

What do we mean by a sustainable landscape

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Contents

- Definitions
- Concepts
- Approaches
- Paradoxes
- Questions for debate

I gave you an encyclopaedia
entry I wrote in 2012 to study
before this session

Have you read it?

I will base a lot of what I say on it

I will also add some challenges

Definitions

- The subject is sustainable landscape
- Therefore we need to define “sustainable” and “landscape”
- Do we take these terms for granted?
- Do they mean the same for everyone?

I assume you considered some of this in previous sessions and have some views already...

Sustainable (landscape) development

- "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs." (Brundtland Commission)
- So...a *sustainable landscape* is a landscape which satisfies the requirements of current generations while safeguarding the options for future generations

Sustainable (landscape) development

- It is easy to make that statement but another thing to put it into practice
 - How do we decide what is the landscape whose sustainability we are ensuring?
 - What are the aspects of landscape which supply our needs? Do we mean food? timber? living space? aesthetics? health and well-being?...??
 - Is it possible to satisfy what everyone wants in any case?

Landscape (the word)

- Visual-based understanding (UK) - *landschap*
- Land-based understanding (Germany) - *landschaft*
- Culture-based understanding (geography)
- Ecology-based understanding (landscape ecology)

These different approaches have been reflected in different languages and by different disciplines...sometimes with misunderstanding and confusion (ELC solved this)

Landscape (the definition)

- Are you familiar with the European Landscape Convention definition of landscape?
- “an area, as perceived by people, whose character is the result of action and interaction of natural and/or human factors”
- So we need to understand *perception*, *character* and *action/interaction* (processes) in order to understand landscape



A scene of the Grand Tetons seen from the Idaho side of the national park, where the traditional definition of landscape as a prospect of scenery is evident – in this case providing a sense of beauty and possibly the sublime (Source: Simon Bell)



The ecological definition of landscape – a large territory in the Rocky Mountains in Colorado with different interconnected sections, in this case prairie, forest and alpine montane habitat (Source: Simon Bell)



A cultural landscape in the Bordeaux wine-cultivation region in France where human activities contribute as much or more than natural factors to the landscape and its character (Source: Simon Bell)

Landscape

- Thus, the landscape can be defined in terms of a combination of:
 - natural components,
 - cultural layers,
 - aesthetic qualities.
- Where each element may make a greater or lesser contribution depending on the area.

- Landscape is a complex and multifaceted concept which cannot easily be identified and pinned down in a simple, single model.
- Since landscape is not only the physical elements which combine in a territory but include, of necessity, many aspects of human perception, the question of defining what sustainability of landscapes really means is also complicated.
- Since landscapes are always changing and since the very concept of landscape includes change, it becomes difficult to decide what aspects are sustainable and in what way.

Landscape factors we need to take into account

- Landscape character
- Landscape as place and human attachment to it
- Landscape aesthetic qualities
- Time depth of landscape
- Landscapes as living works of art

Landscapes possess a distinctive character which can be mapped using well-developed techniques

8. Meandering river banks

Physical description :

On this type of landscape, there are a larger variety and a greater relative number of deciduous trees including species that prefer moist soils such as willows of many types. Since Gauja flows through sandstone and sandy soil that is susceptible to erosion and the fact that Gauja meanders untamed, there are many oxbow lakes on this forested landscape character.

The forests on this landscape type are dense and the area is not very accessible. However, because of Gauja in the middle and a number of oxbow lakes this type of land holds great potential for various recreational purposes.

Visual description :

From the river, the landscape looks really peaceful, like a still, we are cut from the world.



Personal photo



Places where people have lived for a long time. where they were born, where their family members are buried leads to strong place attachment and in part at least help to form a sense of identity, but to different people in different ways and at different times



Landscapes may possess certain aesthetic qualities which affect quality of life in positive or negative ways depending on how those qualities are manifested and experienced



Landscapes may have greater or lesser time depth leading to historical associations and values : the palimpsest



Landscapes may form living works of art with specific historical and cultural associations



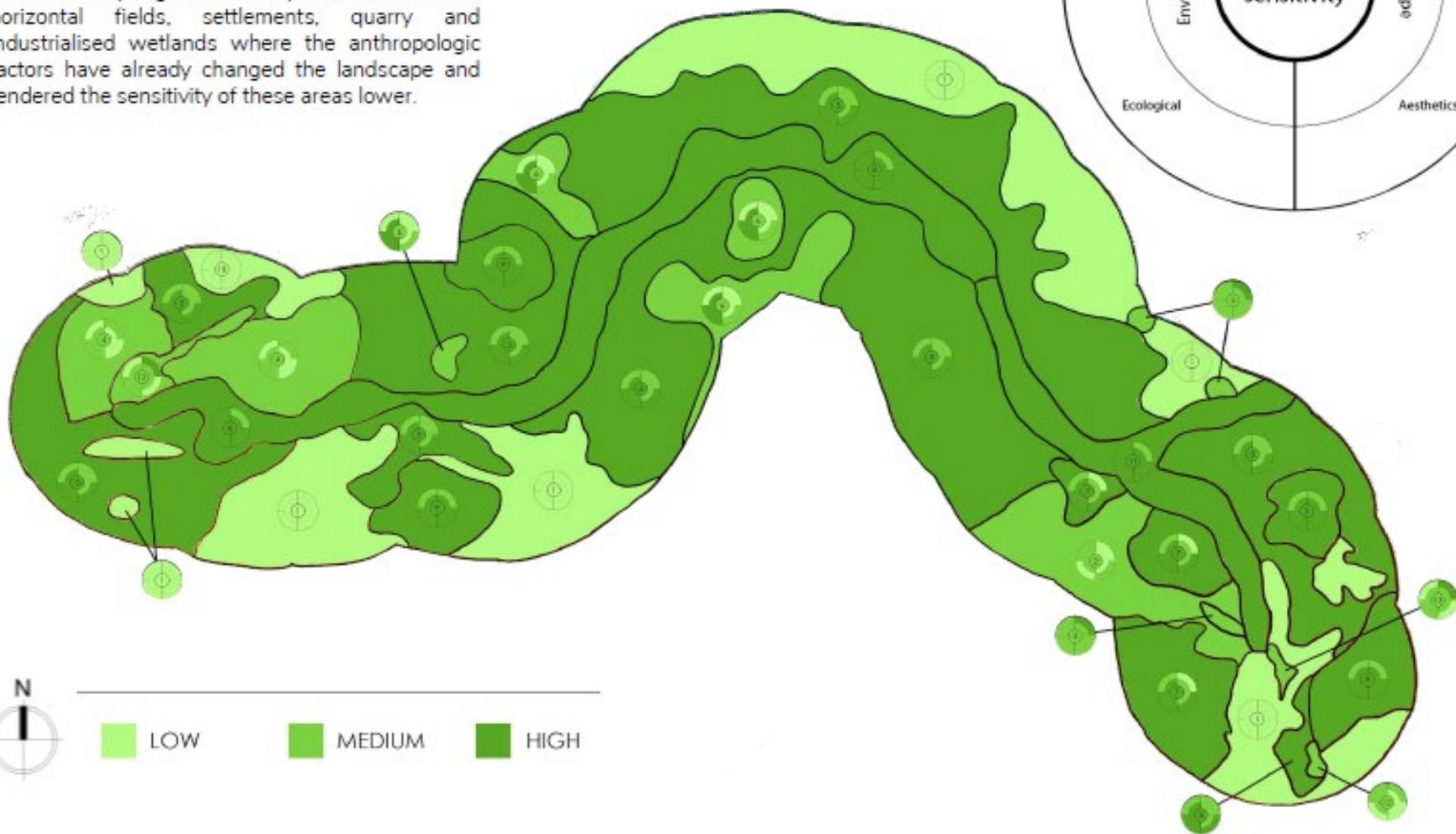
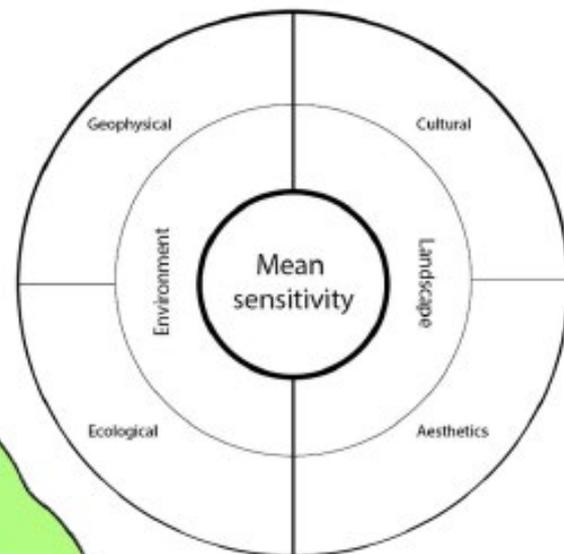
- It is necessary to consider each of the aspects as being sensitive to change depending on the *nature*, *rate*, *type*, *extent*, and the *degree of reversibility* of change.
- It is possible to consider three main alternative but complementary objectives of landscape management in the context of landscape change pressures:
 - Conservation and protection of existing character and values
 - Improvement or restoration of a landscape where it may be unattractive, decaying, disturbed, or lacks identity
 - Changing the landscape where it is derelict, abandoned, destroyed, or dysfunctional

Landscape sensitivity/capacity

- An important first step in understanding how an expected pressure for any kind of development is likely to affect the sustainability of a landscape is to assess its sensitivity and then its capacity to accept change.
- This can be divided into the effect on:
 - landscape character,
 - on historical integrity,
 - and on landscape value.

Sensitivity

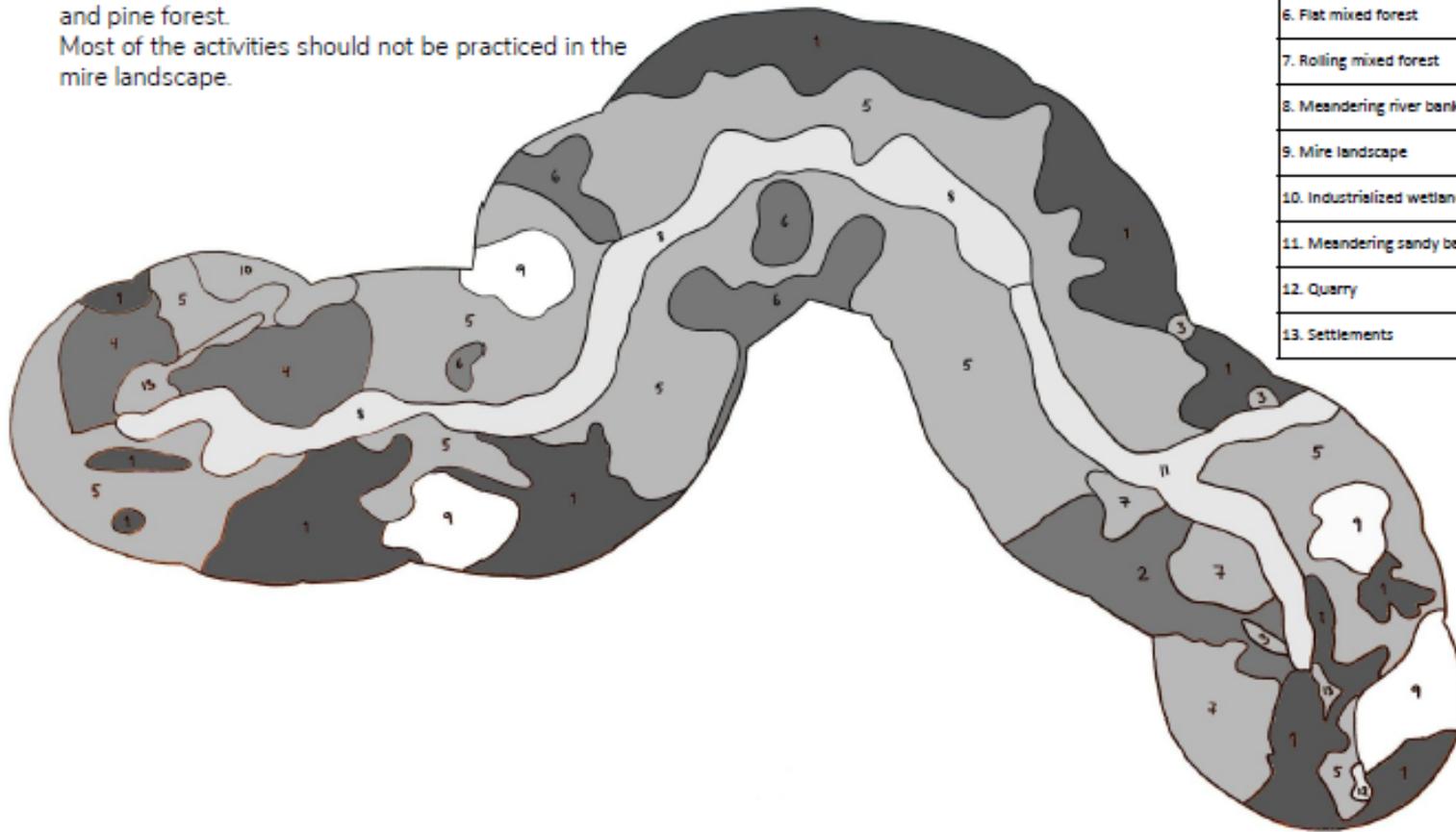
The study area consists mostly of almost untouched nature - be it forests, mires or the riverbanks. This makes the mean sensitivity of the area relatively high. The exceptions are the vast horizontal fields, settlements, quarry and industrialised wetlands where the anthropogenic factors have already changed the landscape and rendered the sensitivity of these areas lower.



Capacity : summer/land map

This map shows the capacity of the different units for summer/land activities. The higher capacity goes to vast horizontal fields. Then come rolling landscape, mosaic landscape and pine forest. Most of the activities should not be practiced in the mire landscape.

SUMMER/LAND	SUITABILITY	SENSITIVITY	CAPACITY
1. Vast horizontal fields	HIGH	LOW	HIGH
2. Rolling cultivated landscape	HIGH	MEDIUM	MEDIUM HIGH
3. Manor landscape	MEDIUM	MEDIUM	MEDIUM
4. Mosaic Landscape	HIGH	MEDIUM	MEDIUM HIGH
5. Pine pillar forest	HIGH	HIGH	MEDIUM
6. Flat mixed forest	HIGH	MEDIUM	MEDIUM HIGH
7. Rolling mixed forest	HIGH	HIGH	MEDIUM
8. Meandering river banks	MEDIUM	HIGH	MEDIUM LOW
9. Mire landscape	LOW	HIGH	LOW
10. Industrialized wetland	LOW	LOW	MEDIUM
11. Meandering sandy banks	MEDIUM	HIGH	MEDIUM LOW
12. Quarry	LOW	MEDIUM	MEDIUM LOW
13. Settlements	MEDIUM	MEDIUM	MEDIUM



LOW
 MEDIUM LOW
 MEDIUM
 MEDIUM HIGH
 HIGH

Valuing landscapes

We need to identify what values are associated with a given landscape, bearing in mind its dynamic nature, all of which have an implication for sustainable development:

- *Use value* (where the landscape has a current value for some uses)
- *Existence value* (where knowing that a beautiful landscape exists even if a person may never visit yet it is considered worth preserving)
- *Option value* (where there is the possibility for many different uses which may be taken up at some time in the future)
- *Bequest value* (where the current generation wishes to hand on the landscape in a good condition to the next generation and forgoes a use or option value)

How do we know if a landscape is sustainable?

- We need to be able to identify the unit of sustainability – the extent of the landscape to be assessed
- We need indicators to tell us objectively or subjectively if the landscape is sustainable
- We need to know how to increase sustainability if the indicators prove negative in some or all aspects
- We need to understand the dynamic processes involved and where points of intervention by protection, planning, design or management are appropriate

A systems approach: DPSIR

DRIVING FORCES

Human influences and natural conditions driving environment change

RESPONSES

Responses by government and society to the environmental situation

PRESSURES

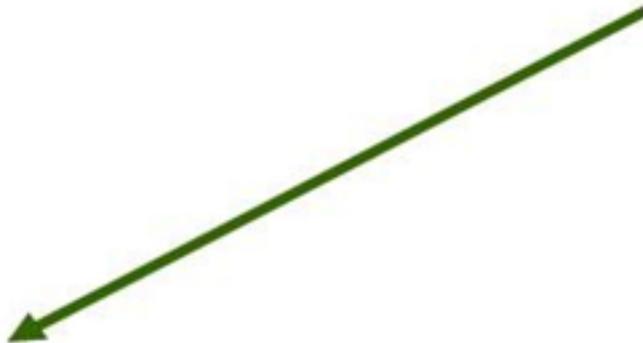
Stresses that human activities and natural conditions place on the environment

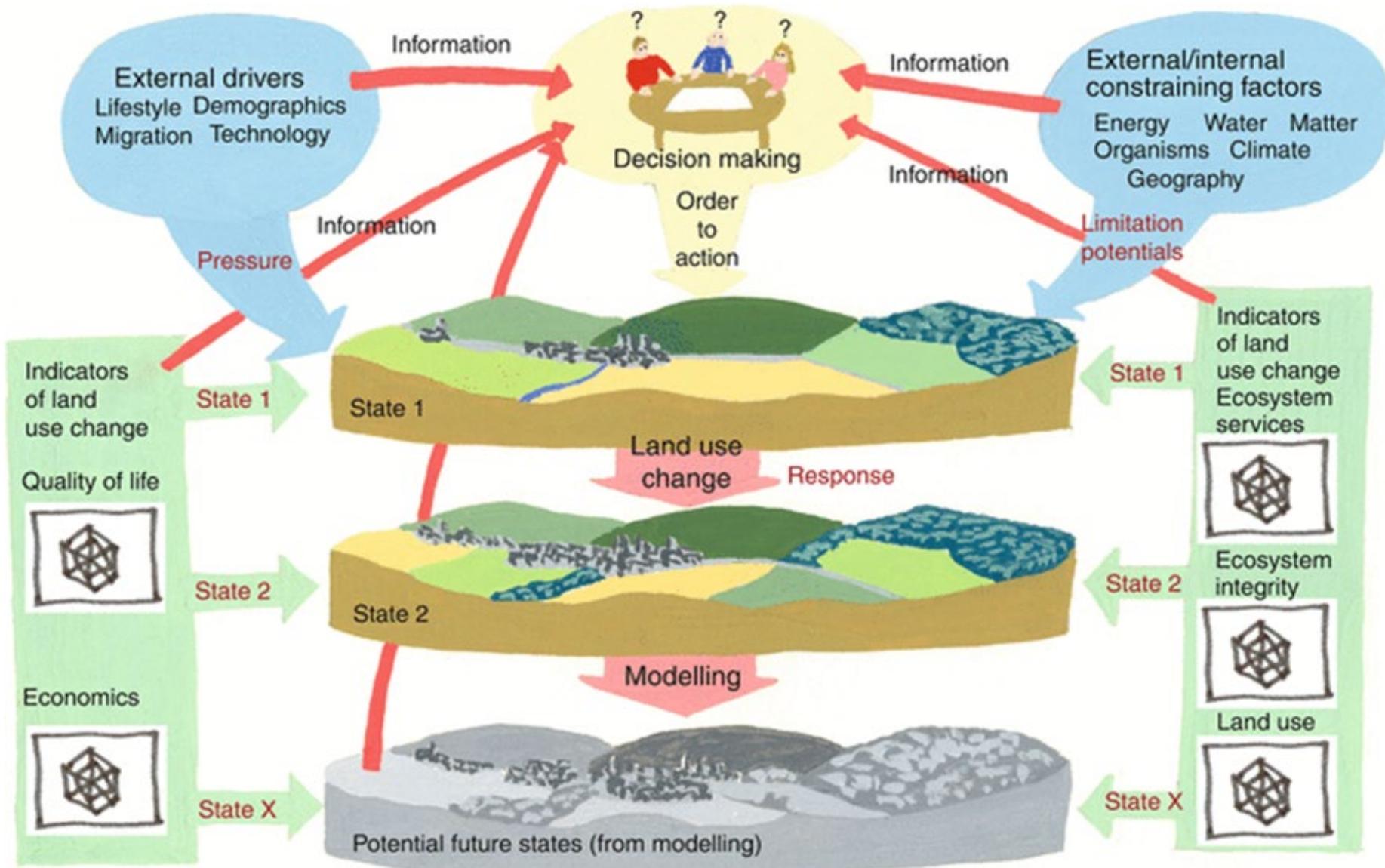
IMPACTS

Biological, economic and social effects of environmental change

STATE

State or condition of the environment





External drivers
Lifestyle Demographics
Migration Technology

External/internal
constraining factors
Energy Water Matter
Organisms Climate
Geography

Decision making

Order
to
action

Pressure

Limitation
potentials

Indicators
of land
use change

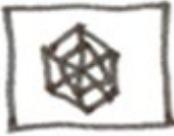
State 1

State 1

State 1

Indicators
of land
use change
Ecosystem
services

Quality of life



State 2

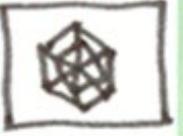
State 2

State 2

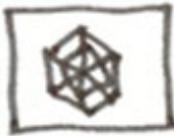
Ecosystem
integrity

Land use
change

Response



Economics



State X

Potential future states (from modelling)

Modelling

State X

Land use



What might be some indicators of visual landscape quality?

- Some work has been done by Tveit, Ode and Fry on synthesising different concepts, dimensions, attributes and indicators of visual landscape quality
- This is a comprehensive list which requires a lot of interpretation...

Concept	Dimension	Attribute	Potential indicator
Stewardship	Sense of order, sense of care	Signs of use or abandonment, vegetation succession, condition of elements	Percentage of abandoned land and stage of succession
			Condition of buildings; Areas under positive management
			Length and condition of hedges and walls
			Presence of waste or debris
Coherence	Presence of harmony, unity	Land use, water, pattern	Percentage of land use in natural condition
			Presence and pattern of water
			Repeatability of patterns, colors, textures
Disturbance	Lack of contextual fit, lack of coherence	Disturbed land and disrupted natural areas; construction, infrastructure	Number of disturbing elements
			Percentage area impacted by disturbance
			Visibility of disturbing elements
Historicity	Historical continuity, historical richness	Visible time layers, cultural elements, traditional agricultural patterns and practices	Presence of cultural elements
			Shape and type of linear historical elements
			Age of historical elements
			Number of time layers
			Presence of traditional land use and pattern

Visual scale	Visibility, openness, grain size	Topography, vegetation man-made structures	Viewshed size; Viewshed form
			Depth of view, degree of openness, grain size
Imageability	Spirit of place/genius loci, uniqueness, distinctiveness	Spectacular elements, iconic elements, panoramas	Viewpoints
			Presence of spectacular, unique or iconic elements and landmarks
			Presence of water bodies, percentage area of moving water
Complexity	Diversity; variation; complexity of patterns and shapes	Point and linear features, land cover, land form	Number of objects and types
			Evenness index, dominance index
			Diversity indices; Shape diversity
			Size variation indices
			Heterogeneity indices

Naturalness	Intactness, robustness, natural vegetation, lack of human influence	Natural features; structural integrity of vegetation; vegetation/land-cover type; water; management; patch shape; edge shape	Fractal dimension; vegetation intactness; percentage area with permanent vegetation cover; lack of management; management intensity (type and frequency), naturalism index; degree of wilderness
Ephemera	Seasonal and weather-related changes	Land cover/vegetation; animals; land use (plowing, etc.); water (color reflections and waves); weather	Percentage of land cover with seasonal change Presence of animals Presence of cyclical farming activities; Percentage area water Projected and reflected images; Presence of weather characteristics



DESIGN
WITH NATURE

IAN L. McHARG

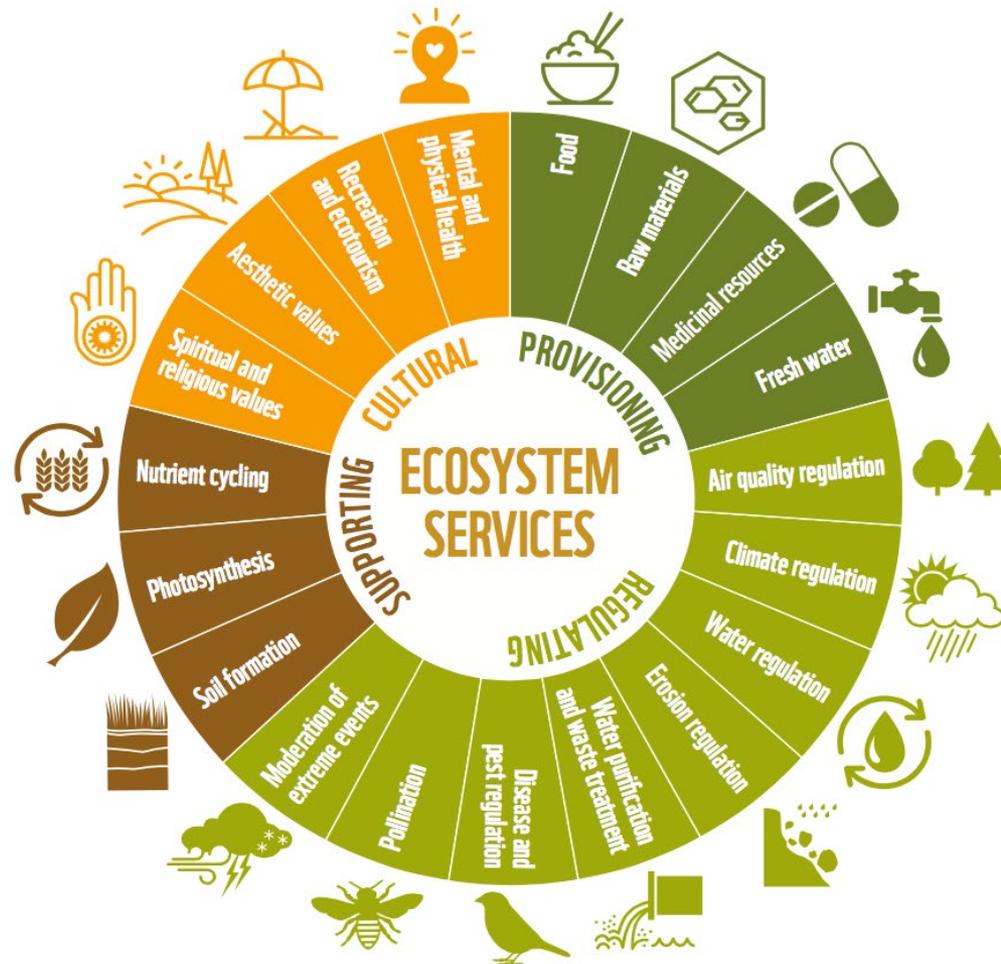
You might be familiar with McHarg's approach from 50 years ago



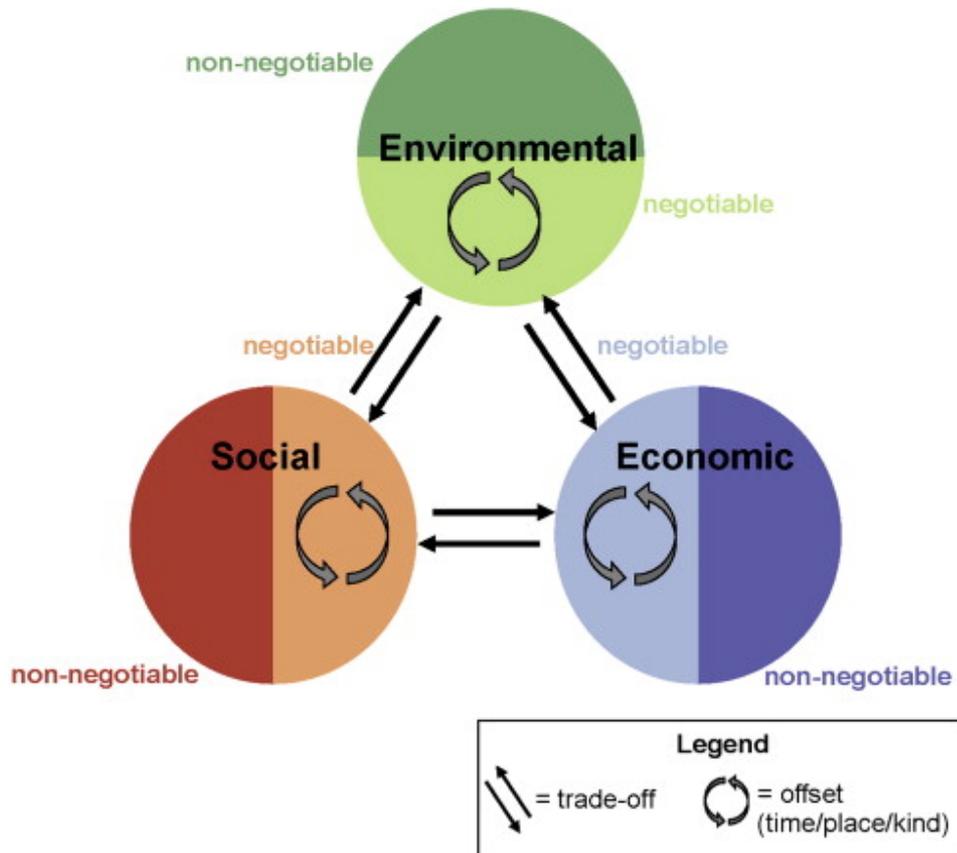
Some questions for you

(paradoxes?)

Where does landscape fit into the concept of ecosystem services?



Is it possible to maximise all dimensions in a landscape at the same time and over time?



Is a sustainable city possible or is it an oxymoron?



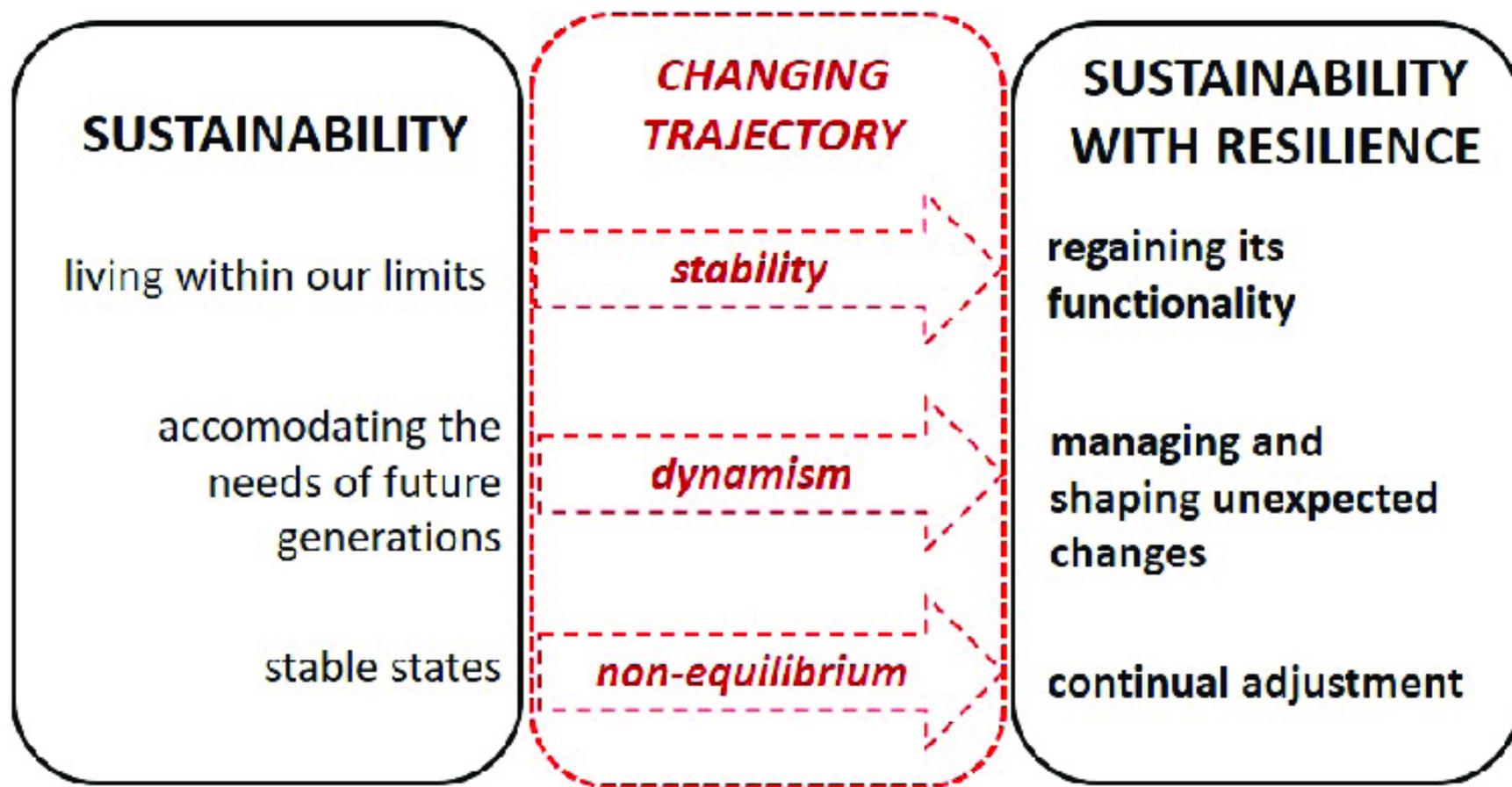
Is this solution sustainable?



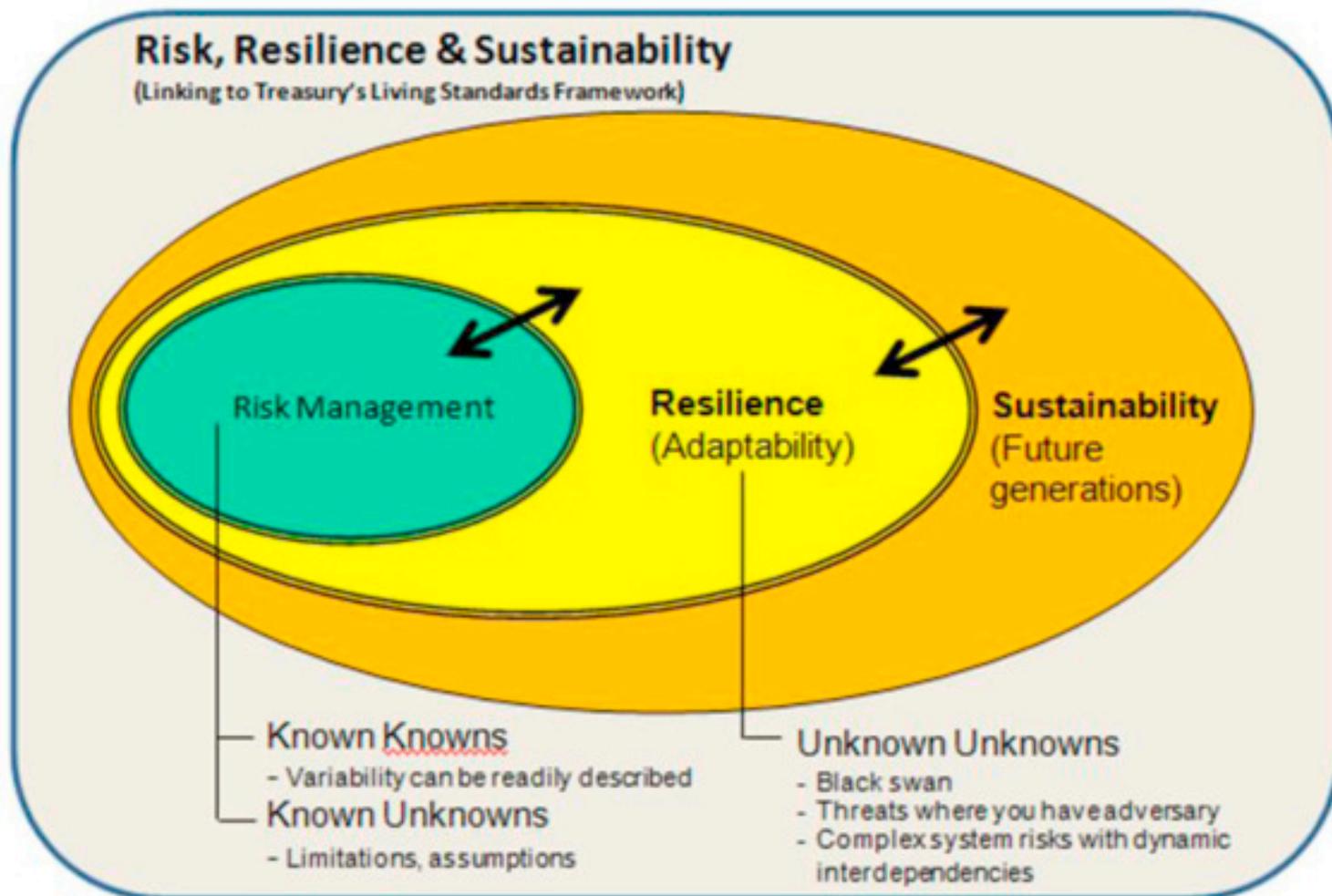
Are Finnish forests also sustainable landscapes?



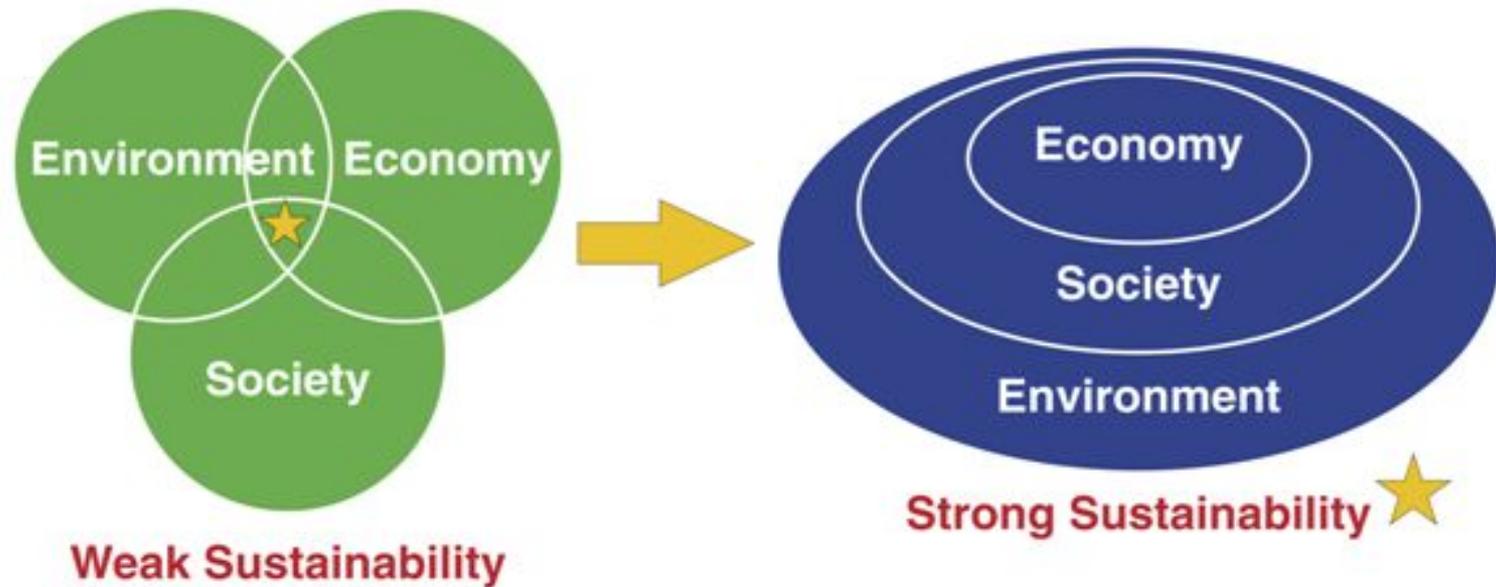
Is resilience the new sustainability?



Is resilience the new sustainability?



How should we view sustainability and what impact would a change have on sustainable landscapes?



How do we deal with black swans in the landscape?



Black swan theory

- The Black Swan theory is a metaphor that describes an event that comes as a surprise, has a major effect and is often inappropriately rationalised after the fact with the benefit of hindsight
- Examples: 9/11, First World War, 2008 crash...

I think that is enough for
now!