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Resilient nations.*

**TAKING ACTION TOGETHER:**  
**INDUSTRIAL WASTE MANAGEMENT FOR**  
**TREPÇA ENTERPRISE**

International Conference Report

Mitrovica, 19–20 September 2011

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## BACKGROUND INFORMATION

Trepca Mining & Metallurgical Complex was once the backbone of the Kosovo economy - and mining was Kosovo's premier industry. At its peak time of operation in 1980's, Trepca provided jobs for 22'500 workers and had an average annual turnover of 100 Million USD. Today, with most processing plants closed and limited exploitation of minerals, Trepca Enterprise represents both Kosovo's greatest potential for economic recovery and, simultaneously, its greatest environmental and poverty challenges.

The heart of Trepca's former operations in northern and eastern Kosovo bears a heavy legacy of toxic waste threatening tens of thousands of men, women and children. Acidic effluents, dust emissions, unsecured workings, poorly maintained and unstable tailings are a daily hazard to those living nearby. In the most contaminated areas, local waterways are polluted, arable land spreads heavy-metal poisons into subsistence foods and the air is clogged with lung-damaging dust. The municipalities of Mitrovicë/Mitrovica and Zveçan/Zvečan are worst affected. A WHO survey of children under three years old in the Mitrovicë/Mitrovica and Zveçan/Zvečan municipalities indicated that at least a quarter had elevated levels of lead in their bloodstream (rising to 100 percent of RAE children surveyed). However, the problems range much further, into Leposaviq/Leposavić in the north and Novobërdë/Novo Brdo and Hajvali in the east.

At the same time, the Trepca enterprise is a potential lifeline for some of the poorest and most economically under-developed parts of Kosovo. Average poverty rates in Kosovo are the highest in Europe, with almost half (46 percent) of the population living under 43 EUR per month and nearly one in five in extreme poverty. It is estimated that more than one in ten people living in Mitrovicë/Mitrovica cannot meet critical needs.

Given these challenging data, the resource represented by Trepca is significant for Kosovo's future. The potential to liberate Kosovo's rich mineral resources, as well as Kosovo's abundant lignite for energy generation could catalyze considerable growth and opportunity for tens of thousands of people. In addition, consolidated action to contain this dangerous industrial waste could in itself generate jobs, revitalize communities, and bring a work-ready generation of young people out from under a cloud of poor health and stalled development.



A strategy to tackle the complex issues surrounding Trepca is, therefore, both necessary and urgent. Kosovo's future economic and social health would lean heavily on such a strategy - which by definition must address some of the worst health and general living conditions in Europe, liberate human capital, generate jobs and Gross Domestic Product (GDP) and reverse a bitter legacy of social injustice.

## SUMMARY OF THE SESSIONS

Day One – Monday 19 September, 2011

### Opening session

The Industrial Waste Management Conference for Trepca Enterprise was opened by the Deputy Prime Minister Mr. Bujar Bukoshi, by the Deputy Minister of Environment and Spatial Planning Mr. Ilir Mirena, by the Deputy Minister for Economic Development Mr. Gani Koci, Trepca General Manager Mr. Ferat Shala and by the UN Coordinator and UNDP Resident Representative in Kosovo Ms. Osnat Lubrani.

**Mr. Bujar Bukoshi** welcomed participants of the conference. He reminded that the Trepca Enterprise was the most important industrial site and the biggest employer in Kosovo; however, it has also been a major source of pollution. He recognized the need to put more efforts for environment protection and concluded that there is necessary for an action plan for coordination of activities among different stakeholders for addressing contamination resulting from Trepca and agree on a set of short, mid and long term mitigation measures.

*Photo 1.  
Conference Opening  
(from right to left):  
Mr. Ilir Mirena, Mr.  
Bujar Bukoshi, Ms.  
Osnat Lubrani, Mr.  
Gani Koci and Mr.  
Ferat Shala*

**Mrs Osnat Lubrani** in her speech said that we all share deep commitment to helping Kosovo speed up its development

in line with its European aspirations. We hear a lot about the need to grow the economy through private sector development or creation of a better regulatory environment to attract foreign investment, so that jobs can be created, particularly for Kosovo's youth. UN development agencies in Kosovo (UNKT) share that vision as well, but we stress: it's not just any development that Kosovo needs. What we need is development that is sustainable. Sustainable development is more than simply about economic growth. Sustainable development is about human beings, their health, their welfare, their right to enjoy equality, and not to be left behind. She mentioned that the concept "grow your economy first, and clean up later" is



no longer a viable option for any country - whether it is developed or developing.

Towns, such as Mitrovicë/Mitrovica, with an industrial development and pollution legacy, face complex challenges. Looking to the past, mining metallurgical sites provided economic opportunities and many jobs. Yet, this has come at a high cost to the environment and to peoples' health, hitting hardest the poor and vulnerable who lack options to move to less polluted areas. At this conference, we must consider immediate to medium term solutions, but without neglecting a long-term perspective.

We should reflect on an integrated local development strategy for the Mitrovicë/Mitrovica region that can harness this region's economic potential without sacrificing long-term sustainability. The presence here of local experts, experts from Europe, and from expert UN agencies, provides us with an opportunity to draw on creative cross-sectoral solutions that have worked. Certainly, any solution must be anchored in local knowledge of communities whose insights can help us come up with best strategies on how to support a step by step clean up of polluted areas, invest in cleaner technologies to reduce water & land contamination and air pollution, and ensure much stronger integration of environmental concerns in sectoral policies, as well as cross-border cooperation.

Many countries fear that "sustainability" equals "high costs", but are such concerns necessarily valid? Sustainability can also mean enhanced competitiveness; it can mean creating a better development model

that takes into account citizens' health, their air, water, weather, and national economic viability. It can also mean savings.

In her closing remarks Ms. Lubrani said that the conference objectives are ambitious, but doable and I expressed her confidence that a set of concrete priorities will emerge, on which all stakeholders can follow up. For its part, UNDP and the UNKKT shall look forward to contribute to immediate and longer-term actions.

**Mr. Ilir Mirena** greeted the participants and said that the conference offers a very good opportunity to come up with creative and innovative ideas and suggestions in order to find solutions for proper management of industrial waste generated by Trepca Enterprise.

**Mr Gani Koci** said Kosovo has a great potential in the area of minerals, and that mineral resources play a key role in the development of the country. The Government of Kosovo has identified mining sector as main pillar for economic revival and development. Due to bad usage of mineral resources in the past, Kosovo is facing now with a huge environmental challenge that heavily impacts human health. Ministry of Economic Development is in the final stage of drafting the Kosovo Mining Strategy.

**Mr. Ferat Shala**, recognized that this conference is a special opportunity to bring in to the attention, once again, the environmental challenges that Trepca inherited from the past and the necessity for proper addressing the environmental problems in future.

## THEME 1: State of the Environment in the Mitrovicë /Mitrovica Region Past, present and future of Trepca

Mr. Ferat Shala, the general manager of the Trepca Enterprise, gave a brief overview of the past and present situation of Trepca. He emphasized Trepca was the biggest employer in Kosovo in the past, employing around 20 000 people, and was the biggest plant and exporter in Kosovo.

Currently Trepca is under management of the Privatisation Agency of Kosovo, it employs 2 348 people of which 1 439 in South Mitrovicë/Mitrovica and 927 in North Mitrovicë/Mitrovica. Extraction of minerals has increased since 2005, when Trepca restarted its operation, as indicated in the table below. Trepca Enterprise is being consolidated and has strong potential to become financially sustainable thanks to the metal price increase/ stabilization in the global markets. However, Mr. Shala pointed out that there remains a lot to be improved in terms of staff efficiency and investments on environmentally friendly processing technologies.

Years	2005	2006	2007	2008	2009	2010	2011 (as of 1 <sup>st</sup> June)
<b>Amount of extracted mineral (t)</b>	22 027	57 531	58 963	90 817	119 754	128 054	105 599

Mr. Shala recognized that the biggest threat for environment and human health currently do represent the historical wastes that were produced and disposed close to the former mining sites, of which most significant are:

Tailing Name	Location	Statute of tailing	Area covered (ha)	Amount of waste (t)
Gornji Kmjin	Leposaviq/Leposavić	Abandoned	6.5	2 600 000
Bostaniste	Leposaviq/Leposavić	Active	8-10	3 600 000
Zhitkovac	Zvečan/Zvečan	Abandoned	26	8 500 000
Gornje Polje	Zvečan/Zvečan	Abandoned	50	12 000 000
Gornje Polje	Zvečan/Zvečan	Lead slug - abandoned	4-6	2 500 000
Zvečan	Zvečan/Zvečan	Abandoned	10 – 15	10 000 000
Kelmend	Kelmend village, Zvečan/Zvečan	Active	8-10	3 600 000
Mitrovicë/Mitrovica Industrial Park	Mitrovicë/Mitrovica	Abandoned	35	4 200 000
Staro Jalovishte		Abandoned	40	11 000 000
Badovc	Gračanicë/Gračanica	Active	18	7 700 000
Artanë	Badovc village, Gračanicë/Gračanica	Abandoned	4	1 800 000
	Novobërdë/Novo Brdo	<b>Total</b>	<b>209.5 -220.5</b>	<b>67 500 000</b>

At the end of his presentation Mr. Shala emphasized that historical contamination and current operation of Trepca shall be treated as two separate issues and that the contamination legacy shall not burden Trepca's future restructuring or privatization process.

## An overview of actual situation of the Trepca tailing ponds and the impacts on the environment

**Mr. Ali Ahmeti**, Director of the Department for Development and Environment Protection of Trepca, presented that the main industrial waste disposal sites are located in 6 municipalities: Leposaviq/Leposavić, Zvečan/Zvečan, Mitrovicë/Mitrovica, Prishtinë/Priština, Graçanicë/Gračanica and Novobërdë/Novo Brdo. Industrial wastes have caused an enormous pollution of local water ways, as they are located close to the rivers, and contribute additionally to air pollution and agricultural land contamination. Mr. Ali Ahmeti presented pictures, which shows clearly the problem of the dust emissions from existing tailings.

## Kosovo Mining Strategy and Environmental Policy

**Mr. Kemajl Zeqiri** head of the sector for Mining Strategy from the Ministry of Economic Development (MED), presented efforts made by his ministry in accomplishing the legal frame work for the mineral extractive industry. He listed out the main objectives of the Mining Strategy as follows:

1. Reforming and restructuring the mining sector in line with the European approach in order to enable a rapid and sustainable development mainly through private investments.
2. Facilitating social issues and addressing environmental issues pursuant to best practices of sustainable development.
3. Institutional development and professional capacity building of the mining sector staff, with a view in coping with the challenges of a sustainable social, environmental and economic development.
4. Full exploration of mining resources, reporting pursuant to international standards, and allocation of mineral reserves.
5. Promotion of investments for rational use of mineral resources, through application of most advanced technologies.
6. Mining sector planning and development, pursuant to European standards, in full compliance with the National Development Plan, and Municipal Development Plans.

Mr. Zeqiri in his speech supported Mr. Shala's comment to treat separately the historical contamination and Trepca's current and future operation.

## The quality of the environment in Mitrovicë/Mitrovica region after large scale mineral exploitation from Trepca Plants

**Mr. Luan Shllaku**, the director of Kosovar Civil Society Foundation KFOS, mentioned that the quality of environment in Mitrovicë/Mitrovica region is affected by physical and technological factors, such: i) density and positioning of the residential areas in the vicinity of mining, metallurgical and waste disposal sites (e.g. towns of Mitrovicë/Mitro-





*Photo 2.  
Dust emissions from  
Graçanicë/Gračanica  
tailing*

vica and Zvečan/Zvečan are surrounded by numerous mining, processing and chemical plants, and nearby the industrial waste disposal sites); ii) use of outdated technologies for processing the metals, lack of electrostatic filters to reduce the gas – dust emissions in the air and lack of treatment facilities to treat acid effluents - water existing the mines and other processing plants.

Mr. Shllaku presented data on the amount of metals released in the air in form of emission and in the water (discharge of effluents) from Trepca Enterprise during 1980's. Accordingly Trepca emitted in the air: 1 215 tons/year lead, 60 tons/year zink (from main stack only), 2 tons/year cadmium and 6 tons/year mercury, etc. Discharges of pollutants in the water were estimated to be: 150 tons/year lead, 300-900 tons/year zinc, 900 tons/year fluoride, etc. He also noted that the pollution from Trepca in terms of emissions, were much higher than both power plants Kosovo A and B.

He also noted that the data for current pollution from Trepca do not show the real figures, as the most of Trepca mining and metallurgical plants are out of operation. Therefore, when speaking about the environment impacts, we shall refer to the data of 1980's, which present more accurate data on the expected levels of pollution from Trepca in it its full capacity.

## State of the environment in the hot spots sites

The representative of the Ministry of Environment and Spatial Planning MESP, Mr. Ilir Morina, Chief Executive Officer in Kosovo Environmental Protection Agency (KEPA), informed that KEPA within its mandate has identified 110 hot spots Kosovo wide, out of which 28 have been classified as highly hazardous sites based on the potential for the environment degradation and human health. He also pointed out that management of industrial wastes requires adequate legal framework, which Kosovo lacks at the moment.

## Trepca Tailings and Trepca Mines – environmental problems – an overview of solutions

**Professor Frank Riesbeck** from the Humboldt University to Berlin, Department of Ecology and Utilization of Resources, in his presentation gave an overview of the environmental problems originating from: mining processes; acid mine drainage; concentrators; tailing ponds; classifying the Mitrovicë/Mitrovica Industrial Park (zinc metallurgy) and Zvečan/Zvečan smelter as the most critical hot spots that need high attention and immediate action. Further, he elaborated the most environmental hazards associated with the tailings impoundment, with or without restart of the work of concentrator's in Leposaviq/Leposavić, Tuneli i Parë/Prvi Tunel and Kishnicë/Kisnica. The main impacts are as follows:

- contamination of groundwater beneath of the impoundment by metals leaching from the tailings,
- contamination of sediments and surface water from tailings materials eroding from the faces of the tailings impoundments and from the contaminated groundwater discharged to the surface,
- contamination of air by dust blown from the tailings during high wind events during dry weather periods,
- contamination of agricultural soil by deposition of suspended dust from tailings impoundments,
- contamination of residential yards, public streets & squares by deposition of suspended dust from tailings impoundments.

He also presented schematically some of the best practices for rehabilitation/ re-cultivation of the tailing ponds according to the German experience.

Prof. Frank Riesbeck referred to the importance of the mining and metallurgical industry for Kosovo economic revival and development. He noted that mining industry in Germany was a key industry for the post-war reconstruction and development, the mining industry was in Norway during the last 60 years the key industry for growing country prosperity and that the mining industry is still under state control, mines and energy sector are main pillars for economic development for most of European and Asian countries, and are still under state ownership e.g.: Sweden, Finland, France, Turkey, China, Russia, etc. As such, the mining industry in Kosovo, he suggested, shall continue to be owned by the state, however, the whole mining sector, particularly Trepca mining complex, shall be reformed and restructured. The legislation framework related to the mining industry shall be accomplished and aligned with EU respective directives, reforms and restructuring shall be implemented and the role of state shall be clearly defined in the mining sector. Any reform or restructuring process that would take place shall necessarily address the environmental, social and economical development aspects.

## Hot Spot Remediation (Experience) and State of Environment in the Mitrovicë/Mitrovica Industrial Park

Mr. Jiri Kubricht, project manager of the Czech Company Dekonta, elaborated applicable procedures for rehabilitation of the tailing impoundment in the Czech Republic and his company experience in conducting the Environmental Impact Assessment Impact Assessment in Mitrovicë/Mitrovica Industrial Park. He added that final conclusions and recommendations for the remediation/corrective measures were described in the final report of the EIA, and handed over to local stakeholders.

## THEME 2:

### Trepca mining/ metallurgical activities and the impacts on human health

### Impact of environmental lead contamination in human health in Mitrovicë/Mitrovica region

Dr. Dorit Nitzan from WHO explained that whenever we speak about industrial waste, lead is used as an indicator of pollution. She emphasized that children are the most vulnerable group to be exposed to lead contamination, because of their absorption potential when compared with the adults. Fraction of absorption is 40% in children vs. 10% in adults. Main symptoms of lead poisoning are; low IQ, abdominal pain and protracted growth. Lead poisoning is usually chronic or sub-acute. Acute poisoning is now quite rare in most countries, but may still occur, after massive exposure. In most industrialized countries, where lead poisoning is usually mild-moderate and chronic, poisoned children are identified by screening blood lead level BLL and not by their clinical manifestations.

In Mitrovicë/Mitrovica region, the most critical situation is within RAE community due to the vicinity of location where they live in and the social obstacles to reach medical care. Dr. Nitzan emphasized that the National Institute for Public Health in Prishtinë/Priština and its unit in Mitrovicë/Mitrovica have capacities and equipment to measure lead levels in blood, while no other country in the region has such capacities.

### Urban and peri-urban agriculture as a pathway for the human uptake of heavy metal pollutants

Mrs. Dorothy Sanders presented her research study which she conducted in 2010 in the Mitrovicë/Mitrovica region. In her study she analyzed absorption of heavy metals in edible crops from soil + predictive transfer models and soil-plant-uptake pathway and human health risks. The analyzed heavy metals in the study were: As, Cd, Cu, Ni, Pb, Sb, Zn. The study covered the area of around 160 km<sup>2</sup>.

Accumulation of heavy metal pollutants in agricultural soils and food crops due to mining and smelting activities is a major human health concern worldwide; being in particular the case with Trepca mining and smelting complex in Mitrovicë/Mitrovica region, which has seriously contaminated the environment and poses high risk for human health. Based on the study the surface soils were heavily polluted, with only 2% of samples falling below natural geochemical levels. Lead (Pb) poses the most serious risk among the heavy metals in the soil, with 76 % of soil samples exceeding background lev-

els and 42 % exceeding international maximum tolerable limits<sup>1</sup>. The concentrations of heavy metals in crops were found to be highly variable depending on vegetable type, and exceeded international maximum tolerable limits for Pb in 64 % of measured specimens. Human health risk via food chain transfers decreased in the order Pb > Zn > Cd > Cu, with the greatest risks posed through consumption of legume vegetables.



Figure 1.  
Uptake pathway  
'soil-plant-human'  
of heavy metals

Contamination of the heavy metals can occur through a number of pathways, including food chain transfer, ingestion of windblown dusts, and direct ingestion of soil. Results of the study clearly show that by selecting particular vegetables it is possible to reduce the risk of human exposure to soil heavy metal contamination through the food chain. According to the environmental and health risk assessments conducted for staple dietary vegetables in this study, the main finding was that beans contains most highly elevated levels in excess of maximum limits for heavy metals in food, and are high accumulators of Pb, Zn, Cd, and to some extent Cu. In addition, carrot, lettuce, onion, pepper, potato, and tomato are all identified as high Pb-accumulators, in particular lettuce, and potato is identified as a relatively high Cd-accumulator. Therefore, it is strongly recommended that the local population in the region of Mitrovicë/Mitrovica should avoid eating the vegetables above, especially beans, in order to reduce serious heavy metal related health risks. An urgent need for a comprehensive full-scale assessment of the population's exposure to heavy metals is needed. In addition programs for agricultural soil remediation are also to be implemented.

<sup>1</sup> Environmental risk from heavy metals in soil decreased in the order Pb > Zn > As > Ni > Cd, with Cu and Sb posing minimal risk

## THEME 3:

Mitigation strategies - international best practices for remediation and economical development

### Reoccurring risks at tailings ponds, main contamination pathways, required risk reduction measures

Mr. Pier Carlo Sandei from UNEP gave some basic explanations of the terminology of the tailings & types of tailing dams, including design parameters that have to be considered during the tailing dam construction for safe storage of discarded material, monitoring, risk assessment and emergency preparedness.

He pointed out that bad water management around the tailing dam or tailings is, most frequently, the main reason for tailing dam collapse. In such cases accidents occur due to overflowing of dams during heavy rains, erosion of dam via groundwater and surface runoff entering the dam area.



*Photo 3.  
Tailing dam  
collapse in  
Hungary 2010.*

## Remediation activities at eight hot spot locations in the Western Balkans

Following the conference, Mr. Stewart Williams invited the participants to watch a video that was prepared by UNDP as part of the Hot Spot Project implemented through 2007-2010. Video was focusing on eight hotspots location showing and comparing the situation before and after rehabilitation of the hotspot sites in Albania (Bajca), Bosnia Hercegovina (Tuzla), Macedonia (Bucim and Vrapciste), Montenegro (Mojkovac), Kosovo (Trepca/Artana Mine and Stantërg/Stari Trg) and Serbia (Vrbas City).

## ENVSEC Initiatives related to the industrial waste management

Mr. Laura Rio from the ENVironment SECurity Initiative (ENVSEC) informed the participants that this Initiative is a partnership of the United Nations Development Programme (UNDP), the United Nations Environment Programme (UNEP), the Organization for Security and Cooperation in Europe (OSCE), the United Nations Economic Commission for Europe (UNECE), the Regional Environment Center for Central and Eastern Europe (REC) and the North Atlantic Treaty Organization (NATO).

ENVSEC initiative is active in South Eastern Europe, Caucasus and Central Asia. In the Western Balkans, ENVSEC, amongst other priorities, seeks to promote the reduction of environmental and human health risks resulting from substandard mining operations by improving regional cooperation for risk management in pollution hotspots as well as the transboundary management of shared natural resources.

In the Balkans, ENVSEC has four major focus areas. These are: i) Mining; ii) Trans-boundary protected areas management; iii) Regional cooperation and iv) Adaptation to climate change. Through the ENVSEC funds currently is being financed a feasibility study for treatment of acidic water from the mine in Novobërdë/ Novo Brdo.

ENVSEC looks forward to being part of the Working Group to take the results of the Trepca Conference forward and present projects and plans to donors active in Kosovo. ENVSEC can help mobilize resources, continue support for studies and assessments and to build upon when prioritizing activities, including supporting regional workshops, it can also mobilize experts and support with other international organizations follow up intervention to improving environmental health and safety in Trepca.

## Tailing pond remediation concepts in South-eastern Europe, Examples from Kosovo, Serbia, Montenegro, Romania and Germany

Mr. Nikolaus Linder, Fichtner Mining & Environment GmbH, gave some examples of his company involvement in Kosovo, and rehabilitation of tailing sites and acid mine water treatments in Montenegro – Mine in Mojkovac, in Serbia – mine in Bor, Romania – mine in Baia de Arieş and example from Germany – Pöhla mine.



*Photo 3.  
Full scale acid mine  
water treatment in Germany  
– Pöbla Wetland*

### List of priorities in the field of re-cultivation of contaminated sites and industrial waste management of Trepca Enterprise

Professor Frank Riesbeck, Humboldt University to Berlin in his second presentation elaborated the need for a comprehensive planning process that should be conducted to reduce the contamination of water, soil and air resulting from decade long Trepca operations. Immediate actions are also needed to guarantee safe working conditions in the plants and mining sites, as well as cooperation with the farmers of the area to investigate the agricultural land contamination.

The most urgent interventions, based on his previous site visits are listed as follows:

- Tailings in Mitrovicë/Mitrovica Industrial Park in Mitrovicë/Mitrovica
- Acid mine water in Artana mining site
- Tailings in Kishnicë/Kisnica and Graçanicë/Gračanica
- Tailings of Lead Metallurgy in Zveçan/Zvečan
- Tailings of Kelmendi from Tuneli i Parë/Prvi Tunel, Mitrovicë/Mitrovica
- Tailings from flotation units in Leposaviq/Leposavić.

Beside the remediation/ re-cultivation of the tailings sites, there are other institutional and administrative measures required, such:

- Process for restructuring of mining industry in Kosovo is necessary, having prioritized Trepca Mining Complex at the top
- Full implementation of Law on Mines and other secondary legislation
- Implementation of Mining Strategy 2010-2025
- Draft new Law on Waste for Extractive Industry (implementation of EU Directive 2006/21/EU)
- Draft new Law or regulation for the historical waste generated by extractive industry, regulation for contaminated sites and old deposits.

In parallel to these measures, Kosovo Institutions shall pay attention to the social situation in the region, by involving the un-employed and former mine workers in the rehabilitation and reclamation projects.

## UNDP/UNEP mine site interventions on Western Balkans

**Mr. Stewart Williams** the Chief Technical Advisor of a regional Programme Unit – UNDP Montenegro elaborated on the interventions that took place as part of the initiative to ‘Strengthen Capacities of Western Balkan Countries to Address Environmental Problems through remediation of high priority hot spots’. As part of this initiative there were rehabilitated following sites:

Country	Location	Problem	Intervention	Costs (USD)
<b>Albania</b>	Repsh	Tailing dam	Restoring dam Integrity	190 000
	Rrëshen	Tailing dam	Restoring dam Integrity	220 000
<b>Montenegro</b>	Mojkovac	Tailing dam	Tailing stabilization	1 200 000
<b>Kosovo</b>	Kelmend village, Zvečan/ Zvečan	Tailing dam	Partial capping and contain	200 000
	Novobërdë/ Novo Brdo	Uncontained tailings (T2)	Temporary Containment and capping	270 000
		Uncontained tailings (T1)	Temporary Containment	190 000
Kishnicë/ Kishnica	Reprocessing tailings	Recovery of lead and zinc	na	
<b>FYR Macedonia</b>	Bucim	Acid Mine Drainage	Capture and contain	601 000
		Dust Reduction	Re-vegetation and mist sprays	205 000
		Copper Recovery	Copper recovery from AMD	na
	Lojane	Mining/Process Waste	Cap and Contain	240 000

## Short-, mid- and long- term remediation measures, a presentation of a project proposals

**Ms. Nezakete Hakaj**, Head of the Division for Environment Protection, MESP in her presentation presented the list of measures that need to be implemented to mitigate the environment degradation and human health impacts. The interventions are ordered in four main groups of measures: i) treatment of water exiting from mines; ii) rehabilitation of the tailings sites; iii) rehabilitation of the agricultural land and iv) awareness campaigns. Under each main group there are proposed concrete actions that are elaborated in the following table:



No.	Location	Intervention description	Priority	Cost (Euro)
i	Artana	<ul style="list-style-type: none"> <li>Construction of treatment plant for acid mine water in Artana mine</li> </ul>	Very high	~ 300 000
	Tuneli i parë	<ul style="list-style-type: none"> <li>Feasibility study to assess the treatment requirements (active or passive treatment)</li> <li>Construction of treatment plant for mine water discharged from flotation unit in Tuneli i Parë/Prvi Tunel</li> </ul>	Low	~ 15 000 ~ 300 000
ii	Mitrovica Industrial Park Mitrovica	Rehabilitation of MIP tailings <ul style="list-style-type: none"> <li>Cleaning river bed and banks of the Sitnica River and construction of division wall along the industrial wastes and river</li> <li>Capping the industrial wastes at MIP (area 35 ha, amount)</li> <li>Installation of drainage pipe to collect leached water from waste material and transport to the existing acid water treatment plant</li> </ul>	Very high	~ 2 000 000 ~ 1 000 000 ~ 700 000
	Kelmendi tailing dam	<ul style="list-style-type: none"> <li>Further capping and re-vegetation of the Kelmendi tailing pond</li> </ul>	High	~ 650 000
	Zvecan Metallurgical sites and lead slugs	Remediation and capping the Gornje Polje and Zitkovac tailings <ul style="list-style-type: none"> <li>Cleaning the river bed and river banks from the industrial wastes, including construction of division walls between the tailing pond and the Iber River to prevent further transport of waste material, incl. capping with fresh layer of soil</li> </ul>	High	~ 6 800 000
	Gračanica tailings	Further rehabilitation of Gračanice /Gračanica tailing pond <ul style="list-style-type: none"> <li>Capping and re-vegetation of the Gračanice/Gračanica tailing</li> </ul>	High	~ 300 000
	Artana Mine	Capping of the tailings in Artana (T2)	Medium	
	Mitrovica region	Rehabilitation of agricultural land and public areas in the Mitrovicë/Mitrovica region <ul style="list-style-type: none"> <li>Conduct research to assess the contamination of the agricultural land and delineation of the contamination</li> <li>Undertake remediation measures to replace the first top layer of the soil (15-25 cm) of agricultural land, residential areas and public places</li> </ul>	Very high	~ 450 000 ~7 500 000 – 10 000 000
iv	Kosovo wide	Awareness campaigns to promote healthier practices in the contaminated areas.	Very high	500 000

Ms. Nezakete Hakaj elaborated that rehabilitation of tailings, cleaning the residential and public areas; rehabilitation of agricultural land would contribute to better life of the people in the affected region, will reduce the environmental and human health threats, would enhance cross border cooperation and finally would raise the attention for new investment.

## Summary of the Conference

At the end of the conference the key stakeholders MESP, MED, Municipality of Mitrovicë/Mitrovica, Trepca Enterprise and UNDP Kosovo agreed to establish a working group tasked to summarize the conclusions and recommendations from the conference and preparing and prioritizing the interventions that need to be implemented as part of short- and long term strategy for solution of the industrial waste problem.



## Summary of Recommendations from the Conference on Management of Industrial Waste for Trepca Enterprise

### Objective of the Conference

The main objectives of the conference for management of industrial waste for Trepca Enterprise held on 19.-20.09.2011 in Mitrovicë/Mitrovica were:

- Understanding the environmental and human health impacts from the industrial wastes generated by Trepca Enterprise
- Exchange of knowledge and experience from local and international speakers for rehabilitation/ re-cultivation of industrial waste disposal sites

- Reach consensus on a common action plan and establishing formal coordination structure consisting of development actors, institutions and industry to address the priorities and follow up jointly on different initiatives related to industrial wastes
- Better coordination and understanding of stakeholder's plans and activities, including validation of a set of immediate and long term interventions.

## Accomplishment of legal framework covering the mining sector

Kosovo institutions shall make all efforts to draft, adopt and implement necessary legislation related to the mining sector. Most urgent steps to be undertaken are:

- Drafting and adoption of the Law on Management of Waste from Extractive Industries (the law shall be fully in line with the European Directive 2006/21/EC)
- Adoption and implementation of the Kosovo Mining Strategy 2010 - 2025
- Implementation of Law on Mines and Minerals

In addition to that, a comprehensive strategy for restructuring of Trepca Enterprise is necessary.

## Historical contamination and Trepca's current operation

All speakers acknowledged that Trepca Mining Industry was the backbone of Kosovo economy and its mineral resources represent the biggest potential for future economic development of Kosovo. Therefore, the historical contamination and current operation of Trepca shall be treated separately. The industrial waste generated in the past shall not be burden for Trepca's future restructuring process.

## Harmonization of existing data related to the industrial waste

Stakeholders shall coordinate among themselves to harmonize the existing data related to industrial waste. Consolidated data shall include information on:

- Total amount of the industrial waste disposed in each industrial waste disposal site, being active and passive (not in use),
- Amount (concentration) of heavy metals in the industrial waste (for each industrial waste disposal site)
- Status and condition of the industrial waste disposal sites (active and passive)
- Interventions/ rehabilitation works implemented in the past and involved parties

## Promotion of the concept for sustainable development

Concepts 'Rational Use of Natural Resources' and 'Sustainable Development' shall be embedded in the National Strategy for Economic Development. The concept "grow your economy first, and clean up later" is an out dated concept, and no longer a viable option.

## Action Plan and prioritization of the interventions for rehabilitation of industrial waste disposal sites

Action plan with measures for rehabilitation of industrial waste disposal sites shall be developed. In the following table are summarized interventions that are prioritized and validated by local stakeholders. Brief description for each intervention, priority for implementation and rough cost estimation for each proposal are included.

### Proposals for Clean-up Activities proposed during the Conference on Industrial Waste Management for Trepca Enterprise

#	Activity description
<b>I. IMMEDIATE INTERVENTIONS</b>	
<b>1</b>	<p><b>FEASIBILITY STUDY ON TAILINGS</b></p> <p>Several studies have been undertaken by different agencies and research institutes during the last decade concerning the industrial waste resulting from Trepca Mining and Metallurgical Complex. However, there is diversity of data available related to the concentration of metals in the industrial waste, related to the amount of wastes in the tailing ponds, whether re-processing of the industrial wastes is an option and for which tailings. The study shall obtain basic data on the industrial wastes that will be used as basis for planning and design phase, will give an expert opinion on whether re-processing is an option and for which wastes, and finally will elaborate the best option for remediation for each tailing pond. The study shall focus on all active and abandoned tailing ponds aiming at defining following parameters:</p> <ul style="list-style-type: none"> <li>- chemical composition of industrial wastes (concentration of heavy metals)</li> <li>- amount and the area covered by industrial waste material (waste material disposed in each tailing pond)</li> <li>- give recommendations on whether and which industrial waste does have still economic value and may be further re-processed</li> <li>- propose the way for rehabilitation of the tailing ponds, considering specific site requirements.</li> </ul> <p><b>Priority:</b> Very High</p> <p>This study would contribute to have a consolidated and reliable data that is pre-condition for development of proposals for rehabilitation and for implementation of civil works.</p> <p><b>Budget:</b> Total budget for this activity is estimated between <b>250 000 – 350 000 Euro.</b></p>

2

## CONSTRUCTION OF ACID MINE DRAINAGE (AMD) TREATMENT PLANT AT ARTANA MINING SITE



*Photo: Acid water discharge into the river in Novobërdë/ Novo Brdo*

The Mining Site of Novobërdë/Novo Brdo is located in eastern Kosovo, and it is an integral part of the Trepca Complex. This mining site has been identified as one of the most complex environmental hotspots in the region for two reasons:

- i) the industrial waste containing high concentration of heavy metals is disposed in the adjacent water ways; and
- ii) the acidic effluents existing the mine (containing high concentration of heavy metals) are discharged directly to the river Kriva Reka without any previous treatment. Kriva Reka river is directly impacting the drinking water supply of the downstream town of Kamenicë/Kamenica (town with 13 000 – 15 000 inhabitants). The two tailing ponds were rehabilitated through Government of Netherlands financial support and implemented by UNDP (2007-2010). As regard to Acid Mine Drainage (AMD) currently the Feasibility Study for the treatment of AMD is being developed. The objective of the study is to give a clear expert analysis, recommendations, indicative costs (operational and construction), overall performance of AMD treatment plant (i.e. removal efficiencies) and general design for pilot treatment systems.

### **Interventions required**

Prepare final design for rehabilitation + implementation of civil works:

- i) Construction of treatment plant for acid water exiting the mine (active or passive treatment).

**Priority of Intervention:** Very High

**Budget:** Total budget for this activity is estimated to **300 000 Euro**.

### **Studies conducted:**

1. MONTEC (2007), Final Report: Environmental assessment and Remedial Action Plan (EARAP): Stan Trg/Stari Trg and Artana/Novo Brdo Mines, Kosovo, UNDP Kosovo, Environmental Assessment and Remedial Action Plan (EARAP): Stanterg/Stari Trg and Artana/Novo Brdo Mines Project.

### 3 REHABILITATION OF MITROVICĚ/MITROVICA INDUSTRIAL PARK (MIP)



*Photo. MIP Area*

reaMIP represents the most severe contamination source for the environment and eco-system in Mitrovicë/Mitrovica municipality. Industrial wastes are disposed close to the banks of Sitnica river, in vicinity to the main town hospital and within the residential area. MIP wastes contaminate water, air and agricultural land throughout the Mitrovicë/Mitrovica region.

Therefore, urgent interventions are needed to mitigate negative impacts to the human health and further environment degradation. Transboundary impacts are as well important, as the Sitnica river is tributary to the Iber river (which flows to Serbia) and directly impacting drinking water supply of the downstream users.

#### **Interventions required**

Prepare final design for rehabilitation + implementation of civil works within MIP area, which includes:

- i) Cleaning the river bed and river banks, including construction of division/retention/containment wall between the contaminated dump site and the river to prevent further spillage/seepage of contaminated waste material and run-off to the river
- ii) Capping and containing of the industrial wastes based on the best international practices and vegetation (approx. area of ~35 Ha). Thickness of top soil layer of minimum 40 cm shall be placed over the contaminated area.
- iii) Construction of Ø800mm waste water pipes for main line sewage on both sides of the river. This is to support the future municipal development plan for a waste water treatment plant with the capacity to serve over 200,000 inhabitants.
- iv) Construction of underground electrification (underground ducts/cables) on both sides of the river, for illumination of the future municipal green park/area.
- v) Construction of public lights alongside entire length (with solar power) on both sides of the river.
- vi) Installation of drainage pipe to collect the acid effluents along the division wall and transport the acid effluents to the existing acid water treatment plant (existing plant within the Trepca Complex – Mitrovicë/Mitrovica Industrial Park).

#### **Priority of Intervention:** Very High

The interventions at the MIP will contribute to create conditions for alternative use of the area. The geographical positioning of the MIP is highly practical and offers a high potential for the development of different business and recreational activities or any other purpose (solar panel installation, etc.).

**Budget:** Total budget for this intervention is estimated at **3 000 000 - 3 700 000 Euro**.

#### **Studies conducted:**

1. Consulting services for Environmental Assessment and Remedial Action Plan for Mitrovicë/Mitrovica Industrial Park, Kosovo, Dekonta Company 2010.
2. Humboldt - Universitat zu Berlin (2005), Ecological and Economical Assessment of Environmental Problems After Restarting the Lead Zinc Mining Process in the Trepca Mines Complex and the Connected Post-Refining Industrial Processes, Trepca Kosovo Under UNMIK Administration, Trepca Mines Feasibility Study Project.

## II. MID- AND LONG TERM REMEDIATION MEASURES

4

### FURTHER CAPPING AND RE-VEGETATION OF KELMENDI TAILING DAM



To date, the main crest of the dam site has been capped and contained through the funding by Government of Netherlands, and implemented by UNDP. However, there is still considerable area behind and at the front of the crest that also needs to be addressed. Studies conducted by various actors such as the UNDP, WHO, KFOR, CDC and UNICEF on the Mitrovicë/Mitrovica area identify tailings from dams as the predominant source of lead dust in the area, which, over time, has adversely affected the health of the local population. The blood lead levels of the children sampled in the area are reported to be 40% above the levels deemed safe by the WHO.

Therefore, urgent interventions are needed to mitigate negative impacts to the human health and further environment degradation.

#### **Interventions required**

Prepare final design for rehabilitation + implementation of civil works at the Kelmendi Tailing Dam area, which includes following:

- a. Geo-mechanical investigations to confirm the stability of the tailing dam, considering the steepness of the disposed wastes.
- b. Capping and containment of the area behind and at the front of the crest based on the best international experiences and vegetation (approx. area of tailing dam ~8 Ha). Thickness of top fresh soil of 40 cm shall be put over the industrial waste.
- c. Proper water management upstream the tailing dam, re-arrangement and installation of new drainage system, if needed, to evacuate the water from the pond (lake). Measures for securing the pond area to prevent access for the children and animals are as well necessary.

**Priority of Intervention:** Very High

**Budget:** Total budget for this intervention is estimated at **550 000 – 650 000 Euro**.

#### **Studies conducted:**

1. MONTEC (2007), Final Report: Environmental assessment and Remedial Action Plan (EARAP): Stan Trg/Stari Trg and Novobërdë/Novo Brdo Mines, Kosovo, UNDP Kosovo, Environmental Assessment and Remedial Action Plan (EARAP): Stanterg/Stari Trg and Novobërdë/Novo Brdo Mines Project.
2. Golder Associates (2004), Reactivation and Final Closure Plan Preparation Tuneli i Parë /Prvi Tunel (Zarkov Potok) Tailings Dam, Kosovo, Trepca Kosovo Under UNMIK Administration.

**5 REMEDIATION/ CAPPING OF THE GORNJE POLJE AND ZITKOVAC TAILING PONDS**



*Photo: Zink metallurgical plant and industrial wastes (lead slug)*

The Zitkovac tailing pond is located northwest of Zvečan/Zvečan and close to the Ibar River. Of greater concern is the Gornje Polje tailing area on the northern bank of Ibar and close to Zvečan/Zvečan and Mitrovicë/Mitrovica. The area is not only close to the river but, in addition, a creek flows directly through the area separating the tailing into two parts. Although partly vegetated, the area is a source of dust and water contamination, mainly through erosion. Both tailings are covering an area of more than 80 ha, and the total industrial waste material disposed is estimated to approximately 22 million of tons

**Interventions required**

Prepare final design for rehabilitation + implementation of civil works at the Gornje Polje and Zitkovac Tailing Dam areas, which includes following:

- i) Cleaning the river bed and river banks from the industrial wastes, including construction of division wall between the tailing pond and the river to prevent further transport of waste material and run-off to the river.
- i) Capping and containment of the area (approx. area of ~80 Ha) based on best international experiences and vegetation of the area. Thickness of top soil layer of 40 cm shall be put above the buried industrial wastes.

**Priority of Intervention:** Very High

**Budget:** Total budget for implementation of the civil works for Zitkovac tailing pond is estimated to **2 300 000 Euro**, while remediation of the Gornje Polje tailing pond is estimated to **4 500 000 Euro**, which in total is around **6 800 000 Euro**.

**Studies conducted:**

1. Environmental geochemistry of soils of the Mitrovicë/Mitrovica region (Northern Kosovo), Università di Siena Dipartimento di Scienze Ambientali Sezione di Geochimica Ambientale, 2004
2. Environmental Management in Kosovo: Heavy metal emissions from Trepca, 2003/2004



6	<p><b>SECOND PHASE FOR RE-VEGETATION AT GRAČANICĚ/GRAČANICA TAILING POND</b></p> <p>This tailing is very close to Gračanicë/Gračanica, and is a source of dust in dry periods. It is also close to the Gračanicë/Gračanica stream, which may destabilize the waste material through erosion. To date, Swedish International Development &amp; Cooperation Agency (SIDA) has conducted an environmental assessment and performed some site remediation works, consisting of tailing stabilization, containment and minor reshaping of the slopes and covering the perimeter with 30 cm of soil. However, additional rehabilitation measures are needed to avoid.</p> <p><b>Interventions required</b></p> <p>Prepare final design for rehabilitation + implementation of civil works at the Kelmendi Tailing Dam area, which includes following:</p> <ul style="list-style-type: none"> <li>i) Containment and capping of the area, including vegetation.</li> </ul> <p><b>Priority of Intervention:</b> High</p> <p><b>Budget:</b> Total budget for this intervention is estimated at <b>300 000 Euro</b>.</p> <p><b>Studies conducted:</b></p> <p>1. Rydergren A., and Montelius M. (2004), Environmental Remediation at Padock Tailings Area, Gračanicë/Gračanica, Kosovo, SIDA Evaluations, SIDA.</p>
7	<p><b>CAPPING THE TAILING POND T2 AT ARTANA/ NOVOBERDE MINING SITE</b></p> <p>The Mining Site of Novobërdë/Novo Brdo is located in eastern Kosovo, and it is an integral part of the Trepca Complex. This mining site has been identified as one of the most complex environmental hotspots in the region for two reasons: i) the industrial waste containing high concentration of heavy metals disposed in the adjacent water ways; and ii) the acidic effluents existing the mine (containing high concentration of heavy metals) are discharged directly to the river Kriva Reka without any previous treatment. Kriva Reka river is directly impacting the drinking water supply of the downstream town of Kamenicë/Kamenica (town with 13 000 – 15 000 inhabitants). The two tailing ponds were rehabilitated through Government of Netherlands financial support and implemented by UNDP (2007-2010). However, there is still a need for further remediation measures to contain the tailing ponds and capping the bigger tailing (T2).</p> <p><b>Interventions required</b></p> <p>Prepare final design for rehabilitation + implementation of following civil works:</p> <ul style="list-style-type: none"> <li>i) Spraying the industrial waste with lime solution and capping of the industrial wastes with fresh layer of soil – thickness of 40 cm, including planting grass (only for the T2 tailing pond).</li> </ul> <p><b>Priority of Intervention:</b> Medium</p> <p><b>Budget:</b> Total budget for activity is estimated at <b>450 000 Euro</b>.</p> <p><b>Studies conducted:</b></p> <p>1. MONTEC (2007), Final Report: Environmental assessment and Remedial Action Plan (EARAP): Stan Trg/Stari Trg and Artana Mines, Kosovo, UNDP Kosovo, Environmental Assessment and Remedial Action Plan (EARAP): Stantërg/Stari Trg and Artana Mines Project.</p>

### III. AGRICULTURAL LAND REHABILITATION

#### 7 REHABILITATION OF AGRICULTURAL LAND AND PUBLIC AREAS IN MITROVICË/MITROVICA REGION

Atmospheric emissions from metallurgical plants constitute the principal source of heavy metal soil pollution, with airborne particulate and gaseous pollutants released during ore-processing as a consequence of wind and water transportation of unprotected waste tailings. Surface soils represent a major sink for heavy metals, and agricultural areas in urban and peri-urban areas are particularly susceptible to retention of a large proportion of these pollutants. Depending on the ability of a species to uptake heavy metals, plants growing in soils with elevated heavy metal concentrations accumulate pollutants in various concentrations in their edible parts. Entering the human food chain via crops or through groundwater leaching, these pollutants may then accumulate in poisonous concentrations which can seriously endanger human health. 'Trepca Mining Complex' in northern Kosovo, namely the Zvečan/Zvečan Pb-Zn Smelter and Mitrovicë/Mitrovica Industrial Park (MIP) have caused serious long-term contamination of the surrounding environment in a wide area starting from Vushtrri/Vučitrn up to Leposaviq/Leposavić.

#### **Interventions required**

The interventions required as part of this activity are:

- i) Conduct a research on the spatial distribution of the heavy metals in the soil, including analyze of bioaccumulation factor and absorption of heavy metals by different crops, vegetables and fruits, human uptake of heavy metals by the food chain. At the end the research shall elaborate the human health effects and measures to avoid the uptake of heavy metals. The research shall cover the areas of the municipalities of Vushtrri/Vučitrn, Mitrovicë/Mitrovica, Zvečan/Zvečan, and Leposaviq/Leposavić. In addition, the research shall recommend measures and the way how to rehabilitate the contaminated surface areas (residential areas and agricultural land).
- ii) Rehabilitation of the residential areas and agricultural land. As stated by different researchers the arable land in Mitrovicë/Mitrovica region spreads heavy-metal poisons into subsistence foods. Rehabilitation of residential public spaces and agricultural land consisting of removal the first top layer of soil and replacing it with fresh un-contaminated soil is a way to prevent uptake of heavy metals by human being.

**Priority of Intervention:** Very High

**Budget:** Total budget for intervention i) is estimated at **400 000 – 450 000 Euro**, while for the intervention ii) is estimated at **7 000 000 – 8 500 000 Euro**.

#### **Studies conducted:**

1. Ministero Dell'ambiente E Della Tutela Del Territorio, and Università Di Siena (2005), Final Report: Environmental Geochemistry of Soils of the Mitrovicë/Mitrovica Region (Northern Kosovo) and Mapping of Soil Pollution of Mitrovicë/Mitrovica Region for Different Metals.
2. Dorothy Sanders (2010), Urban and peri-urban agriculture as a way for human uptake of heavy metal pollutants, Trepca Mine Complex, Mitrovicë/Mitrovica, Kosovo.

#### IV. AWARENESS CAMPAIGNS

7	<p>Along with the implementation of rehabilitation works aiming at reducing and mitigating the direct risks arising from the industrial wastes, as a supporting action to the above works and activities it is planned to conduct a public awareness raising campaign highlighting the negative impacts that past mining activities are having on human and environmental health and the actions that community can take in reducing the effects on their health and in engaging in the decision making process.</p> <p>The Public awareness raising activities should be designed so as to be inclusive in having the general public, local and other government, industry, medical practitioners and all level of education involved in considering and responding to the problem in an agreed manner. The awareness campaign shall involve media (national written and spoken) in promoting the environment protection and environmental friendly behaviours, organizing public debates and discussing environmental healthy lifestyles, etc.</p> <p><b>Priority of Intervention:</b> Very High</p> <p><b>Budget:</b> Total budget for awareness raising campaign is estimated to <b>500 000 Euro</b>.</p>
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The action plan shall also include a strategy for communication with donors, either by meeting individually or by organizing a roundtable.

Proposed interventions shall be included in the Kosovo Environmental Action Plan 2011-2015 for fundraising purposes.

## ANNEX 1 – AGENDA

### Conference on Industrial Waste Management for Trepca Enterprise

Day 1: Monday, 19th September 2011.

Venue: Mitrovicë/Mitrovica, Restaurant KRAPI

Day 1

<b>9:00</b>	<b>Registration of participants</b>
<b>9:30</b>	<b>Welcoming to participants</b> Mr. Dardan Gashi, Minister – Ministry of Environment and Spatial Planning Ms. Osnat Lubrani, UN Coordinator and UNDP Resident Representative Mr. Besim Beqaj, Minister – Ministry of Economic Development Mr. Ferid Agani, Minister – Ministry of Health Mr. Avni Kastrati, Mayor of Mitrovicë/Mitrovica Municipality Mr. Ferat Shala, Managing Director of Trepca Enterprise
<b>Theme 1: State of the Environment in Mitrovicë/Mitrovica Region</b>	
<b>10:00</b>	<b>Documentary on Trepca Enterprise and Current Situation of Trepca</b> Mr. Ferat Shala, Managing Director of Trepca Enterprise
<b>10:20</b>	<b>An overview of actual situation of the Trepca tailing ponds and the impacts on the environment</b> Mr. Ali Ahmeti, Environment Department Trepca
<b>10:30</b>	<b>Kosovo Mining Strategy and Environmental Policy</b> Mr. Kemajl Zeqiri, Ministry of Economic Development (Strategy Department)
<b>10:45</b>	<b>The quality of the environment in Mitrovicë/Mitrovica region due to large scale mineral exploitation from Trepca plants</b> Mr. Luan Shllaku, Executive Director KFOS
<b>11:05</b>	<b>State of the environment in the hot spots sites</b> Mr. Ilir Morina, Head of Kosovo Environmental Protection Agency - Ministry of Environment and Spatial Planning
<b>11:25</b>	<b>Trepca Tailings and Trepca Mines – environmental problems - an overview of solutions</b> Dr. Habil Frank Riesbeck, Humboldt University to Berlin, Department of Ecology and Utilization of Resources
<b>11:25–11:45</b>	<b>Coffee break</b>
<b>11:45</b>	<b>Hotspot remediation – Czech experience (legislation adoption, examples of remediation in Czech Republic) and state of environment in Mitrovicë/Mitrovica Industrial Park</b> Mr. Jiří Kubricht, Project Manager Dekonta Company
<b>12:05</b>	<b>Questions and debate</b> (the main sources of contamination; tailing ponds and impact to the environment, contamination of water, air and land in the urban zones located nearby the tailing ponds)

<b>13:25 – 14:40</b>	<b>Lunch Break</b>
<b>Theme 2: (Past and present) Trepca mining/ metallurgical activities and the impacts on human health</b>	
<b>14:40</b>	<b>Impact of environmental lead contamination in human health in Mitrovicë/Mitrovica region</b> Dr. Dorit Nitzan, WHO
<b>15:00</b>	<b>Urban and peri-urban agriculture as a pathway for the human uptake of heavy metal pollutants</b> Ms. Dorothy Sanders, BSc. Durham University
<b>15:20</b>	<b>Reoccurring risks at tailings ponds (Hungary example), main contamination pathways, required risk reduction measures</b> Ms. Christina Stuhlberger – Mr. Pier Carlo Sandei, UNEP
<b>15:35 – 16:20</b>	<b>Questions and debate</b> (mining activities and human health, examination and delivery of health care in Kosovo for the patients identified with high level of heavy metals in blood, agriculture as pathway for heavy metal uptake)
<b>16:20 – 16:30</b>	<b>Coffee break</b>
<b>Theme 3: Mitigation strategies - international best practices for remediation and economical development</b>	
<b>16:30</b>	<b>Short Documentary and Remediation activities at 8 hot spot locations in the Western Balkans</b> Mr. Stewart Williams, UNDP – UNEP Technical Advisor
<b>17:05</b>	<b>ENVSEC Initiatives related to the industrial waste management</b> Mr. Laura Rio, ENVSEC / UNEP Vienna
<b>18:00</b>	<b>Visit to the Trepca Museum of Minerals in Stanterg/ Stari Terg</b>

9:15	<b>Welcoming for participants</b> Moderator
09:30	<b>Tailing pond remediation concepts in South-eastern Europe, Examples from Kosovo, Montenegro and Romania</b> Mr. Nikolaus Linder, Fichtner Mining & Environment GmbH (FME)
09:45	<b>List of priorities in the field of re-cultivation of contaminated sites and industrial waste management of Trepca Mining Complex</b> Dr. Habil Frank Riesbeck, Humboldt University to Berlin, Department of Ecology and Utilization of Resources
10:10	<b>Rehabilitation of Mining and Metallurgical wastes: Good practices in rehabilitation</b> Mr. Pier Carlo Sandei - UNEP
10:30	<b>Presentation of project proposals addressing short-, mid- and long- term remediation measures</b> Ms. Nezakete Hakaj, Head of the Division for Environment Protection, MESP
10:50 – 11:05	<b>Coffee break</b>
11:05 – 12:05	<b>Questions and debate</b> (environment degradation and human health, international best practices of remediation and linkages with economical development; what are the immediate mitigation strategies to protect further environmental degradation)
12:05 – 12:45	<b>Short summary about the results of the conference and follow up actions</b> Mr. Dardan Gashi, Minister – Ministry of Environment and Spatial Planning (to confirm) Mr. Besim Beqaj, Minister of Economic Development
12:45	<b>Final Closure</b> Mr. Mr. Avni Kastrati – Mitrovicë/Mitrovica Municipal Mayor Mr. Ferat Shala, Managing Director of Trepca Enterprise
13:00	<b>Lunch</b>

## ANNEX 2 – LIST OF PARTICIPANTS

Organisation	Name	Position
Kosovo Government	Bujar Bukoshi	Kosovo Deputy Prime-minister
Kosovo Government	Ilir Mirena	Deputy Minister of MESP
MESP	Nezakete Hakaj	Head of the division for environment protection
MESP	Gazmend Avdiu	Advisor for communication with media
MESP	Ilir Morina	CEO of KEPA
MESP	Naim Alidema	officer
MESP	Gani Koci	Deputy Minister of MED
MED	Besim Veselaj	
MED	Kemajl Zeqiri	Head of mining strategy
MED	Nehat Rrahimi	Officer
MED	Skender Sallahi	Head of division
MED	Ferit Maliqi	Head of sector
MED	Adnan Preniqi	
MED	Dukagjin Shala	Head of department
MED	Rizah Haziri	Deputy mayor
Mitrovicë/Mitrovica Municipality	Gani Rrustemi	Director of directorate
Mitrovicë/Mitrovica Municipality	Xhekllal Shabani	Director of directorate
Mitrovicë/Mitrovica Municipality	Agron Sulejmani	Inspector
Mitrovicë/Mitrovica Municipality	Irfan Peci	Officer
UNDP	Osnat Lubrani	UN Coordinator and UNDP RR
UNDP	Steliana Nedera	DRR
UNDP	Abedin Azizi	Programme Analyst
UNDP	Nora Sahatciu	
UNDP	Armend Muji	Head of communication
UNDP	Burbuqe Dobranja	Communication officer
UNDP	Arbnora Gojani-Mazreku	Assisstant to RR/DRR
UNDP	Stewart Williams	Chief Technical Advisor
UNOPS	Afrim Cejku	Programme Officer
WHO	Skender Syla	Head of Mission
WHO	Dorit Nitzan	
UNICEF	Agron gashi	
IKSHP	Nysret Ymeri	
UNFPA	Doina Bologa	CTA

Austrian Embassy- Austrian Chamber of Economy	Vjosa Huruglica	
UN-Habitat	Krystina Galezia	CTA
UN-Habitat	Fadil Dalipi	Spatial Planner
UN-Habitat	Drita Nushi	Spatial Planner
UNEP	Pier Carlo Sandei	Programme Associate
ENVSEC	Laura Rio	Programme Coordinator
RDA	Fatos Raifi	Executive Director
JICA	Yumi Yasuda	Coordinator
JICA	Arberore Riza	
EC	Gazmend Selimi	
Parliamentary commis- sion for environment	Nait Hasani	Chair of the commission
Parliamentary commis- sion for environment	Sevdije Lama	
Parliamentary commis- sion for environment	Nijazi Idrizi	
FXM	Izet Zeqiri	Rector
FXM	Shyqeri Kelmendi	Lecturer
FXM	Alush Musaj	Deputy rector
OEK Mitrovice	Rrustem Abiti	
German Embassy	Matias Kiesler	Deputy head of mission
British Embassy	Jan Cliff	H.E. Ambassador
British Embassy	Nemanja Jovanovic	
ACC Prishtinë/Priština	Shkelzen Beqiri	CEO
Humboldt University of Berlin	Frank Riesbeck	Lecturer
Fichtner Mining	Nikolaus Linder	Geologist
Dekonta Company	Jiri Kubricht	Project Manager
Durham University	Dorothy Sanders	Researcher
Finish Embassy	Vesa Kotilainen	First Secretary, Development Cooperation
Trepca Enterprise	Ferat Shala	Managing Director
Trepca Enterprise	Ali Ahmeti	Director of the Department for Develop- ment and Environmental Protection
Trepca Enterprise	Halil Qela	Deputy manager
Trepca Enterprise	Besmir Sadiku	IT Specialist
Trepca Enterprise	Myftar Hyseni	Chief of division
Trepca Enterprise	Beqir Maliqi	Director
Trepca Entreprsie	Bislim Muqa	
Trepca Enterprise	Milaim Sadiku	
Trepca Enterprise	Bajram Mustafa	
Trepca Enterprise	Selim Frangu	Director of mine in Artana mine
NGO Eko Trepca	Ramadan S. Uka	Ex. director



NGO Eko Trepca	Eshref Misini	Member
REC	Zeqir Veselaj	Director – Kosovo Office
REC	Avdullah Nishori	Coordinator
ICMM	Ibush Januzi	
ICMM	Azem Rexhaj	Director
NGO IADK	Zenel Bunjaku	Director
Poseidon Group	Bekim Kastrati	Mining exp.
Poseidon Group	Mathew Hurley	CEO
Poseidon Group	Burim Thaqi	HD
Poseidon Group	Dominic Roserb	COO
Moser Group – Austrian PORR	Senad Ramaj	