

Effective future communication of flood risk in Scotland

Research Summary

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Effective future communication of flood risk in Scotland: Executive Summary

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AIMS OF THE PROJECT

This research sought to answer the following questions:

- i. What is the public's understanding of flood risk, flood likelihood/probability/uncertainty, and flood risk in relation to climate change and climate change projections;
- ii. Which tools and methodologies exist which can support SEPA's communication of current and future flood risk?
- iii. How can flood risk and related climate change predictions be communicated more effectively to both technical and non-technical audiences?
- iv. What strategy can be adopted to develop a good understanding, amongst the public and partners, of what 'managed adaptation' means and looks like in practice?

FINDINGS

1. A Scottish baseline of public understanding

There is a lack of Scotland-specific research of the Scottish public's understanding of flood risk, likelihood, uncertainty and flood risk-related climate change projections. The limited anecdotal and research evidence that does exist suggests public awareness and understanding is low in Scotland. Contributing factors which may impact upon and limit the effectiveness of flood risk communication include:

- Return periods are confusing and ineffective at communicating flood risk likelihood/probability;
- Uncertainty can negatively impact on people's motivation to act/take pre-emptive action;
- Communicating flood risk and flood-related climate change projections can trigger a negative response from affected individuals;
- Communicating flood risk without associated protective actions undermines people's motivation to act in response to the message and encourages the development of maladaptive coping responses;
- Adopting maladaptive coping responses like fatalism, learned helplessness, denial and wishful thinking lowers the individual's perception of flood risk in response to flood risk communication;
- Social vulnerability impacts negatively upon the ability to receive and act upon the flood risk communications;
- A lack of financial resources amongst those on low incomes reduces their capacity to respond and hence encourages the adoption non-protective maladaptive coping strategies;
- Reduced capabilities (e.g. as people age; amongst those with long-term health conditions) leaves some vulnerable groups without the capacity to respond to flood risk communications and hence encourages the adoption non-protective maladaptive coping strategies;
- Individuals may externalise responsibility for their flood risk protection to governing authorities and consequently fail to take action to protect their own properties in response to flood risk communication;
- A policy paradox, where individuals are told to be both personally responsible and to defer personal safety to the state, adds to existing confusion about personal versus governing authorities' responsibility for flood risk protection;
- Communities rarely participate in the design of flood risk communications, and this lack of engagement can reduce the perceived relevance/credibility of formal communications/messages;
- Differing use of terminologies causes confusion both within and between technical and public audiences;
- Confusion also exists amongst organisational stakeholders and the public about the roles and responsibilities of actors in the Scottish flood risk communication network.

2. Communication tools and methodologies

1. *Dynamic mapping and 3D visualisation tools* are effective when based on robust data with clear guidance for use and explanations of limitations, and can be made more effective in future by co-designing tools with their target users and offering support during use;

2. *Serious games* and the gamification of flood risk communications have the potential to be effective flood risk communication tools but this approach requires more robust systematic research evidence of effectiveness;
3. *Websites and apps* have limited reach and hence limited effectiveness as stand-alone flood risk communication tools, but can usefully complement and support other flood risk communication approaches. Further evaluation of their impact on the knowledge and behaviour of those who do use them is needed;
4. *Social media* is limited in its effectiveness as a communication tool as it only targets users of social media and so should only be used alongside other approaches when communicating with the public;
5. *Sustainable flood memories* approaches show potential for effective flood risk communication as early evidence suggests that such methods (e.g. digital storytelling; flood walks; local artefacts) encourage shared learning. Further evaluation of their effectiveness is needed to determine their impact;
6. *Broadcast and Print Media* are effective mediums for flood risk communication, though a closer relationship between the current flood risk communication network and the media is needed to reduce sensationalist reporting and encourage positive narratives, particularly by showcasing protection and adaptation solutions that are already being implemented effectively;
7. *Shared local learning* is an effective flood risk communication approach that can also build a positive shared social identity amongst local people as members of a flood resilient community;
8. *Participatory approaches and community engagement* were considered by both academic studies and our study participants to be best practice in communicating flood risk effectively, as they involve individuals in a) proactively managing their own flood risk; b) allow local people to share their own expertise; and c) enable communities to engage with flood risk specialists.

3. *Managed adaptation strategies*

- Developing a managed adaptation strategy to encourage an understanding of the concept and its application in practice can only be achieved if the public and other partners already understand and engage with flood risk communications i.e. correctly perceive their flood risk and understand that this risk demands action now to protect everyone in future. Therefore, this study concludes that to develop a good understanding of managed adaptation amongst the public and other partners, the concept and its practice must be integrated in all future flood risk communication strategies.

RECOMMENDATIONS

In total, 17 recommendations are made, based upon the evidence gathered in this study. The first recommendation is that:

- Future flood risk communications should include recommended actions that are *affordable*, *achievable* and *appropriate* to the socioeconomic and demographic status of diverse households.

The remaining 16 recommendations are targeted at policy-makers or organisations and communication practitioners:

For policy-makers

- National and local policies should enshrine support for bespoke household-level flood risk communication to ensure the public, and particularly socially vulnerable and marginalised groups, can act in response to flood risk communication and so be resilient to future flood-related climate change impacts;
- Statutory regulations should be developed that require providers of temporary accommodation/business premises to ensure their properties are flood resilient, including providing those temporarily occupying the property with clear guidance on actions to take in the event of a flood warning;
- A database of flood resilient measures at household and property level should be developed for every Scottish community;

- A national approach should be developed that financially supports the installation of household flood risk protection and adaptation measures, particularly for those on low incomes, to ensure future flood risk communication is more effective and Scottish households are more flood resilient;
- A flood risk communication strategy should be co-designed with communities and an inclusive range of stakeholders with clear ownership of actions, strong leadership and shared guidance on effective approaches;
- The Scottish Government should conduct a systematic survey of the Scottish public's current flood risk perception to increase the effectiveness of future flood risk communication.

For organisations and practitioners

- Future flood risk communications should be positively framed, demystify assumptions, and address local myths, encouraging collective action to enhance community resilience and promoting an empowering shared social identity of preparedness in place;
- Flood risk communications should be developed locally in collaboration with the community at risk to maximise their effectiveness;

- Return periods should no longer be used and instead new approaches to communicating probability should be explored and their effectiveness tested;
- Dynamic maps and 3D visualisations are effective communication tools, particularly when co-designed with communities and where support is provided to people during their use;
- Serious games offer communicators potentially effective diverse communication tools that may increase players' understanding of flood risk decision making and encourage them to consider their own flood risk responses, but further research evidence of their effectiveness is needed;
- Websites and apps have limited effectiveness as stand-alone flood risk communication tools, but can supplement other flood risk communication if ongoing investment is made in the Scottish flood communication digital infrastructure to ensure it is accurate and intuitive to use;
- Organisations involved in flood risk communication should consider using community-led social media to engage with local people, and use social media as one of a mix of several digital and non-digital communication approaches due to its limited engagement;
- Organisations and practitioners should support the development and dissemination of community-led sustainable flood memories archives that can be shared with others to encourage protective and adaptive actions;
- Organisations should work closely with the media to build a positive narrative within Scottish flood risk communication, and use multiple types of broadcast and print media when communicating flood risk information to maximise the reach of their messages.

METHODOLOGY

This research was conducted between May 2020 and July 2021, and consisted of three phases. Firstly, a Rapid Evidence assessment (REA) of academic and grey literature was carried out. Secondly, 22 interviews were conducted between January and July 2021 with key stakeholders identified by the project steering group and the research team. Participants were also snowballed into the recruitment of other interviewees and workshops participants. Thirdly, two workshops were held, one with organisational stakeholders in May 2021, and one with community representatives in July 2021.

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