

Using future scenarios to inform engagement planning

Working together to adapt to a changing climate: flood
and coast

FCERM Research & Development Programme
Research Report

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FRS17192/8

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If you have any comments or questions about this report or the Environment Agency's other scientific work, please contact research@environment-agency.gov.uk.

Dr Robert Bradburne
Chief Scientist

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Executive summary

This report summarises learning from developing and trialling a scenario development exercise. This method was used to bring stakeholders together to develop future scenarios and assess their implications for engagement planning in the coastal location of Hemsby, Norfolk. It was created as part of the research project '[Working together to adapt to a changing climate: flood and coast](#)'.

The report describes **what scenario planning is and how it is relevant for engagement planning**. Scenarios are stories about possible futures. They help to imagine likely social, economic or environmental developments in a given context, taking existing trends and contextual information as a starting point. A collaborative process of scenario development can help groups of stakeholders to anticipate and plan for possible futures. The main purpose of the exercise in Hemsby was to explore how flooding and coastal erosion risks might evolve over time, what kinds of impacts these might have on Hemsby, what options there might be for risk management and adaptation and, in turn, what each scenario might imply for engagement with different stakeholders.

We explain some of the **considerations that informed the specific scenario planning exercise carried out in Hemsby**. These included the timeframe for the scenarios and the scope of issues to be considered within the scenarios; whether the focus should be narrowly focused on flooding and coastal erosion, or should also include other social, economic, political and environmental issues. It also included the kinds of information and expertise that would be needed to ensure that the scenarios were realistic and plausible; and the number and types of people who should be invited to participate, to ensure the presence of relevant knowledge and perspectives while keeping the process manageable.

A **descriptive overview of 3 scenario planning workshops** is provided, detailing their purpose and scope, and providing some information about what happened within each. The first workshop focused on identifying and categorising local, regional, national and wider factors likely to influence flooding and coastal erosion risks and responses to them. The second workshop involved creating alternative future scenarios focused around 2 factors considered to be most important:

the timing/severity of environmental change: how quickly and how much the risks of erosion and flooding change in the context of global warming

the timing/certainty around funding for the rock berm scheme: whether and how quickly the rock berm gets permissions and funding, such that short/medium protection is in place against some aspects of environmental change

Each scenario took a specific starting point, for example, the rock berm is delayed in a context of slow environmental change, and explored the social, economic and other implications of this using visual mapping techniques. The third workshop focused on identifying and discussing what the scenarios suggested for engagement needs and possible interventions.

Finally, we present some **important points of learning** from this pilot exercise:

- **The value of creative, safe and structured spaces for exploration:** how the opportunities for a range of stakeholders to interact and freely discuss issues outside the normal parameters of debate or roles supporting mutual education and understanding, built relationship and mediated divergent perspectives.
- **The value of looking ahead:** how the process allowed participants to recognise the potential for future developments or consequences that were not so obvious.
- **The value of thinking systematically:** how this systematic approach is particularly beneficial in the context of flood and coastal risk management/engagement. The process enabled a range of stakeholders to create a more holistic understanding of local issues and dynamics, to see how decisions taken (or not taken) now can influence longer-term trends, to see the impact of local decisions at larger geographic scales and vice-versa, to see how actions to address one problem can lead to unintended consequences or possible points of intervention.
- **The value of diverse perspectives:** how drawing on a mix of specialist practitioner and academic expertise, together with knowledge drawn from and about the local community, supported critical inquiry and problem solving.

The report concludes with some summary points for those who might consider developing a scenario planning exercise of their own.

Introduction

About this report

This report summarises learning from developing and trialling a scenario development exercise. This method was used to bring stakeholders together to develop future scenarios and assess their implications for engagement planning in the coastal location of Hemsby, Norfolk. It was created as part of the research project 'Working together to adapt to a changing climate: flood and coast'. The report describes the exercise that we developed, including design and implementation considerations, and highlights learning points.

The report is aimed at anyone who is interested in innovative methods through which communities, authorities and other stakeholders can work together to increase understanding and plan for future flood and coastal erosion risk. It should be particularly useful for engagement staff in risk management authorities and third sector organisations. It may also be of interest to individuals and community groups interested in or concerned about future planning and decision-making on these issues in their local area or beyond.

The purpose of this report is to:

- give an understanding of what we did, how and why
- provide points to consider when conducting a scenario development exercise
- demonstrate how the exercise could work in practice ¹

Where the report has come from

This report is a final product of the action research project 'Working together to adapt to a changing climate: flood and coast'. The project was funded by the Flood and Coastal Erosion Risk Management Research and Development Programme (Environment Agency, Defra, Welsh Government and Natural Resources Wales) and implemented by the research and engagement company Icarus.

The research is a response to concerns about the impacts of climate change and the likelihood of significantly higher levels of risk to communities due to increased flooding or coastal erosion. It aimed to explore how authorities can engage effectively with

¹ Nothing in this report implies (a) any additional duty on the Environment Agency, Defra, Welsh Government or Natural Resources Wales to engage with or consult authorities, partnerships, or wider communities or (b) any requirement for, or undertaking by, the Environment Agency, Defra, Welsh Government or Natural Resources Wales to carry out engagement or consultation in accordance with the methods in this report.

communities on these issues, particularly where options for addressing increased risk may be complex or contentious.

The project is providing evidence for the implementation of the new Flood and Coastal Erosion Risk Management (FCERM) Strategy for England. Findings from the evidence review are featured in the strategy, along with a measure to share learning from the project. The research also addresses aspirations to make people and places central to decision-making and increasing local resilience to climate change.

The action research project included 3 phases:

1. a review of evidence on community engagement on climate adaptation (2018), to inform:
2. designing and implementing an innovative community engagement programme (2019 to 2021). Local communities and organisations were invited to apply to take part, and **2 pilot locations** were selected:
 - Caterham on the Hill and Old Coulsdon, Surrey and London Borough of Croydon - experiences surface water flooding
 - Hemsby, Norfolk – experiences coastal erosion and storm surges
3. bringing together, reflecting on and documenting learning and practice (2021 to 2022)

Co-design and collaboration were integral to the project. This included setting up steering groups in each pilot location made up of authorities and residents. The steering groups helped to develop and trial a local engagement programme. The project took an action research approach, documenting learning throughout and adapting the work programme accordingly. Two-way learning was also instigated through quarterly webinars with a group of almost 200 FCERM practitioners. A project board including representatives from the Environment Agency, Natural Resources Wales and local authorities helped to steer the project throughout.

It is worth noting that different participants had different levels of involvement and influence throughout the project. Icarus led the implementation of the project and wrote these reports. The use of 'we' refers to the authors unless otherwise specified.

There are a number of products from the project that reflect on the research findings and learning and provide detailed information about the tools developed and tested. These are available on the [project webpage](#).

Report structure

Section 1 provides background on both our pilot location and what scenario planning is and why we decided to pilot the use of this method. Section 2 explains some of the issues and parameters we considered in planning and designing the scenario workshops. Section 3 provides a description of the exercise that we developed, and the factors and assumptions that informed its design and implementation. Section 4 of the document reports and reflects on what we learned from the process. We conclude with a series of

prompts or considerations for those who might want to try a similar process in their own context.

1. Background

The pilot location

Hemsby is a coastal village on the Norfolk coast, just to the north of Great Yarmouth, which experiences coastal erosion. It has a population of 3,275 in an estimated 2,250 households (UK Census 2011).

Hemsby is fronted by vegetated, soft dunes, and some properties in Hemsby have historically been located on this area of dunes, known locally as the Marrams. In 2013, as a result of the East Coast tidal surge, 5 properties on the Marrams were affected by coastal erosion and subsequently demolished. The coast remained stable until 2018, when after a period of increased storminess and erosion, an additional 12 properties had to be demolished. It is anticipated that the effects of climate change will result in increasing sea levels and an increase in the frequency and severity of storm events, combining to further exacerbate rates of coastal erosion along this section of the Norfolk coastline.

The pilot was chosen as a major capital sea defence was unlikely to be viable in the longer term and Coastal Partnership East (CPE) was keen to explore more adaptive approaches with the local community. CPE is a partnership of 3 maritime local authorities – Great Yarmouth Borough Council, North Norfolk District Council and East Suffolk Council. Each of these councils are coastal protection authorities under the Coast Protection Act 1949 and CPE works on behalf of Great Yarmouth Borough Council to support the community in Hemsby.

The scenario planning workshops took place towards the end of the project in May and June 2021 to support future planning, building on the earlier readiness assessment work carried out during 2020.

Scenario planning

Much strategic planning, policy development and decision-making happens in conditions of high uncertainty where those who are planning or making decisions do not know what might happen as a result of their choices or (in)actions. This is particularly true in flood and coastal erosion risk management (FCERM), where planners and decision-makers are dealing with a range of environmental, social and political uncertainties. Climate change further increases uncertainties, for example, in relation to the speed and impact of rising sea levels on coastal erosion.

Scenario planning is one tool that planners and decision-makers use to manage this uncertainty and try to make more informed, reliable choices. Scenarios can be described in simple terms as stories about possible futures. They help to imagine likely social, economic or environmental developments – what might plausibly happen - in a given context, taking existing trends and contextual information as a starting point. Typically, a number of alternative scenarios are created, to reflect the fact that there will always be

different possible futures. Scenarios are not predictions and do not eliminate uncertainty. They can help to anticipate how a situation might develop over time and can generate insights into the possible consequences of certain choices, actions or trends.

There are many existing guides to scenario planning and we have added some resources at the end of this document for further reference. Some approaches are very scientific and expert-led, for example, using computer modelling or other forms of research as the basis for scenario-development, such as the [Intergovernmental Panel on Climate Change](#) (IPCC) climate scenarios. Other approaches are more focused on the social process of scenario creation as a tool for engaging groups of people in discussion about possible futures. Scenario planning can take place over weeks, months or years. It can address issues of varying scope and complexity, and at very different scales (local, regional, national, international). In short, there are many different approaches and purposes for scenario planning.

The decision to develop and test a scenario exercise resulted from conversations with CPE. We had already completed a readiness assessment exercise in Hemsby as part of the project. The readiness assessment had helped to develop a better understanding of whether, and to what extent, communities, authorities and partners are ready to take part in planning and decision-making related to complex future adaptation challenges associated with climate change, including the possibility of increased flooding and coastal erosion.

While this readiness assessment work was going on, CPE was also in the process of developing an outline design for a rock berm to protect a length of Hemsby's shoreline and properties from further coastal erosion over 20 years. Good progress was being made in the consultations and design planning around the proposed rock berm, but there is still significant uncertainty around whether funding can be secured and how long it might take to secure the necessary funding. If there are delays or the berm is not built various things might happen. The coast will continue to erode or a major storm event could take place. In short, planning and decision-making is happening in a context of high uncertainty. Discussion with CPE highlighted how there could be a range of potential different futures/scenarios for Hemsby, each with its own implications not just for Hemsby itself, but also for how Great Yarmouth Borough Council and CPE might involve local residents and businesses in conversations about the future of Hemsby.

In this context, it was agreed that it could be useful to carry out an exercise to explore in a more systematic way some of the most likely future scenarios for Hemsby. The purpose of the exercise would not be to make any decisions, but to help CPE think about what kinds of community engagement might be needed or appropriate over the long term and in response to different situations. There was recognition that engagement is often responsive in nature, and that it could be helpful – given the uncertainties in Hemsby – to try to anticipate and plan for different possible situations. We also wanted to encourage conversation about what engagement means, what it is for or what forms it might take, through a better understanding of the needs of authorities, communities and partners in

different scenarios. In other words, when is engagement about giving information, creating spaces for deliberation or building skills and capacity?

In summary, the main purpose of this exercise was to explore how flooding and coastal erosion risks might evolve over time, what kinds of impacts these might have on Hemsby, what options there might be for risk management and adaptation and, in turn, what each scenario might imply for engagement with different stakeholders.

The results of the scenario planning exercise could then be used to support CPE and other main organisations in their engagement planning for Hemsby. At the same time, because this was happening as part of a larger project, we also intended to identify learning and good practice that might be applied in other locations.

2. Scenario design considerations

This section explains some of the issues and parameters we considered in planning and designing the scenario workshops. This was quite a time-limited exercise, carried out during one of the Covid-19 lockdown periods. As such, we had to define clearly what the purpose, scope and timeframe of the activity would be, who would participate, and how we would ensure that the activity was both meaningful and could be carried out.

As explained earlier, scenario-based planning can take many forms, from in-depth processes taking place over many years to quite simple, time-limited exercises. It can be more or less participatory in nature, led primarily by specialists or as a process to engage a wider group of people. It can be very science-driven, using data and modelling to produce robust future scenarios, or it can be more imaginative, with emphasis on the process of discussion and exploration rather than the outputs. The following briefly highlights some of the considerations that informed the design of this exercise.

Timeframe

Scenario planning can be done for a range of different time periods and it is important to consider how far into the future you want to look. For the exercise in Hemsby, in discussion with CPE, we decided to work with a nominal timeframe of about 25 years. This related to the known lifespan of the proposed rock berm. It would allow exploration of the implications of a relatively short-term protection measure reaching the end of its useful life, especially given the potential for risks associated with climate change (for example, accelerating sea level rise or more severe storms) to reduce the level of protection offered by a rock berm over time. The timescale is also long enough that societal responses to climate change are likely to be clear, that is, whether or not societies will take effective action to curb carbon emissions and prevent worst-case scenarios for global warming. Finally, 25 years also seemed immediate enough to allow participants to see connections between decisions taken in the next few years and the impact of those decisions.

Scope

In terms of scope, we considered the extent to which the scenario planning exercise should explore social and economic aspects of Hemsby's future. The latter question reflected learning from the readiness assessment which suggested the importance of considering trends in a more holistic way, for example, to understand the interaction between decisions on the uses of development land (to meet needs for affordable housing) and options for adaptation (keeping land available for relocation, if necessary or feasible in the future). On the other hand, if the scope was too broad or long, it could make the exercise unmanageable or less relevant to participants.

After discussion with CPE, it was agreed that we would allow a relatively open exploration of factors that might influence Hemsby's future development, with a focus on

flooding/coastal erosion, but not excluding other issues. Indeed, we wanted to explore the possibility of using the scenarios to highlight connections between different issues, options and decisions. Does the method support or encourage more holistic, systemic thinking about risks and responses? In line with scenario planning methods, we articulated the scope of the exercise in an overarching question:

‘What are the main factors we would like to know about in order to anticipate and understand engagement needs, challenges and opportunities [for people, the economy and the environment] in relation to the management of flooding and coastal erosion in Hemsby, and in the context of a changing climate?’

Validity and realism

Another important consideration was how to ensure the scenarios were sufficiently plausible and realistic, while allowing for creative and open exploration. If the scenarios were too far-fetched and/or detached from the actual context, they would not be taken seriously by participants and would have limited value for any subsequent planning activity. On the other hand, we didn’t have the time or resources to commission new research or create very detailed, data-informed scenarios.

Since our purpose was primarily to open up and support conversation, it was important to ensure that we had relevant expertise among the participants taking part in the scenario planning workshops: understanding of climate change, of flooding and coastal erosion risks locally, and understanding of the Hemsby community and local trends. From working with CPE and other stakeholders in the Hemsby area for over 2 years and from carrying out the readiness assessment exercise we had collectively developed a good understanding of local issues and relationships. We’d also identified important contacts, including members of the local community who could bring the expertise we needed to make the exercise work.

Time and resources

Our exercise had to work within certain time, resource and situational parameters. Most obvious were the Covid-19 restrictions in place at the time, making any face-to-face activity impossible. All activity had to be designed to work online, using Zoom and a collaborative online whiteboard. We also had a limited amount of time left within the project and were mindful of the constraints on the time of the people we were working with. After reviewing different scenario planning methods and the main steps that these generally entailed, we decided on 3 two-hour workshops, with each one dedicated to a main step in scenario development: clarifying the factors that are influencing or are likely to influence change, developing scenarios/storylines, and discussing the implications of the scenarios. The workshops would be spaced out over a few weeks to allow for some thinking and development in between. From experience of running meetings and workshops online during the pandemic period, and knowing how tiring it can be to work

online, it was decided that 2 hours was the optimum time for productive work in an online setting.

Participation

Finally, we considered who should participate in the workshops. This was partly informed by the stakeholder analysis carried out with the local project steering group at the beginning of the pilot work. We wanted to have the right expertise and experience present, to ensure that the scenarios were grounded and plausible. A diversity of perspectives can also help encourage more critical thinking, including exploring less obvious issues or pathways and questioning assumptions and previously accepted wisdom. At the same time, if part of the value of a scenario exercise lies in creative and imaginative engagement with issues that might be unfamiliar, complex or controversial, it is important that participants feel safe and comfortable in expressing their ideas. While facilitators can play an important role in creating a good environment for discussion, this also depends on having participants who are willing to enter the spirit of the activity. In selecting people to take part, we had an initial conversation with each person individually to explain the process we would be using for the workshops, consider who else might be involved, and explore their appetite to get involved in developing a range of different scenarios.

In the end, and because the workshops would be online, we decided on a limit of 12 people and invited a mix of practitioners involved in flood and coast risk management, community engagement, local planning and academic work on climate change/adaptation, plus local community members representing business and local governance. Some participants brought multiple perspectives as both residents and representatives of organisations or businesses.

3. Process

We arranged 3 workshops, each of which was dedicated to specific tasks. The first workshop focused on clarifying the main factors we needed to consider to develop plausible scenarios for Hemsby. The second workshop focused on developing scenarios – stories about how things might develop in the future – taking account of the main factors and parameters we had agreed on. The third workshop focused on teasing out the implications of these scenarios specifically for engagement planning.

Workshop 1

Most of the first workshop concentrated on collectively deciding what the group saw as the ‘main factors’ influencing flood and coastal erosion risks and their management in Hemsby. This happened as follows:

1. Mapping factors: Using an online whiteboard, participants were asked to generate a ‘long list’ of factors/variables that might be relevant to our overarching question, organised under the following headings:

- Social
- Environmental
- Economic
- Technological
- Political

The working assumption was that an issue like coastal erosion is not purely an environmental problem (for example, because it could impact on tourism, or has potential impacts on mental health and wellbeing), and that managing these issues also depends on the interaction between different factors. For example, the speed and severity of climate change might lead to changes in policy and funding frameworks, influencing what kinds of adaptation measures are possible in places like Hemsby, or it might render some existing sea defence technologies less effective. The headings therefore acted partly as prompts to encourage participants to think of different types of factors (not just environmental ones) and to help categorise what the participants came up with. These specific headings were chosen because they are common and used in other scenario planning tools.

2. Clarifying assumptions: Our second step was making sure there was shared understanding in the group of the different factors and what assumptions we might have about them. For example, if one person specified ‘age demographics’ as a relevant social factor in Hemsby, it could reflect different assumptions – that older people are less concerned about long-term climate-related risks, or younger people in Hemsby are more concerned about developing and protecting Hemsby’s infrastructure. We therefore planned to facilitate discussion around some of the factors that had been added by group

members, focusing on those that were potentially ambiguous or that might mean different things to different people.

3. Prioritising factors: The third task in the first workshop was to make some judgements about which of the factors on our 'long list' might be more or less important for the scenario development. To accomplish this, we ranked the different factors according to the following criteria drawn from scenario planning guides:

- **Level of certainty** – how sure we are that something might happen (low, medium, high)
- **Level of influence** – how significant each factor might be in determining Hemsby's future (low, medium, high)
- **Timing** – when we expect changes to happen (under 5, under 10, under 25 or over 25 years)

4. Planning workshop 2: The final task in the workshop was to review, as a group, where we had got to and agree a plan for the second workshop.

Figure 3.1 shows the factors the group identified, the significance of each (most important near the top), and the anticipated impact of each factor. For example, coastal erosion was clearly (given the focus of the workshop) the most important issue, but this had 2 aspects – how likely it is to happen, and how severe the impacts might be if/when it does happen. With each factor/variable, the table describes different possible trends, for example, the likelihood or severity of erosion and flooding decreases, stays the same or increases. These are, in essence, the beginnings of different scenarios and were used as such in the second workshop.

Figure 3.1: Main factors and anticipated impact, ranked in order of significance

Factor/variable	Lower/slower/less	Same	Higher/faster/more
The likelihood of coastal erosion and flooding	The risk of erosion/flooding is lower.	The risk of erosion/flooding is the same.	The risk of erosion/flooding is higher.
The severity/impact of risk re: coastal erosion and flooding	The severity/impact of risk re: coastal erosion and flooding is lower.	The severity/impact of risk re: coastal erosion and flooding is the same.	The severity/impact of risk re: coastal erosion and flooding is higher.
The timing/certainty of decisions and funding	Funding takes longer than normal to secure.	Funding takes a normal period of time to secure.	Funding is secured more quickly than normal.

Factor/variable	Lower/slower/less	Same	Higher/faster/more
The level of protection offered by the rock berm scheme	The berm offers less than anticipated protection within its lifespan.	The berm offers the anticipated protection within its lifespan.	The berm offers more than anticipated protection within its lifespan.
The accessibility of funding for defences	Rules around funding become more stringent/there is less money.	Rules around funding stay the same/there is similar funding available.	Rules around funding become less stringent/there is more money available.
The inclusion in policies of the need for action in relation to climate change mitigation and adaptation	There is less support for mitigation and adaptation.	There is similar support for mitigation and adaptation.	There is more support for mitigation and adaptation.
Community interest in/concern about climate and coastal change	Community interest/concern about climate and coastal change decreases.	Community interest/concern about climate and coastal change is the same.	Community interest/concern about climate and coastal change increases.
Community agreement on responses to environmental risks	There is less agreement or consensus in Hemsby on protection and/or adaptation.	There is similar agreement or consensus in Hemsby on protection and/or adaptation.	There is increased agreement or consensus in Hemsby on protection and/or adaptation.
Health of the local economy	The local economy is weaker/smaller.	The local economy is about the same.	The local economy is stronger/larger.
Health of the national economy	The national economy is weaker/smaller.	The national economy is about the same.	The national economy is stronger/larger.

Factor/variable	Lower/slower/less	Same	Higher/faster/more
Local development trends/land availability	Hemsby contracts in size, leaving more development land free.	Hemsby stays about the same size.	Hemsby grows, using up more development land.
Age demographics	The average age in Hemsby decreases.	The average age stays about the same.	The average age in Hemsby increases.
Lasting effects of the Covid pandemic	Recovery from the pandemic is slower.		Recovery from the pandemic is quicker.
Government action on climate change	Government is slower to take meaningful action than currently.	Current situation.	Government takes quicker, more decisive action on climate change.

Workshop 2

The focus of the second workshop was to start developing some more detailed scenarios - possible stories about what might happen in Hemsby - reflecting the various factors and influences agreed in workshop 1. However, rather than this being an open-ended exercise as originally intended, we agreed with CPE to develop some starting points for scenario development prior to the workshop. This reflected 2 conditions. First, the work of mapping and prioritising factors was not fully completed in workshop one, making it necessary to do some work between meetings consolidating and clarifying what had been discussed (in Figure 3.1). From that work, it became clear that 2 factors or variables stood out from the conversations as being central to any potential scenarios:

A. the timing/severity of environmental change: how quickly and how much the risks of erosion and flooding change in the context of global warming

B. the timing/certainty around funding for the rock berm scheme: whether and how quickly the rock berm gets permissions and funding, such that short/medium protection is in place against some aspects of environmental change

Second, it had become clear that the 2 hours allocated were unlikely to be sufficient for scenario development, especially since we were working online. For both these reasons, we decided to use the above factors to develop some prompts or starting points for scenario development, to save time and to enable a more guided and focused conversation.

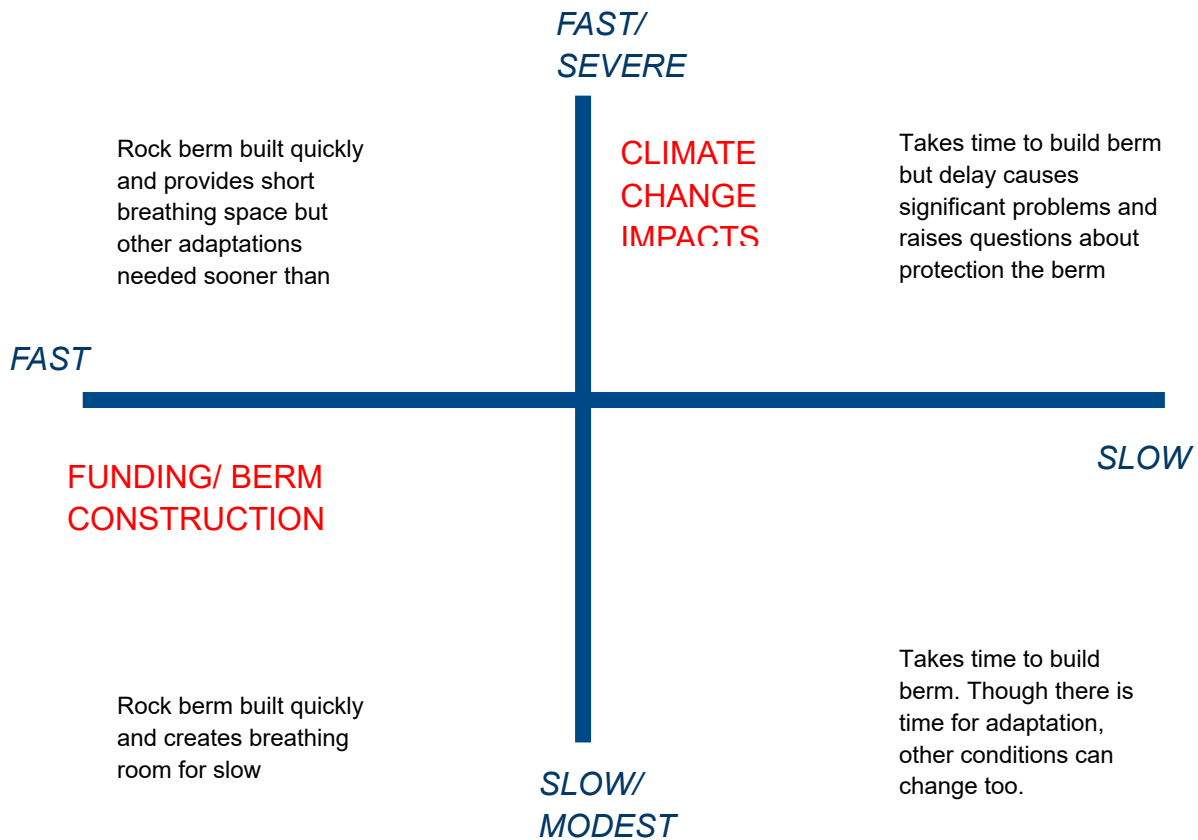


Figure 3.2: Mapping of 2 different factors on a grid

We did this according to established scenario planning methods, by mapping these 2 elements onto a grid – shown in Figure 3.2 – with the timing of funding/building (fast-slow) on one axis, and the timing/severity of environmental impacts (including higher rates of erosion) on the other.

This gave rise to 4 initial storylines which were defined as follows:

Long breathing space: Rock berm gets built quickly and provides a potentially long breathing space for other adaptations.

Short breathing space: Rock berm gets built quickly but other adaptations are needed relatively quickly.

Delayed protection in fast changing conditions: During a period of delay to the funding/building of the rock berm, many circumstances change and with more significant implications.

Delayed protection in slow changing conditions: During a period of delay to the funding/building of the rock berm, circumstances change but there is more time to adapt.

We set up a Mural whiteboard with these 4 scenarios presented as the seeds or starting points for scenario development, with one suggested branching point for each scenario. A branching point showed 2 possible directions in which a scenario might evolve based on

different variables (social attitudes, climate change impacts evidence) – for example, in a more positive or hopeful direction, or in a direction where challenges increase.

These branching points were only suggestions but were selected because they seemed plausible (in relation to the factors identified in workshop one) and likely to generate some interesting discussion. Participants were divided into 2 groups. Each group was encouraged to extend and develop the scenarios in different directions by selecting from and playing with different combinations of the factors.

To further encourage participation, we also provided a worked example based on the first scenario (see Worked example for scenario 1 and Figure 3.3).

This showed how the first scenario reflected an initially optimistic set of conditions (quick funding for the berm, slow to modest climate impacts) where the rock berm would give Hemsby protection from immediate risks and time to plan for the future. However, the scenario evolved according to whether or not this time is used effectively for future planning. This might depend on various factors (highlighted in workshop one), including how community attitudes respond to the rock berm, for example, whether concern about environmental change drops (people are more complacent) or whether people take a long-term view and plan strategies for adaptation. The example explored some possible consequences, for example, complacency might encourage more people to move to Hemsby, strengthening the economy but also putting pressure on housing and land, raising house prices, and potentially limiting options for adaptation in the future.

Worked example for scenario 1: Longer breathing space

Following public consultation and some adjustments to the design of the rock berm, planning permission was granted for the scheme. A successful application for funding means the scheme moves quickly into the implementation phase. Contractors are found in plans for out-of-season construction agreed with relevant parties. An extended period of dry weather allows work to progress quickly, the berm more or less complete before winter starts in earnest.

The worldwide Covid pandemic is finally under control and the UK economy is bouncing back strongly. Despite the fact that people are able to travel abroad freely again, it seems that 'staycations' are here to stay. Tourism to Hemsby and the region is experiencing growth, further justifying the investment made in the berm scheme.

Branching point main variable: social attitudes.

Direction A: there is lower concern about environmental risks due to the perceived security offered by the rock berm.

Direction B: concern about environmental risks increases due to climate change evidence.

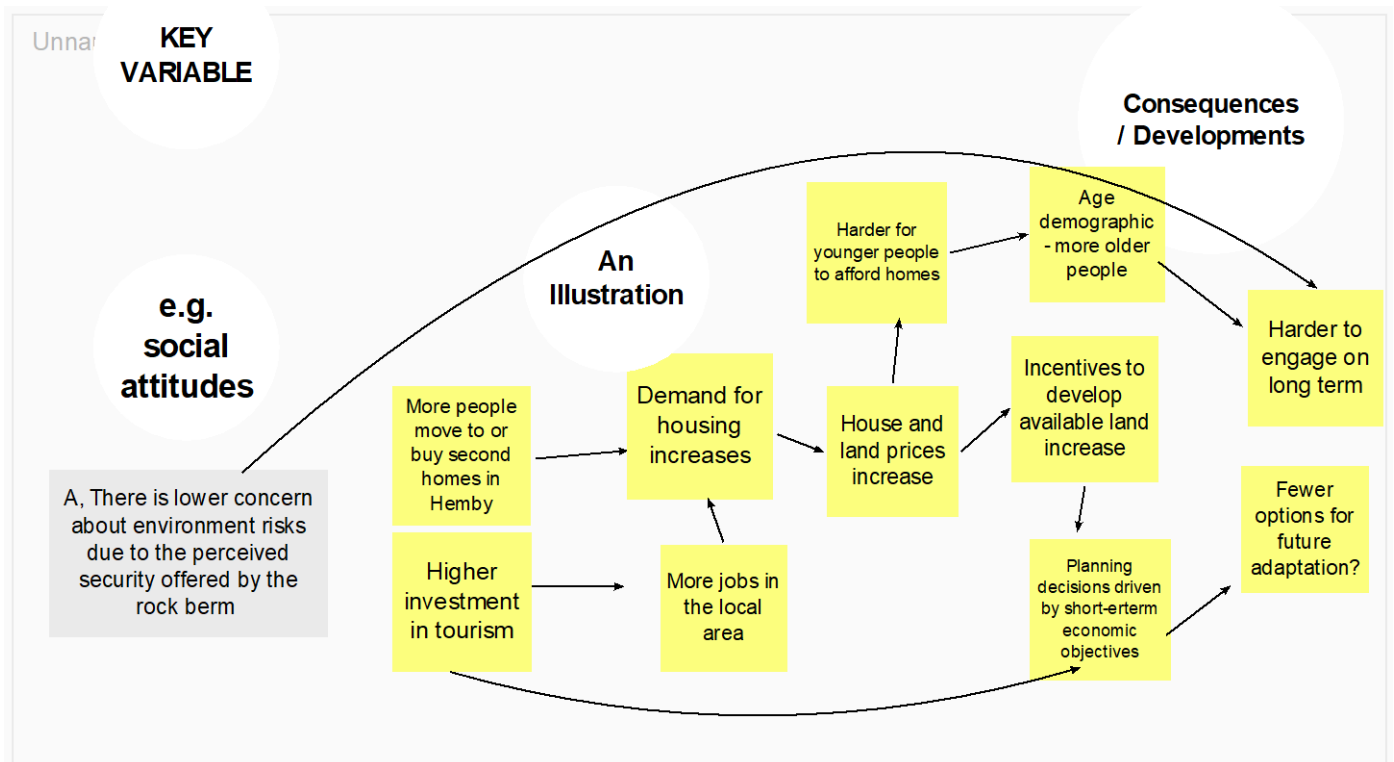


Figure 3.3: Worked example based on a branching point for scenario 1

Participants were encouraged to think as creatively as possible, remembering that the scenarios are just imagined storylines. They are not predictions but explorations of ‘what if’ in relation to each of the 4 broad factors. We split the group into 2 smaller groups, with the hope that this might allow development of all 4 scenarios. Both groups independently chose to work on the same 2 scenarios, and that was all that was possible in the time available. Nevertheless, each group generated very rich, detailed storylines. The conversations that participants had in the course of developing the scenarios were very productive and useful – in some respects, the process was as important as the product/outcome.

Workshop 3

The third workshop took the scenarios that were developed as starting points for conversations about engagement challenges. Because the scenarios show very clearly how a situation might develop in a place – how one decision or event might generate specific consequences within or for Hemsby – they also highlight possible points where an intervention might be needed or possible. This is of particular relevance for engagement planning: where might it be necessary or important to support communities, authorities and partners in anticipating changes, making decisions, responding to changing conditions? Put another way, creating the scenarios allows different possible engagement needs under changing conditions to be identified.

As such, this workshop had a more directly practical purpose: it was intended to support the work of CPE and other related authorities in thinking about what engagement needs, opportunities or challenges might be associated with different scenarios. For example, if there is a scenario where the rock berm was approved but did not receive funding, what kinds of engagement might be needed or helpful?

We again pre-prepared a Mural whiteboard for the workshop. We copied the work done in workshop 2 but added a further section with specific prompt questions about engagement. Experienced engagement practitioners will recognise these questions as fundamental to engagement planning – the why, who, when, what of engagement.

- Purpose: What do we need to engage on, and why?
- Audience: Who do we need to engage with?
- Timing: When do we need to engage? At the start, throughout?
- What would enable engagement to happen in response to these needs? Are there factors that could provide ‘hooks’?
- What might make engagement challenging in relation to these needs?

Participants were split into the same 2 groups as for workshop 2, asked to select one of the scenarios they had developed in the previous session and to work through the prompt questions set out in table format. For example, if the groups recognised a specific moment in their scenario (the rock berm doesn’t get funding), they would determine what the purpose of engagement might be at that point in time, who would need to be engaged and when, and so on. This was obviously speculative, but it nevertheless encouraged a conversation that doesn’t often happen: about engagement in the future, and in different possible circumstances. It also led to discussion about the community’s role in meeting the ‘engagement needs’ that were identified in the scenarios.

Once again, time didn't allow for exploring all the scenarios in full. It was an illustrative exercise, showing how this approach might be used by organisations with interests in or responsibility for FCERM engagement. The intention was that CPE would continue with its engagement planning, building on the work done in these workshops. We did make time to more generally reflect on and discuss the exercise within this third workshop and in separate debriefing conversations with CPE.

As outlined earlier, the recent focus of CPE's engagement in Hemsby has been in relation to the potential construction of a rock berm to reduce the impact of coastal erosion. However, moving forward, CPE envisages that scenario planning could be used to support conversations with the wider community to develop and consider different potential futures for Hemsby, and what those might mean for residents, businesses and visitors in Hemsby.

4. Learning from the scenario planning process

In addition to holding a short, immediate debriefing after each session, we also organised some structured reflection through 2 mechanisms – a participant survey questionnaire, and a guided conversation with selected participants, both designed and led by Icarus. The points that follow are informed by this feedback as well as our own observations and experience.

The value of creative, safe and structured spaces for exploration

As the following comments suggest, one of the strongest themes in the feedback was the appreciation of the opportunity to explore some issues relating to Hemsby's future in a relatively open way, to think 'outside of the box' without discussion being linked to any specific decision or outcome.

- Really valued being given permission to think creatively and imaginatively, rather than having to think about what actually might happen/be feasible.
- It was releasing to be able to go off at different tangents without having to be careful about what you say, which you sometimes have to do in community or political meetings. Because it's in a scenarios context, you can just think about all the different knock-on effects in a safe environment.
- You weren't constrained by whether something is feasible or not, but the process/group discussion did allow for some collective 'filtering' of ideas/thoughts as part of helping to develop the scenario, rather than putting every single idea/potential knock-on effect into the scenario.
- It was good to work through a range of different scenarios without feeling a sense of pressure – we could just have a good discussion about what might happen, what could 'pop up from left field.'
- Was good to have a mix of different people with different knowledge and experience in the group → helped generate a better discussion than having single interest groups, for example, officer only, councillor only.

This seems particularly valuable in places like Hemsby, where there are significant and yet uncertain risks associated with climate change; where discussion of these risks or the options for responding to them can generate strong feelings; and where any subsequent engagement activities would need to be designed to support communities to discuss and explore a range of challenging topics. We had seen in the readiness assessment that some sections of the community are understandably very anxious about coastal and climate change issues. Significant numbers in the community see the building of a rock berm as so vital to the future of Hemsby that discussion of other options for adaptation might be depicted as a form of betrayal, yet others seemed quite fatalistic or unconcerned.

We had also noted that there were different levels of knowledge and understanding both about climate change risks and options for responding to them.

We would suggest that in such contexts of varied perspectives and strong emotions, exercises like the one we ran have several functions:

- **They can help with mutual education.** Misinformation or misunderstandings could be addressed by those with expertise on environmental, legal or technical issues, or by those with relevant local, situational knowledge. The small size of the groups supported a quite direct sharing of knowledge and testing of ideas.
- **They can help mediate divergent perspectives.** The nature of the scenario workshops required or encouraged more objectivity from participants: they had to focus on completing a shared task (creating valid scenarios) rather than exchanging personal or political views. This helped create a different space for encounter between the participants.
- **They can help build relationships and mutual understanding.** Although the participants were mostly known to each other in this case, one commented that the workshops made it possible to participate and interact in a different way, outside of their normal roles and positions.

Of course, many workshop/dialogue exercises can support similar functions. **The particular value of the scenario exercise derived mostly from the permission it gave to participants to consider a set of problems outside the normal parameters of debate.** Participants were not considering whether or not Hemsby should have a rock berm, or how to make this happen, or who is responsible for protecting Hemsby's assets. The exercise allowed participants to ask and consider some different questions.

The value of looking ahead

A related strength of the scenario exercise was that **it allowed participants to recognise the potential for future developments or consequences that were less obvious.** Several participants commented on this anticipatory aspect of the exercise, especially in terms of identifying outcomes that would best be avoided:

- Looking at the 4 quadrants, any of them could be possible, but what is interesting is then thinking about whether we want to end up in any particular quadrant and, if we don't, what can we do collectively to avoid 'landing' in one of the more negative places.
- Has helped clarify some thoughts and identify some potential focus areas to concentrate on and/or highlight potential knock-ons that we'd really want to avoid becoming a reality.

This approach broadened the terms of discussion in a meaningful way. In particular, it showed that building a rock berm is unlikely to be the end point of adaptation efforts for Hemsby, whatever benefits it might bring in the short to medium term. This also fed through into discussions about engagement planning in the third workshop. As well as

highlighting the fact that the kinds of engagement will be different in different scenarios, participants concluded that ongoing engagement and conversation about adaptation will be important, especially given the uncertainties surrounding the berm. This could provide a route into discussions between authorities and communities about the potential for adopting an adaptation pathways'² approach to planning for climate change in Hemsby. This approach analyses possible future climate scenarios, aiming to develop a range of options that could be taken for a particular place over time which anticipate and respond to the different scenarios.

The value of thinking systemically

In the process of creating and prioritising the list of factors driving change in Hemsby, the group (without necessarily realising it) developed a systemic view of risks and adaptation issues in their community. This was partly encouraged by the design of the exercise – by the fact that we asked participants to identify social, economic, environmental, technological and political variables that might influence flood and coastal erosion risks in Hemsby, and the responses to them. In itself, that question already suggested that an issue like flooding and coastal erosion is complex and has multiple, interacting dimensions. But the task also encouraged participants to explore the 'relationships' between the different factors: why and in what ways factors might influence the direction of change. For example, if someone identifies social attitudes as a factor, this requires explanation: how might social attitudes influence change or indeed be influenced by other factors? We discussed how relevant social attitudes (levels of concern about environmental risks, for example) might be influenced by environmental conditions (such as growing evidence of climate change risks), economic factors (economic downturn or prosperity), or politics (support or not for adaptation), but also that social attitudes might themselves influence policies or decision-making in Hemsby. Each factor on the table we created clearly sits in relationship with many others, and sometimes in surprising ways.

The second workshop took this further. In developing the scenarios, participants were essentially asking questions about causal relationships: what might happen as a result of a given event, action, trend, policy or decision? The scenarios that emerged were quite 'messy', but this messiness simply reflects the presence of and complex interactions between multiple factors in the Hemsby social-ecological system. By using arrows to draw connections, participants made more explicit their assumptions about relationships and the nature/direction of influences.

² Adaptation pathways – also known as adaptive pathways, are ways to develop a long-term climate adaptation plan for a place, often to the end of the century or beyond.

Why is this systemic approach valuable or potentially valuable in the context of flood and coastal risk management/engagement?

- It encourages participants to see a bigger picture: what happens in Hemsby is related to influences operating (to different degrees) at local, regional, national and global scales.
- It enables shorter and longer timescales to be considered together, including the relationship between immediate actions and distant outcomes. This approach can therefore be particularly valuable in helping people to think about the longer term, when they may have much more immediate concerns. Similarly, it can highlight the impact of local decisions at larger scales and vice-versa, reminding local stakeholders that practitioners in risk management authorities are often working and balancing priorities across larger areas.
- It supports recognition that addressing a problem (such as coastal erosion) in isolation, without considering other factors, can lead to unintended or unpredictable consequences. Likewise, it reminds us that there are rarely perfect or no-consequences solutions – all the choices we make can impact on other parts of the system.
- It helps to identify possible/additional points of intervention – again, anticipating potential and unwanted changes can support planning for alternatives.
- It can encourage recognition of the need to be flexible and adaptable in conditions of uncertainty, and to keep reviewing situations and assumptions.

The value of diverse perspectives and expertise

Participants told us that they valued the mix of perspectives and expertise within the group and the opportunity for communication between people who might not normally interact and where everyone was 'on the same level'. The discussions were richer and the scenarios more plausible because they drew upon a mix of specialist practitioner and academic expertise, together with knowledge drawn from and about the local community and context. It was important that the exercise was grounded in local realities, but also that there were perspectives from outside and one that could highlight external trends and influences. It was important to achieve a good measure of objectivity, but to also recognise the particular characteristics of Hemsby as a place with a distinct culture. Diversity helps to ensure that certain voices or perspectives do not overly dominate and supports the possibility of more critical inquiry and problem-solving.

It is worth mentioning here that although the members of Icarus had limited prior experience with scenario planning methods, their experience as educators and facilitators working on related issues was quite important to the process. Having a mix of participants is important, but by itself does not guarantee productive discussion. The design of the exercise and the management of the process and discussion by facilitators will also shape the experience.

Time requirements and commitment

Many comments in the feedback suggested that it would have been helpful to have more time in all the workshops. All the tasks involved quite substantive discussion, and we didn't complete any of the exercises in full during the online workshops. If we were running the exercise again, especially if the workshops were being held face-to-face, we would certainly allocate more time for each activity. At the same time, it is worth noting the difficulty in securing commitment from busy practitioners and community members. It was also challenging enough to concentrate and work collaboratively online. One consideration here is whether the value in the exercise came mostly from experiencing the method and a different way of approaching a set of issues, rather than from producing a complete set of scenarios. The point here is to be clear about the purpose and intended outcomes. For our purpose, the time was a bit limited but not to the extent that the main objectives were not achieved.

Language and inclusion

Some participants fed back that the language of 'factors' in the first workshop was confusing. In hindsight, we either needed to provide a clearer explanation of what we meant by a 'factor' or to use different language. This was a more challenging side of the process and the range of experience in the group, as the time pressure made it difficult to allow sufficient time for explanation and checking participants' understandings before opening up for discussion, even with the advance briefing notes that were produced before each workshop.

The larger and more diverse a group, the more thought would need to be given to questions around inclusion. Our exercise started from a premise that climate change is happening and has important implications for places like Hemsby. We did not invite participants who deny manmade climate change, so our exercise was not inclusive of all views that exist in the community. We consider this justifiable given that ours was a pilot exercise, but if it was being repeated for larger or different audiences, more thought would have to be given to managing more complex diversity.

Conclusion

This report has described the development of and learning from a scenario planning exercise carried out with stakeholders in Hemsby. Its purpose was to inform future engagement planning around flood and coastal erosion risk management/climate adaptation. It was a limited exercise carried out within a number of time and resource constraints, and under the conditions of the Covid lockdown. The exercise drew upon existing approaches to and learning about scenario planning, but adapted this according to the specific purpose and context of this project. If there is any particular innovation in the exercise, it was in the connection made between scenario planning and engagement planning. The exercise highlighted various reasons why this approach could be valuable for both authorities and communities. It would be interesting to carry out further activities to explore the application of scenario planning in different contexts and conditions, including some longer and more detailed exercises embedded within other engagement projects.

The report concludes with some summary points for those who might consider developing a scenario planning exercise of their own.

Define your purpose: Be clear about what you might use a scenario planning exercise for. Clarity of purpose will inform all other decisions.

Clarify the scope: An exercise is more likely to be useful if it has clear parameters. This requires thinking about what geographic area might be covered, the time period under consideration, and the range of issues or factors that are relevant. The process of writing a focus question can be very helpful in both determining and communicating the parameters of the exercise.

Consider diversity: Think about what kinds of expertise and experience will be useful in relation to the purpose, and that will enable productive discussion and learning. Consider if there are choices or trade-offs between making the process effective and making it inclusive, and how you would justify and manage your choices.

Encourage creativity: Scenario building is an imaginative process that requires people to suspend or test their assumptions. Think about how you will create a safe, relaxed space online or in person that will support creative exploration.

Consider the whole system: Encourage participants to make connections between different issues and factors, and to think outside their own professional or personal perspective. Scenarios will be richer and more useful if they represent the complex relationships between elements.

Use a facilitator: Having a person specifically prepared to facilitate can be essential not just for ensuring the process runs smoothly, but for encouraging more probing, critical discussion. A person who is independent of the context or issues, and who has prior experience of facilitating similar activities and around issues that might be contentious, would be most suitable. Using an independent facilitator, either externally appointed or from within another team in your organisation also enables everyone involved to take part

in the discussion. A facilitator also acts as a neutral, impartial person in the process, which can be particularly beneficial in situations where there is disagreement among participants.

Be prepared: Recognise that workshop planning requires time, sufficient resources and appropriate expertise/experience. Preparation in the design phase might require learning more about scenario planning, learning more about the context of the scenario work, and developing contacts and relationships with stakeholders. Our exercise took place after 2 years of working in Hemsby and following a readiness assessment exercise that generated many insights into the local context. That knowledge and connection was very helpful and important. If you are holding multiple workshop sessions, as in this example, it's also important to allow time between sessions for those designing/facilitating the process to review the material generated and prepare material for the next session. This may require expertise and input from those with knowledge and expertise of the context you are exploring in your scenario, for example, climate change adaptation.

Be flexible: It might be necessary to adapt or amend aspects of your exercise, depending on what happens at each stage. This also means that there needs to be some ownership and leadership of the process throughout, with the capacity to do further work, writing up materials from workshops, consolidating learning, preparing inputs, and clarifying the focus/objectives of further sessions.

Useful resources

COPEMAN, C., 2006. Picture This, a guide to scenario planning for voluntary organisations. NVCO. ISBN: 0 7199 1695 X.

LOW CHOY, D., SERRAO-NEUMANN, S., CRICK, F., SCHUCH, G., SANÒ, M., VAN STADEN, R., SAHIN, O., HARMAN, B. AND BAUM, S., 2012. Scenario Planning for Climate Change Adaptation, unpublished report for the South East Queensland Climate Adaptation Research Initiative, Griffith University.

MOORE, S.S., SEAVY, N.E. AND GERHART, M., 2013. Scenario planning for climate change adaptation: A guidance for resource managers. Point Blue Conservation Science and California Coastal Conservancy.

Glossary

Adaptation to flooding and coastal change – Anticipating appropriate action to prevent or minimise the likelihood and consequences of flooding and coastal change, both now and in the future.

Adaptation pathways – Ways to develop a long-term climate adaptation plan for a place, often to the end of the century or beyond.

Authority – An organisation with official responsibility for a particular area of activity. This particularly includes government organisations.

Climate adaptation – Changing lifestyles, economy, infrastructure and local places to make us more resilient to the future consequences of climate change.

Community – Residents, businesses and groups living or based in a particular area.

Flood and coastal resilience – The capacity of people and places to plan for, better protect, respond to, and recover from flooding and coastal change.

Partners – Individuals, groups and organisations that help to carry out a particular area of activity. This includes private and third sector organisations.

Practitioners – Individuals working within authorities.

Readiness – How prepared people, communities and organisations are, in this context, to engage in conversations about and planning for the long-term response to increasing flood and coastal erosion risks due to climate change.

Readiness assessment – A tool for measuring how prepared you/your organisation and local stakeholders are for engaging in conversations, planning and action for climate adaptation in particular areas.

Risk management authority (RMA) – Organisations that are responsible for managing the risk of flooding and coastal erosion. This includes public and private sector organisations.

Stakeholder – Any individual, group or organisation that believes they could be affected by, interested in or could affect or influence the project or issue.

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