



Sustainable development of water resources based on wastewater reuse and upgrading of treatment plants: a review in the Middle East

Vahid Kazemi Moghaddam^a, Fazlollah Changan^{b,c}, Aliakbar Mohammadi^a,
Mostafa Hadei^d, Rabee Ashabi^b, Leili Ebrahimi Majd^b, Amir Hossein Mahvi^{b,c,e,*}

^a*Neyshabur University of Medical Sciences, Neyshabur, Iran, emails: vahidkazemi29@yahoo.com (V. Kazemi Moghaddam), mohammadi.eng73@gmail.com (A. Mohammadi)*

^b*School of Public Health, Tehran University of Medical Sciences, Tehran, Iran, emails: ahmahvi@yahoo.com (A.H. Mahvi), changani_f@yahoo.com (F. Changan), r.ashabi069@gmail.com (R. Ashabi), majd.leili@yahoo.com (L.E. Majd)*

^c*Center for Solid Waste Research, Institute for Environmental Research, Tehran University of Medical Sciences, Tehran, Iran*

^d*Sabzevar University of Medical Sciences, Sabzevar, Iran, email: mostafa.hadei@gmail.com*

^e*National Institute of Health Research, Tehran University of Medical Sciences, Tehran, Iran*

Received 6 March 2016; Accepted 20 November 2016

ABSTRACT

Sustainable development of a country or area requires availability of different resources and their efficient application. Water resources are one of the most valuable resources of each country. The proper use of water resources depends on appropriate management. Water supply management is a multifaceted approach, and an important affecting factor on this approach is the use of potential resources. Effluent reuse is proposed as an efficient solution to improve the management of water resources, particularly in developing countries such as the Middle Eastern countries, because these countries are faced with water scarcity. However, reuse of wastewater in this region has limitations and advantages that are discussed in the present study. Policies related to wastewater reclamation are more important in the Middle East, due to technologic, fundamental, and cultural limitations in these countries. These policies can have a significant impact on wastewater reclamation and water resources management.

Keywords: Sustainable development; Water shortage; Middle East; Wastewater reuse

* Corresponding author.