**Title of the topic area for the studentship you hope to secure**

Analytics for ‘Weak Signal’ Appreciation in Assessing Resilience of Urban Water Systems

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Over the last 24 months the government has signalled its intention to more firmly embed “resilience” within the water sector through both new directives to water services companies and new obligations and powers for regulators. At the same time there are numerous urban-scale initiatives focusing on “urban resilience”, including for example the Rockefeller Foundation’s “100 Resilient Cities” programme. The IWSN team at UWE, Bristol has been working on analytic (as opposed to policy) aspects of water system resilience for some time.

This PhD will focus on the study of resilience of water supply infrastructure at the urban scale particularly from the point of view of developing techniques for the creative analysis of existing large data sets, identifying and/or developing useful benchmarks and standards. Because there is much to learn from more fully integrated analysis of existing datasets, this PhD research focuses on exploring the resilience of urban water supply systems through conjoint analysis of existing data sets (rather than generation of new datasets). In particular this PhD research will focus on the following questions:

1. What combination of systems conditions (energy, water supply, climate, etc.) could potentially upset current urban system stability (existing form and function)?
2. What changes, particularly to water systems, could push back those failure thresholds thereby building greater water system resilience?