

A 'Scenario Planning' Tool

Use for exploring adaptations to climate change at the coast

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1. Introduction

'Scenarios' were first developed in the mid-19th © as a military tactics tool.

Scenario planning is a well-established tool in the business world and is now used (with modifications) in the field of climate change science.

Scenario planning begins by 'painting a picture of the future' at a given date (say 2035) and usually for a given location. Starting from baseline models which are conceived and discussed (typically) by a steering group; scenarios ask a series of "what if?" questions covering themes ranging from future access requirements, or the impacts of sea level rise to possible political and economic drivers. (Appendix 1 gives a list of issues and topics that might be considered.)

There is no limit to the subject areas ('layers') that can be included. A key requirement however is that any future-facing scenario(s) should be totally plausible in terms of the picture being painted. It is a weakness in scenario planning that some aspects of the future will always be hidden from us and can come as a surprise but this does not negate the overall value of the tool. Nevertheless, if the 'picture' is too fanciful or far-fetched, it becomes unrealistic to expect stakeholders to comment upon it effectively.

Sustainable coastal management, both for people and the environment is going to be complex and challenging through the 21st century. There is already an identified need for societal change and this requirement is summarised (as far as climate change is concerned) in two concepts: adaptation and mitigation.

Scenario planning can assist in raising awareness and potential issues amongst stakeholders in a non-confrontational way. Ideas and observations can be freely exchanged, local knowledge can be incorporated (via the workshops) the outcomes dissected, recorded and shared.

The goal will be to identify as many of the potential risks (to a community, a site, a habitat or even a species) with a view to minimising the most undesirable aspects in good time. In other words, *a proactive method of avoiding (or at least minimising) future coastal management problems triggered by climate change.*

It is not a requirement that a comprehensive workable action plan emerges from the exercise but that is always a possibility. If such a plan *does* emerge so readily, that can be viewed as a bonus.

2. Basic Principles to follow

2.1. Overview

(A well-constructed 'future scenario'.....)

- is plausible, understandable and believable
- attempts to 'look into the future' and using existing, reliable knowledge; create a credible picture of how the future might look
- can involve multiple scenarios running concurrently but 3-4 should be a maximum to avoid overlap and confusion amongst stakeholders
- multiple scenario exercises can be either 'horizontal' (i.e. all delivered at one time for comparison purposes) or 'vertical' (i.e. sequential, where one is partially dependent upon the previous).
- involves consulting with both professionals and with the general public
- does not under-estimate the capacity of stakeholders to grasp difficult concepts but equally strives to 'keep things simple'
- works best as a group exercise so that both individual ideas as well as group ideas / opinions are captured
- should allow us to link uncertainties about the future to the management decisions that we have to deal with right now
- should assist us in making 'best guess' management decisions for the future
- project is one that helps us to reduce the chances of making a costly 'mistake' about the future
- should be searching for 'best outcomes'...socially, economically as well as environmentally

2.2 Practical Approaches

- usual timescales employed are 5-25yrs, 25-50yrs & up to 100yrs
- workshop objective is to explore in greater detail the main issues that have created the future picture under discussion
- part of the 'payback' for the participants in the scenario-building process is that they gain a deeper and more mutual understanding of the likely issues and *possibly* some of the potential solutions that are acceptable to the majority. This can be viewed as **empowerment**.
- the questioning process should attempt to identify 'gaps' in our current knowledge or weaknesses in the science, the legislation or even in social attitudes that might be expected to influence the future picture
- the 'gaps' identified can then be subsequently researched. An action plan can be drawn up with the intention of plugging those gaps
- it is not an absolute requirement that full answers to issues, puzzles or anomalies are found in this process. If they are; then that is a bonus!
- scenarios offer a 'no risk' approach to problem solving

2.3 Objectives

- to raising awareness of how the coast might change in the future
- to providing a first step in local adaptation to climate change impacts
- to provide a satisfactory 'direction of travel' for a property/community or location
- to engage constructively with those individuals and groups likely to be adversely affected in the future by the probable impacts of climate change
- to strengthen the relationship between policy makers and those likely to be affected by the policies they enact

2.4 Limitations of the 'scenario' approach

- scenarios cannot accurately predict future events or define exact outcomes and should not be used to do so
- scenarios are best employed for adaptation (exploration) but can be used to a lesser extent for exploring mitigations
- some stakeholders will be critical of the scenario approach as it deliberately avoids making definitive decisions and choices
- the range of variables that might be included in a scenario is extensive but practical limits have to be applied
- by using a wide range of variables, it is quite possible that rather than finding solutions; more problems are uncovered
- multiple scenarios (around one location) are possible but it is inadvisable to offer more than 3-4 for stakeholder consideration to avoid confusion (See also Appendix 2)

2.5 Indicators of success

- stakeholders feel better informed and are thus able to contribute meaningfully to designing adaptation strategies that build better resilience for their community or location
- sensible options for future planning are developed and considered by stakeholders
- likely problems associated with the impacts of climate change at the coast are minimised
- community cohesiveness is improved

3. Commencement Methodology

The 12 tasks for the scenario writer(s) are to:

- 1) **research** the chosen theme(s)* or location
- 2) **decide** upon the format ('future newspaper' for example)
- 3) **write** the baseline scenario(s) and illustrate
- 4) **circulate** to selected individuals/groups for comment and modification
- 5) **capture** all shades of opinion from (4) above
- 6) **review** the draft
- 7) **identify** key issues for further discussion and/or research and...
- 8) **cover** all significant social, environmental economic and legal considerations
- 9) **identify** any knowledge 'gaps' that have been exposed,
- 10) **review** suggestions for improving the 'scenario' again before release
- 11) **ensure** that the final materials are packaged in such a way that they are understandable to the general public
- 12) **distribute** the final scenario(s) ready for wider workshop use

4. Implementation

Once the scenario is ready for use, the next task is to plan for at least two public-facing workshops.

Essentially **the first workshop** should provide information regarding the technical, environmental and even political constraints that relate to the location and then give the attendees an opportunity to digest and comment.

The second workshop provides an opportunity to take a further step forward (after the Scenario team have analysed the outputs) with a view to either providing some answers and suggested adaptations to the issues previously discussed or at least devising a direction of travel:

4.1 Workshop 1

Once the baseline scenario(s) have been written:

Consider:

- a 'neutral' venue (where stakeholders will feel comfortable). Village halls are often the best choice
- carry out a community mapping exercise to make sure that all those likely to be affected by the issues to be discussed are invited
- which CZM professionals should be invited (statutory agencies and NGO's for example)

- issuing the invitations about 5-6 weeks in advance of the event
- whether an afternoon or evening session will attract the most attendees
- *[On the day]* providing 'sign in' opportunities and capture names, e-mail addresses/ 'phone numbers etc
- the workshop length (they should not normally extend beyond two hours)
- use experienced facilitators
- providing refreshments
- consider what a/v equipment is needed
- whether or not a professional (in some aspect of coastal management) is required to give a background talk or not
- someone knowledgeable to welcome & introduce and scope the topic (no more than 15-20 minutes)
- explaining the procedure for the event and the 'house rules' for contributing to the discussion
- using 'post it' boards so that other ideas and issues (maybe of concern to some but not directly attributable to the issues at hand) can be captured and recorded
- the number of 'breakout' groups to set (no more than 8 to a group is usually best)
- providing an experienced facilitator for each table and / or a scribe
- tie each breakout group to a specific topic
- allowing 15-20 minutes for each topic and then rotate the groups
- on completion, explaining what is going to happen between this workshop and the next. *This will encompass some distillation and analysis of the material collected. The scenario team would be responsible for carrying out this task and preparing the summary of the main issues explored*
- circulating the summary to all attendees before the next workshop
- giving the date for the second workshop and votes of thanks for attending
- the interval between workshops. The UK experience suggests 4-5 weeks is ideal

4.2 Workshop 2

Consider:

- using exactly the same format and materials as the first workshop and preferably the same venue etc
- reviewing the outcomes of the first workshop
- reiterating the rules of the workshop
- explaining the purpose of the second workshop (which is to explore possible solutions)
- carrying out the workshop as in workshop 1
- requiring the facilitators to summarise the findings
- circulating the final report to all attendees

5. Future work

Stakeholders will expect the results of the scenario exercise to have some long-term purpose and value. It is important to try to give assurances that the results will be noted and utilised by policy makers. Future work might involve taking the results and local aspirations to planning and policy makers for example or it may be assisting to set up an independent resilience forum.

Continuity (of engagement) is very important. Where new policies or initiatives are implemented, those who were involved in the earlier discussions should be informed that their work has led to some real and meaningful progress.

6. Complimentary Powerpoint

The Powerpoint (14 slides) to accompany this Scenario tool is entitled:

'Building Scenarios: principles and practice'

...and covers items 1-3 of this document.

7. A brief comparison of the LiCCo UK and French Partners approach to scenario planning

Many of the concepts and ideas used by both teams are identical but the French approach tends to use a more 'technical' approach and uses a greater degree of technical language. The French model also tends to cover a wider range of subtleties than the UK model. However both models are able to incorporate a very wide range of topics. The UK range is illustrated in Appendix 1.

Both models highlight (for stakeholders) climate risks, coastal vulnerabilities and responsibilities. The need to be aware of current legislation (that might limit future actions and choices) is recognised by both models.

The use of 'mind maps' (the French model) is a deeper intellectual device than the UK approach. The use (UK model) of the 'future newspaper' is by no means the only device that could be used but has proved successful both within the LiCCo work and in previous UK projects such as the Defra 'Coastal Pathfinder' work of 2009.

The French model uses a wider range of methodological and coastal monitoring techniques whereas the UK model tends to try to 'keep it simple' in order that the widest possible range of stakeholders remain engaged with the process and do not default mid-way between workshops.

The French model shows that the use of multiple scenarios can work well and has the advantage that a selection of 'future pictures of the coast' can be presented simultaneously. Whilst this technique has been used in the UK; in the present instance a single scenario approach has been used. The provision of just one scenario has proved sufficient to evoke good discussion and debate. Inevitably the goal is the same: it is to provide a window on possible futures and for people to plan how best to avoid (or at least minimise) the worst aspects of that future. The use of any scenario tool, regardless of its construction, has to be viewed as a 'means to an end'.

The 3-4 scenario models have the advantage that stakeholders are exposed to a wider range of possibilities and choices. The UK approach (using just one) means that a 'vertical' pathway (albeit with branches) can be used rather than working from the outset with a 'horizontal' (i.e. multiple) set of possible futures.

One critical message common to both approaches is the absolute requirement that any and all scenarios MUST be plausible throughout.

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Appendix 1

*a list of potential topics for inclusion in a comprehensive scenario

- Beach accretion
- Beach and inshore safety
- Beach businesses (surf shops, cafes, pedalo hire etc)
- Beach Huts
- Beach loss (squeeze)
- Beach nourishment and beach narrowing
- Boating and recreational water usage
- Businesses and their premises
- Car Parks and open spaces
- Churches and faiths
- Cliff erosion
- Coastal agriculture
- Coastal defence systems
- Coast path (& access)
- Demographics (including new housing)
- Diffuse pollution
- Drainage systems (rainwater, foul and cliff drainage)
- Ecology (changes to)
- Farming (Dairy/Pastoral)
- Fishing (commercial and recreational)
- Flooding
- Food supply
- Habitats (loss, migration, creation)
- Harbours and Ports
- Heavy transport and delivery issues
- Homes and gardens
- Hospitals and health
- Infrastructure relocation
- Listed structures and buildings
- Local geology
- Other public services
- Planning policies
- Power distribution
- Public spaces (including playgrounds)
- Pubs, shops and restaurants
- Relocation issues
- Renewables
- Residual working life of buildings and structures
- River estuaries and their evolution
- Roads and Bridges (plus access)
- 'Roll back'
- Schools and education
- Sea level rise implications
- Sediment transport
- Shipping and coastal boats (transport)

- Single issue pressure groups
- Social deprivation issues
- Species (endangered, loss, migration)
- Statutorily designated areas
- Storms and storm impacts
- Telecoms
- Temporary structures (PPS 25 refers)
- Tidal surges
- Tourism accommodation
- Tourism attractions
- Transport (road, rail, air, sea alternatives)

Appendix 2

Extracts from the LiCCo project forecasting technical report – STRATYS (analysis of the impacts of climate change on the Veys Bay area)

This extract (translation) has resonance with the UK experience and serves to illustrate the high degree of commonality observed within the two methodologies:

- the stakeholder should use them {scenarios} as a tool to reflect and question the potential consequences of each scenario, the desired or negative effects, the means they have to influence changes, to accelerate them, reduce them, avoid them, or prevent them from happening.

By giving plausible images of the future, scenarios serve to reveal everyone's intentions, the social acceptance of certain changes, and the feasibility of certain orientations. They surround us with the visions that push us to question potential beliefs or received ideas.

So, to open out the debate as much as possible, it is essential to look at several scenarios for several reasons. First of all, we know all too well that there are multiple possibilities for the future, which will be a composition and intersection of several complex phenomena. The future will perhaps be a mixture of these three scenarios or others.

Finally, the prospective approach is above all a process of collective intelligence and stakeholder participation. A rule of the game entails being able to deal with the diversity of points of view, to allow the expression of different sensitivities, for a sincere and constructive dialogue to take place between stakeholders. With a single scenario, it is difficult to give everyone a voice.

Then, the prospective scenarios created answer the question, "What could happen?" i.e., what could the Veys Bays look like in 2050 based on different hypotheses of adaptation to climate change. We remain in the exploratory stage, meaning that we are looking at what would happen "if" this or that change was to happen. Based on this projection of the future, the workshop exchanges have allowed us to progress together on the treatment of the third and fourth questions in the diagram, namely, what can we do together and what do we want to do together? This technical report builds on these exchanges to ultimately offer the approaches for continuing and extending the momentum generated by the Licco project.