

## Stakeholder collaboration for water governance in North Sea coastal regions

Leena Karrasch <sup>(a)</sup>, Thomas Klenke <sup>(b)</sup>, Johan Woltjer <sup>(c)</sup>

(a) COAST - Centre for Environmental and Sustainability Research, Universität Oldenburg Ammerländer Heerstr. 114 - 118 26111 Oldenburg, Germany  
[leena.Karrasch@uni-oldenburg.de](mailto:leena.Karrasch@uni-oldenburg.de)

(b) COAST - Centre for Environmental and Sustainability Research, Universität Oldenburg Ammerländer Heerstr. 114 - 118 26111 Oldenburg, Germany  
[thomas.Klenke@uni-oldenburg.de](mailto:thomas.Klenke@uni-oldenburg.de)

(c) Faculty of Spatial Sciences, Rijksuniversiteit Groningen  
[j.woltjer@rug.nl](mailto:j.woltjer@rug.nl)

### ABSTRACT

Communities living in coastal lowlands and estuaries have to deal with constant environmental and societal change and increasing competition concerning space and resources. The southern North Sea region provides prominent examples for increasing numbers of spatial activities. Scarcity of space and impacts of climate change are becoming major drivers of land use and adaptation management today. Focusing the water management in the low lying areas of the Dutch and German coastal zones, the status and the future needs of the drainage systems will cause considerable problems. Here, spatially integrated water management approaches need to be developed and harmonized, delivering adaptive strategies for a more sustainable development and focusing on human well-being to meet the future challenges. The Ems-Dollart region (German-Dutch transboundary region) is of significant ecological and socio-economic interest and part of international and cross-sectoral projects. Results of the study will be included in the integrated management plan (IBP) as instrument for mainstreaming different interests including the common objectives for sustainable development in accordance to the European Spatial Development Perspective.

However, changes in land use management may lead to beneficial and adverse effects on both human well-being and ecosystem health of a region. In current coastal and water management practices there is more emphasis on understanding the direct cost of human interventions for ecosystems, while a combined consideration of supplementary changes in benefits is generally missing. Development and management processes have to take into account that interventions cause environmental and social consequences which influence each other.

When decision-makers and stakeholders together with scientists deal with the challenges of an integrative approach inherently the question arises, how to develop participatory and adaptive strategies for sustainable development including the ecosystem services (ESS) and social needs? Related informal processes have started in the area of Krummhörn (North-West Germany). Stakeholders, engaged in sectors of agriculture, nature conservation, tourism, policy, spatial planning and water management, collaborate in inter-sectoral dialogues to develop holistic, long-term and anticipatory spatially explicit courses of action.

We developed and applied an integrated methodical approach to participative land use planning merging decisive elements of two powerful concepts (i) the ESS approach and (ii) the social impact assessment. Both concepts constitute the foundation to analyze complex socio-ecological systems and activities within the regional society and support land use management. The method contributes to optimize decision-making by improving the inclusion of ESS in planning processes focusing on the linkages with social impacts. Interactions with practitioners demonstrated that local decision-making cannot be based on the ESS approach directly. From a management point of view, thinking and acting is located within social units. Putting the method into practice, stakeholders express their experiences and needs in social terms without the need to understand the scientific background of the ESS approach which is often not easy to communicate.

It is argued that scientific and practical implications of this integrated assessment offer an improved understanding of human well-being, focus on multi-functional options and contribute to more sustainable practices in land use planning. The method operationalizes the ESS approach and social impact analysis and demonstrates that social demands and provision of ESS are inherently connected. It combines scientific driven and stakeholder driven decision-support gaining a holistic view including the ESS approach into the sphere of planning due to the interests and needs of the society and considers feedback mechanisms promoting courses of actions within planning activities.

**KEY WORDS:** *Governance, ESS, SIA, Adaptation, Participation.*