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STORM WATER IN A HISTORICAL PERSPECTIVE AND SELECTED CASE STUDIES

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ABSTRACT

Storm water is generated when the rain water and the snow is falling on land and impervious areas such as paved streets, parking lots and building rooftops which wash away soil and sediment. Stormwater runoff can change both water qualitatively and quantitatively, and affecting water resources physically, chemically and biologically. Polluted runoff containing oil, grease, chemicals, nutrients, metals, litter and pathogens as well as many other anthropogenic chemical substances occurring in the urban environment and they are heavily reducing water quality. The pollutants might have been accumulated as atmospheric dry weather fallout; erosion products from the road and adjusting lawns in the form of soil particles, grass clippings, leaves and different types of yard waste that can include pesticides and fertilizers; road sediments mainly in gutter at the curb side including leaves and litter as cigarette buts, paper wrappings, plastics, glass, cans; dog feaces and excreta from birds, during winter deicing products in the form of road salt and fertilizers. As an old tradition the stormwater has through history been considered relatively clean compared to sewage and has therefore commonly been discharged directly to the receiving body without any treatment even though it has been known that it can be harmful and dangerous for human health and environment. This is in particular serious when the receiving water downstream the discharge point is used as a source for drinking water. Storm water from highways, heavily trafficked urban roads, industrial areas and harbors, industrial waste management parks, scrap fragmentation areas and material recycling sites might contain pollutants in high quantities and gives adversely affects. Urbanization in the Baltic Sea Region goes fast and storm water must be considered as a water pollution problem of the same dignity as sewage and leachate from sanitary landfills.

The history of the development of storm water management in Sweden can be summarised by the following: 1950s the pipes and channels and the conveyance approach was paid attention; in 1970s storm water flow attenuation was introduced; in 1980s the source control for mitigation of flooding problems was considered; about 1985 the integrated water approach was introduced; in 1990s the ecological approach was introduced and the stormwater was seen as a resource and then converting a problem to a benefit; during late 1990s and 2000 industrial stormwater and stormwater at landfill and recycling sites were considered. The paper presents some case studies carried out.