

Integrated Waste water and Storm water Management Plans

Local solutions to managing investment and maintenance needs of waste and storm water will protect people and the environment in an environmentally sustainable and financially feasible way. Integrated waste water and storm water management plans may provide waste water operators and urban planners with a strategy for managing water in the urban environment. Local solutions to managing waste water and storm water systems allow people and the environment to be protected.



Sustainable management of urban waste water and storm water take the quality and quantity of water into account. There are many existing regulations in place at the regional, national and EU-levels which govern the quality of water

that enters the sewer system and the quality of water after treatment. Arrangements for managing the quantity and flow are less defined, but are essential for the sustainable and resilient management of our urban areas.

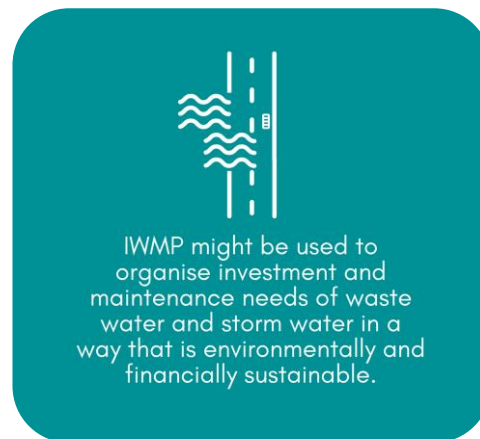


Background

The adequate management of urban waste water (domestic waste water, waste water from large or small industries), urban runoff and storm water takes into account the quantity (volumes) of waste water and storm water as well as the quality. Such management is essential if public health is to be maintained and improved, and to ensure that the environment and interests of society are adequately protected. Many EU, regional and national regulations govern the quality of water that is allowed into a sewer system and the minimum quality that this water must attain after treatment.

Much less is regulated about the *volumes* of water that enter and leave the waste water system. National and regional level policies, regulations and technical design criteria exist for drainage and sewerage systems and/or guidelines or regulations for urban runoff (the Subsidiarity Principle).

EurEau supports the proposal that waste water asset owners, in close cooperation with city planners, develop **Integrated Waste Water and Storm Water Management Plans (IWMP)** that are then used to organise the investment and maintenance needs of waste water and storm water in a way that is environmentally and financially sustainable. IWMP would provide urban planners and operators a strategy on how to manage water whether this is from surface (rainwater) or other urban sources.



There are good reasons why the quantity of flow in sewers is regulated at national, regional or local levels, for example: regional climate, geographic and physical conditions, existing infrastructure, and the relation with urban and spatial planning goals determine the capacity of sewers and waste water treatment plants. Thousands of kilometres of sewers already exist underneath our streets across Europe. These sewers play a vital role in protecting human health and preventing flooding, protecting property and providing resilience to our urban areas.

EurEau suggests **introducing European-level principles** for co-ordinating both the quality and the quantity of water into IWMP, supporting the management and maintenance of waste water and storm water systems, protect the waste water treatment plants and the receiving water environment; it will also assist with financial



planning and investment, and improving the resilience of such systems to climate change. These principles should be adaptable to the local situation as Member States need tailored approaches that suit their specific circumstances. In the long-term, in this way society as a whole can benefit from instruments that enable us to manage our waste water in an integrated way.

These principles could set out certain aspects of urban drainage and the quantities of storm water that enter the sewer system. For example:

- ~ In general, storm water is clean. However it can pick up impurities as it falls through the atmosphere and as it washes over pavements, roads and roofs. The quality of the urban run-off water can vary widely. Mixing storm water with sewage in the sewer system (through combined sewers) can lead to higher transport and treatment costs. Therefore, it is important that the urban planner has a clear strategy on the management of storm water, establishing in which situations storm water can be safely infiltrated in the soil or directed towards surface water such as urban water courses, and in what situations should it be directed towards sewers and treated as waste water.
- ~ Discharges from combined sewer overflows, due to heavy rainfall events are inevitable, but may be a source of pollution and their impact on the environment should be reduced where feasible and proportionate to do so.
- ~ In some regions, climate change will lead to higher or more intense rainfall, whilst in other cases, to less rainfall and therefore the need to preserve rain water in aquifers. Urban development plans and future investments in public spaces and infrastructure (including urban drainage) should take these changes into account. The management of storm water cannot be seen as separate to surface water and groundwater management, and the principle of resilience to climate change must be attained.
- ~ Sustainable Urban Drainage Systems (SUDS) could be extremely useful, both for quantity and quality purposes, especially if they are taken into account in urban development plans.

IWMP could become useful in setting long-term targets while taking into account regional factors and existing infrastructure.

Purposes of an IWMP

The functions of waste water and storm water networks are twofold: (1) For the safe conveyance of human excreta and other waste water so as to protect human health and the ecosystem; (2) to contribute to a stable urban water management environment, avoiding flooding as well as maintaining safe groundwater levels and good quality in surface water and groundwater.

- ~ IWMP would give city managers and waste water treatment plant operators a complete, holistic and shared view of the current and future performance of the sewer system and allow them to determine whether those systems are functioning as required (and where they are not), as well as assessing future



- requirements. In this way, IWMP can be used to identify and motivate investment needs in a balanced and optimised manner for the charge payer.
- ~ A robust IWMP would help policy makers, national and city officials and water managers to be prepared for new challenges caused by climate change and to provide a resilient urban infrastructure that will meet citizen's needs.
 - ~ IWMP would help relevant organisations cooperate and align their activities and investments, and to have a shared view of the objectives for managing the complete network. We need to work together with all stakeholders involved in the ownership, operation, maintenance, enhancement and extension of our waste water and storm water systems, including urban planners and city managers.
 - ~ Urban planners could integrate waste water and storm water management into their city planning. Sewer systems and WWTP are integral to citizen safety and need to be considered in urban development. The investment in waste water facilities is huge and updated planning is essential for all actors (authorities, private sector, private developers, utilities and operators).
 - ~ IWMP could also support communication with stakeholders and citizens about wider environmental considerations e.g. items which should not be put down the sewer (source control for quality purposes) and reducing the quantity of flow to certain sewers through urban creep and new development (source control for quantity purposes).

Legal status of IWMP

EurEau suggests that a revised Urban Waste Water Treatment Directive could inspire the establishment of integrated waste water and storm water plans (see next section). The basis for an integrated plan is an agglomeration, a catchment area or the area served by one or more WWTPs. Responsibility for drafting and initiating the plan should reside with the authority or the asset owner, and not the operator.

It is essential that the authority is obliged to have a dialogue with the operators concerning the content, timeline, outcomes and costs associated with implementing and maintaining the system. The waste water operator must be allowed to participate in the making of the plan as should customers of the services provided as they ultimately will pay for the investments needed. EU-level arrangements have to respect existing national rules which already ensure holistic, coherent and integrated planning. Integrated waste water and storm water planning should be a part of the planning processes done by the authorities and our local politicians.



Example components of an IWMP*

Any integrated waste water and storm water plan should include at least the following points:

- ~ Definition of the assets including current and future extent of the collection system, its key features (length, material, location, industrial permits and performance monitoring), and the associated WWTP.
- ~ Identification of the ownerships and responsibilities for each part of the system and how these link together.
- ~ Identification of the key data providers and users for each part of the system.
- ~ Definition of the multiple management drivers and constraints for each part of the system, both in relation to the UWWTD, and also other requirements placed on each part of the system.
- ~ Definition of the principles for how each part of the system should perform, to deliver the required environmental and public health protection, and the required flooding protection, as required under the UWWTD and other directives, and national and regional legislation.
- ~ Identification of where each part of the system is performing as intended, both now and in the future, and where it is not.
- ~ Identification of options for addressing Level of Service deficiencies, and prioritising of investment accordingly, considering the responsibilities and resources of each of the system owners (needs to be decisions considered in the round).
- ~ Defining the information that will be made more widely available, to give the public, communities and other stakeholders the ongoing confidence that we both understand our systems and are investing in them and operating them accordingly, and to solicit the support of customers to fund such works.
- ~ Operating risk assessment for sewers and waste water treatment plants.

**Certain countries (e.g. France, Spain) already have comprehensive sets of criteria for integrated waste water and storm water plans. Spain for instance has the following components:*

1. *Topographic survey of the collection system and WWTP, supported by a GIS (Geographic Information System).*
2. *Installation of level sensors and automatic samplers to characterise flows and pollutograms, and their impact on receiving waters, to calibrate simulation models.*
3. *Diagnosis of the condition of conservation of collection systems integrated with WWTP.*
4. *Diagnosis of the operation of collection systems and WWTP in dry and wet weather, analysing both flooding and receiving waters impact with simulation models.*
5. *Proposals of measures against flooding, to protect receiving waters and to keep*



- good structural condition (to avoid collapses and infiltration/exfiltration problems).*
- 6. Economic studies, including investments and operations cost, and entities responsible for both.*
 - 7. Schedule and prioritisation of actions.*
 - 8. Public information plan.*
 - 9. Monitoring and evaluation actions program at short, medium and long term.*



About EurEau

EurEau is the voice of Europe's water sector. We represent drinking water and waste water operators from 29 countries in Europe, from both the private and the public sectors.

Our members are 34 national associations of water services. At EurEau, we bring national water professionals together to agree European water sector positions regarding the management of water quality, resource efficiency and access to water for Europe's citizens and businesses. The EurEau secretariat is based in Brussels.



EurEau

With a direct employment of around 476,000 people, the European water sector makes a significant contribution to the European economy.