

## **Environmental Risk Governance of the Baltic Sea (RISKG0V)**

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## ***1 Concept, objectives and expected outcome of project***

In the Baltic Sea existing governance strategies and current risk assessment and risk communication approaches have not been designed to deliver the integrated and holistic appraisals required by the ecosystem approach to management (EAM<sup>1</sup>). Despite decades of substantial efforts by state and non-state actors on local, national, European and international levels to counteract negative environmental trends in the Baltic Sea, little has so far been achieved. It is hence necessary to develop an interdisciplinary and integrated scientific basis for improving governance of environmental risks. Comparing and synthesizing environmental risks in various domains is needed to identify strengths and weaknesses of current approaches and provide suggestions for improving the present situation. In response to this basic challenge, RISKGOV pursues **two general and interrelated aims**:

- 1) RISKGOV aims at improving our understanding of the structures and processes that shape the governance of environmental risks in the Baltic Sea and determine the conditions and opportunities that could improve governance for sustainable development. (**descriptive/analytical aim**).

This analysis will focus on three interrelated key areas for the governance of environmental risks in the Baltic Sea:

- a) Governance structures (policy context, regulatory frameworks, forms for decision-making, participation, etc).
  - b) Governance processes: Interactions between risk assessment and risk management.
  - c) Governance processes: Stakeholder communication.
- 2) Based on the theoretical and empirical knowledge gained from these tasks, RISKGOV will suggest a normative framework for improving environmental risk governance in the Baltic Sea. (**normative/constructive aim**).

These aims will be achieved by integrating **social and natural science approaches** on strategically<sup>2</sup> selected major environmental risks relating to the key goals of the newly adopted HELCOM Baltic Sea Action Plan (HELCOM 2007), thereby creating opportunities for an increased understanding of how effective and legitimate governance structures are related to various types of environmental risks, assessment and perceptions of these risks by key stakeholders, scientific experts, and public authorities. The proposed research will also help key policy actors to better understand institutional mechanisms, communication and incentive structures.

RISKGOV assumes that effective, sustainable and legitimate environmental risk governance requires developing fruitful links between (A) the ecosystem approach to management (EAM); (B) international, European and transnational governance structures; (C) integrated assessment of environmental risks; and (D) inclusion of stakeholder viewpoints and concerns. We argue that, despite the ambition to build the 2007 HELCOM action plan on EAM, the final document does not adequately explain how this can be realised. A point of departure in RISKGOV is that required linkages are not yet fully in place, and that there are also basic challenges to achieve such integration across different risk sectors. The project sets out to analyse **three challenges**

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<sup>1</sup> The implementation of the Ecosystem Approach to Management (EAM) is identified as a key means for achieving sustainable development in, for example, the EU Marine Strategy and the HELCOM Baltic Sea Action Plan.

<sup>2</sup> The selected environmental risks were deliberately chosen (i) based on their relevance for the environmental status of the Baltic Sea and (ii) to represent a variety of risk types (in terms of complexity of causes, type and scale of effects, scientific uncertainty, probability of occurrence and reversibility).

that relate to environmental risk governance of the Baltic Sea. **The first challenge** concerns difficulties to establish regional collaboration among Baltic Sea policy actors due to existing institutional structures and procedures, power relations, cultures and varying policy styles in the region. **The second challenge** concerns the uncertainties, ambiguities and complexities involved in perceiving, understanding, and assessing different types of risks as well as how these risk perceptions and risk assessments interact with risk management and risk communication. **The third challenge** concerns the difficulties in developing communication and knowledge sharing among key stakeholder groups based on participation, transparency and trust. It should be noted that policies decided upon are not exclusively built on state-of-the-art risk assessments, but are crucially affected by the way these assessments are communicated and perceived by decision-makers, stakeholders and the public.

The analysis is based on a **comparative case study approach**. The overall research approach of the proposed project is to compare different risk areas along the following dimensions: (i) governance structures; (ii) governance processes: risk assessment and risk management interactions; and (iii) governance processes: stakeholder communication. RISKGOV includes analysis of five issue areas which are significant for the Baltic Sea's ecological status: *eutrophication*, *fisheries*, *biodiversity impacts*, *chemical pollution*, and *maritime transportations*. In order to ensure comparability over cases, RISKGOV will develop a unified analytical framework, along the three above-mentioned dimensions, which will be applied to the five environmental risks at a **regional Baltic Sea level**.

Expected outcomes of the project include:

- Up-to-date descriptions and evaluations of current approaches to the assessment and governance of the above mentioned environmental risks in the Baltic Sea.
- Identification of strengths and weaknesses of current assessments, governance and stakeholder communication arrangements.
- Better insights into the conditions for regional environmental risk governance.
- A normative framework that will assist future policy development in improving environmental risk governance.

## ***2 State of the art, theory and methods***

In the last decade the term 'governance' has experienced tremendous popularity in the literature on international relations, comparative politics, policy studies, sociology of technology and the environment and risk research. Governance describes structures and processes for collective decision-making involving both state and non-state (profit and non-profit) actors on different levels – local, regional, national, European and global (Rosenau 2003; Nye and Donahue 2000). Likewise, the concept of '*environmental governance*' (or similar terms such as 'governance for sustainable development') pays special attention to environmental decision-making as a *multi-actor* and *multi-level* process, and new modes of regulation and collaboration in an increasingly complex, globalised and less state-centric world (cf. Lafferty and Meadowcroft 1996, Lafferty 2004, Glasbergen et al. 2007, Joas et al. 2007, Pattberg 2007). The differentiation between *horizontal and vertical governance* has been introduced (Benz & Eberlein 1999; Lyall & Tait 2004). While the former refers to a broad range of relevant actors in decision-making processes within a defined geographical or functional segment, the latter describes the links between these segments (e.g. institutional relationships between the local, regional, and state levels). '*Risk governance*' involves the 'translation' of the substance and core principles of governance to the context of risk-

related decision-making. RISKGOV will include, but also extend beyond the three conventionally recognised components of risk analysis (risk assessment, risk management and risk communication). **In this perspective, risk governance includes the totality of actors, rules, conventions, processes and mechanisms concerned with how relevant risk information is collected, analysed and communicated and how management decisions are taken** (IRGC 2005; Renn 2008, p. 9ff.; Ely et al. 2007).

Several studies have shown that the governance of environmental risk poses specific challenges and problems: they require a substantial debate of what is at stake and what value is being assigned to different components of ecosystems (Foster 1997; Parson 2001; Beierle & Cayford 2002). As the literature on environmental governance is rapidly growing, many studies are devoted to complex and multi-faceted regulation and management on the global, European and national level (vertical governance). **Less developed is the link between regional and national level and the horizontal governance structure linking governmental actors, business interests, science and civil society actors. Even less developed is the application of governance to research on Baltic Sea risk management. According to our knowledge there is no systematic or integrated treatment of the link between EAM, risk assessment and environmental governance. Given this gap it is of utmost importance to conduct a truly interdisciplinary research project to investigate these multidimensional challenges and its impacts on sustainability and its governance in the Baltic Sea area.**

RISKGOV acknowledges the great variation in the definition and use of the concept of governance (see *e.g.* Pierre and Peters 2000, Pattberg 2007). Our definition includes both **structures** – such as policy contexts, existing power relations among key actors, regulatory frameworks and organizational forms for decision-making and participation – and **processes**. Processes comprise such aspects as the evolution of organizations, interactional dynamics and communication among policy-makers and stakeholders, the development of strategies, framings and common understanding and the rise of new conflicts and stalemate in discussions. In this context, we distinguish between formal and informal governance structures and two types of governance processes (interaction between risk assessment and management and stakeholder communication). This distinction is made to clarify our aim to study the relation between these three broad factors.

RISKGOV emphasizes the need for a **regional approach** to environmental risk governance. Many studies on regional environmental governance modes have focused on identifying rational and optimal management strategies from a macro perspective, and it has been argued that drainage basins or equivalent concepts are the appropriate units for rational and sustainable resource administration (Bressers and Kuks 2004, Lundqvist 2004). However, little emphasis has been given to factors that may infringe on rational management, such as varying incentive structures among key actors, institutional interplay, and regional identity and legitimacy (Oberthür and Gehring 2006). Consequently, there is a considerable gap between what is desired in terms of environmental governance and what is politically and practically feasible. It has been shown that the so-called law of the lowest common denominator, free-riding temptations and the tragedy of the commons make it difficult to reach collectively satisfactory, let alone optimal, outcomes (Hardin 1968, Underdal 1980, Hovi and Sprinz 2006). Binding agreements are difficult to reach, and even if they are agreed upon, implementation, monitoring and enforcement pose additional problems.

During the last thirty to forty years a substantial amount of research funds have been allocated to describe the causes, consequences and possible solutions of major **environmental risks in the Baltic Sea** (e.g. Elmgren 2001). Although significant scientific uncertainties still exist for several environmental risks such as climate change, chemical pollution, unsustainable fisheries and eutrophication, the physical side of environmental risks is, in comparison with many other marine areas, well-studied in the Baltic Sea. **What is missing, however, is a systematic attempt to compare and integrate risk assessment structures and processes over a range of various environmental risks.**

Furthermore, we are not aware of any studies on the Baltic Sea that **investigate the interrelations between risk assessment and other major components of governance structures and processes, which systematically use a comparative methodology.** How is the relationship between risk assessment activities (aimed at ‘understanding’ risks) and risk management activities (aimed at ‘responding’ to risks) formally and informally organised in different issue areas? Interaction is particularly relevant when a risk needs to be defined, when the questions and tasks for the risk assessors need to be delineated, and when assessment outcomes need to be translated and framed (see further below on ‘framing’) into evaluative judgements to inform the management process (at the stage of ‘evaluation’) (IRGC 2005, Dreyer et al. 2007). Furthermore, does there exist, in the different cases, approaches for dealing with scientific uncertainty and socio-political ambiguity (e.g. diverging cultural attitudes, political perspectives or economic interests) systematically throughout the governance process? Several studies on risk governance presume that under the circumstances of high levels of **scientific uncertainty and/or socio-political ambiguity** the likelihood of major societal debate or conflict surrounding the risk under review is also higher (Klinke and Renn 2002, Lafferty and Meadowcroft 1996, Stirling 2006).

Extended participation of stakeholders and the wider public is advisable when dealing with such complex situations. The emerging literature focussing on the benefits and difficulties with (environmental) **participatory governance is, therefore, relevant for RISKGOV.** In many areas, both policy-makers and academics call for a turn towards more inclusive and cooperative forms of policy-making (Lafferty and Meadowcroft 1996, Lovan et al. 2004). Particularly within the environmental field a huge number of regulatory innovations are introduced, which are called ‘joint environmental policy-making’ (Mol et al. 2000), ‘multi-stakeholder dialogue’ (Bendell 2000), ‘partnership’ (Glasbergen et al. 2007) and so on. Several scholars argue that the inclusion of a broad array of knowledge claims and viewpoints is a necessary element in risk reduction policies. The members of a single organization or a single discipline often do not know the best combination of strategies when they try to deal with the risks. Through constructive dialogue and negotiation, groups with different concerns, knowledge and experiences may be able to shed light on different aspects of the problem as well as stimulate reflection, mutual learning and trust. Yet, hopes for inclusiveness have their vivid opposite in fears and disappointments, founded on cumbersome decision-making, stalemates, over- and under-representation of certain actor categories, power shifts, and painful compromises (Boström 2006).

The way issues are framed and communicated will influence actors’ risk perceptions, engagement and participation. **Communication** is important for our understanding of what constitutes a problem or a risk and how we should and could act. Communication is essential for all actors wishing to take part in or influence power structures and governance. RISKGOV therefore also draws upon literature focusing

on the areas of risk and environmental communication. These fields of research have been expanding rapidly since the mid 1980s, mainly in the social sciences, and acknowledge issues like media representations, discourses of environmental issues, constructions and perceptions of risks, and crises communication (e.g. Anderson 1997, Allen 1999, Gurabardhi et al. 2004, Cox 2006). However, in our reviews we find little research which combines the perspectives of risk governance and risk communication. In RISKGOV we wish to focus on this relationship between governance structures and stakeholder communication. Finally, a useful perspective for analysing risk assessment, risk management and risk communication is provided by **framing theory**. *Frame analysis* is useful to investigate how actors involved in risk-reducing policies may or may not develop common understandings of problem situations. “[F]raming is a way of selecting, organizing, interpreting, and making sense of a complex reality to provide guideposts for knowing, analyzing, persuading, and acting” (Rein and Schön 1993). It is an important task for the analysts of policy-making to derive the exclusion or disguise of certain aspects in activities and debates from the limitations constructed in the framing processes.

### 3 *Innovation and new approaches*

We argue that RISKGOV is unique in six senses. **First**, we wish to make a strong argument that our **interdisciplinary** approach combining social science and natural science perspectives is rarely done, and if so only superficially. In a recent literature review (Söderström et al. In prep.) we observe that the scientific discourses on ‘*environmental governance*’ and ‘*environmental management*’ are clearly separated by traditional disciplinary boundaries, where the former term mostly is found in social science literature and the latter primarily in the realm of natural and technical sciences. RISKGOV aims to bring together these scientific traditions; not merely to ‘take into account’ different approaches but to accomplish an integration so that different disciplinary perspectives will enrich and complement each other in an iterative process and provide necessary input to a jointly developed analytical framework. We argue that this interdisciplinary approach is innovative and necessary for understanding the links between risk governance, risk assessment and risk communication.

**Second**, RISKGOV promises to provide novel insights because only relatively few **comparative** scientific studies on differences between environmental risk areas have been performed in this field.

**Third**, there is as far as we know no published **systematic or integrated treatment of the links between EAM, environmental governance, risk assessment and risk communication in the Baltic Sea**.

**Fourth**, RISKGOV focuses, contrary to most other studies of environmental risk governance, on the **regional scale**. RISKGOV will be innovative in its approach by applying the concept of governance to the handling of environmental risk in a defined region and by contributing to the understanding of the way in which (regional, national, EU) provisions for dealing with key challenges shape the effectiveness and legitimacy of risk governance in this region.

**Fifth**, we will study both the **horizontal axis** focusing on a plurality of actors and the **vertical axis** focusing on the connections and interactions between different scales in space and time. This means that, although the main focus of our comparative analysis will be on the regional Baltic Sea scale, inter-linkages with other important levels such as nation-states or the EU will be included to facilitate a comprehensive understanding environmental risk governance of the Baltic Sea.

*Finally*, we will, as a source of both empirical information and as a means of dissemination, arrange three Roundtable discussions with important stakeholders on critical issues relating to the scope of the project. Tentative titles are: (i) ‘*Scientific Uncertainty, Precaution and the Implementation of the Ecosystem Approach to Management for the Baltic Sea*’, (ii) ‘*Implications of EU Integration for Environmental Risk Governance in the Baltic Sea Region*’, (iii) ‘*Stakeholder Participation and Communication in Baltic Sea Environmental Risk Governance*’.

#### **4 Themes and key research issues of the BONUS-169 Science Plan addressed**

RISKGOV adopts an interdisciplinary approach with the aim, first, to develop a general and comprehensive understanding of risk governance structures and processes in the Baltic Sea and, second, to promote education and stakeholder involvement by organizing PhD courses, workshops and Roundtable discussions. We are confident that these proposed research and dissemination activities will strengthen the scientific basis for developing environmental risk governance of the Baltic Sea and thereby promote the implementation of EAM. This means that the project addresses and sets out to contribute significantly to the solution of key research problems identified by the BONUS call. We address mainly **Theme 1** (*‘Linking science and policy’*), but also touch upon Theme 3 through 7, as vehicles to better understand how natural and social science analysis in an integrative manner can contribute to improved risk governance. The key research issues within the BONUS Theme 1 (*‘Linking science and policy’*) that RISKGOV addresses are connected with the *‘Development and application of the ecosystem approach to management for the Baltic Sea’*. As we have argued, we consider three main topics connected with environmental risk governance as particularly important to analyse and compare different areas of environmental risk in order to strengthen the scientific basis for implementing the EAM in the Baltic Sea. These areas of analysis are organised in three interrelated Work Packages (WP 1 Governance structures and conditions for collaboration; WP 2 Governance processes I: risk assessment – risk management interactions; and WP 3 Governance processes II: Stakeholder communication), and they are described and motivated in the following paragraphs (see also Table 11.1. for reference).

##### *4.1 (WP 1) Governance structures and conditions for collaboration*

Managing transboundary risks require transnational cooperation, which in turn leads to numerous obstacles. The fact that implementation of strategies, agreements, conventions, action plans etc. lie squarely within the responsibility of nation-states means that collective action faces the problem that benefits are shared but costs are born by individual countries. Temptations to take a free-rider position cannot be completely avoided, but there are means available to address the dilemma of the commons and bridge the distance between what is individually rational and collectively optimal (Andresen et al. 2000, Hassler 2003b, a). **Governance structures** – including both regulatory frameworks and forms for decision-making and interaction – have to be based on existing EU legislation, coordinated with new EU initiatives (such as its new Marine Policy and the Maritime Strategy) and negotiated between the Baltic Sea countries (including Russia), which have their own distinct policy styles, traditions, socio-economic developments, interests, media and communication systems etc. (Jasanoff 1986, O’Riordan and Wynne 1987, Zürn 2000). Environmental risk governance structures designed to meet these challenges have evolved into a fragmented field of regulatory frameworks and agreements at different levels. If successful, gov-

ernance structures could create institutional conditions that foster transnational collaboration and communication among actors on both the horizontal and vertical level (Benz and Eberlein 1999, Lyall and Tait 2004). Such collaboration and communication could, ideally, help to make all actors more aware of the risks and opportunities as well as solve (or deal with) the various social dilemmas. How to seize the opportunities and to avoid the problems of transboundary and multiple actor problems in risk governance are key questions in current academic studies and key challenges when striving for sustainable environmental governance.

**This Work Package will, by way of comparing the different cases, study how governance structures are designed, why they take such forms, and what consequences they have (including for example indications of poor or successful transnational collaboration, fruitful dialogue, sensitivity to risk topics, temptation to free-riding, etc).** The first question on governance design will focus on structures such as regulatory frameworks and other policies as well as on forms for decision-making, consultation, interaction and stakeholder communication. The analysis will cover the structures and strategies of the main rule-setting organizations in each case, including the EU, HELCOM and IMO. In order to explain the design of various forms and their consequences, the sub-project will collaborate closely with WP 2 and WP 3 (to gain information about process factors). If needed, general governance patterns (e.g. power relations and strategies among actors in the region) will be taken into account.

#### 4.2 (WP 2) Governance processes I: Risk assessment – risk management interactions

Management and policy discussions connected with the implementation of the EAM often focus strongly on the role of science as provider of the knowledge on which management promoting sustainable development should be based. This line of reasoning is commonly found in the BONUS-169 Science Plan and is based on definitions of EAM by HELCOM and OSPAR. However, we assume that three generic challenges for risk assessment – (a) complexity, (b) uncertainty, and (c) socio-political ambiguity (WBGU 2000, p. 195ff; Klinke & Renn 2002; Renn 2008 p. 18ff.) – will increase significantly when an ecosystem approach to environmental management is applied.<sup>3</sup> As argued by Degnbol et al. (2003) ecosystem approaches present complex interaction of parameters, which are difficult to quantify and interpret. “The idea of ecosystem management emerges from ecosystems being inescapably interconnected, open systems with ambiguous boundaries and highly complex linkages” (p. 38). Although we agree that science and scientific recommendations should play an important role in the development and application of the EAM, it is clear that most environmental risks are extremely complex and that ecosystem responses usually are inherently uncertain and often ambiguous with respect to their policy implications (Elliott 2002, Folke et al. 2004, IRGC 2005). This has often led to substantial scientific uncertainties and lack of consensual scientific knowledge on the causes, consequences and recommended management actions. In addition, lack of consensus within

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<sup>3</sup> *Complexity* refers to the difficulty of identifying and quantifying causal links between a multitude of potential causal agents and specific observed effects. Risk assessors have to make judgements about the level of complexity that they are able to process and about how to treat intervening variables. *Uncertainty* is different from complexity but often results from an incomplete or inadequate reduction of complexity in modelling cause-effect chains. Key components of uncertainty include target variability; systematic and random error in modelling; indeterminacy or genuine stochastic effects; system boundaries; ignorance or non-knowledge. Whereas uncertainty refers to a lack of clarity over the scientific or technical basis for decision-making, *ambiguity* is a result of divergent or contested perspectives on the justification, severity or wider ‘meanings’ associated with a given risk (Stirling 2003).

the scientific community often underpins political disagreements. We assume that scientific uncertainties will continue to be substantial for the large-scale environmental risks in the Baltic Sea in the foreseeable future, and that the development of more integrated approaches of risk assessment (which are needed to implement the EAM) will lead to more complexity, uncertainty, and ambiguity rather than less. **The basic challenge is to take uncertainties, complexities and ambiguities into account in both risk assessment and risk management, as well as in stakeholder involvement, risk communication and in the overall design of governance structures.**

**This Work Package will analyse and compare five regional Baltic Sea environmental risks in terms of (1) the organizing processes of risk assessment activities, (2) descriptions of complexity and uncertainty, (3) mechanisms and arguments for integrating various lines of evidence, (4) formal and informal devices facilitating interaction between assessment and management and (5) management approaches for dealing with scientific disagreements and uncertainty.** This analysis will be performed in **close collaboration** with both WP 1 ‘Governance structures’ because policy context and structural arrangements set the basic conditions in which processes of risk assessment and management are shaped and with WP 3 ‘Governance processes II: Stakeholder communication’ because it is vital to take into account in what ways wider framing and risk communication processes are, or are not, influencing the risk assessment and management.

#### *4.3 (WP 3) Governance Processes II: Stakeholder communication*

An important area to focus on more closely are the processes of stakeholder risk communication, including analysing whether and in what ways stakeholder communication can assist in improving environmental risk governance in the Baltic Sea region. **This Work Package will empirically investigate how stakeholder communication is managed and developed within various governance structures in the different cases. We will here focus on the framing and communicative strategies among key actors involved in risk communication, as well as their ‘responsiveness’** (that is, stakeholder’s preparedness and commitment to listen and take into account the views and concerns of other stakeholders; Pellizzoni 2004); and we seek to answer questions like: Are there differences among the cases regarding how stakeholder communication is carried out? Do possible differences in communicative strategies and responsiveness among the cases relate to differences in mass media exposure of the different risks? (Here we are not going to conduct media studies as such, rather investigating how key actors involved perceive and interpret how a particular risk topic is covered in various news media, including how they perceive the consequences of such reporting). Do stakeholders have to adapt to a top-down model for communication in the risk area, or is there room for a horizontal model based on deliberation among stakeholders? How are the studied environmental risks framed by different stakeholders? Are the actors involved able to develop mutual learning and mutual trust (towards each other’s intentions and competences)? Although it is generally assumed that greater participation and inclusion of viewpoints (e.g. through public deliberation) is a key element in environmental governance and risk reduction policies – which also is a normative point of departure that we share – it is important not to take this as a fact, by definition. It is important to also address challenges and difficulties that are common in participatory governance, which include, for example, introducing deteriorative power struggles and cumbersome decision-making.

**This Work Package will make use of *frame analysis*** (see above) for investigating how actors involved in risk-reducing policies develop their viewpoints and com-

municative strategies and if they are able to develop common understandings of problem situations. Various framings of risk-related concerns may, on the one hand, serve to merely reinforce self-interest reasoning and antagonism as well as be used for manipulative rhetoric. On the other hand, the framing perspective also takes into account learning, reflection and responsiveness. Schön and Rein (1994) maintain that through frame reflection actors may learn to see and understand the blindness and limits of their own frames, and how the existing frames contribute to the problematic situation in which they find themselves. We argue that such frame reflection may positively contribute to risk communication in general as well as to risk assessment and risk management (WP 2) in particular. However, such openness and responsiveness require ‘cognitive risk taking’ (Fischer 2003), which is difficult to achieve in such a complex socio-political context as the Baltic Sea region in which countries have distinctly different levels of economic, environmental and social developments. Yet, hypothetically, governance structures (WP 1) and other processes could set conditions and interact with framing processes and provide room for frame reflection.

## ***5 Contribution to deliverables described in the BONUS-169 Science Plan***

As discussed and specified in the previous section (4) the RISKGOV project has specifically been designed to significantly contribute to several of the key research themes described in the BONUS Science Plan (with specific emphasis on Theme 1 ‘Linking Science and Policy’). Consequently, the knowledge gained as well as the deliverables produced within RISKGOV will be able to significantly contribute to several of the general BONUS-169 deliverables listed in the Science Plan. In particular we believe our interdisciplinary insights in the governance and communication of environmental risks in the Baltic Sea can contribute to (i) deliverables 1, 2, 3, 6, 7, 9 and 10 connected with ‘Linking science and policy’; (ii) deliverable 6 connected with ‘Large scale ecosystem threats and changes’; and (iii) deliverables 4 and 5 connected with ‘Strengthening collaboration and use of common resources’.

## ***6 Dissemination plan***

The main focus of RISKGOV is to gain new interdisciplinary insights into the governance and communication of environmental risks in the Baltic Sea. Therefore, most of the planned deliverables (as specified in Table 6.1) are connected with disseminating scientific insights to scientists and experts in the form of peer-reviewed scientific articles (9 articles are planned) and an edited book. Moreover, we will arrange a number of additional dissemination activities: (i) disseminating the results to (and interacting with) a wider group of stakeholders through arranging three Roundtable discussions (in Sweden, Finland and Germany), (ii) writing a report for decision-makers, and (iii) arranging a final conference (in Poland), which will focus on spreading the results to a wide audience of stakeholders, experts, decision-makers, journalists etc. from the entire Baltic region.

**Table 6.1.** Planned dissemination activities of RISKGOV. SUC: Södertörn University College, ÅAU: Åbo Akademi University; DIALOGIK: Non-profit institute for communication and cooperation research, Germany; DMEF: Dept of Marine Ecosystem Functioning, Gdansk University, Poland.

	Type <sup>1</sup>	Lead partner	Month <sup>2</sup>
<b>Deliverables (tentative titles)</b>			
D1: Set-up of RISKGOV web-page	WS	SUC	1
D2: Eutrophication: a case study of environmental risk governance in the Baltic Sea.	R, PA <sup>3</sup>	ÅAU	18, 24
D3: Fisheries: a case study of environmental risk governance in the Baltic Sea.	R, PA <sup>3</sup>	DIALOGIK	18, 24
D4: Biodiversity impacts: a case study of environmental risk governance in the Baltic Sea.	R, PA <sup>3</sup>	DMEF	18, 24
D5: Chemical pollution: a case study of environmental risk governance in the Baltic Sea.	R, PA <sup>3</sup>	SUC	18, 24
D6: Maritime transportation: a case study of environmental risk governance in the Baltic Sea.	R, PA <sup>3</sup>	SUC	18, 24
D7: RISKGOV Year 1 and Year 2 reports	R	SUC	13, 25
D8: Governance structures of environmental risks in the Baltic Sea	PA	ÅAU	31
D9: Interactions between risk assessment and risk management for environmental risks in the Baltic Sea	PA	SUC	31
D10: Processes of stakeholder communication connected to environmental risks in the Baltic Sea	PA	DIALOGIK	31
D11: Towards better environmental risk governance of the Baltic Sea	R, PA <sup>4</sup>	SUC	33, 36
D12: Final project report	R	SUC	37
<b>Other dissemination activities (tentative titles)</b>			
R1: Roundtable on ‘Scientific uncertainty, precaution and the implementation of the ecosystem approach to management’	RT	SUC	14
R2: Roundtable on ‘Implications of EU integration for environmental risk governance in the Baltic Sea region’	RT	ÅAU	24
R3: Roundtable on ‘Stakeholder participation and communication in Baltic Sea environmental risk governance’	RT	DIALOGIK	25
FC: Final conference on ‘Towards better environmental risk governance of the Baltic Sea’	C, BA	DMEF	33
Presentations at relevant scientific conferences, workshops etc.	CP	All partners	1-36

<sup>1</sup>Deliverable types: WS: web-based source; R: report available on RISKGOV web pages; PA: peer-reviewed scientific article; EB: edited book; <sup>2</sup>Months: indicated months indicate the planned dates for publishing reports on the RISKGOV webpage and dates for submitting article and book manuscripts for peer-review; <sup>3</sup>D2-D6: These deliverables will first be published as an interim reports on the RISKGOV web pages and will subsequently be updated with additional empirical information and submitted to peer-reviewed scientific journals; <sup>4</sup>D11: This deliverable will first be written as report (R) aimed at informing decision-makers and stakeholders and will subsequently after discussion at the final conference be re-written to a PA; <sup>5</sup>Other dissemination types: RT: Closed roundtable discussion with invited stakeholders and experts; C: open conference for scientists, experts, decision-makers, stakeholders, journalists etc; BA: book of abstracts; CP: presentations and abstracts at scientific meetings.

## 7 Participants and management of project

### 7.1 Expertise of the participating organisations and transnational added value

The RISKGOV consortium has been assembled to meet the interdisciplinary research requirements of understanding the governance, assessment and communication of environmental risks in the Baltic Sea and includes expertise on governance, assessment and communication of all environmental risks analysed in this study (Table 7.1).

**Table 7.1.** *RISKGOV partners and researchers with indicated expertise and main tasks. Note that the list of tasks for presentation reasons is not complete (but rather identifies main task).*

	<b>Researcher</b>	<b>Expertise</b>	<b>Main tasks</b>
<b>SUC</b>	Assoc. prof. Michael Gilek	Ecotoxicology, ecological risk assessment	- Coordination - WP 2 (leader) - Chemical pollution - Roundtable 1 (Uncertainty)
	Assoc. prof. M. Boström	Sociology, environmental governance	- WP 1 (leader) - WP 3
	Assoc. prof. M. Hammer	Natural resources management	- WP 2 - Fisheries - Biodiversity impacts
	Dr. Björn Hassler	Political science	- Maritime transportation - WP 1 (leader) - Roundtable 2 (EU integration)
	Dr. Anna Maria Jönsson	Media and communication studies	- WP 3 - Roundtable 3 (Stakeholder communication)
	Dr. Mikael Karlsson	Management of complex environmental risks, precaution	- WP 3 - Roundtable 1 (Uncertainty)
	PhD student Sara Söderström	Environmental risk governance	- WP 1 - Maritime transportation
<b>AAU</b>	Dr. Cecilia Lundberg	Marine biology, eutrophication	- Eutrophication - WP 2
	Prof. Erik Bonsdorff	Marine ecology	- WP 2 - Roundtable 1 (Uncertainty) - Eutrophication
	Prof. Marko Joas	Public administration, environmental governance	- WP 1 - Roundtable 2 (EU integration)
	Prof. Kristine Kern	EU environmental policy	- WP 1 - Roundtable 2 (EU integration)
	PhD student Maria Sjöblom	Public administration	- WP 1 - Roundtable 2 (EU integration)
	PhD student Britt-Marie Jakobsson	Marine biology, eutrophication	- Eutrophication - WP 2
<b>DIALOGIK</b>	Prof. Ortwin Renn	Risk governance, fisheries management	- WP 3 (leader) - Roundtable 3 (Stakeholder communication)
	Dr. Marion Dreyer	Risk governance and scientific uncertainty	- WP 3 (leader) - Fisheries
	Pia-Johanna Schweizer, M.A.	Participatory decision-making	- WP 1 - Roundtable 3 (Stakeholder communication)
<b>DMEF</b>	Prof Maciej Wolowicz	Ecosystem functioning, ecotoxicology	- Biodiversity impacts - WP 2 - Final conference
	Dr. Katarzyna Smolarz	Ecotoxicology, ecosystem functioning	- WP 2 - Chemical pollution - Final conference
	Prof. Bozena Bogaczewicz-Adameczak	Marine Plant biodiversity, EU implementation of biodiversity conservation	- Biodiversity impacts - WP 1 - Roundtable 2 (EU integration)
	Dr Alexandra Zgrundo	Invasive species, marine biodiversity	- Biodiversity impacts - WP 2 - Final conference
	Post-doc N.N	Marine biodiversity, biodiversity management	- Biodiversity impacts - WP 2 - Final conference

Although the RISKGOV project is designed to facilitate a high degree of collaboration and integration of both the collaborating partner organisations as well as of the included researchers and fields of expertise (as further described in Section 7.2), we believe that the partner organisations have a very productive mix of unique but still to

some extent overlapping fields of expertise (as summarised in Table 7.2). For further detailed information on the expertise, scientific production and extensive research networks of organisations and researchers collaborating in RISKGOV readers of this research proposal are encouraged to consult the CVs and web pages given elsewhere in this proposal.

**Table 7.2.** Summary expertise and main tasks of RISKGOV partners (details on the expertise and tasks of collaborating researchers are given in Table 7.1).

	<b>SUC</b> Sweden	<b>ÅAU</b> Finland	<b>DIALOGIK</b> Germany	<b>DMEF</b> Poland
<b>Expertise</b>	<ul style="list-style-type: none"> <li>• Baltic Sea environmental risk governance</li> <li>• Environmental communication</li> <li>• Chemical risk</li> <li>• Maritime transportations</li> </ul>	<ul style="list-style-type: none"> <li>• Baltic Sea Ecology</li> <li>• Eutrophication</li> <li>• EU environmental policy</li> </ul>	<ul style="list-style-type: none"> <li>• Risk governance</li> <li>• Fisheries management</li> <li>• Stakeholder participation</li> </ul>	<ul style="list-style-type: none"> <li>• Biodiversity</li> <li>• Ecosystem functioning</li> <li>• Chemical risk</li> <li>• EU implementation</li> </ul>
<b>Main tasks</b>	<ul style="list-style-type: none"> <li>• Coordination</li> <li>• WP 2</li> <li>• Roundtable 1</li> <li>• Chemical pollution</li> <li>• Maritime transportation</li> </ul>	<ul style="list-style-type: none"> <li>• WP 1</li> <li>• Roundtable 2</li> <li>• Eutrophication</li> </ul>	<ul style="list-style-type: none"> <li>• WP 3</li> <li>• Roundtable 3</li> <li>• Fisheries</li> </ul>	<ul style="list-style-type: none"> <li>• Biodiversity impacts</li> <li>• Final conference</li> </ul>

We are fully aware that it is not a simple matter to reach RISKGOV's ambition of developing interdisciplinary insights into the governance of environmental risks. However, we believe that the RISKGOV consortium in its strategic mix of expertise and wide representation from the Baltic Sea region has a unique possibility of making a substantial contribution towards improving environmental risk governance of the Baltic Sea.

Moreover, effective risk governance in the Baltic Sea region requires collaboration between all the riparian states, including a diverse set of civil society actors. Therefore, RISKGOV has adopted an explicit regional perspective where joint efforts stand in the foreground. Considering that preconditions for contributing to joint management schemes differ between the Baltic Sea countries, transfer of knowledge and know-how between the actors will be of utmost importance. This project is, therefore, targeting the building-up of region-wide scientific understanding on risk governance as well as contributing to collective management capability. In addition, we argue that transnational added value will be gained through: (i) bringing together the well-developed national and international research and stakeholder networks of the collaborating organisations from Sweden, Finland, Poland and Germany. The partners have all previously participated in international research projects financed by the European Commission and MISTRA (see CVs); (ii) actively discussing and disseminating the results in the Baltic Sea region (i.e. three Roundtables in three countries (Sweden, Finland, Germany) will be arranged. The final conference in Poland will subsequently be focused on spreading the results to a wide audience of stakeholders, experts, decision-makers, journalists etc. from the entire Baltic Sea region.

## 7.2 Project organisation and management

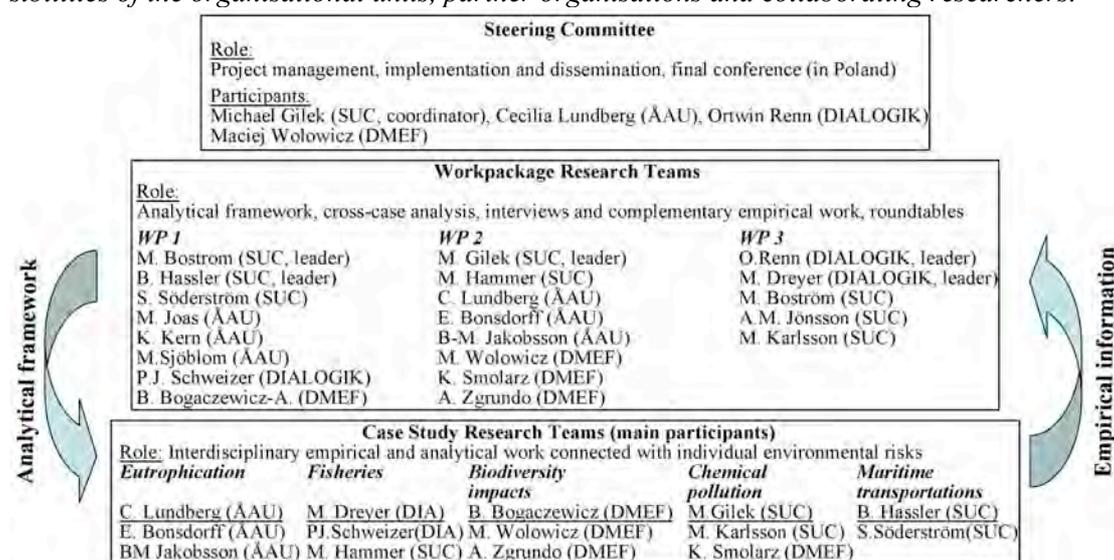
The main organisational units of RISKGOV are (i) The Steering Committee, (ii) the Work Package (WP) Research Teams and (iii) the Case Study Research Teams (as summarised in Table 7.3). The final roles and responsibilities of the organisational units, partners and researchers will be agreed upon at the start of the project by draw-

ing up and signing a Collaboration Agreement. Below follows a summary of the planned organisation.

The **Steering Committee** will consist of the project coordinator (Michael Gilek, SUC) and the principal scientists from the partner organisations. The Committee is responsible for managing and controlling the effective achievement of the RISKGOV objectives. It should also ensure good interaction between all organisational elements of the consortium, and it will ratify all decisions concerning the strategic management of the project. It will also serve as a forum for deciding on suggested substantial changes in the project plan (in agreement with the BONUS secretariat), taking corrective measures and ensure conflict resolution should any disagreement over the tasks, resources and the implementation of the project arise. The **Work package research teams** will be lead by a WP-manager with responsibilities to: (i) ensure efficient and concerted co-ordination of partner involvement in the WPs, (ii) stimulate theoretical and empirical development and discussions, (iii) interact with case-study managers, (iv) control and monitor the activities of the WP and assure quality and coherent achievement of project objectives, (v) produce deliverables in collaboration with each WP-participant, (vi) ensure that requested reports are delivered on time. The **Case study research teams** will be lead by a case-study manager with responsibilities to: (i) ensure efficient and concerted co-ordination of researchers involved in conducting the case studies, (ii) interact with WP-managers, (iii) control and monitor the activities of the case study team and assure quality and coherent achievement of project objectives, (iv) produce deliverables and ensure that requested reports are delivered on time.

Successful integration of the consortium will be guaranteed by way of all meetings, workshops, roundtables (workshops will have general sessions as well as WP specific meetings and case specific meetings) and different types of web-based communication at, for instance, the WP level. The workshops will be essential for participants to give input and feedback to each other and to discuss and evaluate the work in progress. These, and the roundtables, will also be important for quality assurance as participants (and other actors) get opportunities to check each other's work.

**Table 7.3.** Organisation and management of the RISKGOV with indicated roles and responsibilities of the organisational units, partner organisations and collaborating researchers.



## **8 Description of significant facilities available for the project**

Apart from requirements for availability of basic research infrastructure such as libraries, internet access, databases and interview equipment (which are all available to the project), there are no requirements for large equipment or further facilities in RISKGOV.

## **9 Researcher exchange and training, including possibility of organising a PhD course**

RISKGOV is organised to promote a high degree of exchange and training of researchers associated to the project. Both the research teams connected with the Work packages, as well as the Case studies will consist of members from several of the participating organisations (see Table 7.2). This will promote interdisciplinary as well as cross-organisational exchange of ideas and thereby enhance interdisciplinary skills within the consortium. There are also several PhD students connected with RISKGOV (two at this stage but we hope to attract funding to enrol three more). We also anticipate that a number of Bachelor as well as Master degree projects (from all the associated partners) will be performed in connection with RISKGOV.

## **10 Detailed work plan / research plan**

Our analysis will be informed by **the comparative, case study approach**, with the use of **several types of data sources** (secondary material, text analysis of key documents, interviews of key-informants, roundtables; see below). The comparative logic is useful for gaining knowledge on both general and specific conditions (Yin 2003, Gerring 2007). This method will help us to identify similarities and differences across strategically selected cases (Table 11.1). In order to guarantee comparability, we will strive for symmetry in the research design of the various case studies. Systematic comparisons along the same dimensions, as defined by WP 1, WP 2 and WP 3, will be a primary methodological goal. A degree of symmetry is indispensable to the extent that one wants to explain similarities and differences as well as making analytical generalizations. For example, identifying similar patterns and dilemmas despite different types of risks can be seen as an indication of a general pattern. The contrary is equally true: the intensive case study approach can be extremely useful for *contrasting* opposite settings and for providing a deeper understanding of the specific conditions for policymaking in each setting. In short, **our approach offers multiple comparative opportunities**, which will help us create new knowledge on both general and specific conditions.

**Our cases have been deliberately chosen to represent a variety of risk types** (in terms of complexity of causes, type and scale of effects, scientific uncertainty, probability of occurrence, socio-political ambiguity, and reversibility). Selecting a total of five cases naturally implies restrictions regarding the variety of aspects that can be taken into account when compared to single case approaches. However, for our analytical goals the methodological benefits gained from comparative opportunities are more important. In order to ensure comparability and feasibility, we will initially develop an analytical framework, which will limit the aspects and domains for the comparative review as summarised in Table 11.1 and described in detail in the previous sections of this proposal (see Section 4). This framework will guide and structure the descriptive and normative tasks so that comparative inferences can be drawn from the case studies and it can be ensured that the focus is on significant similarities and differences.

**Table 11.1.** Outline of the Work Packages (WP) and comparative case studies of Baltic Sea environmental risks planned within RISKGOV. Main areas of analysis and comparison are summarised.

Case studies	Eutrophication (ÅAU)	Fisheries (DIALOGIK)	Biodiversity impacts (DMEF)	Chemical pollution (SUC)	Maritime transportation (SUC)
<b>Work Packages:</b> Areas of analysis and comparison among different types of risk	<b>WP 1: Governance structures and conditions for collaboration (ÅAU)</b>				
	-Regulatory institutions -Collaboration and consultation -Socio-political ambiguity		-Forms for decision-making -Forms for stakeholder participation		
	<b>WP 2: Governance processes I: Risk assessment – risk management interactions (SUC)</b>				
	-Organisation of risk assessment processes -Weight of evidence and integration -Management approaches to uncertainty		-Descriptions of uncertainties -Structures and processes for interaction		
	<b>WP 3: Governance processes II: Stakeholder communication (DIALOGIK)</b>				
	-Problem and media framing -Communication strategies -Communication responsiveness		-Indications of frame reflection -Indications of constructive communication -Indications of stalemate and other problems		

We will set up one research team for each case study, consisting of both natural and social scientists (the leading organisation and main researchers are indicated in Tables 11.1 and 7.3); each case study will cover both governance structures (WP 1) and governance processes, i.e. risk assessment – risk management interactions (WP 2) and stakeholder communication (WP 3). Each case study will focus on the regional Baltic Sea scale (e.g. the implications of risks on the regional level; regional governance structures and assessment strategies, participatory channels etc.), but relate this level to influences from the national and particularly EU scale. By careful project management and organization of the project (see section 7.2) and through the development of the joint analytical and methodological framework the project we will make sure that all case studies will be conducted in a way that enables and facilitates comparisons.

The project is organised into four consecutive research stages. During the **first research stage** (Month 1-6) the WPs will refine the analytical and methodological framework in order to assure comparability and to develop a common protocol for conducting the five case studies. Although each WP has to work internally in developing its analytical and methodological input to the common framework, it will be necessary that great attention and time is devoted for integrating each WP's input because confusing and unproductive overlaps has to be avoided. An internal RISKGOV start-up meeting will be arranged in the middle of the first research stage, in which such and other common topics will be carefully discussed.

In the **second research stage** (Month 7-15) each case study research team (table 7.3) will, based on the input gained from the WPs work during the first research stage (the analytical and methodological framework), conduct a review of secondary material (existing literature, documents and data bases) on risk governance structures, risk assessment and stakeholder communication processes in their respective area. Careful attention will be given to various documents that are produced by key actors within each risk area. Each research team will conduct a text analysis of a selection of key documents (such as strategy documents published by key regional state and non-state organizations; documents explaining risk regulatory approaches and assessment procedures and techniques; or minutes, notes, or documentation from hearings, consensus conferences and other stakeholder meetings). This research stage will then inform the first roundtable discussion with invited key stakeholders (i) '*Scientific Uncertainty, Precaution and the Implementation of the Ecosystem Approach to Management for*

*the Baltic Sea*' and the first internal project workshop in which five working papers will be presented and discussed. The roundtable discussions will be used both as a means to guide the planning of the research and disseminate results as well as a source of empirical information connected with identified key problem areas.

In the **third research stage** (Month 16-26), each case study research team will conduct complementary investigations to collect and process primary data. Each team will conduct complementary text analysis and qualitative interviews – approx. 15 per case – of key experts representing governmental and non-governmental actors surrounding governance structures and processes in the respective risk area. In close collaboration with the three WPs, each research team will develop interview guidelines of relevance for the entire project (to guarantee interview responses that enable cross-case comparisons), while sensible for specific conditions. All interviews will be semi-structured and comparatively lengthy (approx. two hours). In part, the same type of interview questions will be addressed to all experts in all cases; and these reflect key topic in the three WPs. However, it is necessary also to design interview guidelines that have a number of questions specific for a particular case and type of actor/informant. Several researchers within the consortium have extensive experiences in planning and conducting qualitative interviews and have developed a strong methodological insight that it is a prerequisite for obtaining good scientific results that all interviewers develop familiarity with conditions in the specific risk area before conducting interviews. Therefore, interviews will be conducted relatively late in the project.

Based on secondary material, text analysis of documents, documented information gained from roundtables, and the analysis of the interviews, **interim reports** for each case study will be developed and presented to the WPs, who in turn will give comments and further theoretical feedback. Then, **final reports** for each case study will be presented and discussed at an internal second workshop by the end of the second project year; and after processing the input from this workshop, reports will be published as **peer-reviewed articles**. These reports then form the foundation for the comparative analysis during the final project stage. The second and third roundtables: (ii) *'Implications of EU Integration for Environmental Risk Governance in the Baltic Sea Region'* and (iii) *'Stakeholder Participation in Baltic Sea Environmental Risk Governance'* are envisioned at the end of this stage to discuss the results from the comparative review.

The **fourth project stage** (Month 27-36) will be devoted to comparative analyses within WP 1, WP 2 and WP 3 as well as to the development of a normative framework based on the results of the comparative review and the final dissemination of project results. In addition to publications completed during the third project stage, the project will result in three peer-reviewed articles reflecting key topics in the three WPs, and finally one synthesizing peer-reviewed article. The project will be completed by a final report and a final conference devoted to spreading the results to a larger audience.

### 11 Chart showing the timing of different Work packages and Tasks

**Table 12.1.** Gantt chart of the RISKGOV project showing the timing of different Work packages (WP), Tasks, Milestones (M), Roundtables (R), Deliverables (D), and Project meetings (PM).

Time in Months	Research stage 1						Research stage 2						Research stage 3						Research stage 4																													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36												
<b>WP1 (AAU and SUC)</b>																																																
Analytical framework	M1																																															
Roundtable 2 (R2)																															R2																	
Cross-case analysis																															D8																	
Normative framework																															M4						D11											
<b>WP2 (SUC leading)</b>																																																
Analytical framework	M1																																															
Roundtable 1 (R1)							R1																																									
Cross-case analysis																															D9																	
Normative framework																															M4						D11											
<b>WP3 (DIALOGIK)</b>																																																
Analytical framework	M1																																															
Roundtable 3 (RC)																															R3																	
Cross-case analysis																															D10																	
Normative framework																															M4						D11											
<b>Case studies</b>																																																
Eutrophication (AAU)							M2						M3						D2																													
Fisheries (DIALOGIK)							M2						M3						D3																													
Biodiversity (DMEF)							M2						M3						D4																													
Chemicals (SUC)							M2						M3						D5																													
Maritime transp (SUC)							M2						M3						D6																													
<b>RISKGOV web-page</b>	D1																																															
<b>Yearly reports</b>																															D7						D7											
<b>Final conf. (DMEF)</b>																																					FC											
<b>Final report</b>																																											D12					
<b>Project meeting (PM)</b>	PM1						PM2						PM3						PM4																													

Milestones = M1: Analytical and methodological framework; M2: Working papers on case studies; M3: interim reports of case studies available on RISKGOV web pages; M4: Report informing decision-makers and stakeholders of the developed normative framework for ‘Environmental risk governance of the Baltic Sea’.

### 12 Plan of submitting project data to common database

RISKGOV will strive to make all produced deliverables freely available on the project website (developed and hosted by SUC). The ambition will also be to make as much as possible of the assembled empirical information available in a common database. Thus, following a positive funding decision we will as soon as possible initiate a discussion with the BONUS secretariat on how to most effectively make the results of RISKGOV available to other interested parties without infringing on the intellectual property rights of the RISKGOV consortium or having negative implications on ethical issues as discussed in the next section.

### 13 Ethical issues

RISKGOV will release all publications such as books, reports and intermediary reports and working papers as well as any other output as public documents. All partners are encouraged making results publishable and are informed that all material will be made available to the public. This in turn raises some issues of ethical concern. The project touches on ethical issues especially regarding the use of information gained from roundtables as well as interview material. It is for ethical reasons important to guarantee informants that the material will only be used for theoretical purposes and not for singling out “bad examples”. All informants will be guaranteed anonymity. In some cases, it might be difficult to guarantee anonymity because the informant may have a position that makes it likely that her identity is recognized. In such cases, the project will ask for permission to use quotations prior to publication.

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