

عنوان مقاله:

Sustainable Management of Treated Wastewater, the New El-Mahsama Wastewater Treatment Plant in Sinai Service Unavailable

محل انتشار:

فصلنامه روشهای تصفیه محیط، دوره 9، شماره 4 (سال: 1400)

تعداد صفحات اصل مقاله: 0

نویسندگان:

Wael M. Khairy - Drainage Research Institute National Water Research Center P.O. Box ۶, ۱۳۶۲۱ Qalubia, Egypt

Mohamed Bakr Abdel Ghany - Drainage Research Institute National Water Research Center P.O. Box ۶, ۱۳۶۲۱ Qalubia, Egypt

خلاصه مقاله:

As part of the national water resources strategy ۲۰۳۰ of Egypt, safe usage of treated wastewater should be expanded in newly reclaimed lands. In ۲۰۲۰, the first mega-waste water treatment plant (El-Mahsama WWTP) was constructed in the east of the Suez Canal in the Sinai Peninsula to treat ۱۰۰ million m<sup>۳</sup> per day of El-Mahsama agricultural drain and other small drains, mainly for agricultural purposes in Sinai. However, treated wastewater utilization unwisely may incur several risks to human health, crop yields, livelihood, social and economic conditions, and environmental sustainability. This can be attributed to the possible existence of chemical, biological, or salts in poorly or partially treated wastewater. This research paper aimed at analyzing the best sustainable uses of that treated wastewater of El-Mahsama WWTP in agriculture without causing risks to human and environmental health. Using a qualitative evaluation approach, it was proved that the "favorable sustainable management scenario" includes cropping pattern for the 1st scheme (۷۰,۰۰۰ feddans) as wheat, barley, beans, and maize, then cropping pattern for the 2nd scheme (about ۵۲,۰۰۰ feddans) as cotton, flax, kenaf, oil crops as joboba, jatropha, canola, and sunflower. The socio-economic benefits associated with that favorable management scenario is high. The disposal of agricultural drainage water from the agricultural schemes should be diverted to irrigate forest trees "mahogany". The compost produced should be safely used after appropriate processing and special treatment of the effluent sludge as animals' fodder. Furthermore, the sludge should be used after anaerobic digestive processes to produce biofuel energy for the nearby communities' daily life activities. Wastewater treatment could reduce carbon emissions and accordingly mitigate the climate change risks. Expansion in non-conventional water use could give wastewater a second life with the target to reduce water scarcity, reduce environmental deterioration, increase resilience to climate change and improve people's livelihoods. As part of the national water resources strategy ۲۰۳۰ of Egypt, safe usage of treated wastewater should be expanded in newly reclaimed lands. In ۲۰۲۰, the first mega-waste water treatment plant (El-Mahsama WWTP) was constructed in the east of the Suez Canal in the Sinai Peninsula to treat ۱۰۰ million m<sup>۳</sup> per day of El-Mahsama agricultural drain and other small drains, mainly for agricultural purposes in Sinai. However, treated wastewater utilization unwisely may incur several risks to human health, ... ,crop yields

کلمات کلیدی:

Treated wastewater reclamation and use, El-Mahsama wastewater treatment plant, Sinai development, Carbon emission, Qualitative evaluation approach, Environmental quality, Human health, Water management

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/2052930>



