Strategic planning for flood resilience: Four prerequisites

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Resilience is seen as an outcome of society that is: appropriately prepared; appropriately protected; capable of adapting; capable of transforming

As the Environment Agency embarks on a series of resilience pilot studies, this short note sets out the insights from the North Sea Region Interreg C5a programme and the Cloud-to-Coast Adaptation as it has developed.

Resilience as an outcome

The notion of 'flood resilience' has emerged in recent years as a concept in support of Sustainable Development and increasingly in the context of flood risk management; and is now a fundamental focus within the National FCERM Strategy for England. Although what we mean by 'resilience' is intuitively understood, a formal definition remains elusive.

In recent years, the concepts of resilience have expanded from sectoral ecological, engineering, psychological, economic perspectives to a more overarching context based on four characteristics of resilience (e.g., Sayers et al., 2012; Twigger-Ross et al., 2014 and echoed in ISO 14090:2019, 3.14), namely:

- **Resistance** (an ability to resist flood waters, and 'prevent' unwanted flooding);
- **Recoverability** (an ability to recover quickly 'bounce back');
- **Adaptation** (an ability to adjust to change efficiently and effectively);
- **Transformation** (an ability to fundamentally change behaviours in response to change).

'Resilience' itself is not a characteristic but an outcome; an emergent property of the system that is appropriately prepared and protected and capable of adapting and transforming our social and physical geographies change. Successfully enabling 'resilience' requires a substantial change in our approach to the management of flood risk; one that is more than simply a rebranding of conventional concepts and approaches. The ability to 'resist' for example is often adopted as the primary response and unhelpfully propagates the status quo paradigm of 'flood protection' under a different guise. The ability to recover is however often mistakenly considered to be synonymous with resilience– but this is only part of the picture.

As all levels of government seek to support investments that enable the move towards a resilient society a central question arises; *how can we ensure the strategies and plans we develop do indeed contribute to resilience?* Several existing resilience frameworks provide some insight into this. For example, the qualities of a resilience approach have been summarised by Arup with support from the Rockefeller Foundation in their *'observable qualities of resilient city planning'* (reflective, robust, redundant, flexible, resourceful, inclusive and integrated). Although useful, such frameworks tend to offer limited practical support to help those commissioning or developing planning studies to ensure the approach adopted will contribute meaningfully to resilience.

Four prerequisites

Across the North-Sea Region four core attributes of the planning process are increasingly recognised as prerequisites for enabling resilience (Sayers et al, 2020). These four *'enablers of resilience'* offer a simple stress test to challenge the ability of any proposed strategy or investment plan to deliver a resilient outcome. The four *'enablers of resilience'* are summarised in Figure 1 and introduced below together with a series of *'challenge questions'*.

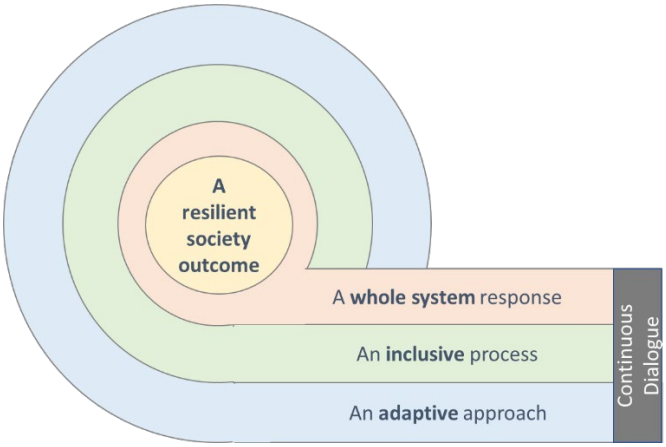

Figure 1 Four enablers of resilience

A whole system approach: A whole system response requires us to challenge our own 'silo' and become 'system thinkers'. *Is there agreement on what is an appropriate whole system in the context of the decisions being made? Is there a common understanding of the physical extent of the system? What are the time bounds of the analysis, are these right? Are the boundaries right – for example if there are significant interactions across these boundaries – time and scape - you may need to reconsider.*

An inclusive process: An inclusive approach requires much more then 'including' stakeholders in discussions. *Are all those that may be impacted by a decision or have a role to play in the future management of flood risk (either their own or others) appropriately involved? Is their involvement purposeful and meaningful; to them and to you?*

An adaptative approach: Requires us to explore an uncertain future and to develop plans that make sense given that future. *How might it be different from today? What are the opportunities and risks? How do we reduce the risks and realise the opportunities? Where and when are the key decision points? Is innovation being given space to flourish or is it being stifled?*

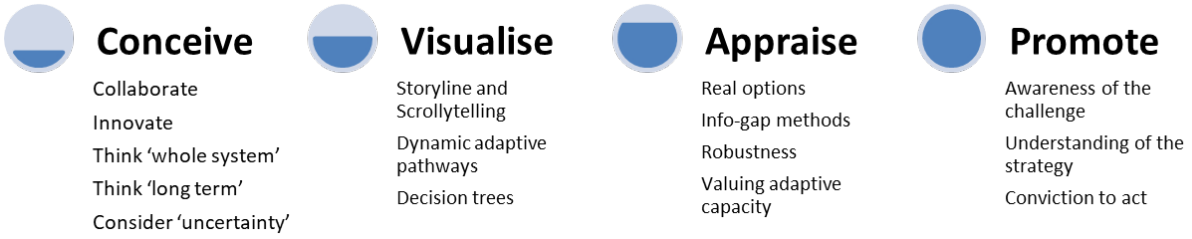

Figure 2 Making adaptation happen in practice is only limited by our innovation

A continuous dialogue: Adaptive plans and priorities change in unexpected ways. Mutual learning and an iterative process of deliberation to evolve priorities and actions is central to success of continuing to maintain resilience. *How will future choices be made; who will make them? How have you laid the foundations for those to be maintained under review, as stakeholders, preferences and experiences change?*

Record the approach to each enabler and, most importantly, the rationale for that approach.

References

Sayers P, Gersonius B, Leijstra M, Ozerol, G, Nurgah E (2020) Cloud-to-Coast Adaptation: Enabling a climate resilient future. Concept note. Published as part of the Interreg C5a WP3. Here

Acknowledgements

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