



## **Strengthening capacities in the Western Balkans countries to address environmental problems through remediation of high priority hot spots**

UNDP Country Offices in Albania, Bosnia and Herzegovina, Macedonia FYR, Montenegro, Serbia and UN Administered Province of Kosovo will develop a regional demonstration programme around demand driven projects in nine locations in the Western Balkans suffering from the legacy of polluting industries and requiring industrial renewal, environmental cleanup and new economic initiative. The approach of the 30 months, approximately 15 million USD programme is to achieve improvement of environmental situation and quality of life for citizens living in and around polluted areas through least cost measures, improved local and national policy dialogue and supply of domestic professional services in the environmental management sector. While the main focus will be the physical works needed to mitigate the ecological problems, institutional strengthening and capacity building will be an important subject running throughout the programme.

September 2007

## **SUMMARY**

### **A. INTRODUCTION AND CONTEXT**

Environmental issues have not been amongst the top national priorities in the Western Balkans. Understandably, priorities to date have focused on the reforms needed to strengthen security, to rebuild the economy and to improve general living conditions. As a result, much-needed investment in environmental infrastructure such as wastewater treatment, air-pollution abatement and monitoring, and industrial and communal waste management are still waiting their turn. Clearly, this is a situation that raises humanitarian, social, economic and environmental concerns.

In addition, a number of industrial towns and regions face a complex challenge of past industrial development and pollution legacy. The environmental situation in these hot spots is a direct cause of poor health and related poverty and presents a major barrier to future investments and related economic opportunities for the local population. On one hand they face the requirements for environmental clean up and on the other they are struggling with problems of poverty, lack of infrastructure and services and lack of prospects for the young generations.

Because of the proximity and geographic connectedness of the Balkans, the ongoing or potential pollution from these hot spots has a significant cross border impact on air and water quality (rivers, lakes and the sea). The situation is often further complicated by uncoordinated or even conflicting plans and demands of various sectors of government, business and society. Success in cleaning up these locations and addressing environmental problems will attract new investments from inhabitants themselves, private sector, banks, donors etc.

Against this background, the UNDP Country Offices in Albania, Bosnia and Herzegovina, Macedonia FYR, Montenegro, Serbia and UN Administered Province of Kosovo have developed a regional programme around demand driven projects in selected locations in the Western Balkans suffering from the legacy of polluting industries and requiring industrial renewal, and environmental cleanup. The approach of the 30 months, approximately 15 million USD programme is to achieve improvement of environmental situation and quality of life for citizens living in and around polluted areas through least cost measures, improved local and national policy dialogue and supply of domestic professional services in the environmental sector.

### **B. INTERVENTION STRATEGY**

The Programme *“Strengthening capacities in the Western Balkan countries to address environmental problems through remediation of high priority hot spots”* will focus on environmental clean up and remediation of polluted industrial hot spots that have already been identified as high priority but have seen limited progress so far due to complexity of issues and the costs involved. The programme will contribute to the achievement of the following overall objectives in the region:

- Increase capacity of the national and local governments in the Western Balkan to implement sustainable environmental policies in accordance with EU standards.
- Strengthen regional co-operation in the Western Balkan to solve problems of cross border contamination due to industrial and mining activities.

The concrete project objectives are:

- Secure progress in clean-up of nine priority physical sites raise awareness and strengthen capacity for good environmental management at local and national level,
- Enhanced regional co-operation through improved information sharing progress and supply of professional consultancy services regarding good environmental management

The planned targets for the programme are:

- Planned clean-up works in nine hot spots locations completed, in accordance with technical specifications, thus contributing to reduction of existing/potential pollution
- Memorandum of Understanding/Cost Sharing Agreements for hot spots signed by municipal authorities and local stakeholder groups;
- Assessment Reports with follow-up measures prepared
- 70% of the total value of the clean-up contract awarded to local company or institution
- 2 workshops/trainings/seminars per year organized
- TV clip prepared and at least three newspaper articles published on the project
- 3 Pilot projects of policy integration implemented promoting sustainable environmental management
- 3 training courses/ seminars/ workshops per year organized
- Market survey of domestic experts from business or NGO sector conducted
- Database of qualified local experts established
- 1 Regional high level/ministerial meeting per year organized promoting cooperation and information sharing between governments in the Region
- 1 study tour per year organized for stakeholders in the Region
- All programme activities effectively coordinated and implemented

Overall, the programme itself will be organised in three components:

### **COMPONENT 1: Clean-up projects**

This will be the main component of the programme and is formed around environmental remediation work in high priority hot spots in the region.

The hot spot sites were selected during the programme preparation phase from among those already identified by the ENVSEC initiative or national authorities through National Environmental Action Plans as top priority hot spots. Local authorities and/or site owners at the potential project sites were invited to submit information detailing:

- Description of the current situation including environmental, social and economic aspects
- Summary of past activities (if any) and their evaluation
- Indicative activities under this programme with cost estimates<sup>1</sup>
- Secured or potential matching funds
- Willingness of the authority and other stakeholder to actively participate in the programme and disseminate its results.

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<sup>1</sup> Ideally derived from available relevant technical documentation and studies.

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Based on the interest expressed (in form of letters of commitment), particular hot spots were selected in each participating country/territory through consultation between the UNDP, relevant national authorities, local Netherlands's Embassies, and the civil society. The criteria used for selection were as following:

- 1) Trans-boundary effects of the hotspots
- 2) The possibility to attract other donor funding
- 3) The possibility to establish partnerships, including public-private partnerships
- 4) Readiness of local authorities and relevant stakeholders to take leadership in the sustainable environmental management of their community<sup>2</sup>

Based on these criteria the following hot spot locations were selected for intervention under this programme:

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<sup>2</sup> Including availability of relevant technical documentation, researches, studies, etc.

**Table 1: Hotspots Clean-up interventions (Pilot projects) agreed during consultation process 2006-2007**

Country	Project no. & location/name	Main intervention(s) - Environment/ Civil Engineering and/or other Works	Exemplary relevance of this particular intervention
Albania	1- Shkoder Municipality: Stockpile of toxic chemicals at Bajza railway station	<i>Evacuation</i> of toxic materials; <i>monitoring</i> of remaining soil pollution and ongoing down stream water pollution.	Demonstration of long term effects and required continuing attention and responsive actions, even after removal of initial damaging hotspot.
Bosnia and Herzegovina	2- Ugljevik: Open-pit coal mine and thermo power plant	<i>Re-construction</i> of the wastewater treatment plant (de-mineralization/de-carbonation processes, discharges remediation); <i>monitoring</i> of the achieved levels of reduction of pollution.	Demonstration of levels of reduction of local water pollution obtainable with moderate investment.
	3- Tuzla Municipality: Thermo power plants within urban core	Closing down of (1) larger and (1) smaller heat production plant creating serious in-town air and water pollution by <i>connecting the users</i> (both important health centers) <i>to a significantly less polluting energy source</i> (district heating system); <i>monitoring</i> of local air and water pollution.	Demonstration of air and water pollution reduction levels obtainable by modernizing of urban energy supply system.
Macedonia	4- Radovis Municipality: Bucim re-opened copper mine	<i>Construction</i> of (i) mine and waste rock dump drainage and other waste water collection and treatment system, (ii) re-vegetation of tailings and (iii) fugitive dust control system installation (whereas Mine Owner will clean-up Bucim Lake sediments); <i>monitoring</i> of reduction of water and air pollution levels.	Demonstration of air and water pollution reduction by undertaking effective clean up measures, developing water collection and treatment systems and also control and monitoring mechanisms.
	5- Lojane Municipality: Re-opened mine and Chromium & Antimony Beneficiation Plant	<i>Construction</i> of a capping system; <i>monitoring</i> of reduction of local air pollution level.	Demonstration of air pollution reduction affecting a primary school (Lipkovo) nearby the plant's tailings dump
Montenegro	6- Mojkovac: Abandoned metal mining complex	<i>Construction</i> of main sewer for wastewaters from Mojkovac; <i>monitoring</i> of discharging water from the tailing impoundment to river Tara.	Demonstration of water pollution reduction and successful rehabilitation and remediation of an <i>abandoned</i> mining operations
Serbia	7- Kula and Vrbas Municipalities in Vojvodina Province	<i>Construction</i> of main water collector connecting private industry and the local municipality. <i>Monitoring</i> of both (i) industrial waste water released and treated (before discharge to surface waters) and (ii) remaining water pollution level (if possible reduction-level) in Grand Canal.	Demonstration of effect of the contribution of collection and treatment of waste water from specific (private sector) industries on <i>overall quality of affected surface waters</i> ; awareness raising on implementation of the ' <i>polluter-pays-principle</i> ' in <i>public-private sector interaction</i> .
Kosovo	8- Mitrovica: re-opened lead-zinc mine (Stari Trg)	<i>Construction</i> of a drainage system to divert surface runoff from the catchments area around the tailings pond; <i>spraying</i> of dust suppressants on the dry tailings beaches and on the dam area as a temporary emergency measure to improve the air quality for the residents living in the vicinity of the tailings pond. <i>Monitoring</i> of remaining water and air	Demonstration of (i) improved tailings water management and (ii) water treatment at the site and (iii) reduced air pollution by minimizing the generation of toxic tailings dust.

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		pollution levels (ideally the reduction in pollution levels should also be measured—possible only if monitoring methods and equipment before and after the intervention are compatible)	
	9- Novoverde: re-opened lead-zinc mine (Artana)	<i>Relocation</i> of the smaller tailings pond to the larger tailings pond; <i>Construction</i> of erosion protection of the tailings pond; <i>Monitoring</i> of remaining pollution.	Demonstration of reduction of the contamination source. Demonstration of priority setting in accordance with budget available concentrating in emergency measures in order to mitigate the impact on people and environment.

Note: Where *monitoring* of reduction of water and air pollution levels are not yet firmly and unambiguously articulated in the present project descriptions (Annexes 2-7) this shall be added in the envisaged Inception period (October-December 2007)

Five of the nine pilot or demonstration projects (no's 4, 5, 6, 8 and 9) are *mining hotspots*, most of them also identified as highest priority clean-up candidates by the EnvSec<sup>3</sup> (Initiative) desk study and proposal on environmental security risk reduction from mining.

One of these five (Mojkovac/ Montenegro) concerns *abandoned* mining operations, and four (Bucim and Lojane/Macedonia and 2 x Trepca/Kosovo) are addressing *re-opened* mining and minerals processing activities.

Two projects, both in Bosnia and Herzegovina, are concerned with changing the local energy supply system for a particular user group (two health clinics) at the municipal level in order to close down two heavy polluting plants for the (public health) benefit of its own urban population<sup>4</sup>.

One project (the Kula-Vrbas section of the Danube-Tisa-Danube or Grand Canal/Serbia) addresses just one component of a multi-year, large investment (more than USD 50 million) Water Resources Rehabilitation; without such prior rehabilitation a desirable level of integrated WR Management can never be achieved.

One project (Shkoder/Albania) addresses the issue of a relatively simple hotspot—careless storage of a mix of toxic chemicals and other materials—with possibly long lasting negative effects on a very valuable (Ramsar-listed) ecologic system.

Altogether, this package is believed to represent a good 'cross section' of the hotspot problems in the 'six nations' region, each calling for their tailor-made corrective actions—or at least a first step in the right direction.

The establishment of a water and/or air pollution *monitoring* regime and system—a fundamental responsibility of the hotspot 'owner'—is a common requirement for all pilot or demonstration projects, albeit one that is to be elaborated in a project-specific manner. In the absence of a ('minimal') water and/or air pollution *monitoring* regime and system, it would not be possible to assess the effectiveness of the concerned clean-up activity.

For each hot spot an action plan will be developed and agreed at the Steering Committee based on environmental assessments and technical proposals for remediation works. Project funds will be provided to each site in accordance with the needs identified in the action plan, contribution of own resources and absorption capacity, ranging from 1.1 –1.6 million USD. The target overall matching funds from the hotspot site owners for each location is up to 50 % (in actual work or cash), which constituted a criterion for selection of location in the first place.

The 'National Commitments Matrix' provided in the table bellow represents the 'Logical Framework' for the 'ownership' of the hotspots by the respective countries/territory. In this sense, it represents a most important Management Tool for the Programme/projects' implementation. As soon as there will be 'breach of commitment' in any of the criteria 1-4, this is a moment to 'call to order' the concerned Focal point (column 5). Such 'Loss of commitment' might lead to 'disqualification' of the concerned parties and immediate termination of this intervention.

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<sup>3</sup> Environmental Security Initiative

<sup>4</sup> This intervention can be compared with one—on a much larger scale—to KEK energy supply in Kosovo, also supported by the Netherlands Regional Environmental Program for the Western Balkan.

**Table 2: The 'National Commitments Matrix'**

Hot Spot Location	Criteria				
	1. Defined as National Priority?	2. Location Ownership Clearly Defined?	3. Matching Funds Committed?	4. Has the EIA been conducted?	5. Focal Point in the Ministry?
<b>Bajza - Albania</b>	Yes The Government Programme for 2005-2009 has identified rehabilitation of "hotspots" as a priority. The priority is also mentioned in the National Environment Strategy	Yes State ownership	Yes 600.000 Euro (cash and in kind)	No	Yes Mr. Pellumb Abeshi, Secretary General, Ministry of Environment, Forest and Water Administration.
<b>Tuzla - BiH</b>	Yes Development Strategy of Tuzla Municipality until year 2015 & Tuzla Local Environmental Action Plan (LEAP)	Yes The pipelines are 100% ownership of the Tuzla Municipality. The owners are Cantonal hospital of Tuzla and Ministry of Health	Yes Combined (cash and in kind) - by Municipality of Tuzla, Clinical Center of Tuzla and TuzlaCanton	No	Yes Mr. Mehmed Cero, Assistant Minister, Federal Ministry of Environment and Tourism
<b>Ugljevik - BiH</b>	Yes Ugljevik Local Environmental Action Plan (LEAP)	Yes Private, Coal Mine and Thermal power plant „Ugljevik“, joint stock company –Ugljevik, BiH	Yes Combined (cash and in kind) - by the Company and by the Municipality of Ugljevik	No	Yes Minister Rajko Ubiparip Ministry of Industry, Energy and Development of Republika Srpska,
<b>Bucim - Macedonia</b>	Yes National Environmental Action Plan (2006) and National Plan for Waste Management (2005)	Yes In 2005 the Mine was bought by Romtrade Ltd., which later was transformed into Solway Industries Ltd, registered in Macedonia as a domestic company with a foreign capital	Yes Total 725,000 Euro; 430,000 Euro in Cash and 295,000 In-kind provided by Bucim	Yes Environmental Impact Assessment Study for Bucim, Faculty of Mining and Geology, Stip, 2006	Yes Mr. Mile Jakimovski, Director of the Environment Office, MoEPP

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<b>Lojane - Macedonia</b>	Yes National Environmental Action Plan (2006) and National Plan for Waste Management (2005)	Yes In January 2007 the Government of Macedonia issued concession to Farmakom MB Zajaca, Serbia. In Macedonia Farmakom MB is registered as a domestic company with foreign capital	Yes 1,000,000 MKD cash - Ministry of Environment and Physical Planning	No The Concessionaire has an obligation to prepare an EIA before starting the operations and the Ministry of Environment is following up on this issue.	Yes Mr. Mile Jakimovski, Director of the Environment Office, MoEPP
<b>Mojkovac - Montenegro</b>	Yes Conclusion from the Government session in 2003 based on which Government committed resources and prepared the full Technical Design Project named Remediation and recultivation of the Mojkovac lead and zinc tailings mine impoundment. This project was prepared by faculty of Civil Engineering Podgorica and associated institutions in 2004.	Yes Municipality ownership	Yes Government committed 1.45 million for 2007 and contracted a company for hot spot remediation activities	Yes EIA has been conducted as part of the Technical Design Project "Remediation and recultivation of the Mojkovac lead and zinc tailings mine impoundment".	Yes Mrs. Milena Zivkovic, Advisor to the Minister of tourism and environment protection and Mr. Ilija Radovic as focal point for the hot spot Mojkovac
<b>Vrbas - Serbia</b>	Yes Yes, Identified in draft National Environmental Strategy. Tasks force created within the Ministry for Environment	Yes Multiple stakeholders. Public Utility "Vode Vojvodine" is in charge of the canal.	Yes Combined (cash and in kind) from Municipal budget, Provincial Fund for Capital Investments and Public water utility, private sector.	Yes EIA has been conducted for the Central Vaste water Treatment Plant	Yes Mr. Dusan Pajkic, Assistant Minister, Head of the Task force

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<b>Trepca ( Stari Trg) - UN Administered Province of Kosovo</b>	Yes Stan Trg - in the Kosovo Environmental Action Plan 2006-2010	No Under administration of the Kosovo Trust Agency, who together with the government fully supports this project	Yes In kind, as well as cash from Ministry of Energy and Mining	Yes Under the Environmental Assessment and Remedial Action Plan (EARAP) - UNDP Project 2006-2007.	Yes Mrs. Nezakete Hakaj, Ministry of Environment and Spatial Planning
<b>Trepca (Artana) - UN Administered Province of Kosovo</b>	Yes Artana - in the Kosovo Environmental Action Plan 2006-2010	No Under administration of the Kosovo Trust Agency, who together with the government fully supports this project	Yes In kind, as well as cash from Ministry of Energy and Mining	Yes Under the Environmental Assessment and Remedial Action Plan (EARAP) - UNDP Project 2006-2007.	Yes Mrs. Nezakete Hakaj, Ministry of Environment and Spatial Planning

The implementation of all nine action plans clean up projects will be launched in the first 6 months of the programme implementation and finished within the second year in order to allow for evaluation and dissemination of results.

In order to achieve broader dissemination and public awareness raising in and among the countries, a documentary will be commissioned for each hot spot, describing the initial situation, project efforts and achieved results. The documentaries will be commissioned to production teams that are able to secure cost sharing in the production. These documentaries will be made available to all TV networks in the region and internationally in the final phase of the project.

The link will be established with trained journalist in area on sustainable development, to encourage them to report on project activities.

## **COMPONENT 2: Demonstration and information sharing**

This component will aim: a) to promote the necessity for countries to move from legislation to implementation in protecting environment and managing natural resources<sup>5</sup> b) offer “low hanging fruits”, i.e. demonstrate concrete results of benefits of good environmental management to local communities through concrete demonstration projects. It will involve (mostly through workshops/trainings/meetings/media campaigns...) the relevant institutions of national government for environmental management and sustainable development, including environmental ministries, but also core ‘economic’ ministries such as finance, industry and labour, public institutions (Hydro Metrological and Eco Toxicological Institutes) and civil society (networks of NGOs, Chambers of Commerce).

The specific examples of the clean-up projects will be used as case studies to provide an assessment of the environmental management policies and practices at the national and the local level in each country. This assessment will also include a functional analysis of the specific mechanisms for this purpose in each country. The assessment will be made by the project team in consultation with a wide group of stakeholders including government ministries, regional and local authorities, NGOs, private sector and international donors. The results of the study will focus on existing good practices, problems, existing bottlenecks and opportunities for improvement.

Once the clean up projects reach the stage of implementation, they will be used as case studies for good environmental governance (primarily at the local level). In this regard, several pilot projects will be launched with the aim to serve as “low hanging fruits”, i.e. demonstrate concrete results of benefits of environmental management to local communities. Possible initiatives to be implemented include: strengthen the local governments, in terms of human resources and their capacity to develop and implement local environmental policies and investment projects; participatory development of local plans and programmes such as physical or urban plans, regional development plans, management plans, specific infrastructure projects etc. Local NGOs/civil society organisations/ Experts associations will be partnered to implement these activities selected through an open competition (call for proposals).

The project will support free access to information and environmental data collection in each country/territory<sup>6</sup>. The successful implementation of clean up projects (with all the data available

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<sup>5</sup> Although most environmental legislation is in place, implementation has been slow and therefore progress in protecting the environment and managing natural resources is not yet evident throughout the region.

<sup>6</sup> There are still institutions that fail or refuse to share and provide full access to environmental information. Therefore the project will promote environmental data collection and free access to information to enable the countries and territories to adopt, implement and enforce policies and legislation in an effective and efficient manner.

in internet) and good practice examples are expected to provide an important contribution in further developing free access to information mechanisms in a way compatible with the national and local instruments.

Specific activities will be organised with the aim of supporting resumption of regional cooperation. The main objective will be to promote (and advocate for) sectoral integration as an important element in the EU SAP/Accession process. In this regard, three Regional Meetings on sustainable environmental management will be organized involving national integration frameworks and relevant line ministries.

### **COMPONENT 3: Strengthen supply of professional consultancy services**

In order to efficiently meet its objectives and secure sustainability and multiplication of its results, the implementation of the programme will be based on the involvement of domestic/regional professionals (individuals, private sector and public institutions) in project demonstration activities at the local (hot-spot) and national (policy analysis) level.

In the beginning of the project a market survey will be conducted of domestic experts from business or NGO sector already working in the field of policy development and implementation, with particular emphasis on those with experience related to environmental management and Sustainable Development. CVs of potential experts will be collected and presented in a database.

This roster will serve to efficiently identify, select and contract experts for specific assignments under the various project activities. The roster will also be made available to local/national authorities for use in their own procurement procedures, but also to other donors and private sector.

### **Relationship between component 1 and components 2 and 3:**

The 'exemplary relevance' of each of the selected and agreed projects, summarized in the most right column of table 1, provides an important link to *component 2: Demonstration and Information sharing*. Not only the 'inputs', i.e. the rationale of the (9) individual interventions, summarized in the middle column of table 1, are to be shared among all interested stakeholders in the Region, but also what these will achieve (the *measured* effects)—because this is what should convince the concerned parties (Central Government/ Ministry of Environment-Ministry of Energy-Ministry of Industry-Ministry of Economy-etc, Autonomous Provinces, Municipalities, private and public sector entrepreneurs) to ultimately assume their legal responsibilities.

The 'policy integration' mechanisms would emphasize the Environmental Impact Assessment (EIA) as the primary instrument or tool to be applied properly—and respected—by all concerned parties listed above. So, the *Demonstration and Information sharing* activities, both at the National and the Regional level, are probably best articulated through dealing—in training and workshops—with all 'ins and outs' of EIAs within the 'thematic' range of the 9 pilot schemes.

Furthermore, Environmental Impact Assessments (EIAs) undertaken so far, say since the year 2000, in all six countries, offer perhaps the most concrete and practical reference for taking stock of currently available regional expertise, applying a simple check list, e.g.

- Does the Ministry (or Department) of Environment (Protection) have a Department/Section dealing with the (legally required?) EIA studies?
- What is the level of education/training/experience specifically focused on EIA studies (approximating EU standards) of this particular staff?

- Is there a complete list of EIA studies of certain (to be specified) size and complexity (e.g. excluding simple 'Building Permit'-like exercises) in each of the countries, since the year 2000—a 'short-list' of most relevant EIA studies per country.
- Is there a list of all key experts from the 'six nations' region, that were substantially involved (e.g. explicitly mentioned as co-authors) in these more sizeable and complex EIA studies.
- Then an experienced, independent expert prepares a 'Quality Assessment' of the short-listed EIA studies (package of all six countries)—a desk exercise, resulting in a (quality) Ranking and a 'cut-off point' of just acceptable quality.
- Prepare a short-list of (only) those key experts from the 'six nations' region, that were substantially involved in these EIAs that passed the quality-threshold—and request the complete CVs (Resumés) from these experts in order to verify and to understand the full expertise of this group of experts.

Adopting this 'logic' of relationship between components 1, 2 and 3 will also facilitate a more concrete specification of both the main tasks (job content) and the required skills and experience of the key project staff, i.e.

- Regional Programme Manager (RPM)
- Chief Technical Advisor (CTA)
- National Project Coordinator (NPC).

The project team will be organised with Project Implementation Unit (PIU) based in Podgorica, Montenegro and national coordinators in UNDP office in each country/territory. This is because UNDP Montenegro is designated as UNDP sub regional (Western Balkans) environmental focal point, its available expertise and established regional network, as well as because it is geographically the most appropriate coordination point in the region. The Chief Technical Advisor will be part of the PIU, based in UNDP Montenegro with frequent travel in the region and will provide high level policy advise to the programme and country/territory activities.

The programme, throughout regional activities, will strongly promote the necessity of regional network. This is because of the necessity to increase regional communication and exchange of experience among experts and civil servants. In addition, supply of development services and related multiplication of best practices will be increased through networking among national institutions, local communities and environmental governance practitioners in the region.

### **C. MANAGEMENT ARRANGEMENTS**

During the entire programme implementation UNDP will maintain and develop their partnership with countries participating in the programme. In the Programme preparation phase the matching funds from UNEP Regional Office for Europe is secured as well as their technical expertise/support. UNESCO's "green diplomacy" network will be utilised during the project implementation. Discussions with EU/EAR local offices and World Bank are undergoing and expected to yield commitment in complementary programmes of significant value. Matching funds for each clean up project would be up to 50 % of invested project resources.

UNDP Country Offices in Albania, Bosnia and Herzegovina, Macedonia FYR, Montenegro, Serbia and UN Administered Province of Kosovo will implement the project. UNDP Country Office in Montenegro will serve as the coordinating office for the project.

Management Board: is responsible for making by consensus management decisions for the overall programme (using among others a management tool called PRINCE2 that UNDP applies worldwide). The Board consists of the UNDP Montenegro Resident Representative and one high

level government representative (Deputy Minister/State Secretary Level or Focal Point, refer to Table 2) from each participating country/territory, with the Regional Environmental Sector Specialist from the Netherlands Embassy in Belgrade attending as an observer. The Management Board may meet (physically) once a year, at a suitable time, e.g. as a side event of one of the Regional (high level) Workshops, and furthermore interact by e-mail, e.g. at the times of substantial Technical reporting (early 2008, end 2008, end 2009, as indicated in the Reporting time schedule later in this document), to be initiated by the UNDP Montenegro Resident Representative.

Advisory Board: the major function of the Advisory Board is to support the project—the Regional Programme Manager and Chief Technical Advisor in particular—primarily on technical and quality assurance matters. The Advisory Board will consist of two selected Regional experts and one or two selected International Experts who will interact with the Regional Programme Manager and Chief Technical Advisor primarily by e-mail exchanges.

Regional Programme Manager: under the direct supervision of the respective RR s/he heads the Programme Implementation Unit, coordinates day-to-day managements and operational aspects of the Programme and coordinates with the Senior managers in the participating UNDP country/territory offices to ensure efficient programme implementation.

National Project Coordinators: will be responsible for day-to-day operational aspects of Programme activities envisaged in each country and they will communicate and coordinate with programme associates. They will be based in UNDP Country Offices in Albania, Bosnia and Herzegovina, Macedonia FYR, Montenegro, Serbia and UN Administered Province of Kosovo.

Chief Technical Advisor: will be based in UNDP Montenegro with very frequent travel in the region and will provide (i) state of the art technical advice and (ii) associated policy advice to the programme and its activities. S/he will provide guidance and advice to the Regional Programme Manager and work with Programme Associates and National Coordinators on identifying the best methods to ensure that the programme achieves maximum impact, in accordance with European and international best practice, towards the outcome defined in the Strategic Results Framework, and towards the objectives defined in the Programme document.

The purpose of monitoring and evaluation will be to monitor progress towards the key outputs, identify, in good time, where improvements are necessary to enable the programme to achieve its objectives, and to make preliminary assessments about potential programme adjustments or further training needs of the target groups. The following mechanism will apply:

Within the annual cycle:

- Quarterly progress reports shall be submitted by the Programme Manager to the Management Board circulated through Advisory Board, using the standard report format available in Atlas; there will be (4) additional narrative reports required by the Donor, articulating also technical details and as indicated in the Reporting time schedule later in this document but these may be accommodated within the Atlas standard report formats used.
- An Issue Log shall be activated in Atlas and updated by the National Coordinators, under supervision of Programme Manager, to facilitate tracking and resolution of potential problems or requests for change.
- A risk log shall be activated in Atlas and regularly updated (quarterly) by the National Project Coordinators, under supervision of Regional Programme Manager, reviewing the external environment that may affect the programme implementation.
- A project Lesson-learned log shall be activated and regularly updated by the National Coordinators, under supervision of Regional Programme Manager, to ensure on-going

- learning and adaptation within the programme, and to facilitate the preparation of the Lessons-learned Report at the end of the programme.
- A Communication and Monitoring Plan shall be activated in Atlas and updated to track key management actions/events.
- A quality log shall record progress towards the completion of activities, using the Atlas Activity Definition page.

Annually:

Twice a year programme review will be conducted during the programme life time as a basis for assessing the performance of the programme. In the last year, this review will be a final assessment. This review will involve all key project stakeholders and the Implementing Partner, and focus on the extent to which progress is being made towards outputs, and that these remain aligned to appropriate outcomes. The review will be structured by a set of common standards, and will be subject to spot external quality assurance assessments.

#### **D. BUDGET SUMMARY**

**Table 3: Budget summary**

	<b>Description</b>		<b>Total (USD)</b>
1	PROGRAMME MANAGEMENT		478.760
2	NATIONAL ACTIVITIES		
2.1	Albania		2,118.840
2.2	Bosnia and Herzegovina		2,118.840
2.3	Macedonia		2,118.840
2.4	Montenegro		2,118.840
2.5	Serbia		2,118.840
2.6	UN Administered Province of Kosovo		2,118.840
3	REGIONAL ACTIVITIES		405.390
4	TRAINING		128.400
5	MISCELLANEOUS		275.550
	GMS (7%)		980,080
	<b>BUDGET TOTAL</b>		<b>14,981,220</b>

Note: Budget re-allocation beyond the level of a 10% adjustment within each of the ten budgetlines in the table above (excl. GMS) needs to be discussed in the Management Board, on the initiative of the UNDP Montenegro Resident Representative, and to be endorsed by the Donor (Netherlands Embassy Belgrade) by exchange of letter.

**Table 4: Technical and Financial Reporting Schedule**

CRITICAL ELEMENTS	Q4 - 2007	Q1 - 2008	Q2 - 2008	Q3 - 2008	Q4 - 2008	Q1 - 2009	Q2 - 2009	Q3 - 2009	Q4 - 2009	Q1 - 2010	Q2 - 2010
Inception period	XXXXXXX										
Tendering for 1st Construction Works		XXXXXXX									
'Construction season' (Component 1)			XXXXXXX	XXXXXXX			XXXXXXX	XXXXXXX			
Payment NL Embassy BG to UNDP Montenegro	X	X		X		X		X		X	
Technical & Financial Reporting by UNDP Montenegro to NL Embassy BG	X	X		X		X		X		X	
Project closure											
Note on Technical Reports		Inception Detailed		Progress Brief		Status Detailed		Progress Brief		Status Detailed	

Notes:

- 1) There are two (2) 'construction seasons' (2008 & 2009) available during the 30 months project period. If the first construction season (2008) will be missed due to delays in the preparation process (i.e. project specifications, tender documents, engineer's cost estimate, co-financing arrangement, tendering procedure, tender evaluation, contracting, advance payment to and mobilization of contractor), the delay will be immediately a full year (unless the construction—of a designated component of the project or a small project—can still be accommodated within the remaining part of the construction season).
- 2) The project timing (30 months) is sub-ordinate to that of the Netherlands Regional Environmental Program West Balkan that constitutes the framework for the outsourcing to UNDP Montenegro; if the time horizon of the Netherlands Regional Environmental Program West Balkan (currently 2009/2010) can be extended, there may be also extension opportunity (at least time extension, not necessarily budget extension) for the UNDP-support.
- 3) Components 2) and 3) – not contained in Table 4 – and Regional Activities (the complex of what could be called 'software' activities) are not 'season' (climate/weather) dependent and can be scheduled 'as desired'. If this complex of activities would be designed with the EIA as the core ("national/regional policy integration") mechanism, this would allow to start in year 2008 at the level of selected available EIAs (please refer to the text section under Table 1 starting with "Furthermore, Environmental Impact Assessments (EIAs) undertaken so far, say since...") and then stepwise improve EIA awareness, expertise and internalization in planning, using the experiences (lessons learned) from the pilot projects meanwhile 'constructed' (component 1) including their water and/or air pollution monitoring result.

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## I. SITUATION ANALYSES AND STRATEGY

### I.a Background

Environmental issues have not been amongst the top national priorities in the Western Balkans. Understandably, priorities to date have focused on the reforms needed to strengthen security, to rebuild the economy and to improve general living conditions. As a result, much-needed investment in environmental infrastructure such as wastewater treatment, air-pollution abatement and monitoring, and industrial and communal waste management are still waiting their turn. Clearly, this is a situation that raises humanitarian, social, economic and environmental concerns.

In addition, a number of industrial towns and regions face a complex challenge of past industrial development and pollution legacy and the need to generate economic growth for the future. The environmental situation in these hot spots is a direct cause of poor health and related poverty and presents a major barrier to future investments and related economic opportunities for the local population. On one hand they face the requirements for environmental clean up and on the other they are struggling with problems of poverty, lack of infrastructure and services and lack of prospects for the young generations. Some of these pollution hot spots - selected for intervention under this programme - include, but are not limited to the following regions, towns and sites<sup>7</sup>:

#### **Shkoder - Stockpile of toxic chemicals at Bajza railway station, Shkoder, Albania**

Currently, estimated 200 tons of expired pesticides and other chemicals are being stored for more than 15 years ago at the railway station in Bajza. The letter from the local community to the Minister of Environment of Albania indicated that expired pesticides like rrogor, vofatox, nogos, selinon, novakrom, spitsornit, 2-4 D, fugorat, sevin, lindan, etc. formed a part of the bulk and has been added by other unknown chemicals and other products like pieces of leather.

Bajza is the last railway station in Albania before the frontier with Montenegro, so it acts as a customs control point. Two freight trains daily pass through and approximately 10,000 tonnes of freight are handled each month. The station is located at the shore of trans-boundary Shkoder (Skadar) lake – the largest lake on the Balkan Peninsula that both Albania and Montenegro have officially designated as cross-border protected area together with Buna/Bojana river. With the designation of Albanian part of the Shkoder(Skadar) lake and Buna (Bojana) river as a Ramsar site the entire lake is now included in a Ramsar list.

The proposed intervention under this programme will aim to fully clean up the stockpile of toxic chemicals and remediate the hot spot enabling the local government and Bajza rail way station to utilize the rehabilitated storehouse and improve environmental situation in the area<sup>8</sup>.



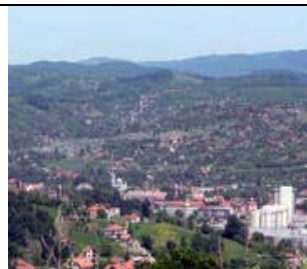
<sup>7</sup> The selected list of hot spot locations is result of comprehensive consultation process conducted by UNDP offices in the region with Government and civil society during the period September 2006-April 2007, discussion with Donor and other international organisations active in the field. Significantly more technical and financial information on several of the selected projects is meanwhile (September 2007) available at the co-ordinating UNDP Montenegro office (Podgorica) and the concerned Annexes 2-7 will be updated right at the start of the envisaged Inception period \*Last Quarter of 2007).

<sup>8</sup> See ANNEX 2 for more detailed description of Bajza hot spot.

**Tuzla, Bosnia and Herzegovina.** The area of Tuzla municipality is one of the most polluted areas in BiH, especially in three following segments: (a) worst air quality - due to emissions from thermo power plant, industrial heat production facilities and individual heating systems; (b) most polluted water streams - due to enormous discharge of waste waters; and (c) significant areas with degraded soil - due to uncontrolled exploitation of coal, salt and quark sand.

According to available data, pollutions from industrial heat production facilities and individual heating systems, are the second major pollutant in the area. Air quality in urban part of Tuzla during heating season is mostly II and III category (polluted or very polluted air), and very often there are episodes of critical air pollution especially with sulphur dioxide with concentration of  $400 \mu\text{g}/\text{m}^3$ , which is 3-4 times more than maximum allowed amount.

The proposed intervention under this programme would enable the Clinical Medical Center Tuzla and it's Clinic for lung Diseases to be connected to the Tuzla city district heating system. This would enable the two Centers to cease producing heat in their facilities and creating the air pollution by combusting large amounts of dark coal, which contains large percentage of particularly dangerous sulphur.<sup>9</sup>



**Ugljevik - mine and thermo power plan (M&TPP) located in North-East part of Bosnia and Herzegovina**

M&TPP Ugljevik is only 30 km far from international border with Croatia and 25 km from Serbia. There are settlements very close to the M & TPP, and the most inhabited place, with some 5,000 residents, is Ugljevik. Wastewaters at the M&TPP are discharged into the Janja and Mezgraja Rivers, whose waters are used to irrigate orchards and crops, as well as to water livestock. Janja and Mezgraja rivers are tributaries of Drina River that belong to Sava and Danube water basin. A significant amount of water with high concentration of salts is continuously discharged into the river Janja. Such pollution has enormous negative effects locally and regionally.

The proposed intervention under this programme would be focused on reconstruction and renewal of systems for demineralization and de-carbonization, as well as for remediation of discharge site. Application of new technology together with reconstruction of present technological process will result in overall decrease of 35-40% in the quantity of wastewater that originates from demineralization and de-carbonization process. Most important result would be the overall decrease of produced wastewater in the amount of  $17.000\text{m}^3/\text{year}$  and amount of discharged salts in the river would be decreased for 45 tons/year<sup>10</sup>.



**Bucim - located in the mountainous area of Radovis Municipality, approximately 125 kilometres southeast of the Skopje, Macedonia.** Bucim is listed as one of the environmentally

<sup>9</sup> See ANNEX 3 for more detailed description of Tuzla hot spot.

<sup>10</sup> See ANNEX 3 for more detailed description of Ugljevik hot spot.

hazardous hotspots. Its uncontrolled toxic waste outflows into the groundwater and neighbouring surface water bodies, unreclaimed waste rock, dust and tailings, industrial emissions, and other poorly disposed mining waste materials have created environmentally hazardous conditions for residents and ecosystems in the local areas, and living along various water bodies into which the toxins from Bucim have been discharged. Those environmentally hazardous toxins have also reach neighbouring Bulgaria and Greece through rivers and streams to cause cross-boarder environmental pollution issues in recent years.

The proposed intervention under this programme are based on the Environmental Impact Assessment Study for the Mine "Bucim" prepared in June 2006 and are aimed at addressing the historical pollution and prevention of the future pollution in two main respects: 1) by designing a system for collection and treatment of the waters from the mining zone, the tailing pond and derange waters thus eliminating the pollution of Topolnicka River and further downstream rivers Bregalnica and Vardar; 2) undertaking measures for protection of air, i.e. approximately 30 ha of the tailing dump will be re-cultivated with a method of direct re-vegetation of biologically inactive materials. This method is much more efficient, less costly and provides better results in comparison to the classical methods that include covering the tailings with soil and manual planting of the vegetation<sup>11</sup>.



**Lojane - Chromium and Antimony Beneficiation Plant and abandoned Mine located near the border with Serbia and Kosovo, Macedonia.**

The mine was active in the period 1923 till 1979 and after the cessation of mining activities, complete infrastructure i.e. production facilities (underground workings), beneficiation (flotation and smelting -ore frying) facilities, waste dump and tailings ponds, as much as storage yards, silo's and workshops were abandoned without undertaking any conservation measures thus becoming very dangerous sources of contamination with heavy and toxic metals (As, Hg, Cr6+, Sb). The Mine is identified as one of the industrial contaminated sites - "hot spot" within the National Environmental Action Plan (2006) and the National Plan for Waste Management (2005).

The proposed intervention under this programme is limited to removal of hazardous waste and it will be complementary with cleaning activity in primary hot spot Bucim. This intervention is expected to protect kids in a rural primary school, which are right now unacceptably affected by extremely high levels of cancer, and other illnesses due to the air pollution produced by arsenic and other gases emanating from the open damp.<sup>12</sup>



<sup>11</sup> See ANNEX 4 for more detailed description of Bucim hot spot

<sup>12</sup> See ANNEX 4 for more detailed description of Lojane hot spot.

**Mojkovac - Metal mining complex located in the northern part of Montenegro.**

About 3.5 million tons of toxic mining and processing waste has been accumulated in a tailing pond near Mojkovac during Pb-Zn mining operations. Its Tailing Mine Impoundment (TMI) has been formed in the area between right riverbank of Tara and western side of urban zones of Mojkovac. TMI occupies an area of 19 ha and approximately 2 million m<sup>3</sup> of disposed tailing impounded materials. TMI has been designed and constructed through three stages: the first one up to the peak elevation of 801 ASL<sup>13</sup>, the second up to 805 ASL, and the third and final stage, up to 807, 5 ASL. TMI construction followed a principle of a complete isolation from the water current, i.e. Tara River. In order to provide significant progress in cleaning-up activities at the hot spot location, the proposed intervention is aimed to provide support in the implementation of the *Phase I of the project Remediation and recultivation of the Mojkovac lead and zinc tailings mine impoundment* (financed by the Government of Montenegro and various bilateral donors) by focusing on rehabilitation of facilities for tailings impoundment protection from external storm waters (storm waters collector and other facilities) and construction of waste waters treatment plant for neighbouring communities<sup>14</sup>



**Vrbas and Kula, Autonomous Province of Vojvodina, Serbia.**

Municipality of Kula belongs to the west Backa region, and the Municipality of Vrbas lies more to the southeast and belongs to the south Backa region. This part of Backa is in the northwest of Vojvodina in the Republic of Serbia. The Danube-Tisza-Danube Canal, shortly called DTD-canal, or Grand Canal, was built in the 18 century, partly for transport and water supply, but also with the purpose of draining the wet and fertile soils of the Backa district. In the 20 century this area was heavily industrialized. This also resulted in increased settlements in the small towns along the canal. The canal became more and more polluted, and in the worst stretch around Vrbas the canal is more or less filled with industrial sludge. Sugar beet processing factories, pig farms, slaughterhouses, edible-oil factories, metal processing factories, etc. are the worst polluters in addition to untreated sewage from the towns. In addition to causing local problems, the pollution of the Grand Canal is a problem for the Tisza, and constitutes also a significant pollution source for the Danube. Based on estimated nutrient pollution, 70% of pollution comes from industrial sources, while 20% and 10% are from municipal and agricultural sources. The pollution of the Grand Canal running through the medium sized city of Vrbas (25 000 inhabitants) has been characterized as «the worst in Europe». <sup>15</sup> The proposed intervention under this programme will focus on construction of main collector and rehabilitation of the Sewerage system.



<sup>13</sup> Above sea level

<sup>14</sup> See ANNEX 5 for more detailed description of Mojkovac hot spot.

<sup>15</sup> See ANNEX 6 for more detailed description of Vrbas and Kula hot spot.

**Trepca - a major lead-zinc mining area located in UN Administered Province of Kosovo.**

The Trepca conglomerate has had a long history of environmental problems: toxic/acidic effluents, uncontained waste rock, dust emissions and unsecured workings, poorly contained and/unstable tailings wastes. Trepca poses significant public health problems and immediate investments are required in cleaning up and rehabilitation.

The proposed intervention will follow-on from the EnvSec project 'Environmental Assessment and Remediation Action Plan (EARAP)' which is undertaking a comprehensive investigation and sampling program, including: hydro-geological and hydro-chemical analyses of the surface and underground waters; geochemical analyses of the soil; analyses of the impact of the mining dust to the air quality; and analyses of the physical and chemical composition of the deposited mine tailings and the mining dust. As such this project will result in the implementation of mechanisms/equipment to treat acidic mine waters at two Trepca sites incorporating the utilization of the monitoring plan outlined in the EARAP project<sup>16</sup>.



Because of the proximity and geographic connectedness of the Balkans, the ongoing or potential pollution from these hot spots has a significant cross border impact on air and water quality (rivers, lakes and the sea). On top of this, the environmental situation in these communities presents a major barrier to future investments and related economic opportunities for the local population. The situation is often further complicated by uncoordinated or even conflicting plans and demands of various sectors of government, business and society. In most cases the poorest citizens (Roma, Ashkalia, Egyptians) live in the areas worst affected by pollution and degradation and these problems are taking resources away from them, limit funds and future oriented initiatives. Success in cleaning up these locations and solving environmental and urban problems will attract new investments from inhabitants themselves, private sector, banks, donors etc.

The large cost estimates for clean up, according to best available technologies in Western Europe, have a de-motivating effect on those responsible and lead to pushing the actual activities further into the future. But recent experience from the region suggests that, instead of going for a full fix at a single site all in one go, that may leave little local capacity for maintenance and solving further problems, the process of dealing with large problems should start with building regional capacity with "small" steps that may deliver tangible impacts for the population on a time scale from one to five years. Careful design of initial steps based on least cost approach and high benefit to cost ratio by necessity also requires cross-sectoral solutions and wider distribution of environmental, social and economic benefits. This approach also recognises the likelihood that the return of economic activity will provide options for new industrial actors to carry out remediation if the site is attractive for investment in terms of labour and support services, and the regulatory framework is functioning appropriately.

The international, and especially EU, experience in revival of former industrial regions further shows that development breakthrough in pollution hot spots can only be achieved through integrated initiatives at the local level, addressing the local environmental, social and economic needs. Such initiatives cannot be successful if they are undertaken by one of the sectors such as environment, welfare, health or economy alone. They require creative cross-sectoral solutions based on stakeholder dialogue and public participation and many times the most effective actions

<sup>16</sup> See ANNEX 7 for more detailed description of Trepca hot spot.

are not directly related to the sources of pollution but to future environment-oriented activities or infrastructure.

Step by step clean up of polluted areas, investment in cleaner technologies to reduce waste, wastewater and air pollution must be combined with stronger integration of environmental concerns into sectoral policies and cross-border cooperation. It seems that an investment in effective mechanisms and mobilisation of already existing domestic expertise for sustainable environmental management could provide significant benefits to all in the short to medium term. This programme is expected to provide a significant step forward in this direction.

## **I.b. Intervention Strategy**

In view of the requests from the Regional Ministerial Conference in Milocer<sup>17</sup>, other ongoing initiatives in the region (such as REReP, ENVSEC and PEIP), the Programme *Strengthening capacities in the Western Balkan countries to address environmental problems through remediation of high priority hot spots* will focus on environmental clean up and remediation of polluted industrial hot spots that have already been identified as high priority from the environmental point of view but have seen limited progress so far due to complexity of issues and the costs involved. The programme will contribute to the achievement of the following overall objectives in the region:

- Increase capacity of the national and local governments in the Western Balkan to implement sustainable environmental policies in accordance with EU standards
- Strengthen regional co-operation in the Western Balkan to solve problems of cross border contamination due to industrial and mining activities

UNDP's Programme will contribute to these overall objectives by mobilising local and international expertise in Albania, Bosnia and Herzegovina, Macedonia FYR, Montenegro Serbia and UN Administered Province of Kosovo around a set of high priority pollution hot spots requiring environmental cleanup, and providing good practice examples of good environmental management, improved decision making and institutional set up in compliance with EU standards. The concrete project objectives are:

- Secure progress in clean-up of nine priority physical sites, raise awareness and strengthen capacity for good environmental management at local and national level
- Enhanced regional co-operation through improved information sharing and supply of professional consultancy services regarding good environmental management

The planned targets for the programme are:

- Planned clean-up works in nine priority hot spots locations completed, in accordance with technical specifications thus contributing to reduction of existing/potential pollution
- Memorandum of Understanding/Cost Sharing Agreements for hot spots signed by municipal authorities and local stakeholder groups;
- Assessment Reports with follow-up measures prepared
- 70% of the total value of the clean-up contract awarded to local company or institution
- 2 workshops/trainings/seminars per year organized
- TV clip prepared and at least three newspaper articles published on the project

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<sup>17</sup> A representative group of Ministers and Ministry Representatives of Environment, Agriculture and Tourism from Albania, Bosnia and Herzegovina, Croatia, UN Administered province of Kosovo, Macedonia, Montenegro, Serbia and Slovenia met at the Regional Ministerial Conference "Environmental Policies in the Context of European Integration" on March 26 to 28, 2006 in Milocer, Montenegro

- 3 Pilot projects of policy integration implemented promoting sustainable environmental management
- 3 training courses/ seminars/ workshops per year organized
- Market survey of domestic experts from business or NGO sector conducted
- Database of qualified local experts established
- 1 Regional high level/ministerial meeting per year organized promoting cooperation and information sharing between governments in the Region
- 1 study tour per year organized for stakeholders in the Region
- All programme activities effectively coordinated and implemented

The detailed plan of activities (nature and scope of remediation work) for each specific location will be defined in the initial phase of the project by respective UNDP Country Offices as described below.

Overall, the programme itself will be organised in three components:

### **COMPONENT 1: Clean-up projects**

This will be the main component of the programme and is formed around environmental remediation work in nine, high priority hot spots locations in the Western Balkans<sup>18</sup>.

#### **1.1 Site selection**

The hot spot sites were selected during the programme preparation phase from among those already identified by the ENVSEC initiative or national authorities through National Environmental Action Plans as top priority hot spots. Local authorities and/or site owners at the potential project sites were invited to submit information detailing:

- Description of the current situation including environmental, social and economic aspects
- Summary of past activities (if any) and their evaluation
- Indicative activities under this programme with cost estimates<sup>19</sup>
- Secured or potential matching funds
- Willingness of the authority and other stakeholder to actively participate in the programme and disseminate its results.

Based on the interest expressed (in form of letters of commitment), particular hot spots were selected in each participating country/territory through consultation between the UNDP, relevant national authorities, local Netherlands's Embassies, and the civil society. The criteria used for selection were as following:

- 5) Trans-boundary effects of the hotspots
- 6) The possibility to attract other donor funding
- 7) The possibility to establish partnerships, including public-private partnerships
- 8) Readiness of local authorities and relevant stakeholders to take leadership in the sustainable environmental management of their community<sup>20</sup>.

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<sup>18</sup> Because of specific circumstances, in agreement with Donor and national authorities, there are two intervention locations in BiH. The priority hot spot for Macedonia is a Bucim, however due to the agreement between the Government of Macedonia on one side, and UNDP, Donor and local communities on the other, a limited amount of funds will be utilised for the hot spot – Lojane. This is expected to have significant humanitarian impact, but it will not be considered as a separate cleaning location.

<sup>19</sup> Ideally derived from available relevant technical documentation and studies.

A decision on final list of hot spots locations was taken together with the governments of the countries, the UNDP offices and the Netherlands embassies/liaison offices in the countries/territories.

In order to establish an institutional and formal framework for programme implementation at the local level, UNDP at the beginning of the Programme will sign a Cost Sharing Agreement for each specific hot spot location with the site owner (municipal authorities, government ministry, private corporation etc.). The Cost Sharing Agreement will set out principles and objectives of intervention as well as roles and responsibilities, including labour and financial obligations of all partners. This will provide the basis for UNDP to undertake assessments, capacity building activities and provide project funding for each clean-up project, and also define the scope and timeframe of clean-up works and co-financing by the site owner. A local Steering Committee under the auspices of the local authorities will be established to supervise project activities. Special emphasis will be put on the involvement of the local enterprise and prospective investors in the preparation and implementation of the clean-up projects.

## **1.2 Action plans**

For each hot spot an action plan will be developed and agreed at the Steering Committee based on environmental assessments and technical proposals for remediation works and other interventions<sup>21</sup>. The objectives of the assessment will be: i) first, to provide clear information to local communities and authorities concerning the environmental situation at specific sites; and ii) secondly, to recommend technical measures for remediation, eliminating or minimizing damages. Project funds will be provided to each site in accordance with the needs identified in the action plan, contribution of own resources and absorption capacity, ranging from 1.1 – 1.6 million USD, with the purpose of maximising funding from other sources. The target overall matching funds for each location is up to 50 % (in actual work or cash), which constituted a criterion for selection of location in the first place. Detailed modalities of co-funding and shared responsibilities will be agreed in the framework of the Action Plan.

In preparing the action plan, local and domestic practitioners and service providers will be identified and contracted in agreement with the local authorities as much as possible.

## **1.3 Remediation work**

The implementation of all seven action plans for clean up projects will be launched in the first 6 months of the programme implementation and finished within the second year in order to allow for evaluation and dissemination of results. Progress of projects will be monitored and evaluated regularly by the local steering committees and the project team in order to secure performance and to address any unforeseen events or needs.

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<sup>20</sup> Including availability of relevant technical documentation, researches, studies, etc.

<sup>21</sup> Beside documentation prepared by national institutions, already available data from UNEP Reports/Studies will be utilised, such as: From Conflict to Sustainable Development, Assessment and Clean-up in Serbia and Montenegro, April 2004; UNEP Technical Report: From Conflict to Sustainable Development, Assessment of Environmental Hot Spots, Serbia and Montenegro, April 2004; UNEP Final Report: Strategic Environmental Policy Assessment - FYR of Macedonia; UNEP Final Report: Post-Conflict Environmental Assessment-Albania, 2000; UNEP Final Report: The Kosovo Conflict : Consequences for the Environment & Human Settlements, 1999, UNEP Final Report: Environmental performance reviews: Bosnia and Herzegovina, 2005, UNECE: Review of environmental performance in BiH, 2004, ENVSEC Report: Draft of the refined assessment of the South Eastern European mining-related risks: Identification and verification of "environmental hot spots" for Albania, Bosnia & Herzegovina, Macedonia, Montenegro and Serbia, 2006. Studies from the World Bank and REC will be utilised, as well.

In order to develop the supply of services and capacity of service providers, the remediation work will aim to make use of local capacities as far as possible for the implementation of works. In reality, this means that most civil and hydraulic works, as well as standard design, environmental impact and risk assessments, will be contracted locally or domestically, whereas highly specialized remediation expertise will be outsourced to international experts/companies. Even though different from country to country it is estimated that of total contracts, some 80 % of works will be awarded to local companies or institutions accounting for over 70% of the total value of all contracts. This is expected to promote entrepreneurship in the environmental services market, local capacity building and provide important inputs to the generation of local income and employment.

#### **1.4 Securing sustainability through stakeholder involvement**

Of equal importance to partnership in implementing clean-up actions, will be the safeguarding and sustainable transfer of on-the-ground investment, know-how, and institutional capacities. From the beginning, therefore, UNDP will work with national and local stakeholders with the aim of ensuring a smooth and controlled hand-over to the respective partners. The required follow-up measures at each of the nine hot spots locations will be carefully assessed and specified in the joint final assessment report to be prepared by respective UNDP Country Offices and local partners. Formal legal arrangements will be made with the government and with the site owners to transfer overall responsibility for implementation and monitoring of follow-up activities. Detailed tasks will be transferred in separate legal documents to the site owners under the auspices of the environmental authorities and local governments.

Parallel to clean-up work training courses, seminars and workshops will be organized with the stakeholders with a view to supporting efficient implementation of, and follow-up to, environmental remediation activities. Training and workshop activities will cover areas such as hazardous waste management, local Agenda 21, Local Environmental Action Plans, cleaner production and sustainable consumption, foreign direct investments, the international conventions and EU directives etc.

#### **1.5 Evaluation and dissemination**

As they emerge, the results of clean up project activities will be evaluated by the project team and the local steering committees in order to provide a possibility for experience sharing and dissemination of results. Main channels of dissemination will be the networks of communities, practitioners and regional meetings.

In order to achieve broader dissemination and public awareness raising in and among the countries, a documentary will be commissioned for each hot spot, describing the initial situation, project efforts and achieved results. The documentaries will be commissioned to production teams that are able to secure cost sharing in the production. These documentaries will be made available to all TV networks in the region and internationally in the final phase of the project.

The link will be established with trained journalist in area on sustainable development, to encourage them to report on project activities.

## **COMPONENT 2: Demonstration and information sharing**

This component will aim: a) to promote the necessity for countries to move from legislation to implementation in protecting environment and managing natural resources<sup>22</sup> b) offer “low hanging fruits”, i.e. demonstrate concrete results of benefits of good environmental management to local communities through concrete demonstration projects. It will involve (mostly through workshops/trainings/meetings/media campaigns...) the relevant institutions of national government for environmental management and sustainable development, including environmental ministries, but also core ‘economic’ ministries such as finance, industry and labour, public institutions (Hydro Metrological and Eco Toxicological Institutes) and civil society (networks of NGOs, Chambers of Commerce). National mechanisms for sustainable development will be also invited to take part in a regional network to share experiences and further develop the national and regional sustainable development processes.

### **2.1 Assessment of environmental management mechanisms and practices**

The specific examples of the clean-up projects will be used as case studies to provide an assessment of the environmental management policies and practices at the national and the local level in each country. This assessment will also include a functional analysis of the specific mechanisms for this purpose in each country. The assessment will be made by the project team in consultation with a wide group of stakeholders including government ministries, regional and local authorities, NGOs, private sector and international donors. The results of the study will focus on existing good practices, problems, existing bottlenecks and opportunities for improvement. Findings and recommendations from the assessment will be used as an advocacy instrument to remove or overcome the existing institutional or procedural bottlenecks and barriers but also promote clear divisions of responsibilities among the state administrative bodies and effective decision-making. In a wider sense they will serve by providing practical recommendations for improvement of the legal and institutional framework as well as practice of policy development and implementation in the environmental protection sphere.

These activities will be complementary (and important input) to horizontal functional analysis of each government to be conducted by the EU Programmes, and focusing on the legal base, institutional arrangements, human resources and actual effect on the decisions taken by ministries, government and parliament. To support the implementation of the proposed changes the programme will establish strong links with the EU programmes and other donors active in this field.

### **2.2 Pilot projects**

As mentioned in previous sub section, once the clean up projects reach the stage of implementation, they will be used as case studies for good environmental governance (primarily at the local level). In this regard, several pilot projects will be launched with the aim to serve as “low hanging fruits”, i.e. demonstrate concrete results of benefits of environmental management to local communities. Possible initiatives to be implemented include: Strengthen the local governments, in terms of human resources and their capacity to develop and implement local environmental policies and investment projects; participatory development of local plans and programmes such as physical or urban plans, regional development plans, management plans, specific infrastructure projects etc. Local NGOs/civil society organisations/ Experts associations will

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<sup>22</sup> Although most environmental legislation is in place, implementation is has been slow and therefore progress in protecting the environment and managing natural resources is not yet evident through out the region.

be partnered to implement these activities selected through an open competition (call for proposals).

### **2.3 Promoting Access to Information and environmental data collection**

The project will support free access to information and environmental data collection in each country/territory<sup>23</sup>. As part of the EU Acquis Communautaire, the Aarhus Convention and the Directives on Access to Information, Environmental Impact Assessment and Strategic Environmental Assessment the management and accessibility of environmental information should be further improved. These mechanisms are also one of the requirements of the EU in the accession process. They provide for improved decision-making through public access to information on decision-making processes, mechanisms of stakeholder and inter-sectoral consultations and participatory decision-making. All the countries of the Western Balkans are committed to implementing these mechanisms and have certain experience in this respect. Nevertheless, implementation of them will require time and considerable resources. The successful implementation of clean up projects (with all the data available in internet) and good practice examples are expected to provide an important contribution in further developing these mechanisms in a way compatible with the national and local instruments.

### **2.4 Promoting information sharing between governments and stakeholders in the Region**

Specific activities will be organised with the aim of supporting resumption of regional cooperation, while stressing the importance of integration of environmental aspects into other policies. The main objective will be to promote (and advocate for) sectoral integration as an important element in the EU SAP/Accession process. In this regard, three Regional Meetings on sustainable environmental management will be organized involving national integration frameworks and relevant line ministries. These meetings will be held annually with a different thematic focus each year and, among others, will be used to share experiences on cleaning up projects. These meetings will be used to examine the emerging and somewhat overlapping regional environmental management regimes and donor assistance coordination.

## **COMPONENT 3: Strengthen supply of professional consultancy services**

The programme resources will be utilised to mobilize and enhance the supply of professional consultancy services in the region. Namely, professional capacity and the supply of market based environmental services are important factors for policy development and implementation, and at the same time provide important economic opportunity. In order to efficiently meet its objectives and secure sustainability and multiplication of its results, the implementation of the programme will be based on the involvement of domestic/regional professionals (individuals, private sector and public institutions) in project demonstration activities at the local (hot-spot) and national (policy analysis) level. A growing number of such professionals have been developing their careers in the recent years through work with donors, NGOs or government institutions and they could provide for a significant multiplier effect in disseminating project results at the same time as developing professional services as an important sector of economy in its own right, offering

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<sup>23</sup> There are still institutions that fail or refuse to share and provide full access to environmental information. Therefore the project will promote environmental data collection and free access to information to enable the countries and territories to adopt, implement and enforce policies and legislation in an effective and efficient manner.

employment opportunities for young professionals in the countries themselves and thus mitigating the ongoing brain-drain at the local and national level.

### **3.1 Market survey of professional environmental services**

In the beginning of the project a market survey will be conducted of domestic experts from business or NGO sector already working in the field of policy development and implementation, with particular emphasis on those with experience related to environmental management and Sustainable Development. CVs of potential experts will be collected and presented in a database.

### **3.2 Roster of qualified experts**

Based on the market survey and a call for expressions of interest, the project will develop a roster (database) of qualified experts. This roster will serve to efficiently identify, select and contract experts for specific assignments under the various project activities. The roster will also be made available to local/national authorities for use in their own procurement procedures, but also to other donors and private sector.

### **3.3 Contracting and management of experts**

The project team will be organised with Project Implementation Unit (PIU) based in Podgorica, Montenegro and national coordinators in UNDP office in each country/territory. This is because UNDP Montenegro is designated as UNDP sub regional (Western Balkans) environmental focal point, its available expertise and established regional network, as well as because it is geographically the most appropriate coordination point in the region. The Chief Technical Advisor will be part of the PIU, based in UNDP Montenegro with frequent travel in the region and will provide high level policy advise to the programme and country/territory activities. S/he will advise the Regional Programme Manager and National Coordinators on the best methods to ensure that the programme achieves maximum impact, in accordance with European and international best practice, towards the outcome defined in the Strategic Results Framework, and towards the objectives defined in the Programme document while the majority of services and works will be contracted out to the local and domestic experts from the roster.

### **3.4 Capacity building activities**

Regular capacity building activities such as workshops will be organised for the all the participants in the project, including staff, experts and representatives of stakeholders participating in individual specific clean up activities. In the early stages of the project, the capacity building will focus on the methodological tools. After the first year, main focus of capacity building will be on sharing experience and disseminating results of the project. In addition, thematic study tours will be organized in the region for specific target groups. Learning-related activities, trainings and know-how will be implemented by utilizing the e-net centers in participating countries/territories.

### **3.5 Promoting environmetal governance practitioners network**

The programme, throughout regional activities, will strongly promote the necessity of regional network. This is because of the necessity to increase regional communication and exchange of

experience among experts and civil servants. In addition, supply of development services and related multiplication of best practices will be increased through networking among national institutions, local communities and environmental governance practitioners in the region. One of the first tangible outcomes of this cooperation will be the production of Environmental policy in South-Eastern Europe<sup>24</sup>. The Report will be presented during the pan European Ministerial conference in Belgrade in October 2007 and will provide a strong basis for cooperative regional initiatives.

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<sup>24</sup> Separate initiative of UNDP coordinated by UNDP Montenegro complementary to this programme. The Regional Report is expected to be published by September 2007.

**II. PROGRAMME RESULTS AND RESOURCE FRAMEWORK**

<b>CPD Outcome:</b> Sustainable planning and management of natural resources in close partnership with private sector			<b>Programme Duration: 2007-2010</b>			
<b>Programme Outputs:</b> <ul style="list-style-type: none"> <li>○ Secure progress in clean-up of hot spots locations, raise awareness and strengthen capacity at national and local level</li> <li>○ Strengthen regional co-operation in the Western Balkans regarding hot spots remediation</li> </ul>			<b>The Programme Overall Goal:</b> Reduced pollution and strengthened regional co-operation in the Western Balkans through progress in clean-up of industrial hot spots, raised awareness and strengthen capacity at national and local level			
No.	Intended Outputs	Output Targets	Indicative Activities	Inputs	Budget	
					Budget Account	Amount (USD)
1.	<p><b>Secure progress in clean-up of hot spots, raise awareness and strengthen capacity at national and local level</b></p> <p><b>Baseline:</b></p> <ul style="list-style-type: none"> <li>- Many industries in the Region collapsed leaving behind hot spots of past pollution<sup>25</sup></li> <li>- Local governments should be further strengthened to develop and implement local environmental policies and investment projects<sup>26</sup></li> <li>- In view of the significant</li> </ul>	<ul style="list-style-type: none"> <li>- Clean-up works completed contributing to the reduction of existing/potential pollution</li> <li>- 70% of the total value of the clean-up contract awarded to local company or institution</li> <li>- 2 workshops/trainings / seminars per year organized</li> <li>- TV clip prepared and at least three</li> </ul>	<p><b>ACTIVITY 1: Performing physical, clean up works</b></p> <ul style="list-style-type: none"> <li>1.1 Initial Environmental Assessment Report and TORs prepared</li> <li>1.2 MoU and Cost Sharing signed with relevant authorities</li> <li>1.3 Action Plan developed and agreed with the project Steering Committee</li> <li>1.4 Evaluation of the clean-up works</li> </ul> <p><b>ACTIVITY 2: Raising awareness and strengthening local capacity</b></p> <ul style="list-style-type: none"> <li>2.1. Training courses/ seminars/ and workshops for local stake</li> </ul>	<p>National/International experts engaged to conduct the location assessment (prepare the TORs)</p> <ul style="list-style-type: none"> <li>- Local/International companies contracted to complete physical works</li> <li>- Training/workshops for local/national stakeholders</li> <li>- Media campaign and awareness raising on local and national level</li> <li>- Monitoring and Evaluation</li> </ul>		<p>300,000</p> <p>9,809,340</p> <p>243,000</p> <p>324,300</p> <p>121,620</p>

<sup>25</sup> Report on Environmental Policy in South Eastern Europe, UNDP, 2007 (final draft)

<sup>26</sup> Report on Environmental Policy in South Eastern Europe, UNDP, 2007 (final draft)

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<p>extractive industry in the SEE, the 6<sup>th</sup> EAP mentions in particular the need for promoting sustainable management of extractive industries with a view to reduce their environmental impact</p> <p><b>Indicators:</b></p> <ul style="list-style-type: none"> <li>- Level of industrial pollution in the Region</li> <li>- Level of coverage of hot spots issues in the media</li> <li>- Number of pilot/demonstration projects implemented</li> <li>- Existence of database of experts in each country/territory in the Region</li> <li>- Number of training courses/seminars/workshops organized</li> </ul>	<ul style="list-style-type: none"> <li>- Final Assessment Reports with follow-up measures prepared</li> <li>- 3 Pilot projects of policy integration implemented promoting sustainable environmental management</li> <li>- 3 training courses/seminars/workshops per year organized</li> <li>- Market survey of domestic experts from business or NGO sector conducted</li> <li>- Database of qualified experts established</li> </ul>	<p>holders organized</p> <p>2.2. Media campaign and awareness raising organized</p> <p><b>ACTIVITY 3: Mobilizing and enhancing capacity at national and local level</b></p> <p>2.1 Assessment report on (non) existence of a functioning mechanism for good environmental management prepared</p> <p>2.2 Competition announced and grants disbursed for pilot projects</p> <p>2.3 Training courses, seminars and workshops with stakeholders organized</p> <p>2.4 Management and procurement support provided to participating local community and government</p> <p>2.5. Domestic policy experts from business and NGO sector mobilized</p>	<ul style="list-style-type: none"> <li>- International/local experts to conduct an Assessment</li> <li>- NGOs/expert organisations contracted to implement demonstration projects</li> <li>- Small grants to Local municipalities /NGOs to promote success of clean up projects</li> <li>- Training and workshops</li> <li>-National Coordinators</li> <li>- Administrative support (6)</li> <li>- Administrative/ Procurement support (30%)</li> <li>-Marketing survey</li> <li>-Database of qualified experts</li> <li>- Workshop presentation and training courses</li> </ul>	300,000
				135,000
				108,000
				364,500
				380,700
				306,900
84,780				
32,400				
81,000				
121,500				

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<p><b>2.</b></p> <p><b>Strengthened regional co-operation in the Western Balkans regarding hot spots remediation</b></p> <p><b>Baseline:</b> - Regional cooperation should be deepened and extended<sup>27</sup></p> <p><b>Indicators:</b> - Number of regional meetings promoting information sharing between governments in the Region - Availability of expert database for the Region - Number of study tours organized promoting cooperation/information sharing between stakeholders in the Region</p>	<ul style="list-style-type: none"> <li>- 1Regional high level/ministerial meeting per year organized promoting information sharing between governments in the Region</li> <li>- Programme activities effectively coordinated and implemented</li> <li>- Database of sustainable environmental development experts in the Region established</li> <li>- 1 study tour per year organized for stakeholders in the Region</li> </ul>	<p><b>ACTIVITY 1:</b> <b>Enhancing regional cooperation through regional meetings, study tours and efficient programme implementation/coordination</b></p> <p>4.1 Programming and procurement support provided to participating UNDP national offices by PMU in Podgorica</p> <p>4.2 Results of country specific marketing surveys of domestic experts from business or NGO sector integrated for the Region</p> <p>4.3 Regional cooperation enhanced through high level/ministerial meetings</p> <p>4.4 Training courses/ seminars/ workshops organized with programme and regional stakeholders</p>	<ul style="list-style-type: none"> <li>-Programme Manager</li> <li>-Programme Associates (2)</li> <li>-Chief Technical Advisor</li> <li>-Administrative /Finance Assistance</li> <li>-HR, Procurement Associate (20%)</li> <li>-Driver</li> <li>-Training course for programming staff / contracts</li> <li>-Travel of PMU staff</li> <li>-Regional high level/ministerial meeting</li> <li>- Workshops/trainings for stakeholders</li> <li>-Study tours</li> <li>Communications</li> <li>Translation Services</li> <li>Vehicle purchase~</li> <li>Vehicle Maintenance</li> <li>Office Accommodation and Utilities</li> </ul>	<p>92,100</p> <p>143,100</p> <p>134,660</p> <p>55,200</p> <p>12,750</p> <p>40,950</p> <p>47,300</p> <p>81,100</p> <p>202,680</p> <p>121,620</p> <p>81,090</p> <p>102,200</p> <p>33,800</p> <p>48,650</p> <p>8,200</p> <p>82,700</p>
<p><b>3.</b></p>	<p>GMS (7%)</p>			<p>980,080</p>
<p><b>4.</b></p>	<p><b>TOTAL</b></p>			<p><b>14,981.220</b></p>

Note: In addition to this Logical Framework, the Tables 1 and 2, contained in the earlier Summary, will be used as a pro-active management tool, primarily by the Regional Programme Manager.

<sup>27</sup> Report on Environmental Policy in South Eastern Europe, UNDP, 2007 (final draft)

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### **III. PROGRAMME BUDGET**

(please find attached the ANNEX 1)

### **IV. MANAGEMENT ARRANGEMENTS**

#### **IV.a Partnership strategy and linkage with other ongoing initiatives**

In the past couple of years the donor support to promoting sustainable development and good environmental management in the Western Balkans has been significant. At the same time, each country (participating in the programme) is involved in either in Stabilisation and Association (Albania, BiH, Montenegro, Serbia) or Accession process (Macedonia) with the EU. These individual processes are supported by the EU CARDS (and as of 2007 IPA) programme and EU member states as bilateral donors.

At the level of individual government sectors and local communities, the level and quality of regional cooperation in the Western Balkans varies extensively. Environmental ministries and other stakeholders work closely together with donors, while there are very few meetings among other sectors such as physical planning, agriculture or industry.

In the environmental field, there has been extensive and productive cooperation among the countries of the region and the donors, including the Regional Environmental Reconstruction Programme (REReP). In the framework of the REReP the Priority Environmental Investment Programme for SEE (PEIP) has been developed, identifying the country priorities for investments in pollution reduction. Because of the focus of the EU approximation process on the meeting the requirements of the so called "heavy investment directives" (drinking water, waste water and solid waste), this programme has had more success with environmental infrastructure projects than with remediation of industrial pollution. Even though integration of environmental concerns into other sectors and overall development at the local level has been identified as an important future priority of environmental policy for all the countries in the region, environmental infrastructure remains the main focus of PEIP for the future. This leaves the area of hot spot remediation and policy integration uncovered by the regional cooperation mechanisms.

In 2003 the Environmental Security (ENVSEC) Initiative was established by UNDP, UNEP, OSCE, NATO, UNECE and REC to assess and address environmental problems, which threaten or are perceived to threaten security, societal stability and peace, human health and/or sustainable livelihoods, within and across national borders in conflict prone regions. In this framework mining has been identified as a sector requiring specific attention, and is the focus of several regional cooperation projects.

The UNEP Task Force, who developed proposals for remediation of top priority hot spots, has investigated the legacy of pollution caused by war and past industrial activities extensively, while Dinaric Arch initiative has brought regional partners together around biodiversity and protected areas.

In order to provide a cross-sectoral perspective, a representative group of Ministers and Ministry Representatives of Environment, Agriculture and Tourism from Albania, Bosnia and Herzegovina, Croatia, Kosovo Macedonia, Montenegro, Serbia and Slovenia met at the Regional Ministerial Conference "Environmental Policies in the Context of European Integration" on March 26 to 28, 2006 in Milocer, Montenegro. A number of opportunities for cooperation and sectoral integration in implementing sustainable development were identified among environment, agriculture and tourism sectors. At the same time, it was realized that additional opportunities for integration exist

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with sectors such as industry, urban planning, and social services that could generate large benefits especially in cities and industrial regions. The Conference served as a starting point of a regional network of institutions in different sectors that clearly see a need for a more integrated approach to future development planning and have expressed their interest in regional cooperation.

While recognizing that it is the local communities and governments of participating countries who bear the responsibility for programme implementation, setting and pursuing their own environmental management agenda, UNDP, during the programme life time, will strongly encourage the forging of new partnerships – especially with EU – as well as strengthening the existing ones (mentioned above) to build on the promising progress made in recent years. A shared approach to problem solving and information exchange will be applied to all programme activities.

Moreover, the success of the environmental remediation works will largely depend on the exceptional commitment of local partners. Indeed, as past experience has shown the implementation of solutions to complex environmental problems has only been possible as a result of continuous and constructive interaction among all partners at all stages of the work.

During the entire programme implementation UNDP expects the international partners (multilateral and bilateral) to maintain and develop their partnership with countries participating in the programme and to provide further matching funds as reconstruction and remediation work gather pace. In the Programme preparation phase the matching funds of 500.000 \$ from UNEP Regional Office for Europe is secured as well as their technical expertise/support. UNESCO's "green diplomacy" network will be utilised during the project implementation. Discussions with EU/EAR local offices and World Bank are undergoing and expected to yield commitment in complementary programmes of value no less than 5 million Euros. Matching funds for each clean up project would be up to 50 % of invested project resources.

#### **IV.b Institutional Framework**

UNDP Country Offices in Albania, Bosnia and Herzegovina, Macedonia FYR, Montenegro, Serbia and UN Administered Province of Kosovo will implement the project. UNDP Country Office in Montenegro will serve as the coordinating office for the project.

#### **Programme Management**

##### Management Board

The Management Board is responsible for making by consensus management decisions for the overall programme (using among others a management tool called PRINCE2 that UNDP applies worldwide). The Board consists of the UNDP Montenegro Resident Representative and one high level government representative (Deputy Minister/State Secretary Level or Focal Point, refer to Table 2) from each participating country/territory, with the Regional Environmental Sector Specialist from the Netherlands Embassy in Belgrade attending as an observer. The Management Board may meet (physically) once a year, at a suitable time, e.g. as a side event of one of the Regional (high level) Workshops, and furthermore interact by e-mail, e.g. at the times of substantial Technical reporting (early 2008, end 2008, end 2009, as indicated in the Reporting time schedule later in this document), to be initiated by the UNDP Montenegro Resident Representative.

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### Advisory Board

The major function of the Advisory Board is to support the project—the Regional Programme Manager and Chief Technical Advisor in particular—primarily on technical and quality assurance matters. The Advisory Board will consist of two selected Regional experts and one or two selected International Experts who will interact with the Regional Programme Manager and Chief Technical Advisor primarily by e-mail exchanges.

### Regional Programme Manager

Regional Programme Manager will be based in UNDP Montenegro. Under the direct supervision of the respective RR s/he heads the Programme Implementation Unit, coordinates day-to-day managements and operational aspects of the Programme and coordinates with the Senior managers in the participating UNDP country/territory offices to ensure efficient programme implementation.

S/he is also responsible for preparing detailed work plans, follow-ups and reporting to the Management Board and the donor. The Programme Manager is also responsible for ensuring synergies with ongoing regional projects in close consultation with Country Offices.

S/he has at least five years of experiences in environmental management/sustainable development issues, advanced experience in policy development and management and degree in a relevant field. S/he has competency to demonstrate leadership to make sure the local ownership and bottoms-up decision making process.

### National Project Coordinators

National Project Coordinators will be responsible for day-to-day operational aspects of Programme activities envisaged in each country and they will communicate and coordinate with programme associates. They will be based in UNDP Country Offices in Albania, Bosnia and Herzegovina, Macedonia FYR, Montenegro, Serbia and UN Administered Province of Kosovo and they will be under direct supervision of the Senior Manager/Team leader in the respective participating UNDP office. Senior managers/Team leaders will coordinate with the Regional Programme Manager.

### Chief Technical Advisor

The Chief Technical Advisor will be based in UNDP Montenegro with frequent travel in the region and will provide high level policy advise to the project and its activities. S/he will advise the Programme Manager and National Coordinators on the best methods to ensure that the programme achieves maximum impact, in accordance with European and international best practice, towards the outcome defined in the Strategic Results Framework, and towards the objectives defined in the Programme document.

S/he has at least 7 years of experiences in environmental management/sustainable development issues, advanced experience in policy advise, development and management and advanced degree in a relevant field.

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#### **IV.c Monitoring and Evaluation**

The purpose of monitoring and evaluation will be to monitor progress towards the key outputs, identify, in good time, where improvements are necessary to enable the programme to achieve its objectives, and to make preliminary assessments about potential programme adjustments or further training needs of the target groups. The following mechanism will apply:

Within the annual cycle:

- Quarterly progress reports shall be submitted by the Programme Manager to the Management Board circulated through Advisory Board, using the standard report format available in Atlas; (if needed, there may be additional narrative reports required by the Donor, but there shall be an agreement that the Atlas standard report will be used).
- An Issue Log shall be activated in Atlas and updated by the National Coordinators, under supervision of Programme Manager, to facilitate tracking and resolution of potential problems or requests for change
- A risk log shall be activated in Atlas and regularly updated (quarterly) by the National Coordinators, under supervision of Programme Manager, reviewing the external environment that may affect the programme implementation.
- A project Lesson-learned log shall be activated and regularly updated by the National Coordinators, under supervision of Programme Manager, to ensure on-going learning and adaptation within the programme, and to facilitate the preparation of the Lessons-learned Report at the end of the programme.
- A Communication and Monitoring Plan shall be activated in Atlas and updated to track key management actions/events
- A quality log shall record progress towards the completion of activities, using the Atlas Activity Definition page.

Annually:

Twice a year programme review will be conducted during the programme life time as a basis for assessing the performance of the programme. In the last year, this review will be a final assessment. This review will involve all key project stakeholders and the Implementing Partner, and focus on the extent to which progress is being made towards outputs, and that these remain aligned to appropriate outcomes. The review will be structured by a set of common standards, and will be subject to spot external quality assurance assessments.

#### **IV.d Visibility**

To keep the general public informed about programme's progress and to encourage positive participation in different activities, the building and sustaining of political commitment and beneficiaries' demand for the project, the programme management will disseminate information through Internet web-sites, newsletters, press releases, videos and other public relations efforts, and carry out feedback surveys, etc.

This project will follow an already established line of UNDP projects in the field and will therefore have a safe base and paved path. Nevertheless, it is necessary to conduct an action plan related to visibility.

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#### **IV.e Risks and Prior Obligations**

There is a number of risks, which can be identified. Their level of criticality is medium to low. Their realization would not diminish the impact of the project, but requires additional inputs and time. Those risks and measures to be taken for their management are set out in the project descriptions attached to this proposal<sup>28</sup>

#### **V. IMPLEMENTATION PLAN**

The programme is implemented in three phases:

##### Phase 1: Management and Implementation Mechanism Setup (October – December 2007)

- Regional Programme Manager recruited.
- Chief Technical Advisor, National Project Coordinators (6), and Administrative support staff recruited
- A Management Board set up
- An Advisory Board set up
- Kick-off workshop held to harmonize approach and methodologies for development of the Terms of Reference for each hot spot based on the available documentation and field studies.
- Agreements for each hot spot signed with partners/owners/municipalities.

##### Phase 2: Setting up Action Plans (project specifications, tender documents, tendering and contracting) for specific Hot spot location (Component 1) by the UNDP Country Offices (January - March 2008)

- Follow-up Workshop held to realistically assess what component 1 physical (environmental engineering) works are likely to be achieved in the 2008 Construction Season (March/April until October/November?) and (re-) scheduling of all associated activities (incl. relevant Component 2 and 3 activities)
- The assessment completed, with defined targeted groups/locations (e.g. State level Ministries, local authorities, border communities, civil society organizations especially those in the areas of sustainable development, environment protection, socio-economic participation, health, education and the media, environmental “hot spots”, and biodiversity cities).
- Final Action plan for specific interventions developed by each UNDP Country Office, shared with Advisory Board for comments and further interventions, tenders announced and first Works contracts concluded in accordance with UNDP rules and procedures.
- Agreements for each hot spot confirmed or adjusted (if required) with partners/owners/municipalities.

##### Phase 3: Activity implementation and monitoring and evaluation (March/April 2008 – December 2009)

- Agreed activities implemented in each specific hot spot in nine locations.
- Methodologies on ensuring transfer and practical application of capacity building measures and knowledge developed.
- A series of sub-regional meetings held (Line ministries, Council for Sustainable Development, the Media and local NGOs,) on concrete topic.

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<sup>28</sup> For detailed Risk Analysis for each location please see Annex 2-7 (Project Description)

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- Thematic study tours organized in the region for specific target groups
- Feedbacks and reporting submitted by Regional Programme Manager, National Programme Coordinators and technical experts to the Management Board and shared with the Advisory Board and wider community through e-based database.
- Learning-related activities, trainings and know-how implemented by utilizing the E-net Center in participating countries/territories.
- On going monitoring and quality check of the Programme implementation.

Phase 4: Dissemination of Lessons learned (January-March 2010)

- Focus on Component 2 (National) and Regional Activities – Thematic Workshops.
- Prospects for replication of good project performances in other similar hotspot projects.
- Highlighting of the Local Expertise (Database) status and assessment of its usefulness for potential users of environmental consulting services.
- Assessment of the various stakeholder/participant parties' experiences with and reactions on the programme.

## **VI. LEGAL CONTEXT**

This project document shall be the instrument referred to such as in Article 1 of the Standard Basic Agreement a copy of which is available at RBEC.

The following types of revisions may be made to this project document provided UNDP is assured that other signatories of the project document have no objections to the proposed changes:

- a) Revisions in, or addition to, any of the annexes of the project document;
- b) Revisions which do not involve significant changes in the immediate objectives, outputs or activities of a project, but are caused by the rearrangement of inputs already agreed to or by cost increases due to inflation, and
- c) Mandatory annual revisions, which rephrase the delivery of, agreed project inputs or reflect increased expert or other costs due to inflation or take into account agency expenditure flexibility.

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## **ANNEXES**

ANNEX1: Programme Budget

ANNEX 2: Project Description (Albania)

ANNEX 3: Project Description (BIH)

ANNEX 4: Project Description (Macedonia FYR)

ANNEX 5: Project Description (Montenegro)

ANNEX 6: Project Description (Serbia)

ANNEX 7: Project Description (UN Administered Province of Kosovo)

ANNEX 8: Organigram

ANNEX 9: Terms of Reference for Key Staff

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## Annex1

## PROGRAMME BUDGET

Project Number:		TBD			
Management Arrangement:		Direct Execution (DEX)			
Designated Institution:		UNDP Montenegro			
CMBL	Description	No. of units	Months	Unit Cost/ Month	Total (USD)
<b>1</b>	<b>PROGRAMME MANAGEMENT UNIT*</b>				
1.1.	Programme Manager	1	30	3,070	92,100
1.2.	Programme Associate	2	30	2,385	143,100
1.3.	Chief Technical Advisor	1	15	8,977	134,660
1.4.	Administrative/Finance Assistant	1	30	1,840	55,200
1.6.	HR, Procurement Associate (20%)	1	30	425	12,750
1.7.	Driver	1	30	1,365	40,950
	<b>Component Total</b>				<b>478,760</b>
<b>2</b>	<b>ACTIVITIES</b>				
	<b>National Activities</b>				
<b>2.1.</b>	<b>Albania</b>				
2.1.1.	National Project Coordinator	1	30	2,115	63,450
2.1.2.	Project Assistant	1	30	1,705	51,150
2.1.3.	Administrative/Procurement support (30%)	1	30	1,570	14,130
	<b>Component 1: Clean-up projects</b>				
2.1.4.	Initial assessment (preparation of TORs)	1		50,000	50,000
2.1.5.	Remediation/clean up work	1		1,634,890	1,634,890
2.1.6.	Evaluation and dissemination of results	1		20,270	20,270
2.1.7.	Media campaign and awareness raising	1		54,050	54,050
2.1.8.	Local communities workshop trainings	6		6,750	40,500
	<b>Component 2: Policy integration</b>				
2.1.9.	Assessment of policy integration mechanisms	1		50,000	50,000
2.1.10.	Pilot projects of policy integration	3		13,500	40,500
2.1.11.	Training and workshops	9		6,750	60,750
	<b>Component 3: Supply of prof. cons. services</b>				
2.1.13.	Market survey	1		5,400	5,400
2.1.14.	Database of qualified experts	1		13,500	13,500

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2.1.15	Practitioners network workshops	3		6,750	20,250
<b>2.1</b>	<b>Component Sub Total</b>				<b>2,118,840</b>
<b>2.2.</b>	<b>BiH</b>				
2.2.1.	National Project Coordinator	1	30	2,115	63,450
2.2.2.	Project Assistant	1	30	1,705	51,150
2.2.3.	Administrative/Procurement support (30%)	1	30	1,570	14,130
	<b>Component 1: Clean-up projects</b>				
2.2.4.	Initial assessment (preparation of TORs)	1		50,000	50,000
2.2.5.	Remediation/clean up work	2		817,445	1,634,890
2.2.6.	Evaluation and dissemination of results	1		20,270	20,270
2.2.7.	Media campaign and awareness raising	1		54,050	54,050
2.2.8.	Local communities workshop trainings	6		6,750	40,500
	<b>Component 2: Policy integration</b>				
2.2.9.	Assessment of policy integration mechanisms	1		50,000	50,000
2.2.10	Pilot projects of policy integration	3		13,500	40,500
2.2.11	Training and workshops	9		6,750	60,750
2.2.12	<b>Component 3: Supply of prof. cons. services</b>				
2.2.13	Market survey	1		5,400	5,400
2.2.14	Database of qualified experts	1		13,500	13,500
2.2.15	Practitioners network workshops	3		6,750	20,250
<b>2.2</b>	<b>Component Sub Total</b>				<b>2,118,840</b>
<b>2.3.</b>	<b>Macedonia</b>				
2.3.1.	National Project Coordinator	1	30	2,115	63,450
2.3.2.	Project Assistant	1	30	1,705	51,150
2.3.3.	Administrative/Procurement support (30%)	1	30	1,570	14,130
	<b>Component 1: Clean-up projects</b>				
2.3.4.	Initial assessment (preparation of TORs)	1		50,000	50,000
2.3.5.a	Remediation/clean up work (Bucin)	1		1,430,525	1,430,525
2.3.5.b	Remediation/clean up work (Lojane)	1		204,365	204,365
2.3.6.	Evaluation and dissemination of results	1		20,270	20,270
2.3.7.	Media campaign and awareness raising	1		54,050	54,050
2.3.8.	Local communities workshop trainings	6		6,750	40,500
	<b>Component 2: Policy integration</b>				
2.3.9.	Assessment of policy integration mechanisms	1		50,000	50,000
2.3.10	Pilot projects of policy integration	3		13,500	40,500
2.3.11	Training and workshops	9		6,750	60,750
2.3.12	<b>Component 3: Supply of prof. cons. services</b>				
2.3.13	Market survey	1		5,400	5,400
2.3.14	Database of qualified experts	1		13,500	13,500

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2.3.15	Practitioners network workshops	3		6,750	20,250
<b>2.3</b>	<b>Component Sub Total</b>				<b>2,118,840</b>
<b>2.4.</b>	<b>Montenegro</b>				
2.4.1.	National Project Coordinator	1	30	2,115	63,450
2.4.2.	Project Assistant	1	30	1,705	51,150
2.4.3.	Administrative/Procurement support (30%)	1	30	1,570	14,130
	<b>Component 1: Clean-up projects</b>				
2.4.4.	Initial assessment (preparation of TORs)	1		50,000	50,000
2.4.5.	Remediation/clean up work	1		1,634,890	1,634,890
2.4.6.	Evaluation and dissemination of results	1		20,270	20,270
2.4.7.	Media campaign and awareness raising	1		54,050	54,050
2.4.8.	Local communities workshop trainings	6		6,750	40,500
	<b>Component 2: Policy integration</b>				
2.4.9.	Assessment of policy integration mechanisms	1		50,000	50,000
2.4.10	Pilot projects of policy integration	3		13,500	40,500
2.4.11	Training and workshops	9		6,750	60,750
2.4.12	<b>Component 3: Supply of prof. cons. services</b>				
2.4.13	Market survey	1		5,400	5,400
2.4.14	Database of qualified experts	1		13,500	13,500
2.4.15	Practitioners network workshops	3		6,750	20,250
<b>2.4</b>	<b>Component Sub Total</b>				<b>2,118,840</b>
<b>2.5.</b>	<b>Serbia</b>				
2.5.1.	National Project Coordinator	1	30	2,115	63,450
2.5.2.	Project Assistant	1	30	1,705	51,150
2.5.3.	Administrative/Procurement support (30%)	1	30	1,570	14,130
	<b>Component 1: Clean-up projects</b>				
2.5.4.	Initial assessment (preparation of TORs)	1		50,000	50,000
2.5.5.	Remediation/clean up work	1		1,634,890	1,634,890
2.5.6.	Evaluation and dissemination of results	1		20,270	20,270
2.5.7.	Media campaign and awareness raising	1		54,050	54,050
2.5.8.	Local communities workshop trainings	6		6,750	40,500
	<b>Component 2: Policy integration</b>				
2.5.9.	Assessment of policy integration mechanisms	1		50,000	50,000
2.5.10	Pilot projects of policy integration	3		13,500	40,500
2.5.11	Training and workshops	9		6,750	60,750
2.5.12	<b>Component 3: Supply of prof. cons. services</b>				
2.5.13	Market survey	1		5,400	5,400
2.5.14	Database of qualified experts	1		13,500	13,500
2.5.15	Practitioners network workshops	3		6,750	20,250

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<b>2.5</b>	<b>Component Sub Total</b>				<b>2,118,840</b>
<b>2.6.</b>	<b>UN Administred Province of Kosovo</b>				
2.6.1.	National Project Coordinator	1	30	2,115	63,450
2.6.2.	Project Assistant	1	30	1,705	51,150
2.6.3.	Administrative/Procurement support (30%)	1	30	1,570	14,130
	<b>Component 1: Clean-up projects</b>				
2.6.4.	Initial assessment (preparation of TORs)	1		50,000	50,000
2.6.5.	Remediation/clean up work	1		1,634,890	1,634,890
2.6.6.	Evaluation and dissemination of results	1		20,270	20,270
2.6.7.	Media campaign and awareness raising	1		54,050	54,050
2.6.8.	Local communities network workshops	6		6,750	40,500
	<b>Component 2: Policy integration</b>				
2.6.9.	Assessment of policy integration mechanisms	1		50,000	50,000
2.6.10	Pilot projects of policy integration	3		13,500	40,500
2.6.11	Training and workshops	9		6,750	60,750
2.6.12	<b>Component 3: Supply of prof. cons. services</b>				
2.6.13	Market survey	1		5,400	5,400
2.6.14	Database of qualified experts	1		13,500	13,500
2.6.15	Practitioners network workshops	3		6,750	20,250
<b>2.6</b>	<b>Component Sub Total</b>				<b>2,118,840</b>
<b>2.7</b>	<b>Regional Activities</b>				
2.7.1	Regional workshops/tranings of practitioners	3		40,540	121,620
2.7.2	Regional High level/Ministerial meetings	3		67,560	202,680
2.7.3	Study tours	3		27,030	81,090
<b>2.7</b>	<b>Component Sub Total</b>				<b>405,390</b>
	<b>Component Total</b>				<b>13,118,430</b>
<b>3</b>	<b>TRAINING</b>				
3.1.	General training for programme staff	1		47,300	47,300
3.2.	Travel of PMU staff	3		27,030	81,100
	<b>Component total</b>				<b>128,400</b>
<b>5</b>	<b>MISCELLANEOUS</b>				
5.1	Communications (approx. 1%)				102,200
5.1.2	Translation Services				33,800
5.1.3	Vehicle purchase~				48,650
5.1.4	Vehicle Maintenance				8,200
5.1.5	Office Accommodation and Utilities				82,700
	<b>Component total</b>				<b>275,550</b>
	<b>COMPONENTS TOTAL</b>				<b>14,001,140</b>

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	GMS (Calculated at 7%)	<b>980,080</b>
	<b>BUDGET TOTAL</b>	<b>14,981,220</b>

\* Staff salaries have been calculated based on the short survey conducted in UNDP Offices in the region! Those reflect an average income of employees in international organizations/privates sector in participating countries/ territories.

~ The programme activities will require intensive travel of PMU staff over the region, especially of the Chief Technical Advisor, Regional Programme Manager and Programme Associates (minimum 50% of time for Programme Manager and at least 75% for Chief Technical Advisor). Therefore, according to preliminary estimations of the programme design team a purchase of a fuel-efficient passenger car will significantly reduce travel costs, and also travel administration. When programme is concluded ownership over the vehicle will be decided jointly between UNDP and Donor in accordance with existing practices and Agreements.

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## Annex 2

### ALBANIA

#### PROJECT DESCRIPTION

##### I. General information

Bajza is a small town (Kastrioti Commune) situated in the northern part of Albania, about 15 km far from Shkodra city. The railway station of Bajza is located at the shore of the transboundary Shkoder Lake and all railroad transportation to and from Montenegro passes Bajza railway station and its customs clearance

##### II. Problem Description

Environmental issues have not been amongst the top national priorities in the Western Balkans. Understandably, priorities to date have focused on the reforms needed to strengthen security, to rebuild the economy and to improve general living conditions. As a result, much-needed investment in environmental infrastructure such as wastewater treatment, air-pollution abatement and monitoring, and industrial and communal waste management are still waiting their turn. Clearly, this is a situation that raises humanitarian, social, economic and environmental concerns.

In addition, a number of industrial towns and regions face a complex challenge of past industrial development and pollution legacy and the need to generate economic growth for the future. The environmental situation in these hot spots is a direct cause of poor health and related poverty and presents a major barrier to future investments and related economic opportunities for the local population. On one hand they face the requirements for environmental clean up and on the other they are struggling with problems of poverty, lack of infrastructure and services and lack of prospects for the young generations.

The National Strategy for Socio-Economic Development (NSSD) and other sectoral strategies action plans such as the National Environmental Action Plan (NEAP) and recently drafted National Environmental Strategy (NES) fully acknowledges the importance of addressing the environmental hotspots and proposed short, medium and long term actions to address these environmental hotspots. The NES also highlighted that the country will need to show considerable progress in environment over the coming decades to achieve accession to the European Union, even though Albania will not be fully compliant with particularly for the "investment heavy" elements of the European Union Community legislation during the accession period. The Government Programme for 2005-2009, therefore, considers rehabilitation of environmental "hotspots" caused by old and abandoned industries among the key priority areas in the environmental protection.

Before 1990, in Albania industry accounted for the largest share of GDP – about 58% using the country's rich chromites and copper deposits that are found in the north-central and northern parts of the country. Albania has also been subject to 25 years of oil and gas exploration in the south-western parts of the country. After the start of the transition period, however, industrial production decreased considerably owing to the closure of the main branches of heavy industry and by 1999 the share of industrial production in the GDP was only 11.9%.

UNEP commissioned studies in 2000<sup>29</sup> and 2006<sup>30</sup> revealed that many of these closed industrial sites pose serious risks to human health and the surrounding environment.

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<sup>29</sup> In 2000 UNEP had carried out "Post-Conflict Environmental Assessment Albania" with the support from the Dutch government. The rapid assessment identified five 'environmental hotspot' that require urgent attention in order to halt dangerous risks to human health and the surrounding environment and four other sites that have serious environmental problems

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In addition to these two main studies on environmental hotspots a number of additional environmental hotspots have also been identified by the Ministry of Environment, Forestry and Water Management based on the information and request for interventions received from the Local governments as well as other donor programme that focused on chemical management.

The NEAP Albania (2002) reported that an estimated 3,100 tons of chemicals in the public economy sector and 1,000 tons of pesticides in the agricultural sector and many of them are obsolete stock and represent different levels of risks for health and the environment and should be effectively managed. There are In spite of this there is still no accurate inventory of these substances at the national level and there is no plan to avoid or minimize their threat as hazardous waste.

Bajza is a small town (Kastrioti Commune) situated in the northern part of Albania, about 15 km far from Shkodra city. The railway station of Bajza is located at the shore of the transboundary Shkoder lake and all railroad transportation to and from Montenegro passes Bajza railway station and its customs clearance.

In early 1990s estimated 200- 250 tons of expired pesticides (Rrogor, vofatox, nogos, selinon, novakrom, spitsornit, 2-4 D, fugorat, sevin, lindan, etc<sup>31</sup>), industrial chemicals and other materials were put together in one of the storage house of the Bajza railway station. The origin of pesticides is not quite clear, however, during 1991-1992, German company Schmidt-Cretan imported and temporarily stored in Bajza 480 tons of hazardous chemicals. The most notable of these chemicals were toxaphene and phenyl mercury acetate, both of which have been banned in the EC since 1983. It was reported that one liter of toxaphene, for example, was capable of contaminating two million cubic meters of water and killing all of the fish there<sup>32</sup>. Although most of these pesticides were turned back in Germany in 1993 for safe disposal, people from the surrounding area had raided the station and took many of the barrels emptying toxic chemicals directly at the railway station and storehouses. It was also reported that several sheep that grazed around the store house and downhill side of railway station had died after the incident took place. Moreover, in following years fishermen at Shkoder lake had reported masses of dead fish in the Lake.

Recent site visit revealed that almost all bags are torn out and most of pesticides are mixed with small pieces of leather (10-15 cm) stored in the same storehouses. The pieces of leather are stored from many years to be exported in Hungary as a raw material for glue making. However, it is expected that by now these pieces of leather are contaminated beyond re-use and should be safely disposed together with the rest of chemicals. The site visit also revealed that the whole storage area needs to be decontaminated under the stingiest safety concern to avoid leakages of chemicals to the transboundary lake.

### **Partnership and linkage with other ongoing initiatives**

Lessons and experiences from the from Porto Romano Hot Spot Clean-up component of the Integrated Coastal zone management and clean up programme will be extensively used for the proposed project implementation. Under this programme component Albanian Government with a financial assistance from World Bank, and the Netherlands Embassy have successfully cleaned up

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<sup>30</sup> In 2006 UNEP has also updated the "Mining Desk Assessment" as a part of the ADA supported programme "Improving regional cooperation for risk management from pollution hotspots as well as trans-boundary management of shared natural resources".

<sup>31</sup> Kastriot Commune in a letter to the Minister of Environment. June 2006,

<sup>32</sup> Industrial Waste in Albania. Case # 359, Greenpeace 1996.

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and encapsulated hazardous chemicals and contaminated materials at a disused factory at Porto Romano, Durrës, and a chemical store at nearby Bishti i Palles.

Experiences and lessons learnt thought the Environmental Security (ENVSEC) Initiative will also be fully utilized during the project implementation. This initiative was established by UNDP, UNEP, OSCE, NATO, UNECE and REC to assess and address environmental problems, which threaten or are perceived to threaten security, societal stability and peace, human health and/or sustainable livelihoods, within and across national borders in conflict prone regions. In this framework mining has been identified as a sector requiring specific attention, and is the focus of several regional cooperation projects.

The project will also close collaborate with EU supported technical assistance programme Pollution abatement and control at the Ballshi Refinery, Feasibility Study and detailed design for a hazardous waste landfill and its follow up on-site elimination of hazardous waste and contaminated material through the construction of confined disposal facilities (CDF) in Fier and Rubik as well as detailed study and action plan preparation for the Patos Marinza in Fier.

The project will also have a closely collaborate with the National Agency for Environment and Forestry, Public health Institute and Plant Protection research Institute during the implementation of the cleaning up programme. Similarly the project will also closely work with other donor funded programmes in the area to help the local community networks build a partnership with donors working in the area.

### **III. Proposed Interventions and Expected Results**

UNDP Albania Country Programme Strategy (CPD) for 2006-2010, prepared in the framework of UN Development Assistance Framework (UNDAF) for the same period, highlighted that Environmental hotspots remain the biggest challenge with other related socio-economic factors posing immediate risks to human health and the environment. The CPD 2006-2010 committed that UNDP will assist the government in dealing with the 'pervasive problem of persistent organic pollutants (POPs) as well as environmental hotspots' as an integral part of Country Programme Outcome 2: "Policies developed and implemented that support the achievement of the MDGs."

The Netherlands' development policy "Mutual interests, mutual responsibilities: Dutch development cooperation en route to 2015", adopted in 2003, reaffirmed sustainable poverty reduction as the main objective of Dutch development co-operation and the Millennium Development Goals (MDGs) as the basic reference point. Complimentary to this bilateral approach the Netherlands have also adopted a regional approach supporting several countries on conflict management, agreements on border disputes and economic integration. Within the regional approach that cover Balkan countries (Albania, Bosnia-Herzegovina, Macedonia, Kosovo, and Serbia and Montenegro), the Netherlands has continuously assisted Albania to improve its governance, human security and environmental governance.

The umbrella programme "Strengthening capacities in the Western Balkan countries to address environmental hot spots through an integrated approach" aims to:

- Strengthen regional co-operation in the Western Balkan to solve problems of cross border contamination due to industrial and mining activities
- Increase capacity of the national and local governments in the Western Balkan to implement environmental policies and sustainable development in accordance with EU standards

In order to achieve the overall objectives set by the regional programme, Albania will aim to achieve following outputs that are translated from the regional programme component outputs:

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1. Full clean up and site remediation of stockpile of toxic chemicals at Bajza railway station, Shkoder , enabling the local government and Bajza rail way station to fully utilize the rehabilitated storehouse and improve sustainable development in the area.
2. Strengthen the mechanisms of good governance and policy integration in central and local level
3. Strengthen and mobilize the national capacity for policy development, integration, implementation and evaluation at the national and regional level.

**Expected outputs and activities for Albania**

Output 1: Full clean up and site remediation of stockpile of toxic chemicals at Bajza railway station, Shkoder , enabling the local government and Bajza rail way station to fully utilize the rehabilitated storehouse and improve sustainable development in the area.

Indicative activities:

- 1.1. Site selection (based on trans-boundary effects of the hotspots; the possibility to attract other donor funding; the possibility to establish partnerships, including public-private partnerships; readiness of local authorities and relevant stakeholders to take leadership in the sustainable development of their community)
- 1.2. Secure "Letter of Commitment"<sup>33</sup> for selected hotspot with municipal authorities and relevant central government institutions and site owners.
- 1.3. Carry out detailed assessment of hotspot and EIA assessment for the proposed intervention for the sites.
- 1.4. Prepare a "Joint Action Plan" for cleaning up and site remediation that will detail out responsibilities and commitments of all stakeholders including the co-financing arrangement<sup>34</sup>.
- 1.5. Remediation work (initiated not later than 12 months from the start up of the project, completed within one year to allow for evaluation and dissemination of results)
- 1.6. Transfer of on-the-ground investment, know-how and institutional capacities to local stakeholders to ensure a controlled hand-over<sup>35</sup>
- 1.7. Training courses, seminars and workshops for stakeholders to support efficient implementation of, and follow-up to, environmental remediation activities
- 1.8. Evaluation and dissemination of results, including a documentary of the hotspots describing the initial situation, project efforts and achieved results
- 1.9. Establishment of a local community network of all hotspots under the umbrella programme (to meet every 6 months) to present and discuss the results of clean-up projects or other activities and problems relevant to all members

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<sup>33</sup> Letter of Commitment will set out general roles and responsibilities, including financial commitments of respective stakeholders. The details of actual roles and responsibilities as well as breakdowns of co-financing contributions will be spelt out in the Action plan.

<sup>34</sup> As specified in the Umbrella programme the target overall matching funds for clean up and site remediation work will be up to 50 % (in actual work or cash).

<sup>35</sup> Formal legal arrangements will be made with the government and with the site owners to transfer overall responsibility for implementation and monitoring of follow-up activities.

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Output 2: Strengthen the mechanisms of good governance and policy integration in central and local level

Indicative Activities:

- 2.1. Assessment of policy integration mechanisms and practice at the national and local level, using Shkoder region as a pilot area.<sup>36</sup>
- 2.2. Support pilot demonstration projects of policy integration, using the clean-up sites as case studies
- 2.3. Promoting access to information and linking to Environmental Impact Assessment (EIA) and Strategic Environment Assessment (SEA) as mechanisms to implement policy recommendations
- 2.4. Participation in three regional meetings on sustainable environmental management

Output no. 3: Strengthen and mobilize the national capacity for policy development, integration, implementation and evaluation at the national and regional level.

Indicative activities:

- 3.1. Market survey of professional environmental services in Albania
- 3.2. Establishment of a roster of qualified environmental experts
- 3.3. Capacity assessment of professional environmental services providers at the local and central level and identification of training needs
- 3.4. Capacity building activities for environmental experts and local stakeholders (including thematic workshops and assisting to set up a twinning with professional services providers inside the country and/or region) using hot spot clean up and rehabilitation as platform for "learning- by-doing".
- 3.5. Sustainable development practitioners network <sup>37</sup>

#### **IV. Intervention Time frame**

The project is planned to start in October 2007 and end up in April 2010

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<sup>36</sup> This assessment will also include a functional analysis of the specific mechanisms for this purpose in each country. The assessment will be made by the project team in consultation with a wide group of stakeholders including government ministries, regional and local authorities, NGOs, private sector and international donors. The results of the study will focus on existing good practices, problems in integration, existing bottlenecks and opportunities for improving the level of policy integration, effectiveness and efficiency.

<sup>37</sup> The network will serve the practitioners in ways, i) sharing best practices among the practitioners and ii) facilitating joint supply of development services both at country and regional level

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**Risks Log**

#	Description	Category	Impact & Probability	Countermeasures / Mngt response	Owner	Author	Date Identified	Last Update	Status
1	The faces problem to fulfil commitment for providing co-financing equal to 50% of actual work	Financial Operational	Delays in the project implementation and co-financing from the development partners P = 3	Initial commitment letter is secured. Follow up discussions are taking place on 3 May 2007	UNDP	UNDP	March 2007	2 May 2007	
2	Willingness from key stakeholders to take active participation	Financial Operational Organization al	Delays in the project implementation and co-financing from the development partners  P = 2	Early discussion with key stakeholder has taken place. Local community involvement will be ensured during the first year of the project	Project manager	UNDP			
3	Feasibility study reveals unregistered highly toxic chemicals in the storage	Environmental Financial Operational Organization al	Delays in the project implementation. Need for more technical interventions that might increase the project cost  P = 3	TORs for the feasibility study will have a provision asking for recommendations If unregistered chemicals are found during the feasibility study Negotiations with specialised institutions and donors will take place	Project manager.	Chairman Kastrioti Commune Bajza	June 2006	NA	No change
4									

1 – Low/Unlikely Risk  
5 – High/Likely Seriously Risk

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## **Annex 3**

### **BOSNIA AND HERZEGOVINA**

#### **A) Hot spot: Clinical Medical Center Tuzla**

##### **PROJECT DESCRIPTION**

###### **I. General information**

*City/Municipality:* Municipality Tuzla

Municipality Tuzla is one of 13 municipalities of Tuzla Canton and it covers area of 294 km<sup>2</sup> and currently has 150.000 inhabitants. The city of Tuzla is administrative center of Tuzla Canton and largest economic center of North-East Bosnia and Herzegovina. Around 75% of population of the municipality is living in the urban zone and remaining population is placed in rural local communities. During the war Tuzla was facing serious social and economic problems, worsened by around 54.000 refugees emigrating from surrounding places in Tuzla. At the moment 30% of population is unemployed which is little bit better than country average but still very high.

Traditionally, foundation of city's and region's economic growth are mineral goods, which are coal and non-metals (stone salt and quark sand). Before the war, large industrial complexes (chemical, mineral products and metal), production of electrical power and mining were three main economic branches. Today these industries are going through a very slow and difficult transition process. Total GDP is estimated to be around 193 mill. KM, but even with that the GDP per capita is a bit higher than the country average. Still economic situation in Tuzla region is unsatisfactory since total consumption is couple of times higher than total revenues. Before the war most of production was coming from huge industrial systems such as „SODASO“ Tuzla, Coal mines Tuzla, TPP Tuzla, „Umel“ Tuzla, etc. In these industries around 60.000 people were employed and 75% of all investments were linked to these industries.

The richness and potential for development of this region are still the geological reserves of the dark coal, estimated to around 316 mill. tons and lignite in amount of around 2,66 bill. tons, which is 24% of total BiH dark coal reserves and 66% of BiH lignite reserves. Mines are facing technical and economic problems that reflect on competitiveness of thermal power plant electricity production. On that side, the power production is in process of revival since production has increased from 750 GWh in 1996. to 2.855 GWh in 2004, which is 77-80% of pre-war production.

*Intervention Location (Hot Spot):* Clinical Medical Center Tuzla

Clinical medical center Tuzla is a public health institution, working under jurisdiction of Ministry for health of Tuzla Canton. In the Clinical center compound there are Clinic for General Diseases, Pediatric Clinic, Clinic for Infectious Diseases and Dermatology, Administration and other service buildings. Also a Lung Diseases Clinic is placed in a near by location too. There are 2.000 employees in Clinical Medical Center Tuzla and around 1.500 permanent patients, while around 3.000 patients receives daily treatments at the clinics.

At the moment the Center is not connected on district heating system and it has its own heat production plant with capacity of 20 MW. The dark coal used by the plant for production of heat

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has very high content of sulphur (approximately 2,5 %), and its burning significantly pollutes environment. Additionally, the Clinic for Lung Diseases also has its own separate heat production plant, with capacity of 700 kW and average consumption of 1.000 tons of lignite per year.

*Proposing National Authority:* Municipality of Tuzla

## **II. Problem Description**

Area of Tuzla municipality is one of the most polluted areas in BiH, especially in three following segments:

- Worst air quality - due to emissions from thermo power plant, industrial heat production facilities and individual heating systems;
- Most polluted water streams - due to enormous discharge of waste waters;
- Significant areas with degraded soil - due to uncontrolled exploitation of coal, salt and quark sand.

According to previous data and estimations, pollutions from industrial heat production facilities and individual heating systems, are the second major pollutant in the area. According to available data there are around 50 active heat production plants with total installed capacity of 42 MW. Those data does not include individual house heating systems. Air quality in urban part of Tuzla during heating season is mostly II and III category (polluted or very polluted air), and very often there are episodes of critical air pollution especially with sulphur dioxide with concentration of  $400 \mu\text{g}/\text{m}^3$ , which is 3-4 times more than maximum allowed amount.

### *Negative effects and regional impact*

Based on yearly consumption of 7.000 tons of coal, it is possible to estimate that, the combustion of the "dirty" dark coal and usage of outdated technologies has for a consequence emission of  $\text{SO}_2$  is amount of around 300 tons per year. Beside the  $\text{SO}_2$  emission, there is also significant emission of sedimentation particles, sooth, Nitrogen oxides (62 tons), CO (1,73 tons) and  $\text{CO}_2$  (13.000 tons).

This heavily influences air quality directly at the location of the clinical center, but also the whole city and through air circulation ("rose of winds") any air pollution created in Tuzla influences air quality in wider surrounding region. Plus, beside the direct air pollution effects, these emissions contribute to the global warming problem by contributing to the "greenhouse" effect.

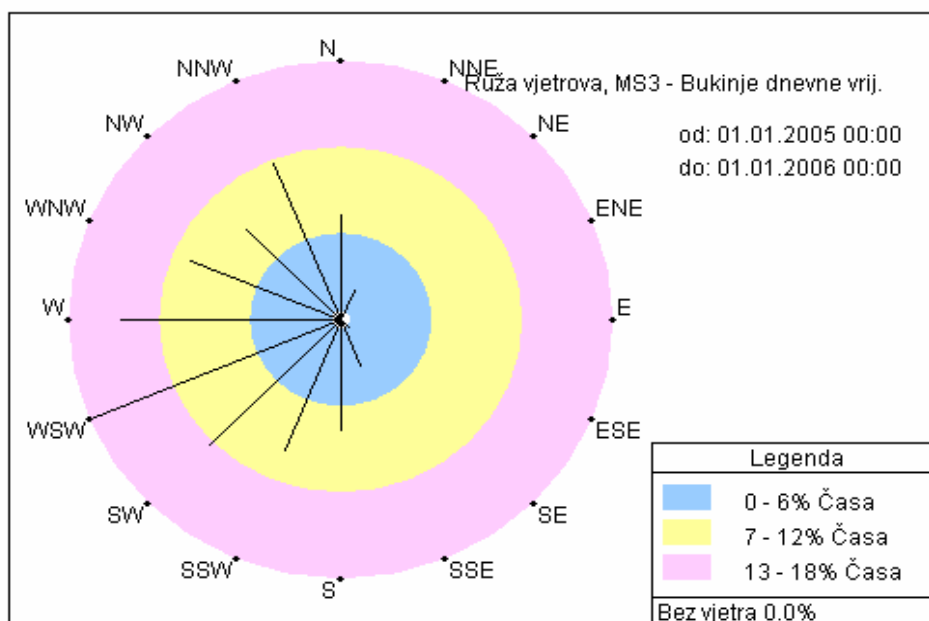
The increases in concentrations of pollutants in the air are causing an increasing number of health problems, such as increased risk of cardio-vascular diseases and mortality, different respiratory problems from simple once to a number of acute once, including asthma and similar. It is also believed that such pollution can in along term increase risk of cancer and disorders related with genetic mutations.

From the diagram below ("Rose of Winds for Tuzla Area" - pls. see next page) it is evident that predominant direction of winds in Tuzla area is South West-North East, which unswervingly means that any air pollutants created in Tuzla is directly conveyed by winds towards east of Croatia, south of Hungary and northern part of Serbia ( Vojvodina), and thus are having a wider, regional negative effect.

In the last five years Tuzla has gone through radical change in approaching its development. The Municipality of Tuzla has successfully Tuzla has produced a Development Strategy until year 2015. which is based on a vision of a city developing towards creative business environment and use of natural resources in a sustainable way.

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### Rose of Winds for Tuzla Area



Increased ecological awareness has also led to production of Local Environmental Action Plan (LEAP), that has been initiated and produced jointly by local authorities, experts, institutions, NGOs and business sector. Tuzla' LEAP has defined priority activities in the field of environment protection and sustainable development of Tuzla, and the first priority, according to the opinion of experts and citizens, is expansion of district heating network, since it is the most efficient and most effective method to reduce emission of pollutants, especially in winter months. In the last 5 years municipality Tuzla has invested significant amount of its' own funds, around 4.000.000 \$ so far, into expansion of the district heating network and around 3.000 households were connected to the network. For this purpose municipality Tuzla has invested in the past.

### Main environmental problems of Tuzla municipality – as identified in LEAP through a multi-criteria analyses

Priority	Problem	Points
1	<b>Air pollution from stationary energy sources and transportation</b>	<b>82</b>
2	Inadequate communal waste management	79
3	Pollution of surface waters	69
4	Land slide and soil sinking	64
5	Soil contamination	60
6	Soil degradation	59
7	Inadequate treatment of industrial and dangerous waste	58

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8	Water supply problem	58
9	Degradation of public green areas	51
10	Sewage system problems	51

### III. Proposed Interventions and Expected Results

In simplest the proposed intervention would enable the Clinical Medical Center Tuzla and its Clinic for lung Diseases to be connected to the Tuzla city district heating system. This would enable the two Centers to cease producing heat in their facilities and creating the air pollution by combusting large amounts of dark coal, which contains large percentage of particularly dangerous sulphur. As the Tuzla city district heating system is as source of heat using the exceeding heat produced in the nearby thermo power plant-which anyway produces a huge surplus of heat that now is being wasted, the resulting be direct and immediate reduction of emissions of “greenhouse gasses” and many other significant pollutants.

The idea for a project aimed at connecting the Clinical Medical Center Tuzla on district heating network exists since 1986, but due to economic and later war related problems has not materialized so far. Based on that idea, we will first develop it is necessary to produce project document for implementation with detail description of works and bill of quantities. The same applies for connecting the Clinic for lung Diseases on the district heating network. The project documentation will be a subject of revision, will need to obtain urbanistic and construction permits prior to field works, but the Tuzla municipality is committed to make this process very smooth and efficient.

It is foreseen that though this project, a main branch pipeline will be constructed, connecting the Clinical center with the main district heating pipeline, which starts at the location of the post office building. Also a new 10 MW substation will also be constructed. It is also necessary to reconstruct existing pipeline from Gymnasium building to the Post office building. Clinical center Tuzla will keep one boiler for preparation of steam and hot water during period without heating. Connection for the Lung Disease Clinic will start from location Sjenjak and a pipeline in length of approximately 1,5 km will be constructed.

After completion of the project air pollution will be decreased significantly at the micro location as well as in the city and further on, as it would enable closure of the heat producing plants of combined capacity of 21 MW, which is about 50% of the totals industrial heat production capacity in the city right now. Beside these effects, there will be decreased need for transportation of ash from the Clinic compound. This will be secondary effects to decreasing air pollution further.

### IV. Intervention Time frame

Project implementation period, including provision of permits, creation of project documentation, revision of documentation, procurement of goods ( pipes, substation) and field works with testing and provision of permit for use, should be around 18 months.

The estimated value of the whole project is around 1.800.000 KM (1,200.000USD).

Tuzla Municipality has expressed strong commitment to contribute to the project in following ways:

- Financing development of project documentation and revision

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- Project implementation expert supervision
  - Provision of all necessary permits and technical documentation
  - Financial contribution from Tuzla municipality budget
- Also readiness to contribution to this project have expressed the Ministry of Space Planning and Environment protection of Tuzla Canton (from the funds they have allocated for environment protection projects) and from the Ministry for Health of Tuzla Canton.

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**Risks Log - Clinical Medical Center Tuzla**

#	Description	Category	Impact & Probability	Countermeasures / Mngt response	Owner	Author	Date Identified	Last Update	Status
1	Insufficient or lack of timely available co-financing	<b>Financial</b>	If occurs potential risk would be delay of implementation or incomplete implementation of all planned activities  P = 1	Clearly defined, explained and revised project implementation activities and processes.  MoU to be signed with responsible authority with clear commitment to support project.	Project manager, National coordin.	Project manager, National coordin	During project location identification	October 1st 2007	No change
2	Long and complicated UNDP procurement procedures for very specific and high amount orders	<b>Operational</b>	If occurs potential risk would be delay in project implementation, namely during actual work and monitoring phase  P = 3	All procurement activities to be planed and initiated timely	Project manager, National coordin.	Project manager, National coordin	During project location identification	October 1st 2007	No change
3	Very complex decision making process and complicated distribution of jurisdictions among national authorities in environment field	<b>Organizational</b>	It can cause very difficult implementation of activities related to policy integration  P =4	Involve and fully inform all concerned parties about project.	Project manager, National coordin.	Project manager, National coordin	During project location identification	October 1st 2007	No change

1 – Low/Unlikely Risk

5 – High/Likely Seriously Risk

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## B) Hot spot: Coal Mine and Thermal power plant „Ugljevik“

### PROJECT DESCRIPTION

#### I. General information

*City/Municipality:* Municipality Ugljevik

Municipality Ugljevik is situated between two rivers Drina and Sava in the north-east part of BiH, in Republika Srpska Entity. Southern and western part of municipality is hilly area connected to Majevisa mountain, while northern and eastern part of municipality is flat area connected to agriculturally most significant part of BiH, known as Semberija. Municipality Ugljevik (164km<sup>2</sup>) is bordering with Bijeljina Municipality on the eastern and northern side, with Lopare municipality on the west and Zvornik and Teocak on the south. There are 17.000 inhabitants in the municipality with most of population living in the rural areas (75% ) and around 4.000 inhabitants in the Ugljevik town itself. Based on the big reserves of coal, an open pit coal mine has been established and a thermal power plant (TTP) constructed in this municipality. Today it is the only industrial capacity developed in the municipality and most of the municipalities' population able to work, is employed either in the coal mine or in the TPP Ugljevik.

Climatic conditions: Municipality is placed on the edge between continental and mild continental climate area with average yearly temperature of 10,9°C , average yearly pressure 995,5mb and average yearly relative humidity of 79%.

*Intervention Location (Hot Spot):* Coal Mine and Thermal power plant „Ugljevik“, joint stock company –Ugljevik

First coal mine in the Ugljevik basin was opened in 1899, producing black coal at rate of 5.000 tons/year, mostly for commercial purposes. In order to fully exploit the coal reserve potential and generate maximum added value out of it, in 1985 a thermal power plant (TPP) has been constructed, and today almost the entire production of coal (approx. 1,6 x10<sup>6</sup> tons/year) is used by the TPP for production of electrical power. The power plants installed power is 300 MW and current annual production is around 1,4 billion KWh of electric power. The area of the mine and the power plant together cover in total surface of 936 ha, with following geographic coordinates:

$\lambda$ 18 57 55,91 $\varphi$ 44 37 35,99
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Public enterprise Mine and Thermal power plant „Ugljevik“ is a joint stock company following distribution of ownership: 65% state owned capital, 5% Fund for Restitution, 10% RS Fund for Pension and Invalidity Insurance and 20% small shareholders.

*Proposing National Authority:* Ministry of Industry, Energy and Development of Republika Srpska

#### II. Problem Description

*Main technical characteristics of TPP Ugljevik*

Boiler : Radial, flow through with one steam preheating

Steam production 1.000 t/h

Water supply flow 1.000 t/h

Water quality: total hardness 0,00°nj

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- $\text{SiO}_2 < 10\mu\text{g/l}$
- $\text{Fe} < 10\mu\text{g/l}$
- $\text{Cu} < 5\mu\text{g/l}$

Supply of the water with required quality is prepared in the facility for de-mineralization which takes  $2,7 \times 10^6 \text{ m}^3/\text{year}$  of clear water from Janja river (II category). The total amount of waste waters created by the TPP is  $450.000 \text{ m}^3/\text{year}$ , where 10% of the total waste waters is created directly by the de-mineralization facility.

Short description of the water de-mineralization process

Every hour,  $2 \times 900 \text{ m}^3$  of the river water (total hardness 12-18<sup>0</sup>nj) is pumped into the facility for de-carbonization and treated with specific chemicals. De-carbonized water (total hardness 4-5<sup>0</sup>nj) is that transported to the facility for de-mineralization, which has capacity of  $2 \times 60 \text{ m}^3/\text{h}$  and produces  $350.000 \text{ m}^3$  of dematerialized water per year. Quality of the dematerialized water is as following :

- $\text{SiO}_2 < 10\mu\text{g/l}$
- $\text{Fe} < 10\mu\text{g/l}$
- Conductivity  $< 0,2\mu\text{S/cm}$
- pH value  $\approx 7$

Both lines for demineralization are composed of cationic (very acid), anionic (very basic) and mixed exchangers. Regeneration of ionic substances :

- Kationic substances.... 7% HCl
- Anionic substances.... 4% NaOH

Number of regenerations: 300 regenerations / year

Consumption of chemicals for regeneration : HCl (32%) ..... 420 t /year  
NaOH (49%) ..... 370 t/year

Constant pollution of waters

The process of regeneration of the ionic substances inevitably creates waste waters at rate of  $\approx 150 \text{ m}^3/\text{regeneration}$ .

The waste waters have a very high concentration of salt of  $2.678 \text{ g/m}^3$  (  $910 \text{ g/m}^3 - \text{CaCl}_2$ ,  $797 \text{ g/m}^3 - \text{Na}_2\text{SO}_4$ ,  $970 \text{ g/m}^3 - \text{NaCl}$  ). After neutralization though which its pH value reaches 7-8,5 the waste waters are discharged into the river.

Therefore, the total quantity of waste water from demineralization facility:  
 $300 \text{ regenerations} \times 150 \text{ m}^3/\text{reg.} = 45.000 \text{ m}^3/\text{annum}$ , resulting in amount of salt discharge in river of about  $> 120 \text{ t/year}$ .

Although the waste waters from TPP are treated in waste water treatment plant, the treatment process does not reduce amount of salts in the waste waters at all. Furthermore, the reconstruction activities of the waste water treatment plant, foreseen to be financed within the World Bank's POWER IV project, will not include any improvements related to reduction of waste water from demineralization process.

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Currently the TPP itself performs following activities aimed at reduction of waste water from demineralization process:

- Renewal of sand filters (10 pieces) value: 180.000 KM
- Laboratory control SiO<sub>2</sub> at outlet of the line for de-mineralization every two hours/ 24 hours value: 40.000 KM
- "Acid-prove" protection of reservoir for neutralization of waste waters value: 50.000 KM / 5 years

Negative effects and regional impact

Despite the activities conducted by the TPP it self, still a significant amount of water with high concentration of salts is continuously discharged into the river Janja.

Such pollution has several negative effects locally and regionally:

- First it most directly affects the natural life forms and biodiversity of the river Janja and the surrounding agricultural land which is irrigated with it's waters. As the river, in length of approx. 20 km, flows though Semberija plains which are the BiH's most significant agricultural region negative consequences are serious.
- There is also a direct threat that the polluted waters could directly influence water sources in surrounding area, which are used for regular potable water supply of the local population.
- And as the river Janja after some 20 km flows into river Drina, which is natural border between BiH and Serbia in this region and which contributes significantly to the Danube basin waters, the negative effects and the pollution created in Ugljevik TPP is reaching wide area of the Danube river basin.

Certainly, permanent elimination of that source of pollution would have significant positive effects on quality of waters and improvement of agriculture not only locally, but also regionally in both BiH and neighboring parts of Serbia.

**III. Proposed Interventions and Expected Results**

Activities proposed in the project would be focused on reconstruction and renewal of systems for de-mineralization and de-carbonization, as well as for remediation of discharge sites. Present demineralization technology is 30 years old and produces enormous quantities of waste water that has to be treated in waste water treatment plant. Application of new technology together with reconstruction of present technological process would result in overall decrease of 35-40% in the quantity of waste water that originates from demineralization and de-carbonization process.

This will result in approximately proportional decrease in use of chemicals such as HCl for 140 tons/year and NaOH for 122 tons/year. Most important result would be the overall decrease of produced waste water in the amount of 17.000m<sup>3</sup>/year and amount of discharged salts in the river would be decreased for 45 tons/year.

The main objectives of the project are:

- ✓ Decrease of salt discharge into river for 45 t/annum, which is approx. 37,5 %
- ✓ Decreased production of waste water - 4 %
- ✓ Rational use of water resources - 6,5 % less
- ✓ Contribution to protection of river Janja and Danube river basin
- ✓ Improvement of ecological compliance of the Thermal power plant
- ✓ Improvement of working environment in de-mineralization facility – up to 30 %
- ✓ Significant financial savings in demineralization process - 40 %

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It is foreseen that the project of reconstructing the facility for de-mineralization of water at the Ugljevik TPP will have two phases:

- i) Production of project documentation for the water de-mineralization facility (2x60m<sup>3</sup>/h)
- ii) Procurement and installation of equipment according to project documentation.

The estimated value of the whole project is around 1.800.000 KM (1,200.000USD).

Co-financing

The RS Government and local authorities have given a strong support for this project proposal, while the company, TPP Ugljevik has expressed strong commitment to co-finance this project with a significant financial contribution and though provision of expert supervision, as realization of the project is in the best interest of both the company and the general public.

**IV. Intervention Time frame**

No.	Description of activity	Oct 2007- June 2008	June 2008- December 2008	2009
1.	Preparation of project documentation, project documentation revision, selection of technology, selection of supplies for delivery of equipment	▬		
2.	Installation of equipment according to project documentation		▬	
3.	a) Analysis of results in de-mineralization process b) Revision of project implementation			▬

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**Risks Log: Coal Mine and Thermal power plant „Ugljevik“**

#	Description	Category	Impact & Probability	Countermeasures / Mngt response	Owner	Author	Date Identified	Last Update	Status
1	Insufficient or lack of timely available co-financing	<b>Financial</b>	If occurs potential risk would be delay of implementation or incomplete implementation of all planned activities  P = 1	Clearly defined, explained and revised project implementation activities and processes.  MoU to be signed with responsible authority with clear commitment to support project.	Project manager, National coordin.	Project manager, National coordin	During project location identification	October 1st 2007	No change
2	Long and complicated UNDP procurement procedures for very specific and high amount orders	<b>Operational</b>	If occurs potential risk would be delay in project implementation, namely during actual work and monitoring phase  P = 3	All procurement activities to be planed and initiated timely	Project manager, National coordin.	Project manager, National coordin	During project location identification	October 1st 2007	No change
3	Underdeveloped capacity of local authorities in environmental sector and lack of local environmental organisations/NGOs	<b>Organizational</b>	It can cause very difficult implementation of activities related to policy integration and involvement of local authorities and NGO-s.  P =4	Additional training for local authorities and engagement of professional individuals and NGO-s with proven record in this field.	Project manager, National coordin.	Project manager, National coordin	During project location identification	October 1st 2007	No change

1 – Low/Unlikely Risk

5 – High/Likely Seriously Risk

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## Annex 4

### MACEDONIA FYR

#### PROJECT DESCRIPTION<sup>38</sup>

##### 1. General information

**Country:** Macedonia

**City/Municipality:** Municipality of Radovis

##### Intervention Location

Bucim Mine is located in the Municipality of Radovis, in the southeast part of Macedonia. The mine is located 14 km west of the City of Radovis, and 30 km east of the City of Stip, the largest city in the eastern part of the country. The national capital of Skopje is approximately 95 km from the mine, connected through the regional road Radovis – Stip – Veles.

A total number of 50,000 inhabitants live in the Municipality of Radovis and villages along the Rivers of Topolnica, Lakavica and Bregalnica (some of this settlements are administrative part of Stip and Negotino Municipalities). Bucim, Topolnica and Damjan are the three villages in the vicinity of the mine. According to 2002 census the villages in the immediate vicinity of the mine site have 1,192 inhabitants of which 68% are Turk, 31% Macedonian and 1 % Albanian.

The primary economic activity of the region is agriculture and cattle breeding. Opening of the mine has not only presented the possibilities for improving the local socio-economic status of the citizens but that of the municipality as a whole through new employment in the mine, and improved infrastructure including access to water supply and sewage system in the villages nearby the mine<sup>39</sup>.

Bucim Mine is identified as one of the 16 environmental hotspots within the Second National Environmental Action Plan 2006 (NEAP) and the National Waste Management Plan 2006 -2012 (NWMP) 2005. According to the ranking done within the NWMP, Bucim is ranked as second with score of 0,96 immediately after OHIS A.D. Skopje (organic chemical industry ) with score of 0,99. The main criteria for scoring were: a) hazardousness of the pollutants (toxicity of the waste, leacheability); b) extent of the site i.e. volume and area of the dumpsite; c) site characteristics and hydro-geological conditions (local morphology, permeability, and depth of the groundwater table); d) sensitivity of the location (distance to surface water or groundwater extraction wells, land use of location, and possibility of dispersion of airborne pollutants).

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<sup>38</sup> This Project Description regards **the COMPONENT 1: Clean-up projects** of the approved Programme Document, and aims to provide information on proposed hot spot locations, planned interventions, expected results and time frames. The detailed Action Plan (containing concrete clean up activities, capacity building measures, etc) for the entire programme, for each country/territory, will be developed once the assessment and technical documentation for specific locations are reviewed/developed

<sup>39</sup> Rapid assessment of the main environmental, economic and social impacts associated with the operation of Bucim Mine, UNDP, April 2007

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## **2. Problem Description<sup>40</sup>**

### **General description of likely hazards/risks and pollution pathways**

Bucim is a copper mine operating since 1979. The mine and the accompanying facilities were built with the state capital and till 2001 they were state owned. In 2001 the mine was sold to a foreign company "Semcorp". The mining operations were stopped when the company bankrupted in 2003. The mine was restarted again in May 2005 after being bought by the Russian company Romtrade Ltd., which later was transformed into Solway Industries Ltd, registered in Macedonia as a domestic company with a foreign capital. A thorough investigation by UNDP New York<sup>41</sup> could not identify any high risk activity by the company that would exclude the company from cooperation with the UN.

In general, copper ore mining and beneficiation (the process of separation of an ore mineral from the waste mineral material) produces waste rock and tailings waste. In Bucim structures created by mining operations (waste rock dump and tailings dam) are the most prominent artificial structures in the Eastern Part of Macedonia. The total area of the surface that is degraded is approximately 2,755 ha out of which 65,2 ha is the open pit, 152,6 ha is the ore waste dump, 38,7 ha is the mining tailing dam, and 1 ha is building, roads, and pipes.

Effluents that can be expected from ore mining and beneficiation include acid mine drainage (AMD) and acid rock drainage (ARD) from mine workings and waste heaps. Acid drainage arises from the rapid oxidation of sulphide minerals and often occurs when such minerals are exposed to the atmosphere by excavation from the earth's crust. Effluent will typically contain metals/pollution such as sulphate, copper, zinc, and cadmium depending on the ore. Incident rainfalls or surface water is acidified when acid-forming compounds dissolve. Effects include acid drainage from waste rocks stockpiles and tailings, development of acid conditions in exposed surface materials, and increased salinity or solute loads in waters. Acid drainage is of particular importance due to its demonstrated potential for trans-boundary pollution, the potential ultra-longevity of its impacts, and its widespread prevalence.<sup>42</sup>

While two ongoing projects for monitoring of the rivers Bregalnica and Vardar will provide reliable data on pollution a UNEP/ADA Study estimates that these rivers could contribute to cross border pollution to Bulgaria and Greece via Nivcanska River a tributary of Strumica River then Struma River (Bulgaria) and via Bregalnca River, an upper tributary of Vardar River to the Aegean See (Greece).<sup>43</sup>

The likely hazards/risks and pollution produced by Bucim are the following:

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<sup>40</sup> The source of most of the data used in the description is the Environmental Impact Assessment Study for Bucim, conducted by the Faculty of Mining and Geology, Stip, 2006.

<sup>41</sup> The Bureau for Resources and Strategic Partnership (BRSP) engaged World-Check™ to undertake a screening of Solway Industries Ltd. in regards to the money laundry, fraud, sanctions imposed to the company and other high-risk categories. The search made indicated that the company is not on any blacklists.

<sup>42</sup> Mining for Closure, Policies and Guidelines for Sustainable Mining Practice and Closure of Mines Report prepared on behalf of the Environment and Security Initiative, 2005

<sup>43</sup> South Eastern European mining related risks: Identification and verification of environmental hotspots, Philip Peck, UNEP GRID Arendal and Alexander Zinke, Zinke Environment Consulting, August 2006

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Waste. Tailings dam (38,7 ha) with over 80,000,000 tons solid residuals from the flotation process (containing remains of Cu, As, Ni and other HM minerals) is the biggest sand dam (body volume over 60,000,000 m<sup>3</sup>) in wider area.

There is a risk of dam failure, which could result in catastrophic consequences on people's life (over 5,000 inhabitants in the villages along the Topolnica and Lakavica Rivers valleys), properties and long term contamination of environment.

Also, there is a large waste rock dump with over 110,000,000 tons of waste rocks containing oxide Cu ore, which in current process could not be treated, built along a much frequented regional road (Stip –Strumica). The acid mine drainage (AMD) from the dump has a pH 3 (water with pH 4 or bellow is referred as an acid water) and contains 200 – 400 ppm Cu (clearly visible blue/green tint). Almost no flora and fauna could survive in acid water and therefore all rivers in the vicinity of the mine are dead rivers.

Surface Water. Leakage water from the mine and the waste damp are extremely polluted by heavy metals, mostly Cu, Zn, Ni, Cd and As. The measurements done within the Environmental Impact Assessment Study for Bucim showed that the presence of heavy metals is over 50,000 times as Threshold Limited Volume which classifies these waters as V category waters according to the current national classification. Waters of the V category could not be used for drinking or for irrigation because they will negatively affect the human health. These waters are drained in Topolnica River making the water from the river very dangerous source of pollution for all water recipients along the river flow, as much as for the Rivers of Lakavica and Bregalnica. The polluted waters are the main water sources for irrigation in the Central Eastern part of the country (i.e. area between Stip, Radovis and Negotino). The crop irrigated with these waters will absorb the heavy metal from the water and its consumption could cause various health effects such as stomach irritation, food poisoning and allergies, and even cancer in the case of prolonged consumption of agriculture products.

The waters of the artificial lake (Bucimsko ezero) located nearby the mining pit are also very polluted, because the water from the pit (underground and atmospheric waters) are pumped into the lake. In the dry periods (summer time) the flow of the water is in the range of – 10 l/s and it is raised up to 30 l/s during the raining season. The waters of Bucmsko ezero are flowing into Topolnica River thus contributing to further pollution of this river. In addition, the sediment at the bottom of the lake contains extremely high concentrations of Cu and other elements.

Air. Air contamination by dust, gases (SO<sub>x</sub>, NO<sub>x</sub>, CO) and noise, which are also reported, directly endanger the personnel and inhabitants of settlement in immediate vicinity of mining operations. Due to very fine structure of material disposed, erosion processes are extreme, especially the wind erosion at the tailings dam. The airborne particulate pollution is posing a direct risk for the health of the inhabitants of the nearby settlements especially for development of lung diseases.

Soil. Contamination of the soil is much higher than the Threshold Limited Volume recommended in NOAA standards, going up to 50 times for Cu and 30 times for As. Soil sallination processes are reported in wider surrounding of the mining area, as much as in very fertile land along the Rivers of Lakavica and Bregalnica, where water from these rivers is used for irrigation. As already explained above, consumption of agriculture products from agriculture land irrigated with waters that contain high concentrations of heavy metals, could negatively effect human health and cause various diseases.

## **2.2 Historical vs. Current Pollution from the Mining Operations in Bucim**

In the period when the mine was opened, in 1979, very little or no attention was paid to the protection of the environment and the health of inhabitant from the surrounding settlements. The waste rock disposal landfill was designed without any concern of potential environmental effects, and only proper technical location and structure stability were taken into account. No liners or other surface and ground waters protection measures were planned or taken at the landfill. In the previous 24 years (1979 – 2003) of the main operation, a total of 105,306,000 Million tons or 44,432,911 m<sup>3</sup> of waste rocks containing oxide and low grade sulphide Cu minerals were disposed at this landfill<sup>44</sup>. This accounts for 70% of the total waste rocks of the waste rocks that is expected to be deposited at the site.

The same applies for the flotation tailings dam on which app. 38.320.000 m<sup>3</sup> mining tailings were deposited<sup>45</sup>. The dam was constructed without any environmental safeguards in respect to the lining of its base and the treatment of the wastewater discharge from its base. Only 16 ha of the dam were cultivated i.e. planted with acacia and other suitable trees (out of 30 ha that could be cultivated).

The above mentioned waste, as well as the pollution of the waters, soil and air resulting from the mining operations in the period of 24 years when the mine was owned by the state, constitute historical pollution for which no responsibility could be attributed to the new owner who is operating the mine since May 2005. Moreover, when the mine was sold no conditions related to the environmental liabilities were included in the agreement. According to the tender documents and the agreement signed between the mine owner and the Government of Macedonia, the new owner of Bucim had only two obligations: 1) to construct a collection system for the tailings from the floatation to the hydro tailing dam, and 2) to prepare an Environmental Impact Assessment Study. Both obligations were fulfilled i.e. the mine owner constructed 200 meters of collection system, and an Environmental Impact Assessment Study for the Mine "Bucim" was prepared in June 2006 and approved by the Ministry of Environment and Physical Planning.

Bucim presently produces approximately 40,000 of copper concentrate and app 500 kg of gold per year. If the mining operations carry on, with the dynamics of 4,000,000 tons of ore per year, its exploitation could continue until 2015, since approx. 40,000,000 of ore are confirmed to be present in that area. There are some indications that the life time of the mine could be even prolonged.

Given the mining technology used in Bucim till the end of the exploitation period of the mine (2015) it is expected that app. 31,250,000 m<sup>3</sup> of ore will be extracted out of which 17,390,000 m<sup>3</sup> waste rocks and 14,530,000 m<sup>3</sup> mining tailings will be deposited. On a yearly basis, approx. 3,500,000 – 6,000,000 t is deposited at the waste rock dump and approx. 3,950,000 t of tailings is deposited at the tailing dam.

The quantities of waste mentioned above, from the time when Bucim was restarted in 2005 till the expected end of exploitation, as well as the pollution resulting from its operation in this period constitute current pollution under the responsibility of the new owner.

Due to technical reasons the new mine management is using the existing facilities (waste rock dump and tailing dam) for waste disposal. Building new waste rock dump and new tailing dam

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<sup>44</sup> Environmental Impact Assessment Study for Bucim, Faculty of Mining and Geology, Stip, 2006

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would not be technically or economically feasible nor would it reduce the burden from the existing waste dump and tailing dam. On the contrary, it will aggravate the problems. Namely 105 million tons of waste rocks deposited in the period 1979 – 2003 would be abandoned and the construction of a new dump site will devastate new land surface.

Moreover, the damage to the environment and human health would be bigger if the mine would not be operational. If the hydro tailings dam is not controlled the drained water and the atmospheric water could fill in the pond to the level that the water may spill over the crest of the dump directly jeopardizing the villages underneath. In the worst case scenario the tailing dump could crash and the tailings flow will wipe out the settlements nearby (with approx. 5,000 inhabitants) and block the road from Stip to Radovis. However, when the mine is in operation 90% of these waters are returned into the mining operations through a flotation process. Thus, the historical pollution is addressed by the mine being functional.

The mine owner has undertaken activities to prevent/reduce pollution resulting from the mining operation. The company has already installed five (5) monitoring stations and data obtained from the monitoring are regularly sent to the Ministry of Environment and Physical Planning. In addition the company is making an extra effort to keep the historical pollution under control by maintaining the cultivated part of the tailing dam and re-cultivating additional 3 ha of the dam. During the site visits in Bucim the management of the mine has presented plans for a clean-up of the artificial Bucim Lake which will decrease the pollution of Topolnicka River. Furthermore, the management of Bucim has addressed the Ministry of Environment and Physical Planning with a request to start the negotiations on the issues that are associated with the environmental liabilities of the State and the new mine owner.

In conclusion, the only way to reduce the risk posed by the pollution generated by Bucim Mine is through a Public Private Partnership whereby the new owner of the mine and the State cooperate in implementing their respective obligations, i.e., the new owner of the mine undertakes measures that will prevent/reduce the current and future pollution and the State addresses the historical pollution, that is the problems caused by previous unsustainable mining practices.

### **3.1 Current state of affairs in Industrial Hotspots Management**

Several laws govern the mining operations and management most of which need to be approximated with the EU Directives. These laws are: Law on Mineral Resources (1998); Law on Environment (2005), Law on Waste (2004), Law on Technical Inspection (1999), Law on Construction of Infrastructure Objects (1996), Law on Physical and Urban Planning (1996, 2002), Law on Concessions (20002), Law on Water (1998), Law on Ambient Air Quality (2004) Law on Noise (2007), etc. The Laws on Environment Protection, Waste Management, Air Quality and Noise have already been approximated with the respective EU Directives.

The Law on Environment (2005) introduces the “User Pays Principle” according to which the user of natural resources shall defray the costs for ensuring sustainable development, as well as for the remedy of the degradation of environmental media and individual environmental areas caused by the use of the natural resources. For the first time the law also introduces the system of integrated pollution prevention control (IPPC) according to which installations have to obtain permit for their operations. The operators of existing installations (those operating before 01.07.2007) have to obtain an adjustment permit with adjustment plan as a condition for continuation of the operations until full compliance with the conditions for issuance of integrated environmental permit is achieved. The adjustment plan specifies the level of financial guarantees to be provided by the operator for ensuring the implementation of the plan. The individual deadlines for

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implementation of the adjustment plans are set within time frame sufficient to achieve the conditions for "A" integrated environmental permit granting. The adjustment permit is granted by the Government of Macedonia after negotiations between the operator of the installation and the Ministry of Environment and Physical Planning. In cases of failure to fulfill the obligations specified in the adjustment plan, the Minister of Environment may effectuate the financial guarantee or request enforcement of the penalties, as stipulated in the adjustment permit.

Bucim has to obtain an adjustment permit with adjustment plan as a first step of an integrated environmental permit for which the law stipulates the process to achieve the end of 2008 as a deadline.

The Ministry of Economy (MoE), Sector of Energy and Mineral Resources is in charge of regulations and enforcement of Law on Mineral Resources. The liabilities for historical industrial pollution ('hotspots') from mining activities and thermo power plants are to be regulated jointly by the Ministry of Environment and Physical planning (MoEPP) and the Ministry of Economy. The MoE Sector of Industry and Structural Reforms is to consult with the MoEPP on environmental issues and liabilities concerning the privatization of industrial companies. However, there are still significant gaps in the legal framework in regards to the environmental liability and consequently problems in enforcement of the laws and in coordination among various state bodies.

The Ministry of Environment and Physical Planning is responsible for enforcement for the Law on Environment which includes supervision and inspection of the installation. The Ministry is also responsible for approval of the Environmental Impact Assessment Study that is obligatory for all legal entities and individuals that pollute the environment. The EIA Study for Bucim Mine was completed in June 2006 accepted by the Ministry of Environment and Physical Planning.

The Law on Local Self Government in general stipulates that the local governments will be responsible for protection of the environment, and the laws that are governing the issues related to protection of nature, water, air, soil, etc. are specifying the competences of the national and local governments, as well as the responsibilities of the legal and physical entities in the respective areas. Some of the by-laws related to the environmental laws have not been adopted and/or drafted yet and the transfer of the competences to the local governments in areas in which this would be possible has not happened yet. When it comes to mining operations, responsibilities are not delegated to local self governments. Permit issuance and supervision of mine the performance stay with the Ministry of Environment and Physical Planning. However, since protection and improvement of the environment are of public interest and comprise many activities in different areas the national and local governments should cooperate in the protection and the improvement of the environment.

Due to the old and sometime obsolete legislation or lack of appropriate legislation, and somewhat overlapping institutional framework, environmental burdens left behind by state-controlled industry have been transferred over to new owners, in most cases without clear specification of environmental responsibility. Currently, the country does not have a systematic approach or policy for addressing the historical pollution and remediation of the environmental hotspots. Their impact is not fully known, clean up costs are not systematically estimated (although some attempts to do this were done within the NEAP and the National Waste Management Plan), and funding either from the state or the mine owners and donors for the most environmental hotspots is very limited.

The Stabilization and Association Agreement signed with the EU in 2001 and the status of an EU accession country puts new obligations on the government regarding environmental protection. In the last two-three years the Ministry of Environment and Physical Planning has developed a

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new set of environmental laws which transpose the *Acquis Communautaire* into the national legislation. Also, the National Environmental Action Plan which guides the environmental management in the country was revised in 2007. The issues related to the environmental hotspots have already been identified as one of the priorities and the Ministry has allocated financial resources within its budget for the clean up/remediation activities. The Minister and the Deputy Minister are also showing proactive role by visiting the hotspots sites and discussing possible interventions with the site owners/concessionaires and the local governments. Such visit was recently (April 2007) organized in Bucim. The main topic on the agenda of the visit was the measures that the mine owner is undertaking to prevent/reduce pollution of the mining operations and the support that the Ministry could provide in this regard.

Given all the above, there is acknowledgement among Environmental authorities on the urgent need to focus on resolving the problems related to the environmental hotspots through the clean up activities, capacity building measures that will strengthen the national institutions responsible for this issues, as well as improvement of the respective legislation and its enforcement.

#### **4. Proposing National Authority**

The main project partner is Ministry of Environment and Physical Planning (MoEPP). It is the main state body responsible for the environment protection. Among others, through its State Environmental Inspectorate the Ministry ensures that legal entities are complying with the environmental laws and regulations. The Ministry is conducting regular supervision of Bucim operations and has obliged the owner to undertake measures that will reduce the negative impact of the mine on the environment. The MoEPP is also responsible to issue an integrated prevention pollution permit to Bucim which among others will include negotiations on the level of pollution that Bucim will be allowed to generate from its operations.

The Ministry will establish a Donor Task Force related to industrial hotspots. Its main role will be to coordinate the efforts and create synergies of all parties thus increasing the impact of various donors' interventions. A representative of the Donors Task Force will be member of the Project Steering Committee for the EAR funded project for remediation of environmental hotspots, and the Project Steering Committee of the national component of the regional hotspots project.

The Municipality of Radovis will be a project partner that will directly benefit from the success of the project interventions through improved quality of life of its citizens. Representatives of the Municipality of Radovis will participate at a network of local communities that will be launched within the regional project. In addition, the municipality will have its representative in the Project Steering Committee. The municipality will actively participate in all project activities, especially in the training programmes, the exchange of information schemes, and dissemination of information.

#### **5. Proposed Interventions and Expected Results<sup>46</sup>**

Preparation of the Environmental Impact Assessment (EIA) Study was one of the obligations imposed on the new owner of Bucim. It was developed by the Faculty of Mining and Geology, Stip in

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<sup>46</sup> The proposed project activities and costs estimations are based on the Environmental Impact Assessment Study (EIA) for the Mine "Bucim" prepared in June 2006, and the newly developed technology for treatment of the water derange coming from the mining waste rocks presented at the regional workshop that took place in Bor, Serbia, organized by UNEP within the Environment and Security Initiative (UNEP, UNDP, OSCE and NATO).

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June 2006. The EIA contains the following chapters: general information on the company and the applicable legal framework, description of the characteristic of the environment in the zone of the mining operations, description of the technical process and accompanying activities, identification of the environmental impact, management of the environmental impact, system for monitoring and control, and description of alternative solution for realization of the project.

With regards to the management of the environmental impact, the EIA Study proposes the following activities for mitigation/prevention of the negative impact of the mining operation:

- Water quality control measures
  - a) Collecting system for waters from the pit zone
  - b) Collecting system for the waters from the industrial yard
- Water management system
  - a) Construction of pump station, pipelines and sparing systems
  - b) Collecting pond construction
- Water quality control (purification of water effluents)
  - a) Passive control system
  - b) Cementation systems
- Air quality control
  - a) Dust suppression in ore processing process
  - b) Dust control on transportation roads
  - c) Re-vegetation of tailing dam
  - d) Binders application on the active part pf the dam
- Establishment of Environmental Department and Management System enforcement

According to the information provided by the management of Bucim during several site visits, as well as the correspondence between Bucim and the Ministry of Environment and Physical Planning, in less than one year since the completion of the EIA Study, the mine owner realized several activities that were foreseen in the study such as: construction of a collection system for the tailings pond seepage, some dust control measures (re-vegetation of the tailing dam), establishment of an environmental and management system department, and development of technical documentation for the clean up of the sediment from the Bucim Lake. Still the biggest problem for the company, for which they already requested technical support from the Ministry, is the system for water quality control, i.e., a system for proper and economical treatment of toxic leakages and effluents from the waste rock disposal landfill.

The proposed activities within the regional project described below are aimed at addressing both the historical pollution and prevention of the future pollution. While it is very difficult to estimate the exact percentage of pollution resulting from the new waste that is deposited at the old waste pile the estimation presented in section 2.2 above clearly demonstrates that the majority of the existing wastes are of historical nature.

The mine owner will contribute in cash and in-kind for implementation of the foreseen activities, and the breakdown of the project costs and the co-funding provided by the company is provided below for each of the proposed activates.

The proposed activities fulfill the sustainability criteria given that the measures for protection of waters, i.e., installation of a system for collection and treatment of waters will permanently solve current and future pollution from the mining operations in Bucim, and there will be no need for further investment in addressing the water pollution in the mine.

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### 1) Measures for protection of waters

In order to ensure complete solution for treatment and control of the effluent and mine drainage water a system for collection and treatment of the waters is suggested.

The system for water collection will be comprised of the following independent water collection systems:

- water collection system for waters from open pit which will include pumping stations and pipelines to remove and pump the waters from the open pit to the tailings pond where this waters will be recycled and used in the ore processing processes. (estimated costs for this system are 270,000 USD)
- water collection system for drainage waters from waste rock dump that will include:
  - o drainage channels surrounding the dump (estimated costs 200,000 USD)
  - o drainage well for collection of shallow ground waters (estimated costs 40,000 USD)
  - o collection pond (estimated costs 40,000 USD)
  - o System for primary water treatment including columns with absorption material (estimated costs 400,000 USD)
  - o System for secondary water treatment (passive) including settling ponds and alkalinity producing lake (estimated costs 130,000 USD)
  - o Pumping stations and pipeline for transportation of the water to the tailing pond (estimated costs 110,000 USD)

The technical design of systems and other project development document would cost approx. 70,000 USD.

The purpose of the systems mentioned above is to collect and treat the waters in such a manner that will eliminate the pollution of Topolnicka, Madenska and Lakavica River streams, as much as further downstream rivers Bregalnica and Vardar.

Bucim will be responsible for maintenance of the system after the finalization of the project.

The estimate costs for the above interventions would be approximately 1,200,000 –1,400,000 \$<sup>47</sup>

Out of the total estimated costs the project will finance 800,000 \$ and the mine owner has committed in writing to co-finance 400,000 \$ (200,000 \$ in cash and 200,000 \$ in-kind)

### 2) Air protection measures- re-vegetation

The new mine operators inherited the tailing dam that was left almost unprotected and prone to wind erosion. In order to prevent the airborne pollution as well as to contribute for stabilization of the dam, the surface of app. 20 ha of the tailing dump will be re-cultivated with a method of direct re-vegetation on biologically inactive materials. This method is much more efficient, less costly and provides better results in comparison to the classical methods that include covering the tailings with soil and manual planting of the vegetation. As part of their air pollution prevention measures the company has applied this method at the dam and the results have been very positive.

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<sup>47</sup> The accurate costs for each intervention will be estimated in the technical documentation and the bill of quantities that will be prepared in the first stage of the project.

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The estimated costs for this intervention would be app. 340,000 \$

Out of the total estimated costs the project will finance 170,000 \$ and the mine owner will co-finance 170,000 \$ (in-kind)

### 3) Air protection measures - fugitive dust control system

In order to prevent fugitive dust emission from the tailing dam a comprehensive system with fog canons will be used. The system consisting of four fog canons and the necessary accompanying equipment (water pipes and pumps) will cover the dry tailings area, generating artificial fog thus preventing the air erosion. This system could be designed to work automatically which will reduce the needs for manpower and maintenance.

The estimated costs for this intervention would be app. 270,000 \$

Out of the total estimated costs the project will finance 130,000 \$ and the Mine Owner will co-finance 130,000 \$ (103,000 \$ in cash and 27,000 \$ in-kind)

### 4) Clean up of the artificial Bucim Lake

The Mine Owner will undertake an extra activity that is complementary to the project activities which will contribute to the overall improvement of the environmental situation in the mining zone especially the quality of Topolnicka River. The company will carry out a cleaning up of the lake sediments in the Bucim Lake. This activity mainly addresses historical pollution because the sediment was deposited at the lake in the period 1979 – 2003.

The estimated costs for this intervention would be approximately 270,000 \$ in cash and they will be provided by the mine owner as a parallel funding.

## **6. Intervention Time frame – Bucim**

Upon the signature of the regional project document and the cost-sharing agreement with the mine owner, the first activity to be undertaken is preparation of a technical documentation for the project interventions. Immediately after that, the realization of the activities could commence in parallel. The only limitation is for the re-vegetation of the tailings dam that needs to be scheduled in spring or autumn.

The time frame of planned activities is given in the table below:

Activity	Duration	Start date	Completed By
1. Water protection measures		November 2007	June 2009
technical design and planning	4 months		
construction period	8 months		
testing and commencing	2 months		
2. Air protection measures- re-vegetation		November 2007	July 2008

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technical design and planning	2 months		
preparation period	2 months		
seeding	1 months		
3. Air protection measures-fugitive dust control system		June 2008	December 2008
technical design and planning	2 months		
construction period	2 months		
testing and commencing	1 month		

## 7. Related programmes/projects

a) The EU Community Assistance, Reconstruction, Development and Stabilization Programme (CARDS) 2006 is supporting the implementation of a project aimed at remediation of industrial hotspots on environmentally and financially sustainable manner. Specific objective of the project is to assist the elimination of industrial hotspots in the country through the development of hotspot remediation plans for four sites. Direct beneficiary of the project is the Ministry of Environment and Physical Planning.

UNDP Macedonia has met with the Team Leader and two national experts engaged to provide consulting services for the project and exchanged information on the planned UNDP regional programme and the CARDS project and agreed to establish continued close collaboration. UNDP has also participated as an observer at the meeting of the project steering committee that took place in the second week of May at which the four (4) hotspots sites that the CARDS project will further elaborate have been decided (OHIS A.D. Skopje, MHK Zletovo, Silmak, and Makstil).

b) The United Nations Environment Programme in collaboration with its Environment and Security Initiative partners (UNDP, OSCE, NATO, UNECE and REC) and with financial support from the Austrian Development Agency (ADA) implements the project "Environment and Security in the South Eastern Europe: Improving regional collaboration for risk management from pollution hotspots as well as the trans-boundary management of shared natural resources"<sup>48</sup> in: Albania, Bosnia and Herzegovina, Macedonia, Montenegro and Serbia. The project is assessing the trans-boundary environment and health risks resulting from mining and identifying mining sites that have potential to demonstrate innovative, local and cost-efficient risk reduction and management measures.

Last year UNEP/ADA conducted an assessment mission to collect data needed to support the selection of five pilot and/or demonstration sites. The mission's report highlights Bucim's potential to effectively demonstrate risk and impact mitigation with a learning value in the region. In case the UNEP project goes forward, both the Ministry of Environment and Physical Planning and the UN Resident Coordination office will coordinate with UNEP with a view to ensure the comprehensive multi-actor action that will resolve one environment hotspot in the country.

<sup>48</sup> South Eastern European mining related risks: Identification and verification of environmental hotspots, Philip Peck, UNEP GRID Arendal and Alexander Zinke, Zinke Environment Consulting, August 2006

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As already mentioned in the section 3.1 the State, i.e., the Ministry of Environment and Physical Planning has already allocated funds within its budget for 2007 for remediation/clean up of one hotspot.

## **Annex 1 – Company Profile**

### **Solway Industries LTD**

Solway Management is a sole and executive asset management company of Solway Investment Fund, a private equity investment fund specializing in worldwide strategic investment.

Solway Investment Fund was established in 2002. Initially it has focused solely on financial investment and real estate development. Subsequently the operations of the Fund have expanded into industrial investments. The basis for such expansion was created after the Fund has acquired Romtrade Group, a well established group of companies operating in various sectors of Central and Eastern European economies since 1992.

The Fund has initially attracted equity financing in the amount of US\$ 100 million. As of 31 December 2006 shareholders' equity of the Fund was in excess of US\$ 700 million. On a consolidated basis the turnover for 2006 was US\$ 470 million.

The assets of the Fund are concentrated in a variety of industry sectors, non-ferrous metallurgy, mining, industrial chemicals, pulp and paper production, energy, oil, real estate development, finance.

The Fund has three principal business groups: Industrial Investment and Mining, Financial Investments and Real Estate Development.

Industrial Investment and Mining is conducted by Solway Industries and Solway Resources. The main activities of this business group are: production of nickel ferroalloys; zinc, lead and copper ore extraction and processing; chemical production; cargo shipping, oil servicing and extraction; pulp and paper production, diamond mining and gold mining.

Total assets of Solway Industries as of 31 December 2006 have exceeded US\$670 million.

Since 2005 Solway Industries owns two Mines in Macedonia, "Sasa" ore mining and processing enterprise producing zinc, lead and combined concentrate, and "Bucim" ore mining and processing enterprise producing concentrate containing copper, gold and silver. "Sasa" has app. 540 employees and its primary market destination is Europe, and "Bucim" has app. 490 employees and its primary market destinations are Bulgaria and Serbia. There are plans to open a new pit that will provide an opportunity for employment of new 100 -150 people.

Capacity Development Programme

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Risks Log - Bucim Mine

#	Description	Category	Impact & Probability	Countermeasures / Mngt response	Owner	Author	Date Identified	Last Update	Status
1	Insufficient financial means and/or lack of timely available co-funding to complete all project activities	<b>Financial</b>	If sufficient and timely co-funding is not ensured than the scope of work has to be reduced  P = 2	Cost-sharing agreement that will be signed between the Mine Owner and UNDP will be a legally binding document that will ensure that each party will fulfil its obligations.  The owner of Bucim Mine already submitted a co-funding letter.	UNDP/ Bucim Mine	Programme Officer	March 2007	04 October	No change
2	Limited experience with innovative approaches in water protection measures in mining industry	<b>Operational</b>	Delays in implementation of specific activities may occur P = 3	The international tender for technical design will be announced and support from other UN specialized agencies will be acquired	UNDP	Programme Officer	During the project identification/ development		No change
3	Limited experience in PPP	<b>Strategic</b>	Implementation of the project might face with glitches because there is limited experience in the country on implementation of projects that involve public-private partnership P = 3	All concerned parties will be kept inform on the key project issues and a transparent decision making process will be ensured	UNDP MoEPP Bucim Mine	Programme Officer	During the project identification/ development		No change
4	Relatively long UNDP procedures for procurement of	<b>Operational</b>	Slow procurement process may cause delays in the	Detailed Procurement Planner with realistic timeframe to be	UNDP	Programme Officer	September 2007		No change

Capacity Development Programme

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	goods and services especially the one that have high value		implementation of certain project activities P = 3	prepared and closely monitored					
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## **B) Hot spot: Lojane Mine**

### **PROJECT DESCRIPTION**

#### **1. General information**

**Country:** Macedonia

**City/Municipality:** Municipality of Lipkovo.

#### **1.1 Intervention Location (Hot Spot)**

The Lojane Mine and its associated processing facilities are located in the Municipality of Lipkovo<sup>49</sup>, in the north-east of Macedonia. The municipality borders with Serbia on the north, the municipality of Kumanovo on the east, and the municipalities of Aracinovo and Gazi Baba on the south and west. A highway and international railway passes through the eastern part of the municipality connecting the community in the direction north-south following the flow of the Rivers South Morava and Vardar.

According to the 2002 Census, the Municipality of Lipkovo has 27,058 inhabitants and comprises 21 rural settlements. The village Lipkovo is the administrative center of the municipality and has 2,126 inhabitants. The village Matejce is the biggest settlement with 3,126 inhabitants. The ethnic composition of the municipality is the following: Albanians – 96.13%, Serbians – 1.77 %, and very small percentage of Macedonians.

The main economic activity in the Municipality is agriculture that engages 95% of the active population. The private sector employs small number of people mostly in trade and small companies for production of cement blocks. There are 2,500 unemployed persons in the Municipality.

Lojane Mine is identified as one of the 16 environmental hotspots within the Second National Environmental Action Plan (2006) and the National Waste Management Plan (2005). It is Chromium and Antimony Mine that was active in the period 1923 till 1979. The mine was operated by Italian Joint Venture Company until the Second World War. At the end of the war a new state owned company was formed to control and operate the mine. The headquarters of this company were located in Bujanovac, Serbia. In the mid 60's this company was associated to the state owned company Zajaca, a Metal Company from Serbia.

The ore concentrate was exported to the London Metal Exchange until it was stopped in 1964 due to its high arsenic concentrations that was not in accordance with the UK environmental laws. The ore concentrate was then exported to the Zajaca metal facility in Serbia. For reasons that are not clearly explained but most probably due to unfavorable economic circumstances the mine stopped its activities in 1979.

In January 2007 the Government of Macedonia through the Ministry of Economy issued concession for exploitation of antimony from the Lojane Mine to Farmakom MB Zajaca, Serbia. In

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<sup>49</sup> Till 1996 and the new Law for Territorial Division, the Municipality of Lipkovo was part of the Municipality of Kumanovo

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Macedonia Farmakom MB is registered as a domestic company with foreign capital (See annex for more details on Farmakom MB)

## **1.2 Description of mining/mineral processing technology used<sup>50</sup>**

Until its closure in 1979 Lojane was an underground small scale mining operation (room and pillar) and with primitive technology (in today terms), probably engaging human power with limited application of mechanical tools (powered by compressed air) and horses. Total quantity of the materials excavated during the period when the mine was active (1923-1979) is estimated to amount at approx. 1,300,000 tons. The annual production capacity was between 25,000 to 30,000 tons, i.e., the operation was classified as relatively small (in today terms very small).

The total quantity of waste rocks generated by extraction operations are estimated at app. 90,000 tons. No significant water drainage from the mines was noted.

The composition of the ore was chromium, antimony and arsenic minerals which were commercially extracted with flotation process and used commercially.

The total mine area is approx. 10 km<sup>2</sup>. The area of consideration includes several locations where old production, storage and transportation facilities exist.

Four mine adits and three ventilation shafts are located in the valley of Suva Reka. In the higher part of the valley ruins of a small mining settlement and mine office/service building are scattered in the area of approx. 3,000 m<sup>2</sup>. In the same area, three waste rocks dumps and mined ore stockpiles are placed.

Ruins from the processing plant are located along the road connecting villages Vaksince and Lojane. The ore excavated was transported to the processing plant by a narrow rail line where ore was reduced in size by the crushing and/or grinding circuit. Antimony and arsenic minerals were concentrated by flotation process. As for all flotation systems, complex systems of reagents were most probably used, including, pH conditioners (regulators, modifiers), collectors, frothers, activators, and depressants. The wastes generated by this process, known as tailings were disposed in dry form on the pile created just in front of the plant. The tailings pile covers a surface of approx. 12,000 m<sup>2</sup>, (with stone structure with estimated volume of app. 5,000 m<sup>3</sup>). It contains approx. 15,000 tons of 50% As<sub>2</sub>O<sub>3</sub> concentrate. This is located just near a local school and a few residential and commercial objects.

Concentrates were transported to the roasting plant and used to prepare ores for smelting. The old smelting facility and an open storage yard are located in the north-west of the village Tabanovce, near the international railway station Tabanovce, where custom and police control buildings are located. The facility and the storage yard cover surface of approx. 4,000 m<sup>2</sup>.

Summarized data about all facilities mentioned above are given in the following table.

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<sup>50</sup> Due to the fact that all operators of the mine were located in Serbia, very limited amount of official documents concerning the mine activities, including mine plans, were available. The explanation is based only on the data collected on site, the assumptions and conclusion obtained from on-the-site observations as well as literature on operations, waste streams, and waste management practices typical of historic mine sites and mineral processing facilities. They described in full in the Draft Feasibility Study, Dekonta, Czech Republic, April, 2007; Baseline Study, Faculty of Mining and Geology, Stip, November 2006

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Location	Objects	Chemical composition	Quantities
Along the river Suva (Masugguri hill)	Office/Service Buildings	/	1.000 m <sup>2</sup>
Along the river Suva (Masugguri hill)	Shafts , Adits	/	3 shafts, 4 adits
Along the river Suva (Masugguri hill)	Waste rock dump 1	Low grade Sb ore and waste rocks ( app. 1-2% Sb&As)	20.000 tons
	Waste rock dump 2		20.000 tons
	Waste rock dump 3		50.000.tons
	Ore stockpile	High grade ore (app. 5-6 % Sb, 4 % As)	5.000 tons
Mining colony	Plant/Office Buildings	/	2.000 m <sup>2</sup>
Mining colony	Tailings Dump	/	1.000.000 tons tailings (1-2 % As)
Mining colony	Arsenic concentrate	As <sub>2</sub> O <sub>3</sub> (>50%)	15.000 tons
Roasting facility (Tabanovce railway station)	Open Stock Yard	As <sub>2</sub> O <sub>3</sub> (>50%)	5.000 tons
Roasting facility (Tabanovce railway station)	Barrels	Sb concentrate	2.500 pcs

## 2. Problem Description<sup>51</sup>

Abandoned and orphaned mines have a particularly high potential to adversely impact the environment and human health since all mining facilities and structures are left unprotected and without any mitigation measures. Till the concession for exploitation of antimony was issued to Farmakom MB (January 2007), Lojane was treated as an abandoned mine.

After the cessation of the mining activities in 1979 the complete infrastructure i.e. production facilities, beneficiation facilities, ore waste dumps and tailing ponds, as well storage yards, silo's and workshops were abandoned without undertaking any conservation measures.

The results of the analyses conducted within the ongoing feasibility study for Lojane Mine clearly identify the impact of the mining operations in the past on the quality of the water resources (underground and surface), soil and air. The most critical issues are the following:

**Surface water.** The Suva River collects drainage waters from the mine and the waste dumps which are washed with intense runoff from steep slopes of the valley. This process is intensified during the high water periods when the river floods the ore waste dumps. Therefore the content of the arsenic (As) in Suva River is up to 40 times higher than the threshold limited value (TLV) for effluent waters in Macedonia. Such high pollution could be explained by the high As concentration in the ore waste and the extreme mobility of this metalloid. Extremely elevated As concentrations in Suva River water have certainly detrimental effect on aquatic life/biota in this water. Additionally this water is occasionally used for irrigation, thus polluting the plants/food produced, as much as the soil irrigated. Wildlife in the area is even more exposed on the negative

<sup>51</sup> Draft feasibility Study, Dekonta, Czech Republic, April, 2007; Baseline Study, Faculty of Mining and Geology, Stip, November 2006

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effects of these waters since the wild animals can more easily come in contact with the waters and use the water for drinking. Similar is the situation with farm animals kept in open.

Concentrations of contaminants in Lojanska and Tabanovska Rivers, although higher than the threshold limit values prescribed in national regulations, are much lower in comparison to the Suva River due to favorable hydrology/hydrogeology conditions. Thus, the contaminated waters of the Suva River flow are naturally contained. It should be noted however that the waters from these rivers are more widely used for irrigation and even as a drinking water (Lojanska River) which impose negative effect on human health, especially in prolonged use or contact.

Ground Waters. Based on the samples taken, the ground water quality is satisfactory and only slightly increased concentrations of As are observed. This data confirms the thesis by preliminary hydro-geological survey that there is no direct connection between contaminated surface waters and groundwater. It was also confirmed that the increased concentrations of As in the ground water found in two locations are the result of high natural content of this element. These locations are the natural spring below the tailings as well as the well nearby the tailings pile (Bilnet Komerce well). In both cases, the ground waters, due to their positive pressure, come to the surface and wash the tailings before they exit to the surface, thus collecting huge amount of contaminants. The water from the spring creates a stream flow through the field and enters the Suva River. It is clear that the use of this water for any purpose could seriously affect exposed humans and animals.

Sediments. The extremely high values of the heavy metals in the sediment (As up to 30 times, Cr up to 10 times, Ni up to 40 times, Cd up to 10 times more than TLV) taken from the river bed of Suva River are obviously the result of a long term deposition of leached metals due to the long period of uncontrolled pollution of the river flow.

Soil. The soils in the immediate vicinity of the pollution sources are also highly contaminated with heavy metals. For example, arsenic concentration is 50 times higher compared to the NOA (Netherlands Standard for Soil, since there are no national standards for soil). The most critical points are along the Suva River and the soils near the tailing dump.

Air. Due to very fine structure of material disposed, erosion processes are present, especially the wind erosion at the tailings damp sites. The airborne particulate pollution is posing a direct risk for the health of the inhabitants of the villages especially the one living or working in the immediate vicinity of the arsenic ponds (e.g. the school in Lojane)

Waste. Approx. 90,000 tons of waste rocks that contain low grade antimony and arsenic (1-2%) and 5,000 tons of ore stockpile containing high grade antimony and arsenic (5-10%) are located in the higher part of the valley. These dumps are prone to mechanical disintegration, wind and water erosion thus presenting a significant source of contamination in the area between villages of Lojane and Vaksince.

The tailings dump near the old flotation plant contains around 1,000,000 tons of fine sized material with an average concentration of arsenic and antimony of up to 1-2%. The concentrate storage pond contains around 15,000 tons of high grade concentrate of arsenic oxides (>50%). Just near to the tailings dump the local school and a few residential and commercial objects are located, posing significant threat to the health of children and adults working in these facilities.

Another source of contamination with toxic metals is located near the international railway station in Tabanovce where 4,000 tons of arsenic concentrate is stored at the open storage yard, left completely unprotected. In addition, there are around 2,500 barrels, almost disintegrated, filled with  $As_2O_3$  placed at the same location.

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There is no study available on the health status of the people living in the Municipality of Lipkovo. The Local Environmental Action Plan for the municipality nevertheless notes the low quality of drinking water, sewage waters and dust from the old mine as one of the main reasons for the health problems that are occurring in the municipality.

The effect of the heavy metals on the human health is well known. Arsenic is one of the most toxic elements that can be found. Humans may be exposed to arsenic through food, water and air, as well as through skin contact. Exposure to inorganic arsenic the one present in Lojane Mine, can cause various health effects such as stomach irritation, decreased production of red and white blood cells, skin changes and lung irritation. It is suggested that the uptake of significant amount of inorganic arsenic can intensify the chances of cancer development especially skin, lung, liver and lymphatic cancer.

### **3 Current state of affairs in Industrial Hotspots Management**

Prior the concession was issued to Farmakom MB, Lojane was treated as an abandoned mine but now we could talk about re-mining. Re-mining projects are those where the wastes of previous mining operations are reprocessed in order to recover valuable minerals that remain. Technology advances over the past decades make it possible for profitable operations to take place in such circumstances. However, the company that got concession for exploitation of antimony is investigating the potential not only for the reprocessing but also for the exploitation of new ore.

The Ministry of Environment and Physical Planning informs that the approval of the Environmental Impact Assessment Study has preceded the issuance of the concession by the Ministry of Economy.

For more comprehensive information regarding the current state of affairs in industrial hotspots management in Macedonia please see the description under the Bucim Mine.

### **4. Proposing National Authority: Ministry of Environment and Physical Planning**

The main project partner is the Ministry of Environment and Physical Planning (MoEPP). It is the main state body responsible for the environment protection. Among others, through its State Environmental Inspectorate the Ministry ensures that legal entities comply with the environmental laws and regulations.

The Ministry of Environment already allocated 1,000,000 MKD within their budget for priority interventions in Lojane Mine which will be used as co-funding for the project. In April, the Minister of Environment visited the municipality of Lipkovo and met with the Mayor, the members of the City Council and the concessionaire of Lojane Mine. Among others, they discussed on the issues related to the environmental problems in the municipality and the follow up needed to address these issues.

The Municipality of Lipkovo will be a project partner that will directly benefit from the success of the project interventions through improved quality of life of its citizens. Representatives of the Municipality of Lipkovo will participate at a network of local communities that will be launched within the regional project. In addition, the municipality will have its representative in the project steering committee. The municipality will actively participate in all project activities, especially in the training programmes, the exchange of information schemes, and will disseminate information to its citizens.

## **5. Proposed Interventions and Expected Results**

The proposed intervention aims to address only the air pollution affecting a nearby school and does not intend to carry out a comprehensive remediation programme for the site. The reason for such a limited intervention is the urgent need to reduce the health hazard posed by the air pollution on children. The ongoing negotiation process between the Ministry of Environment and Physical Planning and the new mine concessionaire may identify further prevention/risk reduction measures to be undertaken. However, the proposed intervention will represent fast and sustainable measures to control the air quality. The approach includes simple capping system that is the most viable method in the concrete circumstances. Although small in size the intervention will have a great immediate effect on the reduction of the health hazards for the children in the nearby school.

The draft feasibility study for the Lojane Mine which is being prepared as a part of the Environment and Security Initiative (UNDP, UNEP, OSCE, NATO), funded by UNDP Macedonia and the Czech Trust Fund of UNDP already depicts a number of conventional and innovative/emerging methods to address the air and other pollutions caused by the mine. Conventional methods are those having a successful track record in mine site cleanup, or technologies that are considered standard practice for mine site management. Such approaches have been widely applied to remediation of mining and mineral processing sites, as well as other waste management units. Innovative technologies include processes or techniques for which cost or performance data is incomplete and the technology has not yet been widely applied. An innovative technology may require additional field scale testing before it is considered proven and ready for commercialization and routine application at mine sites. Emerging technologies typically are even earlier in the development process. While they are potentially applicable at mine sites, additional laboratory or pilot-scale testing to document effectiveness is highly recommended.

The capping system is sustainable for the foreseeable future based on several factors: the damp site is relatively small; the ground is of low permeability because it is clay, and since the position of the bedrock is flat there will be very little or no migrations of contaminants into the nearby channels.

### Air quality control at the tailings damp (landfill) near the primary school in Lipkovo

The tailings landfill contains app.1,000,000 t of tailings (flotation process residues–waste). In order to prevent the air pollution through the wind erosion, this area would be capped with appropriate capping system (clay) and a layer of soils and planted with suitable vegetation. The area for vegetation is app. 20 ha.

The Concessionaire of the mine will excavate the concentrate of arsenic oxides that contains around 15,000 tons high grade arsenic (>50%), which is deposited at the concentrate storage pond. The area will then be covered with capping system cover if needed to prevent wind erosion.

Also the municipal waste, mostly construction waste that is deposited at the site, will be removed and disposed at the appropriate landfill. This will prevent eventual problems that might be caused when the organic waste is decomposing.

The estimate costs for the above intervention would be approximately 270,000 – 340,000 \$

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Out of the total estimated costs the project will finance 135,000 – 200,000 \$ and the Ministry of Environment and Physical planning will co-finance approx. 135,000 \$. The Concessionaire of the Mine will cover the cost for excavation of the concentrate of arsenic oxides. The value of this intervention is to be determinate.

Note: The costs estimations for the intervention are based on the preliminary findings of the feasibility study for Lojane Mine, and an opinion of the mining engineer engaged in the preparation of the feasibility study.

## 6. Intervention Time frame

### 6. Intervention Time frame - Lojane

Upon the signature of the regional project document and the cost-sharing agreement with the concessionaire, the first activity to be undertaken is preparation of a technical documentation for the project interventions. Immediately after that, the realization of the activities could commence in parallel. The only limitation is for the re-vegetation of the tailings dam that needs to be scheduled in spring or autumn.

The time frame of planned activities is given in the table below:

Activity	Duration	Start date	Completed By
Air quality control at the tailings damp		December 2007	December 2008
technical design and planning	2 months		
excavations	2 months		
installation of a capping system	2 months		
vegetation	2 months		

## 7. Related programmes/projects

Lojane is one of the short-listed sites for further assessment in Macedonia. If UNEP decides to support Lojane, the Ministry of Environment and Physical Planning should negotiate and agree that UNEP will undertake activities that will be complementary to the one implemented within the regional project in order to have a comprehensive action that will contribute to the mitigation of the problem in this particular environmental hotspots.

The Ministry of Environment and Physical Planning has already allocated funds within its budget for 2007 for remediation/clean up of Lojane. In April these year the Minister visited the site and discussed with the municipality of Lipkovo and the concessionaire of the mine on the measures that need to be undertaken in order to mitigate the pollution associated with the mine.

For more information please see the section 7 of the project description for the Bucim Mine.

## **Annex 1 - Company Profile**

### **Farmakom MB –Sabac, Serbia**

The Consortium operates under this name since January 2006. It consists of nine companies: "Farmakom MB" d.o.o.o. Sabac, "PIK 7 Juli" a.d. Debrec, "Zorka EXA" d.o.o. Sabac, "Mlekara" a.d. Shabac, "Mlekara Bijelo Polje" Bijelo Polje, "Livnica Pozega" a.d. Pozega, "IKG Guca" Guca, Mines and Smelter Zajaca, Battery Factory "FAS" Sombor.

"Farmakom MB" d.o.o.o. Sabac is the parent company and the oldest member of the Consortium. It was established in 1992 and primarily deals with import-export of raw materials for non-ferrous metals, paints and vanishes, pesticides and mineral fertilizers.

The Mine and Smelter Zajaca became a member of the Consortium in 2006. The Mine was founded in 1877 and historically the mine production has yielded over 600,000 tonnes of metallic antimony. This ranks Zajaca as one of Europe's largest antimony districts. Zajaca's antimony endowment by itself is impressive, but more importantly, antimony is a common pathfinder element associated with gold mineralization although the Zajaca district has never been explored for gold. Along with the ores of lead and antimony it also processes secondary raw materials, and it has lead and lead alloys smelter. The main product of "Zajaca" is lead-antimony alloy in two types: ZL-1 and ZL-2, primarily used in battery industry. It also produces raw metal ZSM used in refinement and alloying, as well as re-smelted metal ZL-3 subjected to additional melting in the rotation furnaces and cleaned from excess dross.

Capacity Development Programme

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Risks Log - Lojane Mine \*

#	Description	Category	Impact & Probability	Countermeasures / Mngt response	Owner	Author	Date Identified	Last Update	Status
1	The clean up of the waste would require at least a temporary landfill for hazardous waste which doesn't exist in the country, and its construction would be a lengthy and expensive	<b>Environmental Financial Operational</b>	The design of the project intervention will depend on the decision of the concessionaire which might postpone the project intervention. Depending on the results of the investigations the project activity might need to be slightly revised  P = 4	The MoU and the Cost-sharing agreement that will be signed with the concessionaire will clearly state the obligations and responsibilities of each party	Ministry of Environ. and Physical Planning (MoEPP)/ UNDP	Programme Officer	During the Project Identification / Development		No changes
2	Delays in availability and timelines of the co-funding from the Government	<b>Financial</b>	Budget of the Ministry is decided on an annual basis and if funds are not provided on time some of the project activities will be postponed  P = 3	The Ministry of Environment already submitted the Letter of Co-funding.  MOU that be signed between the MoEPP and UNDP will have clear provision of roles and responsibilities including financial one of all parties.	MoEPP	Programme Officer	March 2007		No changes
3	Property rights of the Mine	<b>Regulatory</b>	The Mine is given under concession so no interventions could be carried out at the site without the consent of the concessionaire  P = 3	The company that got the concession has already expressed interest for collaboration;  The MoU and the Cost-sharing agreement will provide a framework for mutually agreed	MoEPP/ UNDP	Programme Officer	During the Project Identification / Development		No changes

Capacity Development Programme

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				intervention					
4	Maintenance of the rehabilitated areas has to be ensured to prevent the damages and local government has limited capacity	<b>Organizational</b>	This risk is related to sustainability of the project i.e. the follow up actions needed to carry on with the activities after the closure of the project  P = 3	The Municipality of Lipkovo should commit to ensure proper guard and maintenance of the rehabilitated areas This will be clearly stated in the MoU signed with the Municipality of Lipkovo	MoEPP/ UNDP Mun. of Lipkovo	UNDP Municipality of Lipkovo			

1 – Low/Unlikely Risk

5 – High/Likely Seriously Risk

Strengthening capacities in the Western Balkan countries to address environmental problems through remediation of high priority hot spots

## Annex 5

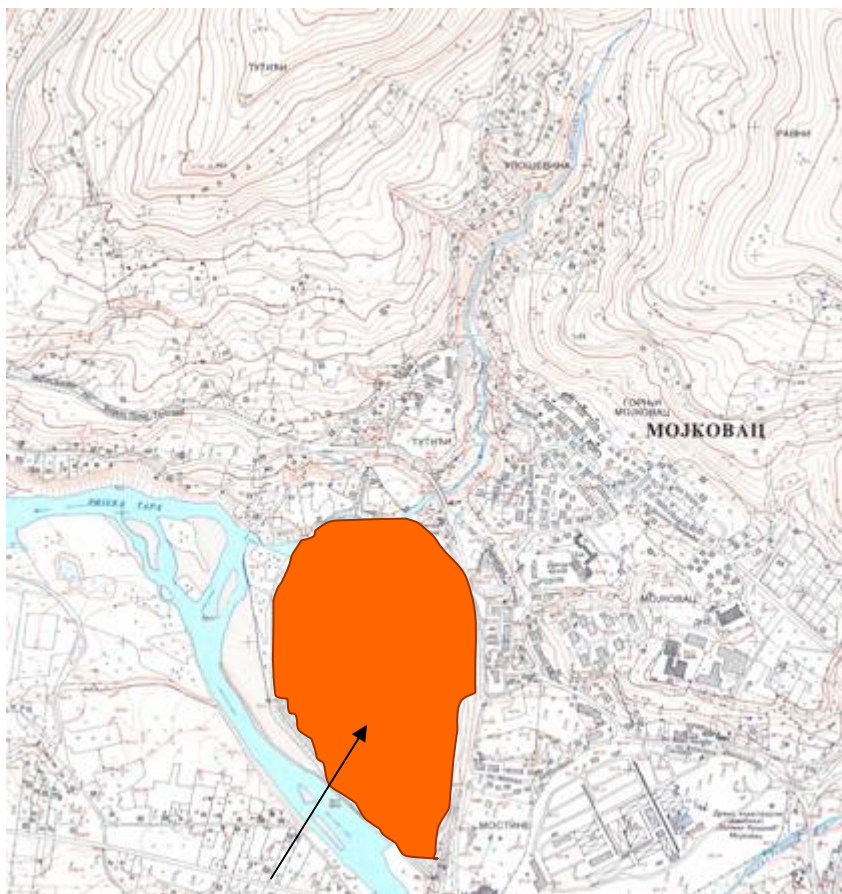
### MONTENEGRO

#### PROJECT DESCRIPTION

##### I. General information

City/Municipality: Mojkovac/Mojkovac

Intervention Location (Hot Spot): Lead and Zinc Tailing Mine Impoundment (TMI) in Mojkovac



Position of the Tailing Mine Impoundments in Mojkovac

Ownership: Land occupied by TMI and TMI facility are state owned.

Proposing National Authority: Government of Montenegro, Ministry of Tourism and Environment

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## **II. Problem description**

### Previous activities at the location

Lead and Zinc Mine "Brskovo" was operating in the period 1976 – 1991. Its Tailing Mine Impoundment (hereinafter TMI) has been formed in the area between right river bank of Tara and western side of urban zones of Mojkovac. TMI occupies an area of 19 ha and approximately 2 million m<sup>3</sup> of disposed tailing impounded materials.

### Technical characteristics of the hot spot

TMI has been designed and constructed through three stages: the first one up to the peak elevation of 801 ASL<sup>52</sup>, the second up to 805 ASL, and the third and final stage, up to 807, 5 ASL. TMI construction followed a principle of a complete isolation from the water current, i.e. Tara River.

Along with the TMI brim towards River Tara and Juskovica Stream, an embankment dam was built by the gravel from the riverbed. The dam is 1130 m long, with an average height of 12, 5 m. A concrete covering was placed on the outer slope of the dam towards River Tara, to retain high waters of the river. The dam slope and bottom of the TMI, except for the slope part towards the main road, is covered with the PVC 0,8 mm thick liners, in order to prevent migration of impounded masses into the underground and Tara River. The slope towards the main road is covered with plastic liners up to level of 801asl.

The facilities<sup>53</sup> for holding and returning clear waters from the tailings impoundment to the plant for treatment of used waters and repeated engaging in the technological process of flotation, with no discharge into water currents, are constructed. Among other facilities, in the area<sup>54</sup> of the TMI are constructed sewer facilities for both, communal<sup>55</sup> and storm waters. The main sewer discharge tube<sup>56</sup> was placed in the area of the TMI, upon pooling, on the dam's slope, below the petrol station. While constructing TMI, works were not undertaken on collection and drainage of surface storm waters from the main road lane and neighbouring watershed.

From the beginning to the end of the technological processes in the mine, all of flotation tailings have been impounded into this area. According to data on total production in "Brskovo" mine, approximately 2.600.000 t of tailings is produced. Available capacity of stage 3 (around 450.000m<sup>3</sup>) is estimated to be 75% occupied by the flotation tailings. Pursuant data on chemical elements contents in the flotation products, the impounded flotation tailings includes following components: Lead = 0, 20%; Zinc = 0, 30-0, 40 %; Copper = 0, 10%; Iron = 4-5% and Sulphur = 10-12%. Along with the aforesaid, the elements that are also present are Cadmium, Antimony, Mercury, Arsenic, Gold, Silver, Germanium, Molybdenum etc. In addition, when regarding flotation reagents, there is Cyanide, Copper sulphate, Xanthalates, and Zinc sulphate.

### Environmental aspect

Main environmental impacts of the hot spot are as follows:

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<sup>52</sup> Above sea level

<sup>53</sup> Main manhole, main sewer along the bottom of the TMI to the pump station and the pump station

<sup>54</sup> At the slope next the main road

<sup>55</sup> For the "upper" and "down" part of the town of Mojkovac

<sup>56</sup> Discharge to the Juskovica brook

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- Leaching of muddy and liquid component of the impounded material through the bottom and lateral sides of TMI and their migration to Tara River that is under national<sup>57</sup> and international<sup>58</sup> protection.
- Non-treated sewage waters from Mojkovac are discharging and remain into the TMI. Also, there is direct or indirect runoff into Tara River.
- Precipitations, i.e. storm waters from the road (Kolasin-Mojkovac-Bijelo Polje) and neighbouring urban zones of Mojkovac are draining into the TMI, and consequently participate in the runoffs into Tara River.
- Airborne pollution by flying ash from the dry upper parts of TMI. This is a threat to human health of local population living in the vicinity of TMI.
- Disposing of the communal solid waste at the TMI
- Eventual breakdown of dam stability could cause overflow off the toxic material from TMI to Tara River
- Biodiversity (macrophyte vegetation, fish, birds) living in the water part of the TMI are posed to the permanent process bioaccumulation of toxic substances from the water / mud at the TMI

Technical aspect

As mentioned before, in the area of TMI are constructed certain facilities of municipal sewerage system, so technical resolving of the problems caused by these facilities has to be considered as priority activity for this hot spot.

In general, this include construction of a Waste Water Treatment Plant (hereinafter WWTP) and (re) construction of the sewer systems for communal and storm waters.

Activities that are recently carried out by the Government are in relation to this priority.

Implemented activities:

*a) In the past*

Upon cessation of the flotation tailings impounding, the following activities have been performed:

- Reclamation of dam towards Tara River, for 150 m of its length. The dam was damaged during great floods in 1992. The filling was done with crushed rocks and gravel, and the works were performed at the end of 1992 and at the beginning of 1993. Protection of the reclaimed dam is provided, in a segment, by placing gabions along the dam base.
- Regulation of Tara River bed, direction opposite the TMI. The works were performed in 1993.
- Partial covering of the TMI area by gravel taken from riverbed of Tara and Rudnica rivers, in order to prevent the tailings to be blown by wind in a dry spell. The works were performed in 1993.
- Dislocation of main sewer and a part of the precipitation collector in Mojkovac, partly leading through the area of TMI. The works were performed pursuant to the Dislocation Project in 1995, and have been seriously damaged in the meantime.
- A possibility of biological re-cultivation was tested in the TMI, when the examinations of the tailings and vegetation experiments were conducted in half-controlled conditions in a green house. This examination gave positive results. In 1995, a field vegetation experiment was conducted at the very TMI in the vegetation period, as to realize possibility of a biological re-

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<sup>57</sup> National Park Durmitor with Tara River Canyon, since 1952

<sup>58</sup> Durmitor with Tara River Canyon is an UNESCO World Heritage site, since 1980, as well as UNESCO M&B World Biosphere Reserve since 1977

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cultivation and change of the latter into a green area. The aforesaid experiment involved various treatments and a mixed grass sowing. These results are outlined in the Institute for Technology of Nuclear and Other Mineral Raw Materials, Belgrade.

- Study on the Mojkovac Environment Quality and Study on the Protection of the Environment, as a part of a General Urban Plan of Mojkovac.
- Disassembling and removing of pulp pipeline for the tailings transport from the flotation to the TMI and off the dam top and pipelines for supply and distribution of Tara River water, for the TMI drenching, (the works were performed in 1994).
- Disassembling and removal of a pump from the main manhole for protruding waters is done.
- Project *Remediation and recultivation of the Mojkovac lead and zinc tailings mine impoundment* has been prepared and verified in 2004.

*b) Recent activities:*

Since mid of 2005, following activities were implemented:

- For collecting storm waters, 350 meters of the sewer with its inflow and outflow has been constructed
- Cleaning up of the vertical collecting manhole (shaft) and existing sewer discharging tube placed in the TMI
- Opening of a slot for the placing discharging tube in order to drain surface waters at the TMI to Tara river
- Technical design project for WWTP for Mojkovac that should be placed at northern side of TMI dam, next to the mouth of Juskovica brook
- Additional research / investigations and
- (re)construction of main sewer for wasted waters from Mojkovac that is an on-going activity

Activities given above were funded by the Government of Montenegro with 930.000,00 \$, as well as by donations of the Government of Czech Republic worth 500.000, 00\$

Importance of the TMI Mojkovac hot spot has been emphasised by UNEP report *South Eastern European mining-related risks: Identification and verification of "environmental hot spots"* (see pages 44 and 46 in draft Report)

**III. Proposed interventions and expected results**

In order to provide significant progress in cleaning-up activities at the hot spot location, as well as in achieving sustainable development in the region, this project is aimed to provide support in the implementation of the *Phase I of the project Remediation and recultivation of the Mojkovac lead and zinc tailings mine impoundment*. In relation to this, priority should be given to the activities that still wait on the implementation.

Proposed activities of Phase I of the Project are presented in following table

No	Activity	Remark
1.	Additional research works in order to provide more precise data on mud volume and its suitability for stabilization.	Implemented
2.	Commissioning of the existing control manhole and drainpipe, construction of a new section of a drain canal to Tara River	Implemented
3.	Facilities for tailings impoundment protection from external storm waters (storm waters collector and other	On - going

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	facilities)	
4.	Removal of surface water from Tailings Impoundment	Not implemented
5.	Reconstruction and completing of the sewerage system for wastewater in the area of Tailings Impoundment	Not implemented
6.	Construction of waste waters treatment plant of Mojkovac	Not implemented
<b>TOTAL Phase I</b>		

Construction of the waste waters treatment plant (WWTP) should be considered as top priority.

Preparedness of technical documentation

In order to secure implementation of the cleaning-up activities, this project will use already prepared and verified Technical Design Project named *Remediation and recultivation of the Mojkovac lead and zinc tailings mine impoundment*. This project was prepared by faculty of Civil Engineering Podgorica and associated institutions<sup>59</sup> in 2004. Its implementation is planed through 3 phases, with total budget of 10.000.000, 00\$.

Also, for the implementation of proposed priority activity (construction of WWTP for Mojkovac), Technical Design Project is already prepared<sup>60</sup>. According to the project, WWTP of 5.200 ES has to be placed at northern side of TMI dam, next to the mouth of Juskovica brook. In the construction works are included construction of an access road and regulation of Juskovica brook, so total budget for all these activities is 2mil \$.

Plan for the implementation of proposed interventions

Project activities, particularly construction works will be in the course of already prepared project documentation given above (technical design projects).

Expected results

Implementation of proposed activities will be in compliance with the Intervention Strategy of UNDP Capacity Development Programme *Strengthening capacities in the Western Balkans countries to address environmental hot spots through an integrated approach*. In particular, by reducing / eliminating pollution of Tara river, this project will significantly reduce local and cross border pollution in downstream countries (BIH, Serbia...).

<sup>59</sup> Institute of Mining, Geology and Ecology, Podgorica, Center for Eco-toxicological Analysis, Republic Institute for Hydrometeorology, Republic Institute for Geological Researches and Geos d.o.o.

<sup>60</sup> Prepared by Czech company » Vodni Zdroje«, Praha

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**IV. Intervention time frame**

Time frame:

Proposed interventions in the Phase I

Activity	Time (months)						
	1	2	3	4	5	6	7
Surface water removal from the TMI	90 days						
Rebuilding of waste water sewerage	120 days						
Waste Water Treatment Plant	210 days						
Additional works							

Phase I and II of whole project (from TDP)

Activity	TIME																																									
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37					
Reconstruction of the storm water sewerage	150days																																									
Collection manhole reconstruction		90 days																																								
Surface water removal from the TMI									90 days																																	
Rebuilding of waste water sewerage										120 days																																
Waste Water Treatment Plant											210 days																															
Stabilization of the mood																																										
TMI back-filling																																										45
Building of the final solidification																																										30



Strengthening capacities in the Western Balkan countries to address environmental problems through remediation of high priority hot spots

**Risks Log**

**Waste Water Treatment Plant (WWTP) located at the Tailing Mine Impoundment (TMI) in Mojkovac**

(Component 3 in the Phase I of the Project REHABILITATION AND RECULTIVATION OF THE TAILING MINE IMPOUDMENT (TMI) IN MOJKOVAC

#	Description	Category	Impact & Probability	Countermeasures / Mngt response	Owner	Author	Date Identified	Last Update	Status
1	Lack of financial means to complete all project activities that are mutually linked (Insufficient Donor or Government funds)	Financial	Implementation of project activities could be stopped or reduced  P = 4	Provide additional funds / Fund rising	UNDP / Ministry responsible for Environmental Protection	UNDP	Identification phase – November 2006	October 1st 2007	No change
2	Project abused or neglected because of new Government priorities for investment in environmental infrastructure	Political Strategic Environmental	Project could be stopped. Consequently, threats of the tailing mine impoundment (TMI) to the environment will remain. Tara river (UNESCO WH and BR) will be under great threats.  P = 2	Promote the project and keep its status as Government priority. Both, Government and Municipality Mojkovac, have to take care on the importance of the project in their plans, programmes, policies and strategies	Ministry responsible for Environmental Protection / Municipality Mojkovac / UNDP	UNDP	Identification phase – November 2006	October 1st 2007	Dead / No change
3	Poor technical quality of the construction works	Operational Environmental	Project activities linked to this activity could be stopped or reduced because of necessary revisions	Technical supervision of the construction works should be performed. Additional	Contractor / Directorate for Public Works / Ministry responsible for	UNDP	Identification phase – November 2006	October 1st 2007	Dead

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			P = 3	construction works for improvements should be designed and revised by new contractor	Environmenta l Protection				
4	Leakage of sewage waters during construction phase (works on connecting WWTP on the sewage system)	Environmenta l Operational	Most critical could be impact to the environment, i.e. pollution from the leakages will easy come to Tara river that is UNESCO World Heritage and Biosphere Reserve  P = 3	Technical supervision of the construction works should be performed. Contractor should provide necessary technical measures for preventing possible leakages	Contractor / Directorate for Public Works / Ministry responsible for Environmenta l Protection – Environmenta l Inspectorate	UNDP	Identificatio n phase – November 2006	October1 st 2007	Dead
5	Technical malfunction of other components of the system for collection and disposal sewage waters	Operational Environmenta l	Similar to previous, critical impacts will be to the environment. However, sanitary situation in the town will be aggravated by such an situation  P = 2	Technical supervision of the construction works should be performed for all components of the project. Contractors should provide all works timely and of appropriate quality. Public Utility Company should provide existing system ready for connection to the WWTP	Contractors / Public Utility Company Mojkovac / Directorate for Public Works / Environmenta l Inspectorate	UNDP	Identificatio n phase – November 2006	October1 st 2007	Dead / No change

1 – Low/Unlikely Risk

5 – High/Likely Seriously Risk



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The cities as well as ten large - mainly food processing industries are situated along the important waterway called the Grand Canal of Bačka connecting the Danube River in the west with the Tisa River in the east. "The Grand Canal of the territory of Backa" (formerly named the Franz's Canal) - has- between the cities of Bezdán to Becej a total length of approximately 130 km long running west- east. The canal-stretch from Crvenka to Vrbas is 18 km long. *The part of the canal, which is designated in this proposal for an extensive clean-up operation, runs through Vrbas for a distance of 6km.* The canal was built for navigation, drainage of swampy areas and is also used for irrigation as well as for water supply for special purposes. The canal does on certain stretches represent a potential for recreational purposes such as swimming and fishing, and once cleaned may facilitate water transport of goods enabling large volume, small margin industries to develop that may reverse current trends of employment decrease in this region.

On the banks of the Canal there is an industrial basin with the towns of Crvenka, Kula and Vrbas. An intensive economic growth in the second half of the last century caused increase in waste-water both from industries and from the population. Due to the lack of treatment of most industrial waters, the section of the Grand Canal running through Vrbas for six kilometres, has been degraded so much that it is the most polluted water stream in Europe today. The surrounding area is a rich agricultural land with long traditions. The industries in question are:

- Sugar, alcohol and biscuit factories in Crvenka,
- Tannery, textile and faucet factories in Kula
- Sugar, meat, hog-farm, and vegetable oil factories in Vrbas

**The three cities/towns have a total population of 57 000 people with an estimated hydraulic load of 11 400 m<sup>3</sup>/day.**

### **Intervention Location (Hot Spot):**

The Danube-Tisza-Danube Canal, shortly called DTD-canal, or Veliki Kanal (Grand Canal), was built in the 18 century, partly for transport and water supply, but also with the purpose of draining the wet and fertile soils of the Backa district of Vojvodina.

In the 20 century the area between Crvenka and Vrbas was heavily industrialized. This also resulted in increased settlements in the small towns along the canal. The canal became more and more polluted, and in the worst stretch around Vrbas the canal is more or less filled with industrial sludge. Sugar beet processing factories, pig farms, slaughterhouses, edible-oil factories, metal processing factories, etc are the worst polluters in addition to untreated sewage from the towns.

In addition to causing local problems, the pollution of the Grand Canal is a problem for the Tisza, and constitutes also a significant pollution source for the Danube. Based on estimated nutrient pollution, 70% of pollution comes from industrial sources, while 20% and 10% are from municipal and agricultural sources.

**The pollution of the Grand Canal running through the medium sized city of Vrbas (25 000 inhabitants) has been characterized as «the worst in Europe».** The area of influence starts in Crvenka, a village belonging to Kula municipality 17 km to the west of Vrbas, and ends 23 km downstream, at the so called «Triangle», which is a point of confluence between the Grand Canal from the north-west and the Bogojevo canal from the west. From there on, the resulting canal has the name of the Grand Canal and runs for 12 km before entering the Tisa river that comes from Romania and Hungary and empties into the Danube downstream the city of Titel. The entire canal network is designated the DTD (Danube-Tisza-Danube) canal system since it receives its water from the Danube at Bezdán, and discharges the water back into the Danube via the Tisa river. The canal system is operated and run by «Vode Vojvodine», which is a public utility in transition to a self-financing organisation under the auspices of the Province of Vojvodina. «Vode Vojvodine» has

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played and will play an increasingly important part in the water resources management in this part of Serbia.

Fig.1 illustrates the project area and the schematic map of the Grand Canal and the laterals between Crvenka and Vrbas, including waste discharges from three towns and eight industries and the future CWWTP.

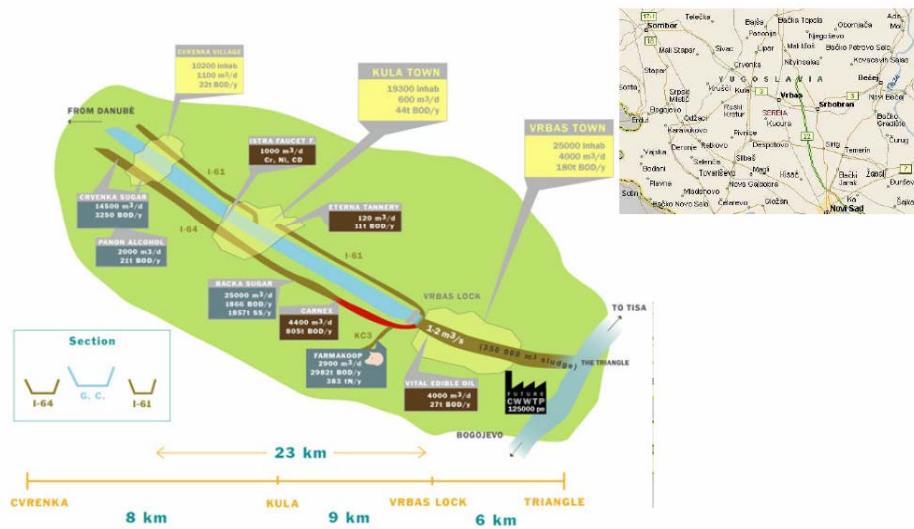


Figure 1. Schematic map of the Grand Canal and the laterals between Crvenka and Vrbas, including waste discharges from three towns and eight industries and the future CWWTP

Source: Pilot Evaluation Study for the Treatment of Contaminated Sludge Sediment of Grand Canal, Serbia; Dekonta company, 2006



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The distribution and thickness of sludge in the Grand Canal is shown on the following figure:

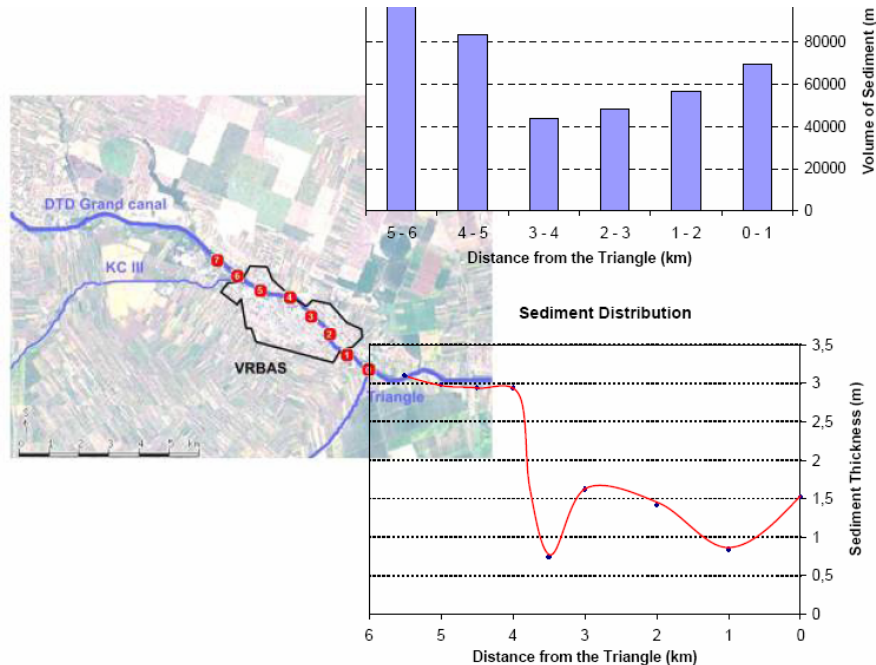


Fig.12 Distribution in GC sludge sediments

Source: Pilot Evaluation Study for the Treatment of Contaminated Sludge Sediment of Grand Canal, Serbia; Dekonta company, 2006

From the contamination nature point of view the sludge sediments occurring in the GC can be divided into three categories:

- Sludge sediments contaminated only microbially. Content of other pollutants (heavy metals, petroleum hydrocarbons etc.) is on the level of non-hazardous (safe) disposal land surface – there are sludge sediments primarily occurring in the Canal part 0 - 3 km.
- Sludge sediments contaminated with petroleum hydrocarbons and microbially, content of the other pollutants (heavy metals etc.) is on the level of non-hazardous (safe) disposal on land surface – there are sediments primarily occurring in the Canal part 5 - 6 km.
- Sludge sediments contaminated with heavy metals, petroleum hydrocarbons and also microbially – there are sludge sediments primarily occurring in the Canal part 3 - 5 km.

Detailed description of the problem is available in the following documentation;

- Final report of the project: Revitalization of DTD Grand Canal Throughout Vrbas (Funded by Norway implemented by NIVA), 2006
- Pilot Evaluation Study for the Treatment of Contaminated Sludge Sediment of Grand Canal, Serbia (Funded by Czech, prepared by Dekonta company) 2006

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*Commitment from key stakeholders.*

The overview of completed activities prepared by the Directorate for Construction, Municipal Public Utility (attached to this project description) shows that stakeholders are active and committed to fulfillment of the final goal of the project- revitalization of the Grand Backa Canal. During several project fact-finding meetings UNDP representatives were assured that there is strong commitment for further participation in this process among major stakeholders (the commitment letters will be submitted).

Municipality of Vrbas proved its commitment through investments already happened in this complex and financially demanding project (see attachment), and is ready to allocate further resources to the extent possible.

Public utility "Vode Vojvodine" committed to participate with its equipment in the clean up of the canal once the main collector is stretched to reach Carnex meat industry and Municipality of Kula, when pretreated waters from these two locations will be discharged into the main collector that will further discharge this water downstream the triangle, enabling start of clean up works in parallel with the construction of Central Waste Water Treatment plant. This commitment is also proven through current participation of this utility in the clean up of upper, less polluted part of the Canal upstream the Vrbas lock, where several community organizations are also involved, proving broad ownership of the project.

Industry representatives (Vital edible oil factory and Carnex meat processing industry) were present at the joint meeting among representatives of the Donor, Ministry for science and Environmental Protection, Municipality of Vrbas and UNDP. They clearly committed themselves to further participation in the project through finalizing pretreatment of their wastewaters, and participating in the clean up of the canal and in the construction of the wastewater treatment plant. Carnex submitted a letter stating their commitments, and formal letter of commitment will be submitted by both industries.

Commitment from the line Ministries and from the Government of the Republic of Serbia is clear, and already proved through allocation of resources within the framework of National Investment plan. **Government of Vojvodina province allocated 4,3000,000 Euros from its Fund for Capital Investments.**

The overview of remaining activities together with the sources of funding is given below. As it might be seen this is rather comprehensive list of activities and broad partnership that is established around this project will serve as additional impetus to both ongoing and planned activities enabling achievement of the project final goal: Revitalized Canal in its worst polluted part enabling sustainable development of this prosperous region, instead of being an obstacle to it and being a health and environmental threat as it used to be in the past years. It is also worth mentioning that preparation of the tendering documentation for construction of Central Waste Water Treatment Plant is underway, funded by European Commission through European Agency for Reconstruction.

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### III. Proposed Interventions and Expected Results

Activity	Results/Indicators	Responsible party	Timeline Start	Budget estimation(Eur)		Expected Source of Financing	Activity
				End	End		
<b>Construction of main collector-Phase 4</b>	Facilitation of connection of Carnex factory and Municipality of Kula to collector	UNDP,Vrbas Municipality and Directorate for Construction(Public Utility), Ministry for Science and Environmental Protection	March 2008	July 2008	<b>2.000.000</b>	<b>Construction of main collector-Phase 4</b>	Facilitation of connection of Carnex factory and Municipality of Kula to collector
<b>Sewerage system in city of Vrbas</b>	Prevention of Canal pollution	Vrbas Municipality and Directorate for Construction(Public Utility)	In progress	June 2007	<b>2.000.000 (secured financing)</b>	<b>Sewerage system in city of Vrbas</b>	Prevention of Canal pollution
<b>Linking collector between villages in Vrbas Municipality and Central Waste Water Treatment Plant</b>	Protection of Natural park "Jegricka" and prevention of Cannal pollution	Vrbas Municipality and Directorate for Construction(Public Utility)	July 2007	Mach 2008	<b>2.000.000</b>	<b>Linking collector between villages in Vrbas Municipality and Central Waste Water Treatment Plant</b>	Protection of Natural park "Jegricka" and prevention of Cannal pollution
<b>Sewerage system in villages in Vrbas Municipality</b>	Prevention of Canal pollution	Vrbas Municipality and Directorate for Construction(Public Utility)	July 2007	December 2009	<b>5.500.000</b>	<b>Sewerage system in villages in Vrbas Municipality</b>	Prevention of Canal pollution
<b>Pre-treatment of waste waters in Vital</b>	Prevention of Canal pollution	" Vital "	July 2007	June 2008	<b>1.000.000</b>	<b>Pre-treatment of waste waters in Vital factory</b>	Prevention of Canal pollution

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<b>factory</b>							
<b>Pre-treatment of waste waters in Carnex factory</b>	Prevention of Canal pollution	" Carnex "	July 2007	December 2008	<b>2.000.000</b>	<b>Pre-treatment of waste waters in Carnex factory</b>	Prevention of Canal pollution
<b>Connection of Kula Municipality to main collector</b>	Prevention of Canal pollution	Municipality of Kula	April 2008	December 2008	<b>800.000</b>	<b>Connection of Kula Municipality to main collector</b>	Prevention of Canal pollution
<b>Sewerage system in Kula Municipality</b>	Prevention of Canal pollution	Municipality of Kula	In progress	December 2009		<b>Sewerage system in Kula Municipality</b>	Prevention of Canal pollution
<b>Construction of Central Waste Water Treatment Plant</b>	Protection of Grand Cannal, Waste Waters Treated according to EU regulations	Vrbas Municipality and Directorate for Construction(Public Utility)	July 2008	July 2010	<b>13.500.000</b>	<b>Construction of Central Waste Water Treatment Plant</b>	Protection of Grand Cannal, Waste Waters Treated according to EU regulations
<b>Clean up and Revitalization of Backa Grand Canal</b>	Healthy environment, navigable canal, optimal flux in the canal, facilitation of sustainable industrial and employment growth, facilitation of tourism development	Public Utility "Vode Vojvodine"	January 2009	December 2010	<b>11.000.000</b>	<b>Clean up and Revitalization of Backa Grand Canal</b>	Healthy environment, navigable canal, optimal flux in the canal, facilitation of sustainable industrial and employment growth, facilitation of tourism development

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	<b>Proposed Interventions and time frame</b>	2007				2008				2009				2010	
		I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II
1	Construction of main collector-Phase 4						X	X							
2	Sewerage system in city of Vrbas	X	X	X											
3	Linking collector between villages in Vrbas Municipality and Central Waste Water Treatment Plant			X					X	X	X	X			
4	Sewerage system in villages in Vrbas Municipality			X	X	X	X	X	X	X	X	X	X	X	X
5	Pre-treatment of waste waters in Vital factory			X					X	X	X				
6	Pre-treatment of waste waters in Carnex factory			X					X	X	X	X	X		
7	Connection of Kula Municipality to main collector										X	X	X		
8	Sewerage system in Kula Municipality	X	X	X	X	X	X	X	X	X	X	X	X	X	X
9	Construction of Central Waste Water Treatment Plant							X	X	X	X	X	X	X	X
10	Clean up and Revitalization of Backa Grand Canal									X	X	X	X	X	X

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**Risks Log: Vrbas and Kula, Autonomous Province of Vojvodina, Republic of Serbia**

#	Description	Category	Impact & Probability	Countermeasures / Mngt response	Owner	Author	Date Identified	Last Update	Status
1	Complex management arrangements due to number of stakeholders involved	Organizational	Delays in the project implementation  P = 2	Early discussion with key stakeholder has taken place. Active role of the Project Steering Committee	Steering Committee	UNDP	04 May 2007	01 October 2007	
2	Financial contributions from stakeholders are not timely secured	Financial Operational	Delays in the project implementation  P = 2	Active role of the Project Steering Committee	Steering Committee	UNDP	04 May 2007	01 October 2007	
3	Delay in one activity causes delay in other project activities	Organizational	Delays in the project implementation  P = 2	Proper planning of the activities in the early stage of the project	UNDP Steering Committee	UNDP	04 May 2007	01 October 2007	

1 – Low/Unlikely Risk

5 – High/Likely Seriously Risk

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## Annex 7

### UN ADMINISTERED PROVINCE OF KOSOVO

#### PROJECT DESCRIPTION

##### I. General information

*City/Municipality:* Mitrovica/Mitrovice and Novo Brdo/Novoberde

*Intervention Location (Hot Spot):* Trepca conglomerate: Stan Trg/Stari Trg Mine in Mitrovica/Mitrovice and Artana Mine in Novo Brdo/Novoberde

*Proposing National Authority:* Ministry of Environment and Spatial Planning (MESP); and Trepca

##### Regional and historical background

The Novo Brdo ore field has two mines, Artana Mine (Novo Brdo Mine) and Farbani Potok Mine. Mining activity has taken place since Roman times, with intensive production of lead and silver in medieval times. Modern mining started after 1945 at Artana and 1963 at Fabani Potok. So far about 1 million tonnes have been mined from these deposits.

Two large tailings impoundments are located at the embankments of the Krivareka River. Tailings Pond No.1 is situated immediately next to the old Marec Concentrator (close to the Artana mine), while Tailings Pond No.2 is located further downstream from the Marec concentrator (Figure 1). The tailings ponds No.1 and No.2 present sources of severe pollution, with large amounts of material being transported to the river via surface runoff and/or leaching. They present an enormous threat to terrestrial species in the immediate vicinity and to aquatic species in the Krivareka River. Large amounts of heavy metal loaded solid material and seepage water will continue to contaminate the river making remediation ever more difficult and costly.

The tailings surfaces of both tailings ponds are severely eroded, and significant amounts of waste have been transported into the river in the past. This process will continue with each significant precipitation or snow melt event. The tailings are probably a source of dissolved metals and most probably generate acid seepage. Additionally, the mine water bisects the tailings heap No.1 and serves as an additional conduit for tailings to be transported to the river.

The river downstream of the mine water discharge in the Krivareka River is murky brown and the stream bed grossly stained. This condition persists over many kilometres downstream. The mine discharge is strongly acidic (pH around 2...3), despite the reported carbonate content of the ore, and contains a significant metal load (mainly zinc and iron) as evidenced by the stained mine water channel bed and in the river bed below the confluence.

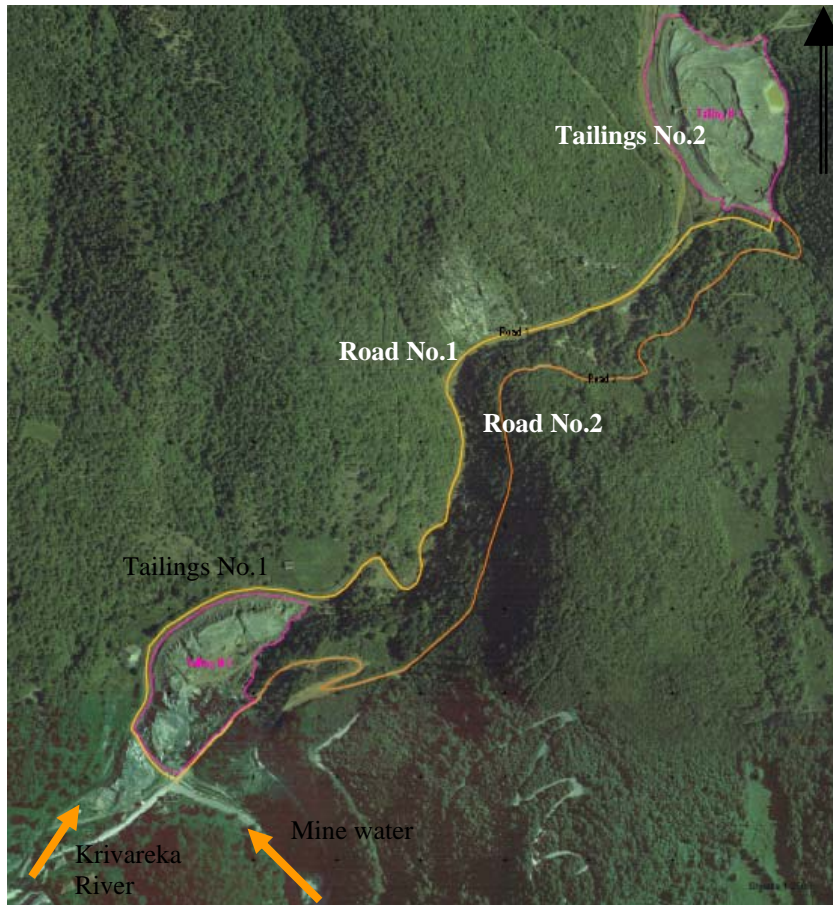
Slope failure of the tailings slopes of both tailings ponds may temporary cover the Krivareka riverbed and would lead to additional contaminant load in the river water.

The physical, geochemical and geotechnical conditions of the tailings ponds No.1 and No.2 have been analysed in more detail in EARAP (**Error! Reference source not found.**). On this basis, emergency remedial measures have been proposed. However, the data which have been available for the preparation of the EARAP lack representativeness and is of very limited quality. The

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designer of the remedial measures described below shall obtain the necessary data and information within his own responsibility.

Figure 1 Aerial photo of tailings heaps No.1 and No.2 at Artana



### Tailings pond No.1

The mass of tailings heap No.1 is estimated to be 400,000 t and the area of tailings pond No.1 is approximately 2 ha. The tailings pond No.1 is air-exposed and uncovered. It is subject to strong erosion by surface runoff. The tailings surface shows erosion channels particularly on the steep tailings slopes close to the shoreline of the River. The toe of the tailings slope is located next to the bank of the Krivareka River. During the wet season tailings are strongly eroded by the Krivareka River. The tailings slopes are several meters high.

### Tailings pond No.2

The mass of tailings No.2 is estimated to be 1.6 million tonnes and the area is approximately 2.8 ha. Tailings heap No.2 is located approximately 1.6 km downstream of the Marec concentrator on embankment of the Krivareka River. The tailings are air-exposed and uncovered. They are subject to strong erosion by surface runoff. The tailings surface shows deep erosion channels (gullies) particularly on the steep slopes which are up to approximately 10 to 12 m high and located virtually on the embankment of the Krivareka River. In the centre of tailings heap No.2, a pit of 3 to 4 m depth was excavated in the 1980's, and 700,000 t of tailings were removed and transported to the Kisnica flotation plant for reprocessing.

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Particularly during the wet season with strong runoff tailings are eroded by the Krivareka River. The Krivareka River is also obviously heavily effected by the tailings.

Plastic liners were repeatedly placed on the tailings surface and in the tailings slopes during tailings disposal. The plastic foils should assist runoff of process water back into the centre of the tailings impoundment for reclaiming and recycling.

## Objectives

The tailings pond No.1 and No.2 at the Artana site belong to those objects which have been identified as priority objects and requiring remediation.

Ongoing erosion and slope instability of both tailings heaps are unacceptable. Complete removal of both tailings heaps (possibly for subsequent recovery of metals in the tailings) would be the optimal solution from the environmental and geotechnical perspective. However for the time being, the funds available are limited, so that priority is given to emergency measures in order to mitigate the environmental impact.

The following emergency measures have been proposed by the Environmental Assessment and Remediation Action Plan (EARAP, see):

- a) Relocation of the smaller tailings pond (tailings No.1) to the larger tailings pond No.2

Relocation of tailings heap No.1 removes the contamination source and concentrates the tailings in one place.

- b) Erosion protection of the tailings ponds No.2

The Krivareka riverbank along the tailings shoreline must be protected against erosion by appropriate hydrotechnical measures. Trenches must be constructed to divert surface runoff from the hinterland and from the pond surface. In addition partial reshaping of the tailings ponds and a temporary erosion protection cover are needed.

The areas of both tailings heaps and the lengths of access roads and channels are estimated in the following table.

Table 1 Estimate of lengths of roads and areas and volumes of the tailings

Surface of the tailings heap No.1 (ha)	2
Estimated mass of the tailings heap No.1 to be relocated (t)	400,000
Surface of the tailings impoundment No.2 (ha)	2.8
Estimated mass of the tailings heap No.2 (t)	1,600,000
Estimated height of the tailings slopes of tailings No.2 (m)	10-12
Estimated depth of the pit in tailings heap No.2 (m)	3-4
Estimated volume of the pit in tailings heap No.2 (m <sup>3</sup> )	700,000
Estimated length of the road No.1 (km)	1.4
Estimated length of the road No.2 (km)	1.25
Estimated length of required surface runoff diversion channels (m)	400
Estimated length of riverbank with protection measures (m)	270
Surface of tailings heap No.2 likely to require erosion protection cover (ha)	1

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Only few of the data collected in the EARAP (**Error! Reference source not found.**) can be considered representative and/or complete, due to a general lack of reliable data sources and quantitative information available in Kosovo. Therefore, the designer shall check all data and information relevant to the design and obtain new, representative and reliable data as needed, within his own responsibility.

With respect to relocation of the tailings heap No.1 and erosion protection of the tailings ponds No.2 the designer should take the following basic construction steps into consideration:

1. Construction of an access road from Marec concentrator (tailings heap No.1) to tailings heap No.2 located ca. 1.4 km downstream of Marec concentrator. The access road must be designed for truck traffic. At least the two options (see Figure 1) shall be taken into consideration. It is the designer's responsibility to justify the selection of the relocation road.
2. Reshaping of steep and high tailings slopes of tailings heap No.2 and relocation of the excavated material of tailings heap No.1 onto tailings heap No.2
3. Construction of an erosion protection cover on the reshaped tailings pond surface on tailings heap No.2
4. Construction of erosion protection measures of the Krivareka River along the toe line of tailings heap No.2
5. Construction of trenches for diverting surface runoff from the hinterland along the perimeter of the tailings pond No.2 and discharge into the Krivareka River

**Scope of services:**

To ensure the fulfilment of the project objectives the Designer under the subject contract will provide the following services:

- Carry out investigations, surveys and other necessary fieldwork
- Carry out laboratory analyses, model calculations based on design criteria etc.
- Development of works designs of the required measures (relocation of the tailings No.1 to tailings heap No.2 and erosion protection, cover and surface runoff drainage at the tailings ponds No.2)
- Preparation of a complete set of design and bidding documents including:
  - Investigations reports and reports on review of documentation available.
  - Works designs including drawings, explanatory notes with engineering estimates, technical specifications
  - Agreements and permits of all relevant national and local authorities as regulated under the Kosovo legislation
  - Bill of Quantities (BoQ)
  - Methods of Measurements (MoM)
  - Environmental Monitoring Plan for the works period
  - Quality Control (QC) Plan
  - Environment Management and Mitigation Plan (EMMP)
  - Work Schedule for the implementation of the project
  - Long-term maintenance and monitoring plan with cost estimates

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For the works on the Artana tailings ponds, special health and safety precautions may be necessary in order to protect the workers and the public. Of particular importance are the following aspects:

- During strong winds, dry weather and intense movements of tailings material, workers may be exposed to tailings dust. Protection measures for the respiratory tract and sufficient air conditioning in the machinery must be foreseen.
- The tailings surface and dam slopes may be unstable for heavy machinery used in the construction works. Geotechnical precautions must be taken to prevent accidents.

A health and safety (H&S) management plan is required which contains all the technical precautionary measures as well as instructions regarding basic personal hygiene standards at the workplace.

### **Individual components of the tasks**

#### **Design of relocation of tailings pond No.1**

In order to prevent the contaminant load from tailings pond No.1 to the Krivareka River the relocation of tailings material to the tailings heap No.2 shall be designed as precondition of improved water quality of the river.

In particular, the Designer has to perform the following tasks:

- The designer shall collect all information and technical parameters necessary for the design. This concerns in particular, but is not restricted to,
  - a) Geometry of the facility
  - b) Morphology, geology, soil mechanical and hydraulic characteristics of the river bed materials,
  - c) Geology, soil mechanical, hydraulic and geo-chemical characteristics of the tailings material
  - d) Climatic data of the site and hydrological data particularly the maximum flow rates and water tables of Krivareka River
- If not available but needed for properly carrying out the required design services, the designer has to carry out an additional surveying and sampling within his own responsibility.
- Evaluation of the tailings relocation technology. For designing the relocation of tailings heap No.1 the following major tasks have to be carried out (list may not be exhaustive):
  1. The construction of a haul road is needed to provide access onto the tailings pond No.2.
  2. Surface runoff from the hinterland must be diverted to the Krivareka River outside the construction site on tailings heap No.1
  3. The mine water entering and flowing through the area of tailings heap No.1 must be diverted to the Krivareka River
  4. The designer has to plan drainage measures before excavation in order to achieve surfaces supporting heavy machinery and sufficiently dry material for transport and placement on tailings No.2
  5. The designer has to take into consideration that the tailings may not be trafficable (i.e., supporting heavy machinery). Suitable preparation measures may therefore be necessary.
  6. The designer shall provide a detailed placement technology (i.e., how the relocated material will be placed and filled onto tailings No.2).

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7. The designer has to recommend dust suppression measures during the construction works to protect workers at the mine site (Artana mine) and on the construction site.

Apart from the option of complete relocation, the designer shall also to investigate the option of partial relocation of tailings No.1. The designer shall elaborate this option as the preferred option if the remediation targets can be achieved this way in a more effective manner.

### **Design of reshaping and construction of riverbank erosion-protection along tailings No.2**

To achieve the objectives listed in Section 0 above the designer has to perform the following tasks:

1. Calculation of a long-term stable geometry of the tailings (height, inclination of the slopes, possibly berms)
2. Determination of technology and materials management to construct a long-term stable shape of the tailings pond
3. Determination of the optimal shape of the plateau area for a long-term safe, erosion-stable drainage of rain water from the tailings pond No.2
4. Determination of the necessary erosion protection measures of tailings No.2 along the Krivareka riverbank
5. Design of an erosion protection cover on the reshaped tailings surface
6. Determination of the characteristics of the erosion protection cover and potential material sources
7. Definition of the construction technique of the erosion protection cover on tailings heap No.2
8. Design of tranches for surface runoff from the hinterland.

It is the designer's responsibility to justify the selection of preferred technologies and design principles. Therefore, different design options shall be investigated and compared in detail, including

- the reduction of pollution release that is expected for the individual options
- cost
- longevity, durability
- technical difficulties and risks
- previous experience at other, comparable sites
- general compliance with international BAT
- sourcing of material for cover and erosion protection

The designer shall present the variants considered in detail to the environmental authorities, justify the decision for the preferred solution and obtain agreement from all relevant authorities to implement the preferred solution.

The design shall satisfy the requirement of minimum after-care and, consequently, long-term cost.

### **Legal Background**

The following national legislation of Kosovo and international regulations and guidelines and the international standards must be observed as a minimum. The following list shall be understood as an orientation only, at the time of drafting these ToR. The Designer is responsible that all relevant legislation and international best practice and standards applicable at the time of submitting the design and tender documents are complied with. Moreover, due to the unresolved formal status

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of Kosovo at the time of drafting the present ToR, legislation may change and new regulations may have been introduced in the meantime.

### **National Legislation**

- General environmental legislation, enshrined in the Environmental Law and the Regulation No. 2003/9 on the Promulgation of the Law adopted by the Assembly of Kosovo on Environmental Protection.
- Kosovo Water Law (Law of Kosovo No. 2004/24)
- Air Protection Legislation (Law of Kosovo No. 2004/30 on Air Protection)
- Waste Legislation (Law of Kosovo No. 02/L-30, 2005)
- Environmental Impact Assessment (EIA) regulation: The Administrative Directive No. 9/2004 on Environmental Impact Assessments regulates the procedure of an EIA process and the qualifications required of the legal or natural persons performing an EIA.

It is recommended to negotiate an agreement with the Ministry of Environment prior to starting the preparation of the design to have a common understanding of the appropriate screening and scoping for the remedial projects. The necessity of an EIA has to be clarified with the Ministry of Environment. It is also recommended to identify the persons or organisations which are in possession of the license in accordance with Article 7 to prepare an EIA, and to negotiate the procedure if sufficiently qualified and accredited experts are not available.

During the preparation of these ToR, the Ministry of Environment informed that designs and possibly an EIA can be performed by legal or natural persons demonstrating their competence and qualification in this field, without the strict need of a license. However, the Consultant must be in possession of all necessary licenses and permits to carry out design services for the relevant areas, according to the Administrative Directive No. 9/2004 of Kosovo, if the strict requirement of these licenses applies.

### **International Regulations and Guidelines**

In agreement with the UNDP and the competent authorities (Ministry of Mines, Ministry of Environment) involved in this project that the standards and guidelines set out in various EU and international directives and other legislative documents should be taken into consideration, *inter alia*:

- EU Mine Waste Directive (2006/21/EC)
- EIA Directive 1997/11/EC
- The BREF document on Tailings and Waste-Rock in Mining Activities (MTWR 2004) (this document has been developed as a supportive document to the EU Mine Waste Directive 2006/21/EC)
- Water Framework Directive (2000/60/EC)
- The Pollution Prevention and Abatement Handbook, World Bank (1999)

The tender documents for the works to be prepared by the designer shall comply with the format of the "Standard Bidding Documents for the Procurement of Works and User's Guide", issued by The World Bank Group, 2005.

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**Qualification requirements**

The Consultant shall have sufficient experience in tailings dams and hydraulics construction design. Preference will be given to firms with experience in international projects implementation related to execution of rehabilitation works on tailings on submission certificates on successful implementation of works. The Consultant shall demonstrate experience in the following areas:

- design of tailings relocation measures
- design of hydraulic and hydrotechnical installations
- familiarity with the relevant laws, norms and regulations of Kosovo

As for licenses and permits, see remarks in Section 0 above.

**Timeline and deliverables**

Under the terms agreed by the Client, the Consultant shall submit to the Client the following technical reports in Albanian and English:

Item No.	Deliverables	Time terms
1	<p>Interim report containing</p> <ul style="list-style-type: none"> <li>• Investigation report</li> <li>• Comparison of principal design options with cost estimates (short and long term costs) and technical evaluation</li> <li>• Proposal of design option preferred by the designer</li> </ul> <p>Based on the Interim Report, the Competent Authorities and the Client will approve the preferred design option.</p>	8 weeks after project start
2	<p>Complete design and tender documents with the following Technical Reports</p> <ul style="list-style-type: none"> <li>• Investigations reports and reports on review of documentation available.</li> <li>• Works designs including drawings, explanatory notes with engineering estimates,</li> <li>• Agreements and permits of all relevant national and local authorities as regulated under the Kosovo legislation</li> <li>• Bill of Quantities (BoQ)</li> <li>• Methods of Measurements (MoM)</li> <li>• Monitoring plan for the construction period</li> <li>• Quality Control (QC) Plan</li> <li>• Environment Management and Mitigation Plan (EMMP)</li> <li>• Health and Safety (H&amp;S) Management Plan</li> <li>• Long-term monitoring and maintenance Plan</li> </ul>	4 months after project start
3	Monthly progress reports	monthly

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## UN ADMINISTERED PROVINCE OF KOSOVO

### Location B: Zharkov Potok Tailings Pond

#### Regional and historical background

##### General

The Trepça mine in Stan Trg commenced production of Lead and Zinc ore in 1930. The mine operated at full capacity until 1989. From this time until 1998 production continued at approximately 20% capacity as a result of political difficulties. During the mine life, a total of nearly 35 million tons of ore were extracted with dominant metal concentrations of Pb 6.07%, Zn 3.89% and Ag 103g/t.

Geographically, the Trepça Pb and Zn mine at Stan Trg and the processing complex of Prvi Tunel, to which the Zharkov Potok tailings pond belongs, are located in the northeastern part of Kosovo, approximately 9 km east of Mitrovica.

The Trepca Mining Company intends to resume mining and ore processing in the near future, and also to enlarge the Zharkov Potok tailings pond.

#### Zharkov Potok tailings pond

Operation of the Zharkov Potok tailings pond project was started in 1968. The tailings pond is located in a tributary valley of the Ibar River. The tailings pond consists of a main dam, a western side dam and the pond area filled with tailings from the processing of lead and zinc ores at the Prvi Tunel concentrator. To a minor amount, gold processing residues have also been discharged into the tailings pond.

The tailings at Zharkov Potok cover an area of about 20 ha. In addition, the footprint of the main dam is about 4.2 ha. The total mass of solids discharged to date is estimated to be about 9 to 11 million tons. A fully geo-referenced aerial photograph is available in electronic form, while the most relevant area is shown in the Figure 1 bellow

**Error! Reference source not found.**

The surface of the entire tailings pond was geodetically surveyed in 2004. The current dam crest height increases from approximately 586 m asl at the western end to approximately 591 m at the eastern end of the dam. The dam toe is located in the centre of the valley at approximately 512 m asl. The main dam is approximately 350 m wide and up to 79 m high. The inclination of the outer dam slope of the main dam is  $v : h = 1 : 2.5$ .

A dam was erected along the western part of the tailings pond perimeter. According to the findings of the Environmental Assessment and Rehabilitation Action Plan (EARAP, see **Error! Reference source not found.**) it is up to 30 m high. The outer dam slope inclination is  $v : h = \text{ca. } 1 : 2.2$ . According to the design documents the western side dam should consist of rock material (limestone, schists, andesite) excavated from the rock slopes nearby the tailings pond. However, the available data is scarce and unreliable, and the designer should obtain the necessary information within his own responsibility, if needed.

Untreated mine water from the Stan Trg mine, tailings and other process effluents from the process plant are discharged into the Zharkov Potok tailings pond.

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Currently only the central part of the tailings pond is covered by water. The geodetic survey data conducted in 2004 found the water table at 576.5 m asl, but this may change with rainfall events and discharge of mine water and ore processing wastes. The surface water table of the pond in the Zharkov Potok tailings pond is controlled by two decant outlets (so-called “collectors”) located on the slopes east and west of the central area of the tailings pond. Only the eastern decant outlet is currently intact.

The tailings pond is surrounded by a large runoff catchment area. The total surface of the catchment area was estimated to be 180 ha. No drainage system for the separate diversion of undisturbed runoff from the catchment area is currently present along the perimeter of the pond. Surface runoff from the catchment area is collected in the pond and mixed there with mine water and process water. The pond water is diverted discontinuously by the two decant outlets via tunnels into the trench located in the foreland of the dam toe. The receiving stream is the Ibar River, in a distance of about 300 m from the dam toe.

The dam seepage and decant pond water are discharged without treatment into the Ibar River, adding to its pollution.

The tailings impoundment and the dam are free of any vegetation, no cover has been placed on the surface of the tailings and dam which makes them a source for dust storms. Therefore, in addition to the water pollution, the tailings pond is a source of severe health hazards to nearby residents of a small village north-east from the tailings caused by the dust pollution, particular during the hot, dry summer with strong winds blowing across the dam and bare dry tailings beaches in the direction of the village. Dust from the tailings is also a source of soil contamination in the vicinity of the Zharkov Potok tailings pond, which are used for agriculture by the local population.

## **Objectives**

The Zharkov Potok Tailings Pond belongs to those objects which have been identified in the EARAP as priority objects and which require immediate remedial measures.

For the improvement of the environmental situation in Stan Trg/Zharkov Potok site, a wide range of rehabilitation measures have been recommended in the EARAP (see **Error! Reference source not found.**). However, the funds are limited and insufficient to implement all these measures.

Therefore, a prioritisation of the most important measures was required and has led to the recommendation of emergency measures which can be implemented rapidly in order to achieve a demonstrable improvement of the environmental situation or lay the foundations of subsequent steps.

The objective of this project is the design of the remediation works to

- reduce the generation of toxic tailings dust
- reduce the inflow of undisturbed surface runoff into the tailings pond (and further on its mixing with contaminated water of the decant pond) as a precondition of further improvement of the tailings water management and water treatment measures at the site

To achieve these objectives, the following sequence of emergency remediation measures shall be implemented:

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1. Construction of a drainage system to divert surface runoff from the catchment area around the tailings pond and discharge it into the Ibar River.
2. Spraying of dust suppressants on the dry tailings beaches and on the dam area as a temporary emergency measure to improve the air quality for the residents living in the vicinity of the tailings pond.

The typical areas and lengths of the water diversion channels and access roads, as well as the area to be sprayed, are estimated in the following table.

Table 2 Estimates of lengths of channels and roads, and areas and volumes of the tailings

Estimated length of the runoff water diversion system (m)	3800
Estimated length of roads and access paths (m)	2500
Length of drainage channel from dam toe to Ibar River (m)	300
Length of drainage channel along the dam flanks (m)	2 x 250
Surface of the tailings impoundment (ha)	21
Surface of the tailings dam (ha)	4.2
Dam Area and dry tailings to be sprayed, according to aerial photo, to be verified (ha)	20

Only few of the data collected in the EARAP can be considered representative and/or complete, due to a general lack of reliable data sources and quantitative information available in Kosovo. Therefore, the designer shall check all data and information relevant to the design and obtain new, representative and reliable data as needed, within his own responsibility.

### Scope of services

#### General

To ensure the achievement of the project objectives, the designer shall provide the following services:

- Carry out investigations, surveys and other necessary fieldwork,
- Carry out laboratory analyses, model calculations based on design criteria etc.
- Development of works designs of the required measures (water diversion system and the dust suppressing measures)
- Preparation of a complete set of design and bidding documents including
  - Investigations reports and reports on review of documentation available.
  - Works designs including drawings, explanatory notes with engineering estimates, technical specifications
  - Agreements and permits of all relevant national and local authorities as regulated under the Kosovo legislation
  - Bill of Quantities (BoQ)
  - Methods of Measurements (MoM)
  - Environmental Monitoring Plan for the works period
  - Quality Control (QC) Plan
  - Environment Management and Mitigation Plan (EMMP)
  - Work Schedule for the implementation of the project

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- Long-term maintenance and monitoring plan with cost estimates

For the works on the Zharkov Potok tailings pond, special health and safety precautions may be necessary in order to protect the workers and the public. Of particular importance are the following aspects:

- During strong winds, workers may be exposed to tailings dust. Protection measures for the respiratory tract and sufficient air conditioning in the machinery must be foreseen.
- The tailings surface and dam slopes may be unstable for heavy machinery used for dust suppressant spraying. Geotechnical precautions must be taken to prevent accidents.
- During placement (spraying), dust suppressants may cause harmful effects on human health and the environment.

A health and safety (H&S) management plan is required which contains all the technical precautionary measures as well as instructions regarding basic personal hygiene and worker safety standards at the workplace.

### **Individual components of the task**

#### **Design of water diversion system**

In order to minimise the inflow of undisturbed surface runoff from the catchment area around the Zharkov Potok tailings pond, a water diversion system shall be designed as precondition of improved water management of the tailings pond.

In particular, the designer has to perform the following tasks:

- The designer shall collect all information and technical parameters necessary for the design. This concerns in particular, but is not restricted to,
  1. Geometry of the facility
  2. Morphology, geology, soil mechanical and hydraulic characteristics of the underground
  3. Climatic data of the site and hydrological data from the catchment area
- If not available but needed for properly carrying out the required design services, the designer has to carry out an additional surveying and sampling within his own responsibility.
- Planning of long-term stable hydraulic constructions for an erosion-safe and self-sustained drainage system of the run-off water
- Development of works designs based on the general project objectives (in Section 0) based on international and local norms providing an environmentally safe solution.
- The hydraulic construction shall guarantee the erosion safety and self-sustained drainage of the surface water from catchment area.
- The design shall take into account the intended future use of the tailings pond use and future elevation of the tailings surface. Therefore the designer has to obtain information from the Trepca Mining Company on the operation plans regarding the Zharkov Potok tailings pond for the next few years.
- The designer shall guarantee a long lasting functionality of the drainage ditches (e.g. sediments should be hindered to enter the ditches, appropriate retention measures shall be foreseen), in accordance with international best practice.
- Design of the access road and pathway around the tailings impoundment, taking into account the intended future use of the tailings pond.

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- Design of the channels along the dam faces and discharge channel into the Ibar River, including all necessary hydraulic and geotechnical works (energy dissipators, slope stabilisation measures along the channels etc.)

The design shall satisfy the requirement of minimum after-care and, consequently, long-term cost.

### **Spraying of dust suppressants**

According to the Kosovo Environmental Law and Regulation No. 2003/9 Article 28 it is requisite that objects which contain air pollution sources are required to use technical, technological and other measures to guarantee that emissions in the air are kept within prescribed limit levels in accordance with the law and other legal acts.

To reduce the wind erosion of the Zharkov Potok Tailings and to minimise the impact on the adjacent residential areas, a suitable method of dust suppression on dry tailings beaches and the dam area has to be designed. This includes, but is not necessarily limited to, the following tasks:

- The designer shall collect all information and technical parameters necessary for the design. This concerns in particular, but is not restricted to,
  1. Geometry of the facility
  2. Characteristics of the waste material
  3. Climatic data of the site (wind velocity and direction, temperature, solar irradiation etc., as far as necessary for the proper design of the dust suppressing measures)
- If not available but needed for properly carrying out the required design services, the designer has to carry out an additional surveying and sampling within his own responsibility.
- The designer has to carry out the investigations necessary for the design to determine necessary area anti-dust spraying (i.e. dry tailings beaches and dam area). The designer has to obtain information from the Trepca Mining Company on the operation plans regarding the Zharkov Potok tailings pond for the next few years, in order to estimate which areas may fall dry (or become wetted) in the near future.
- Development of works designs based on the general project objectives (in Section 0) based on international and local norms providing an environmentally safe solution.
- The design shall propose the suitable dust suppressants according to BAT and local and international standards and after consultation with the local environment authority
- The design criteria have to be defined after consultation with the local environment authority. The designer shall guarantee a lifetime of the proposed dust suppressant of at least 2 years.
- The designer has to determine the required amount of dust suppressant per square meter of tailings surface and the total amount of dust suppressants needed.
- The designer has to take into consideration that the tailings may not be trafficable (i.e., supporting heavy machinery). Suitable preparation measures may therefore be necessary.

Several dust suppressants and spraying techniques exist on the market, so that the designer is responsible for the selection of the most appropriate technology. The preferred dust suppression method shall be selected within a rational decision process, taking into account at least the following criteria:

- the environmental impact of the dust suppressing agent and its placement technology
- cost
- longevity, durability

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- ease of application
- previous experience with the proposed substance(s) and placement technology
- general compliance with international BAT

The designer shall present the variants considered in detail to the environmental authorities, justify the decision for the preferred solution and obtain agreement from all relevant authorities to implement the preferred solution.

## **Legal background**

The following national legislation of Kosovo and international regulations and guidelines and the international standards must be observed as a minimum. The following list shall be understood as an orientation only, at the time of drafting these ToR. The designer is responsible that all relevant legislation and international best practice and standards applicable at the time of submitting the design and tender documents are complied with. Moreover, due to the unresolved formal status of Kosovo at the time of drafting the present ToR, legislation may change and new regulations may have been introduced in the meantime.

## **National Legislation**

- General environmental legislation, enshrined in the Environmental Law and the Regulation No. 2003/9 on the Promulgation of the Law adopted by the Assembly of Kosovo on Environmental Protection.
- Kosovo Water Law (Law of Kosovo No. 2004/24)
- Air Protection Legislation (Law of Kosovo No. 2004/30 on Air Protection)
- Waste Legislation (Law of Kosovo No. 02/L-30, 2005)
- Environmental Impact Assessment (EIA) regulation: The Administrative Directive No. 9/2004 on Environmental Impact Assessments regulates the procedure of an EIA process and the qualifications required of the legal or natural persons performing an EIA.

It is recommended to negotiate an agreement with the Ministry of Environment prior to starting the preparation of the design to have a common understanding of the appropriate screening and scoping for the remedial projects. The necessity of an EIA has to be clarified with the Ministry of Environment. It is also recommended to identify the persons or organisations which are in possession of the license in accordance with Article 7 to prepare an EIA, and to negotiate the procedure if sufficiently qualified and accredited experts are not available.

During the preparation of these ToR, the Ministry of Environment informed that designs and possibly an EIA can be performed by legal or natural persons demonstrating their competence and qualification in this field, without the strict need of a license. However, the Consultant must be in possession of all necessary licenses and permits to carry out design services for the relevant areas, according to the Administrative Directive No. 9/2004 of Kosovo, if the strict requirements of these licenses applies.

## **International Regulations and Guidelines**

In agreement with the UNDP and the competent authorities (Ministry of Mines, Ministry of Environment) involved in this project, the standards and guidelines set out in various EU and international directives and other legislative documents should be taken into consideration, *inter alia*:

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- EU Mine Waste Directive (2006/21/EC)
- EIA Directive 1997/11/EC
- The BREF document on Tailings and Waste-Rock in Mining Activities (MTWR 2004) (this document has been developed as a supportive document to the EU Mine Waste Directive 2006/21/EC)
- IPPC Reference Document "General Principles of Monitoring" (July 2003)
- Water Framework Directive (2000/60/EC)
- The Pollution Prevention and Abatement Handbook, World Bank (1999)

The tender documents for the works to be prepared by the designer shall comply with the format of the "Standard Bidding Documents for the Procurement of Works and User's Guide", issued by The World Bank Group, 2005.

### **Qualification requirements**

The Consultant carrying out the design shall have sufficient experience in the design of tailings dams, rehabilitation measures and hydrotechnical structures design. Preference will be given to firms with experience in international projects under difficult project environments. The Consultant shall demonstrate experience in the following areas

- design of earthworks on tailings ponds as well as hydraulic and hydrotechnical engineered structures
- use of dust suppressants in the context of tailings ponds or comparable production wastes
- familiarity with the relevant laws, norms and regulations of Kosovo

As for licenses and permits, see remarks in Section 0 above.

### **Timeline and deliverables**

Under the terms agreed by the Client, the Consultant shall submit to the Client the following technical reports in Albanian and English:

Item No.	Deliverables	Time terms
1	<p>Interim report containing</p> <ul style="list-style-type: none"> <li>• Investigation report</li> <li>• Comparison of principal design options with cost estimates (short and long term costs) and technical evaluation</li> <li>• Proposal of design option preferred by the designer</li> </ul> <p>Based on the Interim Report, the Competent Authorities and the Client will approve the preferred design option.</p>	8 weeks after project start
2	<p>Complete design and tender documents with the following Technical Reports</p> <ul style="list-style-type: none"> <li>• Investigations reports and reports on review of documentation available.</li> <li>• Works designs including drawings, explanatory notes with engineering estimates,</li> <li>• Agreements and permits of all relevant national and local authorities as regulated under the Kosovo</li> </ul>	4 months after project start

Capacity Development Programme

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	legislation <ul style="list-style-type: none"><li>• Bill of Quantities (BoQ)</li><li>• Methods of Measurements (MoM)</li><li>• Monitoring plan for the construction period</li><li>• Quality Control (QC) Plan</li><li>• Environment Management and Mitigation Plan (EMMP)</li><li>• Health and Safety (H&amp;S) Management Plan</li><li>• Long-term monitoring and maintenance Plan</li></ul>	
3	Monthly progress reports	monthly

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**Risks Log**  
**Trepca conglomerate: Stan Trg/Stari Trg Mine in Mitrovica/Mitrovice and Artana Mine in Novo Brdo/Novoberde**

#	Description	Category	Impact & Probability	Countermeasures / Mngt response	Owner	Author	Date Identified	Last Update	Status
1	Government/Trepca contribution of own resources to the remediation of the mine sites not available	Financial	The activities undertaken within this project can be limited to the funding provided for remediation by the donor alone  P = 2	No action can be taken for this risk, except to develop TORs for remediation that take into account funding constraints	Prog Analyst	Denika Blacklock (Prog Analyst)	Inception		
2	80% of contracts awarded to local companies or institutions not practical	Financial Operational Other	Contracts may be higher as a result of using companies outside of Kosovo  P = 4	Roster of local companies to be drawn up in coordination with other major donors (Sida, EAR, USAID) to define which aspects can be viably contracted locally	Prog Analyst and Proj Coordinator	Denika Blacklock	Inception		
3	Cost-sharing for documentary production teams not practical	Financial	Length and quality of documentary may be restricted  P = 3	UNDP Kosovo will consider using own funds to meet budgetary shortfalls for the documentary	Proj Coordinator	Denika Blacklock	Inception		
4	Involvement of domestic environmental management and/or sustainable development professionals not practical	Operational	May need to import expertise from other countries in the region or in the EU – higher costs  P = 3	Roster of local experts being drawn up – but lack of environmental management expertise (a well-known concern) will mean importing expertise from the region	Prog Analyst and Proj Coordinator	Denika Blacklock	Inception		
5	Kosovo Status decision resulting in violence	Political Security	Project implementation may be delayed as a result	Ensure management arrangements and all documentation with	Prog Analyst	Denika Blacklock	Inception		

*Capacity Development Programme*

*Strengthening capacities in the Western Balkan countries to address environmental problems through remediation of high priority hot spots*

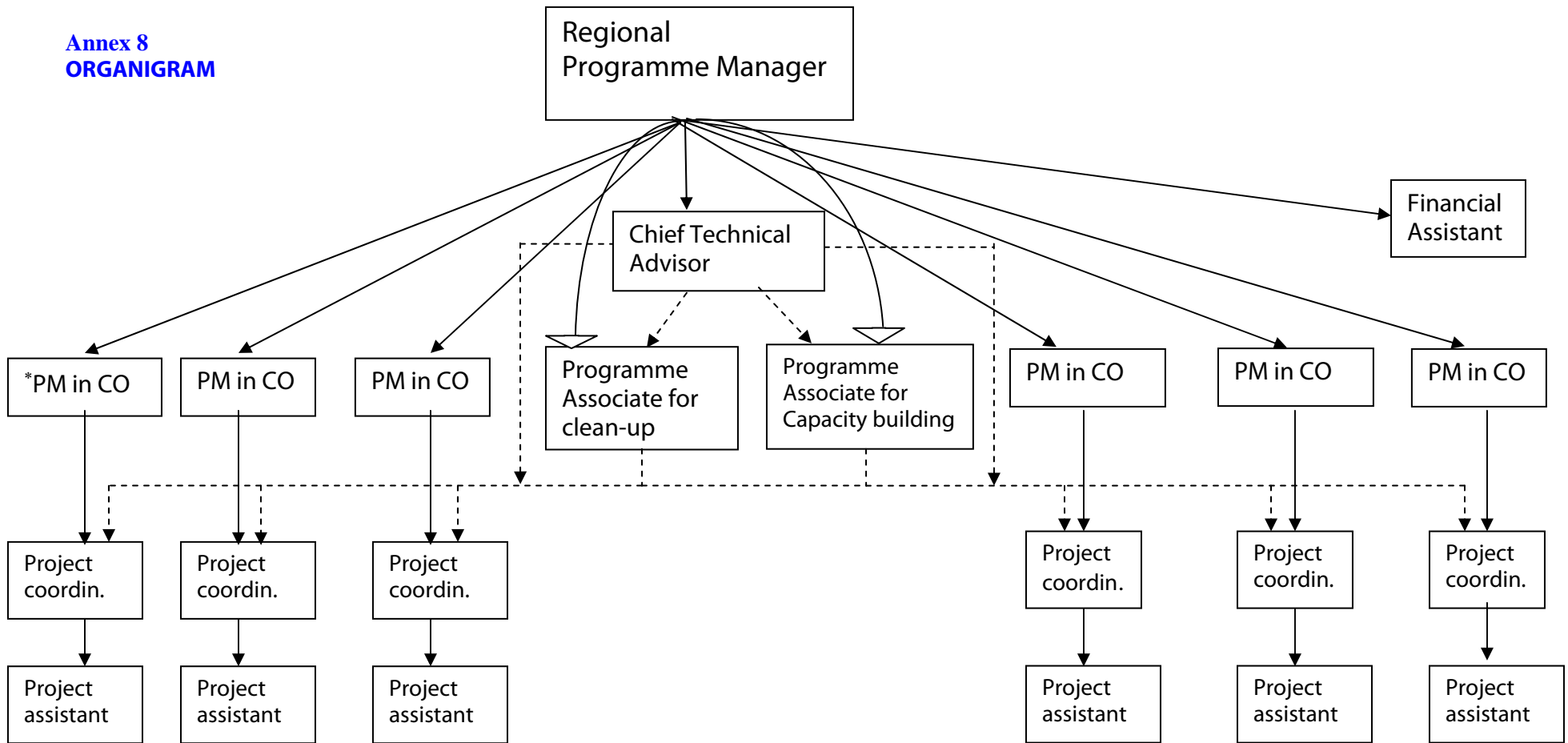
			of political issues related to the status decision P = 3	government and Kosovo Trust Agency are in order to minimize any delays in implementation					
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1 – Low/Unlikely Risk

5 – High/Likely Seriously Risk

Strengthening capacities in the Western Balkan countries to address environmental problems through remediation of high priority hot spots

**Annex 8  
ORGANIGRAM**



Note: 1) \*PM – Programme Manager in UNDP Country Offices

2) PM in CO deals with day to day/operational management/supervision while Regional Programme Manager through Programme Associates is in charge of programme activities related supervision.

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## **Annex 9**

### **TERMS OF REFERENCE FOR KEY STAFF**

#### **Terms of Reference**

**Job Title:** Regional Programme Manager

**Duty Station:** Podgorica, Montenegro

**Bureau/Office:** UNDP Montenegro

**Duration of Appointment:** 30 months

#### **Background:**

UNDP Country Offices in Albania, Bosnia and Herzegovina, Macedonia FYR, Montenegro, Serbia and UN Administered Province of Kosovo will develop a regional demonstration programme around demand driven projects in nine locations in the (6) Western Balkans suffering from the legacy of polluting industries and requiring industrial renewal, environmental cleanup and new economic initiative. The approach of the three years, 11 million Euros Programme which is available at <http://www2.undp.org.yu/montenegro/files/reports/Hot%20Spots%20-%20Programme%20doc%20-%20FINAL.pdf> is to achieve improvement of environmental situation and quality of life for citizens living in and around polluted areas through least cost measures, improved local and national policy dialogue and supply of domestic professional services in the environmental management sector. While the main focus will be the physical works needed to mitigate the ecological problems, institutional strengthening and capacity building will be an important subject running throughout the programme.

Environmental issues have not been amongst the top national priorities in the Western Balkans. Understandably, priorities to date have focused on the reforms needed to strengthen security, to rebuild the economy and to improve general living conditions. As a result, much-needed investment in environmental infrastructure such as wastewater treatment, air-pollution abatement and monitoring, and industrial and communal waste management are still waiting their turn. Clearly, this is a situation that raises humanitarian, social, economic and environmental concerns.

In addition, a number of industrial towns and regions face a complex challenge of past industrial development and pollution legacy and the need to generate economic growth for the future. The environmental situation in these hot spots is a direct cause of poor health and related poverty and presents a major barrier to future investments and related economic opportunities for the local population. On one hand they face the requirements for environmental clean up and on the other they are struggling with problems of poverty, lack of infrastructure and services and lack of prospects for the young generations.

Because of the proximity and geographic connectedness of the Balkans, the ongoing or potential pollution from these hot spots has a significant cross border impact on air and water quality (rivers, lakes and the sea). On top of this, the environmental situation in these communities presents a major barrier to future investments and related economic opportunities for the local population. The situation is often further complicated by uncoordinated or even conflicting plans and demands of various sectors of government, business and society. In most cases the poorest citizens (Roma, Ashkalia, Egyptians) live in the

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areas worst affected by pollution and degradation and these problems are taking resources away from them, limit funds and future oriented initiatives. Success in cleaning up these locations and solving environmental and urban problems will attract new investments from inhabitants themselves, private sector, banks, donors etc.

The large cost estimates for clean up, according to best available technologies in Western Europe, have a de-motivating effect on those responsible and lead to pushing the actual activities further into the future. But recent experience from the region suggests that, instead of going for a full fix at a single site all in one go, that may leave little local capacity for maintenance and solving further problems, the process of dealing with large problems should start with building regional capacity with "small" steps that may deliver tangible impacts for the population on a time scale from one to five years. Careful design of initial steps based on least cost approach and high benefit to cost ratio by necessity also requires cross-sectoral solutions and wider distribution of environmental, social and economic benefits. This approach also recognises the likelihood that the return of economic activity will provide options for new industrial actors to carry out remediation if the site is attractive for investment in terms of labour and support services, and the regulatory framework is functioning appropriately.

The international, and especially EU, experience in revival of former industrial regions further shows that development breakthrough in pollution hot spots can only be achieved through integrated initiatives at the local level, addressing the local environmental, social and economic needs. Such initiatives cannot be successful if they are undertaken by one of the sectors such as environment, welfare, health or economy alone. They require creative cross-sectoral solutions based on stakeholder dialogue and public participation and many times the most effective actions are not directly related to the sources of pollution but to future environment-oriented activities or infrastructure.

Step by step clean up of polluted areas, investment in cleaner technologies to reduce waste, wastewater and air pollution must be combined with stronger integration of environmental concerns into sectoral policies and cross-border cooperation. It seems that an investment in effective mechanisms and mobilisation of already existing domestic expertise for sustainable environmental management could provide significant benefits to all in the short to medium term. This programme is expected to provide a significant step forward in this direction.

**Organizational setting:**

Regional Programme Manager (RPM) will be based in UNDP Montenegro and under the direct supervision of the Resident Representative s/he will head the Programme Implementation Unit (PIU) consisting of Chief Technical Advisor, two Programme Associates, one Administrative/Finance Assistant, HR/Procurement Associate (20%), and one driver, manage the day-to-day activities of the programme and coordinate with the Senior managers in the participating UNDP offices who each supervise the respective National Project Coordinator, to ensure efficient programme implementation.

S/he will report to the UNDP Montenegro Resident Representative who also chairs the Management Board (MB) of the programme, with guidance and advice from the Chief Technical Adviser (CTA) and other members of the Advisory Board (AB) appointed for this purpose.

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**Job content:**

With assistance from the CTA, on behalf of and within guidelines and rules established by the MB, programme manager will oversee the implementation of the programme in accordance with the programme's mission and objectives and:

(1) Provide leadership to the Programme Management Unit (PMU), manage its day-to-day activities and supervise programme team/consultants, (2) Coordinate preparation and implementation of regional activities and follow-up meetings with authorities at the appropriate level, regional, national and local, and other relevant stakeholders; (3) Supervise delivery of outputs provided by the programme; (4) Ensure quality and timeliness of reporting and data production; and (5) Perform other related duties.

1. Provide leadership to the Programme Management Unit (PMU), manage its day-to-day activities and supervise programme team/consultants:

- Prepare implementation action plans; organize team meetings to assign tasks, monitor progress and motivate members of the team;
- With assistance from the CTA, identify relevant sources of expertise required for programme/activity implementation;
- Review official documents and communications;

2. Coordinate preparation and implementation of regional activities and follow-up meetings with authorities at the appropriate level, regional, national and local, and other relevant stakeholders:

- Facilitate contacts and promote information exchange on the program issues within the program as well as with external partners,
- Supervise planning and preparation of regional meetings, trainings, etc;
- Ensure synergies with ongoing regional projects with support from country offices/national coordinators;

3. Supervise delivery of inputs provided by the programme:

- Ensure that work plans are prepared and updated on time and reflect programme objectives and outputs; monitor data and programme progress;
- Ensure timely coordination and implementation of recruitment and deployment of experts to support programme implementation;
- Manage procurement of goods and services under the programme, and ensure on-time delivery to recipient institutions.

4. Ensure quality and timeliness of reporting and data production:

- Monitor implementation progress and ensure quality and timely reporting to donors and programme partners;
- Promote programme visibility;
- Ensure the establishment and maintenance of complete accounting records of all programme activities (budget, commitments, expenditures, income) per source of funds and expenditure, line item.

*Strengthening capacities in the Western Balkan countries to address environmental problems through remediation of high priority hot spots*

5. Perform other related duties.

**Qualifications and Experience:  
Required Skills and Experience:**

*Preferred competency profile*

- Candidates should have a proven successful track record of managing sizeable, multi-year, technical and/or multi-disciplinary projects and/or programs in the Region, preferably with a sound knowledge of UNDP management methods (RBM, PRINCE2) and tools (ATLAS), as well as UNDP rules and procedures,
- Candidates should have very strong communication, managerial, advocacy, and analytical skills, work well in multi-disciplinary teams, and be able to apply a comprehensive development approach to policy issues,
- Good communication and interpersonal skills, particularly for building networks and partnerships, and significant experience in liaising with and cooperating with government ministries, international donors and agencies,
- Demonstrated leadership in ensuring local ownership and bottom-up decision-making processes.

*Experience*

- A minimum of 5 years experience in a management capacity with progressively increasing responsibilities, preferably with focus in environmental management and experience in policy development.
- Substantial field experience of a technical nature in environmental management projects is desirable and considered an additional asset.

*Qualifications*

- Academic level with a strong background in environmental management and/or studies is preferred.
- Fluency in both English (as working language) and one local language is a necessity. Knowledge of another language used in the Region would be considered an additional asset.
- Cyber/internet-literacy, knowledge of mainstream ICT office software is required while knowledge of ATLAS would be an asset

Applicants are kindly requested to send their CV, **articulating specifically relevant experiences in relation with the required qualifications**, along with a cover by 09<sup>th</sup> October 2007 to UNDP Office in Podgorica, Beogradska ulica 24b, 81000 Podgorica or by e-mail to [vacancy.me@undp.org](mailto:vacancy.me@undp.org) . Please indicate in the cover letter the post reference clearly, otherwise your application may not be considered. Applicants will be short-listed on the basis of their qualifications and work experience. Only short-listed candidates will be invited for interview.

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### **Chief Technical Advisor (CTA)**

**Job Title:** Chief Technical Advisor (International)  
**Post Reference:** MNE/07/008  
**Project:** Environment Hot Spot Project in Montenegro  
**Duty Station:** Podgorica, Montenegro  
**Bureau/Office:** UNDP Montenegro  
**Duration of Appointment:** 15 months

#### **Background:**

UNDP Country Offices in Albania, Bosnia and Herzegovina, Macedonia FYR, Montenegro, Serbia and UN Administered Province of Kosovo will develop a regional demonstration programme around demand driven projects in nine locations in the (6) Western Balkans suffering from the legacy of polluting industries and requiring industrial renewal, environmental cleanup and new economic initiative. The approach of the three years, 11 million Euros Programme which is available at <http://www2.undp.org.yu/montenegro/files/reports/Hot%20Spots%20-%20Programme%20doc%20-%20FINAL.pdf> is to achieve improvement of environmental situation and quality of life for citizens living in and around polluted areas through least cost measures, improved local and national policy dialogue and supply of domestic professional services in the environmental management sector. While the main focus will be the physical works needed to mitigate the ecological problems, institutional strengthening and capacity building will be an important subject running throughout the programme.

Environmental issues have not been amongst the top national priorities in the Western Balkans. Understandably, priorities to date have focused on the reforms needed to strengthen security, to rebuild the economy and to improve general living conditions. As a result, much-needed investment in environmental infrastructure such as wastewater treatment, air-pollution abatement and monitoring, and industrial and communal waste management are still waiting their turn. Clearly, this is a situation that raises humanitarian, social, economic and environmental concerns.

In addition, a number of industrial towns and regions face a complex challenge of past industrial development and pollution legacy and the need to generate economic growth for the future. The environmental situation in these hot spots is a direct cause of poor health and related poverty and presents a major barrier to future investments and related economic opportunities for the local population. On one hand they face the requirements for environmental clean up and on the other they are struggling with problems of poverty, lack of infrastructure and services and lack of prospects for the young generations.

Because of the proximity and geographic connectedness of the Balkans, the ongoing or potential pollution from these hot spots has a significant cross border impact on air and water quality (rivers, lakes and the sea). On top of this, the environmental situation in these communities presents a major barrier to future investments and related economic opportunities for the local population. The situation is often further complicated by uncoordinated or even conflicting plans and demands of various sectors of government, business and society. In most cases the poorest citizens (Roma, Ashkalia, Egyptians) live in the areas worst affected by pollution and degradation and these problems are taking resources

*Strengthening capacities in the Western Balkan countries to address environmental problems through remediation of high priority hot spots*

away from them, limit funds and future oriented initiatives. Success in cleaning up these locations and solving environmental and urban problems will attract new investments from inhabitants themselves, private sector, banks, donors etc.

The large cost estimates for clean up, according to best available technologies in Western Europe, have a de-motivating effect on those responsible and lead to pushing the actual activities further into the future. But recent experience from the region suggests that, instead of going for a full fix at a single site all in one go, that may leave little local capacity for maintenance and solving further problems, the process of dealing with large problems should start with building regional capacity with “small” steps that may deliver tangible impacts for the population on a time scale from one to five years. Careful design of initial steps based on least cost approach and high benefit to cost ratio by necessity also requires cross-sectoral solutions and wider distribution of environmental, social and economic benefits. This approach also recognises the likelihood that the return of economic activity will provide options for new industrial actors to carry out remediation if the site is attractive for investment in terms of labour and support services, and the regulatory framework is functioning appropriately.

The international, and especially EU, experience in revival of former industrial regions further shows that development breakthrough in pollution hot spots can only be achieved through integrated initiatives at the local level, addressing the local environmental, social and economic needs. Such initiatives cannot be successful if they are undertaken by one of the sectors such as environment, welfare, health or economy alone. They require creative cross-sectoral solutions based on stakeholder dialogue and public participation and many times the most effective actions are not directly related to the sources of pollution but to future environment-oriented activities or infrastructure.

Step by step clean up of polluted areas, investment in cleaner technologies to reduce waste, wastewater and air pollution must be combined with stronger integration of environmental concerns into sectoral policies and cross-border cooperation. It seems that an investment in effective mechanisms and mobilisation of already existing domestic expertise for sustainable environmental management could provide significant benefits to all in the short to medium term. This programme is expected to provide a significant step forward in this direction.

**Organisational Setting:**

The Chief Technical Adviser will work in the UNDP Montenegro as part of the Program Management Unit and will be based in Podgorica. S/he will report to the Regional Program Manager (RPM) who is also based in UNDP Montenegro as Head the Programme Implementation Unit (PIU) consisting furthermore of one or two Programme Associates, one Administrative/Finance Assistant, HR/Procurement Associate (20%), and a driver). S/he will however travel at least 75% of the time along the National Project Coordinators in the respective UNDP Country offices, key stakeholders offices (e.g. Ministries of Environment, REC), the (nine) hotspot sites, etc.

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**Job content:**

**Context:**

The Chief Technical Advisor will be based in UNDP Montenegro with frequent travel in the region and will provide detailed and in-depth technical advice as well as policy advice primarily concerning the environmental engineering and capacity building issues of the program and its activities. S/he will provide **guidance and advise** to the Regional Programme Manager and will work with the two Programme Associates and National Coordinators on identifying the best methods to ensure that the programme achieves maximum impact, in accordance with European and international best practice, towards the outcome defined in the Strategic Results Framework, and towards the objectives defined in the Programme document. S/he will also initiate the desired technical consultations among the Advisory Board members, mostly by e-mail exchanges and chair the possible (occasional physical) meetings of the Advisory Board members<sup>62</sup>.

**Responsibilities:**

1. S/he provides advises and support to the Program Management Unit (PMU) on technical/policy aspect of the regional hot spots programme at the individual country and regional level (as appropriate) in line with regional/international best practices emerging from similar projects in the region and world-wide including but not limited to:
  - Identifying relevant sources of expertise required for programme/activity implementation;
  - Preparing guidelines for national coordinators to further develop/refine their individual country projects;
  - Providing advise in the process of preparation of tender documentation, ToRs for consultants and contractors, and participate in the selection process for companies that will be contracted to conduct hot spots location assessments, complete physical works, etc.,
  - Reviewing quality of submitted reports e.g. location assessments, analysis, etc. and then advising PMU accordingly and providing guidance to the contractors and consultants when necessary,
  - Providing advice in the process of preparation of ToRs for experts that will conduct policy/integration assessment and participate in the selection process;
  - Providing advice regarding selection of the pilot projects of policy integration,
  - Advising on the organization of study tours for beneficiary institutions, supervising and advising on preparation of training curricula/programmes, selection of presenters, etc. and when requested accompany groups on study tours,
  - Advising on the organization of Regional meetings, workshops, trainings etc., supervising and advising on the preparation of the programmes, agendas, selection of presenters, etc. and making presentations,
  - Advising on and supervising design of the survey that will enable

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<sup>62</sup> Role of the Advisory Board is explained in more details in the Program Document

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- identification of qualified experts in the Region in the relevant fields and creation of a database,
- Developing guidelines and/or make specific proposals that will enable PMU to monitor and evaluate progress of individual country projects and ensure program impact at regional and individual country level,
- Providing advise and technical/policy inputs in developing marketing campaign.

**In addition s/he:**

- Fosters and establishes links with other relevant programs in the region and advises RPM so that consistency between the various program elements and activities in the country level provided by this programme and programs, projects funded by other donor organizations is ensured,
- Regularly visits hot spots locations and with RPM or at his/her request meets with representatives from Ministries, Agencies, local communities, NGOs in the Region;
- Edits and produces substantive written material for publication(s) relating to the programme, prepares programmes and presentations for conferences and workshops, and provides consultancy and briefings to the RPM or to partners at the request of the RPM,
- Prepares relevant technical/policy inputs and participates in the Management Board meetings (on specific request) and supports RPM in covering technical/policy issues of the program,
- Participates (on specific request) at the meeting of the network of national sustainable development councils;
- Facilitates liaison and networking between and among the country teams, regional organisations, key stakeholders and other individuals involved in advisory board and programme implementation and chairs the meetings of the Advisory Board,
- In consultation with the Programme Manager works on establishing priorities in case of time scheduling problems due to the long list of tasks

**Qualifications:**

The incumbent should have extensive work experience related to both technical and policy aspects of clean-up of mining/metallurgical/chemical industry hot spots, particularly as concerns the soil, surface- and groundwater pollution aspects, preferably in the region. At least 7 years of relevant work experience with progressively responsible accountability including at least 3 years of direct involvement in clean-up of indicated environmental hot spot types. In particular s/he should possess:

1. Advanced or postgraduate degree or certificate in Environmental Management and/or Engineering, from an internationally recognised institution.
2. Experience in high level environmental policy advise -in international programmes involving central government, local authorities and international organisations.
3. Evidence of strong analytical ability as well as ability to think strategically, to express ideas clearly and concisely, to work both independently and in teams, to demonstrate self-confidence combined with sensitivity to gender and culture.
4. Experience to live and work in a multi-cultural environment for extended periods.

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5. Good communication, presentation, and inter-personal skills, accuracy and fluency in both spoken and written English, and good knowledge of at least one other language, preferably one spoken in the Region, basic IT skills including word-processing, database applications, presentation software and use of internet.
6. Knowledge of the UN system and familiarity with UNDP procedures is desirable.

Applicants are kindly requested to send their **CV, articulating specifically relevant experiences in relation with the required qualifications, along with a cover letter to UNDP Office in Podgorica** by e-mail to [vacancy.me@undp.org](mailto:vacancy.me@undp.org) by **09<sup>th</sup> October 2007, COB**. Please indicate in the cover letter the post reference clearly, otherwise your application may not be considered. Applicants will be short-listed on the basis of their qualifications and work experience, and only the short-listed candidates will be invited for interview.

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### **Terms of Reference**

**Job Title:** Programme Associate (2 positions) for the Regional Programme “Strengthening capacities in the Western Balkans countries to address environmental problems through remediation of high priority hot spots”

**One Programme Associate will be responsible for the technical, environmental engineering and management matters, and the second one for capacity building matters (workshops, training, web-based information dissemination and exchange)**

**Duty Station:** Podgorica, Montenegro

**Bureau/Office:** UNDP Montenegro

**Post Reference:** MNE/007/016

**Duration of Appointment:** 30 months

### **Background:**

UNDP Country Offices in Albania, Bosnia and Herzegovina, Macedonia FYR, Montenegro, Serbia and UN Administered Province of Kosovo will develop a regional demonstration programme around demand driven projects in nine locations in the (6) Western Balkans suffering from the legacy of polluting industries and requiring industrial renewal, environmental cleanup and new economic initiative. The approach of the three years, 11 million Euros Programme which is available at <http://www2.undp.org.yu/montenegro/files/reports/Hot%20Spots%20-%20Programme%20doc%20-%20FINAL.pdf> is to achieve improvement of environmental situation and quality of life for citizens living in and around polluted areas through least cost measures, improved local and national policy dialogue and supply of domestic professional services in the environmental management sector. While the main focus will be the physical works needed to mitigate the ecological problems, institutional strengthening and capacity building will be an important subject running throughout the programme.

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### **Organizational setting**

A Regional Programme Manager (RPM) will be based in UNDP Montenegro and under the direct supervision of the respective Resident Representative s/he will head the Programme Implementation Unit (PIU) consisting of Chief Technical Advisor, two Programme Associates, one Administrative/Finance Assistant, HR/Procurement Associate (20%), and one driver, manage day-to-day activities of the programme and coordinate with the Senior managers in the participating UNDP offices who each supervise the respective National Project Coordinator, to ensure efficient programme implementation. Under the direct supervision of the RPM, two Programme Associates will be in charge of coordinating, monitoring and supporting the work of the National Project Coordinators where **one Programme Associate will be responsible for the technical, environmental engineering and management**

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**matters, and the second one for capacity building matters (workshops, training, web-based information dissemination and exchange), both also supporting the CTA.**

The National Project Coordinator will be responsible for day-to-day operational aspects of Programme activities, i.e. the implementation of the components 1 (Clean-up works) and 2 (Demonstration and Information Sharing) envisaged in each country, and as described in some more detail in the Project Document (available on the website). They will be based in UNDP Country Offices in Albania, Bosnia and Herzegovina, Macedonia FYR, Montenegro, Serbia and UN Administered Province of Kosovo and they will be under direct supervision of the concerned Senior Manager in each UNDP country/territory office (who is familiar already with the Programme thanks to his/her participation in preparing this programme).

**Job content:**

Under direct supervision of the Regional Programme Manager (RPM) the incumbent will:

(1) Coordinate and support the work of participating countries/territories on the day-to day basis, (2) Monitor and ensure quality of delivery of inputs provided by the COs; (3) Ensure quality and timeliness of reporting and data production; (4) Support the RPM in preparing and organizing the meetings of the Management Board and Advisory Board and implementation of regional activities and (5) Perform other related duties.

1. Coordinate and support the work of participating countries/territories on the day-to day basis, primarily as concerns Component 1 (Clean-up project – technical, environmental engineering matters) **OR** Component 2 (Capacity building, Demonstration and Information Sharing) (for details please refer to the Project Document available on the website):

- Support the three project teams in preparing project proposals, and in updating their work plans;
- Maintain close cooperation between the Programme Implementation Unit (PIU) and countries' project teams;
- Review countries' official documents and communications and bring to the attention of the RPM any issue requesting his/her immediate attention/action;
- Timely inform RPM about the need for potential adjustment of actions and procedures in light of changing requirements/needs, raised issues, and/or risks;
- In close communication with National Project Coordinators prepare agenda and schedule for the visits of the Chief Technical Advisor (CTA);
- Undertake technical and other assignments as directed by the CTA
- Provide inputs and support RPM in preparation of the Communication and Monitoring Plan;
- Ensure that Issue, Quality, Risk, and Lessons-Learnt logs are entered in ATLAS and regularly (quarterly) updated by National Project Coordinators (NPCs);
- Regular monitoring of the relevant events and/or subjects in the local media,

2. Monitor and ensure quality of delivery of inputs provided by the COs:

- Ensure that work plans are prepared on time and reflect programme objectives and outputs;
- Ensure timely coordination and implementation of recruitment and deployment of experts to support countries project implementation;

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- Ensure the establishment and maintenance of complete accounting records of all project activities (budget, commitments, expenditures) per source of funds and expenditure line item.
3. Ensure quality and timeliness of reporting and data production:
- Monitor and evaluate countries' implementation progress, on-time delivery and ensure quality and timely reporting to PIU;
  - Monitor procurement of goods and services under the individual countries/territories projects.
4. Support the RPM in preparing and organizing the meetings of the Management Board and Advisory Board and implementation of regional activities
- Support the RPM in preparing quarterly progress reports for the Management Board, in planning, preparation and organization of the Regional meetings and other regional activities,
  - Support the RPM and NPCs preparing and organizing workshops and training activities, in the interaction with the Advisory Board and in the implementation of follow-up actions.
5. Perform other related duties.

**Qualifications and Experience:**

*Preferred competency profile*

- Candidates should have a proven successful track record of engaging in projects and/or programs in the Region, preferably with sound knowledge of UNDP management methods (RBM, PRINCE2) and tools (ATLAS), as well as UNDP rules and procedures,
- Candidates should have strong communication, managerial, advocacy, and analytical skills, work well in multi-disciplinary teams, and be able to apply a comprehensive development approach to policy issues,
- Good communication and interpersonal skills, particularly for building networks and partnerships, and significant experience in liaising with and cooperating with government ministries, international donors and agencies,
- Demonstrated leadership in ensuring local ownership and bottoms-up decision-making process.

*Experience*

- A minimum of 3 years experience in a (assistant) management capacity with progressively increasing responsibilities, preferably with focus in environmental engineering and/or management and some experience in policy development

*Qualifications*

- University or Graduate Degree in Management, Engineering or relevant Social Science is required while background in environmental-oriented experience is preferred.
- Fluency in both English (as working language) and one local language is a necessity. Knowledge of another language used in the Region would be considered an additional asset.
- Cyber/internet-literacy, knowledge of mainstream ICT office software is required while knowledge of ATLAS would be an asset.

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## TERMS OF REFERENCE

**Job Title:** National Project Coordinator for the Clean-up Project in [country/territory]

**Post Reference:** MNE/007/015

**Duty Station:** UNDP [country/territory]

**Bureau/Office:** UNDP

**Duration of Appointment:** 30 months

### Background:

UNDP Country Offices in Albania, Bosnia and Herzegovina, Macedonia FYR, Montenegro, Serbia and UN Administered Province of Kosovo will develop a regional demonstration programme around demand driven projects in seven locations in the Western Balkans suffering from the legacy of polluting industries and requiring industrial renewal, environmental cleanup and new economic initiative. The approach of the three years, 11 million Euros programme which is available at <http://www2.undp.org.yu/montenegro/files/reports/Hot%20Spots%20-%20Programme%20doc%20-%20FINAL.pdf> is to achieve improvement of environmental situation and quality of life for citizens living in and around polluted areas through least cost measures, improved local and national policy dialogue and supply of domestic professional services in the environmental management sector. While the main focus will be the physical works needed to mitigate the ecological problems, institutional strengthening and capacity building will be an important subject running throughout the programme.

Environmental issues have not been amongst the top national priorities in the Western Balkans. Understandably, priorities to date have focused on the reforms needed to strengthen security, to rebuild the economy and to improve general living conditions. As a result, much-needed investment in environmental infrastructure such as wastewater treatment, air-pollution abatement and monitoring, and industrial and communal waste management are still waiting their turn. Clearly, this is a situation that raises humanitarian, social, economic and environmental concerns.

In addition, a number of industrial towns and regions face a complex challenge of past industrial development and pollution legacy and the need to generate economic growth for the future. The environmental situation in these hot spots is a direct cause of poor health and related poverty and presents a major barrier to future investments and related economic opportunities for the local population. On one hand they face the requirements for environmental clean up and on the other they are struggling with problems of poverty, lack of infrastructure and services and lack of prospects for the young generations.

Because of the proximity and geographic connectedness of the Balkans, the ongoing or potential pollution from these hot spots has a significant cross border impact on air and water quality (rivers, lakes and the sea). On top of this, the environmental situation in these communities presents a major barrier to future investments and related economic opportunities for the local population. The situation is often further complicated by uncoordinated or even conflicting plans and demands of various sectors of government, business and society. In most cases the poorest citizens (Roma, Ashkalia, Egyptians) live in the areas worst affected by pollution and degradation and these problems are taking resources away from them, limit funds and future oriented initiatives. Success in cleaning up these

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Step by step clean up of polluted areas, investment in cleaner technologies to reduce waste, wastewater and air pollution must be combined with stronger integration of environmental concerns into sectoral policies and cross-border cooperation. It seems that an investment in effective mechanisms and mobilisation of already existing domestic expertise for sustainable environmental management could provide significant benefits to all in the short to medium term. This programme is expected to provide a significant step forward in this direction.

**Organisational setting:**

Regional Programme Manager (RPM) will be based in UNDP Montenegro and under the direct supervision of the Resident Representative s/he will head the Programme Implementation Unit (PIU),<sup>63</sup> manage day-to-day activities of the programme and coordinate with the Senior managers in the participating UNDP offices who each supervise the respective National Project Coordinator, to ensure efficient programme implementation. Under the direct supervision of the RPM, two Programme Associates will be in charge of coordinating, monitoring and supporting the work of the National Project Coordinators where one Programme Associate will be responsible for the technical, environmental engineering and management matters, and the second one for capacity building matters (workshops, training, web-based information dissemination and exchange), both supporting also the CTA.

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<sup>63</sup> Podgorica-based PIU will consist of Regional Programme Manager (RPM), Chief Technical Advisor (CTA), two Programme Associates (PA), one Administrative/Finance Assistant, HR/Procurement Associate (20%), and one driver.

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The National Project Coordinator will be responsible for day-to-day operational aspects of Programme activities, i.e. the implementation of the components 1 (Clean-up works) and 2 (Demonstration and Information Sharing) envisaged in each country, and as described in some more detail in the Project Document (available on the website). They will be based in UNDP Country Offices in Albania, Bosnia and Herzegovina, Macedonia FYR, Montenegro, Serbia and UN Administered Province of Kosovo and they will be under direct supervision of the concerned Senior Manager in each UNDP country/territory office (who is familiar already with the Programme thanks to his/her participation in preparing this programme).

*COUNTRY/TERRITORY-SPECIFIC TEXT ABOUT THE PROJECT HEREAFTER, E.G. FOR MONTENEGRO:*

The Project “The Waste Water Treatment Plant (WWTP) located at the Tailing Mine Impoundment (TMI) in Mojkovac” is one of the clean-up projects of the Regional Programme “Strengthening capacities in the Western Balkan countries to address environmental problems through remediation of high priority hot spots”. The Mojkovac project will be implemented as part of the Economy and Environment cluster (of UNDP Montenegro in this case) under the concerned Senior Manager mentioned above. This UNDP office—Senior Manager and National Project Coordinator more specifically—will be accountable for the successful implementation of both the physical works involved (component 1) and all learning and training benefits generated during the process and shared within the country/territory (component 2) and made available for sharing within the whole Region.

**Job content:**

Under direct supervision of the UNDP [Country/Territory] Senior Manager/Team Leader for Economy and Environment, and guided and supported by the PIU (RPM, CTA and PA’s) the incumbent will:

(1) Manage day-to-day activities of the project and supervise the assistant and all works and services that will be outsourced/contracted; (2) Arrange, prepare and follow-up on meetings with direct stakeholders such as local, provincial and national Government, industry (hotspot owner), affected local communities and/or NGOs (representing local or wider environmental/ecological concerns), project consultants and (engineering) contractors, etc.; (3) Supervise delivery of inputs provided by the project; (4) Ensure quality and timeliness of reporting and data production; (5) Provide necessary back-up services to Chief Technical Advisor, consultants, etc.; and (6) Issue early warning in case of problems, particularly as concerns the progress of component 1 implementation, to both the Senior Manager UNDP [Country/Territory] and the PUI – UNDP Montenegro.

Under the (6) main tasks, proper attention shall be given also to issues such as:

- Regular monitoring of the relevant events and/or subjects in the local media
- Act as focal point for this particular project (e.g. Montenegro: “The Waste Water Treatment Plant (WWTP) located at the Tailing Mine Impoundment (TMI) in Mojkovac”) and keep in touch (e.g, e-mail exchanges) with colleague National Project Coordinator(s) engaged in a similar project (component 1) implementation in one of the other 5 countries/territory, as well as with colleagues within the country/territory, but outside this programme, who are engaged in a similar project
- Ensure timely coordination and implementation of recruitment and deployment of experts needed to support project implementation;

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- Manage procurement of goods and services under the project, and ensure on-time delivery to recipient institutions.
- Promote project visibility;
- Ensure the establishment and maintenance of complete accounting records of all project activities (budget, commitments, expenditures, income) per source of funds and expenditure, line item;
- Ensure provision of adequate secretarial and interpretation facilities for CTA/consultants, and assistance with organization of meetings with partners;
- Provide necessary back-up services to CTA/consultants in connection with the project;
- Ensure that CTA/consultants have assistance with organization of workshops and conferences, and with preparation of project outputs.

**Qualifications and Experience:**

- University or Graduate Degree in Engineering, or in Management/Public Administration with post-graduate certificate in Environmental Engineering or Management from a reputable Educational Institute in this field;
- A minimum of 3 years of relevant field experience in civil engineering-type of design and/or construction works, preferably in the field of environmental engineering;
- A minimum of 3 years of relevant management experience, preferably concerning environmental management, in an International Organization, government institution, or an NGO,
- Overall knowledge of the environmental issues in [concerned country/territory] while concrete knowledge related to the concerned hot spot would be an advantage,
- Ability to manage and motivate people in a complex political environment and achieve set of goals under time pressure;
- Pro-active, independent and responsible personality;
- Initiative and strong team-building, communication and negotiation skills;
- Familiarity with change management and institutional capacity building in transitional economies would be an advantage;
- Fluency in English and Local Language; Cyber/internet-literacy, knowledge of mainstream ICT office software.

Applicants are kindly requested to send their **CV, articulating specifically relevant experiences in relation with the required qualifications, along with a cover letter to UNDP Office in Podgorica** by e-mail to [vacancy.me@undp.org](mailto:vacancy.me@undp.org) by 09<sup>th</sup> October, 2007 **COB**. Please indicate in the cover letter the post reference clearly, otherwise your application may not be considered. Applicants will be short-listed on the basis of their qualifications and work experience, and only the short-listed candidates will be invited for interview.

**UNDP is an equal opportunity employer.**