Baltic Marine Environment Protection Commission

Workshop on implementation of the Regional Action Plan on Marine Litter
Brussels, Belgium, 22 October 2019

WS RAP ML 4-2019

Document title	Draft update of HELCOM Recommendation 23/5
Code	2-1
Submission date	3.10.2019
Submitted by	Secretariat

Background

PRESSURE 10-2019 considered a proposal to update HELCOM Recommendation 23/5 (document 3-4) together with Finnish comments to the proposal (document 3-12). Following some discussion, the meeting agreed in general to initiate the revision of HELCOM Recommendation 23/5, pending study reservations by Denmark and Germany (Outcome of PRESSURE 10-2019, para. 3.11-3.20). Denmark and Germany lifted their study reservations during the summer period.

PRESSURE 10-2019 pointed out that the revision should be more thorough than proposed by CCB (on document 3-4) including also update of the policy relevance and considering also other aspects of storm-water management than micro litter. The meeting agreed to include this topic in the agenda of this Workshop and invited countries to consider taking the lead on the revision process. No country has volunteered to lead the process (Outcome of PRESSURE 10-2019, para. 3.20-3.21).

In line with recommendations of PRESSURE 10-2019 this draft of HELCOM Recommendation 23/5 contains proposals on storm-water management, jointly prepared by the City of Riga and the City of Helsinki based on the output of the IWater INTERREG project in the frame of the BSR Water Platform. The proposal includes:

- an update of the preamble section to be aligned with the recent policies. The reasoning behind the changes are included as footnotes;
- a new section A on stormwater planning;
- an update of previous section A and B, now B and C to be aligned with the current knowledge and technologies available;
- a new Annex 1 containing supporting information for the implementation of the Recommendation in relation to knowledge and technologies available;
- an update of reporting format for the recommendation contained in Annex 2.

Action requested

The Workshop is invited to consider the proposed draft update of HELCOM Recommendation 23/5, further elaborate the document and agree on the version for its submission to PRESSURE 11-2019.

Draft update of HELCOM Recommendation 23/5

HELCOM RECOMMENDATION 23/5*)

Adopted 6 March 2002
having regard to Article 20, Paragraph 1 b)
of the Helsinki Convention

REDUCTION OF DISCHARGES FROM URBAN AREAS BY THE PROPER MANAGEMENT OF STORM WATER SYSTEMS

THE COMMISSION,

RECALLING Paragraph 1 of Article 6 of the Convention on the Protection of the Marine Environment of the Baltic Sea Area, 1992 (Helsinki Convention), in which the Contracting Parties undertake to prevent and eliminate pollution of the Baltic Sea Area from land -based sources,

HAVING REGARD also to Article 3 of the Helsinki Convention, in which the Contracting Parties shall individually or jointly take all appropriate legislative, administrative or other relevant measures to prevent and abate pollution in order to promote the ecological restoration of the Baltic Sea Area,

RECALLING Article 5 of the Convention on the Protection of the Marine Environment of the Baltic Sea Area, 1992 (Helsinki Convention), in which the Contracting Parties undertake to prevent and eliminate pollution of the marine environment of the Baltic Sea caused by harmful substances,

RECALLING FURTHER [1] commitments from the Baltic Sea Action Plan (BSAP) adopted at the HELCOM Ministerial Meeting 2007 (Krakow) on call for urgent actions to reduce the discharges of nutrients and hazardous substances to the Baltic Sea Area,

RECALLING ALSO[2] HELCOM Recommendation 36/1 on the Regional Action Plan on Marine Litter, in particular actions RL4 on improvement of stormwater management in order to prevent litter, including microlitter, to enter the marine environment from heavy weather events and RL 7 on compilation of available techniques as well as research and develop additional techniques in waste water treatment plants to prevent micro particles entering the marine environment,

BEING MINDFUL that a considerable part of oil pollution of the marine environment is caused by oil contaminated waters discharged via storm water systems,

RECOGNIZING a need for limiting oil pollution from storm water systems applying efficient treatment of oil contaminated waters,

RECALLING ALSO[3] HELCOM Recommendation 28E-5 on municipal wastewater treatment,

RECOGNIZING the need for limiting the harmful effects caused by the storm water discharges to the Baltic Sea,

RECOGNIZING ALSO the need for development of present sewerage systems,

DESIRING to limit pollution caused by unsuitable sewerage systems,

[1] To update the reference to the Ministerial Declaration 1988 calling for a considerable reduction of land-based pollution.
[2] New addition proposed.
[3] Substitution of reference to Rec. 7/3 (superseded) by Rec. 28E-5.

*) Superseding HELCOM Recommendations 5/1 and 17/7

RECOMMENDS to the Governments of the Contracting Parties to the Helsinki Convention that:

A. Stormwater planning

1 in order to improve quality of urban environment, the ecosystem services approach should be applied in stormwater planning; This means that storm water should be seen as a resource for increasing wellbeing of the environment and citizens, maintaining biodiversity and promoting a good condition of surface and groundwater

2 Integrated Storm Water Management (ISWM) should be applied in urban development processes at all levels – from planning and construction to infrastructure operation and maintenance (see Annex 1 for supporting information);

3 stormwater planning should be catchment area based and should take the natural runoff paths of stormwater into consideration;

4 stormwater management process should be systematically reviewed and improved when urban space development/regeneration is implemented (e.g. roads, streets, squares, public greening);

5 stormwater systems and facilities should be planned, designed and dimensioned according to future predicted scenarios of climate change, including predictions of changing precipitation volumes, changing patterns of precipitation intensity and rising water levels in seas, lakes and rivers;

6 for high intensity storm events, secondary runoff paths should be prepared to divert stormwater exceeding the stormwater systems capacity, preferably to suitable low-lying areas that can be used as temporarily flooded retention basins. Buildings and infrastructure should be planned on adequate elevations to avoid damage during flood events;

7 stormwater planning tools (e.g. Green Area Factor) should be applied at early urban planning stages when the water drainage is being planned;

8 in order to work systematically with stormwater issues, municipalities (or other respective authorities) should develop stormwater policies and/or plans;

9 impact of climate change should be taken into account when planning storm water management;

B. Reduction of discharges of urban areas by proper management of storm waters

10 storm waters should be managed according to a priority order, adapted to local circumstances. The following general priority order should apply:

I. storm water to be treated and utilized at the source;
II. storm water to be conveyed away from the source with a system that retains and detains the water;
III. storm water to be conveyed away from the source in a storm water sewer to retention and detention areas located on public areas before conveying the water to a water body (brook);
IV. storm water to be conveyed in a storm water sewer directly to the recipient water body; and
V. storm water to be conveyed in a combined sewer to wastewater treatment plant;

11 a switch to duplicate systems and/or Low Impact Development (LID) systems should be prioritized in order to avoid overflows in the sewage system if/where possible LID solutions should be integrated in combined system to reduce flow peaks and reduce overflow events during intense storm events (see Annex 1 for supporting information);

12 storm water should not be conveyed in a combined sewage system. However, if this is to happen, main overflow spots should be identified, and overflowing water should be treated if/where possible with LID

solutions to reduce flow peaks and increase the quality of water entering the receiving water body (see Annex 1 for supporting information).

13 assessment of local stormwater impact should be carried out for the waterbodies' catchment areas; such assessment should identify and prioritize measures to be taken to improve stormwater management (see Annex 1 for supporting information);

14 storm water flood risk and quality risk (heavy metals, oil, priority substances, micro plastics, pharmaceuticals etc.) areas should be identified;

15 measures to ensure stormwater quality should be taken already at the source to prevent the deterioration of the quality of storm water (e.g. efficient dry street cleaning, management of storm waters and waste on construction sites, urban planning to minimise the generation of microparticles associated to traffic, such as microplastics);

C. Management of high-risk storm waters

16 storm water from heavily polluted areas should be treated separately on site (e.g. Water Sensitive Urban Design, WSUDs, oils separators); measures can be based on local research and consideration case by case (see Annex 1 for supporting information);

17 contaminated waters from industrial areas, production plants, leachate from landfills, service stations, mechanical workshops and other plants as well as storm waters from areas where oil is handled or stored should not without effective water pollution control and treatment measures be connected to a storm water system or discharged to the recipient;

RECOMMENDS that this Recommendation will be in force when adopted,

RECOMMENDS that the Contracting Parties report to the Commission every three years starting in 20XX with data from 20XX,

DECIDES that this Recommendation should be reconsidered in 20XX.

Annex 1 – Supporting information for the implementation of the Recommendation

I. Integrated Storm Water Management (ISWM)

The Integrated Storm Water Management (ISWM) is a comprehensive approach to stormwater management. Instead of a narrow focus on a single problem, the ISWM undertakes a holistic stormwater management approach: studying the characteristics of specific sites and areas, understanding the relevant impacts, and tailoring a comprehensive array of tools to individual situations.

Success requires the integration of the ISWM system into the urban development processes of the city at all levels, from urban planning to operation and maintenance.

With an ISWM system a city can:

- achieve their goals of water quality protection and flood mitigation to protect the natural and built environment,
- design for not just the worst-case scenario, but also for average and minimal events to minimize the impact of stormwater on neighbouring lands,
- determine what solutions and infrastructure together with their interconnections are required to manage the stormwater runoff that results from different storms events, and
- ensure that stormwater is treated as a resource that enhances our cities, rather than treat it as waste that needs to be removed through underground storm sewers.

Besides, the ISWM approach has a number of added advantages compared to conventional stormwater drainage. It enhances urban environment by applying greener and more eco-efficient planning principles, thus promoting additional environmental benefits and multiple ecosystem services. Further, the ISWM approach promotes transition from conventional to sustainable stormwater drainage where the priority is given to the “Green Infrastructures” over the “Gray Infrastructures”.

More information: http://www.integratedstormwater.eu/content/integrated-storm-water-management

II. Assessment of local stormwater impact

A watershed assessment is clarifying the quality, quantity and origin of the stormwater in the specific watershed area. Also, factors affecting these values are analysed to deliver information for land use planning and decision making. A watershed assessment can be used as a parallel or as background tools for stormwater management guidelines.

Typically, a large watershed of for example a river or stream is divided into smaller sub-watersheds in order to display the movement and course of the water in the landscape. Division into smaller sub-watershed also helps to articulate the effect of the possible land use change into local hydrology and water cycle. Following issues are typically analysed:

- main water bodies, how they are located and in what condition they are;
- soil types and groundwater areas;
- land use in watershed and possible changes.

The existing stormwater related problems (like flooding issues, contaminant loads) and potential future changes are analysed. In the assessment the main principles and recommendations for stormwater management are presented for each watershed or for each watercourse.

More information: http://www.integratedstormwater.eu/iwatertoolbox

III. Planning of Green infrastructure

Green Factor is a practical and user-friendly Excel-based tool for urban planning. It ensures sufficient green infrastructure when building new lots in a dense urban environment. The Green Factor is

calculated as the ratio of the scored green area to lot area. The target level for the lot can be achieved flexibly by the garden designer by selecting some of the 39 green elements, such as planted and maintained vegetation or various run-off water solutions, when designing the lot. The green factor can, for example, be included in the zoning regulations or used for granting concessions during a construction permit application process.

More information: http://www.integratedstormwater.eu/material/green-factor-tool

IV. Green Technologies

The term **Low Impact Development (LID)** has been commonly used in North America and New Zealand, and dates back to the 1970s. The approach attempts to minimise the impact of development (and the subsequent stormwater management) on nature. The most recent LID manuals re-establish hydrological targets for both retrofit and new urban developments as well as provide design options to meet and sustain these objectives.

The term **Water Sensitive Urban Design (WSUD)** began to be used in the 1990s in Australia. The objective of the approach is to manage the water balance, maintain or even enhance the water quality, and maintain water-related environmental and recreational opportunities. Stormwater management is a subset of the WSUD approach that aims to address the whole urban water cycle on all scales and densities.

Both concepts offer a strategic approach to urban planning and design that aims at minimising the hydrological impacts of urban development on the surrounding environment. Strategic approaches deliver the principles and objectives of the ways the water infrastructure is considered in planning and design projects. Good to know: To achieve the objectives, different techniques can be used. These techniques are generally categorised under **best management practices (BMPs)** or **sustainable urban drainage systems (SuDS).**

SuDS consist of a range of stormwater management technologies based on the philosophy of replicating the natural, pre-development drainage of the site. These techniques are typically aimed more at water quantity than quality control, but in the end the design of the structure defines its potential functions. In the North American context, Best Management Practice (BMP) has been originally used to describe pollution prevention activities. However, in everyday practice both quality and quantity control are being targeted.

Both concepts are based on a variety of structures capable of managing and controlling surface run-off through techniques, such as infiltration, detention, conveyance and/or rain harvesting. In general, they employ physical, chemical, and/ or biodegradation processes to improve the quality of surface run-off by minimising the amount of stormwater-based pollutants washed into nearby watercourses. The structures help to reduce flood impacts by temporarily storing water, often filtering the pollutants at source, and encouraging infiltration of stormwater into the ground. The design of structures can often be geared towards reducing impacts across the flood pathways and at distant impact sites further down a catchment.

Instructions in SuDS manuals are always created for local conditions. They often cannot be applied directly to the Baltic Sea Region but demand some adjusting. Unfortunately, an extensive library of suitable techniques for Nordic conditions does not yet exist. However, useful information on ways to implement different sustainable solutions as well as a good handbook is provided, for example, on the Baltic Sea Challenge webpage: www.waterprotectiontools.net.

An useful manual on different kind of techniques: www.ciria.org/Resources/Free_publications/SuDS_manual_C753.aspx The manual includes not only the list of different techniques, but instructions are also given to various techniques such as hydraulic and treatment design, safeguarding biodiversity and landscape values, as well as material selection.

Some good examples from Sweden: http://godaexempel.dagvattenguiden.se

Annex 2[4] – Reporting format for HELCOM recommendation 23/5 concerning reduction of discharges from urban areas by the proper management of storm water systems

REPORTING FORMAT FOR HELCOM RECOMMENDATION 23/5 CONCERNING REDUCTION OF DISCHARGES FROM URBAN AREAS BY THE PROPER MANAGEMENT OF STORM WATER SYSTEMS			
Country:		Year:	
A. Stormwater planning			
1. Has the ecosystem services approach been applied in stormwater planning? If Yes, please describe how			
Yes	No	Partly	Unknown
2. Has the stormwater planning been done at catchment area base and considering the natural runoff paths of stormwater?			
Yes	No	Partly	Unknown
3. Is the Integrated Storm Water Management (ISWM) being applied in urban development processes? If Yes, please describe how			
Yes	No	Partly	Unknown
4. Has any urban space development/regeneration been implemented (e.g. roads, streets, squares, public greening)? If Yes, has the stormwater management process reviewed and improved?			
Yes	No	Partly	Unknown
5. Have stormwater systems and facilities be planned, designed and dimensioned according to future predicted scenarios of climate change, including predictions of changing precipitation volumes, changing patterns of precipitation intensity and rising water levels in seas, lakes and rivers? If Yes, please describe how			
Yes	No	Partly	Unknown
6. Have secondary runoff paths been prepared for high intensity storm events? If Yes, please describe them			
Yes	No	Partly	Unknown
7. Have stormwater planning tools being applied at early planning urban stages? If Yes, please describe which ones and how			
Yes	No	Partly	Unknown
8. Is there a stormwater policy and/or plan in your administration? If Yes, please provide further details			
Yes	No	Partly	Unknown
9. Has the impact of climate change been taken into account when planning storm water management? If Yes, please provide further details			
Yes	No	Partly	Unknown
B. Reduction of discharges of urban areas by proper management of storm waters			
10. Has the general priority order indicated (B.10 in the Recommendation) been followed when managing storm waters? If Yes, please provide further details			
Yes	No	Partly	Unknown
11. Have measures been taken to avoid overflows in the sewage system? If Yes, please provide further details			
Yes	No	Partly	Unknown
12. Is stormwater conveyed in a combined sewage system? If Yes, please provide further details			

[4] Updated to be aligned with the proposed draft update of the Recommendation.

Yes	No	Partly	Unknown
a) Have main overflow spots been identified?			
Yes	No	Partly	Unknown
b) Is overflow treated? If Yes, please indicate how			
Yes	No	Partly	Unknown
13. Has an assessment of the impact of local stormwater been conducted? If Yes, please provide further details			
Yes	No	Partly	Unknown
14. Have the storm water flood risk and quality risk (heavy metals, oil, priority substances, micro plastics, pharmaceuticals etc.) areas been identified? If Yes, please provide further details			
Yes	No	Partly	Unknown
15. Have measures to ensure stormwater quality been taken at the source to prevent the deterioration of the quality of storm water? If Yes, please provide further details			
Yes	No	Partly	Unknown
C. Management of high-risk storm waters			
16. Is storm water from heavily polluted areas treated separately on site? If Yes, please indicate measures taken			
Yes	No	Partly	Unknown
17. Are contaminated waters from industrial areas, production plants, leachate from landfills, service stations, mechanical workshops and other plants as well as storm waters from areas where oil is handled or stored treated before being connected to a storm water system or discharged to the recipient? If Yes, please indicate measures taken			
Yes	No	Partly	Unknown