CONTRIBUTION OF ROOFTOP RAINWATER HARVESTING IN RELATION TO TOTAL WATER SUPPLY IN HOUSEHOLDS-A CASE STUDY, NAIROBI COUNTY, KENYA

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Abstract

Water supply deficit for Nairobi City is estimated at 170, 000 m^3/day which is 23% of the total water requirement. Aim of the study was to assess the amount of rainwater harvested from various roof catchments, storage capacities, water quality and adoption rate of water harvesting from rooftops. A total of 150 samples were collected, namely 50 from maisonettes, 50 from multi-story buildings, and 25 samples each from industry and institution buildings. Data collected included rainfall depths, roof surface areas, size of tanks, water quality of the rainwater harvested from roof catchments and socio-economic data affecting urban water harvesting. Results obtained showed that rain water harvested could meet the deficit encountered with most households and Institutions in the city. Institutions like schools were found to lead in rainwater harvesting (44%) followed by maisonettes (20%), multi-story buildings (6%) and industry (4%) in that order. Nearly 93% of the residents interviewed were found to depend on piped water, 7% depended on private owned boreholes while 16% of the residents had fully adopted roof rainwater harvest system to supplement other sources. The quality of rainwater harvested indicted presence of Lead (Pd) and Turbidity close to 1 NTU. Rainwater from roof tops was found to be suitable for non-potable purposes.

Keywords: Adoption Rate, Contribution, Rainwater harvesting, Rooftop catchment.