

Case Study A: Participatory Modelling Frameworks to Understand Wellbeing Trade-offs in Coastal Ecosystem Services

What is the problem?

The contribution of ecosystem services to human wellbeing and poverty alleviation has been widely recognised in recent times. Research has shown that a diverse range of ecosystem related trade-offs exist, in which gains for one ecosystem service or group of people results in losses for others. These are often poorly acknowledged as research focuses on more socially palatable win-wins. This selective focus on win-wins can cause important and value-dependent trade-offs to be overlooked, often with unintended perverse outcomes. For example, technical and economic approaches to evaluate trade-offs deal adequately with routine trade-offs, but fail to acknowledge the social complexity, the multiple dimensions of wellbeing, and the political challenges that often characterise decisions around ecosystem services and resource management.

Ecosystem services examined and methods

Residents of Mombasa town on the Kenya coast depend on the ecosystem services provided by a small-scale fishery at Nyali. The fishery is a social-ecological system integrating the coral reef and seagrass ecosystem, and five primary stakeholders (Figure 2). Most of the primary stakeholders are poor, and are differentiated by gender, vulnerability, and the way in which they benefit from the ecosystem. The project used focus group discussions with each stakeholder group, long-term biological and fisheries data, and participatory conceptual modelling with stakeholders. The data derived were integrated into a simplified 'toy model' of social-ecological dynamics and benefits (Figure 1), as well as discursive scenarios of possible futures (Figure 2).

Findings

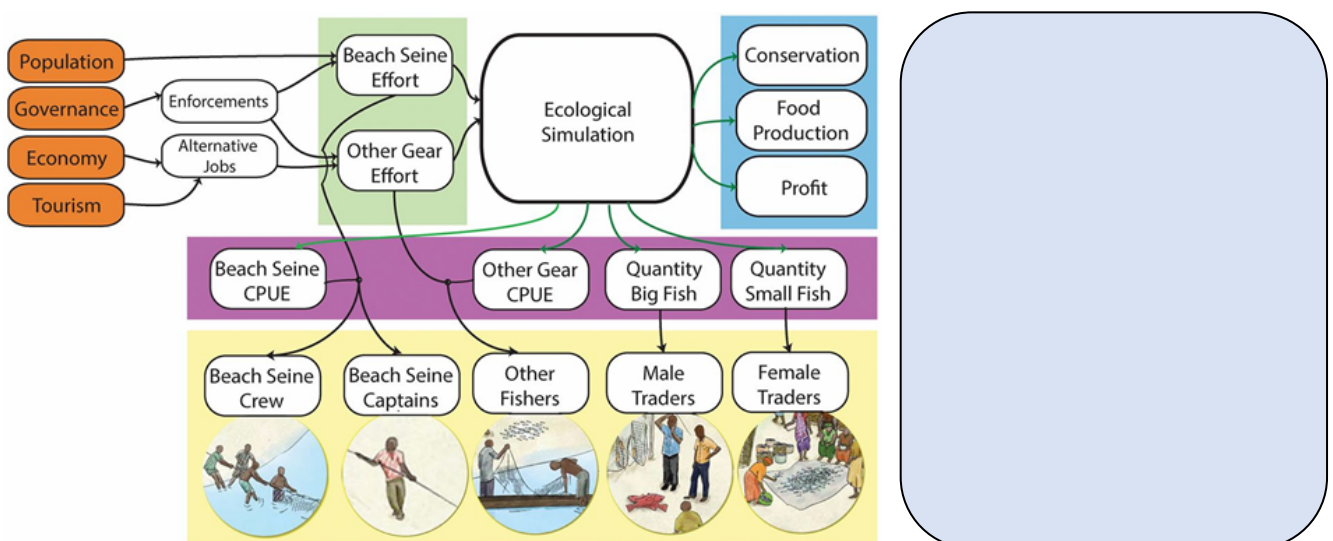


Figure 1: The social-ecological fishery system as conceptualised by the toy model

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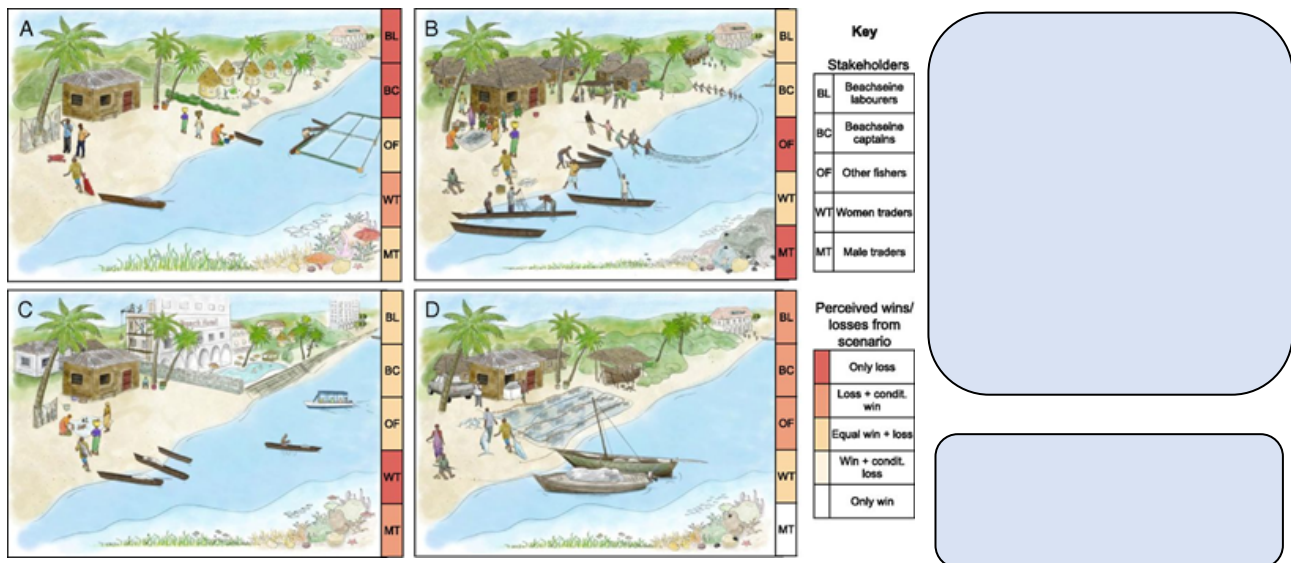


Figure 2: Artistic representations of qualitative future scenarios of the system

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The project later developed the SPACES Data Explorer (<http://www.espa-spaces.org/resources/spaces-data-explorer/>) which allows users to explore the contribution of ecosystem services to different aspects of wellbeing, including whether or not people are meeting their basic needs and who has access to the ecosystem services.

Questions for discussion

1. Based on the case study and the SPACES data explorer, identify 5 ways in which the coastal ecosystem in Kenya contributes to people's wellbeing, making sure to include at least one objective, one subjective and one relational aspect.
2. Identify 2-3 ways in which men and women rely differently on ecosystem services. Discuss whether these different uses of ecosystem services are mutually compatible or will lead to trade-offs.
3. Can you identify and discuss different trade-offs observed in this case study?

Further reading

1. Daw, T.M. et al. (2015) Evaluating taboo trade-offs in ecosystems services and human well-being. *Proceedings of the National Academy of Sciences* 112: 6949–6954
2. ESPA. (2014) Sustainable Poverty Alleviation from Coastal Ecosystem Services (SPACES). (Available on: <http://www.espa-spaces.org/resources/spaces-data-explorer/> [accessed 21 February 2018])