

## **A Fluid Approach to Designing Sustainable Infrastructure: Visions of a Waterway for a Sustainable Future**

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Design must play a key role in the attainment of more sustainable futures, not only in reshaping products and services consumed but also in influencing the infrastructures we build. Several frameworks such as the multi level perspective (MLP) have been developed to make sense of transitions to more sustainable infrastructures and to inform the purposive governance of these. However, little is known about the role of design in such transitions. To address this gap in knowledge we draw on the fluid transitions approach (Guy, 2011) from sustainable architecture. This approach explicitly allocates a role to design in transitions, articulating principles and priorities to do so: 1) flexibility to technological options 2) applying boundaries to frame activity 3) a call to pragmatically engage with what's going on in a particular location 4) a commitment to hear the voices of many actors (perhaps beyond the traditional nexus) and enable them to make a difference. The fluid approach recognises that there is not one single transition pathway to more sustainable infrastructures, but rather many pathways. Seen in this way, diversity of methods and outcomes is encouraged and embraced since each provides potential routes to more sustainable futures.

The fluid approach was used to inform case study research focused on the Bedford to Milton Keynes Waterway. Data were collected from various actors associated with this infrastructure project. In aggregate data showed that while there is a strong vision for the Bedford to MK waterway, this infrastructure project means many things to different actors at various points along the proposed route. Indeed, while there is an overarching design for the waterway, at a number of locations it is pragmatically designed by various actor constituencies. Thus design interventions are required to not only realise the overarching waterway vision, and functionalities embodied within it, but also to help manifest visions of the waterway which are situated in various locations along its route.

In this contribution we allow the fluid approach to guide our consideration of design practices which could aid sustainable transitions. Responding to case study findings we seek to identify how design can help garner multiple actor perspectives and facilitate the collaborative creation of visions of a sustainable future. We describe how future activities of this research will focus these practices to situated design interventions at several locations along the waterway. Each of these locations offers an opportunity for transition towards more sustainable futures, as part of, or complimentary to, a more sustainable waterway infrastructure.