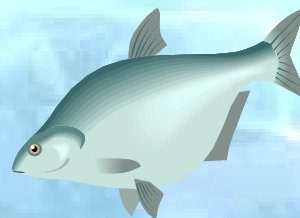


# Greater Paris Sanitation: A long walk towards governance

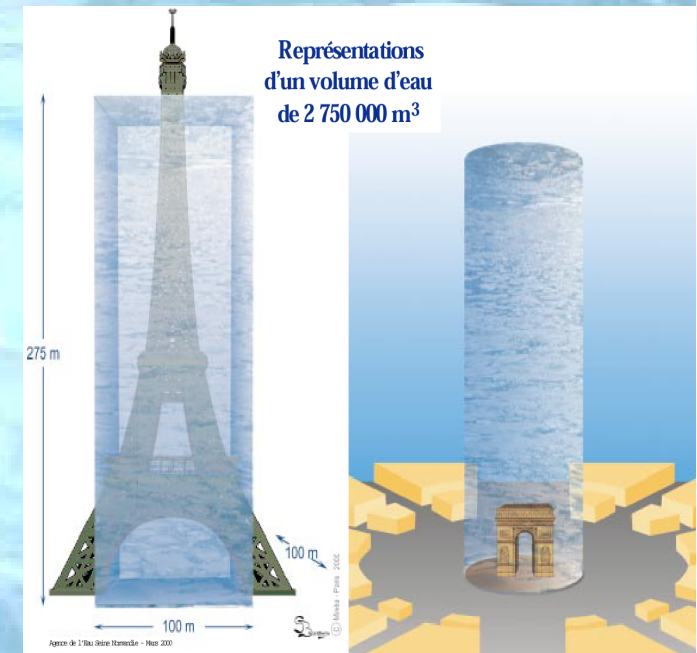
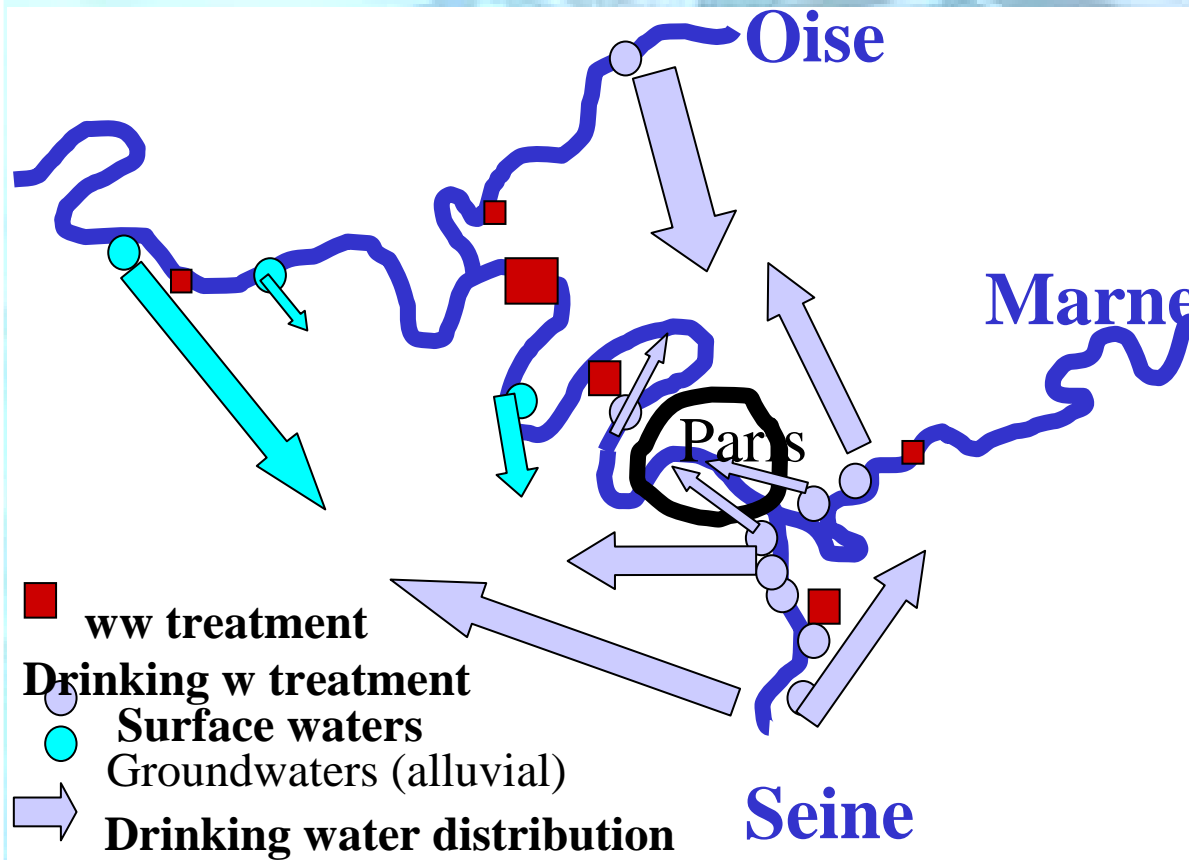
**Jean Duchemin**  
**AESN – Water and Health**  
**- France -**



# The great challenge of Paris agglomeration

8,5 Million inhab., 2300 km<sup>2</sup>, > 200 municipalities

How to manage 2,5 Million m<sup>3</sup> wastewaters/day, and even 4 Millions m<sup>3</sup> when a strong rain falls, without damage for rivers quality and public health ???





eau  
seine  
NORMANDIE

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## Paris City-short sanitation history-

- ❖ **XVIII th Century-** Mirabeau writes:  
« The Parisian fills his water pitcher with his chamber pot »
- ❖ **XIX th Century:** 25 kms WW network in 1800, 120 kms in 1850-
- ❖ Cholera epidemics (> 15 000 deaths) in 1832, 1849, 1871...
- ❖ **XX th Century:**  
1000 km (combined) sewers in 1900,  
1500 kms in 1970 (> 4000 km for the whole agglomeration)
- ❖ –No more cholera, but frequent fish death in rivers...







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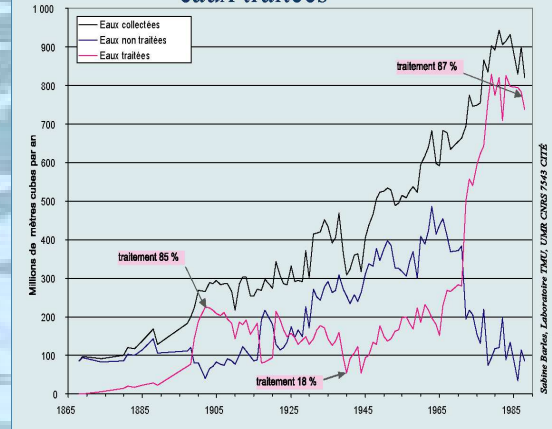
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# Enhanced governance for increased efficiency: what tools ?

## Innovations-concertation-solidarity.

- ◆ **1874**: first experiments for spreading sewage in agriculture
- ◆ **1920**: first trials of biological WW treatment (Colombes)
- ◆ **1940**: Acheres 1 (biological WWTP- 200 000 m<sup>3</sup>/j)
- ◆ **1970**: creation of « SIAAP » (Greater Paris Interdep. Sanitation Authority) (*33 elected local representatives, > 200 municipalities connected. 1 Billion € present annual budget, 2/3 for investments, with advice and subsidies from Water Agency and Ile de France Regional Council*)
- ◆ **1978**: with Acheres 4, this WWTP is able to treat > 2 millions m<sup>3</sup> /day (biggest WWTP in Europe), but a unique (except Colombes) discharge point in the Seine river induces problems : new WWTP for eastern Paris agglo built in **1987** and **1992**.

1865-1988 Eaux collectées, rejets directs, eaux traitées





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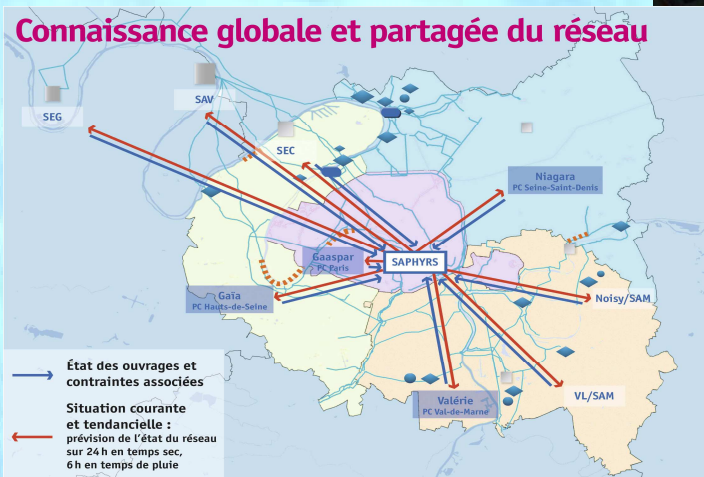
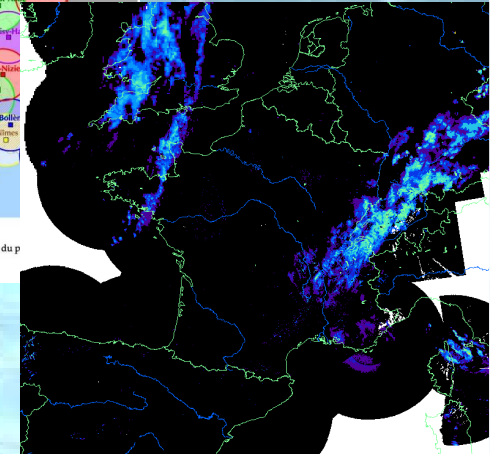
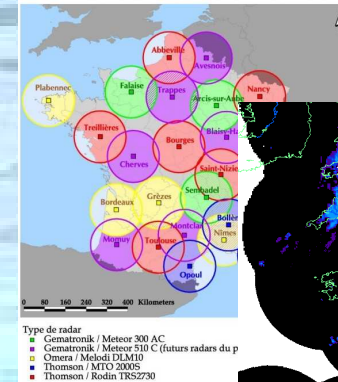
# Enhanced governance for increased efficiency: what tools ?

## Innovative technics and skilled technicians for stormwater overflows management in Paris Agglo: SAPHYRS / MAGES

- ◆ *Forecast of rainfalls (time and intensity): Real time use of « ARAMIS » radar network (Meteo France)*



Les radars du réseau ARAMIS



**6 hours anticipation/simulation of flows into ww network during rain, by SIAAP engineers, for optimized use of storage tunnels and tanks (hierarchized management), and minimal storm overflow to rivers**

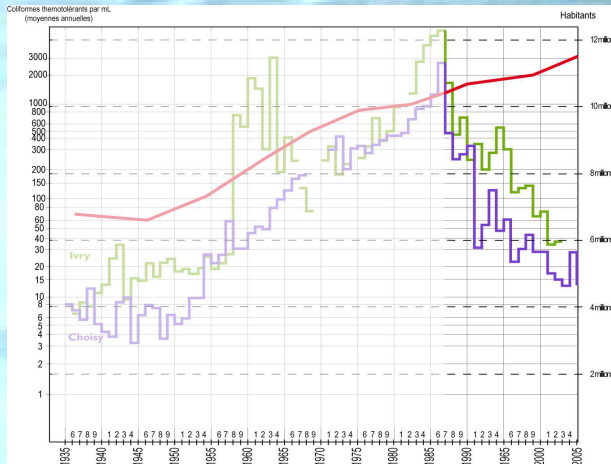




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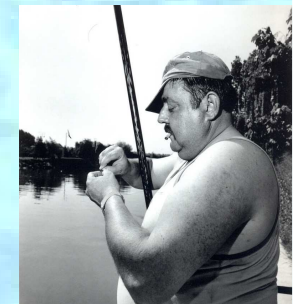
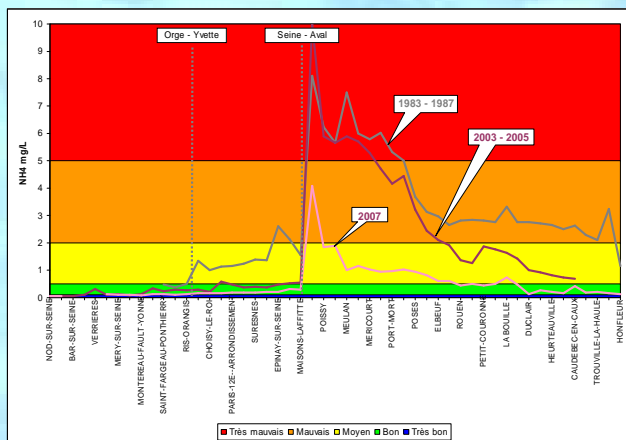
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# Governance: ecological and social efficiency indicators



**Population still increasing, but improved microbiology for Seine river and tributaries. Idem for ammonium, BOD and oxygen....**

**Re-opening of bathing water at Meaux, big success of « Paris-Plage », better quality of raw water for d. w. treatment units, and ~30 fish species in the Seine (3 in years 60s' ) !**

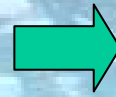
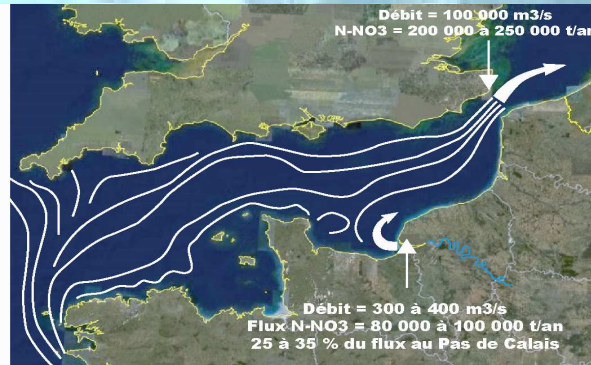




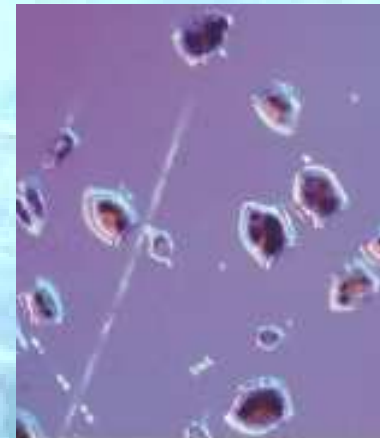
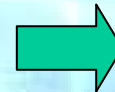
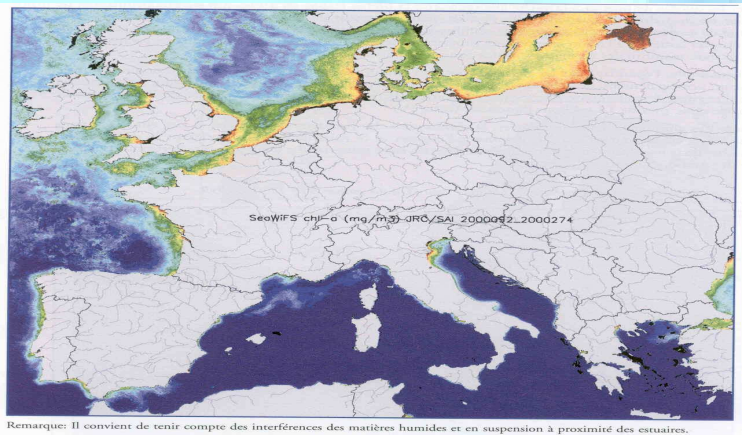
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## Paris sanitation & governance: still some work needed...

◆ At very large scale: european seas protection...



**Nitrates : Seine = 25 % of NO<sub>3</sub> transfers along Channel to eutrophicated North Sea, + toxic plankton (dinofysis) each summer in mussels of the Bay of Seine**





## Paris sanitation & governance: still some work needed...

### *At very large scale :*

- *Denitrification of treated wastewaters will be achieved in 2012.*
- *In 30 years (1987-2007), almost 4 Billion € investments engaged by SIAAP (with 50 % AESN funding) and Greater Paris municipalities, for implementation of the global sanitation scheme, 4 Billion € more needed to achieve it before 2015.*

### *At very local scale :*

- *Sociologic surveys (PIREN Seine, 2008) show that a majority of people, riverine of « urban rivers » (Bièvre, Yvette), appreciate strongly free access to water and semi-natural « blue-green spaces », bringing some « refreshing breath » in the mineral scenery of the city, but are not really aware of the need of « continuity » for river's life and aquatic biodiversity.*
- *2000 tons/year floating solid waste removed each year from the Seine and Marne water surface (24 floating dams used): education/sensibilization of public needed to avoid solid waste introduction into combined sewers (+achieve equipment of 60 000 drain traps with grates)*