

# Ecological and Health Risk Assessment in Sewage Irrigated Heavy Metal Contaminated Soils



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## 1 Introduction

### 1.1 Heavy Metal Contamination Due to Sewage Irrigation

The soil system is structured by several factors including both natural and anthropogenic activities. The present agricultural era has been facing several soil-related constraints such as low soil fertility. In addition to supplementing soil nutrients, it is also essential to avoid the loading of toxic elements in the soil. It is ascribed due to the transfer of these toxic elements to our human body through the food chain. A large growing body of literature has been continuously studying soil contamination as one of the most crucial environmental problems on a global scale (Rostami et al. 2020). These contaminants when transmitted through the food chain can jeopardize human health through direct and/or indirect pathways (Mohammadi et al. 2019). Heavy metals (hereafter HM) are recognized as one of these contaminants through industrial effluents, use of pesticides and fertilizers, sewage irrigation etc. (Nagajyoti et al. 2010). Owing to its high resistance towards decomposition, HMs are classified under 'persistent environmental pollutants'. One of the main sources of HM entry in the soil is long-term sewage irrigation, which is commonly followed in several parts

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