



Report on Study Tour

Cleaner Production in Industry

Austria, 22 – 26 September 2008.

In the last week of September 2008, the Western Balkan Environmental Programme UNDP Montenegro has organized a study tour to Vienna for the two countries participating in the Programme, Serbia and Bosnia and Herzegovina. The study tour theme was "*Cleaner production in industry*" and in that context, participants from Serbia and Bosnia and Herzegovina visited companies in the food industry, and waste water treatment plants and solid waste incinerators in Vienna area. The host organization in Vienna was Umweltbundesamt, Vienna with Mr Fritz Kroiss acting as focal point from their side.

During the stay in Vienna among other, the main waste water treatment and waste incinerator companies for Vienna were visited. The study tour participants explored in detail: treatment of waste water, treatment of solid and hazardous waste, energy and heat recovery through sludge reuse and waste incineration.

On Thursday, participants from Serbia and Bosnia and Herzegovina were invited by the Environmental Agency in Vienna (Umweltbundesamt Wien) for a short seminar about IPPC and waste water treatment in Vienna. The presentations were given by: Mrs Ilse Schindler, head of the Industry and Power Plants Unit, with "IPPC/BAT and relation to other Environmental legislation", and Mr Georg Windhofer, Water Department, with "Urban waste water management in Austria".

During the stay in Vienna following companies and waste treatment facilities were visited:

1. On Tuesday, 23.09.2008.:
 - a. NOEM Milk Production Company in Baden
 - b. Waste Water Treatment Plant "Bad Voeslau" in Bad Voeslau
2. On Wednesday, 24.09.2008.:
 - a. Sugar Production Plant "Agrana" in Leopoldsdorf
 - b. Main Waste Water treatment Plant Vienna – Simmering
3. On Thursday, 25.09.2008.:
 - a. Environmental Agency in Vienna
 - b. Hazardous and clinical Waste Incinerator Vienna
 - c. New Municipal Waste Incinerator



Visit to the NOEM Milk Production Company in Baden. We were invited for a short presentation of the company after which we did a tour through the facility.

- It was interesting to hear more about the technological processes, and to visit the production line.
- Waste management and waste water management. They only recycle their waste into special recycle bins (carton, glass, plastics, organic waste, etc.) and specialized companies take over the waste for further reuse.
- Waste water management - the waste water is being send to the Bad Vöslau waste water treatment facility where it gets treated. The milk company NÖM participated with 35% of financial support in extending the capacities of the Bad Vöslau Waste water treatment facility.

More information you can be found at: [http://: www.noem.at](http://www.noem.at)

Visit to the Bad Vöslau waste water treatment facility. The technological process:

- First step is physical extraction of waste particles bigger then 12mm in diameter from the sewage water (sand, organic waste, etc.). Waste water is send to the primary basin
- In the primary basin start the sedimentation process of heaviest sludge that get extrapolated and is send to the digestion tower for further reuse. After this process the waste water is send to the second basin, the aeration basin.
- In the aeration basin start the process of revitalization of microorganisms thru processes of nitrification and de-nitrification. When the process is finished the water is being send to the final settling basin out of which the treated water (category II) is discharged into the natural recipient. The surplus sludge from the settling basin is send into the basin with the NOEM waste water. The NOEM waste water enters the treatment process and goes thru all mentioned processes.
- Reuse and treatment of extrapolated sludge - stored sludge in the digestion tower is being reused for:
 - o Production of electricity - emission of methane gases in the tower is send to the co-generator for power production
 - o Production of heat – sludge with less calorific values is being dried until it reach 47% of dry material and then it is being send for pyrolysis. Heat produced in this process is being used in the treatment of waste water process, for drying the sludge, for heat exchange, and for distributing heat into the public heating system
 - o Ash out of the process of pyrolysis is being disposed at a dumpsite, or reused in construction materials industry

More information can be found at: <http://www.awa-badvoeslau.at>

When visiting the Sugar Production Plant “Agrana” in Leopoldsdorf and the main Waste Water treatment Plant Vienna – Simmering, their waste water is being treated in the same way as described for Bad Vöslau waste water treatment plant, with the difference in final treatment and reuse of sludge.



- In the sugar production plant, extrapolated sludge is stored for three years on designated locations and then reused as fertilizers in agriculture.

More information can be found at: <http://www.aquamedia.at/templates/index.cfm/id/216> (for the main waste water treatment plant in Vienna) and <http://www.agrana.at> (for the Sugar Production Plant "Agrana" in Leopoldsdorf)

Visit to the hazardous waste incinerator and to the main waste incinerator for Vienna. The technological process:

- The technological processes of both incinerators are very similar. First we have delivery of waste and storing it into the waste bunker. When time comes for further processing of waste, the waste from the bunker is taken to the grate stoker furnace for incineration. End products of incineration are slag and gas. Slag is being disposed at the dump sites as an ash-slag-concrete mixture. Gas from the furnace enters the heat recovery boiler. From the boiler, gas is directed towards the steam turbine and the generator for power production and for heat exchange.

More information of the whole process can be found at: <http://www.umweltzentrum.at>