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Deliberative valuation of urban Nature-based Solutions in Europe and China

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This paper investigates preferences of urban residents in Europe and China toward different levels of city-wide implementation of urban blue and green infrastructure as Nature-based Solutions (NbS) to improve quality of life, reduce climatic and environmental risks and improve urban biodiversity. Cities included comprise Aarhus, Denmark, Velika Gorica in Croatia, Paris in France and Beijing in China. The analysis is based on deliberative valuation workshops and a choice experiment survey among 183 residents following the same structure and valuation approach but taking into account the differences in local contexts and languages. Based on the choice experiment, we estimate the average household willingness to pay for increasing natural elements systemically across all four cities and for the individual cities separately and scale this to annual values for the full population to get an idea of the scale of values at play. The attribute levels were designed relative to a baseline of the extent of and accessibility to blue and green infrastructure in each city, allowing us to pool data across cities and to compare results between cities.

Results indicate that residents across all four cities are willing to pay about 12EUR per month per household over 10 years to obtain a daylighting of all underground streams where feasible, an increase in the canopy cover of the city of 12%-point above the current level and convert 40% of all flat roofs to green roofs. Under this policy scenario, canopy cover would increase to 20% in central Paris, and between 23% and 26% in Velika Gorica, Aarhus and central Beijing. Preferences are clearly in favour of more rather than less increase in canopy cover in the pooled city model. The individual city models, however, reveal no significant preferences for increasing canopy cover in central Beijing.

Across cities, results suggest that residents in Velika Gorica are willing to pay substantially more (EUR20.4/household/yr) for increasing the extent of urban nature, followed by residents in Aarhus (EUR19), Paris (EUR15.6) and Beijing (EUR6). Scaling these household values to the full population within the urban footprint per year, we find substantial values at play ranging from close to EUR730 million in Paris to EUR2,1 million in Velika Gorica.

The study shows a clear preference for more nature across the cities, though the preferences vary as to the attributes, which are given highest importance. This suggests there should be no “one-size fits all” approach as we approach the application of policies such as the upcoming Nature Restoration Regulation and the setting of national urban targets for restoring nature across EU Member States.