Sustainable management of low quality water applied in farming

MOHAMED SABER¹, JERZY NIZIŃSKI², ALAA ZAGHLOUL¹

¹National Research Center,(NCR), Soils and Water Use Department, Cairo, Egypt 33 El Buhouth St، Ad Doqi, Dokki، Cairo Governorate, Egipt ²University of Agriculture in Krakow, Al. Mickiewicza 24/28, 30-059, Krakow, Poland

It is quite obvious that management and reuse of low quality water is one of the challenges that Egypt will have to deal with in the coming decades and beyond, and one that had received considerable attention as an environmental issue at political, technical and research levels. Sustainable management of low quality water in combination with high-efficiency treatment for the purpose of reuse is the only way to coop this challenge. Such practical technology provides options and has a high potential for enabling low-cost decentralized solutions. Unfortunately, many farming plants in Egypt receive different kinds of low quality water, for instance industrial wastewater, which contains PTEs alongside other toxic organic matters such as dioxins and furans together with many pathogenic micro-organisms such as parasites, bacteria, fungi and viruses. If the raw sewage effluent is also used in irrigation without treatment - and this is the case in most of Egypt - then the agro-products and crops will be contaminated with the abovementioned hazardous materials. These contaminants enter the food chain resulting in several deleterious effects. Moreover, they may cause severe hematological and neurological ailments in adults, combined with cancer, hepatitis and kidneys and liver failure and other diseases.

In addition to that, it is worth mentioning that most of the sewage effluents are disposed raw in the canals and drains all over Egypt, and hence they reach the soil and cause severe adverse consequences.

The concept of the new point of view in the best management practices of contaminated soils irrigated with low quality water has been recently highlighted, and it involves biochemical treatments with elemental natural products combined with bio-fortification with a set of certain varied micro-organisms that could be used for growing properly diversified harvests without risk.

The Egyptian perspective is seeking to apply the developed, novel biotechnologies that are able to remove different kinds of contaminants from soils irrigated with low quality water in some hot point farms varied in their ecosystems, in collaboration with the National and international Authorities.

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