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Infrastructure planning through geosocial intelligence: using Twitter as a platform for rapid assessment and civic co-management during flooding in Jakarta

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Abstract

The ability to collect data using sensor-based technologies is increasing within a public technical means. As governments in rapidly-urbanising developing nations seek to address the climatic, social and economic challenges of the 21st century, there is a progressive requirement to map and articulate civil infrastructure. When a local government needs to proactively react to impending and disruptive phenomena they increasingly look to data and technology to help them manage and respond accordingly. Mobile social media, in a citizens-as-sensors paradigm, offers the potential to collect data with which to advance our capacity to understand and promote resilience of cities to both extreme weather events as a result of climate change and to long-term infrastructure transformation as a process of climate adaptation. Location-based social media, in a big-data context, can drive rapid assessment processes of affected areas, and emerging patterns and trends can be revealing about "next steps" for situational management. This paper emphasises the positive uses of smart systems, drawing on research of infrastructure analysis using geosocial intelligence, in response to seasonal flooding in the city of Jakarta, Indonesia. Using a series of real-world examples, we argue that data collected from the field can be secured, anonymised and encrypted to support improved planning and civic co-management of megacities. The factors that affect such bi-directional information flows need to be built on sound principles of basic needs, privacy, and trust at the individual, neighbourhood and city scales.

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