INSPIRE DATA SPECS FOR UTILITY SERVICES AS A BASE FOR A NEW WASTE WATER INFORMATION SYSTEM IN FLANDERS

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Flanders
State of the Art

The Flanders Environment Agency (VMM, Vlaamse Milieumaatschappij) is responsible for the policy on the development of sewage systems, the distribution of investments and is the administrator of the mid-scale Flemish sewage database. For the day to day management and maintenance of the sewage infrastructure the responsibility in Flanders is joined by municipalities and a regional organization.

Step 1: Extension of INSPIRE Data specs for Flanders Sewage Data Exchange Model

The VMM adopted the INSPIRE Data Model for Utility and Governmental Services as a base for a new sewage data exchange model in Flanders. The **data exchange model** is created in collaboration with the sewage sector and will allow all stakeholders to deliver the available data in a uniform way. This initiative is also backed up by the Flemish Information Site regarding Cables and Conduits (KLIP). Since 2009 it is mandatory for everyone in Flanders executing excavation works to apply for plans regarding cables and conduits through the KLIP. This exercise has proven very useful within the GeoSmartCity project, where the INSPIRE Data Model for Utility and Governmental Services was extended based on input of utility managers from different regions in Europe, including Flanders. GeoSmartCity

Step 2: Data collection using Aquastreng 2.1

After deciding on an exchange standard the VMM made it possible for sewer system managers to deliver their data according to the Flanders Sewage Data Model. Therefor the VMM built an application where it's possible to **upload the data and get feedback** about the quality. Data structure is tested according to the data model and attributes are tested according to the restricted values in the code list. But all the pieces of the puzzle, the different parts uploaded by different sewer system managers, need to fit together. That is why a network/topological validation is also executed. Where necessary the different parts of the network are connected using virtual connections or were not possible an error is reported. By giving them feedback on the quality of data we will achieve an area wide database for the whole of Flanders with qualitative data without major connection issues.

Step 3: Extra Mobile functionalities on top of the data

GeoSmartCity

Because the VMM depends on the data of sewer system managers, it is a good idea to make it a win-win situation for all stakeholders. That is one of the reasons why the VMM worked within GeoSmartCity on two mobile functionalities within an application to give an extra incentive to sewer system managers to upload and improve their data.

In the first steps of this development we worked closely with the city of Aalst. The first functionality is a **crowdsourcing tool** for citizens and professionals, where they can make an alert about the situation on the sewer infrastructure.

A second functionality is a to perform up- and downstream **tracing of the sewer network**. In case of a detected pollution they will be able to trace the route in the sewer network hoping to find the possible location of the pollution source. The downstream tracing can be used for example to trace an excess of flooding water to possible points where the water will leave the sewer system and enter the hydrographic network.

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Step 1: Extension INSPIRE Data specs for Flanders Sewage Data Exchange Model

INSPIRE Data Specs Utility (incl. SEWER)
US
Base information
EUROPE

+

Information Model for Cables and Conduits or IMKL
Extra info to prevent excavation damage
FLANDERS

+

Sewage data exchange model or Aquastreng 2.1
Extra info necessary for policy + supervision
FLANDERS

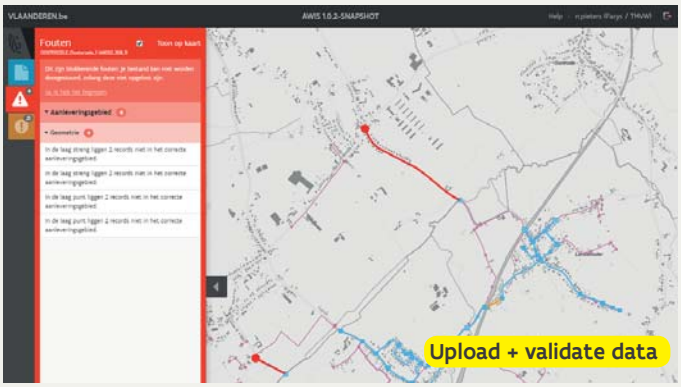
=

Aquastreng 2.1
IMKL 2.2
INSPIRE III.6
US

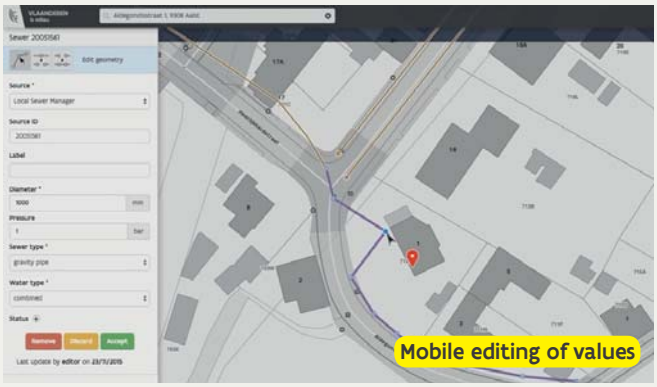
Aquastreng 2.1 is incorporated in the GeoSmartCity Sewer Network Extended model.

GeoSmartCity

Step 2: Data collection using Aquastreng 2.1



Data on sewer infrastructure in ingested in a central database using Aquastreng2.1
Data is validated according to topological and functional requirements



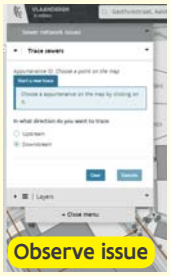
Editing of features and attribute values is possible in a web application

Step 3: Extra mobile functionalities on top of data

In the frame of the GeoSmartCity project 2 mobile applications were developed.

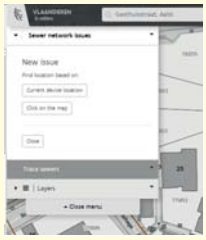
GeoSmartCity

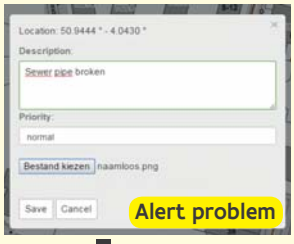
1. Tracing

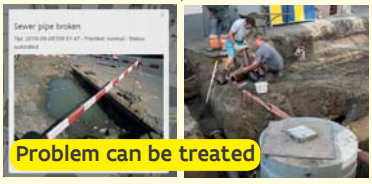


Functionality is available to allow tracing the wastewater through the sewer infrastructure network.

2. Crowd sourcing







Citizens have the possibility to report problems in the sewer infrastructure using a crowd sourcing application.

More information:
Showcase of project hub.geosmartcity.eu or for data model: http://cloud.epsilon-italia.it/eenvplus_new/GSC_Schemas.html
Information about Flanders project: k.miserez@vmm.be or k.beringhs@vmm.be