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Impacts of urbanisation on hydrological and water quality dynamics, and urban water management: a review

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Abstract

As urban space continues to expand to accommodate a growing global population, there remains a real need to quantify and qualify the impacts of urban space on natural processes. The expansion of global urban areas has resulted in marked alterations to natural processes, environmental quality and natural resource consumption. The urban landscape influences infiltration and evapotranspiration, complicating our capacity to quantify their dynamics across a heterogeneous landscape at contrasting scales. Impervious surfaces exacerbate runoff processes, whereas runoff from pervious areas remains uncertain owing to variable infiltration dynamics. Increasingly, the link between the natural hydrological cycle and engineered water cycle has been made, realising the contributions from leaky infrastructure to recharge and runoff rates. Urban landscapes are host to a suite of contaminants that impact on water quality, where novel contaminants continue to pose new challenges to monitoring and treatment regimes. This review seeks to assess the major advances and remaining challenges that remain within the growing field of urban hydrology.Editor M.C. Acreman; Associate editor E. Rozos

Keywords: urbanization, urban hydrology, urban water quality, urban water management, impervious surfaces, urb

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