Restoring Urban Watercourses to improve biophysical connectivity

Stuart Downward(DoS) and Hadrian Cook

Application for Faculty funding for a PhD programme

The European Water Framework Directive (WFD) requires that watercourses obtain Good Ecological Status by 2015. Many urban watercourses are expected to fail to meet targets, particularly in terms of morphology, fish populations, macro-invertebrates, heavy metals, phosphorous and ammonia loadings.

New paradigms in approaches to river management involves a decisive move towards *working with* river channels and their floodplains and *seeking rivers restoration opportunities*. Specifically steps towards meeting WFD requirements are being taken to modify flow control structures. The rivers Hogsmill, Wandle and Quaggy have a long history of industrial and engineering-based river and catchment management, extensive channelization, weir construction, features associated with mills, other manufacturing and flood defence.

The staff of Kingston University have experience working with environmental bodies including the Environment Agency and the Wandle Trust. For example, the Hogsmill connectivity project is altering weirs to improve the ecological impacts and this needs assessment.

The successful candidate will investigate: the modification and characteristics of watercourses, identify key challenges and post-project appraisal, something that is seldom undertaken. Assessments will be made of biophysical conditions, channel modification, ecological assessments (particularly macro-invertebrates), sediment fluxes and the social benefits that should accrue.