Hydraulic life span of storm water infiltration systems

Summary

Infiltration of storm water contribute to attenuation of urban drainage. In the last decade almost every municipality in The Netherlands have realised some form of infiltration. The design, operation and maintenance of these structures however is still not based on sufficient practical experiences. Questions about the degree of and causes for the loss of hydraulic capacity due to insufficient trapping of sediments, to clogging or blocking of geo-textiles as well as due to silting of the surrounding soil have to be answered in order to optimize the design, operation and maintenance of infiltration structures.

Stichting RIONED is the Dutch centre of expertise in urban drainage with particip - ation of all concerned public and private organisations. Stichting RIONED took the initiative of a multi-annual research programme aiming on the development of guidelines based on practical experiences with infiltration of storm water in urban areas. This report is the result of the first step to get insight in the existing knowledge and information about loss of hydraulic capacity of infiltration structures. It is based on a literature desk study, an enquiry among municipal operators and the analysis of measurement data obtained on two infiltration sites.

This study concludes that the guidelines in literature are seldom based on thorough practical experiences. The operators mostly don't monitor their infiltration systems. Little effort has been taken to prevent sediments enter the infiltration structures. This can become a great risk for premature loss of hydraulic capacity. The two investigated sites didn't show a significant loss of infiltration capacity. The report aggregates the found recommendations as well for the design, operation and maintenance as for the focus in further research.

Further research should be focussed on the processes that influence the behaviour of pollutants and their environmental effects on the soil in which underground infiltra - tion structures have been functioning for several years now. Because only two sites have been investigated in this survey more locations have to be monitored for better founding of the current recommendations.