

**THIRD INTERNATIONAL CONGRESS  
"WATER: ECOLOGY AND TECHNOLOGY"  
ECWATECH-98**

*(MOSCOW, MAY, 26 - 30, 1998)*

**ABSTRACTS**

**PROBLEMS OF WATER SUPPLY IN LATVIA**

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The underground waters is the main source of water consumption of the population of Latvia. The rural population uses water generally from water-bearing levels of Quaternary deposits. Cities, settlements and industrial enterprises use water-bearing levels of Devon deposits'

- Arukula - Amata (D<sub>2-3</sub> ar-am including Gauya, Amata and Burtmeku water-bearing levels);
- Plyavinyas - Daugava (D<sub>3</sub> pl-dg including Plyavinyas, Salaspils and Daugava water-bearing levels);
- Famena (DE<sub>3</sub> fm water-bearing level).

The underground waters of Devon deposits do not contain industrial, agricultural or microbiological contaminators. The shortcomings of such waters are:

1. High contents of iron ( up to 3 mg/ cub. dm.). Redundancy of iron in water upsets liver activity, causes cirrozis and cancer of liver, impacts development of fetus both of men and animals causing grave disfunctionings in their organisms. More than 62,7% of communal systems, 22,8 % departmental systems and 36,3 % of industrial systems in Latvia are not equipped with water de-ironating plants. This accounts

for the fact that about half laboratory tested samples of water do not meet sanitary requirements on the contents of iron.

2. In many places hardness of underground waters of Latvia is high.

Redundant hardness causes stones in bladder, rapid formation of scum on the inside of boilers and tubes, impedes laundering. Equipment for mitigation of water is a rather rare thing in Latvia.

3. Underground waters of Latvia are poor in chemical elements.

There is a marked deficiency throughout Latvia in Se, Co, I, F, Cu and some other elements. The contents of chemical elements in the waters of different regions of the country is not uniform. Traveling on from the western parts of the country to the eastern ones, a gradual quantitative decrease of chemical elements in underground waters can be traced. As, for example, in Valka region (near the Latvian border with Estonia) in 3 underground water-bearing levels used for water supplies there were found only 2 elements, iron and uranium (  $Fe^{2+3+}$ , U) out of totally 11 tested chemical elements.

Deficiency of chemical elements in water and soils is the cause of many serious diseases of the population of Latvia. Therefore, analyses of water must contain a detailed information on the contents of vitally important chemical elements.

At the present time the sanitary regulations provide only for the upper limits of microelements contents in water (maximum quantity of an element allowed per I unit of water volume) and the lowest limit is unprovided for. However, the knowledge of the lowest limits is of no less importance in order to control the water's quality and its biological properties. This issue still requires a thorough studying and has to be included into the regulations.