

THE ROLE OF WATER-BASED IMAGEABILITY IN CLIMATE ADAPTATION: PROMOTING UPSTREAM WATER RETENTION THROUGH WATER-BASED PLACE IDENTITY

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1 ABSTRACT

Many downstream areas have used urban design to implement controlled flooding for climate adaptation. It is more cost-effective, however, to mitigate downstream flooding through upstream water retention. To investigate the potential of water-based place attachment in encouraging upstream water retention, water-based place attachment was operationalized into water-based place identity and dependence. Cognitive mapping and photovoice recall questions were used to interview 60 participants sampled from eight water cities. These questions measured waterscape mappability and identifiability as contributors to water-based place identity. Water-based place dependence was derived from interview questions concerning waterscapes' capacities to help reduce stress and to facilitate spatial orientation. Water-based place attachment was measured by the extent to which participants would miss waterscapes if they were to leave the city. Mediation analyses showed that the significant relationship between watershed location and water-based place attachment became insignificant due to the mediating effects of aquaphilic urbanism. Aquaphilic urbanism was proposed as a higher-order construct of waterscapes' mappability, identifiability, stress-reducing effect, and potential to facilitate spatial orientation. When water-based place attachment was derived from water-based place identity, it significantly increased people's openness toward water-coherent urbanism. Openness toward water-coherent urbanism was measured by interview questions concerning public support for storing public stormwater runoff, infiltrating public stormwater runoff, water transportation, and waterways. The findings suggest that, while upstream areas are likely to have lower water densities, making waterscapes mappable and identifiable helps generate public support for upstream water retention, which in turn makes flood mitigation downstream more cost-effective.

1.1 Keywords

Climate adaptation, place attachment, imageability, water retention, waterscape, mappability, identifiability