

# TECHNICAL REPORT

## BOSNIA & HERZEGOVINA

SITE: 1 Ugljevik Municipality: Thermal power plant industrial water process

SITE: 2 Tuzla Municipality: Coal fired boilers within the urban core

### ENVIRONMENTAL/HUMAN HEALTH PROBLEM

For Ugljevik the current industrial waste water treatment plant releases in excess of 50,000m<sup>3</sup> of highly saline water to the Janja and Mezgraja rivers negatively impacting on the river ecology and the people who are using water from the river for private and agricultural activities.

For Tuzla the coal fired boilers that provide heat and steam for two clinics within the urban core of the town are a major point source for air pollutants including sulfur dioxide, nitrous oxide and particulates contributing to respiratory disease and exceedances of acceptable air limits. Lignite containing quite high levels of sulfur is burnt in primitive boilers with few process controls and the combustion products are released from a short unfiltered stack.

### INTERVENTION & WORKS

For Ugljevik the proposed intervention aims to reduce wastewater and salts (45 tons a yr) entering the river by 35-40% from the industrial wastewater treatment system through its modernization and replacement of parts. The increased efficiency of the treatment process would also significantly reduce the amount of water (i.e. by 17000 cubic meters per yr), electricity and water treatment chemicals used in the process and in turn significantly reduce the quantity of Green House Gases produced and finite resources consumed in delivering treated industrial water. Before and after monitoring of both the discharge quality of the wastewaters and upstream/downstream water quality is currently undertaken for a limited range of contaminants.

For Tuzla proposed works involve providing an alternative source of heat and steam to the two clinics to that provided by the coal fired boilers during the heating season. This is to be achieved by connecting the clinics to the municipal heating system using waste heat from the regional power station. This will permit the two inefficient and unfiltered coal fired boilers within the urban core to be shutdown during the heating season and plans made to decommission them once alternative backup systems are in place.

### CURRENT POSITION

Activities in preparing technical documentation and the associated Environmental assessment studies (EAS), for projects in Tuzla and Ugljevik have been completed. Both partners (with some delays on the last agreed deadlines) submitted developed technical documentation including a detailed Bill of Quantities (BoQ).

(A) - Tuzla - In relation to the project in Tuzla it should be noted that the received technical documentation was prepared with an expanded scope of works greatly exceeding the approved budget for this intervention. Tuzla municipality prepared this even though they were aware of what the budget limitations were for this project and what the scope of works and objective of the intervention was within the Pro Doc. As a result there are several activities/works that were identified

in the technical documentation prepared by Tuzla that will not be implemented as part of this intervention.

The scope of works as defined in technical documentation provided by Tuzla partner are as follows:

Gradina hospital:

1. Main heating network
2. Heating substation (with needed network and other works)
3. Reconstruction of coal based boiler room and transformation to natural gas based boiler room

Slavinovici hospital:

1. Main heating network
2. Heating substation (with needed network and other works)
3. Reconstruction of coal based boiler room and transformation to natural gas based boiler room
4. Solar collectors

Total financial value of works according to technical design is approximately 6,2 million BAM, higher than what is budgeted in the hot spots project and with interventions not envisaged by the hot spots project document for BiH.

In line with what was defined in the project document and staying within the envisaged project budget, activities have been prioritized from the technical documentation that are aligned with the main environmental/human health benefit identified in the ProDoc. Which is the unfiltered air emissions produced by the Gradina Hospital occur during the heating season made by coal based boilers. Works will therefore be focused on connecting the Gradina Hospital to the district heating system to eliminate this major point source of air pollution in the urban core. Should there be some savings after tendering procedure further evaluation on other works we can do in order to further reduce air pollution made by this hospital for other needs (process steam, sanitary hot water ...) will be undertaken.

While **the scope of works as presented in Tuzla municipalities' technical documentation is being** prioritized due to the budget realities of this intervention it will still achieve the major aims as proposed as in the ProDoc in connecting the Gradina hospital to district heating system and therefore cutting off a major source of air pollution in Tuzla.

(B) Ugljevik - Regarding Ugljevik, the situation is good, technical documentation received and estimated financial value is within budgeted amount (+/- 10%).

ToRs were also prepared for an independent international expert (Engineer) to review the detailed technical design and bill of quantities for adequacy and accuracy for both projects and are now closed with recruitment to be finalized in January 09.

## NEXT STEPS

Once the review of the technical designs and bill of quantities for Ugljevik and Tuzla have been finalized by the appointed independent international expert ToRs are to be prepared and advertised for the procurement of the materials and services required to conduct the physical works to replace the industrial water treatment plant at the Ugljevik Thermal Power Plant and to connect the clinics to the district heating system in Tuzla Municipality.

In addition to progressing the physical works measures need to be also taken to secure the necessary environmental monitoring to show the positive impact achieved through conducting the physical works.

For Tuzla a program of local air monitoring needs to be conducted before, during and after the clinics are connected to the district heating system and the coal fired boilers are not being used in order to **show the 'net' improvement of air quality and a 'local' baseline. Existing air monitoring at the regional level** using fixed monitoring points are unlikely to be positioned to show the air quality improvement within the urban core. Monitoring with mobile monitoring equipment is therefore recommended as a priority.

For Ugljevik a program of local water monitoring needs to be conducted that complements existing monitoring before, during and after water treatment improvement works are conducted to show the **'net' improvement of air quality and a 'local' baseline.** Water monitoring to date has not been conducted to monitor the environmental condition of the river. A monitoring plan to address this need is to be developed.