Sustainable coastal adaptation planning links ecosystem services with social needs

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From rising seas to fiercer and more frequent storms, climate change effects are putting increasing pressure on coastal populations and ecosystems throughout Europe. Human activities, such as farming and land-use changes, are already in conflict with ecosystems. However, linking ecosystem services with social preferences in coastal land-use management can lead to more sustainable resource planning, finds a new study. The researchers developed guidelines for a participatory climate change adaptation process, which integrates the social effects of adaptation measures with the ecosystem services that they affect.

Sustainable measures to adapt to climate change are necessary. An 'ecosystems approach' can lead to more sustainable solutions, by taking into account the value of ecosystem services, such as those which support food, recreation and water purification. However, while this approach considers socio-economic factors, there are complex interactions between nature and society.

This study suggests that spatial planning processes could be improved by a greater understanding of the links between ecosystem services and their social effects. These effects may include secure income, the perceived beauty of an area, a sense of place and competing land uses.

The researchers, therefore, developed and examined a guideline for integrating both ecosystem services *and* social impacts into a participatory planning process for spatial and land management projects in the region of Krummhörn, Germany. Many communities within Krummhörn are located within low-lying marsh areas and must be protected from the North Sea tide. Around one-third of the total area is below sea level.

The approach involved identifying locally relevant ecosystem services and social impacts, which were then categorised and organised. The researchers interviewed local stakeholders about these categories to determine their interests, preferences and needs concerning each. The 14 stakeholders interviewed represented sectors from water management, nature conservation, agriculture, policy and tourism.

The researchers found that, from a stakeholder's point of view, social impacts are of fundamental concern to any adaptation action. For instance, an 'attachment to place', was of particularly high relevance, as was 'trust' in those responsible for decision making. Some stakeholders did not trust politicians, for example, but all thought highly of water boards. The majority of stakeholders felt that it was important that new land-use management strategies had positive outcomes for all participants.

By assessing how different ecosystem services affect, or are used by, surrounding communities, an understanding of which ecosystem services are of most importance to these communities, and how they might best be managed, can be developed. The researchers suggest that using such a participatory approach allows the scientific understanding of ecosystem services to be merged with the analysis of their effects on communities. This would provide a new basis on which to make successful decisions and promote a collaborative and transparent planning process.