Hull University Business School

An Introduction to Systems Thinking:
Integration and Implementation in the Face of Wicked Problems

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This Talk will Cover...

- What are 'wicked problems'?

- What is systems thinking?

- Different systems approaches for different purposes, with practical examples

- Three systemic principles for addressing wicked problems

Wicked Problems involve...

- Many interlinked issues, cutting across the usual silos (e.g., economy, health and environment), making for a high degree of complexity

- Multiple agencies (across the public, private and voluntary sectors) trying to account for multiple scales (local, regional, national and global)

- Many different views on the problem and potential solutions

- Conflict over desired outcomes or the means to achieve them, and power relations making change difficult

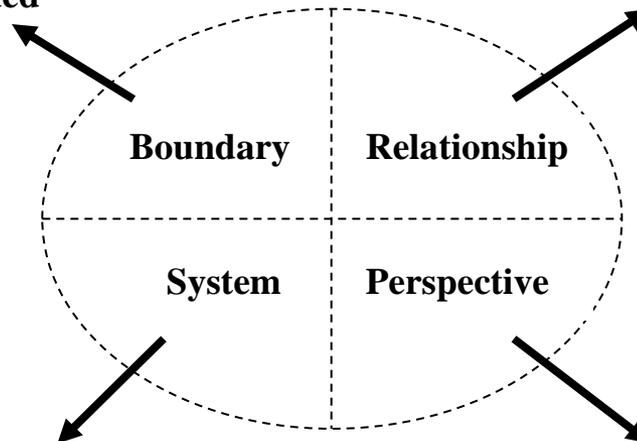- Uncertainty about the possible effects of action

Four Systems Thinking Skills

(adapted from Cabrera et al, 2008)
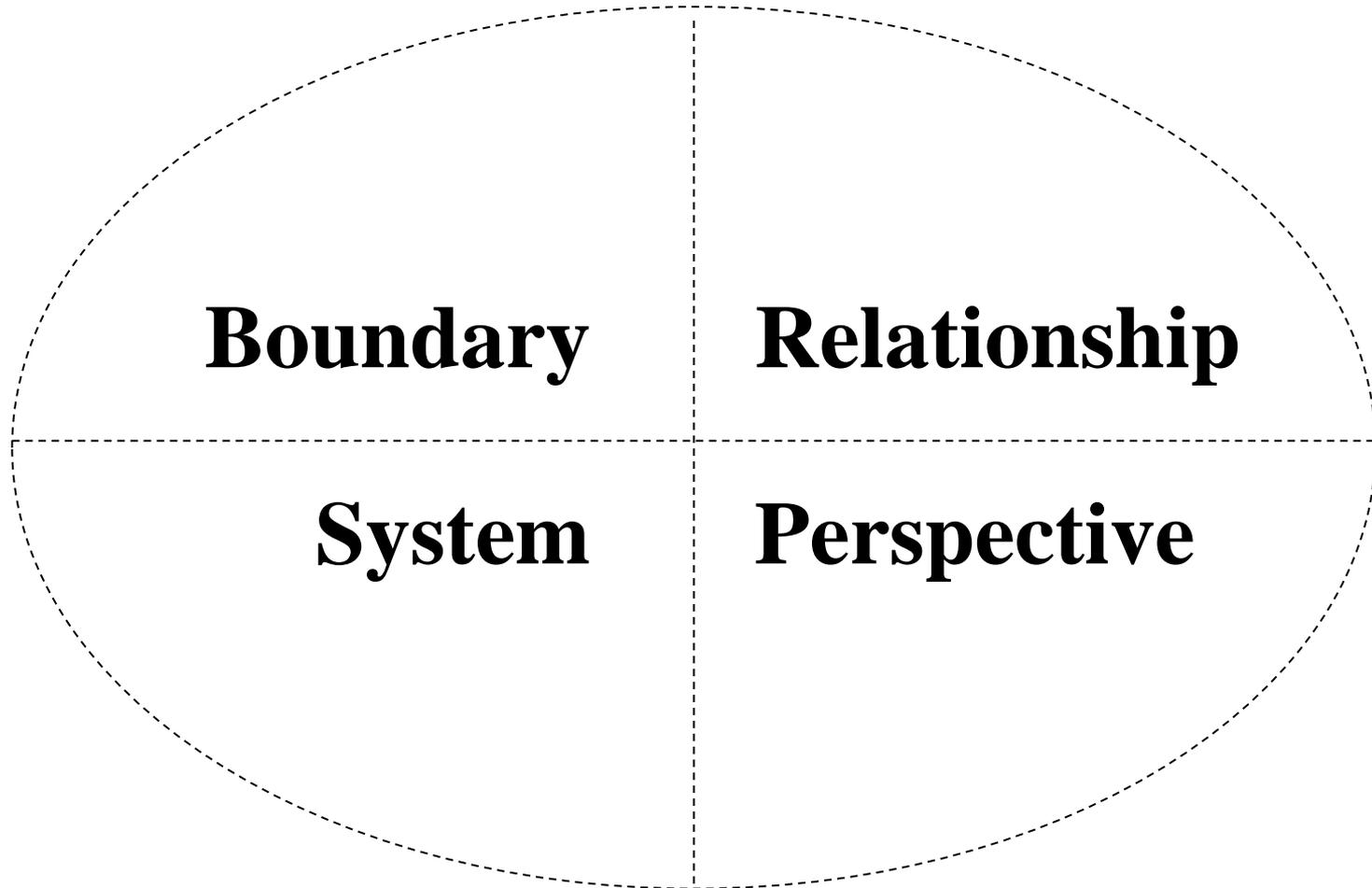
Boundary	**Relationship**
System	**Perspective**

Emphases of Different Systems Approaches

Approaches for exploring value and boundary judgements about what should be included in or excluded from analysis
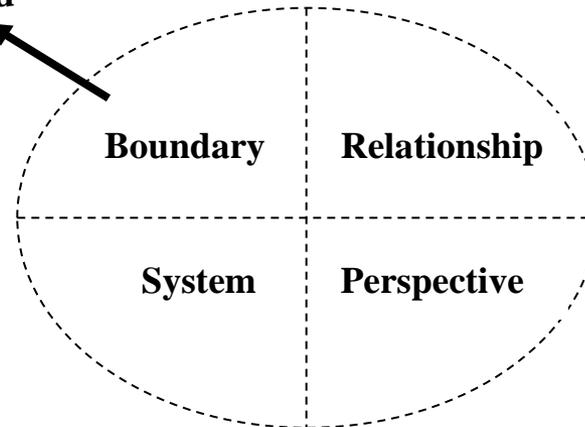
Approaches for understanding complex causality; feedback; vicious and virtuous circles; and the possible consequences of intervention

Boundary | Relationship

System | Perspective

Approaches for developing viable and highly responsive organisations at multiple levels (global to local)

Approaches for addressing conflict; exploring multiple perspectives; developing mutual understanding; and agreeing solutions that people are willing to implement

Emphases of Different Systems Approaches

Approaches for exploring value and boundary judgements about what should be included in or excluded from analysis

The Boundary Idea

Values

Inclusion of stakeholders and issues

Boundary

Exclusion of stakeholders and issues
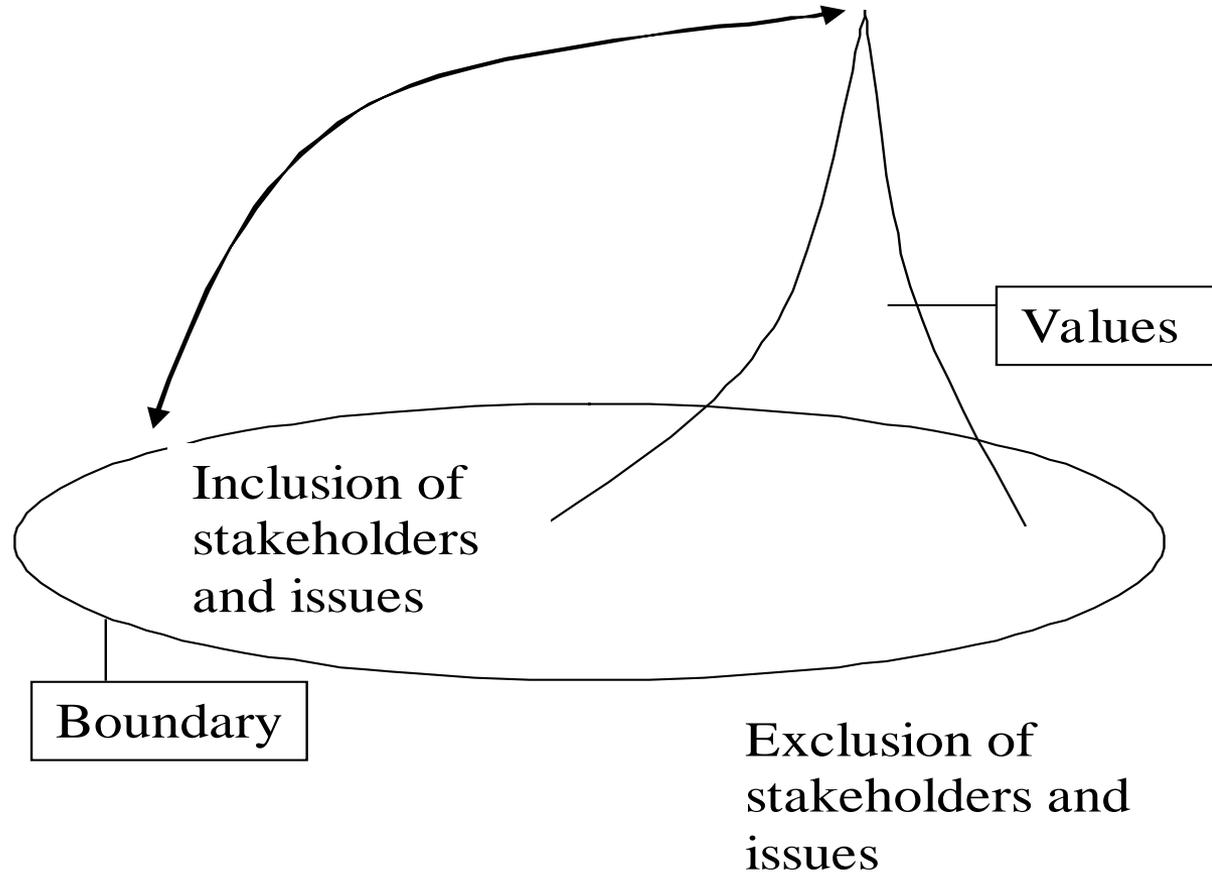
Developing Services for Young People (under 16) Living on the Streets

Young people on the streets are marginalised in two ways:

- As young people under 16, they are regarded as less rational and less able to make informed decisions about their own lives than adults

- Living on the streets, they can easily be regarded as 'troubled teenagers' on the fringes of society, and are often vilified for their involvement in petty crime, prostitution, etc.

Developing Services for Young People (under 16) Living on the Streets

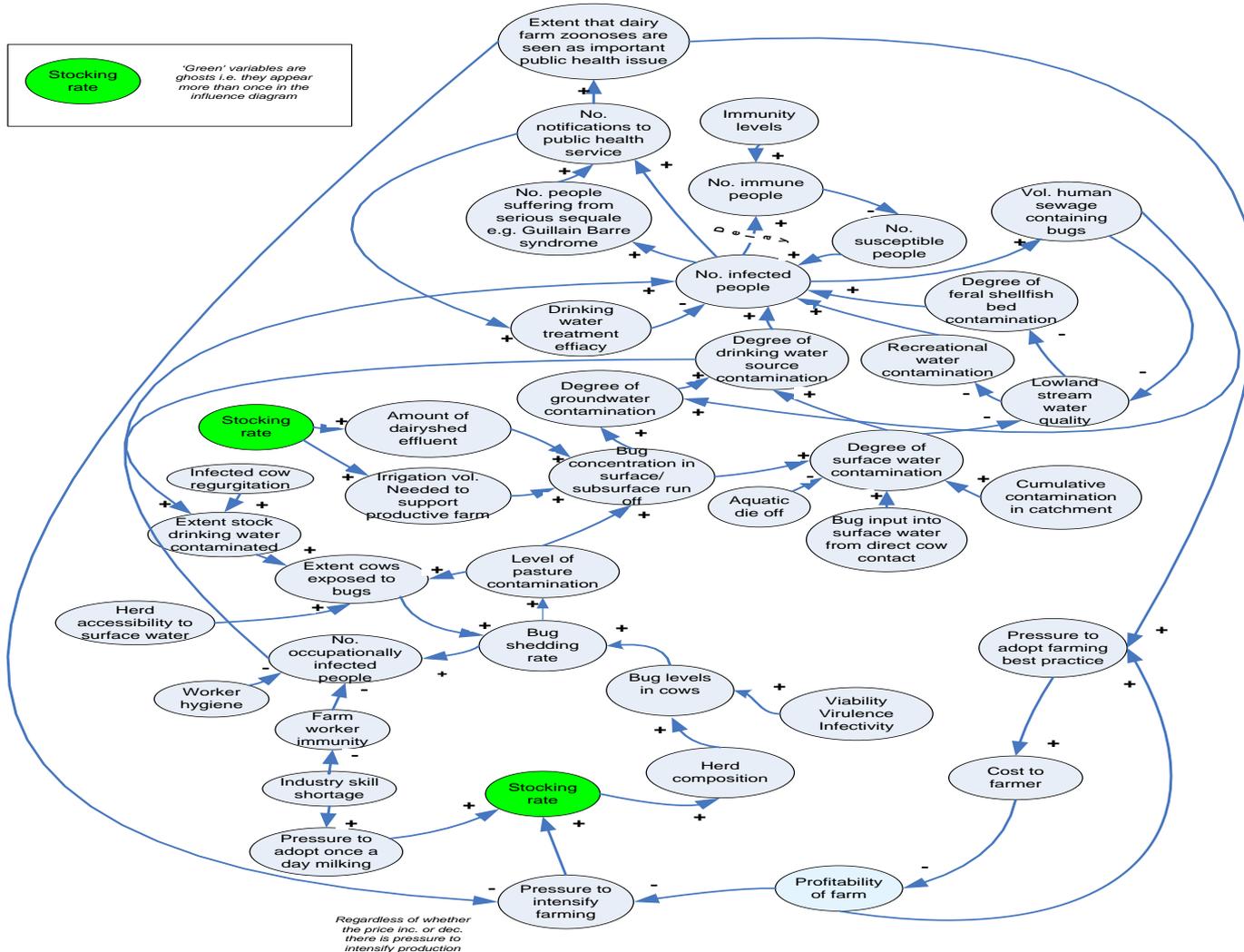To deal with this marginalisation we:

- Sought the views of young people before involving professionals so the voices of the former were not crowded out

- Communicated *their* words (not just ours) to professionals, to convey the emotional experience of being on the streets, thereby securing multi-agency commitments to change

- Used the same design methods with young people as with professionals to ensure we did not reproduce the perception that young people are less 'rational'

Emphases of Different Systems Approaches
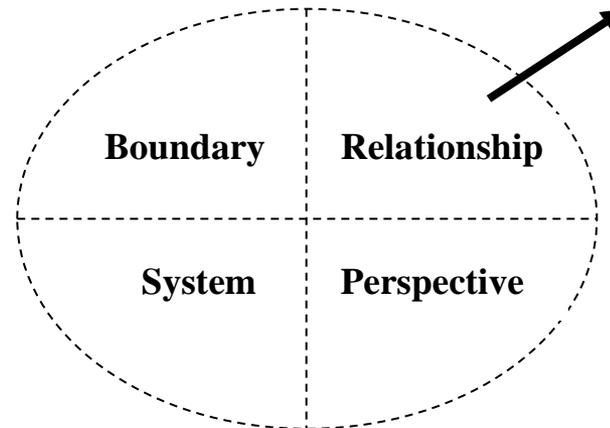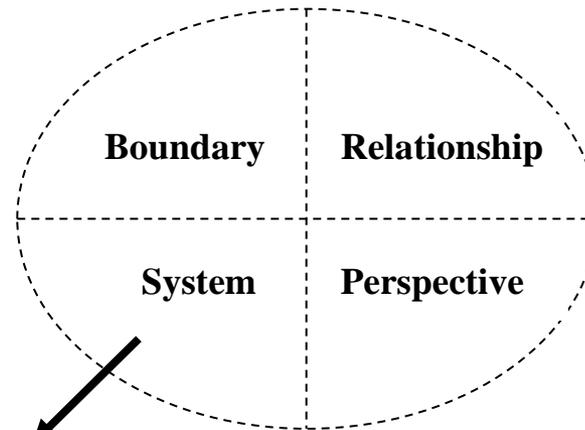
Approaches for understanding complex causality; feedback; vicious and virtuous circles; and the possible consequences of intervention

Boundary	Relationship
System	Perspective

System Dynamics

Emphases of Different Systems Approaches

Boundary   **Relationship**

System   **Perspective**
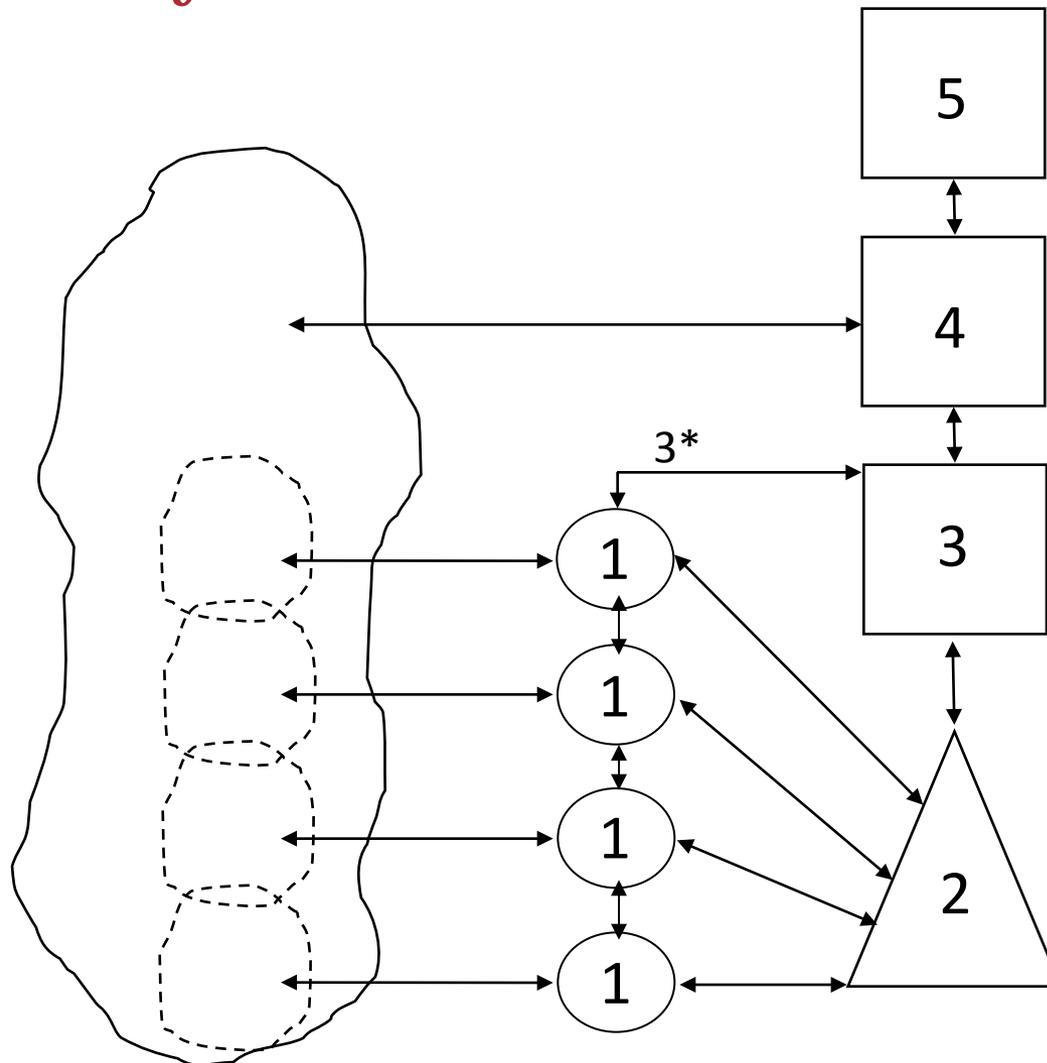
Approaches for developing viable and highly responsive organisations at multiple levels (global to local)

The Viable System Model

Emphases of Different Systems Approaches
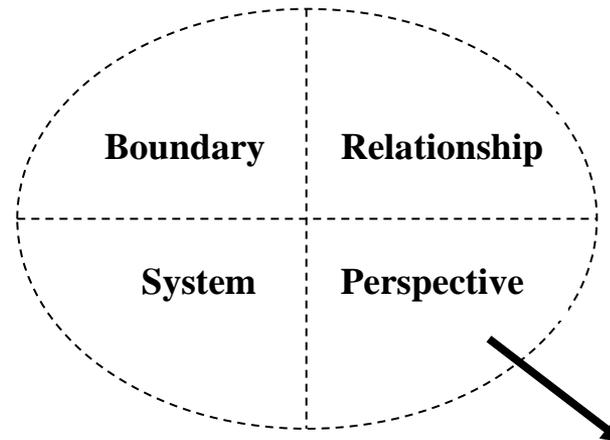
Boundary | Relationship

System | Perspective

Approaches for addressing conflict; exploring multiple perspectives; developing mutual understanding; and agreeing solutions that people are willing to implement

Soft Systems Methodology

- Map the mess!

Example of a Rich Picture of Water Management Issues

Soft Systems Methodology

- Map the mess!

- Identify possible transformations that different people want

- Explore what these mean to different people to ensure that people are not talking past one another

BATWOVE

- Beneficiaries

- Actors

- Transformation

- Worldview

- Owners

- Victims

- Environmental Constraints

Soft Systems Methodology

- Map the mess!

- Identify possible transformations that different people want

- Explore what these mean to different people to ensure that people are not talking past one another
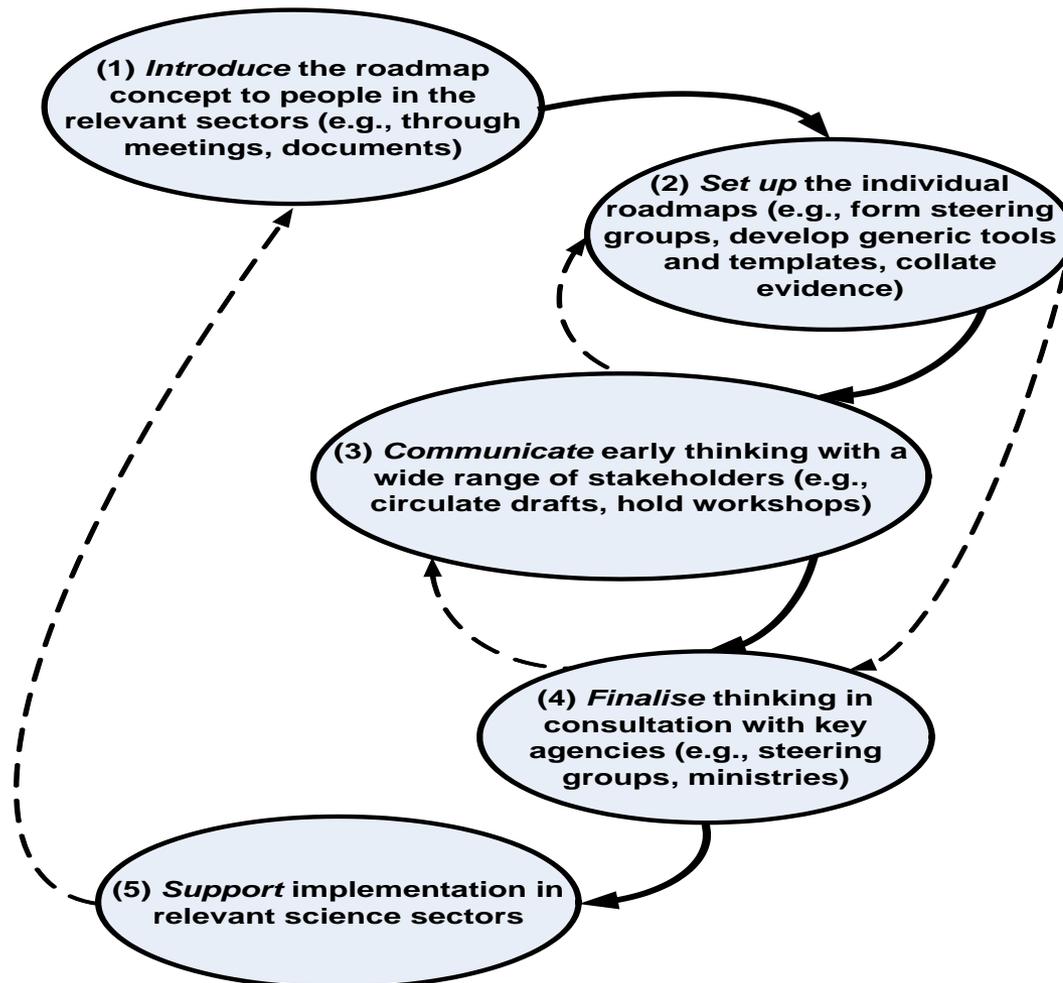
- **Map the activities that would be needed to make the transformations a reality**

Example of a Conceptual Model

(1) *Introduce* the roadmap concept to people in the relevant sectors (e.g., through meetings, documents)

(2) *Set up* the individual roadmaps (e.g., form steering groups, develop generic tools and templates, collate evidence)

(3) *Communicate* early thinking with a wide range of stakeholders (e.g., circulate drafts, hold workshops)

(4) *Finalise* thinking in consultation with key agencies (e.g., steering groups, ministries)

(5) *Support* implementation in relevant science sectors

Soft Systems Methodology

- Map the mess!

- Identify possible transformations that different people want

- Explore what these mean to different people to ensure that people are not talking past one another

- Map the activities that would be needed to make the transformations a reality

- Compare back to the earlier picture of the mess

- Look for accommodations between different perspectives and agree desirable and feasible changes

- Move to action

Three Systemic Principles for Managing Wicked Problems

1. Explore boundaries (stakeholders and issues), values and processes of marginalisation up-front, and revisit the boundaries of your work when new aspects of a wicked problem present themselves.

2. Draw upon and mix methods from across the systems approaches (and the biophysical and social sciences) to be as responsive as possible to the multiple dimensions of wicked problems.

3. If you have no previous (or limited) experience, start from where you are. Try new methods when the need arises, and build capacity for the longer term.