

**Contrasting perceptions on alternative flood management and urban resilience as means of flood risk management- a comparison of Rotterdam (Netherlands) and Newcastle upon Tyne (UK)**

I am a third year geography undergraduate student at the University of Nottingham. As part of my research investigating the above question, I would be grateful if you could complete this questionnaire to the best of your ability. Thank you so much for you time, any further questions regarding this research please contact Felicity Street at lgyfs@nottingham.ac.uk.

*The questions below refer to the following definitions:*

Traditional flood management refers to hard engineering approaches such as polders, dykes and dams that aim to prevent and remove water from an area.

Alterative flood management includes natural flood management (e.g. restoring rivers natural watercourse), sustainable flood management (SuDs) or blue-green infrastructure- with aims of sustainably and flexibly managing water in the city.

Urban resilience to floods is defined as a city’s capacity to tolerate flooding and to reorganize should physical damage and socioeconomic disruption occur (Liao, 2012), with an emphasis on the term resilience as opposed to resistance.

*Please answer the questions below:*

Occupation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Organisation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Please mark one per question | **Strongly Agree** | **Agree** | **Uncertain** | **Disagree** | **Strongly disagree** |
| **Flooding** |  |  |  |  |  |
| Newcastle frequently experiences flooding |  |  |  |  |  |
| The threat of flooding in Newcastle is increasing  |  |  |  |  |  |
| Improvements in flood management need to be made to decrease the risk of flooding |  |  |  |  |  |
|  |  |  |  |  |
| Please mark one per question | **Strongly Agree** | **Agree** | **Uncertain** | **Disagree** | **Strongly disagree** |
| **Education and Awareness** |  |  |
| There is a shared responsibility of flood management within the community |  |  |  |  |  |
| The public sector should take full responsibility of flood management in Newcastle  |  |  |  |  |  |
| Individuals should take responsibility of flood management in Newcastle |  |  |  |  |  |
| There is a sufficient level of public understanding regarding ways they can minimise the impact of flood risk through alternative methods (such as construction of a rain garden)  |  |  |  |  |  |
| Please mark one per question | **Strongly Agree** | **Agree** | **Uncertain** | **Disagree** | **Strongly disagree** |
| There is a sufficient level of education informing the public of the necessity surrounding alternative flood management solutions |  |  |  |  |  |
| Educating the public regarding alternative flood management solutions, is key to reducing flood risk in the future |  |  |  |  |  |
| Steps are being taken to educate the public regarding alternative flood management solutions |  |  |  |  |  |
|  |  |
| Please mark one per question | **Strongly Agree** | **Agree** | **Uncertain** | **Disagree** | **Strongly disagree** |
| **Alternative flood management**  |  |  |  |
| Where alternative flood management is present, residents are aware of its existence and purpose |  |  |  |  |  |
| There is opportunity for an increased use of alternative flood management in Newcastle |  |  |  |  |  |
| I am well informed of the benefits of alternative flood management |  |  |  |  |  |
| The benefits of using alternative flood management is well understood and communicated to all stakeholders |  |  |  |  |  |
| There needs to be more resources spend on alternative flood management |  |  |  |  |  |
|  |
| Rank the following barriers between 1 and 10 (1 being the most significant barrier) preventing adoption of alternative flood management solutions within Newcastle: | Insufficient economic resources |  |        |  |
| Uncertainty of responsibility |  |
| Cost and responsibility of maintenance |  |
| Lack of knowledge (understanding/information) |  |
| Reluctance to change |  |
| Limitations of performance compared to hard engineering |  |
| Site limitation (unsuitable location) |  |
| Lack of evidence to support |  |
| Public resistance |  |
| Uncertainty of risks |  |
| Any additional comments on alternative flood management as a flood mitigation method in Newcastle: |  |  |  |  |  |
|  |  |  |  |  |
| Please mark one per question | **Strongly Agree** |  **Agree** | **Uncertain** | **Disagree** | **Strongly disagree** |
| **Flood resilience** |  |  |  |  |  |
| Newcastle’s flood management approach should be based on resilience to floods rather than resistance |  |  |  |  |  |
| When planning new projects and developments, resilience should always be taken into account |  |  |  |  |  |
| Floating or amphibious architecture is something I have encountered when considering alternative flood management solutions |  |  |  |  |  |
| There is an opportunity for amphibious/floating architecture to be implemented within the flood management schemes |  |  |  |  |  |
|  |
| Rank the following barriers between 1 and 10 (1 being the most significant barrier) regarding adoption of resilient design as means of flood risk mitigation within Newcastle: | Insufficient economic resources  |  |        |  |
| Uncertainty of responsibility |  |
| Cost and responsibility of maintenance |  |
| Lack of knowledge (understanding/information) |  |
| Reluctance to change |  |
| Limitations of performance compared to hard engineering |  |
| Site limitation (unsuitable location) |  |
| Lack of evidence to support |  |
| Public resistance |  |
| Uncertainty of risks |  |
| Any additional comments regarding resilient design as an alternative to flood resistance |  |  |  |
| Please mark one per question | **Strongly Agree** | **Agree** | **Uncertain** | **Disagree** | **Strongly disagree** |
| **Brexit** |  |  |  |  |  |
| The consequences of Britain leaving the EU will impact upon flood management within Newcastle  |  |  |  |  |  |
| There will be a negative consequence of Brexit upon alternative flood management or urban resilient schemes |  |  |  |  |  |
| If appropriate, please expand on the above question: |  |
|  |  |  |  |  |
| Please mark one per question | **Strongly Agree** | **Agree** | **Uncertain** | **Disagree** | **Strongly disagree** |
| **Future** |  |  |  |  |
| Newcastle’s flood management schemes incorporate both alternative management solutions and resilient design in their approach |  |  |  |  |  |
| There needs to be an increased understanding of the benefits of alternative flood management solutions and urban resilience within Newcastle |  |  |  |  |  |
| If agree to the above question, please expand on how you think an increased understanding could be achieved: |  |

Thank you for your time in completing this questionnaire, it is much appreciated.