

Investigating Placemaking and Nature-Based Solutions to Increase Flood Resilience and Enhance Liveable Waterfronts

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Introduction

Urban waterfronts are integral to the network of blue and 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.

My research investigates how placemaking and nature-based solutions (NBS) can combine to develop flood resilience on waterfronts while contributing to quality of life, wellbeing and protection against extreme climate change.

Figure 1 shows the conceptual framework for my research, demonstrating how a range of complex and interlinked factors influence my research.

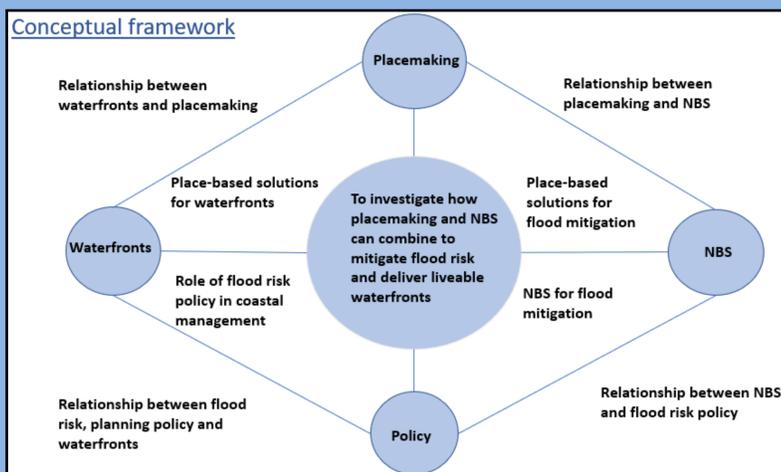


Figure 1: Conceptual framework

Methods

1. Thematic literature review to understand the benefits of placemaking and NBS.
2. Papathoma Tsunami Vulnerability Assessment (PTVA) to understand the level of flood risk to structures on the Dundee and Broughty Ferry waterfronts, figure 2.
3. Interviews with practitioners and community stakeholders to determine attitudes and experiences in relation to placemaking, NBS and community engagement, as well as experiences of flooding in Dundee and Broughty Ferry.
4. Collaborative workshops to create place-based, NBS to flood risk which also deliver a range of benefits for people, place and the environment.



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

Results from literature review:

The thematic literature review revealed that placemaking and NBS can bring multiple, interlinked benefits, as shown in figure 3.

These results will help to inform the NBS for flood risk in Dundee and Broughty Ferry which have place at their core to 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 NBS

Expected outcomes:

PhD to showcase how to combine placemaking and NBS with waterfronts and deliver a suite of recommendations applicable to multiple coastal cities.

Aim to influence policy by using Dundee waterfront as a demonstrator of how placemaking can combine with NBS to deliver liveable waterfronts.

Expansion of knowledge regarding areas and level of flood risk in Dundee and Broughty Ferry and integration of climate models and empirical data to inform reliability of data.

Determination of whether there are place-based differences in community preferences for NBS solutions.



A pocket Park in Craigie Street, Dundee. An example of how placemaking and NBS can combine to deliver multiple benefits. Image: Sustrans, Scotland.