



Think Tank: Land-use decision making in an increasingly complex world

Making Sense with Systems

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Structure for the day

- Introductions
- Background to the workshop
- Introduction to systems thinking
- Developing causal loop diagrams
- Discuss. Then discuss some more.
- Review. Reflect. Evaluate.

Introductions

- Who are you?
- Which organisation are you from?
- What's your connection / role / relationship to land use decision making?



Context setting

Introduction to systems thinking

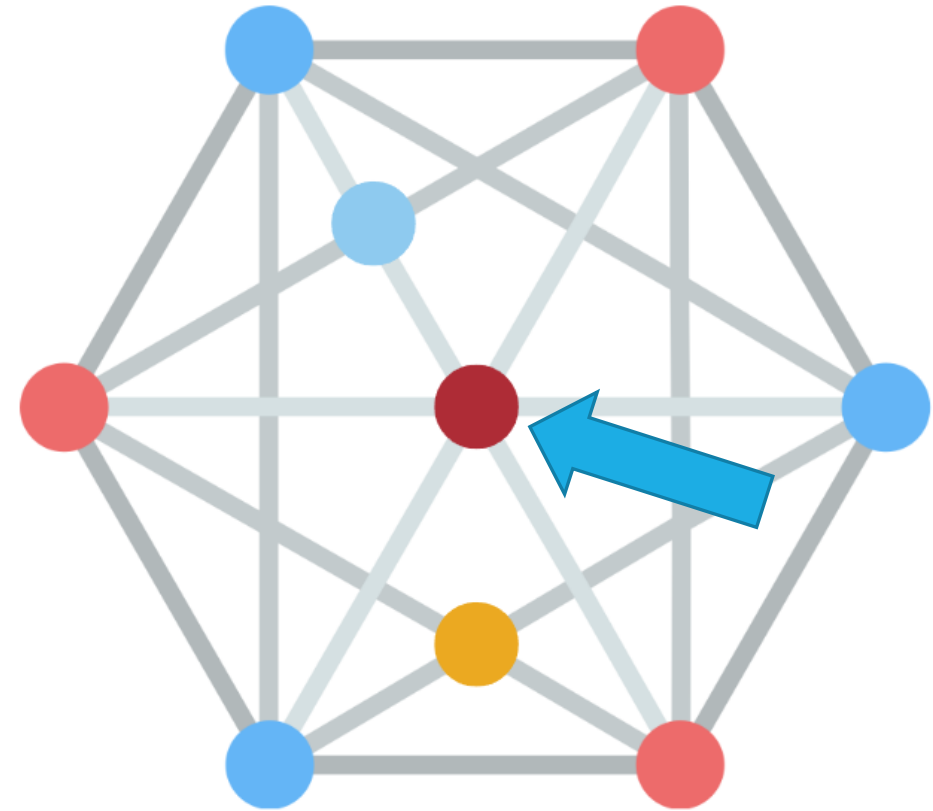
- **Systems thinking** is an approach to understanding and solving complex problems by **framing** them as interconnected and interdependent networks of factors, rather than isolated components.
- To view something as a 'system', in essence we are:
 - Looking at something holistically, rather than individual parts
 - Focus on the nature of relationships / connections, and what they mean within the broader context
 - Appreciate that they are shifting / dynamic
 - Are subject to a range of factors at different levels
 - Produce outcomes / changes / that can be greater than the sum of their parts

So, what is systems thinking?

Traditional Analysis	Systems Thinking
<p>Traditional analysis focuses on the separating the individual pieces of what is being studied; in fact, the word “analysis” actually comes from the root meaning “to break into constituent parts.”</p>	<p>Systems thinking, in contrast, focuses on how the thing being studied interacts with the other constituents of the system—a set of elements that interact to produce behavior—of which it is a part.</p>

Why do we do it?

- **Situation / problem framing** – it allows for us to contextualise problems within a broader system or network of determinants
- **Direction setting** – it supports facilitated processes for deciding where to intervene, and what the potential results will be.





How do
we 'do'
systems
thinking?

Requirements for 'doing'

There are a number of techniques that you can use, but all typically start with:

- **Boundary setting** – that is, what is the area or topic of focus? What dictates the factors that are 'in' or 'out' of the system?
- **Stakeholder involvement** – deciding on and bringing together different perspectives of the 'system' that you are trying to make sense of?
- **Applying mapping techniques** – these can depend on your situation, but can include (among others):
 - Causal Loop Diagrams
 - Cognitive Mind Mapping
 - Social Network Analysis



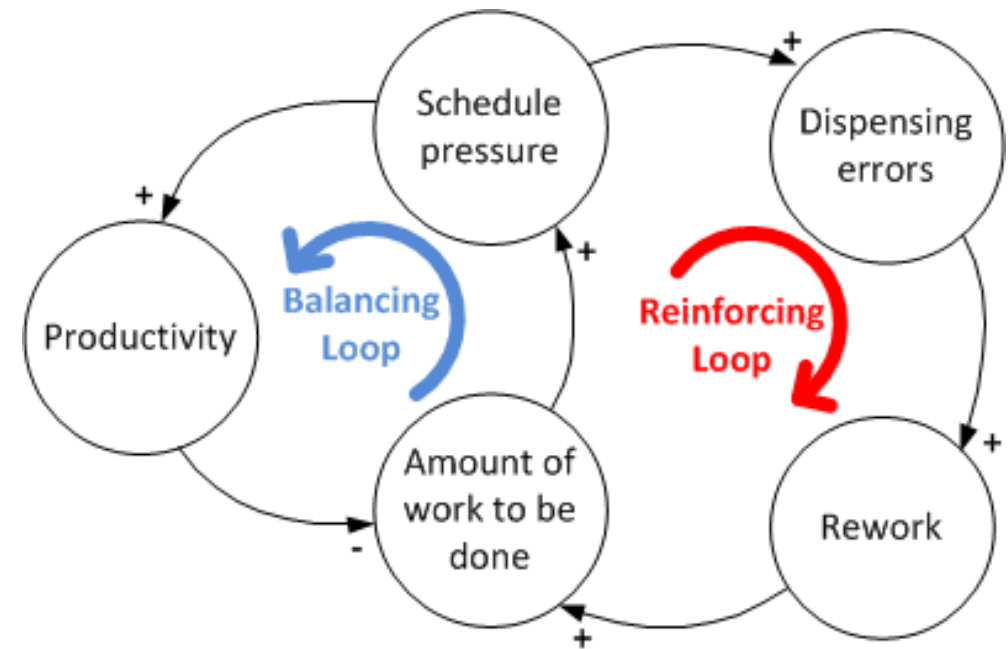
Activity 1: Modelling our own system

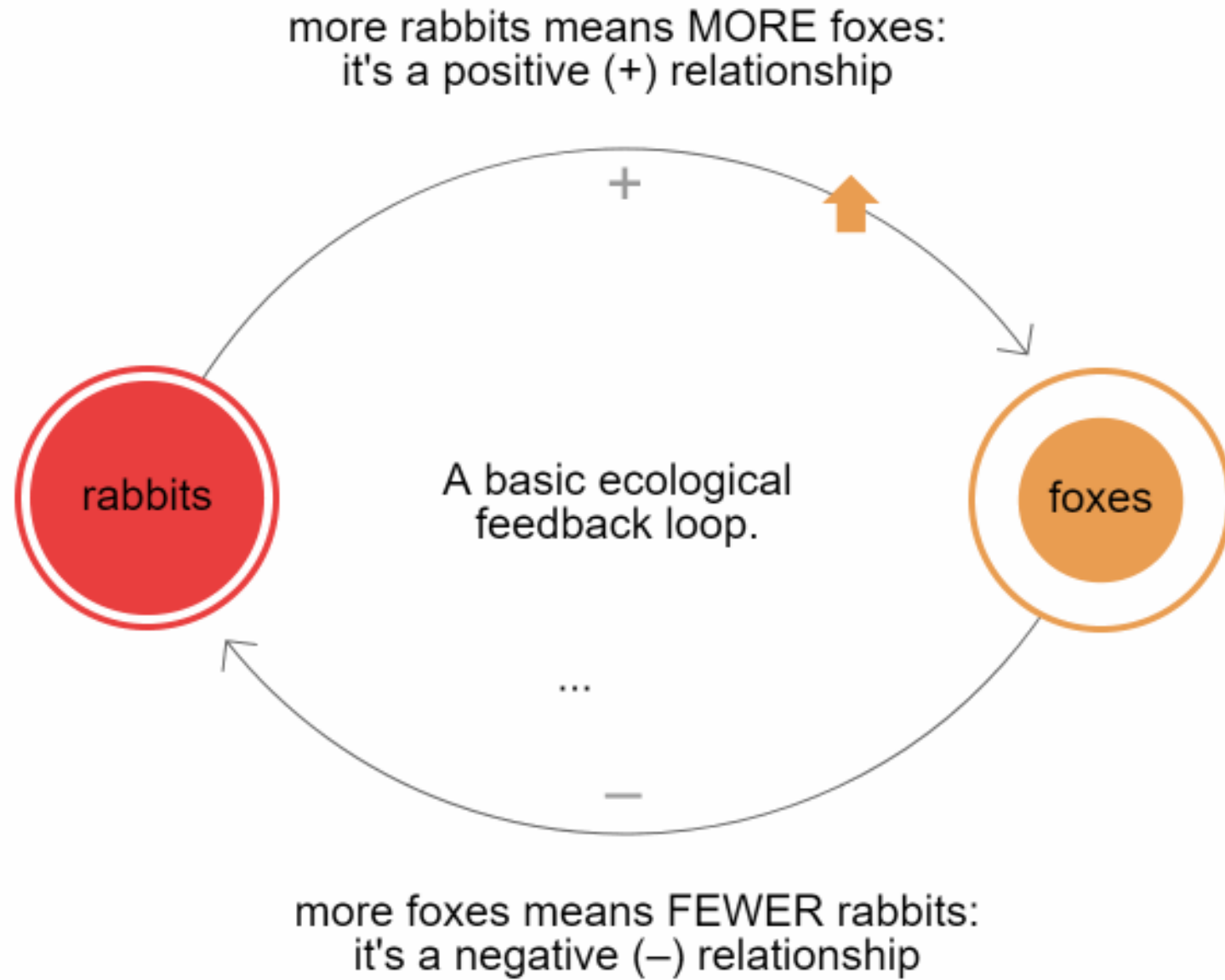




Causal Loop Diagrams (CLDs)

- A **causal loop diagram (CLD)** is a tool used to show how different parts of a system are connected and influence each other.
- It helps you understand the cause-and-effect relationships within a system.
- We use to them to model / reflect our understanding in other parts.





Creating Causal Loop Models

They should be measurable / observable components of the system, rather than vague or abstract ideas.

Tips:

- **Specific:** They focus on particular, measurable aspects of the system.
- **Actionable:** They are things you can influence or observe directly.
- **Descriptive:** They clearly describe what part of the system they represent.
- **Neutral:** They are not overly positive or negative; they just describe a condition.

In summary:

- **Good variables** are specific (e.g., "crop yield"), measurable (e.g., "water usage per hectare"), and focus on one thing at a time.
- **Bad variables** are vague (e.g., "success"), subjective (e.g., "good conditions"), or overly broad (e.g., "sustainability efforts").

Starting your model

- Form groups of 5-6 people
- Aim for a mix of backgrounds / expertise if you can
- This will be your group for the rest of the session



Starting your model

- Grab a piece of butchers paper
- Your goal:

Develop a draft Causal Loop Diagram that reflects the factors influencing regional land-use decision making in the context of increasing levels of complexity.

- Write in the centre of your map “**Land-use decision making**”

1. Individually, think about the different factors that you see as influencing land-use planning / decision making (3-4 mins)
2. Share between you what you have come up with, and where you have common factors write them down on the page spaced out. Start with 10-12.
3. Draw lines connecting the variables. There should be a direct causal link between those variables.
4. Determine the nature of the connection (plus / minus)
5. Add, iterate, refine.
6. If you have a complete ‘loop’ consider if it is **balancing** or **reinforcing**

Feedback / share

- An important part of the CLD development process is cross-pollination of ideas / thinking
- Each group to spend three minutes describing some of the dynamics at play, and anything you found / observed
- We will then return to the maps, and continue to add / refine



Evaluation

Before you leave, please make sure to fill out the short evaluation on today!

