

THE URGENT NEED FOR BETTER MAPPING, COORDINATION AND MANAGEMENT OF THE SHALLOW URBAN SUBSURFACE

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According to the United Nations, the world's urban population is projected to increase from 4.2 billion in 2018 to 6.7 billion by 2050. This rapid urbanisation presents both opportunities and challenges for sustainable development, including the need for adequate housing, infrastructure, and services to support the growing urban population. The impacts of climate change such as heat waves and increasing extreme rainfall events are particularly severe in dense urban areas. Mitigation measures such as sustainable drainage systems and increasing tree planting impact each other and compete for space within an already crowded subsurface as well as new infrastructure such as geothermal installations, extension of basements deployment of fibre and EV charge points and continued upgrades to utilities and transport infrastructure. And of course all of these developments and uses of the subsurface rely heavily on a good understanding of the natural and man made materials and their properties.

More than a decade of research in Urban Geosciences at the BGS, Universities and other institutions and cities across the world, and recent work at the Geospatial Commission in the UK have now led to a new Futures project at the UK Government Office for Science. The project "The Future of the Subsurface" will assess the gaps in regulation and management of the competing uses of the subsurface in the UK

setting. This paper will present the initial outcomes of the project's scoping phase including how a systems thinking and mapping approach might be applied to support the better communication of the complexities and help policy makers to make more evidence based decisions.