



Document title	Background and supporting data for the PLC-6
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Agenda Item	4 - Elaboration of the details of the contents of the PLC-6 report
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Background

The PLC-6 11-2016 meeting discussed the state of collecting background and supporting data for the PLC-6 assessment and agreed on updating the deadlines for providing data. The meeting also invited the authors of Chapter 3 Catchment characteristics to develop a detailed structure for further discussion at the PLC-6 12-2016 meeting.

This document presents a proposed structure for Chapter 3 of the PLC-6 assessment as a result of discussions in the designated work group (Annex 1), and the overall current status of compiling background data for the PLC-6 assessment (Annex 2). Further, the document informs of the result from the questionnaires on agricultural data and scattered dwellings/connectivity, distributed to the AGRI-group and PLC-6 group representatives before summer (Annexes 3 and 4).

The questionnaire on agricultural data (livestock, fertilizer and land use) (Annex 3A) was sent out to the representatives of the HELCOM AGRI group by 2016-03-10, by help from Susanna Kaasinen, Agri-Environment Coordinator at HELCOM. All countries have responded to the e-mail request but some data is still missing. Data has been submitted either as excel-sheets or as links to national statistical databases. The spatial coverage is primarily on a country-level, but for some countries it is possible to extract data on a municipal or county level. Russia provided data for the three regions draining into the Baltic Sea. Four countries were (so far) able to deliver temporal coverage for both 1995 and 2014 (Annex 3B).

The questionnaire on scattered dwellings/connectivity (Annex 4A) was sent out to the representatives of the HELCOM PLC group by 2016-06-13 and a reminder was sent out 2016-08-26. Currently, three countries have responded to the questionnaire (Annex 4B).

Action requested

The Meeting is invited to consider, discuss and adjust as appropriated the suggested structure for the PLC-6 assessment.

The Meeting is invited to take note of the progress in the compilation of background and supporting data for the assessment report of the Sixth Baltic Sea Pollution Load Compilation (PLC-6) and provide feedback regarding data availability, especially when the data from national sources are requested.

Annex 1. Proposed structure for PLC-6 assessment: Ch 3. Catchment characteristics

1. Division of the Baltic Sea Catchment area

2. Catchment characteristics

- a. Climate
 - i. Temperature
 - ii. Precipitation
 - iii. Run-off
 - iv. ...
- b. Catchment properties
 - i. % Lakes/streams
 - ii. Cultivated area
 - iii. Urban area
 - iv. Soil type
 - v. ...

3. Pressures

- a. Population density
- b. Point sources
 - i. Industrial plants
 - 1. Location (difficult for Russia, what about other countries?)
 - 2. Categorization (Size and Type) (is it possible to get from all countries?). Can we obtain the proportion of different industrial categories?
 - ii. Wastewater treatment plants
 - 1. Location (difficult for Russia, what about other countries?)
 - 2. Categorization (Size and Type)
 - 3. Connectivity
 - 4. Removal % of BOD, N and P
 - iii. Aquaculture
 - 1. Location
 - 2. Production
 - iv. Other (e.g. shipping)
- c. Diffuse sources
 - i. Agriculture
 - 1. Fertilizer
 - 2. Livestock
 - 3. Nutrient surplus (?)
 - ii. Scattered dwellings
 - iii. Storm-water overflows
 - iv. Other (e.g. forestry)
- d. Atmospheric deposition

4. Monitoring

- a. Hydrological monitoring stations
 - i. % coverage
 - ii. Sampling frequency
- b. Chemical monitoring stations
 - i. % coverage
 - ii. Parameters and sampling frequency

Annex 2 Status of compiling background and supporting data for the PLC-6 assessment report

Category	Details	Preferred data input	Deadline	Status of compilation
Climate data (table)	Precipitation (or net precipitation) and temperature	Time series data (1995-2014, monthly values). Selection of stations in each CP (each CP should evaluate number of stations needed to provide representative information that covers N-S, W-E and inland-coast gradients).	June 2016	[PLC-6 11-2016: The project coordinator will apply to EMEP to provide the required data.] Status: ...
Agricultural data (table)	Livestock	Data for 1995 and 2014. Number of cows, pigs, poultry etc. within the Baltic Sea drainage area (if possible even at sub-catchment level and/or for the 'big seven' river catchments).	June 2016	[PLC-6 11-2016: A data request has been sent to CP-representatives of the HELCOM AGRI group. Deadline is 30 March 2016. Rasmus will send a reminder to AGRI contact points.] Status: Contacts have been established with all countries and nearly all have sent in data. Varying level of coverage. See Annex 2.
	Application of mineral fertilizer and manure	Time series data (1995-2014), if possible. kg N and P per ha within the Baltic Sea drainage area (if possible even sub-catchment level and/or for the 'big seven' river catchments).	June 2016	
	Agricultural land	Data for 1995 and 2014. Area of agricultural land within the Baltic Sea drainage area (if possible even sub-catchment level and/or for the 'big seven' river catchments).	June 2016	
Land use and cover (table and map)	Percentage arable land, pasture, forest, open land, unknown, urban area, inland waters (including wetlands).	Data for 1995 and 2014. Per country and river catchment. Latest CORINE land cover map.	June 2016	[PLC-6 11-2016: The required data will be downloaded from the CORINE database and HELCOM map service and compiled for the project by BNI and DCE.] Status: ...
Soil type (map)		Data for 1995 and 2014. Per sub-catchment, if possible.	June 2016	[PLC-6 11-2016: The required data will be downloaded from JRC Coil Database and compiled for the project by BNI. Russia is invited to inform on data availability.] Status: ...
Population data (table)		Data for 1995 and 2014. Per sub-catchment, if possible.	30 June 2016	[PLC-6 11-2016: Each CP should send population data to DCE. A questionnaire will be circulated to the representatives of the HELCOM PLC group by 1 April with a three

				<p>week deadline for providing the information. Project manager send questionnaire by 1. June.]</p> <p>Status: ...</p>
Wastewater treatment plants (municipal and industrial) (table)	Number of plants and data on removal percentage for different size categories (<300 PE, 301-2,000 PE; 2,001-10,000; 10,001-100,000 PE; >100,001)	Data for 1995 and 2014. Per country, preferably within the Baltic Sea drainage area.	March 2016	<p>[PLC-6 11-2016: 2014 data can be retrieved from the periodic reporting. EEA water database contains info on removal of nutrients at WWTPs. Data from 1995 (connectivity, treatment methods etc.) may be extracted from the EEA indicator assessment report: http://www.eea.europa.eu/data-and-maps/indicators/urban-waste-water-treatment/urban-waste-water-treatment-assessment-3</p> <p>Status: Data available on Eurostat 2003-2013 (provided by Seppo and Dietmar)</p>
Connectivity (table)	Percentage of population connected to treatment plants	Data for 1995 and 2014. Per country, preferably within the Baltic Sea drainage area.	March 2016	<p>Status: Data available on Eurostat 2003-2013 (provided by Seppo and Dietmar)</p>
Scattered dwellings (table)	Number of scattered dwellings, number of inhabitants per scattered dwelling, removal percentages and calculation methods	Data for 1995 and 2014. Per country, preferably within Baltic Sea drainage area (if possible even at sub-catchment level and/or for the 'big seven' river catchments).	30 June 2016	<p>[PLC-6 11-2016: A data request is being developed (to be sent to the CP-representatives of the HELCOM PLC-group by 4. April with a three week deadline for providing information). Questionnaire elaborated could be send out by 1. June.]</p> <p>Status: Questionnaire was sent out before summer and a reminder in the end of august. See Annex 3.</p>

Annex 3A Questionnaire on agricultural data

Main category	Sub-category		Unit			Temporal resolution			Spatial resolution			
	Scale of preference (1 - most preferred)		Scale of preference (1 - most preferred)			Scale of preference (1 - most preferred)			Scale of preference (1 - most preferred)			
	1	2	1	2	3	1	2	3	1	2	3	4
Livestock	<i>Data for as many of the following categories as possible:</i>		Number of animals (heads) per areal unit (ha or km ²)	Number of animals (heads) per spatial category (e.g. HELCOM PLC sub-catchment (see Spatial resolution))	Other unit	1994 to 2014	1994 and 2014	Data from adjacent time period/year (e.g. 1995, 2013)	Per HELCOM PLC sub-catchments ¹ (or finer ²)	Per RBD	Per country - total area draining into the Baltic Sea	Per country - including areas not draining into Baltic Sea
	Pigs	Other categorization or total values										
	Poultry											
	Cattle											
	Horses											
	Sheep/goats											
	Other											
Total	and (if possible) specific information per major river catchment (i.e. Neva, Vistula, Odra, Daugava, Göta älv, Nemunas, Kemijoki)											
Fertilizer	<i>Data for as many of the following categories as possible:</i>		kg N and P (subdivided into mineral fertilizer and manure) per areal unit	kg mineral fertilizer and manure per areal unit (please provide % N and P content, or equivalent information, if this unit is chosen)	Other unit	1994 to 2014	1994 and 2014	Data from adjacent time period/year (e.g. 1995, 2013)	Per HELCOM PLC sub-catchments ¹ (or finer ²)	Per RBD	Per country - total area draining into the Baltic Sea	Per country - including areas not draining into Baltic Sea
	Mineral P	Other categorization or total values										
	Mineral N											
	Manure P											
	Manure N											
and (if possible) specific information per major river catchment (i.e. Neva, Vistula, Odra, Daugava, Göta älv, Nemunas, Kemijoki)												
Agricultural land	<i>Data for as many of the following categories as possible:</i>		ha or km ²			1994 and 2014	Data from adjacent time period/year (e.g. 1995, 2013)	Per HELCOM PLC sub-catchments ¹ (or finer ²)	Per RBD	Per country - total area draining into the Baltic Sea	Per country - including areas not draining into Baltic Sea	
	Area - field	Other categorization or total values										
	Area - pasture											
	Area - other ³											
	Area - total											
and (if possible) specific information per major river catchment (i.e. Neva, Vistula, Odra, Daugava, Göta älv, Nemunas, Kemijoki)												

¹ PLC sub-catchment areas are shown in the map below and at the HELCOM Map Service (<http://maps.helcom.fi/website/mapservice/index.html>) (Background/Terrestrial/PLC sub-catchments)

² Please provide further information (e.g. type of spatial categorization, areal size tc.) if finer spatial resolution than Helcom sub-catchments is reported. It should be possible to aggregate data

Annex 3B Response to questionnaire on agricultural data

See separate excel sheet.

Annex 4A Questionnaire on scattered dwellings/connectivity

Definition

The definition (PE-limit) of a point source (waste water treatment plant) differs between countries. Please enter the PE-boundary between point sources and scattered dwellings/small treatment plants (that are included in diffuse sources) used in your country.

Has the definition of a small treatment plant/scattered dwelling changed during the period from 1995 to 2014?

Number of scattered dwellings

Please enter data/estimates of number of scattered dwellings/small treatment plants (preferably per sub basin).
The PLC6-report will cover the period from 1995 to 2014, and focus on measures taken during this period. For this reason, we request for data from 2014 as well as 1995.

Per Country		2014 (data for PLC6)	1995 or adjacent year (e.g. PLC3)
Per sub basin	Bothnian Bay		
	Bothnian Sea		
	Archipelago Sea		
	Gulf of Finland		
	Gulf of Riga		
	Baltic Proper		
	Western Balitc		
	The Sound		
The Kattegat			

Describe the methodology used for determining the number of scattered dwellings/small treatment plants and their load in your country (e.g. population metrics).

Load

What per capita load estimates are used? See PLC Guidelines, page 27 (http://www.helcom.fi/Lists/Publications/PLC-Water%20Guidelines.pdf)	BOD5	60 g O ₂ /day (PLC guidelines)
	Ntot	12 g/day (PLC guidelines)
	Ptot	2.7 g/day (PLC guidelines)

What is the average number of inhabitats/PE per scattered dwelling?

What average removal percentages are used (i.e. before load enters inland surface waters)?	BOD5	
	Ntot	
	Ptot	

Does the removal percentage account for different treatment/collection systems (e.g. presence of soil beds)? (Please provide specific removal percentages per collection system, if available)

Does the load calculation/removal percentage account for retention between treatment/collection system and inland surface water?

If possible, please specify type and frequency of collection systems in your country

Connectivity to municipal waste water treatment plants (MWWTPs)

Please enter percentage of population connected to MWWTPs. The PLC6-report will cover the period from 1995 to 2014, and focus on measures taken during this period. For this reason, we request for data from 2014 as well as 1995 (preferably per sub basin)		2014 (data for PLC6)	1995 or adjacent year (e.g. PLC3)
Per Country			
Per sub basin	Bothnian Bay		
	Bothnian Sea		
	Archipelago Sea		
	Gulf of Finland		
	Gulf of Riga		
	Baltic Proper		
	Western Balitc		
	The Sound		
The Kattegat			

Annex 4B Response to questionnaire on scattered dwellings/connectivity

Seeseparate excel sheet.