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BONUS briefing

SCIENCE FOR A BETTER FUTURE OF THE BALTIC SEA REGION

RISKGOV



Environmental risk governance of the Baltic Sea

A wide range of stakeholders in the Baltic Sea region desire to contribute to the sustainable governance of the Baltic Sea ecosystem. The RISKGOV project identifies a set of challenges to these aspirations linked to current governance structures, science-policy interactions and stakeholder communication. In addressing these challenges, it is important to maintain a balance between ideals of holistic approaches such as the ecosystem approach to management and context dependent requirements of various management objectives, environmental risks and sectors.

OVERVIEW

The interdisciplinary RISKGOV project aims to develop a comprehensive understanding of the structures and processes that shape the governance of environmental risks at the regional (Baltic Sea) level. Ultimately the RISKGOV scientists seek to recommend, based on the results of their research, possible ways for improving environmental risk governance of the Baltic Sea ecosystem.

The governance of five important environmental risks are compared in terms of three key components of environmental risk governance: 'Governance structures' focuses on the policy context, regulatory institutions, and forms of decision-making, collaboration and participation; 'Assessment – management interactions' scrutinises processes of interaction between science and policy, as well as

approaches for coping with scientific uncertainty and disagreement; and 'Stakeholder communication' analyses the processes and problems of risk framing as well as indications of constructive communication (Figure 1).

OUTLINE OF KEY RESULTS

GOVERNANCE STRUCTURES

RISKGOV results show that, whereas comprehensive regulatory frameworks in most cases are in place, *enforcement and implementation often lags behind, and better integration among frameworks could be achieved.* Moreover, largely lacking are regional institutional forms and mechanisms for systematic reflection among stakeholders on long-term improvement of environmental safety within the individual issue-areas and between different sectors. This tends to lead to reactive rather than forward-looking policy responses, legitimacy deficits and sub-optimal social and institutional learning.

- Eutrophication
- Overfishing
- Invasive alien species
- Chemical pollution
- Oil discharges



Figure 1. The scope of interdisciplinarity in RISKGOV



ASSESSMENT – MANAGEMENT INTERACTIONS

There are *substantial differences among the studied environmental risks* in relation to the complexity of sources and potential negative outcomes, the state of scientific knowledge and uncertainty as well as the type and extent of socio-political ambiguity (Table 2). This means that the studied assessment-management interactions face different challenges that *require a context dependent adjustment of approaches and methods*. For example, high levels of uncertainty (e.g. chemical pollution) and ambiguity (e.g. overfishing) can be assumed to require assessment-management approaches focussed on precaution and participatory deliberation, respectively.

In general, however, *the observed assessment-management interactions do not adequately address the identified key challenges of uncertainty and ambiguity*. Instead, all studied environmental risks can be described as being risk analysis based (Table 2). Our analysis identifies six key issues/challenges that, if adequately addressed, may improve assessment-management interactions and facilitate the implementation of the ecosystem approach to management.

1. We see a need to further develop the *regional and ecosystem basis* of assessment-management interactions in terms of addressing prioritised knowledge gaps, as well as developing regional knowledge management and monitoring to strengthen regionally-based scientific advice.
2. *Integration of various forms of scientific knowledge* is currently rather undeveloped in assessment and scientific advice which reduces possibilities of addressing also the social dimension of

Consequently, RISKGOV scientists conclude that environmental risk governance of the Baltic Sea could be improved by complementing contemporary risk management practices and institutions with forms for more *reflexive governance* practises that facilitate learning between sectors, build-up of more robust institutions and promote long-term sustainability.

Our in-depth analysis of the studied environmental risk cases identifies eight challenges that, if adequately addressed, may contribute to more reflexive governance (Table 1).

Table 1. Identified challenges for developing a more reflexive governance of environmental risks in the Baltic Sea.

Challenge	Related findings
<i>Acknowledging uncertainty</i>	In general assessment and management are not sufficiently broadly framed in order to allow for unexpected outcomes. For example, chemicals are mainly handled in isolation disregarding ecological risks of complex mixtures.
<i>Multi-scale approaches</i>	The scales of the governance system need to be more appropriately adjusted to those of the relevant socio-ecological systems. For example, the strengthening of ongoing processes such as regionalization of EU fisheries policy as well as re-scaling of international conventions to binding EU and national legislation may be ways of further improving implementation.
<i>Multi-sector approaches</i>	The sectoral organisation in different DGs and directives in EU environmental management is a significant obstacle to integration of environmental dimensions in management strategies. One way to stimulate closer interaction and institutional learning between sectors could be to support and improve organisational platforms (e.g. HELCOM, Baltic 21) that address the full range of environmental hazards.
<i>Interest, knowledge and value conciliation</i>	Development of regional institutional structures aimed at improved stakeholder involvement is identified as a way to increase legitimacy, gather new knowledge, and making implementation more effective. The EU Regional Advisory Councils connected to fisheries management are here interesting examples. However, these stakeholder institutions need to be carefully crafted and adapted to risk-specific conditions.
<i>Path dependency</i>	Path dependency often makes incremental policy-making appropriate in order to reduce risks of lock-in effects. Potential benefits of path dependency should also be appreciated, as stability in governance structures facilitates actors' making of scenarios and predictions about future developments.
<i>Governance dynamics</i>	Political pressures to take immediate action in case of large-scale dramatic incidents such as major oil spills often leads to management changes that are not sufficiently assessed. One way to cushion political pressures can be to make management bodies such as HELCOM more autonomous.
<i>Governance plurality</i>	Governments sometimes hesitate to commit to binding regulations. Soft rules may then be important ways to facilitate proactive countries and non-state actors to take the lead and to allow for some experimentation in alternative governance strategies.
<i>Monitoring and self-monitoring</i>	Traditional scientific monitoring is often not sufficient to provide robust outcomes. When different categories of stakeholders – governmental bodies, scientists, NGOs and sector organisations – take part in monitoring activities, over-all robustness and self-reflexivity of governance may be increased.

Table 2. Summary of identified challenges and observed assessment-management interactions linked to environmental risks in the Baltic Sea.

Environmental risk case	Type of knowledge, uncertainty	Assessment-management interactions	Observed assessment-management interactions
Eutrophication	<i>Uncertainty - Ambiguity</i>	Strong role of science (co-production)	<i>Risk analysis based</i> Diffuse and instrumental
Overfishing	<i>Ambiguity - Uncertainty</i>	Highly formalised linked to EU fisheries management	<i>Risk analysis based</i> Formalised, towards participatory
Invasive alien species	<i>Ignorance</i>	Rather undeveloped	<i>Risk analysis based</i> Undeveloped
Chemical pollution	<i>Uncertainty - Ambiguity</i>	High complexity of interactions	<i>Risk analysis based</i> Diffuse and complex
Oil discharges	<i>'Technical' Risk</i>	Focus on surveillance and monitoring	<i>Risk analysis based</i> Focus on safety analysis

sustainable development as well as possibilities of identifying and reducing 'blind spots'.

3. *Stakeholder participation* requires more consideration since incorporation of practitioner and local knowledge in risk assessments as well as stakeholder deliberation in risk management are vital for the successful implementation of the ecosystem approach to management.

4. We identify substantial room for improvements linked to coping with *scientific uncertainty and disagreement* in both risk assessment and risk management. We conclude that there in fact are numerous science-based precautionary approaches and methods, but that a comprehensive and coherent strategy for addressing uncertainty often is lacking.

5. *Interdependencies among environmental risk issues* need to be more specifically addressed than today. Climate change will, for example, influence both the outcome of risk assessments as well as the possibilities for successful management in all the studied environmental risk cases.

6. Despite a commonly expressed idea of a clear separation between assessment and management, the studied science-policy interactions are in general rather *diffuse and politicised*. This *lack of transparency* may mislead political decision makers and the public and thus potentially hamper management progress.

STAKEHOLDER COMMUNICATION

A general finding of our analysis is that risk communication policy in regard to the studied environmental risks has changed mainly in two respects over the last decade:

Firstly, there are *increasing efforts to give relevant stakeholders the opportunity to become involved in risk management also at the level of the Baltic Sea region*. These efforts include HELCOM's Baltic Sea Action Plan through which the Commission's 'observer policy' has been supplemented by a 'dialogue policy'. They include further the setting up of the Baltic Sea Regional Advisory Council under the 2002 reform of the Common Fisheries Policy (in total seven Regional Advisory Councils) aimed to improve regulatory compliance in European Union's fisheries management.

Secondly, mainly in the fisheries field, there are *emerging efforts to open up activities in the process of scientific advice production to relevant stakeholders* at the intergovernmental level (including the Baltic Sea region). First steps towards two-way communication between science-based assessment and stakeholders are found in the efforts undertaken by the International Council for the Exploration of the Sea and its close links to the stakeholder policy of the revised Common Fisheries Policy.

As they help to pool different forms of knowledge and values, these changes are favourable to implementation of the ecosystem approach to management. Successful implementation of this approach in the Baltic Sea region would require, however, a *more integrated system of stakeholder input/advice* which better takes into account interdependencies among environmental risk issues and also their social and economic implications. Our explorative account shows that setting up such a system, e.g. in form of a 'regional marine advisory council', requires mastering several challenges as highlighted in the table below (Table 3).

Table 3. Challenges of setting up an integrated system of stakeholder advice in the Baltic Sea region.

Challenges	Related findings
<i>Facing issues of inclusion</i>	Moving towards an integrated system of stakeholder advice requires defining a membership which 'truly' reflects the range/role of stakeholders making up the different sectors and designing an organisational structure allowing for efficient working processes. The persistent debate on the two-third dominance of the fisheries sector in the Regional Advisory Councils is one indicator of this issue's importance.
<i>Unclear/insufficient motivation and capacity</i>	Integrated issue management does not automatically present a feasible and attractive option for all stakeholders; e.g. power resources needed for participation may be lacking and strategic interests may be opposed to it.
<i>Creating a common concern</i>	The frame of EAM is interpreted differently and not fully acknowledged by all stakeholders. Defining it primarily as a participatory management approach could enhance acceptance and thereby increase motivation for providing advice.
<i>Vertical coordination</i>	The pursuit of an integrated advice system requires improved coordination of regional stakeholder advice with stakeholder advice produced at other political levels.

NEXT STEPS AND FUTURE PLANS

Based on the findings of the RISKGOV scientists future research is needed in relation to:

- In-depth analysis of entire chains of environmental management to identify operational gaps and best practises.

IN BRIEF

RISKGOV Environmental risk governance of the Baltic Sea

RISKGOV aims to develop a comprehensive understanding of the structures and processes that shape the governance of environmental risks at the regional (Baltic Sea) level and, ultimately, to suggest possible ways for improving environmental risk governance of the Baltic Sea ecosystem.

KEY RESULTS

- A more reflexive environmental risk governance needs to be developed by addressing eight general challenges: acknowledging uncertainty; multi-scale approaches; multi-sector approaches; interest, knowledge and value conciliation; path dependency; governance dynamics; governance plurality; monitoring and self-monitoring.
- Assessment–management interactions need to be developed by addressing six key challenges: regional and ecosystem basis; integration of various forms of scientific knowledge; stakeholder participation; coping with scientific uncertainty and disagreement; interdependencies among environmental risk issues; transparency regarding diffuse and politicised science-policy interfaces.
- A more integrated system of stakeholder input/advice needs to be developed by addressing these challenges: how to reach fairness and competency in stakeholder representation; how to achieve stakeholder motivation and capacity for joining such a system; how to link regional advice with advice produced at other policy levels.

WHO NEEDS THE INFORMATION

All stakeholders – in relation to their governance practises – would benefit from reflecting on these key challenges in efforts to promote and ensure sustainable management of the Baltic Sea ecosystem.

- Challenges, best practises and ideas for building improved arenas for knowledge and dialogue among scientists and external stakeholders.
- Comparisons of environmental governance in various regional seas (e.g. Baltic Sea, North Sea, Black Sea and Mediterranean Sea) in terms of i) Europeanisation, ii) regionalisation and iii) transfer of policies and practices.

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