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Re-designing the urban water cycle: Towards Water-Age-Neutral Habitats

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Knowledge of how to articulate the “urban transition” is today urgently needed. Urbanization is on a steadily growing trend that impacts the water cycle as a whole. However, while the effects of urbanised/urbanising areas on water *quantity* (*how much* water) have been well studied for flood prevention, other effects –as those related to water *quality* (*which* water)– are less known. Taking hold from the most recent developments on the “water age” concept, i.e. the time that water resides in the landscape before exiting as runoff or evaporation, we propose a proof-of-concept study on the notion of “*water-age-neutral*” design. This concept envisions the possibility of lowering –through design– net impacts on the City-Territory’s “natural” water age balance. To do this, we selected 4 representative areas of 250x250 meters within the Panke watershed, in the metropolitan area of Berlin (DE), which are characterized by specific land-use/urban form patterns (industry, single family housing, residential slabs and residential open block housing). For these 4 areas, we used an ecohydrological model to analyse a set of *water/land use* interaction patterns and their outputs in terms of *water flow partitioning* and *water age*. We use such outputs to evaluate the broader impacts of land-use/urban form on the urban water cycle. These results are considered as a first step towards a larger evaluation of the multiple relationships between land-use/urban form and the water cycle as a whole.