

2017-11

## Weighting the Perceived Importance of Minimising Economic, Social and Environmental/Cultural Risks in Flood Risk Management

Zeinab Bedri

*Technological University Dublin, zeinab.bedri@tudublin.ie*

John O'Sullivan

*University College Dublin, jj.osullivan@ucd.ie*

Mark Adamson

*Office of Public Works, mark.adamson@opw.ie*

Follow this and additional works at: <https://arrow.tudublin.ie/engschcivcon>



Part of the [Civil Engineering Commons](#), and the [Environmental Engineering Commons](#)

### Recommended Citation

Bedri, Z., O'Sullivan, J.J., & Adamson, M. (2017). Weighting the perceived importance of minimising economic, social and environmental/cultural risks in flood risk management. *National Hydrology Conference*, Athlone, Ireland, 21 November, 2017. doi.org/10.21427/5spn-9w08

This Conference Paper is brought to you for free and open access by the School of Civil and Structural Engineering at ARROW@TU Dublin. It has been accepted for inclusion in Conference papers by an authorized administrator of ARROW@TU Dublin. For more information, please contact [arrow.admin@tudublin.ie](mailto:arrow.admin@tudublin.ie), [aisling.coyne@tudublin.ie](mailto:aisling.coyne@tudublin.ie).



This work is licensed under a [Creative Commons Attribution-NonCommercial-Share Alike 4.0 License](#)

# Weighting the perceived importance of minimising economic, social and environmental/cultural risks in flood risk management

Zeinab Bedri<sup>1</sup>, John O'Sullivan<sup>2</sup> & Mark Adamson<sup>3</sup>

1 School of Civil & Structural Engineering, Dublin Institute of Technology, Bolton Street, Dublin 1.

Email: zeinab.bedri@dit.ie

2 School of Civil, Structural & Environmental Engineering, University College Dublin, Belfield, Dublin 4

3 Office of Public Works, Joanathan Swift Street, Trim, Co. Meath. Email: mark.adamson@opw.ie

## 1. Introduction

In 2006, the Office of Public Works (OPW) began the National Catchment-based Flood Risk Assessment and Management (CFRAM) Programme through a series of pilot studies.

A Multi-Criteria Analysis (MCA) Framework was developed through the CFRAM pilot studies that integrated a range of objectives related to human health and society, the environment and cultural heritage and the economy into the core process of selecting suitable flood risk management measures for a given area or location, and then for prioritising national investments for different schemes and projects.

In support of this MCA framework, UCD, was commissioned to undertake a collaborative study with the OPW to determine global weights that reflect the perceived relative importance of a range of criteria pertaining to the importance of economic, social and environmental / cultural aspects of flood management strategies.

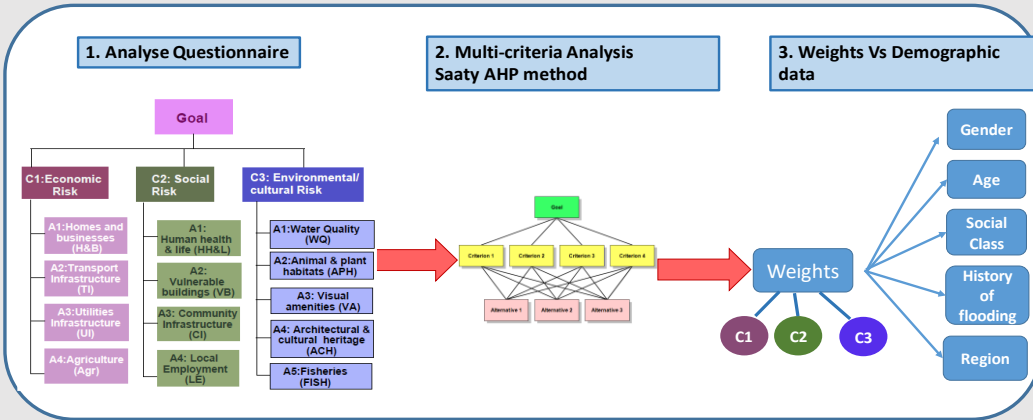
## 2. National Survey

- Developed by UCD and OPW
- Over 1,000 structured door-to-door interviews with the public.
- Arranged by and undertaken by Behaviour and Attitudes Ltd. ([www.banda.ie](http://www.banda.ie)) on behalf of the OPW.
- Questionnaire included a pairwise comparison of the various flood risk management objectives together with a collection of standard demographic criteria relating to the respondent.

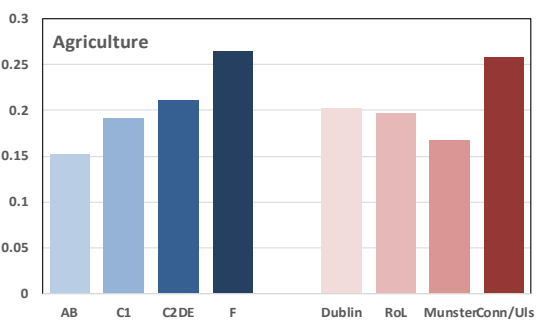
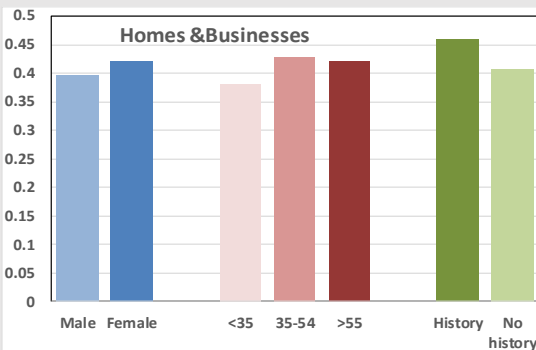
## 3. Study Objectives

The objective of the study is to: apply a multi-criteria analysis method to determine global weights that reflect the perceived relative importance of the criteria pertaining to the importance of economic, social and environmental / cultural aspects of flood management strategies.

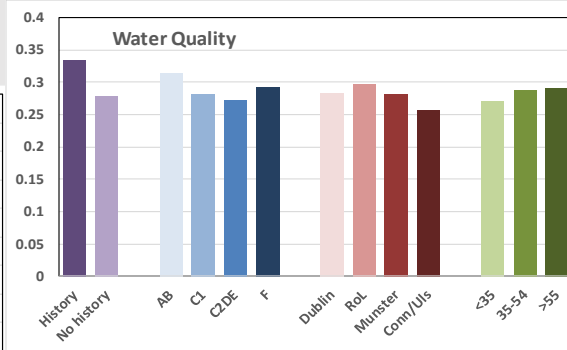
Study the relationship between global weights and demographic characteristics (e.g. gender, age, social class) of the public.



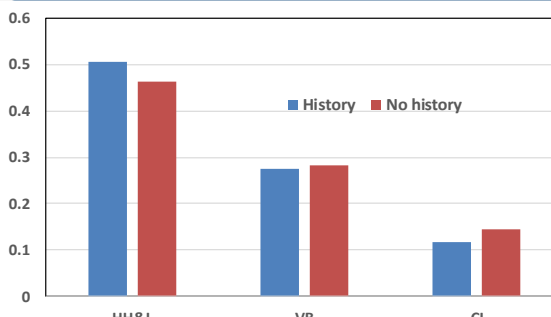
## Results – Minimising Economic Risk – C1



## Results – Minimising Environmental/Cultural Risk – C3



## Results – Minimising Social Risk – C2



## Conclusions

### Economic Risk – C1

- Higher weight H&B by females than males
- More weight given to H&B by those with history of flooding
- Higher weight given to Agr by under 35s

### Social Risk – C2

- More weight given to HH&L than those with history of flooding.
- Higher weight given to community infrastructure by those who have no history of flooding.

### Environmental/Cultural Risk – C3

- More weight given to WQ by those with history of flooding, social class AB, and over 55s.