



# Grenada National Ecosystem Assessment (NEA) Training Series on Foresight Scenarios

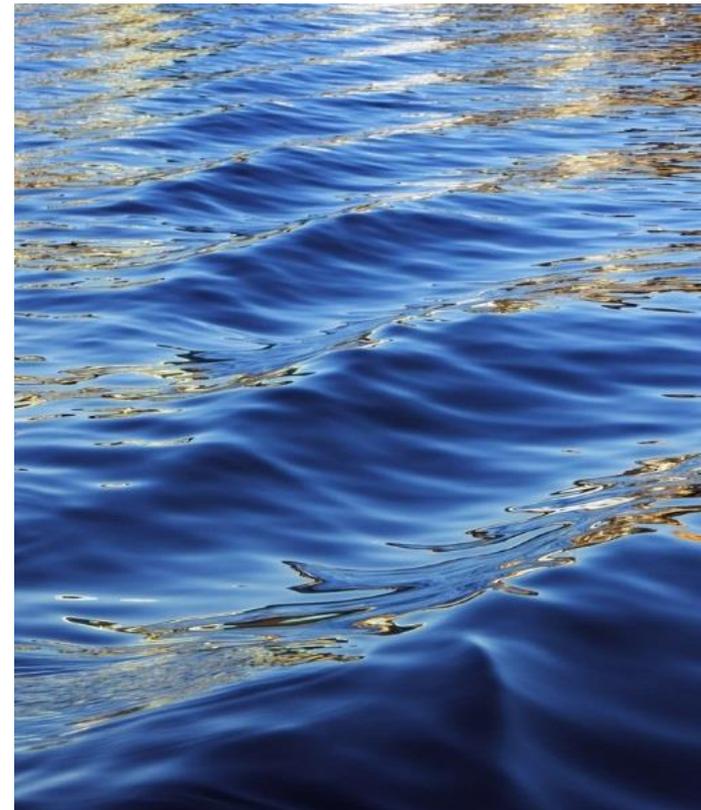
Session 4 – Foresight Scenarios Methods and Tools:  
Facilitated by Dr. Adrian Cashman  
26<sup>th</sup> August 2021





# Foresight scenarios

Session 4: Methods and tools



# Introduction

- In this session we move on to the mechanics of how we might go about building scenarios
- Focus on the Exploratory and Normative approach to scenarios as both share common elements.
- Critical uncertainties and driver mapping
- Methods and tools that have been used to develop scenarios

- What is scenario planning and how to use it in your strategic plan (11 minutes)
- <https://www.youtube.com/watch?v=jyCiINmicy4>

# Techniques and methods

- Developing scenarios is an exercise in bringing together diverse information and trying to make sense of it to provide useful insights on which future actions might be based
- The scenarios themselves are narratives around the information and insights and like any story there has to be a base on which to build
- That diverse information has to be brought to the fore and includes aspects such as:
  - Past trends
  - Future trends and developments
  - Emerging issues
- There are various ways in which we can go about uncovering useful information.

# Techniques and methods

In what follows a few of the techniques and methods that have been used are outlined. Some may well be familiar to you. They are based on the idea of surfacing information, rationalising the information and evaluating its usefulness. You might say they are all forms of Brainstorming.

Techniques include:

1. Horizon scanning & megatrends
2. Delphi
3. World Café and Future Wheel
4. Three Horizons
5. Cross-Impact Balance

# Horizon scanning & megatrends

- Horizon scanning is a process of looking for early signs of change which combines desk research and workshop discussion
- Aim is to:
  - Gather information about emerging trends and developments which might have an impact in the future
  - Explore how these trends and developments might combine and what impact they might have
- Individual scans are combined into a scanning report. Scans can be organised in different ways
- It is an open-ended process involving a number of people
  - Each asked to produce a 'scan' a week: what is it about, how it is related, why it is important on a single page
  - Hardest part is deciding whether something is interesting or different enough to include

# Delphi

- A consultation process used to gather opinions from a wide group of persons about the future and to prioritise the issues of strategic importance
- Aims to:
  - Gather opinions
  - Refine thinking about the future
  - Highlight conflicting views of the future and expectations
  - Highlight potential trade-offs and choices that need to be addressed
- This can be a time consuming process and requires mediation and facilitation
- Produces a prioritised list of issues

## Delphi - 2

- Proceeds over several rounds of discussion
- Responses are anonymous
- First define the question:
  - Framed in an open manner to explore the broad issue or concern, e.g. 'How will ecosystem services contribute to social and economic well-being in Grenada?'
- Invite responses as a first round, say 8-10 ideas from each panel member
- Facilitator collates and removes duplicates
- Send collated responses back to the panel and ask to identify their top 10 but not rank them
- Identify say the top 10 (or more) and ask the panel to rank them – identify the ranking, preferably using at least 2 criteria
- Ranking can be used to cluster issues

## Delphi - 3

- With the results conduct a workshop to present the findings and explore the factors underlying significant differences of opinion
- Invite discussion as to whether some issues should be moved.
- Outcome of the process is a short-list of issues which are important.
- The next step would be to have a Driver Mapping/Scenarios exercise to explore how the issues might develop in the future

An added feature can be within rounds to share the outputs, invite comment and ask if as a result there is a change in opinion.

# World Café and Future Wheel

- Both are a consultation process used to gather opinions from a group of persons about the future
- Both have a similar aim as the Delphi process but without the ranking and prioritising
- World Café is more free flowing than Future Wheel which is a bit more structured in its approach

# World Café

- The technique is based around the idea of a small group of people discussing an issue around a 'café table'
- At each 'table' there is an issue, question or challenge which the group is asked to consider, discuss and put ideas forward. These can be captured in various ways e.g. on a whiteboard, on the blank tablecloth.
- After a set period of time ~20 minutes, the group move on to the next 'table' , leaving one person behind to 'host' the next group and brief them on what went on. The process of discussion is repeated with the group adding or questioning what went on before

# World Café

- In the last round of conversation, people can return to their first table to synthesise their discoveries, or they may continue traveling to new tables
- The same question may be used for one or more rounds of conversation, or different questions may be posed in each round to build on and help deepen the exploration
- There should be at least three rounds of conversations
- At the end of the process the main ideas are summarised in a plenary session and follow-up possibilities are discussed



<http://www.theworldcafe.com/wp-content/uploads/2015/07/Cafe-To-Go-Revised.pdf>

# Future Wheel

As with the previous there can be several 'tables'

- A central term, issue, challenge is placed in the centre of a sheet. This could be the change, an event, trend, problem, or a possible solution to a problem. By identifying this, it is clear to all participants what the starting point of this brainstorming session is
- Participants discuss and write down the 'first-order' consequences, which result directly from the issue. These direct consequences are placed around the 'issue'. All possible direct consequences can be considered. Each consequence is placed on a circle and connected to the central change by an arrow. These direct consequences could result from the issue or decision
- 'Second-order' consequences are then identified.
  - These are indirect consequences situated around the 'first-order' ones.
  - These consequences are connected to the direct consequences as nodes, creating a web of consequences.
- This can be repeated again, creating additional, 'third-' and 'fourth-order' consequences. These are often things that happen as a result of the direct consequences.

# Future Wheel

- A picture arises of the possible direct and indirect consequences of change. Listing all these implications provides an overview.
- The most drastic consequences can then be prioritised, with the greatest impact being at the top of the list and the least impact at the bottom
- This technique was used by IPBES in 2017 in the workshop on "Visions for nature and nature's contributions to people for the 21st century"
- The workshop used what they called 'Seeds' at the centre of the Wheels
  - Session devoted to identifying the 'Seeds'



# Future Wheel

- The discussion on implications can be structured by using the STEEPV analysis where participants consider Social, Technological, Economic, Environmental, Political and Value implications of each Future Wheel.

# Three Horizons

Provides a way of making sense of trends and emerging changes and identify critical changes

- The First Horizon: current context, conditions and dominant elements. The focus is maintaining stability, and the mindset is that of the manager
- The Third Horizon: transformative emerging changes, ideas about possible futures, and visions of preferred futures. Currently marginal, but over time would mature and eventually reach a state in which they would be mainstream in order to achieve the vision. The focus is on transformation and disruption, and the mindset is that of the visionary
- The Second Horizon: actions taken in the present to resist change, to adapt to change, or to build on change. Changes that need to happen in order to eliminate the dominant negative elements of society today and enable the seeds to reach a mature state. The focus is on creating and managing change, and the mindset is that of the entrepreneur
- Takes place in a Workshop setting – work in pairs

# Three Horizons

## Horizon 1: Current State of Play

- Brainstorm responses to the questions:
  - What are the current working assumptions?
  - What is the current state of play?
  - What are managers taking for granted when they make decisions?
  - Post responses on a board
- Cluster responses

# Three Horizons

## Horizon 3: Emerging Changes

- Respond to questions such as:
  - What changes are emerging as completely new paradigms and novel means to understand and undertake various human activities?
  - What new issue or invention has you worried - or excited?
  - What are visionary leaders saying?
- This round usually generates fewer ideas. To expand the possibilities it can be useful to prepare with a deck of 'change cards' that describe various trends and emerging issues. These can be distributed among the various groups for review, cluster into related changes and identify the most significant.
- Post them

# Three Horizons

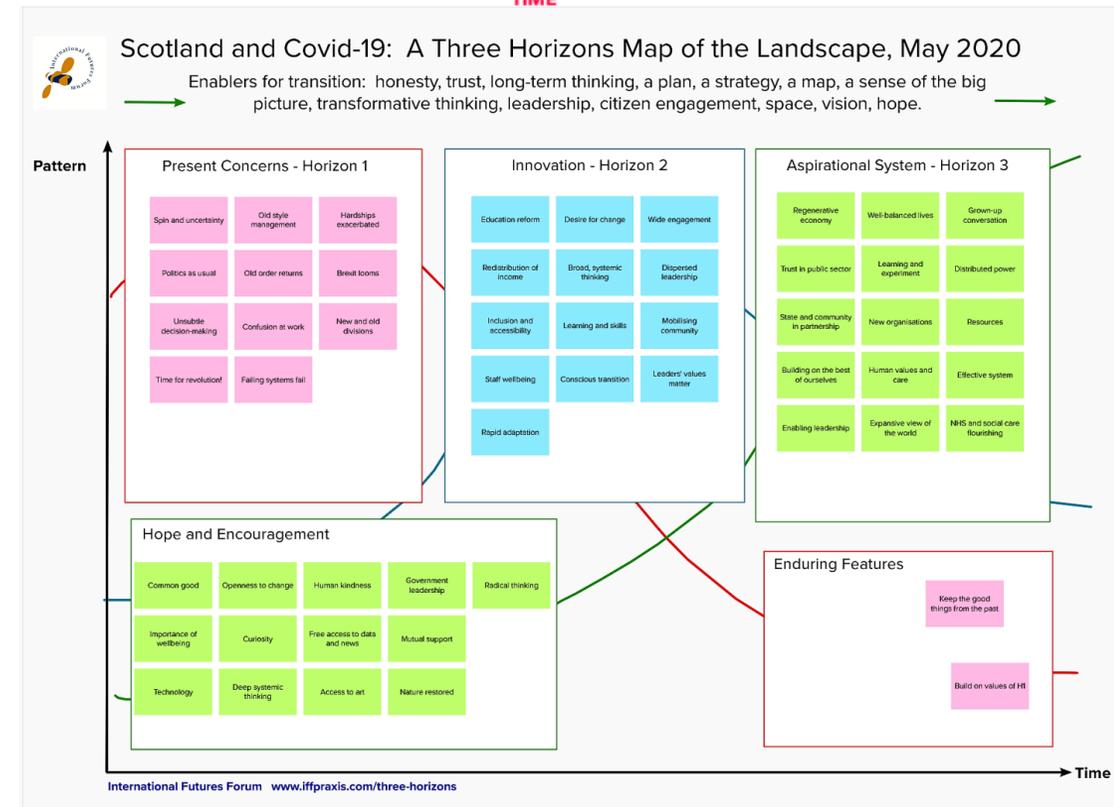
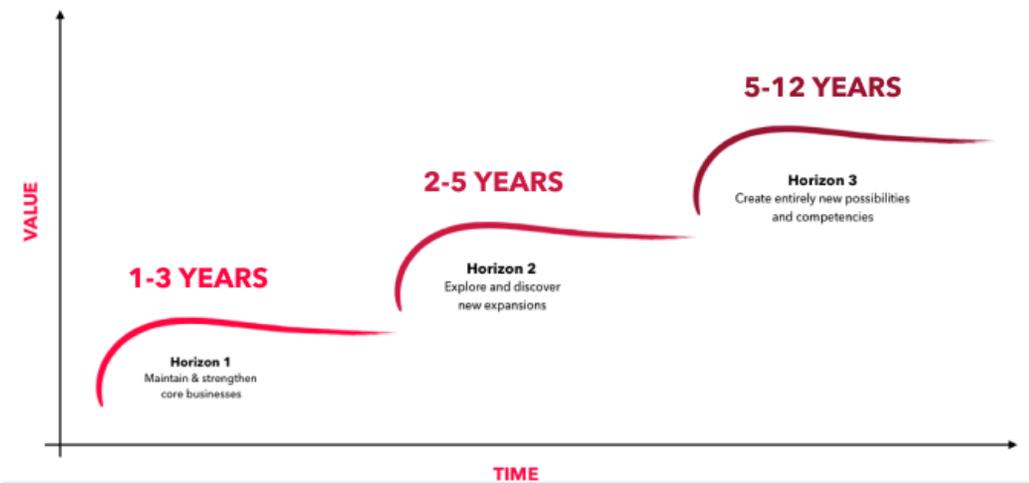
## Horizon 2: Drivers of Change

- Working in groups
- Review assumptions of Horizon 1 and emerging issues of Horizon 2.
  - Which assumptions will be most challenged by change?
  - Which are most vulnerable to these emerging changes?
  - Are there any which are being strengthened?
  - How can the emerging changes be used to create opportunities?
- Choose two or three emerging changes that could bring about change
- Each group use emerging changes to create an interesting transition idea that helps bridge from Horizon 1 to Horizon 3

# Three Horizons

## Debrief

- In plenary, participants discuss key highlights:
  - What current assumptions will be most challenged by change?
  - Will any become irrelevant in the face of the changes identified?
- What changes offer the most promise and immediately actionable opportunities?
- Which innovations or initiatives hold the most promise?



# Cross-Impact Balance Analysis (CIB)

For greater detail see <https://www.zirius.uni-stuttgart.de/en/cib-lab/>

- Based on the qualitative and/or semi-quantitative elicitation of the interdependencies of a complex system using expert or stakeholder assessments and/or literature analysis
  - Uses other information discovery methods to provide input
- The interdependencies define a qualitative impact network that can be evaluated according to formal consistency criteria, leading to "consistent scenarios" of system behaviour

# CIB

## Step 1: Specify the descriptor set

- Identify the factors describing the system – called descriptors
- Descriptors are found from literature and/or from stakeholders
  - Examples: distribution of wealth
- Descriptors can be quantitative or qualitative

## Step 2: Variants

- To reflect the future uncertainty around descriptors, each is assigned a small number of alternative future developments
  - Distribution of wealth: Balanced, Skewed

# CIB

## Step 3: Cross-Impact Matrix

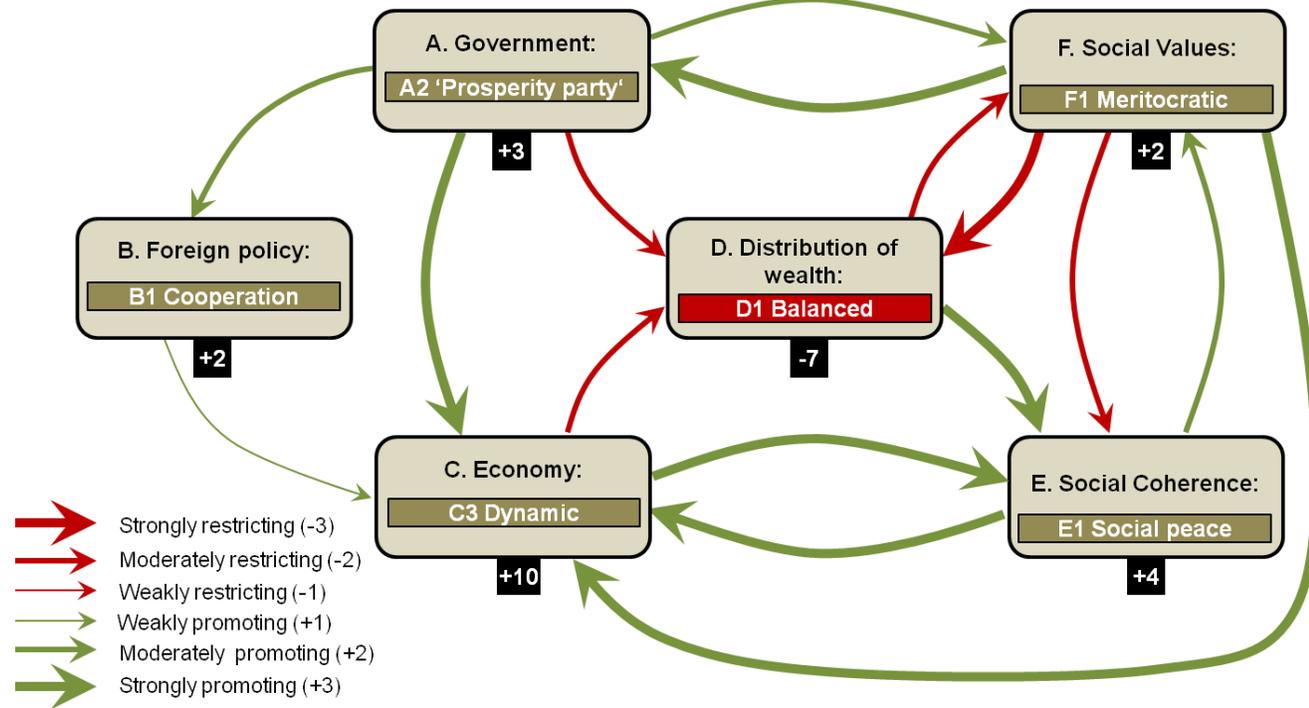
- The interdependencies between the descriptors regulate which combinations of the various descriptors can be regarded as consistent scenarios.
- To introduce the interdependencies into the analysis, qualitative information is collected with the help of literature studies or expert elicitation on whether it would promote or hinder development x for descriptor X if development y were to occur for descriptor Y
- The information is coded on an integer scale -3 to +3
- Only direct influences are indicated

Cross-Impact-Matrix 'Somewhereand'	A.Gov			B.FoP			C.Eco			D.W		E.SCo			F.SoV		
	A1 'Patriots party'	A2 'Prosperity party'	A3 'Social party'	B1 Cooperation	B2 Rivalry	B3 Conflict	C1 Shrinking	C2 Stagnant	C3 Dynamic	D1 Balanced	D2 Strong contrasts	E1 Social peace	E2 Tensions	E3 Unrest	F1 Meritocratic	F2 Solidarity	F3 Family
<b>A. Government:</b>																	
A1 'Patriots party'				-2	1	1	0	0	0	0	0	-2	1	1	0	0	0
A2 'Prosperity party'				2	1	-3	-2	-1	3	-2	2	0	0	0	2	-1	-1
A3 'Social party'				0	0	0	0	2	-2	3	-3	2	-1	-1	-2	2	0
<b>B. Foreign policy:</b>																	
B1 Cooperation	0	0	0				-2	1	1	0	0	0	0	0	0	0	0
B2 Rivalry	0	0	0				0	1	-1	0	0	1	0	-1	0	0	0
B3 Conflict	3	-1	-2				3	0	-3	0	0	3	-1	-2	-2	1	1
<b>C. Economy:</b>																	
C1 Shrinking	2	1	-3	0	0	0				-2	2	-3	1	2	0	0	0
C2 Stagnant	-1	2	-1	0	0	0				0	0	0	0	0	0	0	0
C3 Dynamic	0	0	0	0	0	0				-2	2	3	-1	-2	0	0	0
<b>D. Distribution of Wealth:</b>																	
D1 Balanced	0	0	0	0	0	0	0	0	0			3	-1	-2	-2	1	1
D2 Strong contrasts	0	-3	3	0	0	0	0	0	0			-3	1	2	2	-1	-1
<b>E. Social cohesion:</b>																	
E1 Social peace	0	0	0	0	0	0	-2	-1	3	0	0				2	-1	-1
E2 Tensions	0	0	0	-1	0	1	1	1	-2	0	0				-1	0	1
E3 Unrest	2	-1	-1	-3	1	2	3	0	-3	0	0				-2	-1	3
<b>F. Social values:</b>																	
F1 Meritocratic	0	3	-3	0	0	0	-3	0	3	-3	3	-2	1	1			
F2 Solidarity	1	-2	1	0	0	0	-1	2	-1	2	-2	2	-1	-1			
F3 Family	0	0	0	0	0	0	-1	2	-1	1	-1	2	-1	-1			

# CIB

## Step 4: Scenario construction

- The majority of potential scenarios can be ignored as not being consistent with the inter-dependencies
- Inconsistencies can be discovered by looking up the influence relationships
- All influence relationships between scenario elements can be taken from the Cross-Impact matrix
- Scenario elements are well-founded if they are influenced by numerous, preferably strongly promoting influences (green arrows) and at the same time only a few, preferably weak inhibiting influences act on the element (red arrows)
  - The sum of the influence values should be as high as possible



# CIB

- Consistent scenarios are characterised by the fact that the impact sums for *all* scenario elements are as high as possible
- They are as high as possible if an exchange of the selected variant would not lead to a further increase in the impact sum for any descriptor
- Of the 486 possible scenarios shown by the matrix, only 10 scenarios pass the CIB consistency test.
- Each of these scenarios consists of a coherent combination of descriptor developments.
- Together they cover a wide range of possible futures
- The freely available CIB software ScenarioWizard can be used

Scenario no. 1	Scenario no. 2	Scen. no. 3	Scen. no. 4	Scenario no. 5	Scenario no. 6	Scen. no. 7	Scen. no. 8	Scen. no. 9	Scenario no. 10
Prosperity in a divided society		'Stop exploitation!'		Cozy society	Protectionism		We against the others		Society in crisis
A. Government: -A2 'Prosperity party'		A. Government: -A3 'Social party'			A. Government: -A1 'Patriots party'				
B. Foreign policy: -B1 Cooperation	B. Foreign policy: -B2 Rivalry	B. Foreign policy: -B1 Cooperation	B. Foreign policy: -B2 Rivalry		B. Foreign policy: -B3 Conflict				
C. Economy: -C3 Dynamic				C. Economy: -C2 Stagnant				C. Economy: -C1 Shrinking	
D. Distribution of wealth: -D2 Strong contrasts				D. Distribution of wealth: -D1 Balanced				D. Distribution of wealth: -D2 Strong contrasts	
E. Social cohesion: -E2 Tensions		E. Social cohesion: -E1 Social peace						E. Social cohesion: -E3 Unrest	
F. Social values: -F1 Meritocratic				F. Social values: -F2 Solidarity				F. Social values: -F3 Family	

# Time for reflection

Which techniques and/or methods could we use for the development of Grenada's scenarios and why?

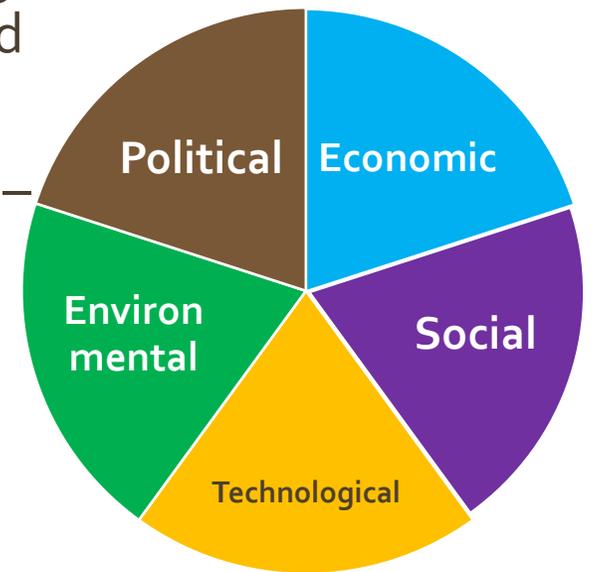
# Approaches to developing scenarios

- In a previous session we have seen how we can develop scenarios based on:
  - Archetypes
  - Matrices
- Although there are differences between the approaches:
  - Archetypes are a form of top down approach
  - Matrices are a form of bottom up approach
- There though commonalities, both
  - Require a focus or lens – a description or agreement concerning what it is that we want the scenarios to explore
  - Respond to driving forces
- How those driving forces are identified is what follows

# Critical uncertainties

To understand/identify what are the key or critical uncertainties that shape a scenario

- Identify what are the changes/drivers and how they will affect what we are interested in
- We have looked at direct and indirect drivers in an earlier session, now we need to consider the ways in which they might affect what it is we are interested in – ecosystem services and biodiversity in our case.
- We can group and explore drivers using a PESTE (or PESTLE – L = Legal) approach



# Critical uncertainties

- The next step is to decide which of the uncertainties would have the most influence on outcomes
- These are called critical uncertainties
- Critical uncertainties are unstable or unpredictable drivers (e.g. government regulations, natural disasters, or new technologies) and are a key influence on outcomes

# Group exercise (~30 mins)

Groups:

1. Political & Economic
2. Societal & Technological
3. Environmental

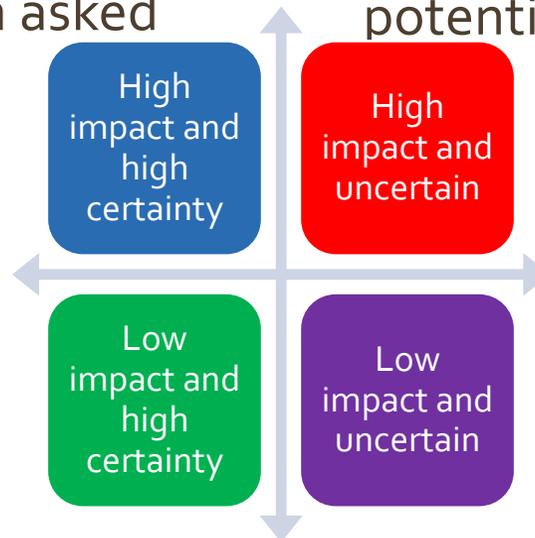
Use the Whiteboard to capture your thoughts.

Save the Whiteboard

Share with the Session when asked

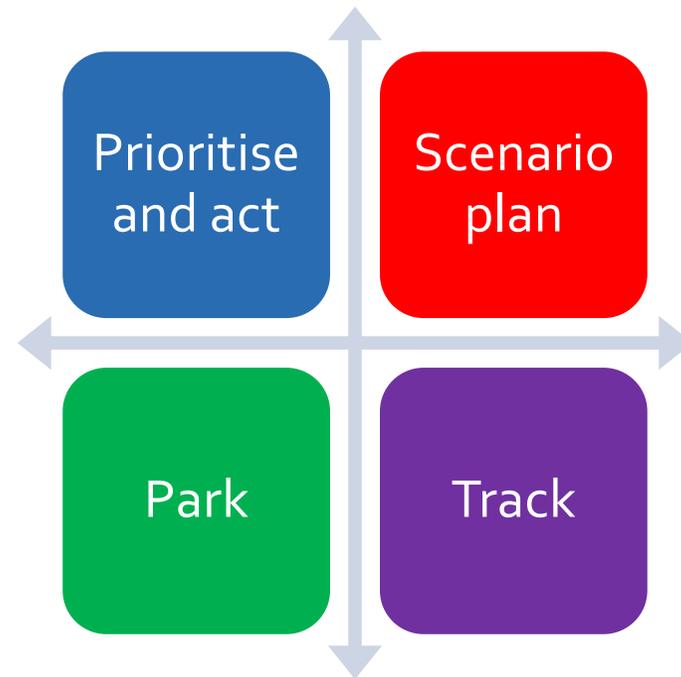
Consider the following questions:

- What is driving change linked to ecosystem services and biodiversity?
- Distinguish between short, medium and long term drivers
- Think about external and internal drivers
- Map the drivers in terms of their potential impact and probability



# Discussion of outcomes from the Group exercise

- Drivers in the top right hand quadrant (in red) are the **CRITICAL UNCERTAINTIES**
- They are strategically important to our scenarios



# Uncertainty Axes

Used to agree on and define the critical uncertainties that are most important and to have a focused scenario matrix

As we have seen; critical uncertainties are Drivers that are more important but which have uncertain outcomes

Step 1: Develop a long-list of axes of uncertainty – using the drivers in the top right quadrant

- Define an Axis of Uncertainty by describing alternative ways that a critical uncertainty might play out e.g. with an uncertainty called Economic Development we might have

**Regional integration** ← → **National self-sufficiency**

- Generate several interpretations
- Select

# Uncertainty Axes

## Step 2: Draw up shortlist

- Once groups have identified several axes for each driver- select one to put forward for the shortlist
- There will be several (>8) axes of uncertainty

## Step 3: Agree the scenario matrix

- Facilitated discussion to agree which 2 axes of uncertainty will lead to the most interesting or valuable scenario matrix (various methods of selection could be used)
- Draw up a few alternatives and explore what the scenarios might look like

# Recap

- Looked at a number of techniques and methods we could use to assist in building scenarios
- Considered critical uncertainties
- Looked at how we can map critical uncertainties and how to select axes of uncertainty
- We have seen how these can assist in identifying what scenarios we might focus on.



That's all folks

