

# Small Wastewater Treatment Plants in France : the current situation

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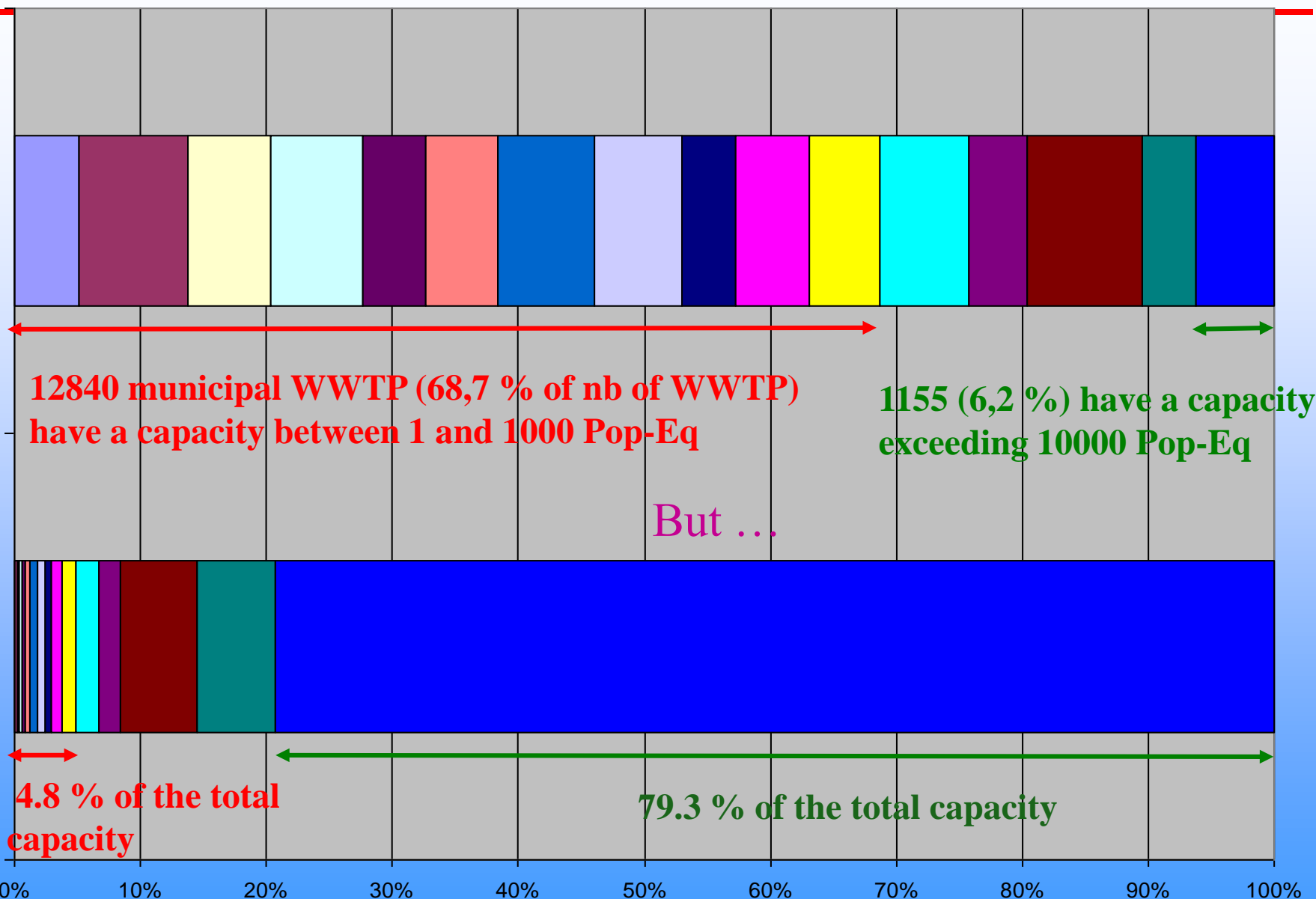
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## ▲ Important introductory remarks

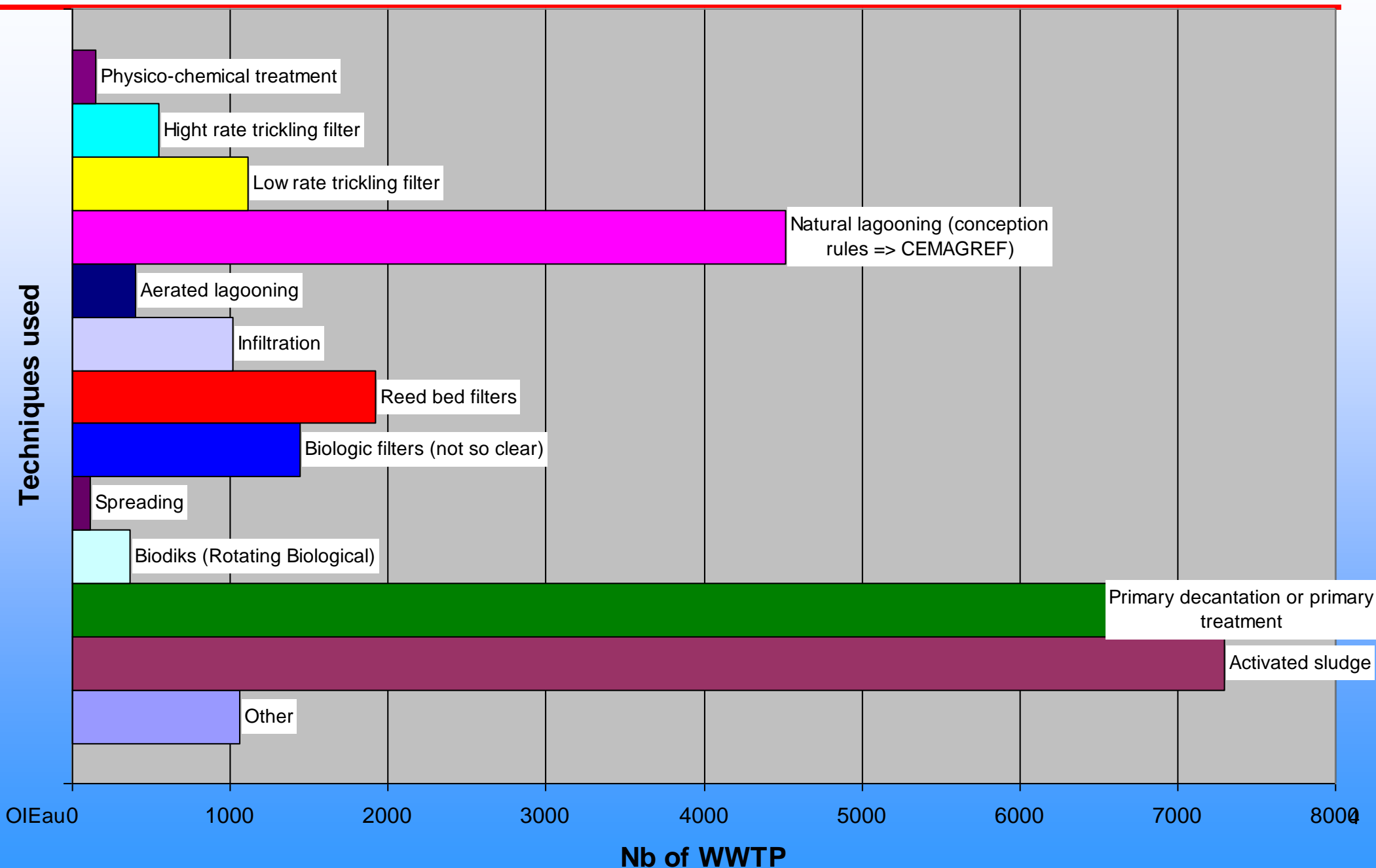
- France is a country that has low density
- About 80% of the population is connected to a waste water collection systems
- In 2011, France had in its database 18 683 wastewater treatment plant (WWTP), which represented an overall capacity of 94,2 million population equivalents (Eh)
- There is a high number of small WWTP
- 5.4 million of housing are connected to private individual sanitation disposal => We will also speak about it.

# Smallwat11 – Small WWTPs in France: the current situation

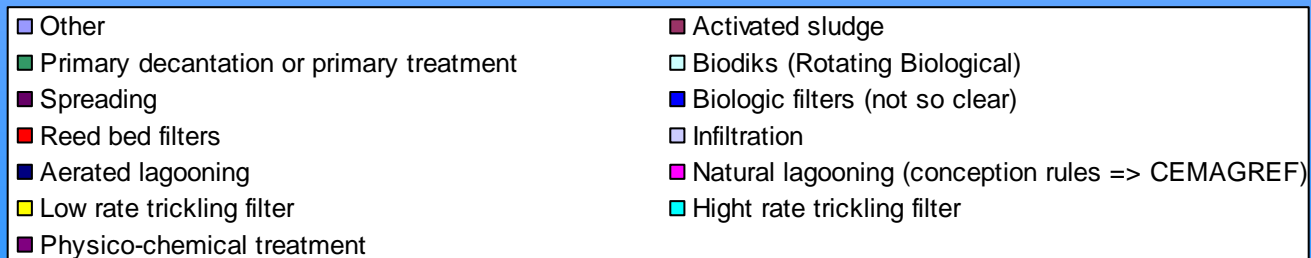
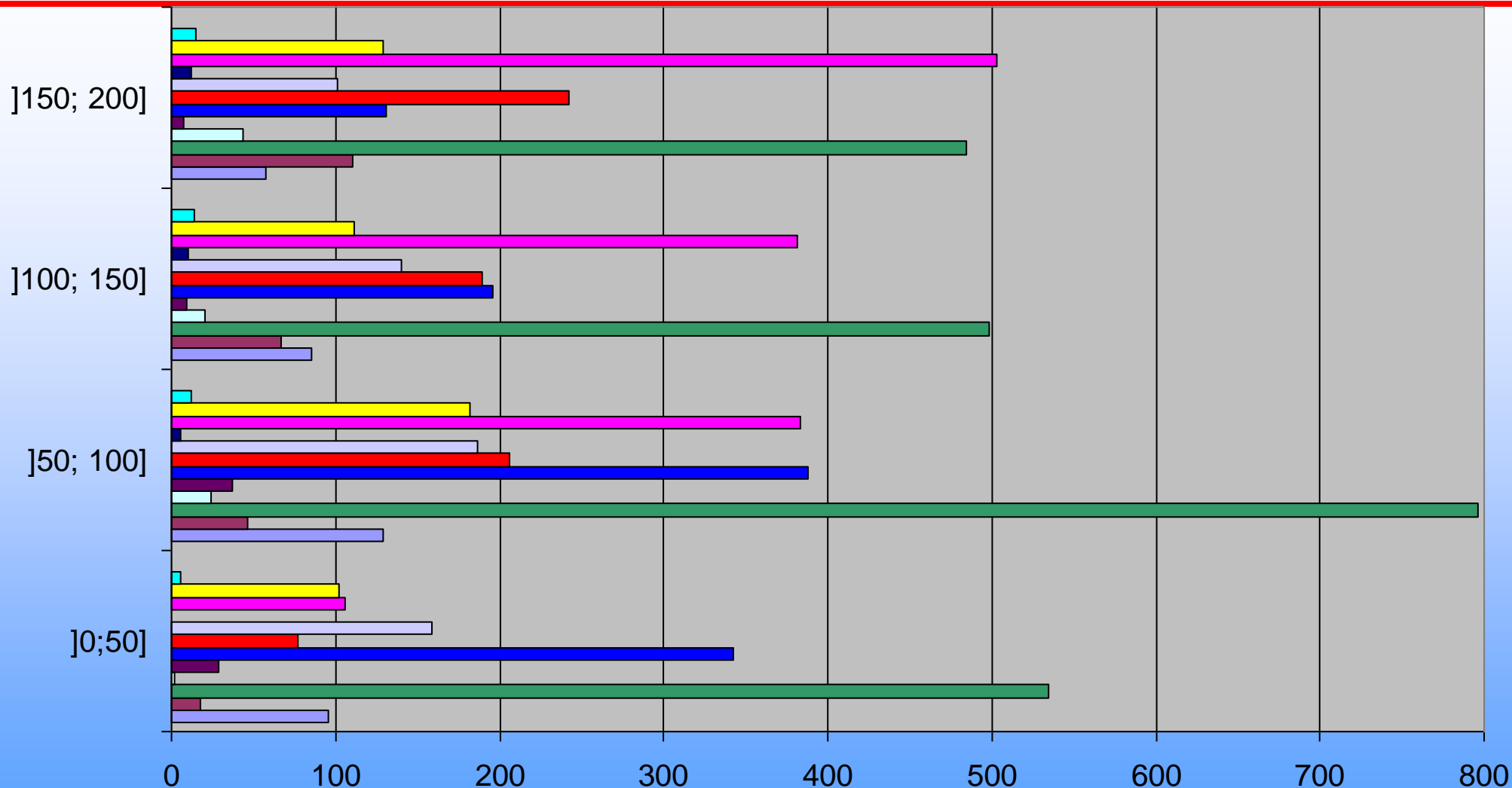
Nb of WWTP



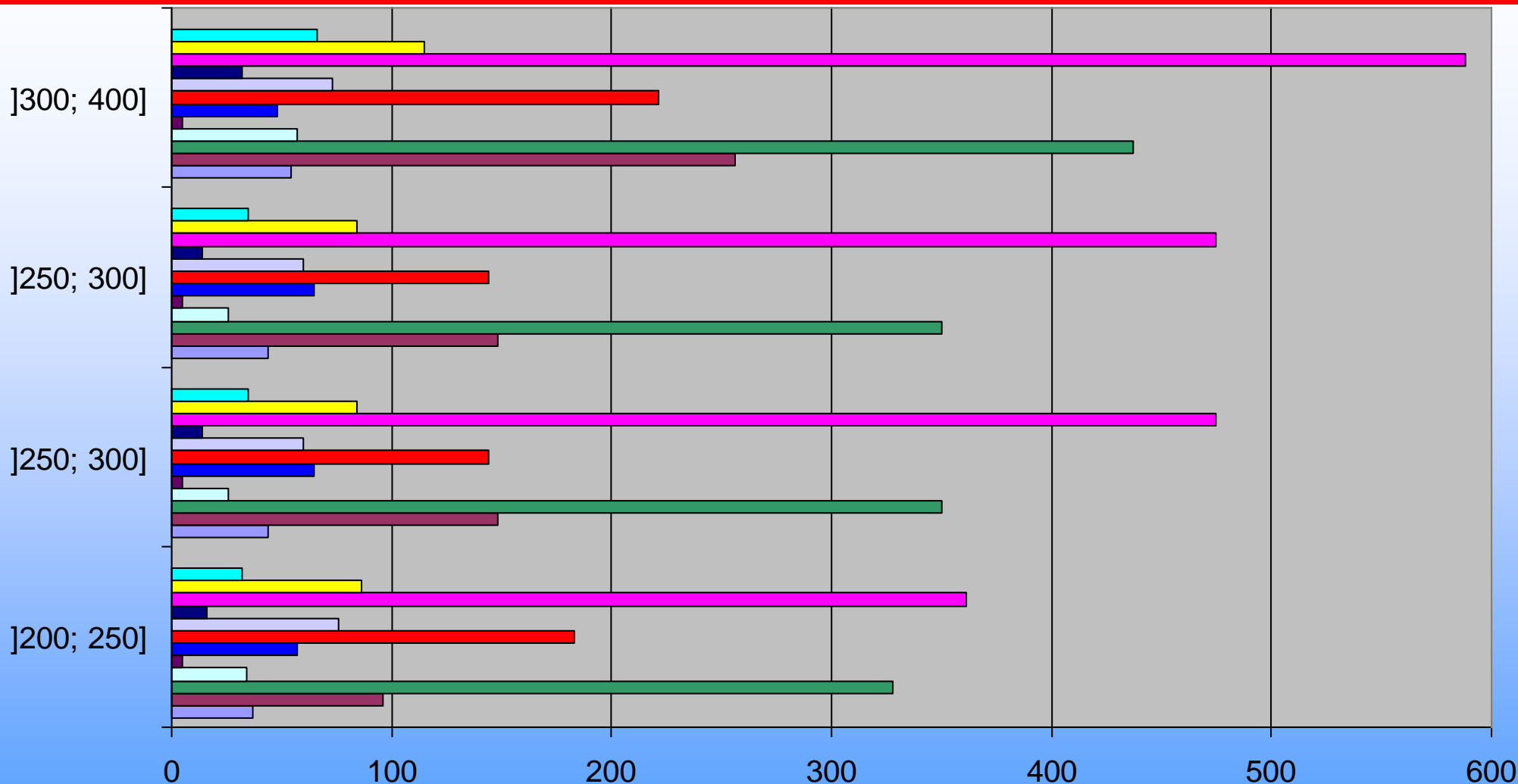
# Smallwat11 – Small WWTPs in France: Techniques used



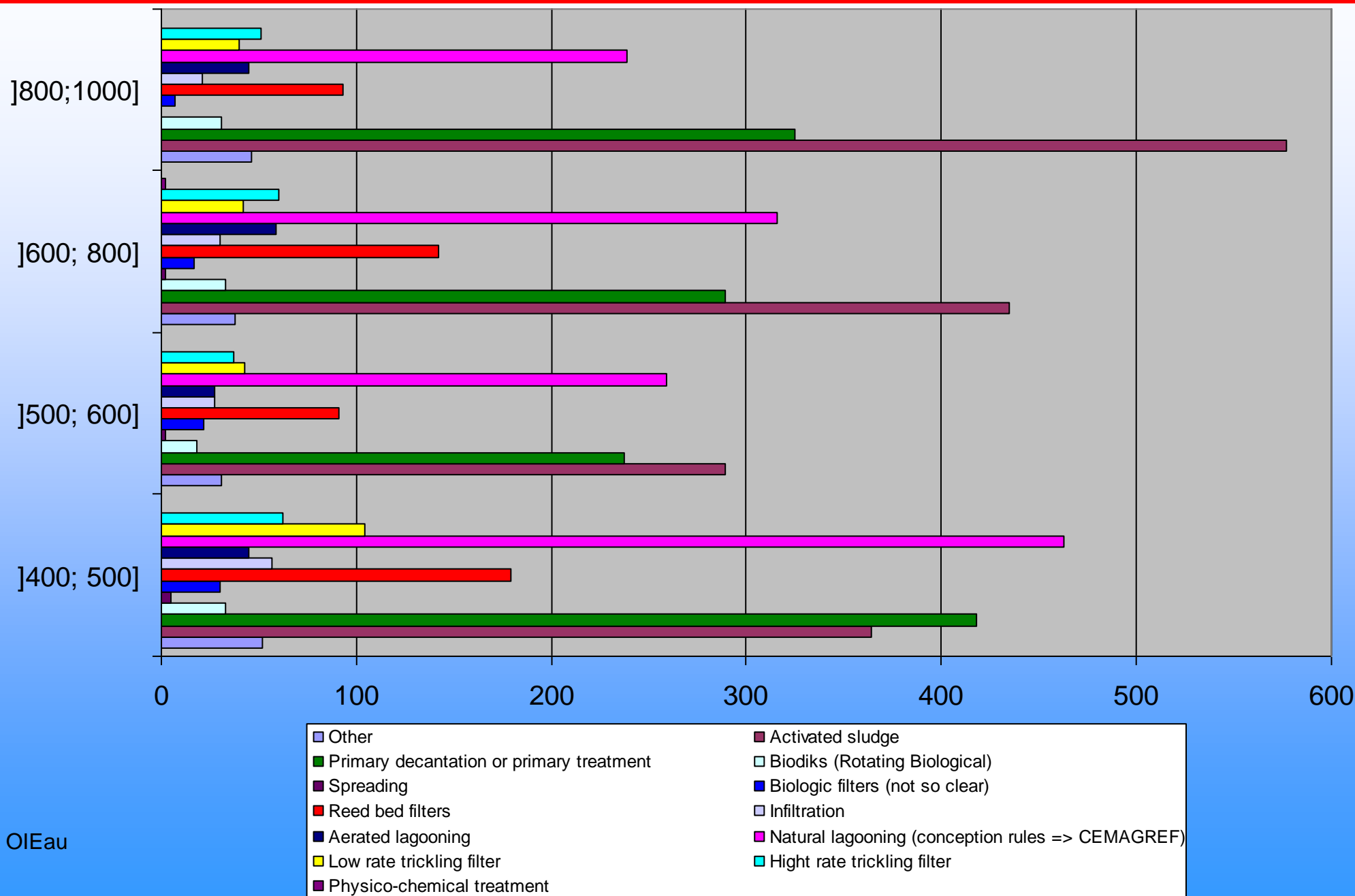
# Smallwat11 – Small WWTPs in France: techniques used => capacity [0, 200]



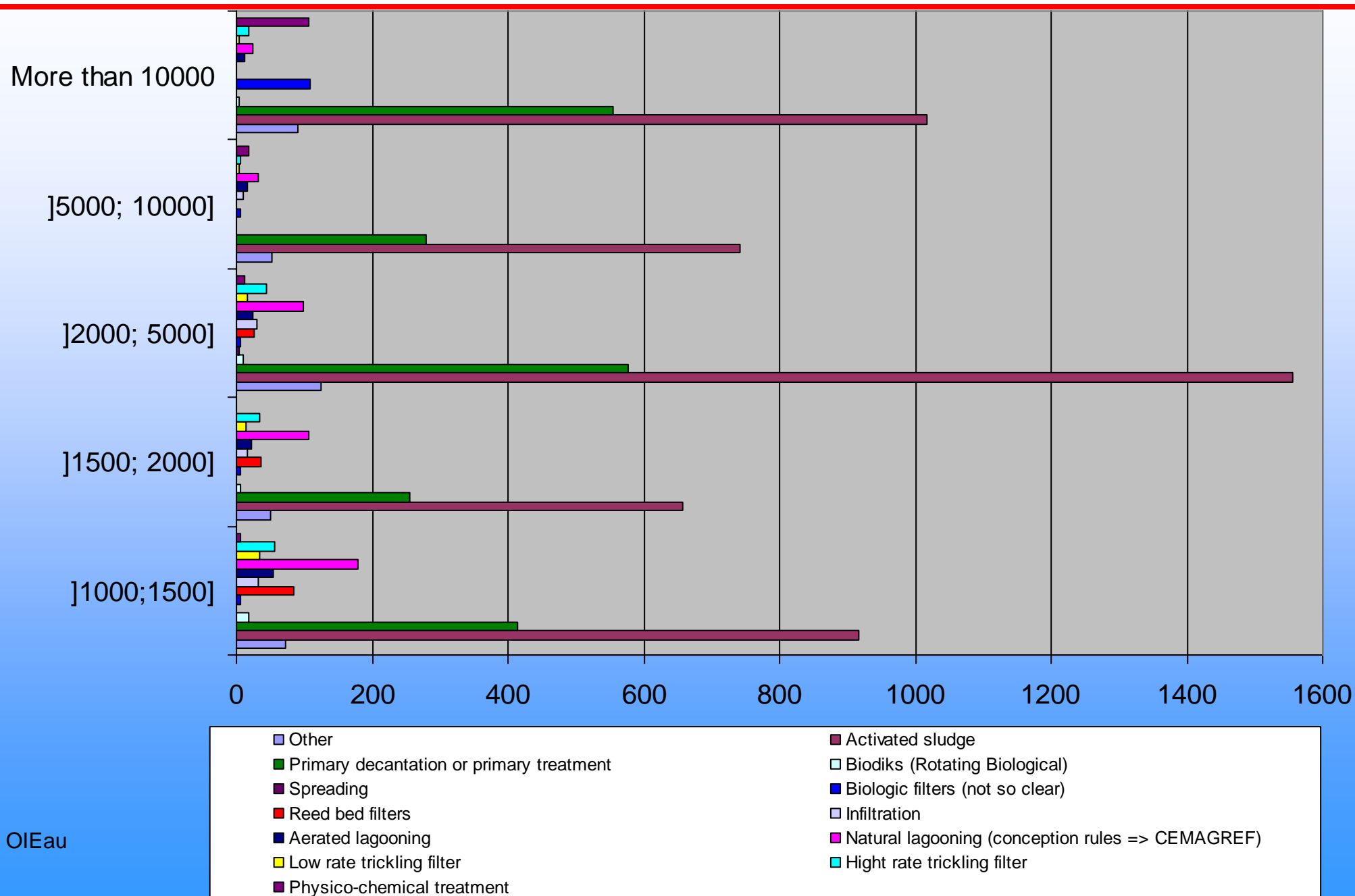
# Smallwat11 – Small WWTPs in France: techniques used => capacity [200, 400]



# Smallwat11 – Small WWTPs in France: techniques used for WWTPs => capacity [400, 1000]



# Smallwat11 – Small WWTP in France: techniques used => capacity = more than 10.000 Pop-Eq



## ✧ Summary on the main characteristics of the French WWTPs

- Most of the big WWTP (more than 1.000 Eq-hab.) are Activated Sludge
- Little WWTP (less than 1.000 Eq-hab.) are Natural lagooning, biologic filter, reed bed filters or low rate trickling filter
- Most of little WWTP present a step of primary treatment
- Some of them are constituted only by a primary treatment
- Biodisks (rotating biological) are not developed in France

## ★ State of the French Small WWTPs (1/3)

- 60% of WWTPs under 2000 p.e. have completed at least secondary treatment.
- Sludge:
  - 47% of the total sludge are applied to land (agricultural valorisation),
  - 26% are composted and 19% are incinerated,
  - only 8% of the sludge are sent to landfill.

## ★ State of the French Small WWTPs (2/3)

- the technique "Reed bed filter" is the one for which the rate of non-compliance (to European directive) is the lowest (New WWTP) => 9 %
- The technique "natural lagooning" also has a very low rate of non-compliance (Very well adapted to small capacity where they are used) => 11 %
- The technique "extended aeration activated sludge", has a rate of 13% of non-compliance which makes it one of the highest performance.

### ★ State of the French Small WWTPs (3/3)

- the other technique that has a relatively low level of non-compliance is the Biodisk (Rotating filter) => 16 %
- For the other techniques, most of them have a high level of non-compliance because they are too old [especially trickling filters (38 %) and activated sludge that are not extended aeration activated sludge (34 %)]

- ✧ A French specificity: the high level of people connected to a private individual Wastewater treatment disposal
  - 5.4 million of housing are connected to private individual sanitation disposal
  - The techniques used until now were “classical” :
    - infiltration trenches, chambers and beds,
    - non drained sand filters,
    - drained sand filters,
    - infiltration mounds,
    - drained horizontal sand filters...

### ★ A French individual Wastewater treatment disposal: New situation / New Market

- the Micro WWTPs are now accepted as complete wastewater treatment step (it was not the case before 2009);
- It seems that the Micro WWTPs is a big new market in France mainly because with this kind of solution people can avoid the problem of colmation that are faced in classical techniques;
- Compact filter (using pozzolan) are also more and more used because of the space saving they allow;

## ★ Conclusion

- The French territory is characterized by a low density;
- For this reason small WWTPs and private individual are used in a large proportion:
  - 12840 municipal WWTP (68,7 % of nb of WWTP) have a capacity between 1 and 1000 Pop-Eq;
  - 5.4 million of housing are connected to private individual sanitation disposal ;
- These options allow France to approach a good level of compliance with WFD;
- **But THE** challenge is to properly control and monitor its facilities and there is a lack of means to do so.

## Thank you for your attention!



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