

International Conference on

ENVIRONMENTAL MICROBIOLOGY AND MICROBIAL ECOLOGY

&

International Conference on

ECOLOGY AND ECOSYSTEMS

September 18-20, 2017 Toronto, Canada

Distribution and risk assessment of heavy metals in surficial sediments from Awash River basin, Ethiopia**Dirbaba Niguse Bekele, Hongjuan Wu and Jun Wang**
Huazhong University of Science and Technology, China

Like many parts of developing nations, rapid population growth, high urbanization rate and poor waste management practices have been observed in Awash River basin. On the other hand, no detailed and systemic study was conducted to determine the status of sediment pollution with heavy metals in the basin. 138 samples were taken from 46 sites and tested for determination of heavy metals content, distribution, pollution level, possible sources of pollutants and associated ecological risk. The results indicated that the mean concentration of the elements had exceeded their respective background values except Pb and Hg. A comparison with similar studies revealed that sediments from Awash River basin had highest average value for Cd. The mean enrichment factors of heavy metals were listed in increasing order as $Hg < As < Pb < Ni < Cu < Cr < Zn < Cd$. Multivariate analysis revealed that Ni and Cu had common sources while the other heavy metals were originated from different anthropogenic sources. The pollution load index value of the study area was 2.94, indicating high ecological pollution. Sediment quality guidelines revealed that heavy metals like Ni, Zn and Cr were the major concerns in the study area. The mean effects range from medium quotient values of sampling sites varied between 0.351-2.996 indicating medium priority up to high priority sites. Potential ecological risk index of trace elements from Awash River Basin was 343.67, designating high potential toxicity response. Generally, the study indicated that surficial sediment in Awash River Basin was polluted by heavy metals and posed high ecological risks.

nigusebekele@hust.edu.cn