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Report on the International Workshop

PROTECTION OF GROUNDWATER RESOURCES IN EUROPE –STATE OF THE ART

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Z a g r e b

14 – 15 June 2002

With the aim of encouraging better cooperation between Croatian and European experts, the Croatian Water Pollution Control Society (Hrvatsko društvo za zaštitu voda, HDZV) in collaboration with the European Water Association (EWA) organized an international workshop on the topics related to protection of groundwater resources in Europe and the legislation and changes ensuing from the new EU Water Framework Directive.

The main topics were as follows:

- *Water Framework Directive and its influence on the regulations related to groundwater protection (Jedlitschka, Germany)*
 - The author, who took part in the preparation of the WFD, presented a very useful overview of current European legislation and specific examples of the impact it has on the regulations and their application in Germany (Bavaria in particular). The scope of the task each member state has to carry out within established deadlines will present a formidable challenge even for more developed countries of the Community. Candidate countries would be well advised to immediately start considering organisational and technical aspects as well as personnel training for those tasks.
- *Current changes in Croatian legislation related to groundwater protection – new Regulations regarding protection zones in karst and alluvial areas (Biondić, Mayer, Croatia)*
 - The authors of the new “Regulations regarding determination of sanitary protection zones” (2002) presented their viewpoints and a new approach to problem solving in the field of groundwater resources protection, which contains significantly fewer administrative measures and significantly more expert and research work and would consequently reduce and rationalize necessary protection zones.
- *International activities related to issues of groundwater protection (EC, UNEP, UNESCO, WHO, FAO) (Konradin, Switzerland)*
 - Groundwater, being the most important source of drinking water, is included in activities of the most important international organisations, with each from its own viewpoint preparing programmes, establishing information systems and organizing specialized expert and scientific groups. From the survey of these activities it is evident that there should be a better cooperation and coordination among all these organisations.
- *Experiences in groundwater protection in European countries*
 - Practical experiences in several most important areas were considered:
 1. **influence of agriculture** (Nestroy, Austria, Bašić, Croatia) – The authors gave a overview of specific measures and research conducted on lysimeter devices and emphasized the necessity of conducting research prior to adopting measures of groundwater protection against various agricultural activities. Additionally, Dr.Bašić gave a very clear overview of the impact these activities have in Croatia.
 2. **safety of underground installations** (pipelines and storages) for dangerous and harmful substances (Dinkler, Germany) – A high official in the field of technical inspection gave a survey of German legislation, pointed to the most frequent problems that occur at underground installations for dangerous and harmful substances, and instructed as to what should be paid attention to when constructing and maintaining such facilities.
 3. **influence of river dams** on groundwater quality in aquifers (Stooble, Switzerland)

- The author, a geologist with a long experience in researching groundwater quality in near-by wellfields, pointed out numerous problems which have been recurring since the construction of the Wettingen dam (1932) until today. Although the most prominent geologists at the time claimed that the construction of the dam would improve the characteristics of wellfields due to increased groundwater levels, groundwater quality suffered significant changes - decreased water hardness, disappearance of oxygen in parts of the aquifer, appearance of iron and manganese, a deterioration of bacteriological status, even a decrease in the yield of the existing wells, which led to necessary introduction of aeration and increased chlorination of water, as well as the construction of new wells sufficiently distant from the areas affected by the changes. These experiences advise caution when constructing dams and a necessity of prior targeted research.

The Workshop was attended by 40-60 participants, mostly from Croatia, who took a very active part in lively discussions on various aspects of groundwater protection. Particularly interesting was the discussion about the JANAF, with opposing viewpoints on the oil pipeline which passes through karst areas in the vicinity of protection zones. It was proposed that the Croatian Water Pollution Control Society should organize a special meeting or round table dedicated to the subject and undertaken protection measures, particularly in view of the altered regulations and work regime of the oil pipeline.

The Workshop conclusions emphasized

- the importance of groundwater protection as the most precious source of drinking water;
- a necessity of cooperation and information exchange among all organisations that deal with groundwater protection, and the availability of all data on groundwater quality collected through research to the general public;
- a necessity to discuss all major problems related to groundwater protection at similar expert meetings;
- the absence of representatives of some organisations and services that make decisions on policy and implementation of protection measures was noted.

A specialized international working group (leader B.Zmaić. M.Sc.) was established at the Workshop, with the aim to facilitate, within the European Water Association (EWA), better contacts and exchange of experience related to groundwater protection, involvement in the activities of the EC and other international organisations, and mitigate intergovernmental problems related to groundwater and its protection.