Place-based community resilience to water vulnerabilities

Case study analysis of community-based action in remote coastal communities

Carly Maynard[1], Hannah Grist[1], Kate Lamont[1]
1. Scotland's Rural College

Scottish Government's Environment, Natural Resources and Agriculture Programme:
Science Evidence and Policy Conference, September 2024, Edinburgh

Introduction

Scotland faces multiple and increasing **water-related challenges such as coastal, fluvial and pluvial flooding, poor water quality, ageing supply systems, changing precipitation patterns and supply limitations**. Climate change is set to compound many of these issues through increased average air temperatures, hotter, drier summers and more extreme weather events[1]. Indirect impacts associated with these changes include challenges for food production, restrictions on house-building and population shifts. Remote coastal areas are unique in that they face the land-based pressures with the additional changes brought about by rising sea levels and risk of erosion, saline intrusion, etc. Additionally, they often rely on internal, community-led structures to address risks and to build resilience. The 2023-24 Programme for Government[2] and the National Performance Framework[3] highlight water and climate issues as priorities for adaptation.

This study aimed to examine examples of what some communities are already doing to address these risks and to provide recommendations of good practice and suggestions for supporting community resilience building.

Methods

Case study analysis was used to explore the situations, challenges and actions for five remote coastal communities in Scotland, in relation to water-based vulnerabilities. Communities were selected based on location, presence of at least one water-related challenge, availability of multiple participants with an aim to providing varied perspectives and a desire from the community to take part.

Interviews were conducted with **26 participants** across the five case studies, as well as **document analysis** where appropriate to provide contextualisation. Interviews took place between June and December 2023 and included **online, in-person and walking interviews** (selecting the method most suitable for each participant). **Grounded theory and thematic analysis** were used to draw out key themes in relation to experiences, actions, limiting factors, outcomes and lessons learned. Case studies were carried out in: **Luing; Tiree; Mull; Skye and Knoydart.**

Results

Most communities faced multiple issues e.g. increasing coastal flood risk plus ageing water supply infrastructure. Commonality existed between communities in terms of the types of problems faced, but varying contexts dictated that each community experienced those problems differently, meaning methods for dealing with issues varied by community.

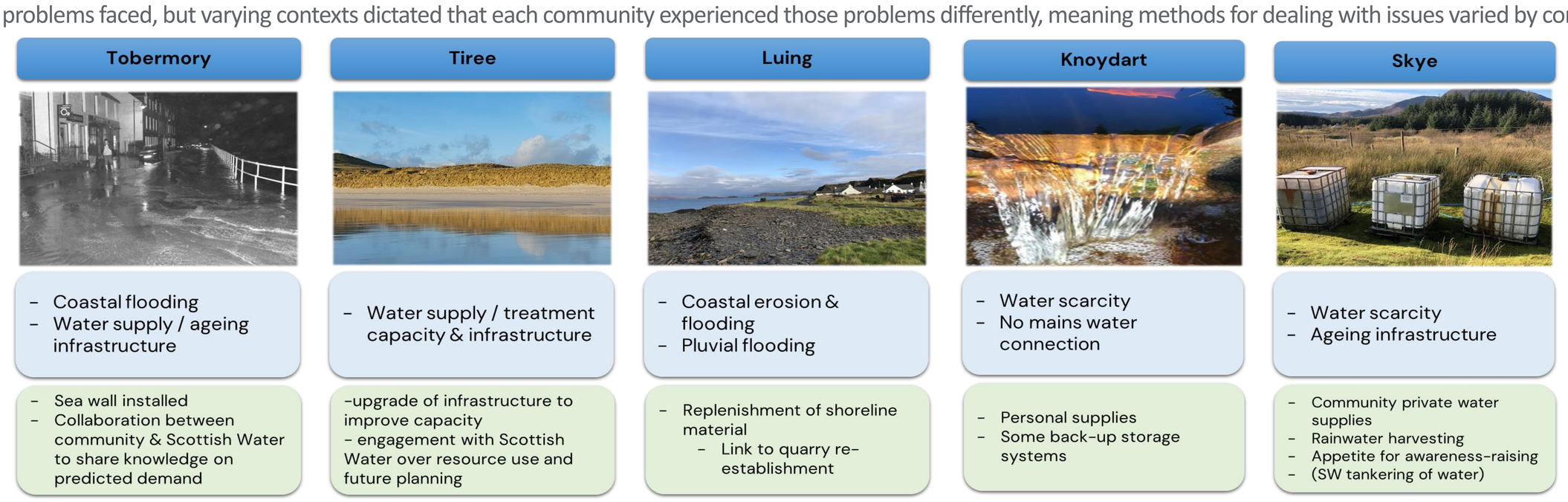

Figure 1 Summary of key issues and responses in the five case study areas

Key themes

- Strong sense of self-sufficiency linked to rural living
- Multiple links between water-related risks and other areas of community development: housing, economic development, population stability, growth
- Accepted need to utilise multiple forms of knowledge to reach all stakeholders
- Small / rural communities deal with risks in different ways to larger, more connected communities
- Use of social capital is key to many successes in remote and rural communities

Challenges

- Many of the challenges / barriers faced were linked to availability or conditions of funding
- Maintaining and utilising social capital (e.g. in the form of community organisations) is difficult and needs to be actively managed e.g. by investing in inter-generational skills transfer
- Rural communities with less social capital struggle more with community development
- Lack of broader institutional support can stall development / resilience work

Conclusions

Small and rural coastal communities face a multiplicity of water-related challenges which do not exist in isolation but are intricately related to other elements of development.

Key recommendations from the study include:

- Addressing water-related issues to **unlock other rural development challenges** e.g. re-population
- If engagement needs to be encouraged, make water-related challenges **relevant and tangible**
- Ensure messaging, management approaches and policy are **place-based or adaptable** enough to be relevant to remote coastal communities
- Make community action more **accessible** to a wider range of demographics e.g. by facilitating skills transfer, simplifying proposal processes, making space for flexible forms of engagement
- Utilise **social learning** by supporting sharing of experiences and knowledge between communities
- Account for different knowledge types to make engagement accessible and far-reaching
- **Utilise collective knowledge** e.g. via umbrella organisations or community champions

Acknowledgement

With thanks to all the individuals and communities who engaged as participants in this research for sharing their experiences and knowledge and welcoming us to their communities. Thanks also to our steering group who helped formulate appropriate questions and ensure relevant focus on the topic.

This work was funded by the Strategic Research Programme 2022-27, Scottish Government Rural and Environment Science and Analytical Services Division.

References

1. Adaptation Scotland, March 2024, Climate Projections for Scotland.
2. Scottish Government Programme for Government 2023-24.
3. Scotland's National Performance Framework.