

Changing relationships: Accessing Subsurface Knowledge (ASK) project UK

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Abstract

The need for cities to make more effective use of the subsurface on which they stand, is increasingly being recognised in the UK and further afield to be essential for future cities to be sustainable and more resilient. However, city planning worldwide remains largely 2D, with very few cities having any substantial subsurface planning – the cities of Helsinki, Montreal, Singapore being rare exceptions. The consequences of inadequate consideration and planning of the subsurface, and limited re-use of available data, are much more far-reaching, in economic, environmental and social terms. There are clear spatial correspondences between proximity to vacant and derelict land and areas poorest health and greatest deprivation in UK cities; and, poor understanding of ground conditions is widely recognised as the largest single cause of construction project delay and overspends across Europe.

Despite the development of 3D subsurface models by geological surveys and within the private sector, there remain fundamental knowledge gaps and disconnects in data usage, which inhibit local authorities, national government, geological surveys and research institutions, to unlock, and de-risk key areas of urban development. Planners are often not aware of the opportunities held by the subsurface for urban development; what data need to be acquired during the planning process to assess these opportunities; or how these data should be mapped through the planning process. Equally, there is insufficient awareness and understanding in geological surveys and research organisations, as to what subsurface data is required by city planners, in what formats, and at what stages in the planning processes. The effect of these data and knowledge gaps are exemplified by there being no systematic local or national planning guidance for the subsurface environment in the UK; and critically, little re-use of any subsurface environmental data generated within urban areas for development, by either the local authorities, private sector actors, or regulators, or geological surveys.

In the UK, data and knowledge transfer between public and private sector stakeholders is now beginning to change. Glasgow City Council (GCC) – the UK's second largest unified local authority – is the first in the UK to explicitly acknowledge subsurface planning within its City Development Plan (CDP), and the City is working to develop the UK's first statutory guidance to urban subsurface planning, and a wholly new spatial (3D) planning mechanism. This is underpinned by changes to procurement and ingestion of standardised digital subsurface data from urban redevelopment to national government data centres.

Initially championed by Glasgow, the initiative is now spreading across the UK. National sector stakeholders (public and private) (e.g. Transport Scotland, Scottish Water and major UK consultancies) are strongly engaging with this process, and the Scottish and Welsh Governments are identifying shared opportunities to embed the work into appropriate national policy and procurement requirements, and assist the up-scaling and wider adoption of the knowledge transformation at City-region and national scales.

The work is now being supported by a three-year Knowledge Exchange Fellowship from the UK National Environmental Research Council (NERC). This is facilitating the essential co-production of understanding between national research and data centres, with public and private sector data users, for appropriate subsurface data and knowledge to be mapped through urban planning and decision making processes – both at city-scales and project scales – and re-used in the future. The presentation will discuss the lessons learnt so far, the changing relationships in the UK and key challenges.

Biography Helen Bonsor

Helen Bonsor is a Hydrogeologist at the British Geological Survey (BGS), and a Knowledge Exchange Fellow of the Natural Environment Research Council in UK, examining new subsurface planning approaches with national and local government and public and private national stakeholders in the UK. She is actively

engaged in the European Cooperation of Science and Technology (COST) Sub-Urban Action leading a review into European best practice in monitoring and regulation of subsurface resources (focusing on groundwater and shallow geothermal energy), and; has engaged in focused KE visits to several European geological surveys and city partners to better understand how they are working to achieve better re-use of shallow subsurface data and knowledge for city planning, and to how geological surveys can work towards becoming centralised custodians of standardised digital ingestion of subsurface data.