

## Pilot location: Morée Sausset Catchment, Paris area (France)

### Location and Environmental Setting

The catchment named "Morée-Sausset" (from the names of two former rivers that used to drain it, which are now the two main sewers of the area) is located in the North-East of the Seine-Saint-Denis County. It is a predominantly urban area of 3,400 ha. It includes industrial areas (mainly in the North), residential zones and green areas. The area is rather flat (the average slope of the sewer pipes is 0.009 m/m) and has experienced a rapid urbanization over the last decades. The average coefficient of imperviousness is roughly 50%. The sewer system is a separate one in this area. There are neither weirs nor pumping stations in the sewer network on this area. Storm water is then routed to Seine River through the Garges-Epinay sewer.

The Kodak catchment, which is a 144 ha mainly residential area located in the South-East of the greater area, is studied more in detail. It contains a green area currently under decontamination which corresponds to a former Kodak factory.

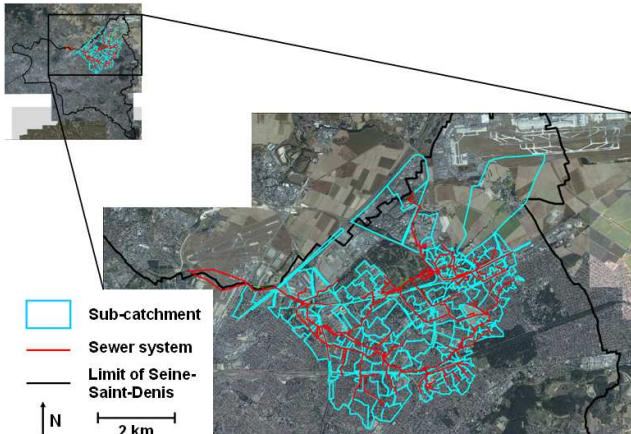


Figure 1: Picture of the Morée-Sausset catchment

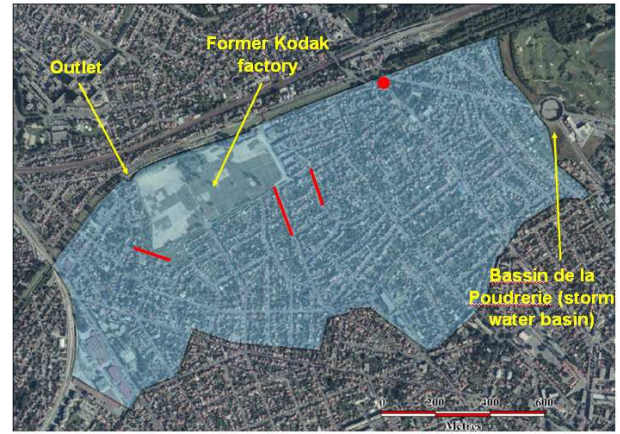


Figure 2: Picture of the Kodak catchment (weak spots in red)

### Urban pluvial flood risk problems and management objectives

The Morée-Sausset catchment has experienced regular pluvial flooding since the beginning of this century (see Fig. 2, 3 and 4).

#### Pluvial flooding mechanisms:

Pluvial flooding in this area is caused and/or exacerbated by the following factors:

- The topography is rather flat
- The area has experienced a rapid urbanization over the last decades which implies an increase of impervious area, a decrease of the natural storm water storage area, and an increase of the runoff velocities
- Former rivers have been channelled and covered, which reduced their capacity, and the river bed has been urbanised

As a consequence of these three factors, some downstream links (some of these are former rivers) have become undersized with regards to current constraints, and suffer regular overloading and generate occasional flooding.

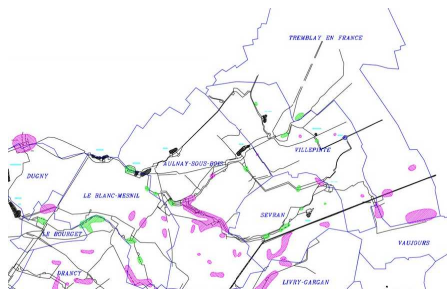


Figure 3: Areas (in pink and green) where some flooding are regularly observed



Figure 4: Street "Danton" in Livry-Gargan (23/08/2007) The water coming from this area is routed to the "Bassin de Poudrière"

#### Urban pluvial flood risk mitigation

The current solution relies on the optimal use of storm water storage basins. There are 18 basins over the Morée-Sausset catchment representing 577,000 m<sup>3</sup> of total volume (Fig. 6). These basins are regulated from a DEA operating room (Fig. 5). The real time control (RTC) relies on the implementation of one out of 27 pre-defined scenarios. A scenario is selected according to the observed water level at strategic point in the network and according to rainfall radar estimates and nowcasts (mainly expected intensity and direction of next storm). Hydrological models are not currently used in real time. One of the purposes of the RainGain project is to analyze how RTC can be improved with the help of enhanced fine scale rainfall data.

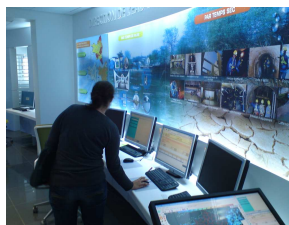


Figure 5: DEA operating room

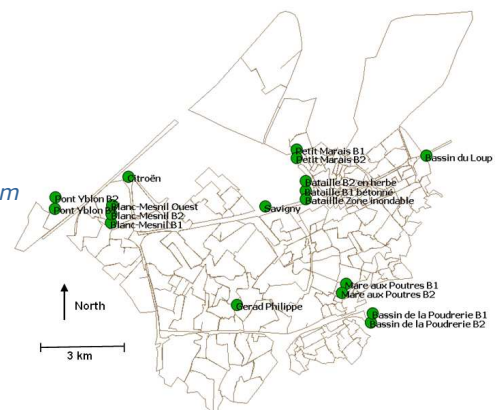


Figure 6: Location of the storm water basin over the Morée-Sausset catchment