

Investigating place-based, blue green solutions to mitigate flood risk and improve liveability along the Dundee waterfront



Purpose of presentation:

To introduce and set the context of my PhD research

To seek helpful advice and references on the Participatory GIS approach to be introduced in this presentation

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Funder: Hydro Nation



Context and problem statement

Urban waterfronts are integral to the network of blue green spaces in towns and cities.

They encompass a range of uses, bringing social, environmental, health 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 blue green infrastructure (BGI) can combine to develop flood resilience on waterfronts while contributing to quality of life, wellbeing and protection against extreme climate change.

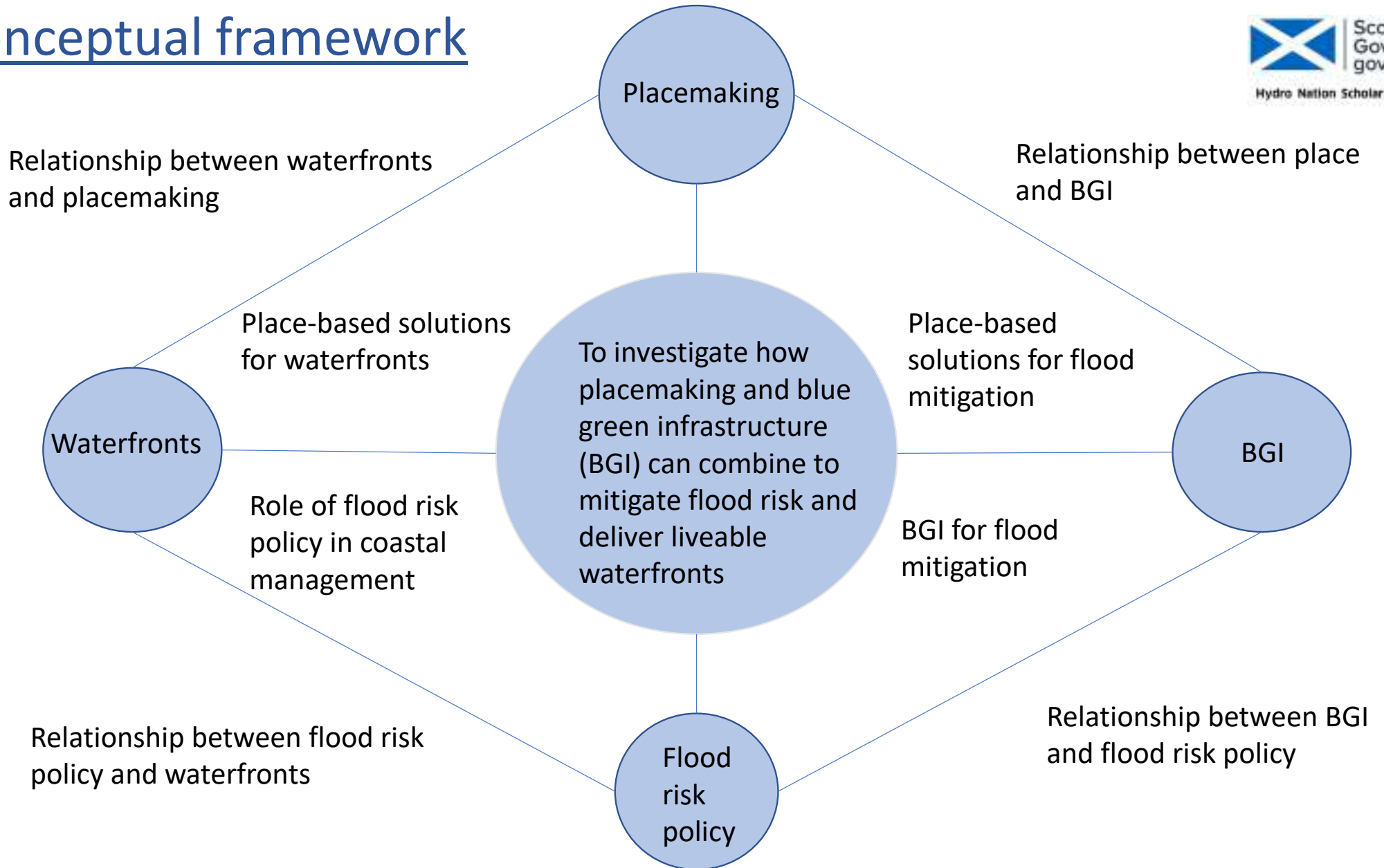


Hafen city, Hamburg



Dundee waterfront

Conceptual framework



Defining placemaking

Process through which urban designers and planners work with communities to plan, design and develop the built environment

This highlights the social aspect of placemaking with communities at the core

It bridges disciplines, involving various stakeholders

It can deliver a range of interlinked benefits

It is at the core of planning policy



Scotland 2045

Our Fourth National
Planning Framework



Scottish Government
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Impact of placemaking



Defining BGI



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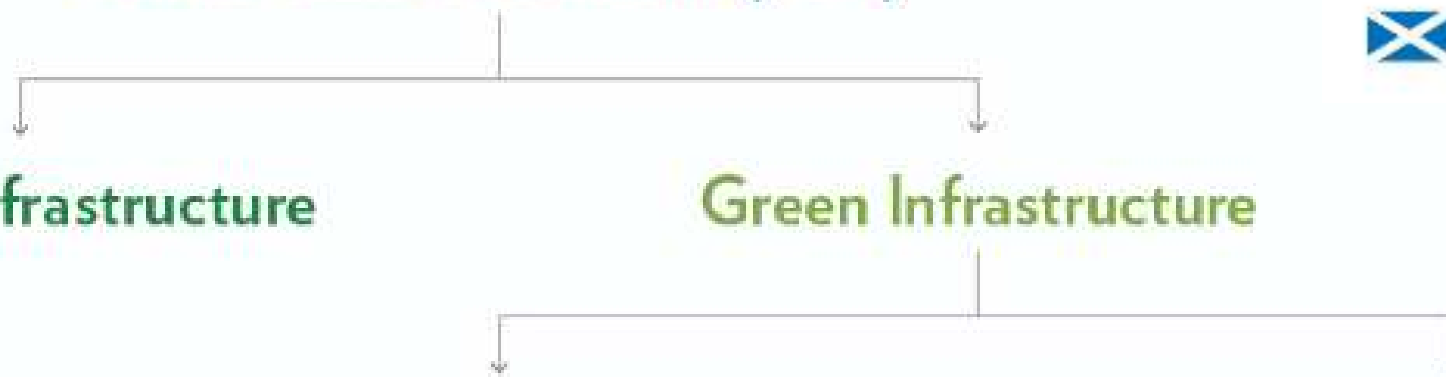
Nature-based Infrastructure or Nature-based Solutions (NbS)

Natural Infrastructure

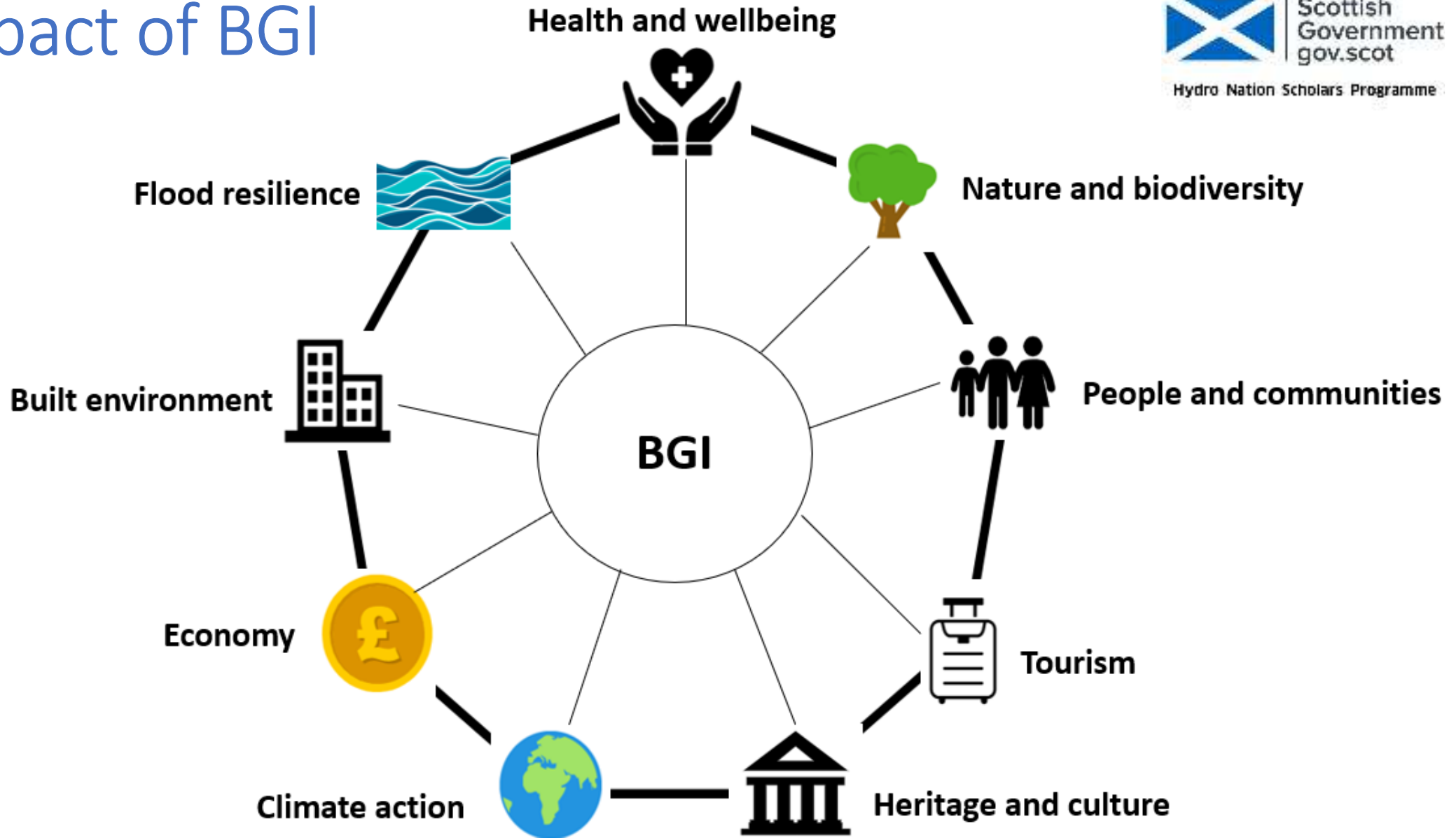
Green Infrastructure

Blue Infrastructure

Blue-Green Infrastructure



Impact of BGI



Main Aim:

To investigate how placemaking and blue green infrastructure (BGI) can combine to mitigate flood risk and deliver liveable waterfronts

Secondary aims:

1. How placemaking and BGI integrates into flood risk management (FRM) policy
2. To identify areas of flood vulnerability along the Dundee waterfront
3. To work with community stakeholders to create place-based, blue green solutions to flood risk along the Dundee waterfront

Objectives

1. To understand how placemaking for waterfronts can be enhanced by BGI integration

Subquestions:

- a) What is the role of placemaking?
- b) What is BGI?
- c) How can BGI and placemaking enhance FRM and what are the barriers to this?

2. To investigate how coastal flood risk is managed in Scotland/UK

Subquestions:

- a) How is the coastline protected?
- b) How is BGI and placemaking integrated into FRM?
- c) What is the role of stakeholders?

3. To investigate and map the vulnerability of buildings and structures on stretches of waterfront in Dundee and Broughty Ferry and Assign classifications to them in terms of their flood risk.

4. To work with community stakeholders to identify their priority areas for intervention based on findings from the PTVA and co- create blue green place-based solutions to flood risk in the two waterfront locations

Knowledge gaps and limitations to the delivery of placemaking and BGI to mitigate flood risk and deliver livable waterfronts

Limited knowledge of how joined up thinking in placemaking and BGI can improve delivery of multiple benefits

Limited knowledge of how placemaking and BGI can manage impacts of climate change

Preference for grey, rather BGI solutions

Failure to engage the community

Main aim:

To investigate how placemaking and BGI can combine to mitigate flood risk and deliver liveable waterfronts

Methodology 1

Papathoma Vulnerability Assessment (PTVA)



Reference: DALL'OSSO, F and DOMINEY-HOWES, D (2009) A METHOD FOR ASSESSING THE VULNERABILITY OF BUILDINGS TO CATASTROPHIC (TSUNAMI) MARINE FLOODING, available at <https://www.sydneycoastalcouncils.com.au/sites/default/files/tsunamiprojectfinalreport.pdf> (accessed on 21/06/2023)

Intended Methodology 2

Workshops with
community
stakeholders to
determine priority
areas for place-based,
BGI intervention based
on vulnerability maps



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 Tay 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 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 BGI solutions

If you have any advice or feedback on the Participatory GIS approach (or if you would just like to chat about my PhD), please get in touch!

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Thanks for listening!



Hydro Nation Scholars Programme

