ICEG Hydrants – Meeting Report

Business Webinar #1

Date: March 7, 2023 (9:30 - 12:00)
Attendees:

Attendee Name	Affiliation
Natalie De Backer	FOD IBZ
Jan De Saedeleer	FOD IBZ
Pieter Derveaux	FOD IBZ
Jan Laarmans	FOD IBZ
Benoit Van den Berghe	FOD IBZ
Kristof Mijnendonckx	Pidpa
Bart Reynaert	Pidpa
Bart Vermetten	Pidpa
Soetkin Vanassche	Brandweerzone Centrum Gent
Carl De Moor	Water-link
Olivier Maes	safe.brussels
Nicolas Soenens	HVZ Zone 1
Bert Houcque	HVZ Waasland
Tanja Goethals	Brandweerzone Centrum Gent
Rink W. Kruk	National Geographic Institute
Kim De Latthauwer	De Watergroep
Arne Van Der Stuyft	Agentschap Wegen en Verkeer
Tom Engelen	HVZ Zuid-West Limburg
Carole Nahon	FDG Liège
Yves Loos	HVZ Taxandria
Laura Verhulst	HVZ Antwerpen
Philip Stichelbaut	HVZ Fluvia
Rudy Declercq	HVZ Fluvia
Olivier Cogels	ZHC
Étienne Gilquin	SWDE
Florian Barthelemy	PwC
Christophe Bahim	PwC
Lorenzo Vylders	PwC

Agenda

Welcome and introduction to ICEG	9:30 to 10:00
Context and use cases	10:00 to 11:20
Key concepts	11:20 to 11:50
Next steps	11:50 to 12:00

Meeting Minutes

Welcome and introduction to ICEG

We began this workshop by conducting a virtual roundtable on Mural. Please refer to the Mural board for further details.

During the session, we delved deeper into the ICEG and its process for developing an extinguishing water sources specification. We emphasized the significance of harmonization within the European context.

The primary objective of the webinar was to explore specific use cases and concepts, allowing us to create a model that enables the exchange of data concerning extinguishing water sources between various stakeholders. To achieve this, we will make use of a bottom-up approach and incorporate existing national and international standards as much as possible.

Two categories can be identified under the term “extinguishing water sources”:

- Hydrants (underground & above ground)
- Water supply in the form of bassins, wells, and other sources

This follows our Process and Methodology.
For more information, we would like to refer to slides 4 to 11.

Why interoperability?

Interoperability is important when you have use cases that are supported by people and systems where an exchange in information is needed. Issues could arise when exchanging information due to a different architecture or other definitions for concepts for instance. In these last cases, information will not be able to be reconciled which leads to problems. Interoperability can be enabled by making data accessible as open data and combining different data together. This also enables reusability and improves collaboration.

Context and use cases

The goal of the ICEG: Hydrants trajectory is to define the key information for describing extinguishing water sources, for which we will reuse existing standards as much as possible, if applicable. A data standard for extinguishing water sources is relevant for emergency services and water companies, but also other actors operating in the domain of water distribution in Belgium.

Benefits of such standards are:

- **Improved accuracy and reliability of information:** Increased transparency and consistency in the data
- **Enhanced collaboration** among Belgian emergency services during field operations and major incidents: Easier sharing and exchange of data among different agencies
- **Improved cartographic interfaces** that establish connections between attributes and standardized symbols: Facilitated integration with other datasets
- **Better management** of hydrants and extinguishing water sources.

This data standard will be defined during workshops and review rounds. During these workshops we define and agree on use cases, identify the information/data necessary for these use cases, model the information/data and document the model in different formats.

For more information, we would like to refer to slides 13 to 16.

During this section, we introduced the four use cases that were identified in the project charter related to extinguishing water sources. These use cases served as examples, and we had a conversation around them to identify the requirements and needs associated with managing these sources (see below)

The existing use cases are the following:

1	Extinguishing water sources are crucial for emergency response services. They are objects with a location that can be identified through a set of geographic coordinates. These sources are typically owned by water distribution companies or enterprises with a high-risk profile. Clear ownership information is essential to enable linking with relevant authorities, such as the Enhanced Crossroad Bank for Enterprises
2	Extinguishing water sources are essential for emergency response services during a fire or other emergency situations. To make these sources useful, standardized attributes are required, such as unique-id, type, capacity, source, hose connection type, availability, accessibility, and contact point to inform the owner about the use of the source so that appropriate action can be taken
3	Extinguishing water sources are essential for emergency response services. Some owners, emergency services, municipalities and provinces have a system and process to register the status of the extinguishing water sources (broken,

	checked-and-working, last-check-date). It must be possible to establish a link with the water source and its management status/follow-up.
4	It is important to use standardized symbols in the context of hydrants, therefore a link should be created between the attributes and a standardized symbol should be established to be shown in cartographic interfaces.

For more information, we would like to refer to slides 18 to 22. For additional information, we refer to the Mural.

As mentioned, the participants were able to express their use cases and requirements through the use of MURAL, a virtual collaboration tool. This enabled an efficient and interactive discussion that led to the identification of four critical use cases related to extinguishing water sources. The participants shared their experiences and requirements, which helped to shape the discussion and generate insights into the different challenges associated with managing these sources. We divided the received input into the following categories:

- Location and Access:
  - See the exact location of hydrants
  - Determine if hydrants are accessible by truck
  - Location of signalisation of hydrants
  - Know if hydrants are located above ground or underground, on street or sidewalk
  - Use vector data to quickly locate hydrants on the field
  - Determine the accuracy of spatial joins for hydrant locations
  - Control the attributes of hydrants using symbols
  - Standardized symbols are aligned with other thematic layers (gas, sewage, …)
- Maintenance and Repair:
  - Determine the status of hydrants (usable or not), and whether they are working or not
  - Notify water company when hydrants need repair
  - Indicate on the field if a hydrant is out of order or defective
  - Determine the last control date of hydrants
  - Determine if live data is needed for hydrants that share pipes
  - Determine the water company responsible for hydrants
  - Determine the owner of hydrants
  - Determine the cost related to the creation and maintenance of hydrants
- Supply:
  - Determine the diameter of the supply duct, dead-end or mazed net
  - Determine the flow rate of the supply duct
  - Determine the capacity of open water resources
  - Determine the location of access points for open water resources
  - Determine the location of supply ducts and their identification
  - Locate main pipeline connected to hydrants (for firefighters)
- Functionality:
  - Determine the expected flow of different types of hydrants
  - Determine the total capacity of open water resources

- Determine the maximum flow rate of "superhydrants"
- Determine if a hydrant is a vent or rinse pipe
- Determine the usage of hydrants (agricultural, industrial)
- Determine if a hydrant is accessible during emergencies
- Determine the availability and accessibility of hydrants
- Determine the volume of hydrants
- Determine the pressure of hydrants
- Determine the pressure and flow rate at different times of day
- Determine the debit of hydrants
- Determine the type of hydrants that are suitable for different types of emergencies
- Determine the uniform symbols for hydrants based on their status and attributes.

Received Remarks:

1	Symbols could be related to both use cases about standardized attributes and use cases about the owners and status of hydrants. In the latter, this could be a symbol for status and in the former a symbol for possible attributes. You can have different symbols for different data.
2	Use Case Number One (Location & Ownership): There may be a large pond which you can't access from anywhere. If you have a very large reservoir it is not the center that is interesting but rather the access point to take water from. In some cases this could be a polygon (for instance a river with a road next to it, a very long access point) and in other cases this could be a single point (for instance a road that leads up to a pond). Accessibility is also very relevant, this should be a separate use case since it is much more interesting to know the place where can be parked with a fire truck instead of the location of the water source itself (this location could be linked to a house number or a lighting pole number).
3	Based on the usage of the water source, other aspects are relevant. For drinking water companies, it is more a quality aspect while for firefighters the available volume is very important.
4	The goal of a hydrant is also important to address in the model, the goal can be to deliver drinking water or to have water disposable for firefighting. The expected flow can be different based on this, the hydrant needs a quality aspect for drinking water companies, and for firefighters it is rather a volume aspect that is important.
5	In West-Flanders there is a visualization for the location on a map for hydrants, in this visualization you can see the different sizes of the hydrants as well. These sizes could be an important attribute to include.

The following table was constructed based on both the existing and additional use cases. It has been enriched with the received input from the business workshop to create an overview.

Final use cases

#	Use case	Description
1	Location	Extinguishing water sources are crucial for emergency response services. They are objects with a location that can be identified through a set of geographic coordinates. In order to effectively manage these sources, emergency services require the ability to see the exact location of hydrants, determine if they are easily accessible (by truck), know the location of the signalisation of hydrants, and understand if they are located above ground or underground, on the street or sidewalk. Additionally, vector data can be used to quickly locate hydrants on the field, and the accuracy of spatial joins for hydrant locations can be determined. Control of the attributes of hydrants using symbols is also important for effective management.
2	Ownership	Extinguishing water sources are crucial for emergency response services. These sources are typically owned by water distribution companies or enterprises with a high-risk profile. Clear ownership information is essential to enable linking with relevant authorities, such as the Enhanced Crossroad Bank for Enterprises. Being able to know the owner of a hydrant is important in order to contact someone in case a pressure raise has to be requested. Data should also be periodically requested from the different water companies
3	Attributes	Extinguishing water sources require standardized attributes for their effective utilization. These attributes include a unique identifier, type, source, hose connection type, availability, accessibility during emergencies, usage, and contact point. Such information helps their owners/users to take appropriate actions, such as identifying if a hydrant has been opened by a firefighter, whether it is available for emergency usage, and if it is being used for industrial or agricultural use. Hydrants have other valuable attributes such as their capacity, debit, pressure, and flow rate during different times of day. For instance, hydrants connected to the same pipe have less debit. It is also important to determine the expected flow of different hydrant types, and the maximum flow rate of so-called "super hydrants". Lastly, other essential attributes for hydrants include whether they are vent or rinse pipes. It is also necessary to identify suitable types of hydrants for different emergencies and establish uniform symbols based on their status and attributes.
4	Maintenance and repair	To ensure the effective management and response to incidents involving extinguishing water sources, emergency services require the ability to determine the status of hydrants, including whether they are usable or not, and whether they are working or not. They also need to be able to notify the water company when hydrants need repair and indicate on the field if a hydrant is out of order or defective. Additionally, emergency services need to know the last control date of hydrants and determine the cost related to the creation and maintenance of hydrants. Without these capabilities, emergency services may experience delays in response times, leading to potential harm to people and property.

5	Standardized symbols	It is important to use standardized symbols in the context of hydrants which are aligned with symbols of other thematic layers like gas, sewage and high voltage cables. Therefore, a link should be created between the attributes and a standardized symbol should be established to be shown in cartographic interfaces. Symbols should indicate attributes like whether a hydrant works or not, the diameter, the debit and the access points of a water source.

Participants voted for the following use cases to be prioritized:

9 votes	Standardized symbols should indicate attributes like whether a hydrant works or not, the diameter, the debit and the access points of a water source.
7 votes	Emergency services require the ability to see the exact location of hydrants, determine if they are accessible by truck, know the location of the signalisation of hydrants, and understand if they are located above ground or underground, on the street or sidewalk.
6 votes	Know the capacity, debit and flow rate of a hydrant. If two hydrants are connected to the same pipe there is less debit. Also being able to find “super hydrants” easily.
4 votes	Clear ownership information is essential to enable linking with relevant authorities, such as the Enhanced Crossroad Bank for Enterprises. Being able to know the owner of a hydrant is important in order to contact someone in case a pressure raise has to be requested.
3 votes	Data should also be periodically requested from the different water companies.

Key concepts

Based on this exercise we identified the essential information that we need for modeling *extinguishing water sources*. We came up with different topics with different attributes that the members of the working group want to see in the model. For example location, source, diameter together with their attributes. From the use cases the key concepts were defined by the participants in the MURAL, these concepts are the attributes that are needed in the model to cater to the use cases. Following attributes have been identified:

- Location and Access:
  - Underground or above
  - Coordinates
  - Street
  - House number
  - Lighting pole number
  - Actions to do when accessing the hydrant
  - Location of access point
  - Location of water source
- Maintenance and Repair:
  - Status
  - History of maintenance
  - Owner
  - Hydrant ID
  - costs
- Supply:
  - Diameter
  - Flow rate
  - Source
  - Identification of the water source
  - Capacity
  - Pressure
- Functionality:
  - Usage
  - History of usage
  - Type of hydrant

Other useful sources

We have compiled a list of relevant sources that can serve as a starting point for drafting the extinguishing water sources specification. These include NGI-IGN, a national dataset of hydrants in Belgium, as well as resources such as Uniform and Shared Cartography for the Emergency Services 2.0, OSLO Brandleiding, OSLO Openbaar Domein, AWV OTL, INSPIRE, and D2.8.III.6 Data Specification on Utility and Government Services - Technical Guidelines. If you know of any additional sources that may be useful, please feel free to communicate them to us via mail.

Next steps

For more information, we would like to refer to slides 25 to 31.

Mark your calendars for the upcoming webinar scheduled for April 18th at 9:30. In the meantime, we are conducting additional research and preparing for the first thematic workshop. Your valuable input and feedback are welcome and can be provided through GitHub by creating a new issue or through email as indicated in the slides.