Expert Training in Austria for Romanian Industries (including mining) and Environment Protection Authorities (sector water pollution)

Supported by

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(via Know-how Transfer Centre, Vienna)

11 – 19 September 2003

Final Report

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1. Introduction

This training originated from the fact that the Somes-Tisa region in Romania is subject to many industrial accidents and one of the most polluted regions of Romania. The serious mining incidents in January and March 2000 in Baia Mare and Baia Borsa triggered a lot of international attention but the region hosts another dozen of high risk tailing deposits and some 30 major industrial and communal hot spots: These produce chronic and accidental pollution, causing transboundary pollution.

Greenpeace in CEE, Vienna, has a new focus of activities on industrial pollution in the Upper Tisa region (Slovakia, Hungary, Romania), resulting i.a. in a "Clean Water Tour" in 2002. *Apele Romane* (Romanian Waters) as the authority responsible for water quality monitoring and future implementation of the EU-Water Framework Directive (WFD) expressed interest in 2002 to catch up with the standard of similar institutions in Austria. *Zinke Environment Consulting for CEE,* consulting the Greenpeace campaign and familiar with the situation in Romania, contacted the Austrian Federal Ministry for Foreign Affairs (department VII.2e for Technical Co-operation CEEC and NIS) in late 2002 and in June 2003 the training proposal was approved.

Goal of the international activities is to reduce industrial water pollution in the Upper Tisa region.

Specific objective of the nine-days training was to inform 11 Romanian experts from local environment authorities and from polluting industries from the Upper Tisa region and beyond (Mures basin) about Austrian water quality monitoring and about waste water management in the mining and industry sector.

Training Topics in Austria

- Pollution management (problems and solutions) of mining, chemical and paper industries
- Legal permits and standards for industries related to water quality
- Monitoring and control (including fining) of pollution sources
- Transfer of Austrian practises and the EU-WFD to the Romanian situation.

Financing of Training

The training was co-financed by

- *Romanian participants' companies*: Travel to Vienna and back to RO; provision of vehicles for all training travels in Austria.
- *Greenpeace in CEE*: Project concept and lobbying
- *Austrian Federal Ministry of Foreign Affairs(via Know-how Transfer Centre, Vienna)*: all training costs in Austria (organisation, accommodation, meals etc.)
- *Austrian federal and provincial government institutions, university Leoben and private industries*: local training experts and facilities.

2. Report about Training Organisation

The training topics and sequence were agreed by the study tour organiser, Mr Alexander Zinke, in July and August 2003 with the Austrian governments and the local institutions to be visited (see programme). Zinke then joined the group upon arrival in Austria and guided it during the entire training (11-19 September 2003).

Zinke's *external* organisation included the preparation of the programme (including instructions to local speakers about the Romanian needs), the organisation of the trip (including accommodation, meals, excursion etc.), the selection/invitation (July) and guidance of the participants and the writing of this final report.

Mr Zinke owes a special thank for the support provided by the university of Leoben (Prof. Karl Lorber, eng. Novak) who helped with various local contacts and logistic details in Styria, and the Embassy of Romania (embassador Dr. Traian Chebeleu and Ms Greavu) which hosted the group on the last training day.

3. Results and Comments on the Training Programme

3.1. Results of Visits and Meetings

Thursday 11 September 2003

The training group left very early from Romania and travelled safely up to **Leoben**/Austria (arrive at hotel Kindler at 18:30). At a welcome dinner, the training organiser and group guide, Mr *Alexander Zinke*, provided latest information about the training programme, organisation and logistics, and the expectations of the Austrian hosts and donors for the training group. He also paid out funds for car fuel and for those meals that are not part of the daily programme.

Friday 12 September

For the first local visit, the group travelled by the Romanian cars to the industrial paper and cellulose plant **SAPPI** (: www.sappi.com) in Gratkorn. *Dipl.Ing. Gottfried Schmid* presented first the general facts about this largest plant in Europe (world leader for graphic paper) and the remarkable success in reducing water pollution (1978: 2.2 million population equivalents, today: 15-17,000 PE). Most impressive information was probably the company success to improve their market position, worker safety and overall production costs by introducing and continuously expanding environmental quality standards (e.g. various certifications and business awards since 1992).
First in theory and later at the WWTP, the developed wastewater collection, treatment and cleaning system was presented and discussed. This included the internal monitoring system with automatic data supply to the authority and the covering of the aeration basin, thus effectively preventing the typical smell problems.
The group was generously invited for lunch into the SAPPI restaurant and moved then north via Leoben towards the Erzberg.

The afternoon excursion at the **Paulisturz waste deposit** could be started only with a delay but still took quite long on the modern management of municipal and industrial waste deposits and of their exfiltration waters. The group was accompanied by *Prof. Karl Lorber* (Leoben university) and first guided by *Ing. Goldgruber* who explained the re-use of the old mine deposit of the Erzberg for municipal and industrial wastes. This deposit is operated by the private UVG company since 1993 at an altitude of 1,300 m (i.e. at alpine conditions: e.g. 1,700 mm precipitation per year) but it is open year-round. The deposit has a multi-layer system (loam, gravel, PET and fleece) to effectively collect all leachate and methane gas and is step-wise recultivated whenever a part is filled up.

The local company manager, *Dipl.Ing. Andreas Mehlmauer-Larcher* (UEG AG – RMVG RestmüllverwertungsGmbH), first presented the leachate treatment station where with the help of "reverse osmosis" all salt compounds can be eliminated (capacity: 2.8 m³/h; 80% of cleaned water is released into the creek while the remaining 20% of concentrated leachate are recycled on the deposit). All leachate treatment is monitored on-line; in case of an incident, the leachate is collected in a big basin. All collected gas is burned at 1,200°C; the produced heat cannot be used due to its HCl compounds and the remote location of the plant.

A second industrial deposit at the Paulisturz serves to dispose filter particles from the steel industry. These are collected during winter in a big shed and deposited during summer after having mixed and hardened them with beton at a simple mixing station at the Paulisturz site. This technique proved to effectively limit leaching of this hazardous waste.

Saturday 13 September

At 10:00 the training group arrived at the "Department of Sustainable Waste Management and Technology" (IAE) www.unileoben.ac.at/~ied of the Montan university Leoben where is was welcomed by the head, *Univ.Prof. Karl Lorber,* with "Norok bun" ("Glück auf!").

During the day *Prof. Lorber* gave comprehensive theoretical presentations on

- the history of the mining university; the education and research work of his institute,
- **Energy recovery from waste** (today 80% for power and district heating but incinerators only exist in Vienna; composting and co-incineration; old oils and tires burned by cement industry) where his department's laboratory provides independent quality control. The presentation was complemented by a *video* about the waste incinerator of Vienna-Spittelau.
- **Landfill technologies and site remediation** (prevention of groundwater pollution by encapsulation or excavation; brownfield management). Soil remediation due to uncontrolled deposition (household waste, sludge etc.), industrial sites and accidents. The remediation techniques include decontamination (excavation), immobilisation and encapsulation (with pile or trend walls).
- **Environmental management** through optimised industrial production processes (less pollution and costs e.g. of car factories) according to ISO norms.
- **Austrian household waste management** (residual waste splitting concept) where 50% of all waste is collected (paper, plastics, glass, organic waste) and the remaining waste either has to burned (Vienna) or treated via co-incineration or composting before it can be disposed on landfills (new waste management law, prescribing pre-treatment of all wastes from 2004 on).

The participants much appreciated the hospitality of the institute's secretary who prepared coffee/tea and a very tasty cream cake. The day ended for most participants with a lot of dancing before and after midnight.

Sunday 14 September

At 9:30 the visit of the tourist site **Erzberg** (ore mountain) started with a one-hour adventure drive with the *Hauly*, a huge truck with its skip rebuilt as a huge taxi for over 60 visitors. The guided tour went up the big terraces of the huge open-cast mine (largest in central Europe) which is operating for over 1,000(!) years. Here, siderite $FeCO_3$ (32% content) is exploited until today by the **VOEST ALPINE Erzberg company** (supplying the steel plants in Linz and Leoben-Donawitz). The pyramid shape of the open cast mine (700 m high) became in the 1990s an international tourist attraction for guided tours as well as for recreation events (guided private 4x4 car and bike trips; open air concerts; international mountain bike and motorbike competitions etc.) (www.abenteuer-erzberg.at). The hauly passed by big tailing ponds and stopped at the Erzberg lake, the lowest point of the mine (with drinking water quality!). The round trip ended at the crushing plant where the dead rocks are separated from the ore stones before further concentration (electronically monitored).

The second part of the tour went for 90 minutes underground, first in a small train, into an exhibition mine: Part of the former underground mines (closed in 1986) was turned into a museum where the geological history of the ore mountain is explained, and the old and current mining techniques are demonstrated. The guiding miner explained the group that the mine water poses no heavy metal problem due to its high pH (*remark*: At the next day in the provincial government, the group learned that the only water pollution problem of the Erzberg stems from communal wastewaters).

Even though the tourist activities are a bit disturbing for today's mining works they are an important economic factor for the mine and for this part of Styria, focusing its tourism marketing on the mining history.

Lunch was taken in a Styrian mountain restaurant near Eisenerz and the afternoon was spent with a relaxed walk around the Leopoldsteinersee, an alpine lake and nature recreation area.

During the return trip a final view was taken to the Erzberg pyramid and the huge deposits of dead material, reflecting the incredible amount of work invested into exploiting this special mountain.

Monday 15 September

The group travelled with 3 cars from Leoben to the centre of Graz.

At 10:00 at the **Provincial government of Styria** in the Department of Technical Environment Control, the group was welcomed by *Ing. Schwinghammer* and his colleagues. During the day, the following subjects were presented:

Dipl.ing. Murg informed about the air quality monitoring which is already providing regular and up-to-date public information via internet ("LUIS" e.g. on ozone, fine dust; old data since 1987; emission data from certain industries). Information was also given about emergency management.

Dr. Ratzenhofer (chemotechniques) presented the chemical alarm service (including alarm plan) and the chemical inspections. He explained their cooperation with the responsible district authorities and the process of environmental expertise, prescribing the needed measures in case of an accident. The group also looked at the inspection minibus, parked in the court of the government building.

Dr. Hochreither (supervisory of surface waters) explained the network of monitoring surface waters, wastewater, groundwater and old waste deposits and the impressive improvement of the Mur river from its heavily degraded status in 1965 up to its clean status today.

Dr. Fritz and Ing. Hauser presented the monitoring of sewage management at communal, rural and industrial WWTPs as well as the procedure in case of accidents. They explained the objective of optimising all WWTPs both in treatment effectiveness and overall costs. Starting from the list of industrial WWTPs with biological or physico-chemical treatment, they explained the province's successful system of self-monitoring, independent monitoring and official control at the prescribed intervals and legal standards.

Dr. Schwinghammer presented the database of the water supervisory and guided the group through the various laboratories where the group raised many questions on equipment and sample measuring.

Other questions were discussed over lunch, which took place at the prestigious court of the Landhaus (Styrian parliament).

The visit to Graz was completed by a short city tour by Mr Zinke through the historic centre of the city (palace, cathedral, castle hill, Graz 2003 exhibits etc.). At 19:00 the group drove back to Leoben.

Tuesday 16 September

The group travelled by car to Kapfenberg in order to visit the industrial plant Boehler Edelstahl (steel) www.bohler-edelstahl.at. The group was welcomed and guided by dipl.ing. *Horst Bergmann* (environment officer) and *Ing. Klaus Reisenhofer* (chemical laboratories – environmental technology). The visit started with a video presentation about the steel plant (130 years old, 1,800 staff) and its economic restructuring in the 1990s, thus making it today a very profitable enterprise on the world market for special steels. Specific information on water management included data on the use of surface, well and groundwater and wastewater treatment. The plant has to meet both the general rules for metal industry emissions and the specific permit for its production processes (cooling of steel plant and rolling mill; steeping in toxic corrosive fluid), which are regularly monitored and controlled. Both experts explained the permission procedure for every new production and wastewater treatment.

The visit included a most impressive tour through the steel plant (rolling mill) and to the wastewater treatment plant. The group was then generously invited for lunch into the Böhler restaurant.

Participants then returned by car back to **Leoben** to visit of the **municipal WWTP**. *Ing. Heinz Hüttenbrenner* as its executive manager gave a special presentation on the status, tasks and the economic and environmental performance of the plant. It exists since 1978 as a public enterprise and treats the wastewater of the city (60,000 PE), the Gösser brewery (32,000 PE) and the village St. Peter (3,000 PE).

Due to the high production of sludge (10,000 m³/a) it added a sludge drying and composting plant which produces today high quality compost (received even the Austrian compost label: based on intensive monitoring on hormones, medical substances and tensides) and burns the resulting methane.

The former problem of mixed rain and wastewater was solved by introducing management cost fees to the users. In addition, the various experts working at the WWTP are today also providing paid services to various public and private companies.

The WWTP is presently about to finish a new extension for better biological treatment (best practise) and energy use which was co-financed by the province, governmental credits and local bank credits (to be repaid by wastewater fees).

The Romanian group spend then more than an hour for visiting the old and new treatment installations and the composting facilities.

In late afternoon, the group travelled in the Romanian cars to Vienna (arrival ca. 19:30 at Pension Christina, Schwedenplatz).

Wednesday 17 September

The morning was spent at the Ministry for Agriculture, Forestry, Environment and Water Management www.lebensministerium.at/en/index.htm where the head of the water division, *Prof. Wolfgang Stalzer*, gave an introduction on the Austrian water management (flood protection, hydropower production, water supply) and explained then the communal and industrial wastewater management, with the pollution prevention policy and related measures of governments, authorities (responsibilities at federal and provincial levels) and the industry since the 1970s. He also gave an overview of the status of the EU Water Framework Directive and distributed illustrative broshures.

In the afternoon at the Austrian Federal Environment Agency (UBA) www.ubavie.gv.at five presentations were given: First on Austria's water quality monitoring of surface and groundwater where *dipl.eng. Claudia Schramm* resp. *Mag. Arno Aschauer* explained the strategy and the cooperation between the federal and provincial institutions. Then on wastewater where *dipl.eng. Georg Windhofer* presented the legal framework and the situation especially at communal level with the emission inventories according to the WFD. *Dipl.eng. Philipp Hohenblum* introduced the analysis of special substances (hydrocarbons, medical substances, hormones etc.) as a special responsibility of the Agency's laboratory (48 staff, 65 projects; provision of services to governments and other institutions, partly in cooperation with other countries: e.g. for the Baia Borsa/RO incident 2000). This was followed by a visit to various laboratory departments, guided by *Dr. Christina Trimbacher* where the participants raised numerous questions on equipment and its procurement, and on the applied measuring methods. A special interest of the group was to learn if there is a possibility to receive old equipment; this seems to be possible but needs the involvement of the ministry of foreign affairs.

While the major part of the group then returned to the hotel, a small group (Mois, Timis, Ilea, Zinke) visited the waste incineration plant Spittelau (serving for district heating and power generation). This additional visit was quickly arranged by *Prof. Lorber: Mr Herbert Heindl* (Fernwärme Wien) gave a one-hour tour through the plant (view to the feeding of the waste furnace, of the power plant and flue gas treatment system) and answered questions on to the disposal of filter cake outside of Austria.

Thursday 18 September

This day started with a visit of the wastewater treatment plant of the municipality of Vienna (EBS) (www.ebs.co.at) at the lowest (= south-eastern) city site. First, *eng. Novak* from the municipal department no. 30 gave a **bilingual** presentation on the city's strategy for wastewater management ("*Strategii de management al apelor uzate"*). He explained the historic development from the sewer collector system started in 1830 (first city in Europe) and the ongoing upgrading works (new collector to be built below the restored Wien river bed in the city centre; this canal system will also be economically used via data transfer cables). A special aeration system prevents bad odours.

Then, *dipl.eng. Miklos Papp* and *deputy head Bohrer* from *EBS* presented the technical details of the master project "Wastewater Treatment and Water Protection for Vienna" that started in 1996 and

aims until 2005 to meet the EU Directive 91/271 by increasing the capacity from 3 mio. population equivalents to 4 mio. P E. (BOD load of 240 t/d). The extended part (big aeration basins) will specifically reduce the N contents (70%: 10 mg/l). The sludge is to be dried and burned by fluidised bed technology (at 600-800° C) together with hazardous waste at the adjacent special waste incineration plant (with a flue gas cleaning at 850-1,050° C). This investment of € 1 billion (with € 220 million for the WWTP) will improve the Viennese surface water quality to class II.

The first presentation of the afternoon was given by *Ms Mihaela Popovici* at the Secretariat of the ICPDR (International Commission for the Protection of the Danube *www.icpdr.org*): She informed about the environmental, social and economic context in the entire Danube Basin, the Danube Protection Convention and the ICPDR with its cooperation and coordination functions, mainly executed in its Expert Groups (on River Basin Management, Emissions and Accident Prevention, Ecology, Flood Protection etc.). She stressed the ICPDR work on water pollution risk spot assessment (in particular in the Upper Tisa basin) and the Joint Action Programme aiming at reducing emissions and improving monitoring (e.g. via the EU DABLAS Task Force prioritising municipal WWTPs for EU funding). A new key issue became the implementation of the EU-WFD in the Danube basin, to which all basin countries are committed and for which the ICPDR coordinates the Roof Reports.

The final visit of the training took place at the office of the international NGO Greenpeace in Central and Eastern Europe *(www.greenpeace.at*), today supervising activities in Austria, Hungary, Slovakia and Romania. *Dipl..eng. Herwig Schuster* gave a brief background about their global policy and activities as well as their "Clean Water" campaign 2002 in Slovakia, Hungary and Romania, addressing i.a. all companies now attending this training. He stressed the need for cooperation between industry companies, authorities and NGOs for better environment protection, and the role of international NGOs in supporting the capacity development of i.a. Romanian NGOs. The discussion showed that some Romanian experts do still not see the role and benefits of NGOs in issues like waste water management which need specific expertise.

Friday 19 September

The group went by streetcar to the Romanian Cultural Centre where it was welcomed by ambassador *Dr. Traian Chebleu* and *Mr. Gabriel Belkine*, trade secretary of the embassy who hosted the group during the day.

The concluding **Workshop** „Assessment of the Training" on the lessons learned and possible follow-up in Romania was facilitated by Mr *Alexander Zinke* and *Mr Herwig Schuster*(Greenpeace in CEE); Dr. Kaspar (Austrian Ministry for Foreign Affairs was excused).
In the first workshop session the results of the training as seen by each participant were shared in the plenary.
Over lunch the group was invited by ambassador Traian to a *reception in the Romanian Embassy*. Upon arrival, however, most participants were feeling rather uncomfortable in their relaxed dresses at this rather formal event and the group decided to soon leave, even though it highly appreciated the invitation and opportunity to visit the embassy.
The training continued in the afternoon session with small working groups asked to identify issues and tasks for a follow-up of the training in Romania and ended with the conclusions by Mr Zinke.

After brief return to the hotel the group went to a farewell dinner at the heurigen Edelmoser in Wien-Mauer, a south-western suburb. At this occasion all participants received ***Certificates*** for their participation and a bottle of wine as a souvenir. The group thanked Mr Zinke for his excellent organisation and guidance, and the Austrian government for its generous financial support that made this visit possible and a very important experience.

Saturday 20 September

After some shopping visit, guided by Ms *Popovici*, the group returned in their cars back to Romania.

3.2. Results of the Training Workshop

3.2.1. Brief Review of the Training Programme

Mr Zinke started the workshop with a brief look back into the seven days, which were filled with an intensive programme where the participants received **25 different expert presentations**. For the start of reflection, Zinke suggested some key words for the main programme points:

1. **Pulp and paper**: Better market position via environmental profile
2. **Waste disposal**: Only treated waste can be deposited in Austria in the future
3. **Mining**: New economic perspective through recreation business
4. **Steel industry**: Restructured to better meet the market needs
5. **Federal and provincial governments**: Pro-active development of policies, permits and environmental monitoring
6. **Waste Water Treatment Plants**: Developing to multi-service companies
7. **Federal Environmental Agency**: Important role through special environmental projects and analyses
8. **ICPDR – Intl. Commission for the Danube**: Promotes basin-wide policy, coordination and cooperation
9. **NGOs**: Awareness and control on behalf of the civil society

3.2.2. Personal statements of Romanian participants on the training results

In this workshop step all participants were asked to present their personal comments:

"In which way was the training useful for you?"

For Mr **Constantinescu** the visit at the SAPPI company was most useful for the work in his Romanian company Terapia, in particular the implementation of the environmental management system, increasing the image and business. At the Leoben WWTP he was impressed about the small size of the plant. He missed a visit of a disposal site for hazardous waste (*Note: This does not exist in Austria*).

Ms **Eftimie** saw the importance of the implementation of EU legislation as a key issue. It will be necessary to improve the quality of water management in Romania but the problem is the lack of equipment. With only a little training on such equipment they could use it.

Mr **Mois** found everything interesting and the overall time too short. New was for him the tourist perspective of mining. The ICPDR provided important information on the protection for Danube basin protection. “We have seen what can be done with money.”

Mr **Nutiu** also highlighted the combination of tourism & mining as well as the WWTP providing so many services. He was impressed of the UBA (EPA) with its high quality equipment standard. Compared with Romania he realised that in Austria the industry has to report to environment authorities how they comply with the environment requirements (i.e. environment is more important than industry).

Ms **Gheorghe** noted that environment management is done different in Austria at federal and local levels. RO is closer to the EU in this respect (basin scope). She realised that RO limits are partly more restrictive than Austrian. Both WWTP impressed her with their monitoring (online!). Regarding mining it was evident that the ore here has a different character and that its treatment must then be different; this creates a problem for such tourism in RO. The RO legislation almost

meets the EU legislation but money is the main problem while Romanians already have the know-how.

Mr **Timis** was impressed about the transparency between environmental agencies and industry; both have the same goal in Austria and that is different in RO.

Mr **Vlaicu** found that, in theory, RO is better than AT in water management. WWTPs in AT are more efficient. In RO water protection is important only for a short time. There is a difference in water monitoring, with RO needing to raise the mentality and awareness. This would then also improve the international image of RO. The work of ICPDR is interesting but should be extended in order to get the same level of monitoring all over the Danube basin. One big problem in RO is the background pollution of natural resources.

Ms **Galea** did not gain many news but is concerned that the RO efforts are not known: They tried the same things she has seen in AT which can have large environmental effects. For her, the waste disposal at the Erzberg (Paulisturz) was a new impression. Her conclusion: RO has to go a long way.

Ms **Costinescu** was also impressed about the water monitoring in AT. The legislation will be similar to the one in RO. It was very interesting to learn about the management of accidental pollution (equipment, logistics, cooperation).

Mr **Vatajelu** was also impressed about the monitoring and wondered if there is still any important mining left in AT, including complex heavy metal mining (*Note: Immediate answer by facilitators was: No.*). He was impressed how the mining activities are done and how the mine was turned into a recreation site. He wanted to see wastewater management in mining and a region in AT with related water pollution problems but he realised that ores in AT are different. He found RO legislation to be more restrictive for emissions.

Mr **Ilea** stated that wastewater treatment plants were the most interesting parts of the training, e.g. the new technology used in SAPPI. Money seems to be not such a problem in AT, the people here are ready to pay 1 €/ m³.

3.2.3. Session 2: Working Groups on Lessons Learnt

In this step, all participants were asked to discuss in two working groups:

"Which were the most important training lessons for your day-to-day work?"

Results from Working Group Monitoring & Control = Apele Romane

The WG agreed on the following main points:

1. Better image of water management authorities in Romania, i.e. increase the public knowledge about their role, tasks and activities.
2. Improvement of the data base, as a joint activity supported by other authorities, industries and the public.
3. Awareness of the public on the importance of environmental protection
4. Best projects for financing: Improve the preparation and lobbying of pollution reduction projects
5. Collaboration with NGOs to strengthen their competence in environmental issues.

Results from Working Group Mining and Industry

1. Pollution prevention
2. Emission control
3. Re-use and recycle waste
4. Environmental rehabilitation

5. Implementation of EMS (environmental management systems)

The WG concluded that the training strengthened their understanding of the needs and the implications.

3.2.4. Session 3: Chances for Joint Actions

In the final step of the workshop, the participants were asked to discuss if the 10-days training had already an immediate effect in terms of recognised and easy-t-agree new ways of cooperation of stakeholders:

"How can you jointly improve the environment situation? Agree on 5 concrete actions"

This time the groups were again mixed among different stakeholders.

Result of Working Group 1:
The group, composed of experts from *Apele Romane, Terapia, Somes Dej* and *WWTP Cluj* was **not** able to agree on joint possible actions.

Result of Working Group 2:
The group was composed of experts from *Apele Romane, Remin and Cuprumin Abrud* and came to a number of very concrete and relevant actions:

1. **Update the inventory of major pollution sources**.
   Joint action by industry, Apele Romane and the Environment Protection Agency
   by June 2004.
2. **Evaluate the impact on environment and economy**.
   This assessment will be contracted by the mining industry and the result shanded over to EPA and Apele Romane by January 2005.
3. **Evaluate the costs to improve the environmental situation**.
   This assessment will be realised by the industry by June 2005.
4. **Secure funds for the design of environmental improvement and reconstruction actions**.
   This will become a joint effort by industry and government institutions by December 2005.
5. **Execute actions by industries and monitor impacts by environmental authorities.**
   This will be realised until 2007.

4. Conclusions

Mr Zinke thanked all participants for making this final effort at the end of a long visit in Austria.

In his conclusion as overall organiser and guide he found that this very long and intensive training was realised by all involved parties at a very high level and he appreciated very much that the trainees were hosted by the Austrian institutions as a very important group.

After returning back home with this load of information he asked the Romanian experts to

- ➔ check again all the documents they received
- ➔ to complement this with some look to the internet addresses provided
- ➔ present the results of this trip to their colleagues to secure multiplying effect, and
- ➔ secure a follow-up over the next months and years in their professional work.

Zinke stressed that the overall **value** of the training (i.e. of the direct and indirect costs as well as the various work-time) corresponds to of **ca. EUR 30,000** for the 11 participants. He therefore listed and thanked again all donors and supporters which made this training possible, i.e.

- the **Austrian Federal Ministry for Foreign Affairs** who granted the training budget
- the various **Austrian governmental institutions and industrial companies** visited who provided excellent presentations and information
- **Greenpeace in CEE** for their support during training initiation and execution
- **Zinke Environment Consulting** for in-kind support during organisation and
- the **Romanian companies** who sent their experts away from work for 10 days and granted transport support.

Zinke especially thanked Mr **Adrian Ilea** for his outstanding job in language interpretation and facilitation and all Romanian experts for their active interest and participation and their endurance.

Only the combination of all these personal inputs explains the overall success of the training and gives ground for the satisfaction of all involved parties.

ANNEXES:

Training Programme (English)

Thu 11 Sept.	Travel to **Leoben**/Austria to hotel Kindler http://www.kindler.at)
	20:00 Dinner; welcome and latest information about the training (*A. Zinke*)
Fr 12 Sept.	8:15 departure
	9:00 Gratkorn: industrial plant SAPPI (paper, cellulose: www.sappi.com): Presentation of environment management systems (*Dipl.Ing. Gottfried Schmid*) 10:30 Departure to SAPPI wastewater treatment plant in Judendorf
	12:15 lunch in canteen
	14:00 Leoben: Excursion to the Paulisturz (management of mine deposits and exfiltration waters: *Dipl.Ing. A. Mehlmauer-Larcher*)
	19:00 Dinner at hotel
Sat 13 Sept.	9:30 departure on foot
	10:00 Montan university Leoben: Institute of Disposal & Deposit Technique www.unileoben.ac.at/~ied (*Prof. Karl Lorber*) incl. 13:00 Lunch
	19:00 Dinner
Sun 14 Sept.	9:00 departure
	9:30 Visit of the Erzberg with *Prof. Lorber* (open-cast mining practises, rehabilitations, tourist revenues: www.abenteuer-erzberg.at); lunch
	open afternoon programme
	Dinner
Mon 15 Sept.	8:30 departure
	10:00 Provincial government of Styria, Graz (Dep. Technical Environment Control): Supervisory of waters and of sewage treatment plants; alarm service for chemicals and oils; inspection of chemicals; environment laboratories (database for waters GADB); sampling of sewage, online-monitoring, public participation during the permit approval process, management of emergency situations (*Dr. G. Semmelrock*)
	19:00 Dinner at hotel
Tues 16 Sept.	8:15 check out; 8:30 departure
	9:00 Visit of the industrial plant Boehler Edelstahl (steel) www.bohler-edelstahl.at incl. wastewater treatment plant (*Ing. Klaus Reisenhofer*);
	12:30 lunch
	14:00 Visit of the municipal WWTP of Leoben *(Ing. Heinz Hüttenbrenner)*
	17:00 Departure to Vienna (arrival ca. 19:30 at Pension Christina)
Wed 17 Sept.	9:30 Departure (subway)
	10:00 Ministry for Agriculture, Forestry, Environment and Water Management www.lebensministerium.at/en/index.htm: Introduction into Austrian water management, emission regulations, EU Water Framework Directive (*Prof. Wolfgang Stalzer)*.
	12:30 lunch
	14:00 Austrian Federal Environment Agency www.ubavie.gv.at (*DI Ph. Hohenblum, DI Cl. Schramm*): National monitoring, analysis of special substances
	free rest of day
Thu 18 Sept.	9:00 departure (cars)
	9:30 Municipality of Vienna: EBS sewage treatment plant in Vienna-Simmering (11. Haidequerstr.7): www.ebs.co.at. (*Dipl.Ing. Papp;EBS*; *Ing. Josef Gottschall, MA 30*)
	13:00 Lunch at UN City (subway)

14:00 Secretariat of the ICPDR (International Commission for the Protection of the Danube *www.icpdr.org: Mihaela Popovici*): River Basin Management, Emissions and Accident Prevention (implementation of the EU-WFD in the Danube basin; basin-wide monitoring of waters; obligations Danube Protection Convention).

16:30 Greenpeace in CEE *www.greenpeace.at*: The role of NGOs in waste water management

Fri 19 Sept. 8:30 Departure (streetcar))
9:00 Romanian Cultural Centre: **Workshop** „Assessment of the Training“: Lessons learned, possible follow-up in Romania (A. *Zinke, Mag. H. Schuster)*
16:00 Presentation of training results (to Ministry of Foreign Affairs, Ministry for Agric., For., Envir. & Water Manag.); conclusions (*A. Zinke*).

17:00 end of training.

Sat 20 Sept.: Return travel to Romania.

Trainings-Programm *(deutsch)*

Donnerst. 11.9. Anreise nach **Leoben:** Hotel Kindler (http://www.kindler.at)

20:00 Abendessen; Begrüßung und letzte Infos zum Programmablauf (*A. Zinke*)

Freitag 12.9. 8:15 Abfahrt

9:00: Besuch Firma SAPPI in Gratkorn (Papier/Zellstofffabrik: www.sappi.com *Dipl.ing.Gottfried Schmid*): Vorstellung Umweltmanagementsystem mit Schwerpunkt Abwasserreinigung (*Dipl.Ing. Gottfried Schmid*)
10:30 Abfahrt zur Kläranlage Judendorf (bis 12:00); anschl. Mittagessen in Kantine

14:00 Leoben: Exkursion Bergbaudeponie Paulisturz (Sickerwasserbehandlung; *Dipl.Ing. A. Mehlmauer-Larcher*)

19:00 Abendessen im Hotel

Samstag 13.9. 9:30 Abmarsch
10:00 Montan-Uni Leoben: Institut für Entsorgungs- und Deponietechnik www.unileoben.ac.at/~ied / *Prof. Karl Lorber* (Sicherung von Bergbau-Deponien; Behandlung von Deponie-Sickerwässern) incl. 13:00 Mittagessen

19:00 Abendessen

Sonntag 14.9. 9:00 Abfahrt

9:30 Besuch Erzberg (moderner Bergbau, Rekultivierungen, touristische Nutzung: www.abenteuer-erzberg.at); Mittagessen

Nachmittag: Offenes Programm

Abendessen

Montag 15.9. 8:15 Abfahrt nach Graz
10:00 Landesregierung Steiermark (Abt. Technische Umweltkontrolle; *Dr. Gerhard Semmelrock*): Gewässeraufsicht, Abwasseranlagenaufsicht, Chemie- und Ölalarmdienst; Chemikalieninspektion, Umweltlabors (Gewässer-Datenbank "GADB"): u.a. Probennahme von Abwässern, Online-Monitoring, Bürgerbeteiligung bei Genehmigungsverfahren, Katastrophenmanagement

19:00 Abendessen im Hotel

Dienstag 16.9. 8:15 Aus-Checken; 8:30 Abfahrt

9:00 Besuch der Firma Böhler Edelstahl, Kapfenberg www.bohler-edelstahl.at inkl. Kläranlage (*Ing. Klaus Reisenhofer*)

12:30 Mittagessen

14:00 Besichtigung der kommunalen Kläranlage Leoben *(Ing. Heinz Hüttenbrenner*)

17:00 Fahrt nach **Wien** (ca. 19:30 Ankunft in Pension Christina)

Mittwoch 17.9. 9:30 Abmarsch (U-Bahn)

10:00 Bundesministerium für Land- und Forstwirtschaft, Umwelt und Wasserwirtschaft www.lebensministerium.at: Wasserwirtschaft in Österreich, Emissionsverordnung, EU-Wasserrahmenrichtlinie (Marxerg. 2, Zi. 108: *Prof. Wolfgang Stalzer*)

12:30 Mittagessen

14:00 Umweltbundesamt www.ubavie.gv.at (*DI Philip Hohenblum, DI Claudia Schramm*): Zentrales Gewässermonitoring, Analytik spezieller Stoffe

anschl. frei

Donnerst. 18.9. 9:00 Abfahrt (PKW)

9:30 Besuch EBS-Kläranlage Wien-Simmering (Gemeinde Wien): www.ebs.co.at. (*DI Papp, EBS* und *Ing. Josef Gottschall, MA 30*)

13:00 Mittagesssen in der UNO-City (U-Bahn)

14:00 Sekretariat der IKSD (Donauschutz-Kommission *www.icpdr.org*: *Mihaela Popovici*) – Expert Groups River Basin Management, Emissions and Accident Prevention (Umsetzung der EU-WRR; intl. Monitoring und Verpflichtungen)

16:30 Greenpeace *www.greenpeace.at*: Rolle und Funktion von NGOs beim Abwassermanagement (*Herwig Schuster*)

Freitag 19.9. 8:30 Abmarsch (Str.bahn)

9:00 Rumän. Kulturzentrum (Währingerstr. 6): Workshop zur Trainings-Auswertung: Erkenntnisse u. Diskussion über anwendbare Maßnahmen in Rumänien (*A. Zinke, H. Schuster*)

16:00 Präsentation der Trainingsergebnisse (mit BMaA, KTC und BMLFUW)

17:00 Ende des Trainings

Samstag 20.9. Rückreise nach Rumänien.

Trainings-Teilnehmer

1. **George Mihai Nutiu** ist Chemie-Ingenieur bei der überregionalen Somes-Theiß-Gewässerbehörde in Cluj-Napoca (spricht englisch).
2. **Vlaicu Pop** ist leitender Ingenieur für das Gewässermanagementregion Maramures in Baia Mare, wo die größte Konzentration an Bergbau-Hot Spot ist (spricht etwas englisch).
3. **Simona Eftimie** ist Laborleiterin bei Apele Romane – Baia Mare (spricht gut englisch)
4. **Monica Gheorghe**, Direktor der Mures-Gewässerbehörde, Tirgu Mures (engl.): Neben der Somes-Theißregion ist auch die Muresregion extrem belastet und soll vom Training profitieren.
5. **Adrian Ilea** kommt von der Zentralkläranlage der Stadt Cluj (spricht gut deutsch).
6. **Gheorghe Mois** ist Leiter der Umweltschutzabteilung bei REMIN – Generaldirektion Baia Mare, welches Dutzende von - oft unzureichend - gesicherten Bergbau-Abraumdeponien zu managen hat (deutsch-englisch).
7. **Gavrila Timis** kommt vom REMIN-Betrieb in Baia Borsa (mehrere Risiko-Deponien inkl. Novat)
8. **Sorin Vatajelu** ist Direktor von Cupru Min Abrud (Bergbau, Aries-Fluß im Mures-Einzugsgebiet)
9. **Carmen Galea** ist Umweltschutzleiterin beim Papier- und Holzverarbeitungsunternehmen Somes Dej (intl. Eigentümer), das zu den Hauptverschmutzern des Somes zählt (englisch).
10. **Viorel Constantinescu** kommt vom Pharmazie-Konzern Terapia in Cluj-Napoca (teilprivatisiert), demTopverschmutzer des Somes. Er leitet die Abteilung für Sicherheit und Umwelt (englisch).
11. **Adriana Costinescu** ist von der Nationalen Administration von Apele Romane in Bukarest (Abt. Natl. Koordination Gewässerschutz).

List and Addresses of Training Participants

Water management authority and wastewater management institution

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Training Guidance

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List of Documents Received During the Training

The following list gives an overview of the most important documents that were prepared and distributed to Romanian participants

- SAPPI Umwelterklärung 2002 (colour brochure with detail environment data)
- SAPPI: power point presentation for Romanian experts
- Wasser – Quelle des Lebens (colour brochure of the Wasserverband Region Gratkorn-Gratwein)
- UEG – klueger entsorgt (colour company brochure and CD-Rom
- UEG Paulisturz and breitlahnsturz (short paper with facts on waste deposits)
- IED Uni Leoben (package of colour fact sheets on the services and projects of the institute)
- Erlebnisschaubergwerk Erzberg & Hauly (info leaflets)
- Land Steiermark: Umweltschutz in der Steiermark / 18th Environment Protection Report 2002 (CD-Rom)
- Böhler Edelstahl (colour company broshure on general company profile and products)
- BMLF: Monitoring of Water Quality in Austria (small leaflet with facts and contacts)
- BMLF: Wasserzeichen- Watermarks (colour brochure on protection and use in Austria)
- BMLFUW Austria's Agriculture, Forestry, Environment and Water Management 2003 (small leaflet)
- BMLFUW Wassercharta (poster)
- BMLFUW: Blue Austria (colour magazine on the 2003 Year of Freshwater)
- Umweltbundesamt: small leaflet with tasks, activities and contacts
- Fernwärme Wien - Spittelau Thermal Waste Treatment Plant (colour broshure with facts)
- EBS: Package of information, including:
    - Power point presentation (colour print out)
    - Upgrading Vienna's Main WWTP (English paper)
- Stadt Wien MA 30: CD-Rom with **Romanian** powerpoint presentation
    - 10 small colour brochures on sewage collectors (public awareness and infos)
    - Sustainable waste water management (English brochure)
    - Chancengleichheit (Broschüre zum Landesgleichheitsgesetz für Bedienstete)
    - Waste magazine (spezial edition on MA 30 in English-Japanese)
    - Groundwater (colour broshure on GW management)
    - Vienna Water & Waste – intelligent solutions (special edition of magazine Umweltschutz)
    - Vienna urban and environmental technologies – state of the art (package with colour brochures on waste management, contaminated sites, traffic & transport, energy, investment services, air & noise, green areas, water supply, groundwater and wastewater).

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Federal Ministry

for Foreign Affairs

Certificate

It is herewith confirmed that from 11 to 19 September 2003 Mr/Ms ..... has successfully participated in a training programme on wastewater management in Austria.

The programme included local visits with over 20 presentations, demonstrations and discussions at

- Austrian Federal Ministry for Agriculture, Forestry, Environment and Water Management
- Austrian Federal Environment Agency, Vienna
- Provincial government of Styria, Graz
- City of Vienna – Municipal waste water treatment plant EBS and MA 30 Vienna canals
- Regional waste water treatment plant, Leoben
- Industrial pulp and paper plant Sappi, Gratkorn
- Industrial plant Böhler Edelstahl, Kapfenberg
- University of Leoben: Department of Sustainable Waste Management and Technology
- Greenpeace in Central and Eastern Europe
- Erzberg mine and adventure site
- UEG-RMVG municipal and industrial landfill at Erzberg-Paulisturz
- Waste incineration plant Wien-Spittelau
- Permanent Secretariat of the International Commission for the Protection of the Danube River(ICPDR).

This training programme was financed by the Austrian Ministry of Foreign Affairs (Aid Fund for Central and Eastern Europe), and supported by in-kind contributions from the above listed authorities, companies and organisations as well as by the Embassy of Romania in Vienna.

The training served the group of 11 Romanian water pollution experts from various industries and water management authorities to gain concrete information about the legal rules and daily practise of wastewater management in Austria, and to assess possibilities for reducing water pollution in Romania and the downstream regions (in particular the Somes-Tisa and Mures river basins).

The training organiser and facilitator

Dipl.Geogr. Alexander Zinke
Zinke Environment Consulting for CEE

The training initiator

Dipl.Ing. Herwig Schuster
Greenpeace in Central & Eastern Europe

Vienna, 19 September 2003