Impact Strategy Mission:
The eutrophication problem in Walloon watercourses

Promotion Cybèle

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Table of Contents

List of Figures

List of Tables

List of Abreviations

GPAA	Gestion Publique de l'assainissement autonome
OAA	Organisme d'assainissement agréés
PASH	Plans d'assainissement par sous bassins hydrographiques
SEI	Système d'épuration individuel
SPGE	Société publique de gestion des eaux
ZAA	Zone d'assainissement autonome
ZAC	Zone d'assainissement collective

Abstract

The objective of the mission was to deeply study a problematic of the society in order to spot if a gap could be fulfilled by a potential entrepreneurial project. In that matter we decided to focus on the water pollution. By displaying the different kind of water pollution, we decided to go against a particular phenomenon not well known by the population, called eutrophication.

This is an ecological process characterized by an excessive supply of nutrients to the water leading to plant proliferation, oxygen depletion and ecosystem imbalance. Research and interviews with experts have then been conducted in order to understand the process and the causes of this phenomenon and it appeared that one of the biggest ones was due to wastewater discharge.

By focusing on Wallonia, it has been noticed that more than 12% of the population lived in autonomous sanitation zone, meaning that their habitations must be equipped with an individual purification system. As a consequence, we chose this angle of attack and decided to

consider and study the ecosystem around these individual systems. Actors implied are municipalities; the GPAA (public management of autonomous sanitation); installers , maintenance and emptying providers and households. We managed to get in touch with every kind of people and a problem felt by everyone emerged. Indeed, maintenances are not often carried out within the right time frame leading to a loss of efficiency of these systems. This problem could actually be partially solved by clarifying the laws and procedures. As a matter of fact, premiums have been set by the GPAA to encourage people to follow the rules but people are not often aware of them and often struggle to get the right information. Moreover, being part of the GPAA will be mandatory from 2021. This role must hypothetically be fulfilled by municipalities but they don't.

As a consequence, we tend to think that a personalized information for households is a key to globally improve water quality in Walloon watercourse and would be beneficial for each actor. We proposed some entrepreneurial project for this purpose at the end of this report.

1 Problem definition

1.1 Eutrophication phenomenon

Eutrophication (from Greek *eu-trophos*, "Well-nourished") describes a biological situation where there is too much food. It is the process of continuously enriching an aquatic system with nutrients and organic matter. Nutrient salts are all inorganic nitrogen and phosphorus salts (e.g.: nitrate, ammonium, phosphate, and poly phosphate). They are fundamental to all photosynthetic organisms and are therefore considered as their staple food. Photosynthetic organisms need sunlight, water, CO_2 (abundant) and nutrient salts (limiting factor) through their roots to produce organic matter. Animals do the exact opposite. They break down organic matter to dissociate it into mineral elements, recovering energy from this combustion reaction (Desmit, 2020).

Phytoplankton in aquatic environments is a photosynthetic organism and its limiting elements are therefore also nutrient salts. So generally, in all aquatic systems (rivers, lakes, sea, oceans, …), as soon as there is a surplus of nitrogen and phosphorus, there is an excessive growth of this instantaneous phytoplankton. Unlike in the terrestrial systems where these salts can be stored in the soil and used by the plants later.

Given that phytoplankton is at the base of the food chain, the situation could seem beneficial, the more phytoplankton there is, the more photosynthesis there will be and the more food there will be for the next actors in the food chain. But this is not the case, phytoplankton will grow so quickly in eutrophication because it is a unicellular organism that the population will grow exponentially until all nutrients are exhausted (within a maximum of one month). When the zooplankton develops, the phytoplankton already begins to die off because all the nutrient salts have been depleted at once.

All the excess biomass then settles to the bottom of the water column and is broken down by bacteria (which are also unicellular organism). As a result, the degradation of phytoplankton is very rapid, and this reaction consumes dissolved oxygen in the water. Unlike terrestrial ecosystems where oxygen is abundant, in aquatic environments it is a limiting factor. The oxygen is dissolved in the water column at a precise saturation. Once it is consumed in the water by bacteria, the only way to replenish the water with oxygen is through its physical reaeration at the water-atmosphere interface. However, this phenomenon is much slower than the biological process of microbial degradation. In eutrophication, most systems then go into hypoxic condition due to this lack of dissolved oxygen to anoxic conditions (where there is no oxygen at all). All breathing organisms will then die from asphyxiation (crustaceans, fish, benthos, shellfish, etc.). The environment becomes a “dead zone”. It also appears that these dead zone events and their size are increasing considerably all around the planet. This causes big ecological and economic problems (Aissani et al., 2017; AquaWal, 2018).

The second consequence of the eutrophication phenomenon is induced by certain species which produce toxins under conditions of hypoxia. These toxins are dangerous for the marine ecosystem but also for humans because some toxins have the ability to accumulate in marine organisms that do not suffer from the toxin but are share of our diet. The consumption of such toxins can lead to severe diarrhea, amnesia or even paralysis. For example, the French government is forcing any aquatic mussel farm that has been poisoned by this type of toxin produced by phytoplankton to close this aquaculture for a period of two years (Desmit, 2020).

1.2 Causes

Any phenomenon causing an imbalance between excessive intake and natural intake of nutrients in the aquatic ecosystem can be considered as a potential cause of eutrophication.

In Wallonia, there are three major causes (Aissani et al., 2017; Castillon, 2005; Desmit, 2020):

- Conventional agriculture (about nitrogen) following the application of chemical fertilisers which fertilise the fields every year. Much of this fertiliser is washed away by the rains and swept away to the rivers;
- Urbanisation when all households are not connected to wastewater treatment plants. It contributes to the supply of organic matter, in particular for phosphorus. Or during heavy rains, wastewater treatment plants (WWTPs) can be overwhelmed and not function optimally, which leads to poor water management and a higher concentration of nutrients in the discharged water;
- The industrial world by discharging phosphorus or nitrogen into rivers depending on the different areas.

1.3 Link with the UN Sustainable Development Goals (SDGs)

Among the 17 SDGs, two relate to water quality:

- Goal 6: “Ensure access to water and sanitation for all,” for example the goal 6.3 requires to “improve water quality by reducing pollution, eliminating dumping and minimising release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally”(United Nations, 2015b);

- Goal 14: “Conserve and sustainably use the oceans, seas and marine resources.” The objective indicates that “coastal waters are deteriorating due to pollution and eutrophication. Without concerted efforts, coastal eutrophication is expected to increase by 20 percent of large marine ecosystems by 2050". The goal 14.1 requires to prevent and significantly reduce marine pollution of all kinds, in particular from landbased activities, including marine debris and nutrient pollution”(United Nations, 2015a).

Eutrophication in rivers is directly linked to pollution in the oceans. In fact, all the nutrient salts will arrive in the coastal zone in fine in several possible forms, which is called the landocean continuum. These forms can be nutrient salts, still living phytoplankton or organic matter

resulting from the degradation of this phytoplankton (Desmit, 2020). So, an improvement in the eutrophication problem could help to partially solve these SDGs.

1.4 Research framework

After carrying out our research on the various causes of eutrophication in Wallonia, we decided to focus our study on the impact of the discharge of domestic wastewater on this issue. We believe that at our level, this is the cause that we can impact the most compared to the still highly conservative agricultural and industrial world.

The impact of wastewater on water pollution in Wallonia is played out on several levels. Therefore, we decided to focus on homes that are not connected to collective wastewater treatment plants.

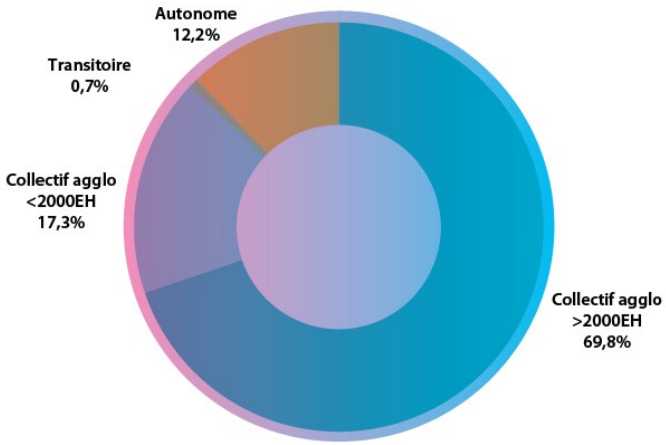

Figure 1 percentage of Walloon population in each sanitation system (AquaWal, 2018)

According to the “Plans d'Assainissement par Sous-basin Hydrographique (PASH)”, around 160,000 homes are located in autonomous sanitation zones (ASZ) in Wallonia. This means that these homes have to individually treat their wastewater via their own individual wastewater treatment plant (IWWTP). This represents 12% of the Walloon population (Figure 1), two thirds of which are in areas suitable for urbanisation according to sector plans.

According to Bruno Paermentier, division manager of public management of autonomous sanitation within AIDE, the number of these ASZs will increase in the future. Indeed, the municipalities are increasingly indebted, the resources made available for the collective drainage network are decreasing sharply. Therefore, they prefer to transform collective sanitation zones into ASZs in order to avoid having to carry out connection work to the sewers

for new homes. However, during our research and interviews, it turned out that these IWWTP are often less efficient due to many factors (Paermentier, 2020).

2 Methodology

2.1 Identifying a problem

During our first meetings with Brice and Sébastien, we discussed what led us all to talk about the theme of water in our pre-mission presentations. Each of us was able to bring a new vision to this great theme and was also able to share with others the information we had in this sector.

We then quickly turned to issues related to water quality in Wallonia because the three of us live in different areas of this region but we were able to observe the same recurring problems. Sébastien told us about the phenomenon of eutrophication, a phenomenon he had tackled during his studies.

By carrying out our first research, we realised that at the Walloon scale, the problem is preponderant. The rest of our work then focused on that specific phenomenon.

2.2 Understanding the Problem

After identifying our problem, we tried to understand it as a whole. For this, we have followed several steps :

- ➢ Reading scientific Literature;
- ➢ Interviewing a Belgian specialist in the field (Desmit, 2020); ➢ Analysis of eutrophication cases in the Walloon region.

These various sources of relevant information have enabled us to identify and better understand the causes of eutrophication and thus to look into possible ideas for improving the situation. To fight eutrophication in Wallonia, we need to:

- ➢ To stop all the release of nutrients into the polluted water stream;
- ➢ To remove the algae that abound in the stream;
- ➢ To mechanically ventilate the watercourse, to accelerate the overall purification process;
- ➢ Reduce or stop the presence of phosphates or nitrates in fertilisers and in household products.

After our discussions with Xavier Desmit, we decided to focus one of the causes of eutrophication, which is : the bad quality of household wastewater. The reason for this focus is because we realised that 12% of the population in Wallonia must take care of the treatment of their wastewater themselves because they are located in autonomous treatment areas. A good treatment of their wastewater is therefore essential if we want to reduce the eutrophication phenomenon in Belgium (Desmit, 2020).

2.3 Analysing the ecosystem

To understand all the ins and outs of our problem, we decided to address ourselves, first of all, to households located in autonomous sanitation areas. We started with households because we wanted to tackle the problem at the source. To do this, we used the power of social networks to reach a fairly specific audience. A Facebook post allowed us to get in touch with various people and after making an interview guide we were able to ask them our questions. We also wanted to understand their relationship with their SEI and the problems they were facing regularly.

To then have a global vision of the ecosystem, we spoke to one of the protagonists of individual purification systems at the Walloon level, Bruno Paermentier from the GPAA (Gestion Publique de l'Assainissement Autonome). The interview we conducted with him allowed us to have a clearer vision of the various bonuses, legislation, and the actors that take place in this particular sector (Paermentier, 2020).

The last step of this analysis was to get in touch with the different actors in our ecosystem. We were able to interview architects, municipalities, installers and maintenance providers. By talking to them we wanted to understand how they fulfil their role in this ecosystem and understand the recurring problems they encounter in fulfilling this role.

2.4 Looking for possible solutions

After understanding our problem as a whole and after having spoken with the different actors involved in it, we began to look for possible solutions that would allow us to improve the quality of domestic wastewater leaving these autonomous wastewater treatment plants.

For this purpose, we carried out a benchmarking, we learned about the various existing technologies, the new inventions and the start-up's working in the water sector in general. The SDG resource centre helped us a lot for this share of the work, we were able to focus on SDG number 6: Clean Water and Sanitation and see what was being done for the moment around the world to improve this goal.

After brainstorming several times and participating in the ID Sprint, we established several entrepreneurial solutions.

A second benchmarking then took place, we looked for various platforms trying to provide personalized answers / information to its customers in order to be able to give targeted answers according to the problems encountered, given that it is one of our possible solutions.

3 Ecosystem

3.1 The basis of water sanitation in Wallonia

In Wallonia, sanitation plans divide the territory into 15 hydrographic sub-basins. These subbasis are called PASH. It is these plans that determine the sanitation method specific to each home. Through regular adaptations, the PASH take into account the evolution of territorial and human development in the Region. Any adaptation of a PASH is also the subject of a public inquiry and then an order of the Walloon Government.

3.2 The different zones

The area in which a home is located determines the obligations concerning wastewater treatment. In Belgium, we can identify 3 different zones:

- The “zone d’assainissement collective” (ZAC)

Formerly called "drainable zones", are areas in which there is or will be sewage which must be connected to collective purification stations. 3,160,000 inhabitants in Wallonia (87.2%) are in a collective sanitation zone.

- The “zone d’assainissement autonome” (ZAA)

Formerly called "individual purification zones", are areas in which residents have to purify their wastewater themselves. 444,000 inhabitants in Wallonia (12.2%) are located in an autonomous sanitation zone. That’s the one we are the most focused on in this report.

- The “zone transitoire” (ZT)

They are areas that have not yet been classified. These areas, which are few in number, are called upon to be assigned the most appropriate sanitation regime (collective or autonomous) depending on the results of specific studies carried out by the “Organismes d’Assainissement Agréés” (OAA). 20,000 inhabitants (0.6%) are in a transitional sanitation zone.

3.3 Actors and their roles (SPGE, 2020)

It is first of all essential to understand the situation and its environment by studying all the actors involved, their role in the issue as well as the link they have with each other.

3.3.1 Citizens in an autonomous sanitation zone

The responsibility of citizens in an autonomous sanitation zone is to have an individual purification system. The rules and laws concerning them depend on several factors. They are explained in the next chapter of this report.

However, it is important to know that regardless of the sanitation regime, it is forbidden to allow wastewater to flow, even after treatment, on public roads.

3.3.2 The municipalities

The municipality has a role of guidance and advice to its fellow citizens.

Thus, the municipality can be called upon to help individuals to:

- ➢ Determine the sanitation regime to which the applicant falls : collective or autonomous sanitation;
- ➢ Determine whether it is a priority area or not;
- ➢ Determine if the home needs to install an individual purification system;
- ➢ Suggest submitting a request for exemption in specific situations;
- ➢ Advise on the size of the SEI to be installed;
- ➢ Provide information on the disposal methods for treated water;
- ➢ Specify the reporting obligation;
- ➢ Provide information on inspection, maintenance and draining maintenance;
- ➢ Inform about eventual bonuses;
- ➢ They must incorporate regulatory changes at the level of town planning permits; ➢ They must transmit useful information to the SPGE.

3.3.3 The professionals

- The Installers

Beyond the installation of an autonomous purification system, the installer has two main roles. The first is to inform the citizen of the administrative procedures and procedures to follow as well as the various existing bonuses. Then the installer is responsible for assuming the technical-administrative role. That is to say, he must prepare a report that he will send to the SPGE containing this information :

- ➢ The date of commissioning of the purification system;
- ➢ A descriptive plan of the water evacuation system and device;

➢ A photographic report making it possible to visualize the various elements of the system and their connections before backfilling of the excavations and trenches.

Since 2018, a certification has been introduced and using a certified installer gives certain advantages.

- Maintenance providers

In order to ensure that all SEI are regularly maintained, they must since 2018 be covered by a maintenance contract concluded between the operator of the SEI and a service provider registered with the SPGE, regardless of the size of the SEI.

This maintenance is meant to:

➢ Check the correct functioning of the system. (in particular with a measurement on the COD - Chemical oxygen demand);
➢ Assess the height of the sludge for triggering an emptying; ➢ Replace defective parts.

The customer is responsible for carrying out the maintenance and ensuring free access to his SEI to do so. The times between maintenance vary depending on the size of the purification system.

- The emptiness

➢ They are under contract with the OAA (organisme d'assainissement agréé) for the completion of this operation.
➢ They intervene on demand and their services are covered by the SPGE.

- The architects and entrepreneurs

They are the ones who, with the owners, determine the sanitation systems in new homes. They then contact the approved installers. They tend to favour SEIs even in common areas, according to Bruno Parmentier (Paermentier, 2020).

3.4 Legislation

3.4.1 Who?

According to Walloon legislation: "Any dwelling located in an autonomous sanitation zone must be equipped with an autonomous purification system".

In addition: "Any existing dwelling or any group of existing dwellings to which the on-site sanitation system applies must be equipped with an individual purification system. These

concerns dwellings built either before the date of approval of the PCGE, if the latter had already classified them as individual purification zones; either before the approval date of the PASH which classified them as an autonomous sanitation zone, otherwise.

The Sanitation Plans by Hydrographic Sub-Basin (PASH) determine the sanitation methods for each dwelling whose wastewater flows into one of the hydrographic sub-basins in Wallonia. The Walloon government approved the 15 PASHs between November 2005 and June 2006 (Meuse Aval, Service public de Wallonie, & Province de Liège, 2017).

Everyone owning a SEI has the responsibility of correctly maintaining (through a maintenance contract) and emptying it.

3.4.2 Two kind of people | Taking part of the GPAA and the others

3.4.2.1 Systems installed after 31/12/2017

All new individual purification systems are automatically integrated into the GPAA. Operators of systems installed after this date are therefore subject to payment of the CVA[1] and no exceptions are no longer granted for new systems since this date.

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3.4.2.2 Systems installed before 31/12/2017

Operators exempted from paying the CVA must take charge of all the services necessary for the maintenance, emptying and checking of the proper functioning of their SEI.

Until 12/31/2021, they can have an inspection of their SEI carried out with a view to integrating it into the GPAA and thus entrust its management to the SPGE. They will then be subject to payment by the CVA.

The option to maintain the exemption expires on December 31, 2021. After that date, all systems will be subject to payment of the CVA and will enter the GPAA through a takeover check. The CVA is demanded by the GPAA in order to finance all the premiums mentioned in the next point linked to the services provided by the institution.

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[1] *CVA : Cost-Truth sanitation. Indeed, on each cubic meter consumed, an amount of € 2.365 excluding VAT (July 1, 2017) is levied in order to finance this wastewater. The consumer therefore pays for the pollution he generates*

3.4.3 Services offered by the GPAA?

Since 2018, the Walloon Government has brought a new law into execution. Indeed individual purification systems (SEI) were often lacking in particular due to a lack of maintenance. Therefore this law has as objective to better support individuals in order to ensure the purification of their wastewater. The Public Management of Autonomous Sanitation (GPAA) constitutes the assumption of responsibilities, by a public body, of services with a view to ensuring the proper functioning of individual purification systems in order to better protect our environment (Région Wallonne, 2020).

In this regard, many advantages materialize for the citizens concerned by the Surrogacy:

- **Premium for the installation or rehabilitation of an individual purification system (SEI) with financial assistance from the SPGE (via the CVA);**
- **Maintenances: financial intervention by the SPGE (via the CVA);**
- Information: setting up of information and assistance service for individuals; ➢ **Emptying: financial support for the SPGE via OAAs;** ➢ Monitoring and control: technical intervention of OAAs.

3.4.3.1 Premium for the installation or rehabilitation

Premium for the installation or rehabilitation of an individual purification system (SEI) with financial assistance from the SPGE (via the CVA) (IDELUX, 2020).

Regarding the premium for the installation. There is none of habitations built after the approval date of the PASH. However, for habitations built before this approval date the premium can be asked by the household when they operate new construction in their habitations.

The amount of premium is:

- Calculated based on the cost of installing the purification system;
- Capped at 70% of the total number of invoices (excluding repairs to the premises), incl; ➢ Fixed at a minimum of 1000 € for an SEI of 5 PE; ➢ This amount is increased by 350 € per additional PE.

The rehabilitation of an SEI installed for at least 15 years may give entitlement to a premium. The amount of the premium is calculated on the basis of the cost of the rehabilitation and is capped at 70% of the total amount of the invoices relating to work to bring the system into conformity and to rehabilitate the system, including VAT (excluding the restoration of the premises). The amount of the premium is a maximum of € 1,000.

3.4.3.2 Maintenances: financial intervention by the SPGE (via the CVA) (IDELUX, 2020) In order to ensure regular maintenance of SEIs, they must henceforth be covered by a maintenance contract concluded between the operator of the SEI and a service provider registered with the SPGE.

The minimum frequency of maintenance depends on the size of the purification system:

- individual purification unit (<or = 20 PE): 18 months
- individual purification installation (between 20 and 100 PE): 9 months
- individual wastewater treatment plant (> or = 100 PE): 4 months

When a maintenance contract is concluded, the maintenance provider and the individual agree on the terms (deadlines, costs) of this contract. If you come under the public management of on-site sanitation and you pay your CVA, the SPGE will help pay for these interviews as follows:

- individual purification unit (<or = 20 PE) : maximum of € 120 excluding VAT
- individual purification installation (between 20 and 100 PE) : maximum of € 150 excluding VAT
- individual wastewater treatment plant (> or = 100 PE) : maximum of € 200 excluding VAT.

3.4.3.3 Emptying: financial support for the SPGE via OAAs (IDELUX, 2020)

The operator of the systems will be notified by the GPAA that they must drain their system. The operator will be provided with a list of drainers under contract with the GPAA and will use one of them. The drainer will send the invoice for the service directly to the GPAA. No invoice is sent to the individual.

4 Investigation result

A representation of the chronological process of the investigation and interviews is available in Figure 2. Following the interview with Xavier Desmit (eutrophication expert), we got a very detailed view of the problem. Once the wastewater issue was selected from among the three

known causes, we enquired about all the players who had a role in this area. Above all, it appeared that the management of this problem was of public order. We therefore contacted two AIDE departments, the first headed by Franck Bodson, concerned with the management of collective purification systems (the sewerage networks and WWTP of more than 2000 PE) and the second directed by Bruno Paermentier, concerns the management of autonomous systems. Following these two interviews, the entire ecosystem around water purification in Wallonia was almost known. We first wanted to base our entrepreneurial project on the technical performance of SEIs. However, AIDE explained to us that in Belgium, all installed systems had to be approved and worked very well. The issue raised by AIDE has been more on the maintenance side of SEIs. Indeed, in Wallonia these are not yet carried out in an optimal way, they are not done correctly and the deadlines are not always respected.

Following this new information, we contacted several independents carrying out installations and maintenance on SEI's private. We also interviewed many private with various types of SEI. The glaring problem that came up with each interview was the lack of information and the concrete role of the municipalities. When private is on an ZAA, he is left to himself when it comes to finding independent installing SEIs; the bonuses to which he has access or not; the taxes he has to pay; renewal of maintenance contracts; the deadlines,… We therefore contacted the municipalities to obtain their point of view on this issue. Only the municipality of Theux answered us and told us that their role in this issue was minimal. All the actors reject each other's responsibility, and the injured party is ultimately the private who cannot find the information he needs and ultimately drains poor quality wastewater into the environment.

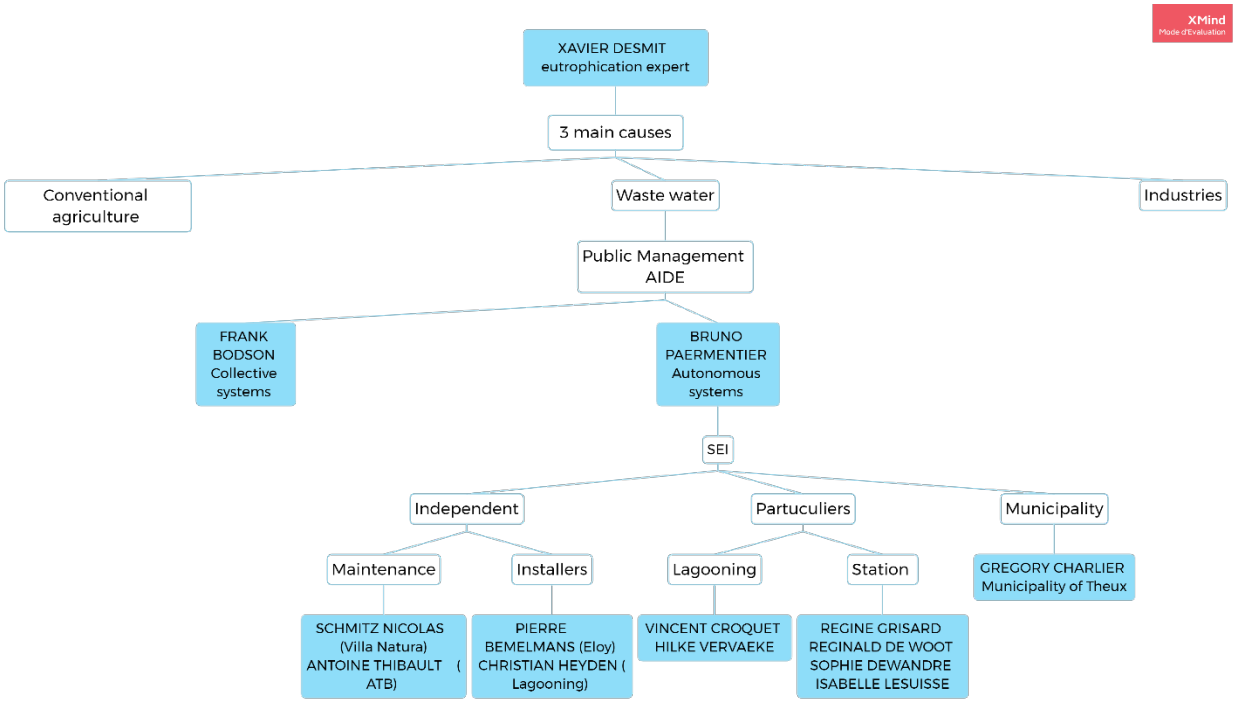


Figure 2 : Representation of the chronological process of the survey and interviews

5 Benchmarking

Personalized search makes it easier and faster for consumers to access the information they want. This system is very common on the internet, especially about the comparison of services offered.

By way of example, the Assurance.be website allows you to compare all the insurance (AutoFire-Travel) present on the Belgian market. Its operation is very easy and allows consumers to find exactly the information they are looking for very quickly. Once connected to the site and after having selected what type of insurance the consumer wants to compare, a series of very specific questions are asked. At the end of this questionnaire, a list of insurance and personalized rates is provided (Assurances.be, 2020).

Another system, less personalized but just as effective, is available on the Ores website in the FAQ section. In order to easily find the question that best suits the consumer, he must first select a department (meter, job, suppliers, breakdowns, etc.), secondly a series of categories and sub-categories are offered to him. Finally, after filling in these three pieces of information, a whole series of specific questions concerning this area are available (ORES, 2020).

6 Potential entrepreneurial projects

As Bruno Paermentier told us, the result of our analysis by speaking with all the actors headed us to the problem that the biggest difficulty was to have an easy and complete information. Municipalities must play the role of intermediaries between each actor but don't even know their responsibilities and don't assume it. Since the creation of the GPAA in 2018, they tried to centralize the information but it is still complicated to get the right information for the right person.

As a consequence, our potential proposition of value could be described like that :

"We want to help households located in an autonomous sanitation zone in a habitation existing before the first of January 2018 who want to reduce their environmental impacts while reducing the cost of their autonomous sanitation system by simplifying their search of information by giving them access to a personalized information about procedures to follow and by making them able to get premiums more easily."

In this lineage we have thought to different potential projects that could be applied to this problem, all with the objective of providing people with a personalized information. First of all, we had thought to a very simple website on which people could register with their own information and it would give them back all what they need to know.

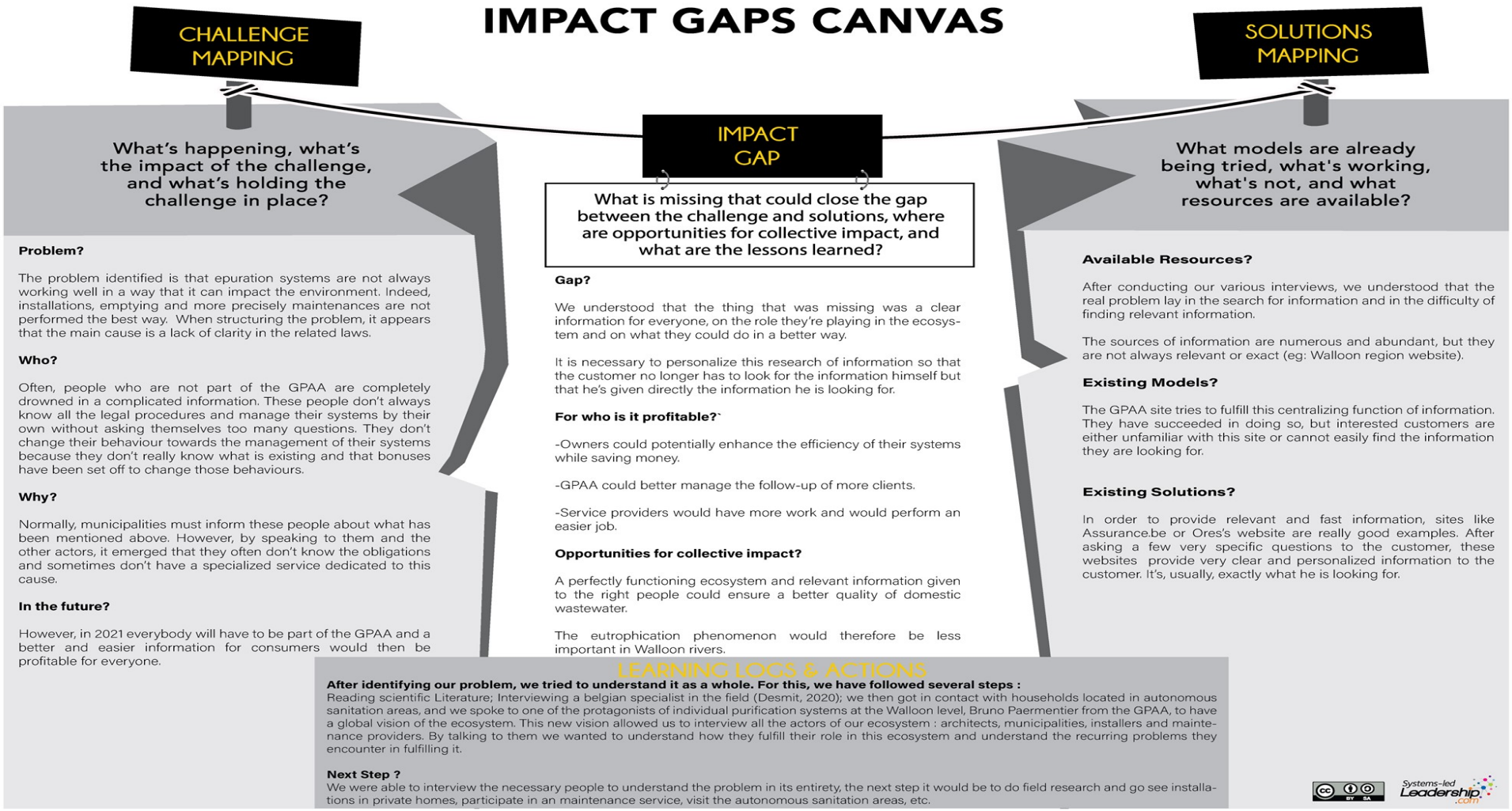
Tableau 1 Proposition of the structure of the project

Registration?	**Return?**
Name?	Necessary information
Localization?	Costs and premiums of each option
System?	Contact
Date of installation?	Premium request form
Date of the latest maintenance?	

In the same perspective , we had also thought to a chatbot that could be sold to the GPAA to facilitate the membership of households in this institution since it will be mandatory to be part of it since 2021.

This chatbot would aim to provide once again the right information to the right person in order to facilitate his entry in the program and to facilitate his access to the right premiums

7 Impact Gaps Canvas



8 Learning

The team for this work being multidisciplinary, each member therefore has a different background. Since then, the learning has been numerous and varied according to each one. The two most important learning were the general approach to the problem and conducting an interview.

The general approach used in this mission, which consists of studying all the causes and the complete ecosystem around a selected issue. It is a purely empirical approach. This working method is widely used in the scientific world. For the members of the team who had not received scientific background, this mission was a real learning process for dealing with a completely unknown problem. This has also proven to be very effective. Indeed, the more we conduct interviews and study the subject, the more we come to understand the ecosystem around our problem and identify its real cause.

For example, we first wanted to act on the technical performance of SEIs, then we realized that these performances were very effective but impacted by the lack of maintenance. Finally, we understood that this lack of rigor concerning the interviews of the SEIs was due to a very important lack of information of the citizen.

The second learning acquired through this mission is to conduct an interview. Some of us had never taken this step before. The entire interview organization process (making contact, scheduling an appointment, writing an interview guide adapted to each expert) is now known to each member of the team.

It is also remarkable to observe how open, accessible and benevolent experts interviewed were towards us and our project.

Conclusion

Through this first mission, we have been able to study a phenomenon in its globality to spot if an entrepreneurial project would be possible to fill out one aspect of the problematic. In our case we chose to investigate the role of every actors related to the installation, maintenance and emptiness of individual purification systems because these installations contributes to eutrophication in our Walloon watercourses when not well installed or maintained. It has been revealed after listening each of them that the problem clearly came from the lack of clarity in all information about the laws and procedures to follow and that they could save money by asking premiums when it was well done. After the interviews, it is understandable that the solution would simply come by an innovation allowing an easier access to information. For this information to be the simplest, a personalization of it according to the people doing his search could clearly improve the global efficiency of these purification systems.

Even though it seems that this aspect is the main one to improve, it is important to keep in mind that the sample of interviewed people is minimal compared to the sector size. Indeed, it is possible that other conclusion could potentially have been drawn by interviewing other people. For lectors interested in deepening the topic, the suggestion is then to keep interviewing people to see if this point of view comes out again.

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