Climate change is a global phenomenon, but its effects are local, largely impacting urban life where large-scale sealing of permeable surfaces and the urban heat island effect can amplify extreme weather events, affecting the vulnerable most intensely. Blue Green Infrastructure (BGI), the strategically planned network of natural or semi natural areas and Nature Based Solutions (NBS), approaches to challenges that involve working with nature, have been promoted as ways to deliver climate resiliency in urban areas and integrated solutions to multiple environmental and social challenges. These include adapting to and mitigating climate change, protecting and improving biodiversity and delivering health and well-being benefits to local residents.

Whilst the link between co-benefits of BGI and NBS are increasingly recognised there is little understanding of how specific design features of BGI and NBS can benefit environmental and social challenges concurrently. Furthermore, recent work with decision-makers highlighted a need for greater understanding of the co-benefits of environmental improvement in local communities if implementation and outcomes of BGI and NBS are to be improved, as well as a need to transparently explore the associated trade-offs, such as gentrification and competition with housing and recreational space. This PhD will work with Wildfowl and Wetland Trust on their Defra funded community flood risk management projects to investigate the functional benefits such as flood mitigation and biodiversity, as well as the experiential benefits of BGI to residents’ health and wellbeing and social cohesion and resiliency, to identify how different BGI and NBS designs can produce co-benefits and at what scale. The project will engage in a co-production process, through participatory systems modelling and/or Participatory Action Research to explore the synergies and trade-offs associated with BGI and NBS. This will provide understanding of how locally implemented BGI and NBS can be designed to provide co-benefits, whilst also increasing social resiliency and agency of communities to advocate for schemes that are tailored to their needs and aspirations.

Specific objectives are:
• Review literature on the synergistic benefits of BGI/NBS and potential trade-offs
• Engage with a variety of stakeholders to identify priority benefits of BGI/NBS across environmental and social challenges
• Investigate the experiential health and wellbeing and social benefits to residents of current and planned BGI designs at different scales
• Compare BGI design features that promote health and wellbeing to functional benefits such as flood risk management and biodiversity promotion
• Undertake co-produced research on the synergies and trade-offs associated with BGI implementation

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• Co-create resources and management tools to inform the multi-benefit design of BGI/NBS
• Co-create resources and management tools to inform the multi-benefit design of BGI/NBS and resident engagement with land use planning

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