Investigating place-based, blue green solutions to flood risk along the Dundee waterfront

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Introduction

Urban waterfronts are integral to the network of blue green spaces in towns and cities and encompass a range of uses, bringing social, environmental and economic benefits.

The impacts of climate change pose an increased risk from coastal flooding, threatening these mixed-use spaces.

The aim of my research is to mitigate flood risk along the Dundee waterfront. It seeks to achieve this through co-producing place-based, blue green solutions which bring multiple benefits for people and the environment.

Figure 4 shows the conceptual framework for my research, demonstrating how a range of complex and interlinked factors will influence my research.

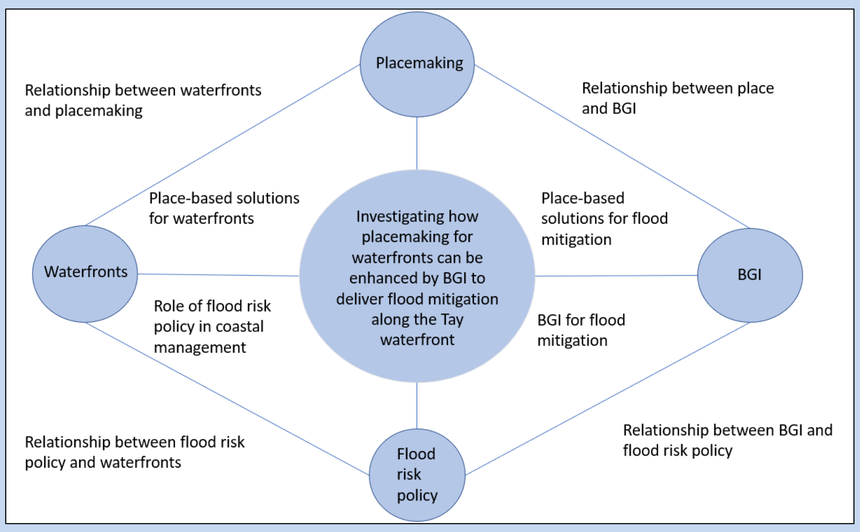


Figure 1: Conceptual framework

Methods

1. **Thematic literature review to understand the benefits of placemaking and blue green infrastructure (BGI).**

2. **Papathoma Tsunami Vulnerability Assessment (PTVA) to understand the level of flood risk to structures on the Dundee and Broughty Ferry waterfronts. PTVA is a GIS based tool which considers a range of factors in relation to the vulnerability and surroundings of structures to generate maps displaying the spatial distribution of vulnerable structures. Figure 2 shows a vulnerability map for Broughty Ferry.**

3. **Participatory GIS project, working with local stakeholders to develop place-based, blue green solutions to flood risk (in progress).**

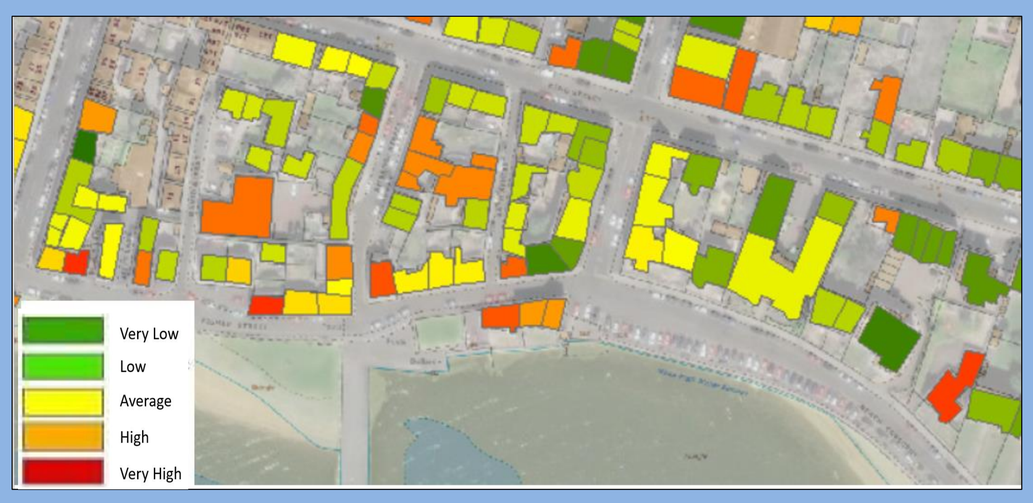
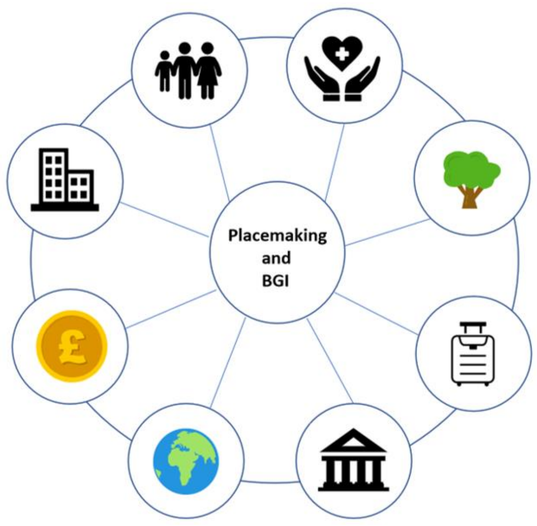


Figure 2: Section of a vulnerability map for Broughty Ferry under an extreme 7m inundation Scenario

Results from literature review:

Thematic literature review revealed that placemaking and BGI can bring multiple, Interlinked benefits, as shown in figure 3.

These results will help to inform the blue green, place-based solutions to flood risk in Dundee and Broughty Ferry and ensure they deliver a range of interlinked benefits.



People and communities	Heritage and culture	Tourism	Nature and biodiversity
Built environment	Economy	Health and wellbeing	Climate action

Figure 3: Multiple and interlinked benefits of placemaking and BGI

Expected outcomes:

- PhD to showcase how to combine placemaking and BGI with waterfronts and deliver a suite of recommendations applicable to multiple coastal cities
- Aim to influence policy by using the Dundee waterfront as a demonstrator of how placemaking can combine with blue and green to deliver liveable waterfronts
- Expansion of knowledge regarding areas and level of flood risk in Dundee and Broughty Ferry
- Determination of whether there are place-based differences in community preferences for BGI solutions

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