

Evaluation of the Turkish reuse standards and the compliance status
Prof. Celal Gokcay et al. , Middle East Technical University (TR)

Abstract

Most Mediterranean countries have neither wastewater reuse standards nor criteria. However the 'Technical Aspects Bulletin' (Official Gazette dated 7.1.1991, no. 20748), linked to the Turkish Water Pollution Control Regulation has been issued in 1991 to stipulate irrigation water standards for reuse of waters in agriculture in Turkey. The Turkish bulletin, is fairly advanced by the current concepts, however lacks technology based stipulations and is unrealistically stringent in terms of microbiological criteria. Therefore the current needs to be updated in the light of the current scientific evidence.

The microbiological quality standards in the world are seen to differ significantly between countries. The Title 22, adopted by the green belt states of the USA, represents the strictest and technology based standard. While the WHO standard, represents somewhat the pragmatic approach. Where <1000 FC/100 ml is purely adopted from swimming water standards and <2 NTU is based on the assumption that with a turbidity at or below 2 NTU the likelihood of getting helminthic eggs through reused water irrigation will be tolerably low. The newest standards are those adopted by Australia, Tasmania, Japan which are allegedly based upon the recent scientific evidence and the 100-200 FC or *E. Coli* /100 ml is adopted for freshwaters.

Attainable reuse water standards should clearly take into account the local conditions while reasonably safeguarding the population. An attempt to establish a unified guideline for the Mediterranean countries, based upon risk assessment, using epidemiological data and model studies, have been made and a guideline was proposed by Blumenthal *et. al.* (2000). In this work, three microbiological quality criteria are proposed, namely, nematode eggs, FC or *E. coli* and suspended solids, along with the technology requirements. Comparing with the Turkish standard the main difference is that latter does not specify a minimum technology requirement for different water classes nor does it consider helminth eggs, in the reuse water.