New Services

THE BORDEAUX URBAN COMMUNITY CHOOSES INFLUX TO PREEMPT THE RISK OF FLOODS

The growing urbanisation and increase in rainproof surfaces, i.e. streets, pavements and buildings that comprise our towns have the serious disadvantage of considerably reducing the natural infiltration of rainwater on the ground: only 15%, if we believe the figures. What about the remaining 85%? They can involve severe flooding and be the cause of significant pollution. To preempt these, the Bordeaux Urban Community (BUC) has chosen Ramses Influx technology (Regulation of Sanitation by Measures and Supervision of Equipment and Treatment Plants) developed by Lyonnaise des Eaux, a subsidiary of SUEZ ENVIRONNEMENT. Explanations.



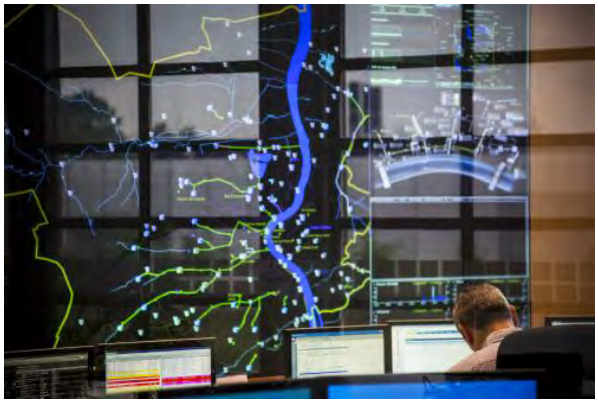
RAMSES control center
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On the evidence of the geographical situation of the city of Bordeaux, there is nothing surprising about the population finding itself with its feet underwater repeatedly! Located at the culmination of the Gironde estuary and at the heart of a hydrographic system with more than 150 streams, the Bordeaux Urban Community is as vulnerable to alterations in the Garonne as tidal and storm waters that stir up the Atlantic Ocean. Add to that a favourable climate to the strong rainfall and urban infrastructures that limit the infiltration of rainwater and you have all the ingredients to end up with an obvious risk of flooding! Bordeaux has, therefore, often been the victim of violent storms and torrential rainfall. On 31 May and 2 June 1982 especially, the city had two successive storms just three days apart which led to major flooding. Perhaps some will recall inhabitants restricted from moving around on small boats on the streets of Bordeaux. This event marked the beginning of the response to floods, an objective that became a priority for the Bordeaux Urban Community which voted on a response plan on 18 June that same year. Excluding the fact that a third of this area is under the Garonne at high tide and such natural basins flood on a regular basis. In one word, it was urgent for the city to act and find effective solutions to stay dry.

An adopted technology and controlled storms

The pictures we saw on the news in 1982 are now a thing of the past. Ten years later, BUC chose the Ramses innovation carried out by Lyonnaise des Eaux, a subsidiary of SUEZ ENVIRONNEMENT and put its bad memories behind it once and for all. This remote monitoring tool, which has undergone several modifications since its creation and falls within a continuous improvement approach, enables anticipatory management and effectively foresees the risk of flooding. As proof of this, the town has not recorded any major and sustainable flooding since 1990 when Ramses foresaw and managed a consistent number of rainfall events (approximately fifty each year)! In two words: it works! But how? By cross-checking data provided by the France on site weather forecast radar and rainfall measurements, Ramses accurately determines the threat posed by rainfall events. This system can predict the time, location and volume of potential floods 24 hours ahead in dry weather and six hours ahead in rainy weather! It provides an overall vision of the function of the whole sanitation system using these meteorological, metrological, hydrological and hydraulic data, which enables preventing flooding or saturation of works storage capacities. But in addition to foreseeing them, Ramses goes further: it enables ensuring the storage of surface water using all the capacities of existing sanitation infrastructures such as pumping stations, main sewers, surge ponds, etc.. It therefore optimises infrastructures by means of dynamic management of incoming water by redirecting movements towards available infrastructures until the network resumes its usual flow: an economic and financial solution which provides for mobilising the storage capabilities at the right place and at the right time. Thus, the storms and rains which poured down on the town on 26 July 2013 did not have the same consequences as those of 1982.

However, this involved extremely violent events that only occur on average every 50 to 100 years: an absolute deluge that, at their strongest, reached 70 mm of water in 40 minutes and the intensity of which was much higher than the storms in 1982 and in the summer of 2011. RAMSES has therefore provided for storing 1 million m^3 of water and limiting the floods to the urban area. To summarise, this innovation provides for controlling, storing, processing and effectively evacuating approximately one hundred million m^3 of wastewater and rainwater. The results have proven to be satisfactory over the last 22 years.



RAMSES, remote rainwater and sanitation control center in Bordeaux

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A storm pollutes 10 to 50 times more than the refuse from a water treatment plant!

Lest we forget that in addition to the inconvenience caused to residents, who risk finding their ground floors flooded, floods are also a significant source of pollution. Indeed, in contact with the air, rainwater becomes loaded with impurities such as industrial fumes or exhaust gases; rainwater flows and takes with it all kinds of residues placed on roofs and pavements (zinc, waste oil, fuels, heavy metals, etc.). These polluted waters, if they are not picked up or processed find their way into the natural environment — especially seas and rivers. The stakes are high, considering that these overflows are responsible for 50% of the pollution of rivers. Storing polluted water volumes, processing them in a water treatment plant to preserve the environment and biodiversity — whilst preventing any overflow and spillage of sewage — is also one of the new Ramses functionalities brought about by Dynamic Management in 2012. And what if, apart from foreseeing the risks of flooding, Ramses were able to integrate the imperatives of limiting the impact of pollution on the natural environment, optimising energy expenses and taking into account information on an ongoing basis to act on the system — storage in basins, modifications to the function of water treatment plants, tipping sewage from one basin to another — in real time? That would surely be optimal. Far from the realm of science-fiction, these are the innovations of Ramses 3.0, which will be implemented from now until 2015.
Watch this space... ⑤

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https://www.lyonnaise-des-eaux.fr/fiche/16224/Managing%20your%20account%20simply%20and%20effectively%20target=

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