Strategy for the removal of micropollutants in WWTP in the Cantone Ticino

Strategia di abbattimento dei microinquinanti presso gli IDA nel Cantone Ticino

Convegno su microinquinanti e contaminanti emergenti

11 giugno 2018, Aula Rogers, c/o Politecnico di Milano, via Ampére 2 (Milano)

Repubblica e Cantone Ticino

Dipartimento del Territorio

Mauro Veronesi, Capo dell’Ufficio della protezione delle acque e dell’approvvigionamento idrico
1. UPAAI organization
2. Legal and technical bases
3. Cantonal strategy
4. Costs
UPAAI organization

www.ti.ch/acqua
# Legal bases for water disposal

## Federal laws
- Law against water pollution (LIA, repealed)
- Water protection law (LPAc, 1991)
- Water protection ordinance (OPAc, 1998)

## Cantononal laws
- LIA cantonal application law (LALIA, 1975)
- LGA
Legal bases for micropollutants removal

LPAc, art. 60b: Federal waste water charge

The Confederation shall collect from the persons responsible for central WWTP (> 200 PE) an annual charge of 9 CHF per connected resident to finance the payment for measures to remove organic trace substances.

2016 → 2040: 1.2 *10^9 CHF

LPAc, art. 61a: Removal of organic trace substances in WWTP

The Confederation shall grant the cantons global compensatory payments for the construction and procurement of installations and equipment for removing organic trace substances at WWTP or for substitutive sewers.

Compensation: 75%
Legal bases for micropollutants removal

OPAc, all. 3.1, cfr. 2, n. 8: General requirements for organic trace substances

The removal efficiency with respect to raw waste water and measured using selected substances must amount to 80%.

The DETEC shall specify the substances to be used to measure the removal efficiency in an ordinance, and how efficiency is calculated.
Legal bases for micropollutants removal

DETEC, 2016. Ordinance concerning the measurement of the removal efficiency of organic trace substances at WWTP

- 12 reference substances
- Removal efficiency calculated on the basis of at least 6 substances out of 12
- Chemical analysis performed on 48 h cumulated samples, both at the entrance and at the exit of the WWTP, proportional to discharge
Legal bases for micropollutants removal


1 Fee collection

- Definition of resident number
- Estimate of permanently connected residents (WWTP > 200PE)
Legal bases for micropollutants removal

2 Measures granting

- Subsidiarity requirements
- Subsidized costs
- Procedure for granting

\[ Y = 28.135.922x^{-0.493} \]
Legal bases for micropollutants removal

VSA, 2017. Assessments on the suitability of ozonation processes

• Examination of the WWTP catchment
• Characterization of the water entering the WWTP
• Laboratory investigations
• Biological tests
Cantonal strategy

- Plants with 80’000 or more connected residents;

- Plants with 24’000 or more connected residents in the catchment area of lakes; the canton may authorise exceptions if the benefit of removal for the environment and for the drinking water supply is negligible;

- Plants with 8’000 or more connected residents that discharge into a watercourse containing more than 10 % waste water untreated for organic trace substances.
Cantonal strategy

Criterion 1: > 80’000 residents

Criterion 2: > 24’000 residents, with lakes

Criterion 3: > 8’000 residents, with low dilution

X Cassarate
Cantonal strategy

Canton

Confederation
## Estimated costs in CHF

<table>
<thead>
<tr>
<th>WWTP</th>
<th>Cost</th>
<th>Federal grant</th>
<th>Cantonal grant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lugano</td>
<td>13'200'000</td>
<td>9'900'000</td>
<td>495'000</td>
</tr>
<tr>
<td>Mendrisio</td>
<td>6'200'000</td>
<td>4'650'000</td>
<td>232'500</td>
</tr>
<tr>
<td>Chiasso</td>
<td>5'900'000</td>
<td>4'425'000</td>
<td>221'250</td>
</tr>
<tr>
<td>Pian Scairolo</td>
<td>4'000'000</td>
<td>3'000'000</td>
<td>150'000</td>
</tr>
<tr>
<td><strong>Total cost</strong></td>
<td><strong>29'300'000</strong></td>
<td><strong>21'975'000</strong></td>
<td><strong>1'098'750</strong></td>
</tr>
</tbody>
</table>