REPORT DRAFT

EU STRATEGY FOR THE BALTIC SEA REGION - POLICY AREA COORDINATOR HAZARDS, SWEDISH ENVIRONMENTAL PROTECTION AGENCY

PROJET NUMBER 13006211

STUDY ON EFFECTIVENESS OF MEASURES APPLIED IN THE EU WATER FRAMEWORK DIRECTIVE PROGRAMMES OF MEASURES OF EU BALTIC SEA REGION COUNTRIES FOR HAZARDOUS SUBSTANCES

2018-11-01 DRAFT

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Interreg Baltic Sea Region
EUROPEAN UNION
EUROPEAN REGIONAL DEVELOPMENT FUND

Preface

On 16th June 2018, Sweco Environment AB received the assignment from the EUSBSR Policy Area Coordinator “Hazards”, Swedish Environmental Protection Agency (Swedish EPA) to carry out a mapping of proposed actions towards priority substances and certain other pollutants in EU-Baltic Sea countries under the Water Framework Directive. The assignment manager was Susanne Keiter at Sweco Environment AB. Quality reviewer was Petra Wallberg at Sweco Environment AB. Other members in the working group were Carina Björkblom, Anna Grandin, Martyna Mikusinska, Sophie Taintor and Elisabet Toumie at Sweco Environment AB; Alma Bareisyte at Sweco Industry AB; Jaanus Kalli at Sweco Civil AB; Martin Sjöström at Sweco Position AB; and Lauma Vasaraja at Sweco Management AB. The assignment was finalized on xx 2018. Target groups for this report is the Swedish EPA as coordinator of the EUSBSR policy area ‘Hazards’, other relevant EUSBSR PAs, environmental national agencies in EU-Baltic Sea countries and HELCOM.

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1 Introduction

The Swedish Environmental Protection Agency (Swedish EPA) has assigned Sweco Environment AB to conduct a survey on proposed actions towards pollutants in EU-Baltic Sea countries under the Water Framework Directive (WFD). The design of the assignment was developed in cooperation between the Swedish EPA and the Swedish Agency for Marine and Water Management (SwAM). The survey will be used as material for direct recommendations regarding feasible measures to support the performance of current proposed actions on a regional scale. The survey will also help to identify gaps in the work on measures towards certain substances or group of substances.

2 Key message

Based on the results of this survey, the following conclusions can be drawn:

- In most cases, measures directed towards specific priority substances and certain other pollutants are lacking in the investigated River Basin Management Plans (RBMPs) and Programmes of Measures (PoMs).
- Of the countries covered by this assignment, Sweden is pinned out as having the most substance specific measures.
- In all cases, measures are only generally described in respective RBMP and PoM. To gain more detailed information on measures allowing estimations on its effect, cost efficiency and technical performance, local management plans must be studied.
- It is important to notice that the measures compiled in this survey may not necessary reflect the overall work carried out by respective country in terms of reducing the load of priority substances and other pollutants under the Water Framework Directive (WFD). Additional measures not included in the references used within this work may very well be addressed by the investigated countries.
- Five out of the seven countries confirm that the measures proposed in the PoMs under the WFD are complementing the measures reported in the MSFD. One country confirms no connection whereas one country provided no answer.

3 Scope of the assignment

The overall aim of this assignment was to map out actions proposed in programmes of measures in EU-Baltic Sea countries to reduce the burden of priority hazardous substances and certain other pollutants in water bodies according to the WFD. The following seven countries were included in the assignment:

- Sweden
- Finland

- Germany
- Poland
- Estonia
- Latvia
- Lithuania

For each measure, available information on substance, pollution source, sector, financing, responsible performer, geographical effect, time frame, cost efficiency and technical performance should be included. In addition, information on adjustment to climate change should be included where possible. Based on this information, a list of substance specific measures on a regional scale should be created. The result should be compiled in a Microsoft Excel database and summarized in this report.

The assignment also aimed to clarify whether the Marine Strategy Framework Directive (MSFD) has been considered in respective country when establishing the Programme of Measures (PoMs) under the WFD.

3.1 Boundaries of the assignment

This assignment included measures undertaken in EU-member countries with direct runoff to the Baltic Sea. However, Denmark could not be included in this survey this time as there was a turnover in personnel for EUSBSR focal points. Contacts could not be established in time for the deadline of compilation of material and data for this report. For countries where PoMs for each individual river basin were available, only programmes covering areas with direct runoff to the Baltic Sea were included.

4 Survey methodology

4.1 The database on proposed measures towards pollutants

A database in Microsoft Excel was constructed to present the information in a searchable manner. The attributes were defined in collaboration with the Swedish EPA and SwAM:

- Country
- Group of substance
- Substance
- Type of source
- Description of measure
- Type of measure
- Sector
- Performer

- Financing
- Time frame
- Reference

Short descriptions of attributes are presented in Table 3-1.

Except for information on time frame which was defined as numbers, all attributes were defined as text. Information on substance, description of measure and time frame was entered as free text/numbers whereas for remaining attributes, a drop-down list containing multiple items was created. When information was missing, the note "*not specified*" was entered.

Table 3-1. Short description of attributes in the database.

Attribute	Description
Country	The name of investigated EU-Baltic Sea countries.
Group of substance	Substances were grouped based on chemical properties and/or identified use.
Substance	Generally used name for the substances, often IUPAC name.
Type of source	Estimation of the source of the pollutants (point source or diffuse source).
Description of measure	General description of the measures as written in the respective literature source.
Type of measure	Estimation of the type of measures (agri-environmental, economical, informative, investigative, legal, municipal, technical, supervisory).
Sector	Estimation of the sector relevant for the identified measures (agricultural, industrial, municipal, marine, forestry).
Responsible performer	Information on the performer ultimately responsible for the implementation of respective measure (agriculturer, authority, city, company).

Financing	Information on how the implementation of identified measures is financed (EU, national, municipal, operator, various).
Time frame	Time frame for the measure to be conducted. Presented as specific year(s).
Reference	Reference to where the information has been found.

4.2 Information source

In order to guarantee time efficiency and quality of compiled data the Swedish EPA provided a list with contact persons from the EU-Baltic Sea countries included in the survey. Response has been received from all countries.

The contact person was asked to confirm the correctness of selected documents with respect to the purpose of the survey and if possible, to pinpoint specific sections containing information on measures towards environmental pollutants. Information sources used for this survey consist of River Basin Management Plans (2nd cycle) and related Programmes of Measures (PoMs) or extracted compilations of measures.

Moreover, SwAM requested that the following question was forwarded to the contact persons:

"*Is the Marine Strategy Framework Directive (MSFD) in your marine regions considered when the programmes of measures (PoMs) under the Water Framework Directive (WFD) are established?"* (yes/no).

In case no answer was received, information was searched for in available water and river management plans of respective country.

4.3 Limitations and uncertainties in the database

4.3.1 Substance/Group of substance

Since information on measures towards specific substances or group of substances are lacking in most cases, all measures aiming to reduce the impact of pollutants in water bodies were included regardless if the pollutants were specified or not.

4.3.2 Geographical effect

In addition to the attributes listed in Table 3-1, information on weather measures tend to assert an effect on local, regional or national level was requested. At an early stage of the survey, and after communication with the Swedish EPA and the SwAM, it was concluded that geographical effect is not possible to estimate based on the available sources of information.

4.3.3 Technical performance

Based on the available sources of information, it was concluded that technical performance of individual measures is not possible to estimate. The decision was communicated with the Swedish EPA and the SwAM.

4.3.4 Cost efficiency

Based on the available sources of information, it was concluded that cost efficiency of individual measures is not possible to estimate. The decision was communicated with the Swedish EPA and the SwAM.

4.3.5 Adjustment to climate change

Where possible, the Swedish EPA and the SwAM also requested information on whether suggested measures have been adapted to effects following ongoing and predicted climate changes. No information on adaptation provided per measure was available, however, general information is presented in the report.

5 Results

All results presented in the report and in the Microsoft Excel database are based on available information at the time of the survey. Moreover, each classification of type of measure, sector and responsible performer are based on estimations. The results are therefore not necessary a true reflection of the ongoing and planned work on measures towards priority substances and other pollutants within the investigated countries.

5.1 Measures towards priority substances and other hazardous pollutants

Information on measures directed towards specific chemical substances are lacking in most management plans (RBMP) and Programmes of Measures (PoMs). All measures are compiled in a Microsoft Excel database. Substance specific measures found are also presented in Table A in the Appendix. Sweden has the largest number of substance specific measures. In Finland, Germany, Poland and Estonia, the RBMPs and the PoMs are only occasionally directed towards a specific group of substances and in rare cases towards individual substances. Based on available literature sources, no substance specific measures were identified for Latvia and Lithuania. The most substance specific measures reported by the countries are related to control substances (pesticides), metals and polycyclic aromatic hydrocarbons (PAHs). Other measures identified are also directed towards PFOS, dioxins, some pharmaceuticals and industrial chemicals.

5.2 Measures per sector and type of measure

The number of measures per sector differs among the countries. An overview of measures per sector is for each country presented in Table 4-1. The majority of measures proposed by Sweden are predominantly within the industrial sector followed by measures in the agricultural and marine sector. In Finland, the majority of measures are within the

industrial and municipal sector. In contrast, measures in Poland are predominantly found in the agricultural sector. In Germany and Latvia, most measures are found within the municipal sector whereas for Lithuania, most measures are found within the marine sector.

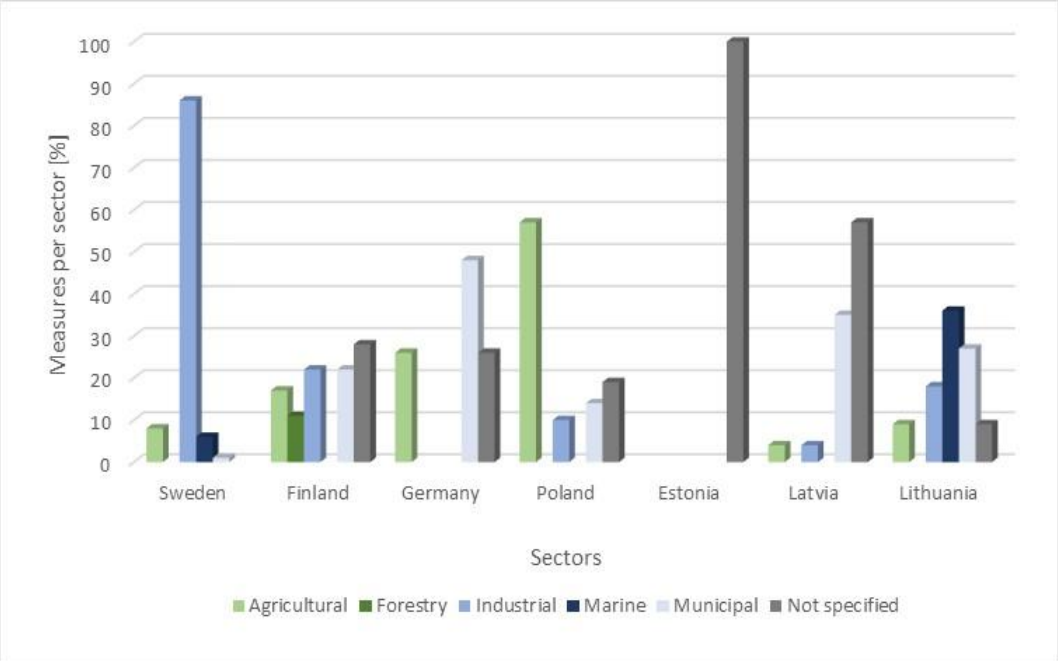

Figure 4-1. Number of measures towards pollutants presented per sector and country (%).

Measures were also classified in different types of measures. The number of measures within each defined type is for each country presented in Table 4-2. The majority of measures proposed by Sweden are of informative and supervisory type. For Finland, Germany and Latvia, the majority of proposed measures are technical. In Poland, legal measures are dominating whereas most measure proposed by Estonia are of investigative type.

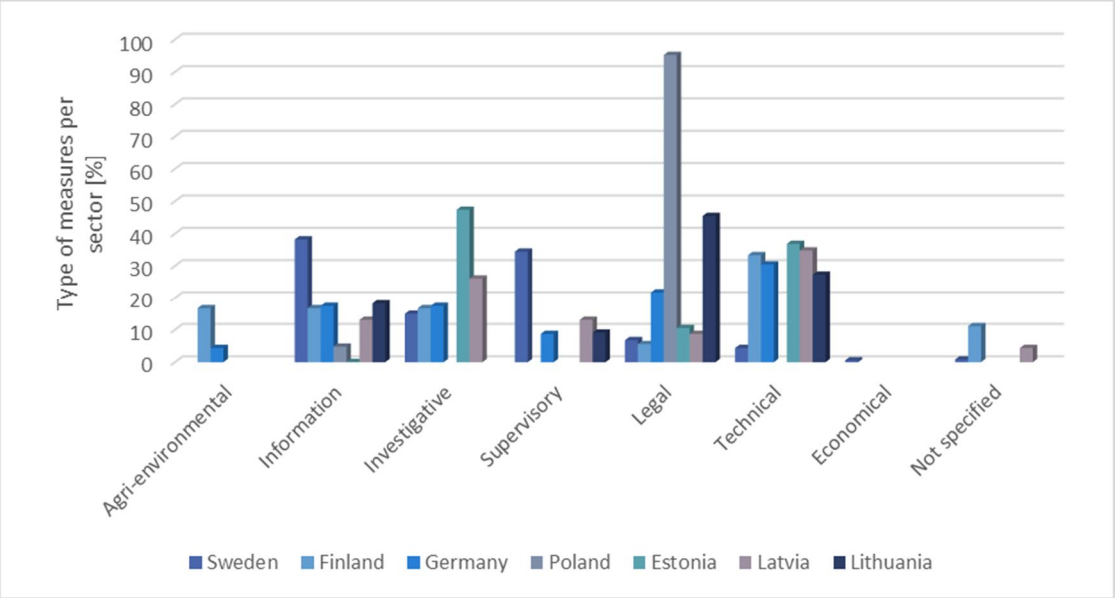

Figure 4-2. Number of measures towards pollutants presented per type of measure and country (%).

5.3 Link to the Marine Strategy Framework Directive

Out of seven countries, contact persons representing six countries have commented the question concerning if the MSFD has been considered when the PoMs under the WFD are established. Five countries have answered “yes” and one country has answered “no” (Table 4-1). However, based on the comments from respective contact person, the answers are more likely to reflect the question whether the PoMs under the WFD and the MSFD are complementing each other in terms of proposed measures or not. It is to be expected that more specific answers would have been provided if the question would have been reversed, i.e. whether the PoMs according to the WFD were considered when establishing the MSFD.

Table 4-1. Information on whether the MSFD has been considered when developing the PoMs under the WFD in respective country

Country	Answer	Comment	Information source
Sweden	Yes	There is an indirect connection between the PoMs under the WFD and the MSFD as positive effects generated by measures under the WFD also assert a positive effect on the total coastal and marine environment.	Pers. comm. Niklas Holmgren, Vattenmyndigheten Södra Östersjön (E-mail, 2018-10-08)
Finland	Yes	WFD measures is forming the key measure package for tackling hazardous substances emissions and pollution. MSFD measures	Pers. comm. Jukka Mehtonen, The Finnish Environment

Country	Answer	Comment	Information source
		are only complemented in those cases when a particular issue is not covered by WFD measures. This strategy has been planned in order to avoid over-lapping.	Institute (E-mail, 2018-10-01)
Germany	Yes	The MSFD for Schleswig-Holstein does not contain any measures towards priority substances and other hazardous pollutants as these are already covered by the WFD management plans and PoMs.	Pers. comm. Silke Andresen, Ministry of Energy Transition, Agriculture, Environment, Nature and Digitalization, Schleswig-Holstein, Germany (E-mail, 2018-07-12)
Poland	-	No information available in documents provided by contact person.	Pers. comm. Michal Dudek (E-mail 2018-09-25)
Estonia	Yes	The team preparing the surface water and groundwater PoMs has cooperated with the compilers of the PoM of the EU Strategy for the Baltic Sea Region and coordinated the measures within both programmes. The PoMs for river basin management plans and for MSFD are prepared based on the principle that the documents coherently complement each other. In the PoMs for surface water, connection has also been established with HELCOM objectives and the Baltic Sea Action Plan.	Pers. comm. Mariina Hiiob, Water Department, Ministry of the Environment, Estonia (E-mail 2018-08-13)
Latvia	No	The PoMs under the MSFD was developed separately by the Latvian Institute of Aquatic Ecology.	Pers. comm. Jānis Šīre, Inland Waters Division, Latvia (E-mail, 2018-08-08).
Lithuania	Yes	For the implementation of MSFD requirements, PoMs for the marine environment was developed. Afterwards, all measures proposed during the implementation process of WFD, MSFD and other legal requirements were compiled together and approved by the ministers of agriculture and environment.	Pers. comm. Aistė Kubiliūtė, Environment Protection Agency, Lithuania (E-mail, 2018-10-03)

5.4 Adaptation to climate change

Based on available information sources, the result of this survey indicates that most countries have not adjusted the proposed measures directed towards pollutants for on-going and predicted climate changes. Measures and climate changes are, however, discussed in general terms by most of the countries (Table 4-2).

Table 4-2. Compilation of information on whether measures have been adapted to effects following ongoing and predicted climate changes

Country	Adaptation to climate change
Sweden	Climate change is generally described in the management plans however not addressed on measure basis.
Finland	The impact of climate change has been described regarding hydrology, nutritional load, groundwater and human activity. Adaptation to climate change has been considered in the action planning.
Germany	The impact of predicted climate changes on water conservation measures are being considered. Measures are subjected to a “climate check”, i.e. possible impacts of climate change on the effect of the measures. Detailed examination of climate change and its impact on individual measures are carried out when implementing the programmes of measures locally and are thus not presented in the more general PoMs.
Polen	No information identified in available documents.
Estonia	No information identified in available documents.
Latvia	No information identified in available documents.
Lithuania	Analyses show that climate change during the period analysed (until 2020) will not have significant effect on achievement of the objectives set for water bodies. It is understood that the PoM does not need to be adjusted as the impact of the climate change will have no significant effect on efficiency of the measures. The PoMs do not provide any specific climate change adaptation measures. Lithuania has adopted the National Strategy for Implementation of the UN Convention on Climate Change.

6 Reference list

References used in the Excel database

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2. Förvaltningsplan 2016 - 2021 för Bottenvikens vattendistrikt. Del 4, Åtgärdsprogram 2016 - 2021 - Åtgärder riktade till myndigheter och kommuner samt konsekvensanalys.
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7 Appendix

Table A *Substance specific measures implemented by EU-Baltic Sea countries as part of the Water Framework Directive.*

Table A. Substance specific measures implemented by EU-Baltic Sea countries as part of the WFD. Asterisks are used to indicate the sector, whenever identified, relevant for respective measure ([a] agriculture, [b] marine, [c] municipal, [d] industry, [e] forestry).

	Adjustment of threshold values	Establishment of protection zones in river areas	Supervision and investigation of hazardous activities and/or contaminated sites/water	Promotion of improved pesticide application technology	Pesticide application ban	Development of new fire extinguishing methods without PFAS, information and education regarding alternative methods to minimize the use of PFAS	Supervisory guidance, education and information to agriculturist, municipalities, county administrative boards and/or the public about handling, use and release of chemical compounds	Decrease the impact from pharmaceuticals on the water environment	Increase air quality and decrease atmospheric deposition	Implementation of biological treatment methods
Control substance										
Aclonifen			SE[a]							
Aldrin					PO[a]					
Chlordane					PO[a]					
Chlordecone					PO[a]					
Cubutryne			SE[a]							
Cypermetrine			SE[a]							
DDT					PO[a]					
Dichlorvos			SE[a]							
Diflufenican							SE[a]			
Endosulfan					PO[a]					
Endrin					PO[a]					
Heptachlor					PO[a]					
Hexabromobiphenyl					PO[a]					
Hexachlorbenzene					PO[a]					

	Adjustment of threshold values	Establishment of protection zones in river areas	Supervision and investigation of hazardous activities and/or contaminated sites/water	Promotion of improved pesticide application technology	Pesticide application ban	Development of new fire extinguishing methods without PFAS, information and education regarding alternative methods to minimize the use of PFAS	Supervisory guidance, education and information to agriculturist, municipalities, county administrative boards and/or the public about handling, use and release of chemical compounds	Decrease the impact from pharmaceuticals on the water environment	Increase air quality and decrease atmospheric deposition	Implementation of biological treatment methods
Isoproturon									SE[a]	
Mirex					PO[a]					
Tributyltin compounds			SE[b]				SE[b]		SE[b]	
Not specified		FI[a]	DE[c]	DE[a], FI[a]	DE[a]		DE[a]			FI[a]
PAH										
Antracen			SE[d]				SE[d]		SE[d]	
Benzo(a)pyrene							SE[d]		SE[d]	
Benzo(b)fluoranten							SE[d]		SE[d]	
Benzo(g, h, i)perylene							SE[d]		SE[d]	
Fluoranthen			SE[d]				SE[d]		SE[d]	
Naphtalene			SE[d]				SE[d]		SE[d]	
Dioxin										
Not specified			FI, SE[d]							
PFAS										
PFOS	SE[d]	DE[c]	SE[d]			SE[d]				
Metal										
Arsenic			SE[d]				SE[d]		SE[d]	
Barium			EST							

	Adjustment of threshold values	Establishment of protection zones in river areas	Supervision and investigation of hazardous activities and/or contaminated sites/water	Promotion of improved pesticide application technology	Pesticide application ban	Development of new fire extinguishing methods without PFAS, information and education regarding alternative methods to minimize the use of PFAS	Supervisory guidance, education and information to agriculturist, municipalities, county administrative boards and/or the public about handling, use and release of chemical compounds	Decrease the impact from pharmaceuticals on the water environment	Increase air quality and decrease atmospheric deposition	Implementation of biological treatment methods
Cadmium			FI, SE[d]				SE[d]		SE[d]	
Chromium			SE[d]							
Cupper			SE[d]				SE[d]		SE[d]	
Lead			SE[d]				SE[d]		SE[d]	
Mercury									FI[e]	
Nickel							SE[d]		SE[d]	
Zinc			SE[d]				SE[d]		SE[d]	
Not specified			DE[c], FI							
Pharmaceutical										
7-alpha-etinylestradiol								SE[d]		
17-beta-estradiol								SE[d]		
Not specified			DE[c]							
Industrial										
Phenol			EST				SE[d]			
Hexachlorobenzene							SE[d]			
Hexachlorocyclohexane							SE[d]			
Octylphenol									SE[d]	
4-nonyl-phenol									SE[d]	