



## Public Participation Methods

Ângela Guimarães Pereira

This module will focus on the use of scenarios as a tool and a perspective to explore possible futures of the complex systems socio-ecological systems characteristic of sustainable development issues. The impossibility of rigorous prediction of these systems arises from a number of fundamental properties, and therefore classical forecasting approaches are rarely applicable, particularly in the long term.

Projections of trends in socio-ecological systems may be legitimate over the short-term, but they become unreliable as time horizons expand from months and years to decades and generations. Some studies of the future rely heavily on mathematical models. The aim is a desirable one of establishing a disciplined and internally consistent basis for understanding complex processes. But formal models also have significant limitations for representing complex human and environmental systems. Models can capture only those elements that are both reasonably well-understood and amenable to quantification. Fundamental uncertainty is introduced both by our limited understanding of human and ecological processes, and by the intrinsic indeterminism of complex dynamic systems. Moreover, social futures depend on human choices which are yet to be made.

Scenario analysis offers a way to consider long range futures in light of these uncertainties. Scenarios are not projections, forecasts or predictions. Rather, they are stories about the future with a logical plot and narrative governing the manner in which events unfold. A scenario is a possible course of events leading to a resulting state of the world (or image of the future). The image is like a picture or a snapshot of the future situation; the scenario includes the image plus the history of developments that led to it. Originally, it was defined as a hypothetical sequence of events constructed for the purpose of focusing attention on causal processes and decision points. The importance of considering scenarios as courses of events is that this directs attention to the unfolding of alternatives and to branching points at which human actions can significantly affect the future; scenarios are used to support decision-making.

One important feature of the method of scenarios is that, while they can take into account quantitative insights from available data, numerical calculations, and mathematical models, scenarios give due weight, as well, to the narrative and to key elements that are not quantifiable either in principle (e.g., cultural influences, behavior and institutional responses to change) or in practice (due to inadequacies in data or scientific theory). Thus, scenarios can provide a broader perspective than exercises which are heavily model-based, while at the same time making use of various quantitative tools such as accounting frameworks and mathematical simulation models.

The essential building blocks of scenarios will be identified and discussed, including:

- Current (Initial) Situation
- Critical Dimensions



- Driving Forces
- Strategic Invariants (Predetermined Elements)
- Critical Uncertainties
- Plots (Logics of the Scenarios)
- Images of the Future

The presentation will include examples of scenarios designed for different purposes and at different scales, from the planet to the city.

Participants at the School, working in small groups, will design their own scenarios for their own areas of interest, under the guidance of the experts, and they will present and defend them by the final day.

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