



Evaluation of the quality of water harvested from roof catchments in different climate conditions

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ABSTRACT

Rainfall in urbanized areas dissolves suspended particles of the air and also washes out soluble contents of the roofs generally causing lower quality of run off. This contamination limits suitability of harvested water in different uses, and also increases water as well as soil resources pollution during a longer time period. Present research conducted to evaluate the quality of water harvested from residential roof catchments in two different urbanized areas located in different climate conditions and also with different resident population. The first place is located in metropolitan city of Mashhad in northeast of Iran with about 3.5 million population and arid and semi-arid climate condition, where the second place is located in the small town of Noor in north humid region of Iran with less than 30000 population. In both places required equipment were established and the run off resulted from rainfall events was diverted to the provided storages and totally 34 water samples (17 from each place) were collected just after occurrence of each rainfall event. Collected samples were analysed in laboratory to determine the most common heavy metals including Hg, Ni, Mn, Fe, Cu, Cr, Cd, Ba, B, As, Zn and Pb. Results showed that the amount of Ni, Cr, Cd, As and Pb in samples of Noor and the amount of Zn, Cr, Pb and As in samples of Mashhad are near zero and negligible. However, the concentration Hg in all samples of Noor and also in some samples of Mashhad is over the standard level. Concentration of Fe only in one of the samples collected in Mashhad is over the standard level.

Key words: Water harvesting; water quality; roof catchments; heavy metals; Mashhad; Noor.

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