

Modelling: How stakeholders can be involved

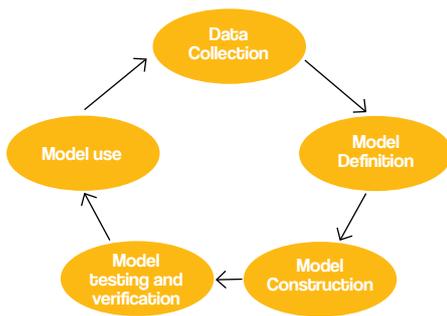


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This resource explains how to involve stakeholders in modelling. Involving stakeholders can provide additional information with which to build a model to support decision making. It is designed for a technical audience.

WHAT ARE MODELS?

Models are simplified representations of reality. They are useful tools for synthesising and communicating our understanding of complex social-ecological systems. Modelling is a systematic process that combines stakeholder and scientific knowledge to develop conceptual and/or numerical models that can be used to support decision making, learning, and communication (see diagram below).



WHY SHOULD STAKEHOLDERS BE INVOLVED IN MODELLING?

Stakeholders may need to be involved in the modelling process to achieve overlapping purposes:

- Model improvement:
 - Gathering and integrating multiple knowledge sources enhances the understanding of the system, and relevant issues
 - Including various viewpoints improves the legitimacy of the modelling process and products



- Improves the quality of modelling inputs and outputs
- Improves ownership of the modelling outputs, and therefore, likelihood of adoption/implementation
- Social learning: when stakeholder groups come together in a facilitated discussion to share ideas and interests that may inform individual/collective understanding and action
- Support decision making: when the modelling process is directly linked to a management goal or decision

WHO SHOULD BE INVOLVED?

A number of criteria need to be considered when deciding who needs to be involved, including:

- What is the purpose of the modelling process?
- Who may be affected by or have an interest in the issue at stake?
- Who can contribute to the modelling process?

- Who is needed for implementing results?
- Who can block the modelling process or implementation of results?

HOW CAN STAKEHOLDERS BE INVOLVED

Different stakeholder groups may be involved at one or more phases of the modelling process depending on the modelling and participatory purpose (See table overleaf).

METHODS AND TOOLS

There is a wide range of participatory methods and analytical/conceptual tools that can be used to involve stakeholders in the modelling activities.

Examples of participatory methods include:

- Workshops and focus groups
- Knowledge elicitation methods (e.g. interviews)
- Interactive learning labs (laptops, diagrams, and maps).

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Examples of analytical and conceptual tools include:

- Various forms of conceptual models (e.g. influence diagrams, causal loops diagrams, and maps)
- Visualization tools (e.g. graphs, GIS, computer interfaces)
- Analytical tools (e.g. multi-criteria analysis, numerical models)
- Games (e.g. role-playing, computer-based)

Selecting combinations of methods/tools depends on several criteria, including:

- In light of the modelling objective, what is the purpose of the participatory activity?
- How well do the tools work in the context of the method to support the activity purpose?
- If the participatory activity is designed to generate data that will be linked to model development, what are the types and forms of data required?
- How much time, skills, and resources are required versus what is available?
- How well do these methods/tools fit with stakeholder preferences and capacity?

Modelling phase	Potential value of stakeholder participation
Data collection	<ul style="list-style-type: none"> • Stakeholders can provide data (qualitative and quantitative) that supports model definition, or which can be used to parameterise the model
Model definition	<ul style="list-style-type: none"> • Stakeholders' perspectives and issues of concern provide the basis for defining the model's purpose and use • Stakeholders help define scenarios and metrics that the model will be used to examine • Stakeholders share their views about present issues, and how they envisage the future
Model construction	<ul style="list-style-type: none"> • Stakeholders' knowledge and perspectives can provide the conceptual basis for constructing models • Stakeholders have the opportunity to critically think and reflect on their own system understanding
Model testing	<ul style="list-style-type: none"> • Stakeholders' knowledge helps validate the model, and can be used to verify its output behaviour • Stakeholders have an opportunity to interrogate the model, understand its limitations (i.e. what the model can and cannot do) and sources of uncertainties
Model use	<ul style="list-style-type: none"> • Stakeholders have an opportunity to run scenarios and examine their outcomes. Feedback helps improve the model. • Stakeholders start model-mediated discussions, with the aim of openly reflecting and challenging their assumptions about the system, and others' views of the system

Want to learn more?

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