilation conducted.
 - Address gaps through targeted environmental monitoring (ie cadmium, arsenic and mercury loads in water and dust).
- Serbia - good baseline – background study and treatability trials conducted.
 - Address gap through targeted premise based waste characterization and environmental monitoring.

Environmental Monitoring



Monitoring Environmental and Human Health using a contaminant concentration.

-Environmental Medium/compartment - air, water, soil, sediment, wastes, food, body burden (contaminants in the body);

-Effect – (human health) elevated blood levels, cancer clusters, respiratory illness etc other;

- (environment) degraded ecosystem. Low biodiversity and abundance. Loss of species (ie frogs, fish, birds).



Environmental Monitoring

Environmental and Human Health Standards (Local and International). What exists??

Human

- drinking water limits
- recreational water limits
- contaminated sites
- food

Agriculture

- soils
- biosolids
- fertilisers (waste derived)

Ecological

- water
- sediment
- contaminated sites
- soils

Waste

- leachate
- landfill

Environmental Monitoring

-site criteria exceedances



- Albania – Bajza - unknown
- Bosnia Hercegovina – Tuzla –air
-Ugljevik – water
- Macedonia – Bucim – water
 - Lojane – water, soil, sediment, cancer risks, wastes.

Environmental Monitoring -site exceedances



- Montenegro – Mojkovac – wastes
- Kosovo – Artana – water, soil, sediments, wastes.
 - Stari trg- water, soil, sediments, wastes, food, blood levels.
- Serbia – Vrbas – water, wastes, biosolids

Environmental Monitoring

-some hot spot results



- River Water – Metals

- Bucim – cadmium 200 times local standards
600 times inter'n stds (dw)
6000 times Inter'n stds (ecol)

- Lojane – arsenic 46 times local standards
330 times inter'n stds (dw)

- Stari trg – lead 10 times local standards (dw)
100 times inter'n stds (dw)

- Artana – lead 20 times local standards (dw)
200 times inter'n stds (dw)

Other Site Characteristics



- Albania - Bajza – the stockpiles and past pesticide storage activities are in close proximity to Lake Skadar and RAMSAR protected areas.
- Bosnia Hercegovina – the air polluting activities without filters and a low stack is within the urban core and close to sensitive users (ie health clinics).
- Macedonia – for Lojane there is extremely high concentrations of exposed 'hazardous wastes' in close proximity to residential and school areas and a total landscape level of Arsenic pollution in the area (water, soil, sediment, dust). At Bucim the river is 'blue' in colour due to high copper and metal levels.

Other Site Characteristics



- Montenegro – Mojkovacs – location of the tailings dam is actually within the river footprint.
- Kosovo – there is a landscape level of lead pollution at Mitrovica (water, soil, sediment, dust, food, blood). For Artana approx 2 million tonnes of high concentration lead tailings forming part of the river.
- Serbia – Vrbas – residents live on the banks of the polluted canal at great risk from contaminated water and impacted by severe odour. The canal contains approx 500 000m³ of 'hazardous waste' and today only has 30cm depth of freeboard.

Site Priority Actions



- Albania - Bajza – preliminary site investigation and chemical stockpile characterization and repackaging.
- Bosnia Hercegovina – undertaking an environmental impact assessment and ensure targeted environmental monitoring exists or is undertaken before and after works are conducted.
- Macedonia – urgent capping of arsenic concentrates at Lojane. Education of the community to minimise health impacts. Timely plan for treating the waste rock drainage at Bucim.



Site Priority Actions

- Montenegro – Mojkovacs – use of construction quality control approach for the cap and containment of the tailings dam. Use of performance and environmental monitoring once this is completed.
- Kosovo – priority to cap the Stari Trg tailings dam surface. Education of the community to minimize health impacts. At Artana fast track armoring of the tailings containment wall from the river.
- Serbia – Vrbas – early engagement of industry to use existing water treatment capability. Characterization of waste loads and contaminants and education of the community downstream of any identified risks.



Thank you!