

## **LOCAL ACTORS AND THE BALTIC SEA 2: WATER PROTECTION ATTITUDES AND ACTIVITIES IN COASTAL MUNICIPALITIES**

A questionnaire study in the  
Baltic countries and Finland

Tallinn 2015

# IMPRESSUM

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2015  
Tallinn University

The contents and views included in presented survey report are based on independent research and do not necessarily reflect the position of the European Commission.



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# Preface

This report investigates the water protection related attitudes and activities of coastal municipalities of the three Baltic countries and Finland, especially in relation to the role of citizens. The results will contribute to improving the public communication of water protection activities and also highlight ways in which it is possible to encourage local level initiatives for the protection of water bodies.

The report presents the results from the questionnaire survey conducted in 2014 among the 72 coastal municipalities in Estonia, Latvia, Lithuania and Finland. The main questions of the survey dealt with the previous, current and potential future activities of local municipalities, their co-operation with other stakeholders and attitudes towards citizen involvement. The survey was accompanied by a similar survey among the citizens of the three Baltic countries, presented in a previous report (Kaal, Olesk, Tampere 2015).

The surveys were conducted as part of the European Union Life+ program co-funded project *CITYWATER – Benchmarking water protection in cities*. The project aims to implement and facilitate water protection measures in the Baltic Sea region. The project partners are the City of Helsinki (coordinating beneficiary), City of Turku, City of Tallinn and Tallinn University. The project also closely collaborates with the initiative called the Baltic Sea Challenge, launched by the mayors of Turku and Helsinki in 2007.

**72**  
coastal  
municipalities in  
Finland, Estonia,  
Latvia, Lithuania

# Short summary of main findings

The survey was conducted in 2014 among the coastal municipalities of Lithuania, Latvia, Estonia and Finland. A total of 72 municipalities out of 171 responded to the web-based questionnaire. The 40 questions of the survey covered topics such as the water protection activities of the municipality, co-operation with other actors, including citizens, and perception of water related risks, both concerning the Baltic and Sea and inland water bodies.

Coastal municipalities see themselves and national governments as the most important actors in protecting the Baltic Sea. They perceive a clear division of responsibilities depending on the nature of problems: issues regarding citizen and households are perceived as local level matters, and issues such as eutrophication, industries and agriculture are expected to be addressed by national level actors. The main benefits for the municipalities and citizen that the Baltic Sea provides are described in terms of life quality which can translate into economic benefits (e.g. tourism income).

The municipalities, especially in the Baltic countries perceive the pollution risk related to households as substantial.

A big part of the water protection work conducted in municipalities has been directed to improving infrastructure. Next to that, raising citizens' awareness is perceived as one of the main things that need to be done in the future.

The questions on hindrances and keys to success lead to two main factors: financial resources and attitudes and behaviour of people. Both are recognized also on the list of activities that need more attention in the future.

The lack of suitable finance sources is mentioned by 85% of the respondents. Level of self-financing, lack of human resources and lack of priority for water protection are also often mentioned.

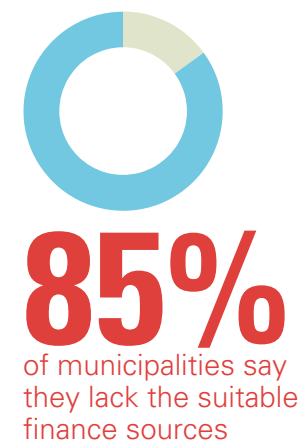
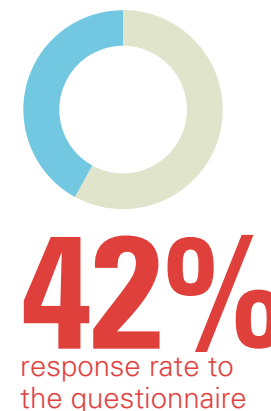
About a third of the participating municipalities mentioned the lack of cost-benefit analyses as a hindrance for advancing with water protection measures. A bigger part expressed interest for using various types of analyses in support for prioritizing activities.

On average, the municipalities rate the citizens' activities in the protection of the Baltic Sea as satisfactory. The municipalities foremost expect the households to improve their waste

water treatment. The Baltic municipalities tend to believe that the most efficient way to achieve behavioural changes is through sanctioning and other enforcement measures. Finnish municipalities do often emphasize the importance of legislation but consider educational measures, including awareness raising as more successful.

A comparison of the results from the current study and the study conducted among citizens of the Baltic countries (Kaal, Olesk, Tampere 2015) shows that citizens and municipalities share the same values and care for the Baltic Sea. The two groups, however, diverge in the sense of responsibility and preference of measures. Citizens tend to expect high responsibility from national and transnational actors and occupy a pessimistic stance about their own capabilities. The concerns that municipalities express regarding citizen behaviour do not feature prominently in the agenda of citizens. Waste water treatment is an exemplary case. This survey shows that municipalities perceive this gap and feel the need to put awareness and education high on their agenda.

This study was undertaken to support the development of communication-related tools for local level water protection. Our results indicate that for a better protection of the Baltic Sea, the local municipalities can benefit from a set of tools related to prioritizing, engagement and co-operation. Communication is an integral part in all of these.



# Introduction and background

The most important water body in our region is the Baltic Sea. Over 84 million people from 14 countries live in its catchment area (HELCOM, 2011), all using the common sea and benefiting from it more or less. All of them are also contributing to its problems, the biggest of which is eutrophication. This process has shown to have an impact on the ecosystem functioning negatively by decreasing habitat provision, diversity and even resilience of the sea. This means reduced ecosystem services, among others decreased food supply and recreational opportunities (SEPA, 2008).

Preventing those negative impacts or restoring the quality of water systems is an effort that requires the input of many different actors. Many of the problems that harm the water systems do not have one single source but are created by the cumulation of the actions of many of us. Eutrophication is a good example. It is driven by a surplus of the nutrients and the sources of nutrients include agricultural run-off to the rivers and direct waterborne discharges to the sea either from coastal point sources, run-off from diffuse sources in coastal areas and discharges from ships (HELCOM, 2014). This means the responsibility and ability to reduce eutrophication is significant also

on the local level, influenced by the behaviour and activities of local municipalities, companies and individuals.

'Green behaviour' has become a central keyword of the European Union (EU) environmental policy. Green behaviour is the shared responsibility of individuals, public authorities and industry. Policies can provide a framework within which business and citizens can operate with less detriment to the environment (Science for Environment Policy, 2012). To achieve this we need policies that are based on common principles and combine different levels of management and measures. The measures should include legal and economic frameworks, informing people and measures to guide their behaviour, including consumption behaviour.

The involvement of public and stakeholders has been acknowledged in the HELCOM Baltic Sea Action plan as an effective contribution to the successful implementation of the plan. The document recommends engaging the public and stakeholders in activities promoting a healthy Baltic Sea and to actively promote public participation in decision making (HELCOM, 2007).

The role of local municipalities in this framework can be manifold. They have the power to design and enforce measures and build infrastructure. At the same time they also act as one of the central nodes of local communities, co-operating with various local and national actors, facilitating grassroots initiatives and being the first point of contact for citizen in various issues. It is easy to treat local municipalities as actors whose behaviour is guided by institutional factors such as regulations. However, many successful water protection activities rely rather on the personal characteristics of the involved civil servants than factors related to the institutional characteristics of the organization. Our analysis relies on the assumption that local municipality environmental specialists are also subject to the same factors that shape their environmental consciousness, attitudes and behaviour. The result can be different ways in which municipalities treat water-related problems and different solutions to deal with them. We have found literature dealing with individual's behaviour to be helpful to a certain level also in analysing the actions of local municipalities. Previous research has identified many factors that influence an individual's pro-environmental behaviour. These include factors





related to the individual such as values, concerns, habits, and response to dominant moral and social norms of the society (Steg & Vlek, 2009). Another major group of factors are contextual forces. These include, among others, interpersonal influences, advertising, government regulations, monetary incentives and costs, capabilities and constraints provided by technology and the built environment and various other features of the broad social, economic, and political context (Stern, 2000). The local municipalities have the ability to shape those contextual forces but their readiness and skills to do so are themselves subject to similar factors.

Stern (2000) emphasizes that different causal variables appear to work different ways in influencing behaviour. Therefore, a systematic approach is needed to understand the relevant factors and their interrelations. Only then we are able to design efficient methods of encouraging pro-environmental behaviour of various actors.

## Objectives of the study

Several previous projects of the EU Interreg and Life+ funding programs have been dealing with the different aspects of the water protection issue, whether focussing on business sector, general public and/or developing water protection infrastructure. The communication work package of the CITYWATER – Benchmarking water protection in cities has the unique focus on the collaborative role of municipalities and citizens in protecting the Baltic Sea.

As the role of individuals and local municipalities is increasingly recognized as a vital part of water protection, we need to better understand the barriers and incentives for actions that occur at this level. One of our aims was to position how the respondents perceive the role of the local municipalities and citizens in the framework of all the other relevant actors (such as European Union, national governments, NGOs, companies) in the protection of the Baltic Sea. When we have mapped the water protection activities of local municipalities and the current practices of engaging citizen, we are able to suggest improved ways of communication, empowerment and engagement that allow

for better protection of water bodies.

We identified no previous studies that look specifically on the role of local municipalities communication in the protection of the Baltic Sea. Therefore our study will fill an important gap in the understanding the role of various actors in this environmental field.

The role of this survey is to describe the knowledge, attitudes and behaviour of coastal municipalities regarding water protection, including the Baltic Sea. The main questions of the study are:

- » What aspects of water protection do the municipalities consider most important? How do they perceive potential risks and their management?
- » In their opinion, what role do citizens have in water protection and how to increase their role?
- » What hindrances do they see in implementing water protection activities, including engaging individuals and other stakeholders? What have been the keys to success?
- » What are the differences, if any, between the Baltic countries and Finland?

Gaining a better understanding of these questions will be useful for all stakeholders

involved in water protection. As the first of its kind, this study will give insights about the situation and help the stakeholders to better contextualize, analyse and plan their activities, especially concerning the aspect of engagement. The main target group of this descriptive report are local municipalities but the results are relevant for other stakeholders as well.

The results of this survey are supported by other publications from the same project (see page 35). These include a survey among the adult population (18-74) of the three Baltic countries (Kaal, Olesk, Tampere 2015). A representative sample of a total of 1,500 people was interviewed. The conclusions from the both surveys have been developed into a communication strategy (Tampere, Olesk, Kaal 2015).



## About the survey

The survey was conducted as a web-based questionnaire in spring 2014 in the Baltics and in September in Finland. We identified all municipalities that have a coastline to the Baltic Sea and sent the questionnaire to the person in charge of water protection in that municipality. The full sample included 171 municipalities (92 in Baltic countries and 72 in Finland) of whom 72 respondents returned fully or partially filled questionnaires (40 from Baltic countries and 32 from Finland). The response rate was thus 42%. As the potential respondents we identified the persons whose responsibility area covers water protection issues. If the municipality lacked a water protection specialist we approached the environmental specialist. If there was no such position we sent the questionnaire to the mayor of the municipality. We included the request that the person directly in charge for water protection would fill the questionnaire. The division of respondents' position thus reflects the different situation in Baltic countries compared to Finland. Half of the Baltic respondents identified themselves as water specialists, the rest were environmental specialists, people dealing with municipal

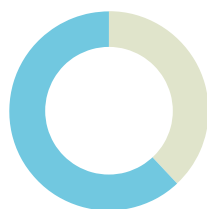
engineering or municipality mayors. In Finland the share of water specialists was 75%, a statistically significant difference. The share of cities and towns in the sample was 30% in Baltic countries and 62% in Finland. Many Baltic municipalities, 41%, had more than a third of their territory as a protected area (none in Finland). This result is probably reflecting the fact that participating Baltic municipalities tended to be smaller in size and located in rural areas whereas the majority of Finnish participants were cities.

The 40 questions of the survey covered topics such as water protection activities, co-operation with other stakeholders including citizens, attitudes to the protection of the Baltic Sea and the use of analyses as a tool for improving water protection.

This study is not meant to provide a comprehensive picture about water protection in coastal municipalities. Due to the response rate and overall number of respondents our focus is not on statistical analysis (although statistically significant results are discussed in the analysis). Compared to the citizens' survey we used more open questions to gather qualitative data about the opinions, experiences and

expectations of municipality representatives. We use both the numbers and the qualitative responses as ways to identify potential trends, problems and practices.

For detailed information about the sample and respondents, please see Annex 1.



**62%**  
of the Finnish  
respondents were from  
cities and towns.



**30%**  
of the Baltic  
respondents were from  
cities and towns.

## Outline of the report

The report is organized into following chapters:

- » the role of municipalities in protecting the Baltic Sea;
- » perception on the pollution sources and level of risk management;
- » co-operation with stakeholders, including use of cost-benefit analysis;
- » co-operation with citizen, including perceived capabilities to influence citizen behaviour.

Chapter 5 will link the results of the two surveys – municipalities and citizens – to provide a more complete map of the water protection issues at the local level.

Annex 1 provides detailed information about the sample and respondents. The full questionnaire is included in Annex 2. Annex 3 will provide important results in full detail.



# Results

## 1. THE ROLE OF MUNICIPALITIES IN PROTECTION OF THE BALTIC SEA

This chapter will explore how the local municipalities will position themselves in relation to other actors in the water protection field and map their attitudes towards water protection

### The importance of actors

Coastal municipalities see themselves as important actors in the protection of the Baltic Sea. Only national governments are considered more important. Citizens are ranked third in the 'extremely important' category.

The only statistically significant difference between Finland and Baltic countries is the higher evaluation of industry and companies in Finland (4.5 vs 3.74 on the 5-point scale). For other actors it is noticeable that Finnish municipalities evaluate somewhat higher the role of citizens and private funds but Baltic municipalities gave higher marks to research institutions.

**Table 1.** In your opinion, how important is it that the following actors are active and take responsibility for protecting the Baltic Sea? n=57

	extremely important	very important	Important	rather not important	not important at all	Average 5-point scale
Baltic Sea countries, their governments	77%	19%	4%	0%	0%	4,74
Coastal municipalities	46%	35%	19%	0%	0%	4,26
European Union	30%	56%	14%	0%	0%	4,16
Industry, companies	37%	42%	19%	2%	0%	4,14
Citizens of Baltic Sea countries	39%	35%	25%	2%	0%	4,11
Universities or other research departments	32%	39%	28%	2%	0%	4,00
Non-governmental environmental organizations	25%	44%	30%	2%	0%	3,91
International organisations	19%	37%	34%	10%	0%	3,64
Other local municipalities (not seaside)	0%	40%	50%	10%	0%	3,30
Private funds	11%	26%	40%	23%	0%	3,25

## Results

### 1. The role of municipalities in protection of the Baltic Sea

#### Division of responsibilities

We asked the respondents to rate various Baltic Sea problems from the angle whether they primarily require attention from the national or local level actors (or both). Local municipalities see as their responsibility mostly issues that deal directly with citizens, such as lack of awareness, littering and waste water treatment. Some issues, such as oil spills, agriculture, pollution from industries and eutrophication in general they clearly perceive as the matter for national level actors and see little responsibility for them. The single issue where the municipalities feel equal responsibility with the national actors is lack of awareness among civil servants.

Finnish respondents showed more concern for the Baltic Sea as reflected by higher rate of judging a problem as needing attention. No Finnish respondent thought an issue 'is not a problem' whereas some Baltic municipalities thought so for several problems, including climate change and eutrophication.

For all listed problems, except for citizen awareness, Finnish respondents see a higher need for attention on the national level. When comparing the level of attention on the municipality level, Baltic respondents emphasize more strongly waste water treatment and littering, and Finnish respondents emphasize civil servants' awareness, eutrophication, fertilizer use and climate change.

The need of attention by 'other' actors (not specified in the survey) was in all cases more emphasized in the Baltic sample.

**Table 2.** Who should pay more attention to the following problems of the Baltic Sea? n=59

	<b>national level</b>	<b>municipality level</b>	<b>Other actor</b>	<b>It is not a problem</b>
lack of awareness among citizens	52%	86%	34%	0%
littering of the sea and the shores by tourists and residents	36%	84%	30%	0%
insufficient treatment of waste water of households	38%	80%	20%	2%
pollution due to storm waters	34%	77%	16%	5%
lack of awareness among civil servants	66%	59%	16%	4%
oil spills	86%	38%	27%	2%
eutrophication in general	88%	32%	29%	5%
pollution from industries, including mining	86%	27%	27%	0%
damages to fish stock	79%	25%	32%	0%
the use of chemicals in agriculture (excluding fertilizers)	88%	18%	27%	0%
climate change/global warming	79%	16%	21%	4%
the use of fertilizers in agriculture	86%	13%	20%	0%
invasive species in Baltic Sea	84%	13%	20%	2%
Baltic Sea pollution caused by land and air transport	84%	11%	30%	2%
pollution from sea transport/ marine traffic	82%	7%	34%	0%

## 1. The role of municipalities in protection of the Baltic Sea

### Attitudes towards water protection

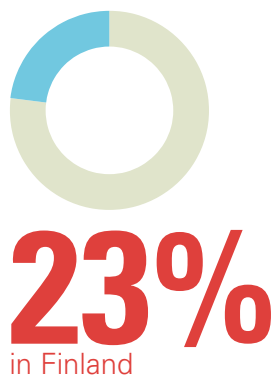
Almost all respondents considered a clean Baltic Sea important for their municipality. The share of those considering it 'extremely important' is 50% in the Baltic countries and 23% among Finnish municipalities (a statistically significant difference).

When asking about the main benefits that the Baltic Sea provides for the municipalities and citizen, the comments of the respondents most often mention the recreational values which can lead to benefits from tourism. Fishing (both commercial and recreational) is considered almost as important. Answers related to quality of life, real estate prices, harbours and small boats were more often mentioned in Finland than in the Baltics. One Latvian respondent noted the importance of the sea from the point of renewable energy production.

The state of the Baltic Sea is perceived as directly linked to life quality: a decline in the cleanliness of the sea will lead to loss of attraction for the local residents and tourists and thus threatens the sustainability of the municipality.

**Selected quotes** from the open question "What are the main benefits that the Baltic Sea provides for your municipality and citizens?"

**A clean Baltic Sea is extremely important for our municipality**



“

*Recreational and business opportunities (beaches and forests). Development of tourism, fish stocks, transportation of the goods and passengers, renewable energy resources (wind turbine location possibilities). /Latvia/*

“

*The city's prosperity is connected with the summer leisure activities and with the possibilities that the Baltic Sea beach provides. Therefore it is necessary to have clean water for safe swimming and also coastal area scenery. /Latvia/*

“

*The Baltic Sea is part of our home. It also provides a job for professional fishermen. /Estonia/*

“

*Our municipality has a shoreline with swimming places and recreational areas, we also have professional fishermen and many recreational fishermen. We would not want a part of our municipality border to be polluted. /Estonia/*

“

*Recreation: tourism, boating, leisure, free-time fishing. Business: port, shipping, fishing. Image and attraction factor. /Finland/*

“

*We are located on the coast and that has a high priority in all strategies and actions in what we do, such as harbours, tourism and recreational use. /Finland/*

“

*What benefit do you get from the Baltic Sea that is so full of blue-green algae that you can't use it for recreation? Why would someone like to live at the shoreline of the smelly Baltic Sea? /Finland/*

“

*Beaches, recreation possibilities, scenery, aesthetical and psychological enjoyment. Life quality, leisure, tourism, health resorts. /Latvia/*

“

*If it gets polluted there will be no more tourists, tourism is the main source of income for our municipality. /Lithuania/*

# Conclusion

## 1. The role of municipalities in protection of the Baltic Sea

Coastal municipalities see themselves and national governments as the most important actors in protecting the Baltic Sea. They perceive a clear division of responsibilities depending on the nature of problems: issues regarding citizen and households are perceived as local level matters, and issues such as eutrophication, industries and agriculture are expected to be addressed by national level actors. Especially in the Baltic countries the municipalities see their role more in dealing with more immediate problems and less with more general issues such as eutrophication and climate change, or even fertilizer use in agriculture.

The main benefits for the municipalities and citizens that the Baltic Sea provides are described in terms of life quality which translates into economic benefits (e.g. tourism income).





## 2. PERCEPTION OF THE POLLUTION SOURCES AND RISK MANAGEMENT

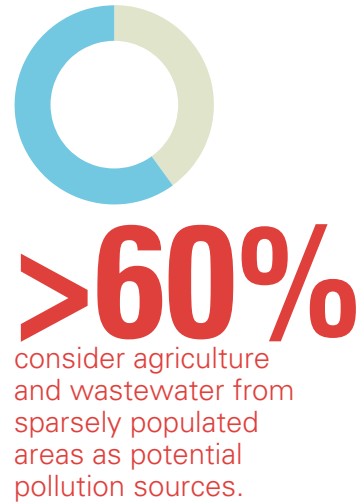
This chapter will explore what municipalities consider as threats to the water systems and what they have done to deal with those risks. They also share their experiences about hindrances and keys of success of water protection activities.

### Potential and biggest sources of pollution

When asked about possible pollution sources on the territory of their municipality, more than 60% of the respondents list agriculture and wastewater from sparsely populated areas. These were followed by wastewater from densely populated areas (44%), ports (39%), storm waters (38%) and industry (not including mines; 33%). Illegal storage of waste (38%), mining (28%) and residual pollution such as Soviet oil spills (20%) are named as potential problems in the Baltic countries. In Finland, such problems were mentioned by less than 10% of the municipalities (see Annex 3 Table 1).

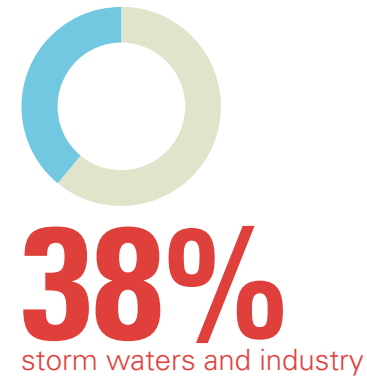
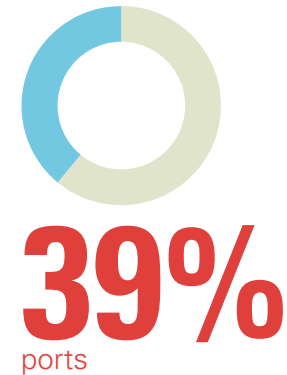
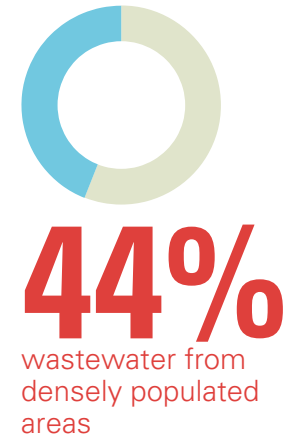
When asked to choose the biggest water pollution source in their municipality, agriculture was by far the most often mentioned (see table 3). This issue dominated the Finnish responses while Latvian and Lithuanian municipalities listed wastewater from densely populated areas as their main pollution source. Estonian municipalities mentioned equally often agriculture and residual pollution.

### possible pollution sources



**Table 3.** Which of the following is the biggest water pollution source in your municipality?  
n=72

Agriculture	43%
wastewater from densely populated areas	15%
other industry	13%
known residual pollution (e.g. oil spills from soviet time, burial sites of hazardous waste)	10%
wastewater from sparsely populated areas	8%
storm waters	6%
Mining	3%
Ports	3%
illegal storage of waste	0%





## Water protection activities in municipalities - infrastructure

We provided a list of 15 activities (see Annex 3 Table 2) to find out which of them have been undertaken in the municipality within the last five years.

Almost all municipalities have in the last five years built or renovated sewage systems. The other activities in the top three are building or renovating water supply systems and waste water treatment systems. In addition, two thirds of the Baltic municipalities have undertaken steps to reduce and clear pollution directly caused by citizens and households. Half of the Baltic municipalities have cleaned the beaches from garbage. The building or renovation of overground storm water systems has also been more undertaken in the Baltic municipalities than in Finland (23% and 6%, respectively).

All of the activities have been undertaken by a higher percentage of Baltic coastal municipalities than Finnish ones. An average Baltic municipality has undertaken 14 out of the 15 different activities, an average Finnish municipality 11.

Almost all of the Baltic municipalities have their own waste water treatment plant and it is generally owned by the municipality. In Finland, treatment plants exist in every second municipality and shared ownership is also more common (see Annex 1)

## Other water protection activities in municipalities

The previous question mostly dealt with activities involving building and renovation of infrastructure. We also asked the municipalities to describe other activities that more often involve co-operation with citizens, scientists etc.

The most valued water protection activities (i.e. that have been done and are though necessary in the future) include preventing pollution from households, increasing citizen awareness and finding funding sources for water protection projects. These have been emphasized by almost all of the respondents. The least appreciated activity is initiating cost-benefit analysis.

There were no statistically significant differences between Baltic countries and Finland but all of the activities are somewhat more practiced in Finland. 7 out of the 8 respondents who did not consider necessary to deal with pollution from agriculture came from the Baltic countries.

**Table 4.** What other water protection activities have you done or think necessary to do in the future? You may choose several (including both has been done and is necessary in the future) n=64

	is not necessary	Is necessary, but hasn't been done	has been done	is necessary in the future	not clear
Co-operation with environmental scientists	1%	10%	46%	26%	16%
Preventing environmental pollution from households	1%	20%	39%	38%	3%
Awareness campaigns and other similar projects to change people's behaviour	0%	14%	38%	40%	8%
Preventing environmental pollution from companies and industry	9%	17%	37%	29%	8%
Finding funding sources for water protection projects	0%	16%	33%	41%	10%
Public discussions of water-related development plans	7%	18%	33%	32%	11%
Preventing environmental pollution from agriculture	11%	28%	19%	33%	8%
Initiating cost-benefit analyses in order to support water protection actions	6%	33%	6%	21%	33%



## Perceived opportunities to manage water pollution risks

According to Kollmuss and Agyeman (2010) the environmentally responsible behaviour is influenced by the sense of control of the situation. We asked the municipalities to evaluate the effectiveness of their water protection activities (on a scale of 5) and also evaluate the management of risks in case of various types of water bodies.

Municipalities evaluate their success in water pollution risk management as satisfactory – the mean was 3.2 out of 5. A quarter of respondents perceived their activities as successful (4 or 5) and 5% considered it a failure (1 or 2).

The best managed risks are those related to drinking water and groundwater. Baltic Sea risks are evaluated as being managed better than risks related to rivers and lakes. The evaluation to the management of Baltic Sea risks is similar in the Baltic countries and Finland.

Figure 5 describes the overall evaluation to risk management. There were notable differences between countries. Finnish respondents see that drinking water and ground water risks are mostly dealt with and there are problems with small water bodies. Estonian respondents felt the opposite: small water bodies are best protected and problems concern drinking water and rivers and lakes. Latvian and Lithuanian respondents were similar in their evaluation that risks related to the Baltic Sea are better dealt with in their municipality but problems occur with drinking water and ground water.

**Table 5.** : In your opinion, how well are the environmental risks for the following water bodies dealt with in your municipality? Please rate it in the 5-point scale. n=68.

	1 - there are undealt risks	2	3	4	5 -all risks are dealt with	6- there are no considerable risks	Average on a 5-point scale
Baltic Sea	12%	12%	34%	18%	15%	10%	<b>3,13</b>
Rivers and lakes	6%	24%	29%	22%	9%	10%	<b>3,05</b>
Drinking water, ground water	11%	14%	20%	24%	23%	9%	<b>3,38</b>
Small water bodies, e.g. brooks	10%	22%	40%	13%	6%	9%	<b>2,81</b>



## Obstacles to municipal water protection projects

We asked the respondents to comment what obstacles they face in implementing water protection projects. Almost 60% of them mentioned the lack of financial resources and/or lack of suitable funding sources and projects. That rate was similar in both the Baltic and Finnish responses. The second major barrier, mentioned by approximately one third of respondents, was related to the knowledge, attitude and behaviour of various stakeholders (decision makers, citizen, companies, landowners, civil servants etc.). The negative attitudes were attributed to low awareness about water protection, resistance to change and conflict of interests. The Baltic responses especially focused on the citizen (e.g. opposition to joining sewage systems in sparsely populated areas). In Finland, the lack of support to funding of important projects by politicians and other decision makers was mentioned more..

**Selected quotes** about typical hindrances to water protection projects:

“ *Local people lack of interest to join the constructed central sewage system. /Latvia/*

“ *Opposition by entrepreneurs (adding new costs) and citizens' fears about the rising of cost of service. /Estonia/*

“ *Some farmers do not find that water protection is meaningful and do not want to change their farming methods to more effective ones for water conservation. /Finland/*

“ *Attitudes, although they have changed to more positive all the time. / Wrong attitudes and financial problems./ Prejudices./ People's resistance to changes /4 x Finland/*

“ *Carelessness of people. / Lack of interest by people to act for water protection, join newly built systems. /2 x Estonia/*

“ *Decision-makers protect polluters too much. There are limited possibilities to take part in projects (due to the weak economical situation). /Finland/*

“ *Lack or inadequacy of funding of big projects. In some cases there is no political consensus or support to contribute projects. /Finland/*

“ *To get mental (and sometimes financial) support. Not all politicians are truly supporting the projects. /Finland/*

Next to the two major obstacles, the following hindrances were also mentioned:

- » limited resources (people, skills, time)
- » water protection activities are not seen as priority
- » important polluters (ports, agriculture) have received too little attention (Finland only – Ed.)
- » conflicts with landowners or private property owners (Baltics only – Ed.)
- » insufficient water protection legislation (Lithuania only – Ed.)



# 60%

mentioned the lack of financial resources and suitable funding

## Keys of success to municipal water protection projects

We asked the respondents to comment what keys of success they can describe for implementing water protection projects. Most often (about one third of comments) the comments referred to finding funding sources for their activities, including EU co-funding, and writing successful projects. One of out every five comments mentioned finding funding sources in connection with building or renovating water supply systems or waste water treatment plants. After financial factors two human-related factors of success - awareness and co-operation - were equally mentioned.

**Selected quotes** from the open question: "What are the keys of success in the realization of municipal water protection in your municipality?"

### About awareness and positive background:

“

*In addition to renovation of water and sewage infrastructure as part of the Interreg project we have informed citizen and done individual counselling. /Estonia/*

“

*Active work regarding projects and educating the society. /Latvia/*

“

*The results from waste water treatments (industry and community) are seen, even though agriculture is the biggest polluter. /Finland/*

“

*14 years we have been educating and encouraging the residents towards cooperatives of waste water, and finally some results are starting to show. /Finland/*

“

*Informing and discussions in the media to support understanding that environmental protection is necessary. /Finland/*

“

*Informing and discussions in the media to support understanding that environmental protection is necessary. /Finland/*





**About co-operation:**

“ “ *The co-operation of municipalities regarding planning and the potential readiness of private owners to co-operate. /Estonia/*

“ “ *TGood will, co-operation with different partners, extended opportunities to participate in support programs. /Estonia/*

“ “ *Regional co-operation to improve the waste water treatment (eg. property-specific information campaigns, waste water -meetings). /Finland/*

“ “ *Good and functional co-operation with authority and volunteers. /Finland/*

“ “ *Good information to residents and holiday-residents. Regular control in mills. Good co-operation with regional rescue department. /Finland/*

“ “ *A broad co-operation in waste water purification. External funding for several projects. Internal co-operation in our municipality allows water protection activities to come true. /Finland/*

“ “ *Team is most important, not taking in consideration projects, funding, organization, implementation. /Lithuania/*

**Third group** of quotes include several topics (legislature, holistic planning, supervision of pollution cases and **management** of household waste water) that can be summarized as management.

“ “ *Implementing actions foreseen in strategy documents, adding water protection requirements to planning documents and controlling their compliance, discovering and eliminating illegal activities that harm water environment, constant monitoring of water bodies. /Estonia/*

“ “ *Controlling big, punctate pollution sources (industry), diminishing waste water pollutions from sparsely populated areas via counseling. /Finland/*

“ “ *Specifications of land extraction act and environmental permit. Building new sewers. /Finland/*

“ “ *Renovation of waste water treatment plants of industry and municipality. /Finland/*

“ “ *Requiring biological waste water treatment systems from single-family houses. /Estonia/*

**In summary:** water protection related activities are complex and **require holistic solutions** where it is hard to highlight just one element.

“ “ *Successful prevention of the household waste water. Making agreements with the construction project planners in order to set out requirements that projects have to manage all questions related to sewage systems, for example, monitor and control water flow in order to reduce overflows. Realization of the water management projects. /Latvia/*



# Conclusion

## 2. Perception of the pollution sources and risk management

The municipalities, especially in the Baltic countries perceive pollution risk related to households as substantial. Much of their water protection effort in the past five years has been aimed at improving infrastructure. Next to that, raising citizens' awareness is perceived as one of the main things that need to be done in the future.

When compared to Finland, the Baltic countries are doing more activities that are related to infrastructure and fewer activities related to co-operation with stakeholders. Whether this balance is due to differences in the state of infrastructure, local legal requirements, resources or priorities, requires further investigation.

The questions on hindrances and keys to success lead to two main factors: financial resources and human attitudes and behaviour. Both are recognized also on the list of activities that need to be done in the future.

This chapter brought forward the ambivalent role of municipalities in the case of agricultural pollution. As seen in previous chapter, this problem is mainly considered to be a responsibility of national actors. At the same time the municipalities admit that agriculture is the biggest

pollution source on their territory and express opinion that it need to be dealt with much more than it currently has been done. The topic receives more attention in Finland.

Another topic that demonstrates differences between the biggest perceived risks for the Baltic Sea and the municipality priorities is waste water treatment. While the municipalities consider this to be one of their main responsibilities when protecting the Baltic Sea, it is not considered a major pollution source for the sea. These discrepancies could have various explanations but reflect a need to further study the barriers to water protection related to risk perception, awareness and perceived capabilities of municipalities.



### 3. CO-OPERATION WITH STAKEHOLDERS

This chapter will investigate how municipalities perceive the role and capabilities of various stakeholders to contribute to water protection. According to Morris et al. (2012: 20) various theories of behaviour connect individual motivation and perception of social context. This means that a person's readiness to act is dependant on his/her perception of the activity of "others" in the same field, i.e. how dedicated the others are. The term "others" can refer to specific people of groups (celebrities, decision makers, social groups) or to a belief about the dominant practices in the society. The perception about the activities and attitudes of others can be formed either through direct co-operation experience or by indirect sources such as prejudice. We postulate that this approach can, to an extent, also be applied to our respondents (i.e. municipality employees) and that their beliefs reflect the municipalities' understanding of how their activities are supported by various stakeholders. Our survey asked to evaluate various aspects related to municipality co-operation with stakeholders.

#### Extent and satisfaction with co-operation

We asked the municipality to evaluate for nine different potential partners whether they have collaborated within the last five years and how satisfied they have been (see Annex 3 Table 4).

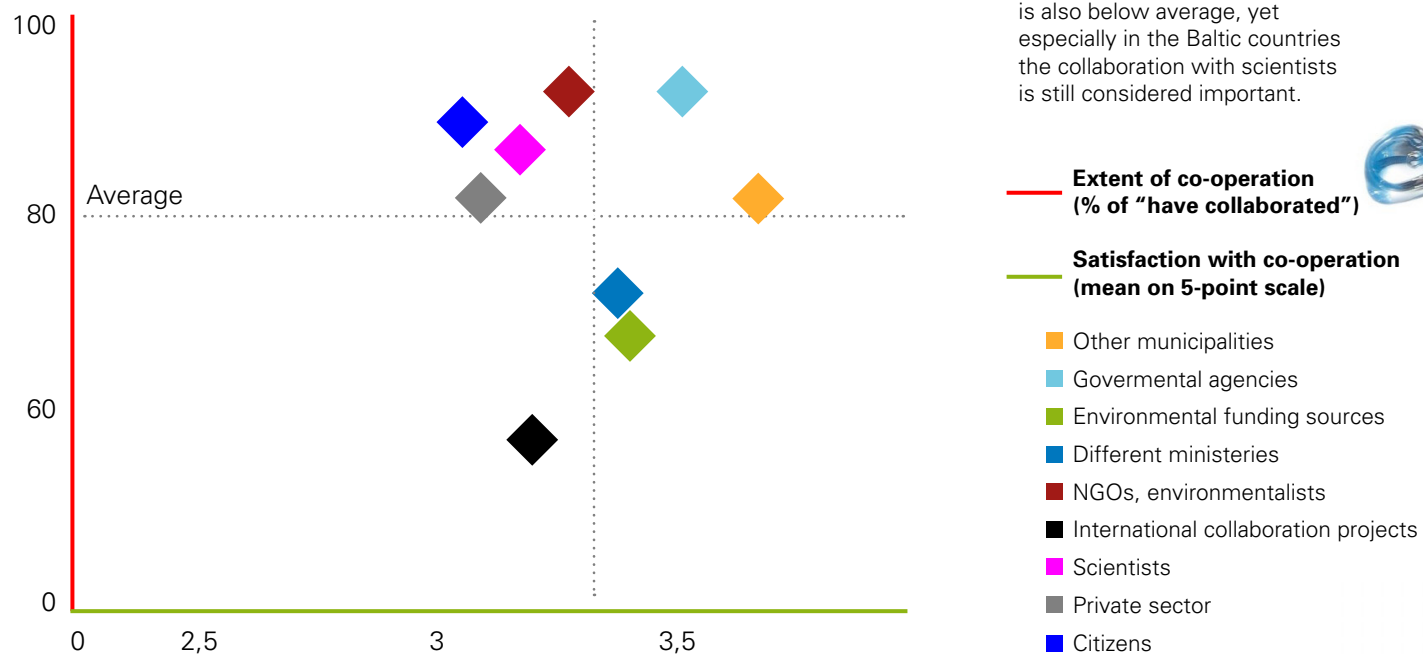
Higher than average co-operation experience and satisfaction was found for government agencies and other municipalities. In Baltic countries, both indicators were above average also in case of ministries and municipal associations. In Finland, this quarter also included citizen and the private sector.

The quarter with extensive collaboration but below average satisfaction includes scientists (both in Baltic countries and in Finland), NGOs, citizens and private sector. All the Baltic respondents have collaborated with private companies but the satisfaction is lower than in Finland (2.4 and 3.4 respectively).

Below average collaboration experience but high satisfaction is found in case of ministries and environmental funding sources.

The quarter with low co-operation and below average satisfaction includes international projects. In Baltic countries, collaboration with private sector also falls here. In Finland, ministries and funding sources can be found here. Satisfaction with co-operation with scientists, environmentalists and international organizations is also below average, yet especially in the Baltic countries the collaboration with scientists is still considered important.

**Figure 1.** Extent of co-operation and satisfaction with different partners within the last five years. n=61



## Municipality resources and skills to protect the Baltic Sea

We inquired about the typical problems in realizing water protection activities and proposed 11 possible hindrances. On average, a respondent chose 3-4 problems.

The lack of suitable funding sources is considered the biggest problem. The second biggest problem, mentioned by every second respondent, is also financial: the high level of own contribution. We asked, what would be the reasonable level of municipality contribution. The proposed number ranged from 1 to 20%, the mean was 9.7% and this was very similar in Baltic countries and Finland.

resources such as lack of manpower. One respondent from Estonia said: *"One person is not able to manage all important things. The writing of projects and applications involves very time-consuming bureaucracy"*.

Another hindrance, mentioned by half of the respondents, is the low priority of water protection compared to other municipality activities. According to a third of respondents, their work is hampered by the lack of long-term plans in the municipality. A quarter of respondents mentioned lack of information about the cost-benefit relation, lack of knowledge on the best practices and lack of knowledge or awareness among civil servants. All three problems were mentioned almost twice as often in the Baltic countries compared to Finland.

Lack of international co-operation partners was not perceived a major hindrance. Similarly, most have not experienced opposition from interest groups.

**Table 6.** In your experience, what are the typical hindrances in realizing water protection activities and projects? n=62, the differences on darker background are statistically significant.

	Baltic's	Finland	Total
lack of suitable funding sources	91%	80%	85%
too high self-finance level of the project	56%	50%	53%
lack of human resources in the municipality	44%	60%	52%
lack of priority for water protection in comparison with other responsibilities and activities of the municipality	41%	60%	50%
lack of long-term development plans and plans of action	38%	30%	34%
lack of information about the cost-benefit relation of water protection measures	31%	17%	24%
lack of knowledge on the best practices in water protection	31%	17%	24%
lack of knowledge or awareness among civil servants related to environmental impacts of water protection	31%	13%	23%
opposition from various interest groups	13%	17%	15%
co-operation difficulties with other national institutions	6%	10%	8%
lack of international co-operation partners	9%	3%	6%



## Role of cost-benefit analysis

Cost-benefit analysis (CBA) is a method that has been developed to support decisionmaking. It can provide information on the environmental and other impacts and their monetary values, as well as the net benefits of water protection measures. It focuses on the social consequences of measures by comparing overall benefits and overall costs accruing for society during the lifespan of a measure (Punttila 2014).

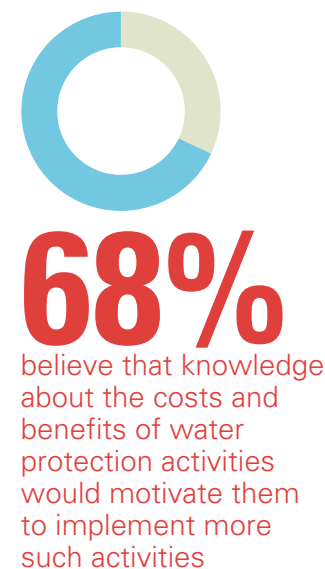
As noted in the previous section, one out of four respondents felt the need for using CBA in water protection measures. More than half of the Baltic municipalities (59%) and more than a third of Finnish municipalities (38%) have not used CBA within the last five years (the difference is statistically significant). Many could not answer whether CBA has been used and the number of municipalities who have actually used CBA was too small (3 in Baltics and 2 in Finland) to make any general arguments. It is interesting to note, however, that the Finnish municipalities explained the use of CBA as a tool to prioritize municipality activities whereas

the Baltic respondents said this was a requirement by the funding source.

We analysed what kind of CBA information municipalities consider the most useful. Out of the eight proposed types, the respondents on average chose 4-5.

Statistically significant differences between Baltic countries and Finland can be seen in the level of interest for information about benefits for human life quality and ecosystems. The higher interest in the Baltic countries can indicate that these aspects are currently less known and included in decision-making than in Finland. This assumption is supported by the comments for the question about what is the importance of Baltic Sea, where Finnish responses mentioned life quality and ecosystems aspect more often than in the Baltic responses.

68% of the surveyed coastal municipalities believe (including 14% who are certain) that knowledge about the costs and benefits of water protection activities would motivate them to implement more such activities.



**Table 7.** What kind of information could support you in implementing water protection activities?

Answer Options	Baltics n=27	Finland n=29	Total n=56
the benefit of water protection on the region's economy, e.g. for tourism	81%	69%	<b>75%</b>
environmental impacts of different water protection actions	59%	66%	<b>63%</b>
the benefit of water protection on people's life quality	74%	45%	<b>59%</b>
the benefit of water protection on recreational opportunities	52%	66%	<b>59%</b>
examples of costs of water protection actions	44%	55%	<b>50%</b>
the net value of costs and benefits of water protection actions	37%	55%	<b>46%</b>
the benefit of water protection on ecosystem (natural environment)	52%	28%	<b>39%</b>
lost profits due to damages in the water environment	37%	38%	<b>38%</b>



**Selected quotes** from the open question: "Why do you think knowledge about the benefits of water protection in monetary terms would motivate your municipality to implement more activities related to water protection?"

**The need for CBA-type of analyses** was primarily explained with the importance of financial component in all planning and prioritizing decision.

“ *In my opinion, [showing the] economical benefits is the first step for raising awareness. /Latvia/*

“ *We could justify the use natural storm water treatment in planning, for example. /Finland/*

“ *Municipal decisions are made shortsighted. On the other hand, economical arguments are noticed. /Finland/*

“ *Cost-benefit thinking is a trend nowadays. Money is tight not only in municipalities but also in the industry. We need to know what we can get with that money before doing any investment decisions. /Finland/*

“ *Money is the crucial factor these days when economic situation is tough. /Finland/*

“ *It that case we have a strong ground to build on and it is easier to justify the need for activities. /Estonia/*

“ *Since the council approving the parish budget is made of politicians then we need to add to any financial decisions an explanation about the relationship of direct and indirect expenses and benefits. /Estonia/*

**The doubts** expressed by the less optimistic respondents reflect insecurity, denial of responsibility and limit of capabilities.

“ *Our municipality is in a financial distress and the main task is just to survive. If we survive from this situation, it's maybe time for water protection. /Finland/*

“ *This topic is too distant compared to our everyday worries. /Estonia/*

“ *Analyses, studies, meetings etc are made all the time but life and economy will go their own way. The small municipalities are not polluting the Baltic Sea. We can organiza as many conferences as we like but what is the use when the big neighbour in the east (or a big company in some other country) ignore all this and throw all their slop uncontrolled to the Baltci Sea. /Estonia/*

“ *I don't know, most likely it wouldn't, because we already do our best to protect our environment. /Latvia/*



## Exchange of experience

A previous question (see Figure 7) showed that a quarter of respondents feel that lack of knowledge on the best practices is a hindrance to their work. This question shows that the municipalities are open to many types of activities that involve exchange of experience, knowledge and best practices. In the Baltic countries all surveyed municipalities have either participated or want to participate in some activity. The share of disappointed respondents (have participated but will not in the future)

is low in all countries. The only statistically significant difference between the Baltic countries and Finland is the Baltics' more positive stance on conferences (70% and 55% respectively saying that they have participated and probably will again in the future).

The rank of activities according to the share of interested participants (has participated and will in the future) probably reflects their perceived usefulness. Co-operation networks and various visits tend to be less desired. At the same time, such activities are good formats to fulfil the expectations that the

respondents expressed in their free comments. Most of these can be summarized as "exchange of experiences" and "consultations". Some responses that included more specific requests are presented below.

## Selected quotes from the open question "What kind of information or exchange of experiences would you be interested in regarding protection of the Baltic Sea?"

“ Waste water purification systems and melioration systems. /Latvia/

“ /Estonia/  
Raising awareness, directing enterprises to be more environmentally friendly.

The actual pollution level of the Baltic Sea (war-time chemicals, poisons etc), how to handle them? The presumes size and quality of fish stocks?

Replenishing fish stocks, clean coast.

Reducing pollution load from the sparsely populated areas.

Cross-border information exchange between municipalities/organizations about pollution sources, surveys and analyses.

Oil pollution abatement.

“ /Finland/  
All data related to Baltic Sea protection is useful.

Potential impacts of climate change to coastal bays.

Information focused to residents.

Examples of actual and successful projects about e.g. reducing pollution from agriculture.

We are interested to hear the costs of successfully managed projects.

Processing stormwaters and dredgings.

Different water restoration activities and methods.

“ Project MOMENT. /Lithuania/

**Table 8.** Has your municipality participated or do you consider it necessary to participate in the future in following activities related to Baltic Sea protection? n=56

	it has not and probably will not in the future	it has not but probably will in the future	it has participated but probably will not in the future	it has participated and probably will in the future
projects/activities	5%	25%	4%	66%
seminars, conferences	7%	27%	4%	63%
co-operation networks	11%	36%	2%	52%
excursions/trips	18%	34%	5%	43%

# Conclusion

## 3. Co-operation with stakeholders

Municipalities consider local and national governments to be the most important actors in the protection of the Baltic Sea. The satisfaction chart shows that the co-operation with these actors is valued the highest (although there is still room for improvement). Municipalities also considered industry, companies and citizen to be important actors but co-operation with these groups has not been as successful.

Not surprisingly, the most common hindrance to water protection activities is lack of suitable finance sources, mentioned by 85% of the respondents. Level of self-financing, lack of human resources and lack of priority for water protection are also often mentioned.

The lack of cost-benefit analysis was felt as a hindrance by about a third of municipalities. Many more showed interest towards various types of analyses to support their prioritizing of activities. The actual use of such an analysis, however, could depend on the financial solutions – who will pay for conducting the analysis. Lack of financial resources may become a major hurdle for municipalities.



## 4. CO-OPERATION WITH CITIZEN

How to use the relationship between the citizens and the local municipality for the benefit of the environment is one of the major focuses of this project. This chapter will investigate how the municipalities see the role and capabilities of citizen.

### Role of citizen in Baltic Sea protection

The respondents consider the current activities of citizen in the protection of the Baltic Sea as satisfactory (3.23 out of 5, see Annex 3 Table 6). The situation is considered bad by 18% of the municipalities. Finnish municipalities tend to be more satisfied with the activities of citizen than the Baltic municipalities (44% and 30% respectively) but due to the number of respondents the difference cannot be considered statistically significant.

According to the comments of the respondents, the local municipality foremost expects the households to take steps to manage their waste water treatment. In the Baltic countries this usually means willingness to join the (newly built) central sewage systems. In Finland the municipalities expect the households that are not connected to the municipal waste water treatment systems to use their own waste water treatments system or form small private sewage networks with (biological) waste water treatment capabilities.

The next group of expectations relate to people's activities related to garbage management. Third group, by the number of comments, relates to citizen initiatives to clean water bodies, beaches or other natural environments. There were also expectations for citizen to engage in awareness raising but these were mentioned less than hands-on activities.

Only a few respondents expected people to change their consumer behaviour such as use less household chemicals or reduce water consumption.

Two Finnish respondents, however, noted that sometimes the problem does not lie with the willingness of citizen but with the capabilities of municipality to match that willingness:  
*„There is a large interest and willingness to help among citizens. There are a lack of meaningful work compared to expectations of citizens.“*

**Selected quotes** from the open question “What activities can the citizens do to prevent pollution of the water bodies?”

“

*Cleaning of beaches, spring-time clean-ups and events during the municipal clean-up month. /Estonia/*

“

*They enhance the waste water treatment, they are involved in restoration of water bodies, they follow the state of the water bodies nearby and they collect garbage. /Finland/*

“

*Water protection unions are active in realising eg. selective fishing and hydraulic construction. Unions are also committed that there is no carpet washing in our waters. There are also efforts to realizing united sewage systems eg. around one lake. /Finland/*

“

*The citizens rather act to pollute, eg. run their waste water into nature, bury garbage, litter. /Estonia/*

## Perceived capabilities to influence citizen and companies - hindrances

The participating municipalities consider their capabilities to influence citizen and companies to protect water systems as satisfactory on average. 30% of municipalities find the capabilities are good or very good, another 30% believe they are bad or very bad. The Finnish respondents tended to be less optimistic about their capability to influence citizen than the Baltic municipalities (2.97 and 3.2 on a scale of 5, respectively). The difference regarding companies was smaller but still remained.

We asked them about the main obstacles in this process. The most mentioned problems were related to resources and legislation. The lack of resources (including money) was equally emphasized both in Baltic countries and in Finland. Legislation was much more mentioned by Finnish respondents (every third). For example: *"The Finnish government has been goofing around with the waste water legislation."* or *"Wastewater regulation reform in 2011 undermined the credibility."*

*People are still waiting for the decree to be cancelled, so that they wouldn't have to do anything about it."*

Other comments highlighted aspects related to motivation of stakeholders. Low awareness and bad project management were also mentioned.

## Selected quotes

from the question "In your experience, what have been the main hindrances in influencing people/companies to prevent water-related pollution?"

“ Lithuania  
*They don't understand what the problem is. They understand problems differently.*

“ Latvia  
*Habits of people, unwillingness to change something. Excuses about the money (for example, lack of money). Lack of human resources, who would be actively involved in this process. Lack of legal capacity.*

“ Estonia  
*High cost of measures and the lack of quick tangible results. Lack of knowledge about contemporary waste water treatment possibilities and about how everyone's pollution collectively impacts water bodies, ground water. Lack of time does not allow civil servants to do a lot of convincing. Laws and other legal acts are rather general.*

“ Finland  
*Polluting action is not necessarily cancelled if it's not required by the law. Economic situation and structural changes in agriculture slow the actions. Lack of political willingness. The allocation of responsibilities inside the municipality. People have been continuing the conversation on and on about the waste water legislation. Citizen and companies lack motivation when they are not personally affected and cannot see the impacts of pollution.*





## Perceived capabilities to influence citizen and companies – keys of success

We asked the respondents to share their experiences of tools that have succeeded in influencing people or companies to prevent water-related pollution.

Two main and equally emphasised ways of influencing emerge from the comments:

- » 'push' or enforcement measures, including better regulations, issuing of permits, imposing sanctions and fines, and effective supervision.
- » 'pull' or soft, educational measures, including awareness raising, enhancing risk perception, introducing exemplary practices, motivating by showing the benefits, citizen engagement and clear goal-setting.

The Baltic municipalities tended to mention more the 'push' measures. Education and informing was mentioned equally often in both the Baltic countries and Finland but on the level of more specific keywords, Finnish respondents use terms that indicate a

more strategic approach – engagement, use of various types of analyses to set goals and motivate stakeholders.

**Selected quotes** from the question "In your experience, what have been the main keys of success in influencing people/companies to prevent water-related pollution?"



### Baltic countries

*It is easy to influence young people (kindergardens, schools). With older people it is harder, fines come to help. /Lithuania/*

*Co-operation with the institutions which are responsible for the water monitoring. Discussions about the projects and imposing water protection requirements. /Latvia/*

*Current legislation for issuing building permits and authorisation for use permits. /Estonia/*

*Informing about actual situation. Positive examples. Explaining environmental requirements. /Estonia/*



### Finland

*Personal positive experiences from nearby water bodies; guidance, information, legislation and supervision, examples from other citizens.*

*Legislation is the most important. Professional contact persons in stakeholders.*

*To share unbiased information in a supportive spirit.*

*Almost 10 years we went from door to door telling about water protection and checking out the state of waste water systems.*

*Residents are ready to investigate in practise when it touches their personal property that is in danger (eg. summer cottage shoreline or well).*

*Well-organized and compelling regional or national water protection campaigns, which also have been succesfully informed.*

*Targets need to be settled to the correct scale and to the nearby area. No one saves the Baltic sea alone - and individual human beings clearly can't affect the water quality.*

*To include residents actively into projects such as lake restauration.*





# Conclusion

## 4. Co-operation with citizen

On average, the municipalities rate the citizens' activities in the protection of the Baltic Sea as satisfactory. They foremost expect the households to take steps to manage their waste water treatment. The Baltic municipalities tend to believe that the most efficient way to achieve this and other behavioural changes is through sanctioning and other enforcement measures. Finnish municipalities do often emphasize the importance of legislation but consider educational measures, including awareness raising as more successful. Finnish respondents also provided more specific comments about problems and successes related to citizen behaviour, probably due to more experience. Baltic municipalities tended to refer more generally to 'awareness raising' or 'lack of knowledge'.

The comments suggest that most efficient ways of influencing citizen would be showing the '*Monetary or recreational benefit*' of water protection activities and giving '*good arguments why they should do it*'. '*Neutral, nonaligned information*' and '*sufficiently illustrative facts*' are also considered helpful.



## 5. COMPARISON WITH SURVEY OF CITIZENS

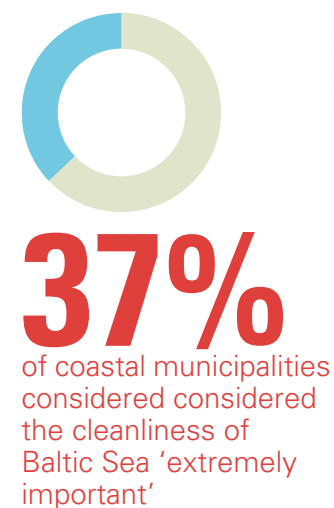
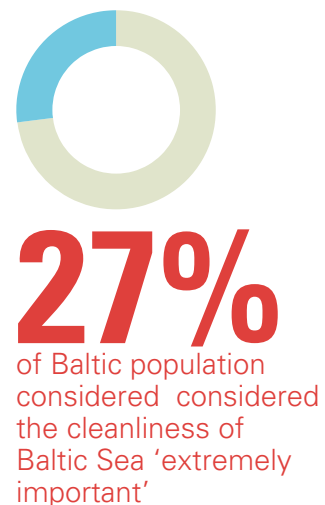
The project *CITYWATER – Benchmarking water protection in cities* also included a survey of 1,500 people from the three Baltic countries to explore their knowledge, attitudes and behaviours regarding water protection and the Baltic Sea (Kaal, Olesk, Tampere 2015). The focal points of the citizen survey were similar to the current survey of municipalities. This allows a more complete mapping of the water protection issues at the local level. In this chapter we will link the results of the two surveys.

Because the municipalities' survey only included coastal municipalities and survey of the citizens was conducted for the entire population, we have in this chapter also separately looked at the responses of people living close to the sea. For this, we used the question "Is there any water body in your home region that you use for holidays, leisure activities?". Almost a third of respondents also chose the answer option "a sea" and they have been treated in this chapter as coastal inhabitants. The presented results are weighed for country and are statistically significant.

### Importance of the Baltic Sea

We asked both groups how important they consider the cleanliness of the Baltic Sea. 27% of Baltic citizen considered the cleanliness of Baltic Sea 'extremely important' and a further 37% as 'very important'. When we only look at the answers by people who report living near the sea (about a third of all respondents) we see that the percentages are higher and similar to the results of the coastal municipalities. The Baltic municipalities, however, attach more importance to the Baltic Sea than Finnish municipalities and Baltic citizen.

The citizens' readiness to act for water protection was tested with two questions about possible financial contribution. 47% of people (50% of coastal inhabitants) would agree with a single donation for the protection of the Baltic Sea. 35% of both general and coastal population would be willing to contribute a small sum every month for the protection of the water systems in their home area.



**Table 10.** How important do you/your municipality consider the cleanliness of the Baltic Sea?

	Baltic's n=28	Finland n=30	Total n=58	Baltic coastal inhabitants n=449
extremely important	50%	23%	<b>36%</b>	37%
very important	43%	50%	<b>47%</b>	40%
important	7%	23%	<b>16%</b>	22%
rather not important	0%	3%	<b>2%</b>	1%
not important at all	0%	0%	<b>0%</b>	0%
<i>average on 5-point scale</i>	4,43	3,93	4,17	4,14

## Perceived benefits of Baltic Sea protection

Both people and municipalities expect similar benefits from protecting the Baltic Sea. Recreational values are the primary benefits that the respondents mention. Citizens perceive a clean sea and beach as a personal benefit that allows for a good vacation and living environment. Municipalities see a protected Baltic Sea as a main argument to attract tourists and provide reason to stay for the current residents, both of which have clear financial benefits for the municipality.

Fishing, unpolluted fish and the health of fish stocks was another benefit mentioned prominently by both groups.

## Responsibility of various actors in protecting the Baltic Sea

While citizen and municipalities express similar views on the importance of a clean Baltic Sea and the benefits gained from it, the opinions start to diverge when we investigate the perceived responsibility of actors.

Both groups consider national governments the most important actors. In the order of importance, coastal municipalities list next themselves and citizen. For citizen, ranks 2 and 3 are occupied by industry and European Union. Therefore, municipalities perceive the role of themselves and citizen more important than citizens do.

**Table 11.** In your opinion, how important it is that the following actors are active and take responsibility for protecting the Baltic Sea?

Role is 'extremely important'	Coastal municipalities n=57	Baltic citizen n=1509	Baltic coastal inhabitants n=449
Baltic Sea countries, their governments	77%	42%	48%
Local municipalities*	46%	30%	35%
Citizens of Baltic Sea countries	39%	28%	32%
Industry, companies	37%	42%	50%
European Union	30%	39%	41%
Non-governmental environmental organizations	25%	29%	31%

\* In the municipalities' survey the coastal municipalities were presented as a separate option and this number is used in this figure. No respondent considered the role of other municipalities as 'extremely important'.



## Mutual perception of roles in water protection

The comparison of the citizen and municipality perspective shows that municipalities expect citizen to take a much more active and aware role than these are currently possessing. According to the results of the citizen survey, 14% of Baltic people have taken part in some kind of water protection activity (mostly clean-up events, the activity level is the same for coastal inhabitants). 23% (24% for coastal inhabitants) plan to increase their contribution in the future. From a list of possible activities, citizen preferred activities such as notifying about pollution. Taking part in discussions about water management was considered a likely activity by 13% of respondents.

38% of people completely agreed and 47% rather agreed with the statement that the local municipality needs to emphasize water protection similarly to other topics. The level was very similar among coastal inhabitants.

63% of the people (66% of coastal inhabitants) said they are not aware of any water protection related activity that their municipality is doing. Two

out of three who had heard of any activity associated them with drinking water. Only 4% of Baltic citizens associate the water protection activities of their local municipality with protection of the Baltic Sea. Local municipality is the preferred institution where citizen would report if they encountered pollution.

This survey shows that municipalities perceive a strong responsibility for collaborating with citizen for water protection. They list preventing environmental pollution from households and awareness campaigns among top activities they feel the municipality should focus more focus in the future. Lack of awareness and resistance to change are quoted as citizen-related obstacles to municipality water protection activities. Co-operation with citizen received the lowest satisfaction score compared to various other partners.

## Waste water treatment

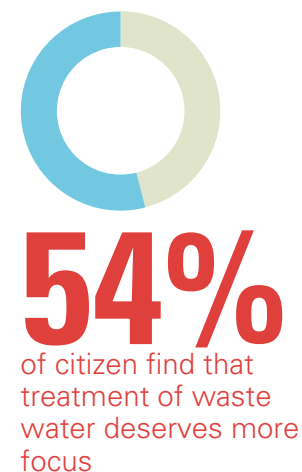
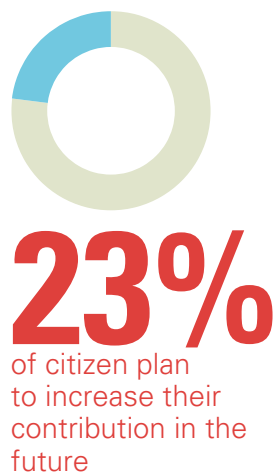
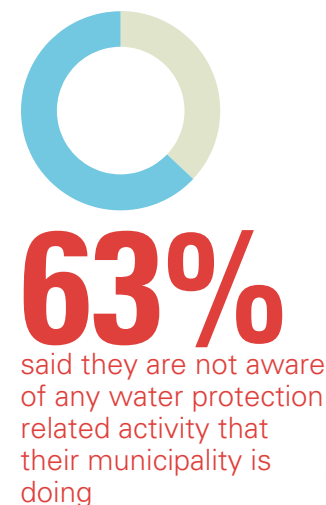
The municipality responses indicate that they foremost expect the households to take steps to manage their waste water treatment. A quarter of interviewed people (31% of coastal inhabitants) said that they consider 'extremely

important' that waste water coming from their household is treated before discharged back to the nature. Another 37% (41% of coastal inhabitants) considered it 'very important'. Only 4% of Baltic citizens associate the water protection activities of their local municipality with protection of the Baltic Sea. 54% of people (66% of coastal inhabitants) find that treatment of waste water deserves more focus in the future, ranking the issue third among 11 possible problems.

29% of people (25% in coastal areas) believe the treatment of waste water in their home area is 'good' or 'very good', 38% (40%) say it is satisfactory and 14% (16%) either 'bad' or 'very bad'.

At the same time, when we asked what they could personally do to prevent water-related problems in their home area, activities related to their household sewage system management ranked at the very bottom of the list (2% of the respondents). It is likely that most people live in houses that are connected to central waste water treatments systems and therefore the issue is not high in their agenda. At the same time, the emphasis of the problem by the municipalities shows that the problem with household waste water

treatment exists and despite attaching high importance to it, people rather do not consider this to be their preferred way of preventing pollution.





# Conclusion

## 5. Comparison with survey of citizens

The comparison of two surveys shows that citizens and municipalities share the same values and care for the Baltic Sea. The two groups, however, diverge in the sense of responsibility and preference of measures. Citizens tend to expect high responsibility from national and transnational actors and occupy a pessimistic stance about their own capabilities. The concerns that municipalities express regarding citizen behaviour do not feature prominently in the agenda of citizens. Waste water treatment is an exemplary case. Low awareness by the citizens also points to the conclusion that municipalities may not have been very successful in communicating the context and goals of their water protection activities. Low awareness by the citizens also points to the conclusion that municipalities may not have been very successful in communicating the context and goals of their water protection activities.

This survey shows that municipalities perceive this gap and feel the need to put awareness and education high on their agenda.

We also found that coastal inhabitants are more alert about the Baltic Sea: the value its cleanliness higher and expect a bigger role from various actors

in comparison with general population. They also were less satisfied with the water water treatment in their municipality and find to an higher extent that more attention should be paid to that issue. However, the higher concern does not translate into behaviour: we found no significant differences in terms of actual participation in water protection activities, highlighting once more that concern and awareness about environment are not directly linked to environmental behaviour.

The seen differences in results indicate that living near the sea is a factor for increased awareness. The size of this factor, however, is more difficult to determine since the closeness of several big cities (such as Tallinn and Riga) to the sea introduces other influences to this sample, such as differences education and social status compared to the general population.





# Discussion and summary

The goal of this survey was to map the water protection attitudes and behaviour of the coastal municipalities in the three Baltic countries and Finland. We have identified aspects of attitudes and current behaviour that either support involving other stakeholders with the environmental activities of the municipality or hinder it.

Our results show that coastal local municipalities consider themselves as important actors in the protection of the Baltic Sea. They acknowledge the importance of the sea to the well-being of their residents and the economic and social sustainability of the municipality. Running and improving local water management systems (waste water treatment, storm water management) and improving citizen awareness and behaviour are the main areas where the municipality sees a strong responsibility. While citizens themselves see their role in polluting or saving the Baltic Sea as insignificant, the local municipality characterize citizens as an important source of pollution, either through littering or insufficient waste water treatment. Therefore the lack of awareness, lack of knowledge and unwillingness to change habits are often mentioned as hindrances for municipality water protection

activities. Overcoming those barriers has resulted in successes in water protection initiatives.

The focus of water protection activities remains related to building or renovating infrastructure. This has brought substantial improvements to water quality. At the same time these activities demand a lot of resources and are not applicable to all types of water protection. Lack of financial and human resources is highlighted as a constant challenge to municipalities. Our results indicate that local municipalities have employed (or see the need to employ) measures that can support the success of infrastructure activities or improve water protection via the change of behaviour of stakeholders, including citizens. Stakeholder-related measures seem to be practiced somewhat more in Finland than in the Baltic countries. The Baltic countries believe more in the use of enforcement measures as an effective way of changing behaviour. Finnish respondents emphasize somewhat more the educational measures.

Cost-benefit analyses or similar approaches are currently underused in local municipalities as ways to set priorities or evaluate effectiveness of

various activities, although the usefulness of these is acknowledged. The main hindrance is the cost of making such analyses.

Our results indicate that for a better protection of the Baltic Sea, the local municipalities can benefit from a set of tools related to prioritizing, engagement and co-operation. More specific communication recommendations will be provided in the project publication *Empowering Local Actors: Communication strategy for local level water protection activities* (Tampere, Olesk, Kaal, 2015).



# *Related publications*

Kaal, E., Olesk, A., Tampere, K. (2015) Local actors and the Baltic Sea 2: municipalities' water protection activities and co-operation in Baltic countries and Finland. Tallinn University . Tallinn: Tallinn University & EU Life+ Content.

Available at: <http://www.citywater.fi/actions/communication-and-dissemination/>

Tampere, K., Olesk, A., Kaal, E. (2015) Empowering local actors: communication strategy for local level water protection activities. Tallinn University . Tallinn: Tallinn University & EU Life+ Content.

Available at: <http://www.citywater.fi/actions/communication-and-dissemination/>

Punntila, E. (2014) Cost-benefit analysis of municipal water protection measures: Environmental benefits versus costs of implementation. City of Helsinki Environment Centre publications 21/2014. Helsinki: City of Helsinki & EU Life+ Content.

Available at: <http://www.hel.fi/static/ymk/julkaisut/julkaisu-21-14.pdf>



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HELCOM (2014) *Eutrophication status of the Baltic Sea 2007-2011 - A concise thematic assessment*. Baltic Sea Environment Proceedings No. 143 <http://www.helcom.fi/Lists/Publications/BSEP143.pdf> (January 2015)

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Morris, J., Marzano, M., Dandy, N., & O'Brien, L. (2012) Theories and models of behaviour and behaviour change. *Forest Research, Tech. Rep.* [http://www.forestry.gov.uk/pdf/behaviour\\_review\\_theory.pdf/\\$FILE/behaviour\\_review\\_theory.pdf](http://www.forestry.gov.uk/pdf/behaviour_review_theory.pdf/$FILE/behaviour_review_theory.pdf) (January 2015)

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# ANNEX 1

## Respondents of the municipalities' survey

Survey request sent out to all Lithuanian, Latvian, Estonian and Finnish municipalities who have a Baltic Sea coastline. The survey languages were Lithuanian, Latvian, Estonian, Finnish and Swedish.

### SAMPLE

	LIT	LAT	EST	FIN	BALT	FIN	TOTAL
Survey sample (sent out)	6	18	68	79	92	79	171
Completed (Real sample)	4	10	26	32	40	32	72
Response rate	67%	56%	38%	41%	43%	41%	42%

### Information on respondents.

What type of municipality do you represent?

Answer Options	Baltic's n=27	Finland n=29	Total n=56
City/town	30%	62%	46%
County	4%	38%	21%
Parish	67%	0%	32%
Other	19%	0%	9%

### Are the inhabitants of your municipality...

Answer Options	Baltic's n=27	Finland n=28	Total n=55
mostly living in densely populated settlements	37%	<b>57%</b>	<b>47%</b>
equally living in densely and sparsely populated areas	41%	29%	<b>35%</b>
mostly living in sparsely populated areas	<b>22%</b>	14%	<b>18%</b>

### Are there any protected areas (e.g. nature reserves) in your municipality?

Answer Options	Baltic's n=27	Finland n=28	Total n=55
no areas, only single objects	4%	<b>25%</b>	<b>15%</b>
yes, up to a third of the municipality area	56%	75%	<b>65%</b>
yes, more than a third of the municipality area	<b>41%</b>	0%	<b>20%</b>

### What is your position?

Answer Options	Baltic's n=27	Finland n=28	Total n=55
mayor / rural municipality mayor	7%	0%	<b>4%</b>
assistant (mayor)	4%	4%	<b>4%</b>
municipal engineering/ planning	22%	7%	<b>15%</b>
water (protection) specialist	56%	<b>86%</b>	<b>71%</b>
environmental specialist	11%	4%	<b>7%</b>

### Is there a waste-water treatment plant in your municipality?

Answer Options	Baltic's n=27	Finland n=29	Total n=56
yes	93%	59%	<b>75%</b>
no	7%	41%	<b>25%</b>

### If yes: Is it owned by the municipality or a private company?

Answer Options	Baltic's n=22	Finland n=16	Total n=38
municipality	<b>77%</b>	50%	<b>66%</b>
private	14%	13%	<b>13%</b>
shared	9%	<b>38%</b>	<b>21%</b>
Other	23%*	13%	<b>18%</b>

\* Others: Municipality has established an ltd or llc company (x4); one part of the waste water has been pumped to the purification system in the neighbouring municipality.





## ANNEX 2

### Questionnaire used in the Municipality Survey

### Web questionnaire

For coastal municipalities in Estonia, Latvia, Lithuania and Finland.  
April-September 2014

Thank you for answering the survey about water protection. Your contribution is extremely valuable for us to understand the opinions of coastal municipalities!

#### I. Risks related to water and water protection activities.

**Q1 What are the present and possible water pollution sources in your municipality?** *You may choose several.*

- 1, agriculture
- 2, mining
- 3, other industry
- 4, ports
- 5, wastewater from densely populated areas
- 6, wastewater from sparsely populated areas
- 7, storm waters
- 8, illegal storage of waste
- 9, known residual pollution (e.g. earlier oil spills, burial sites of hazardous waste)
10. Other /please specify/ \_\_\_\_\_

**Q2. Which of them is currently the biggest water pollution source in your municipality?** *Select one, please.*

- 1, agriculture
- 2, mining
- 3, other industry
- 4, ports
- 5, wastewater from densely populated areas
- 6, wastewater from sparsely populated areas
- 7, storm waters
- 8, illegal storage of waste
- 9, known residual pollution (e.g. earlier oil spills, burial sites of hazardous waste)
10. Other /please specify/ \_\_\_\_\_

**Q3 In your opinion, how well are the environmental risks for the following water bodies dealt with in your municipality?**

Please rate it in the 5-point scale where:

1 – there are undealt risks ..... 5- all risks are dealt with

6 – there are no considerable risks

<b>Baltic Sea</b>	1	2	3	4	5	6
<b>Rivers and lakes</b>	1	2	3	4	5	6
<b>Drinking water, ground water</b>	1	2	3	4	5	6
<b>Small water bodies, e.g. brooks</b>	1	2	3	4	5	6

**Q4 What kind of water protection activities have been completed in your municipality within the last five years? You may choose several.**

- 1, Building or renovation of water supply systems
- 2, Building or renovation of sewage system
- 3, Building or renovation of waste water/sewage treatment plants
- 4, Building or renovation of underground storm water systems
- 5, Building of natural wetlands to treat waste water
- 6, Building or renovation of overground storm water systems, e.g. dikes
- 7, Restoration of water bodies
- 8, Dredging of very contaminated sediments
- 9, Collecting or processing of bilge water from ships in ports
- 10, Collecting and processing sewage from ships in ports
- 11, Reducing pollution related to agriculture (e.g. manure or fertilizer pollution)
- 12, Reducing pollution related to mining
- 13, Reducing pollution related to industry (e.g. oil and chemical spills)
- 14, Reducing and clearing pollution directly caused by citizens and households
- 15, Clearing garbage from beaches
- 16, No such water protection activity in last five years
- 17, Other /please specify/

**Q5 What other water protection activities have you done or think necessary to do in the future**

*You may choose several (including both has been done and is necessary in the future)*

For every answer please use the scale:

- 1, no need
- 2, there is need but has not been done

- 3, has been done
- 4, is necessary in the future
- 5, hard to tell

Collaborating with environmental scientists	1	2	3	4	5
Public discussions of water-related development plans	1	2	3	4	5
Finding funding sources for water protection projects	1	2	3	4	5
Awareness campaigns and other similar projects to change people's behaviour	1	2	3	4	5
Initiating cost-benefit analyses in order to support water protection actions	1	2	3	4	5
Preventing environmental pollution from companies and industry, identifying potential problems	1	2	3	4	5
Preventing environmental pollution from agriculture, identifying potential problems	1	2	3	4	5
Preventing environmental pollution from households and citizens, identifying potential problems	1	2	3	4	5

**Q6 How successful do you consider the water protection activities in general in your municipality?**

- 1, very successful
- 2, successful
- 3, satisfactory
- 4, bad
- 5, very bad

**Q7. What have been the main keys to success in the realization of municipal water protection in your municipality? Please write.**

---

**Q8 What kind of hindrances have you experienced in the realization of municipal water protection in your municipality? Please write.**

---

**Q9 In your experience, what are the typical hindrances in realizing water protection activities and projects? /you may choose several/**

- 1, lack of suitable funding sources
- 2, too high self-finance level of the project
- 3, lack of human resources in the municipality
- 4, lack of long-term development plans and plans of action on the municipality level
- 5, lack of priority for water protection in comparison with other responsibilities and activities of the municipality
- 6, co-operation difficulties with other national institutions
- 7, opposition from various interest groups
- 8, lack of knowledge or awareness among civil servants related to environmental impacts of water protection
- 9, lack of cost-benefit analysis and information about their funding opportunities
- 10, lack of knowledge on the best practices in water protection
- 11, lack of international co-operation partners
- 12, Other /please specify/ \_\_\_\_\_

**II. Co-operation related to water and environmental protection**

**Q10 How would you evaluate your water protection co-operation (of the last five years) with the following parties... ?**

For each, please use the scale 1 – very bad ..... 5- very good.

- 6 – „no co-operation experience“
- 7 – “hard to tell“

Different ministries	1	2	3	4	5	6
Different governmental agencies	1	2	3	4	5	6
Other municipalities	1	2	3	4	5	6
Environmental funding sources	1	2	3	4	5	6
International collaboration projects	1	2	3	4	5	6
NGOs, environmentalists	1	2	3	4	5	6
Scientists	1	2	3	4	5	6
Citizens	1	2	3	4	5	6
Companies, industry	1	2	3	4	5	6

**Q11 How would you evaluate the behaviour of citizens in your region in terms of preventing pollution of local waters, including the Baltic Sea?**

- 1 very bad
- 2 rather bad
- 3 satisfactory
- 4 rather good
- 5 very good
- 6 hard to tell

**Q12 What activities do the citizens do or have done to prevent pollution of the water bodies? Please write examples!**

\_\_\_\_\_

**Q13 How would you evaluate your current capabilities to influence people/ companies to prevent water-related pollution, including the Baltic Sea?**

For both, please use the scale: 1 – no capabilities ... 5 – all possible capabilities

citizens	1	2	3	4	5
companies	1	2	3	4	5

**Q14 In your experience, what have been the main keys of success in influencing people/companies to prevent water-related pollution? Please write examples!**

\_\_\_\_\_

**Q15 In your experience, what have been the main hindrances in influencing people/companies to prevent water-related pollution? Please write examples!**

\_\_\_\_\_

**III The Baltic Sea**

**Q16 What are the main benefits that the Baltic Sea provides for your municipality and citizens? Please write examples!**

\_\_\_\_\_

**Q17 For your municipality, how important is the cleanness of the Baltic Sea?**

- 1 extremely important
- 2 very important



- 3 important
- 4 rather not important
- 5 not important at all

**Q18 Please comment your previous answer: why is the cleanness of the Baltic Sea important/not important for your municipality!** \_\_\_\_\_

**Q19 In your opinion, how important is it that the following actors are active and take responsibility for protecting the Baltic Sea?**

Please evaluate it on the scale:

- 1 extremely important
- 2 very important
- 3 important
- 4 rather not important
- 5 not important at all

European Union	1	2	3	4	5
Baltic Sea countries, their governments	1	2	3	4	5
Coastal municipalities	1	2	3	4	5
Non-governmental environmental organizations	1	2	3	4	5
Citizens of Baltic Sea countries	1	2	3	4	5
Industry, companies	1	2	3	4	5
Universities or other research institutions	1	2	3	4	5
Charity funds	1	2	3	4	5
International organisations	1	2	3	4	5
Other (please specify) _____					

**Q20 In your opinion, what would be the justified level of self-financing by the municipality in Baltic Sea related water protection activities?**

\_\_\_\_\_ % of total project cost

**Q21 In the future, who should pay more attention to the following problems when protecting the Baltic Sea?**

For each, you can choose several:

- 1 - national level
- 2 - municipality level

- 3 - Other actors
- 4 – It needs no attention

the use of chemicals in agriculture (excluding fertilizers)	1	2	3	4
the use of fertilizers in agriculture	1	2	3	4
insufficient treatment of waste water of households	1	2	3	4
pollution in storm waters	1	2	3	4
pollution from sea transport/marine traffic	1	2	3	4
Baltic Sea pollution caused by land and air transport	1	2	3	4
pollution from industries, including mining	1	2	3	4
littering of the sea and the shores by tourists and residents	1	2	3	4
damages to fish stock	1	2	3	4
invasive species in Baltic Sea	1	2	3	4
climate change/global warming	1	2	3	4
capabilities for cleaning oil spills	1	2	3	4
lack of environmental protection awareness among citizens	1	2	3	4
lack of environmental protection awareness among civil servants	1	2	3	4
eutrophication in general	1	2	3	4
other risk for the Baltic Sea /please specify/ _____				

**Q22 Have you heard of the project Baltic Sea Challenge?**

- 1 Know nothing
- 2 Just heard the name
- 3 I have heard and would like to know more
- 4 I know their initiatives but have not participated
- 5 Our municipality has participated/co-operated

If you chose 3 or 4 or 5

**Q 23 Please explain, why?** \_\_\_\_\_

**Q24 Has your municipality participated or do you consider it necessary to participate in the future in following activities related to Baltic Sea protection?**

For each, please use the scale:

- 1, it has not and probably will not in the future
- 2, it has not but probably will in the future
- 3, it has participated but probably will not in the future
- 4, it has participated and probably will in the future



co-operation networks	1	2	3	4
seminars, conferences	1	2	3	4
water protection projects/activities	1	2	3	4
excursions/trips	1	2	3	4

**Q25 What kind of information or exchange of experiences would you be interested in regarding protection of the Baltic Sea? Please write**

---

#### IV. Analyses and evaluations

The following questions are about cost-benefit analysis. Such analysis attempts to measure in monetary terms all relevant costs and benefits to the society of a project or policy. It takes into account also those impacts, e.g. environmental, social or health impacts, that are lacking market values by evaluating them in monetary terms by using economical methods.

**Q26 In the last 5 years, has your municipality commissioned or used such cost-benefit analysis or assessments to evaluate environmental protection activities?**

- 1 yes
- 2 no, not such analysis
- 3 Have not used any analysis

If you chose 2 or 3.

**Q27 What has your municipality not used such analysis for environmental protection activities?**

/please explain/ \_\_\_\_\_

If you chose „yes”

**Q28 What was the reason for using that economic analysis/assessments? Was it ...**

*You may choose several*

- 1, required by funding source
- 2, required by regional or local action plans/other guidance documents
- 3, it allows municipality to set priorities

- 4, required by law
- 5, other \_\_\_\_\_ /please specify/

**Q29 How were the environment-related economic analyses/assessments in your municipality funded? You may choose several.**

- 1, municipality budget
- 2, citizen support, donation
- 3, private or state companies
- 4, by state
- 5, European Union funding
- 6, other \_\_\_\_\_ /please specify/

**Q30 What kind of information could support you in implementing water protection activities? You may choose several.**

- 1, the benefit of water protection on the region's economy, e.g. for tourism
- 2, the benefit of water protection on people's life quality
- 3, the benefit of water protection on ecosystem (natural environment)
- 4, the benefit of water protection on recreational opportunities
- 5, the net value of costs and benefits of water protection actions
- 6, examples of costs of water protection actions
- 7, environmental impacts of different water protection actions
- 8, lost profits due to damages to the water environment
- 9, Other, please specify \_\_\_\_\_

**Q31 If you had an analysis of the social and economic benefits of water protection would that motivate your municipality to implement more activities related to water protection?**

- 1 Definitely not
  - 2 Rather not
  - 3 Rather yes
  - 4 Definitely
  - 5 Hard to tell
- Q32 Please write, why do you think so? \_\_\_\_\_





## V. To conclude

### Q33 What type of municipality do you represent?

- 1 City/town
- 2 County
- 3 Parish
- 4, other /please write/.....

### Q34 Is there a waste-water treatment plant in your municipality?

- 1 Yes
- 2 no

If yes:

### Q35 Who owns it?

- 1 municipality
- 2 private company
- 3 shared ownership
- 4 other type of ownership, please specify \_\_\_\_\_

### Q36 How many inhabitants does your municipality have? \_\_\_\_\_

Please write (in thousands)

### Q37 Are the inhabitants of your municipality...

- 1 mostly living in densely populated settlements
- 2 equally living in densely and sparsely populated areas
- 3 mostly living in sparsely populated areas

### Q38 Are there any protected areas (e.g. nature reserves) in your municipality?

- 1 no areas, only single objects
- 2 yes, up to a third of the municipality area
- 3 yes, more than a third of the municipality area
- 4 other, please specify

### Q39 What is your position / area of main responsibility?

- 1 mayor / rural municipality mayor
- 2 assistant mayor
- 3 municipal engineering specialist

- 4 environmental specialist
- 5 water protection specialist
- 6 other \_\_\_\_\_ (please specify)

### Q40 We are grateful if you wish to add something more about protecting the Baltic Sea.

\_\_\_\_\_ (please write)



## Detailed results

Notes:

- » the numbers on a darker background indicate statistically significant differences when comparing the Baltic countries and Finland
- » if possible, the options have been arranged in a descending order by the mean of all respondents.

**Annex table 1.** The possible water pollution sources in municipality area.

Answer Options	Baltic's n=40	Finland n=32	Total n=72
agriculture	48%	94%	<b>68%</b>
wastewater from sparsely populated areas	53%	72%	<b>61%</b>
wastewater from densely populated areas	45%	44%	<b>44%</b>
ports	35%	44%	<b>39%</b>
storm waters	35%	41%	<b>38%</b>
other industry	28%	41%	<b>33%</b>
illegal storage of waste	38%	3%	<b>22%</b>
known residual pollution (e.g. oil spills from Soviet time, burial sites of hazardous waste)	28%	6%	<b>18%</b>
mining	20%	9%	<b>15%</b>

**Annex table 2.** What kind of water protection activities have been completed in your municipality within the last five years? *You may choose several.*

	TOTAL	N	Baltic's	Finland
Building or renovation of sewage system	94%	66	92%	97%
Building or renovation of water supply systems	79%	55	87%	68%
Building or renovation of waste water/sewage treatment plants	66%	46	74%	55%
Reducing and clearing pollution directly caused by citizens and households	56%	39	67%	42%
Clearing garbage from beaches	40%	28	49%	29%
Building or renovation of underground storm water systems	29%	20	31%	26%
Collecting and processing sewage from ships in ports	27%	19	15%	42%
Restoration of water bodies	26%	18	15%	39%
Reducing pollution related to industry (e.g. oil and chemical spills)	24%	17	23%	26%
Reducing pollution related to agriculture (e.g. manure or fertilizer pollution)	21%	15	13%	32%
Building or renovation of overground storm water systems, e.g. dikes	16%	11	23%	6%
Collecting or processing of bilge water from ships in ports	16%	11	13%	19%
Dredging of very contaminated sediments	14%	10	13%	16%
Natural storm water handling	7%	5	8%	6%
Reducing pollution related to mining	7%	5	10%	3%
No such water protection activity in last five years	0%	0	0%	0

**Annex table 3.** How would you evaluate your current capabilities to influence people/ companies to prevent water-related pollution, including the Baltic Sea?

TOTAL 60 respondents	No capabilities	2	3	4	all possible capabilities	Average 5-point scale
citizens	2%	25%	43%	28%	2%	3,03
companies	0%	33%	38%	29%	0%	2,97



**Annex table 4.** How would you evaluate your water protection co-operation (of the last five years) with the following parties... ?

Answer Options/Total 61 respondents	very good	good	satisfactory	bad	very bad	no co-operative experience	hard to say	Average 5-point scale
Other municipalities	5%	43%	27%	2%	0%	18%	5%	<b>3,67</b>
Different governmental agencies	11%	31%	39%	8%	0%	7%	3%	<b>3,51</b>
Environmental funding sources	4%	23%	18%	9%	0%	32%	14%	<b>3,40</b>
Different ministries	2%	28%	25%	5%	2%	28%	10%	<b>3,38</b>
NGOs, environmentalists	2%	31%	34%	13%	0%	7%	13%	<b>3,27</b>
International collaboration projects	3%	11%	21%	7%	2%	43%	13%	<b>3,19</b>
Scientists	2%	23%	30%	12%	2%	13%	18%	<b>3,17</b>
Private sector	2%	18%	33%	8%	4%	18%	16%	<b>3,09</b>
Citizens	0%	27%	37%	14%	4%	10%	8%	<b>3,05</b>

**Annex table 5.** If you had knowledge about the benefits of water protection in monetary terms (in euros) would that motivate your municipality to implement more activities related to water protection?

Answer Options	Baltic's n=27	Finland n=29	Total n=56
Definitely not	4%	0	<b>2%</b>
Rather not	7%	17%	<b>13%</b>
Rather yes	48%	59%	<b>54%</b>
Definitely	15%	14%	<b>14%</b>
Don't know	<b>26%</b>	10%	<b>18%</b>

**Annex table 6.** How would you evaluate the behaviour of citizens in your region in terms of preventing pollution of local waters, including the Baltic Sea?

Answer Options/ Total 60 respondents	Baltic's	Finland	Total
very bad	0%	0%	0%
rather bad	23%	13%	18%
satisfactory	40%	37%	38%
rather good	30%	37%	33%
very good	0%	7%	3%
hard to say	7%	7%	7%
<i>Average on 5-point scale</i>	<i>3,07</i>	<i>3,39</i>	<i>3,23</i>



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Tallinn 2015