

SBLA workshop conclusions 27/4/2012

The Sewerage Board of Limassol-Amathus organized on Friday, 27th of April 27, the workshop 'The quality of recycled water and its application in agriculture'. The workshop aimed in presenting the latest scientific development, at international level, in the field of wastewater treatment and the use of recycled water in agriculture.

Distinguished scientists, from Cyprus and abroad, have presented their research results within the workshop framework. The presentations included topics such as assessment of the approaches for treating municipal wastewater, the presentation of results from the use of recycled water in agriculture in countries such as Italy, Israel and Cyprus and the analysis of the results of specialized research work for the detection of xenobiotics such as drugs and other substances, in the recycled water from academic research centers of Sweden and UK.

Important outcome is that the recycled water is an important element of water balance and the approach of reuse is internationally, mainly in the Mediterranean but also in America and Australia, growing. All speakers stressed out that, from until recent experiential observations and scientific research, there were no indications for adverse effects on crops from the use of recycled water.

The main conclusion of the workshop is that the quality of recycled water in Cyprus, defined by the legislation, is excellent and very close to the quality specifications of the legal framework in California of USA for unrestricted use in agriculture (Dr. A. Angelakis). Nevertheless there are restrictions in Cyprus on the irrigation of foliaceous vegetables, bulbs and condyles that are eaten raw, and where their irrigation with recycled water is prohibited. A study of a university of Sweden that was implemented on about 80 treatment plants across Europe including Moni Treatment Plant for the presence of pharmaceutical residues, illustrated the excellent quality of treated water of Limassol.

Apart from the previous findings on the suitability of recycled water, the results of a study on the presence of pharmaceutical residues in recycled water were presented. The pharmaceutical residues, although not toxic, have biological activity in aquatic organisms like, for example, fish. Research continues on these substances so as to determine whether there is any long term effect or impact on the environment and public health.

The interaction water-plant-human should be further studied. More specifically, research is implemented whether the metabolism of some of the substances contained in water occurs in irrigated plants collected and whether dangerous substances are concentrated in the plant part consumed by humans. Most pollutants are lipophilic and accumulate at the root of the plant. However, the presence of xenobiotics in the treated water is not necessarily synonymous with any negative impact on public health.

Another outcome is that the water quality is improved by applying the technology of the membranes. Disadvantage of this technology is, of course, in comparison, is more energy consuming than other conventional treatment methods.

The presence of phosphorus and nitrogen concentrations in the recycled water is one of the major advantages in the use of water in agriculture since fertilizers saving occurs.

The treatment of water, if not done correctly, can bring some problems, both to the environment and equipment, as explained by the expert from Israel. Any effects are successfully resolved by following methodologies developed in Israel. Israel, with experience in reuse over sixty years, is currently generating 50% of its water needs for irrigation from the recycled water, without any issues on crops or soil quality. While in Italy, the use of treated water in agriculture has been accepted by the Government but also by every local community because of the significant benefits from the availability of additional water resources in agriculture.

In Cyprus, around 18.5 million cubic meters of treated water are now produced, of which around 16 million cubic meters are reused in agriculture covering less than 10% of water needs for irrigation, while by 2015 these quantities are expected to increase to around 65 million cubic meters covering approximately 25% -30% of the irrigation needs. In 2025 these quantities are expected to exceed 85 million cubic meters covering 40% to 50% of water needs for irrigation.