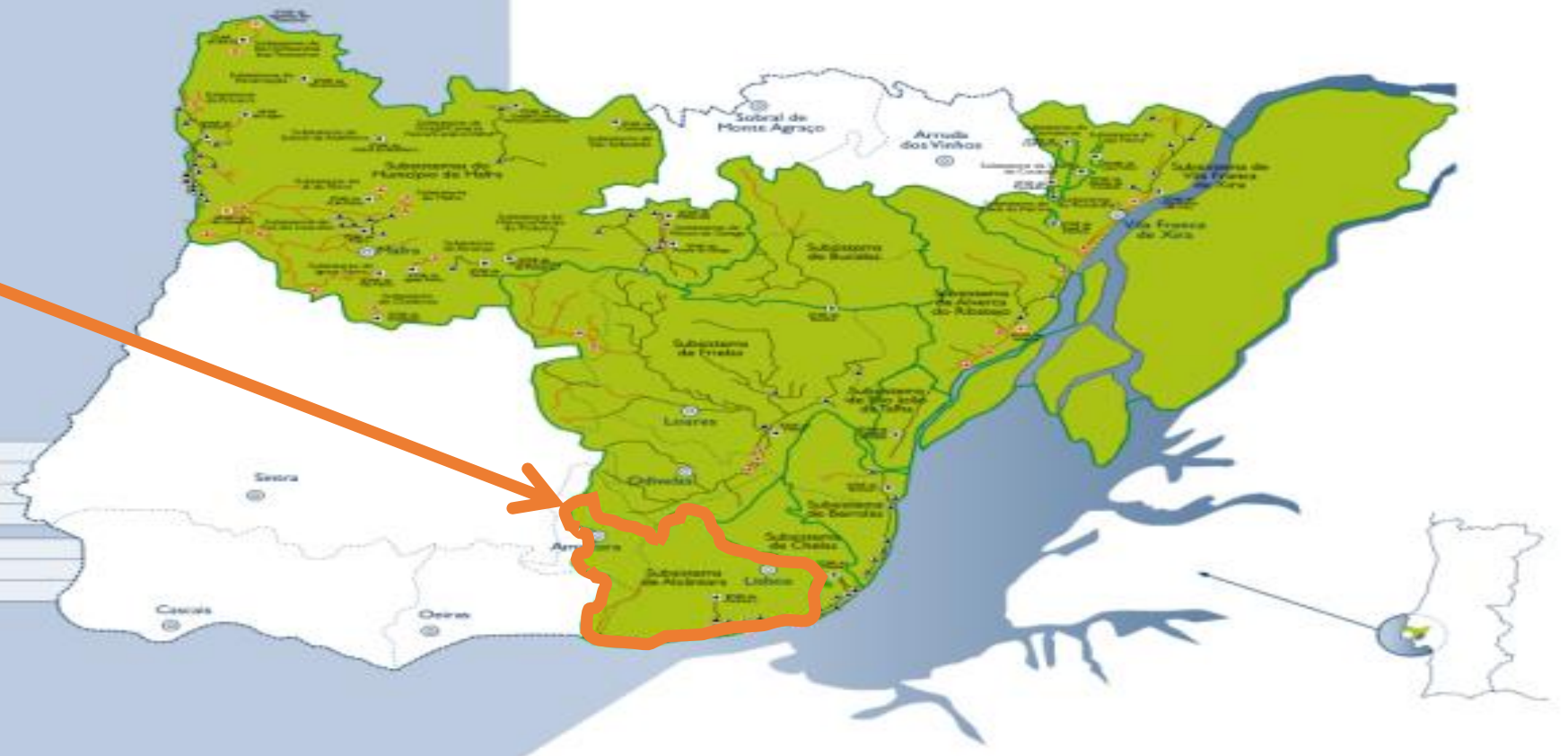


LISBON WASTE WATER SYSTEM



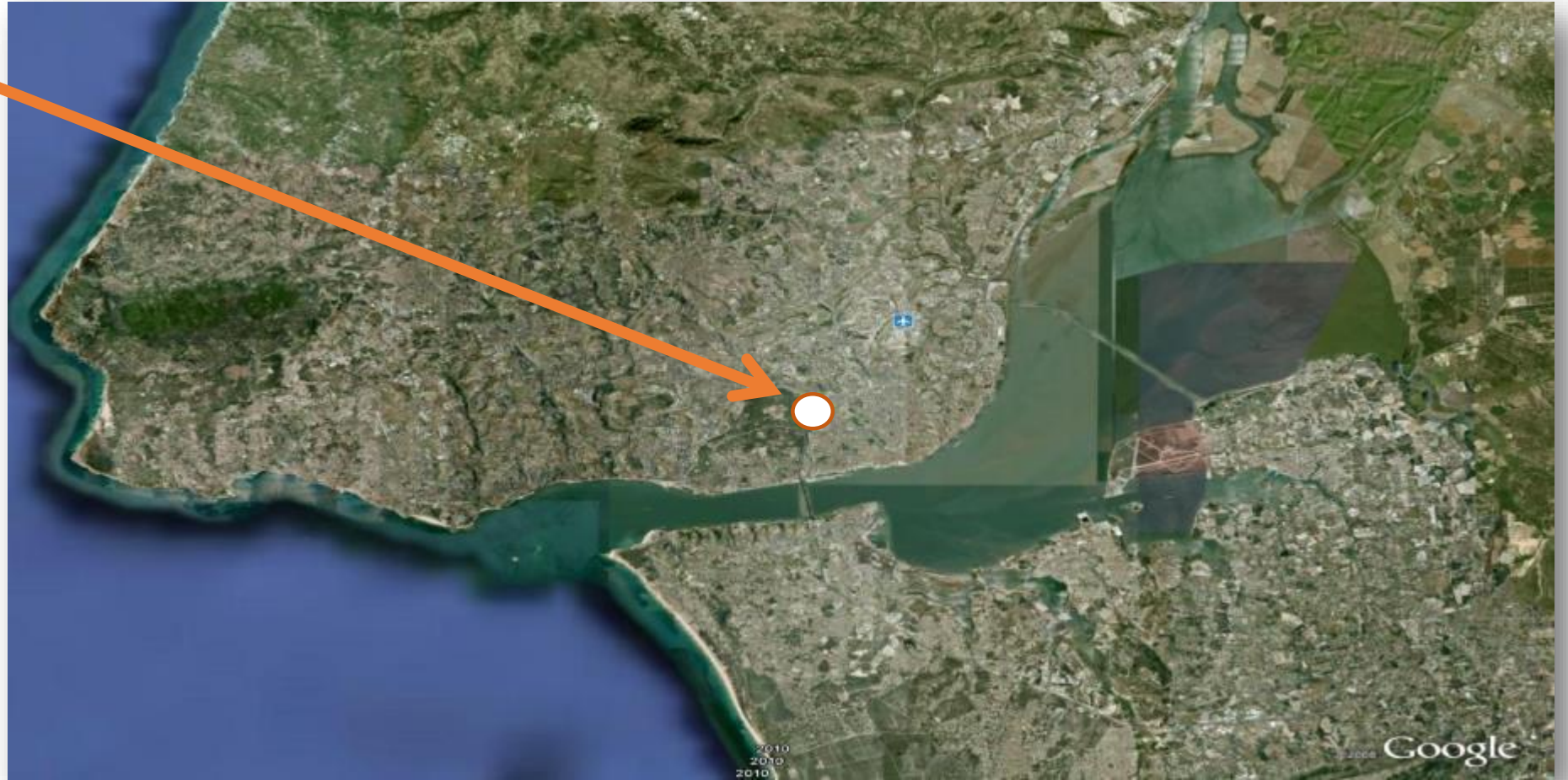
A map of the Iberian Peninsula (Spain and Portugal) is shown. A large orange arrow points from the top left towards the Atlantic Ocean, indicating the direction of the trade winds mentioned in the text.



ALCÂNTARA WASTE WATER TREATMENT PLANT

LOCATION

**Alcântara
WWTP**



ALCÂNTARA WASTEWATER TREATMENT PLANT

- **Population served**
750,000 inhabitants-equivalent
- **Flow**
Max: 3.3 + 3.3 m³ /s
- **Infrastructures**
 - 1** Wastewater treatment plant
 - 13** Pumping stations
 - 26 km** of main sewers







ALCÂNTARA : SYSTEM CONFIGURATION



ALCÂNTARA : LOW AREA SYSTEM CONFIGURATION





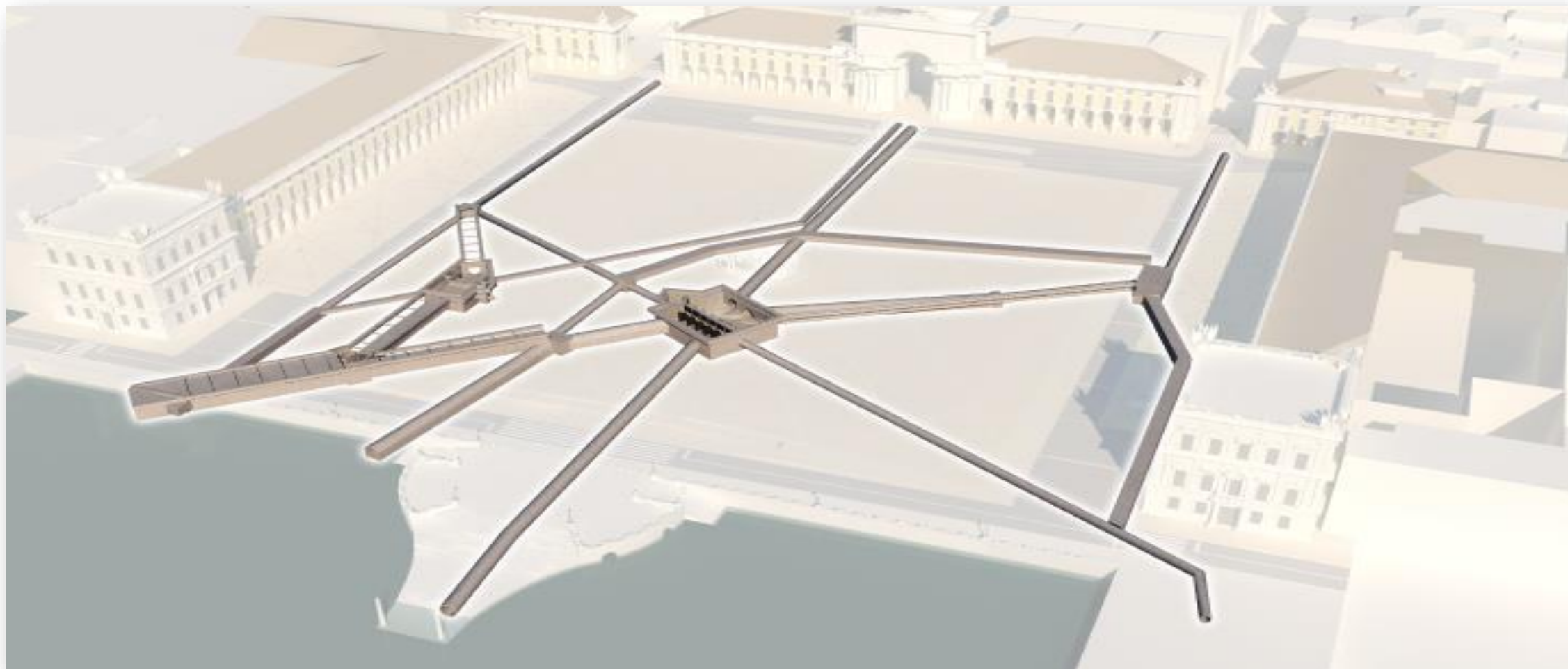
SYSTEM CONFIGURATION – CAIS DO SODRÉ / ALCANTARA



TERREIRO DO PAÇO – TIDE & FLOW CONTROL



TERREIRO DO PAÇO – TIDE & FLOW CONTROL



TERREIRO DO PAÇO – TIDE & FLOW CONTROL

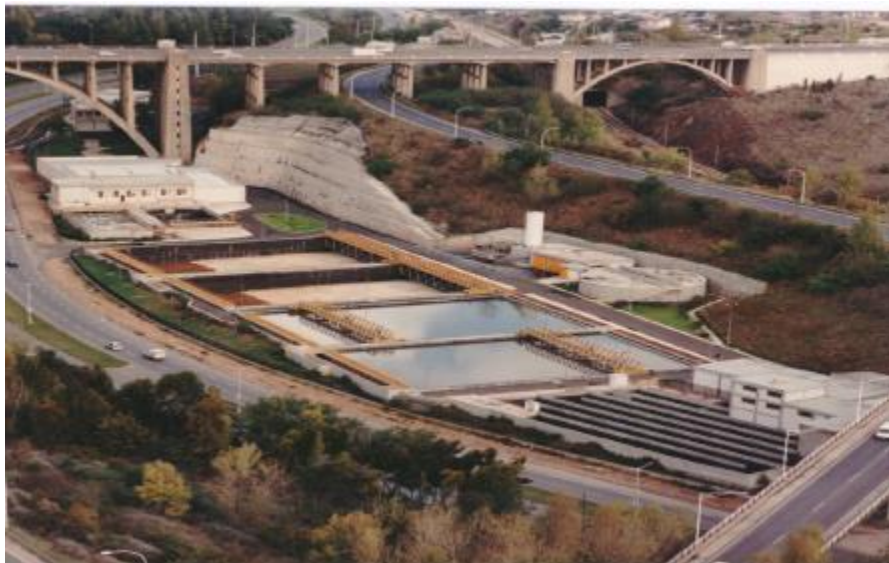


ALCÂNTARA SUBSYSTEM INVESTMENT

- **Global Subsystem investment: 181 M€**
- **WWTP: 64.4 M€**
- **EU Funding (Cohesion Fund): 11.0 M€**



Before:



After:

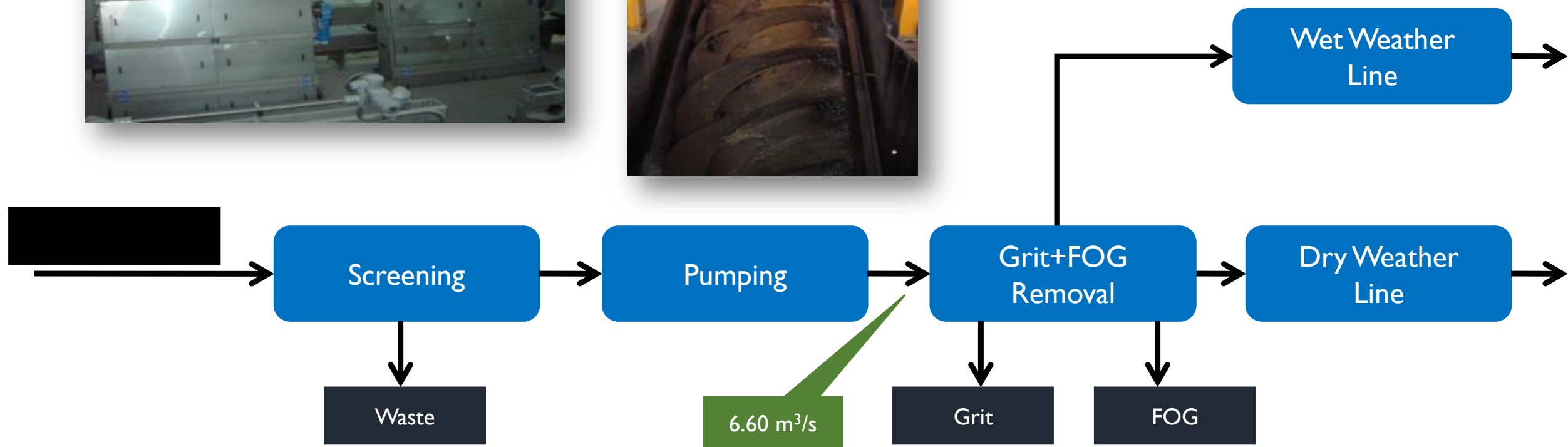


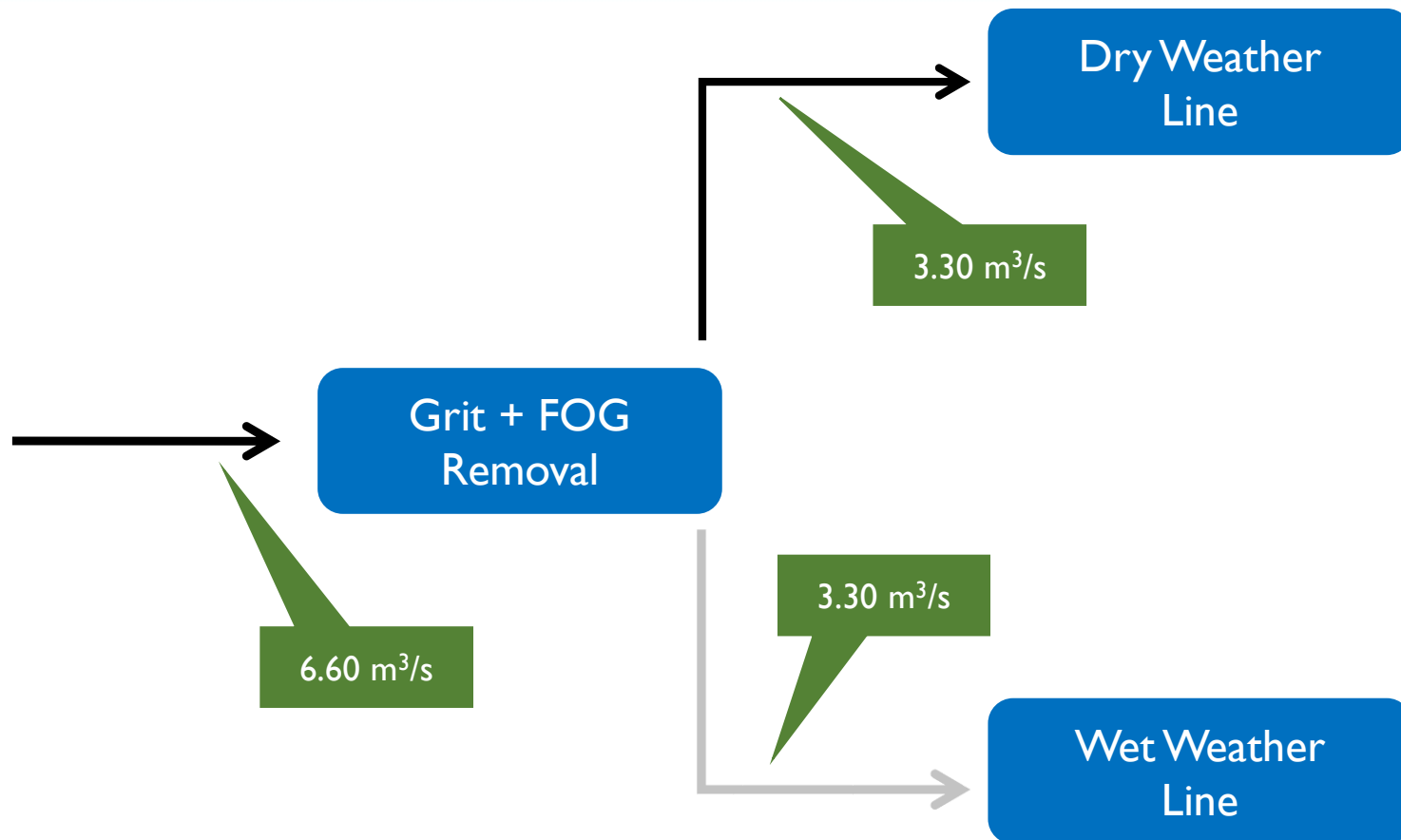
- **Primary Treatment since 1989**
- **Advanced Primary Treatment since 2003**
- **Secondary Treatment since 2009**
- **Population Served: 750,000 eq.hab**
- **Treated flow: 570,240 m³/day**
- **Load:**
 - BOD₅: 99,792 kg O₂/day
 - COD: 285,120 kg O₂/day
 - SS: 114,048 kg/day

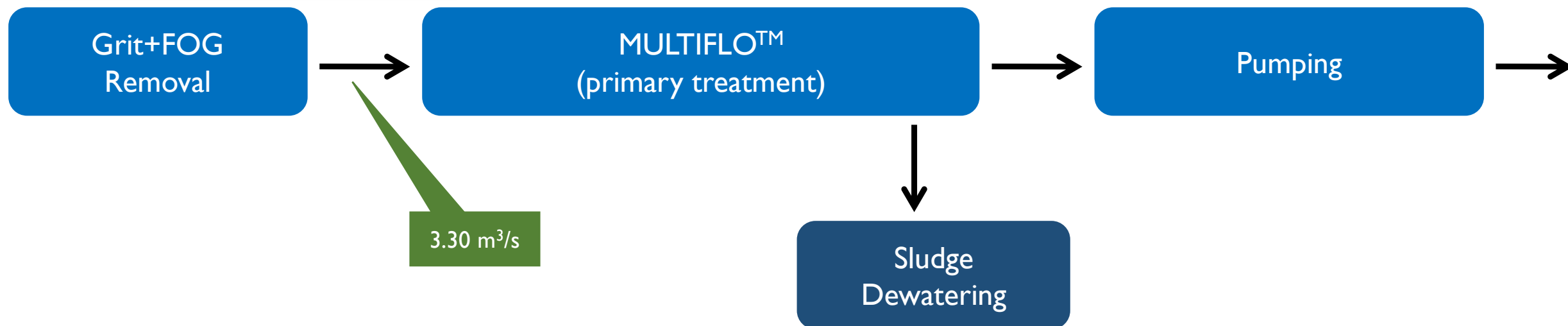
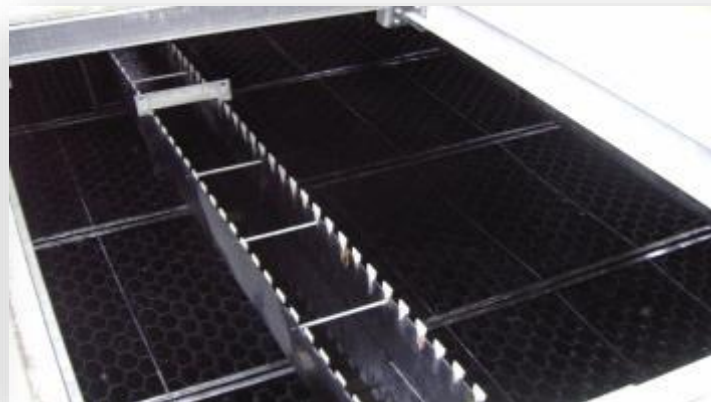


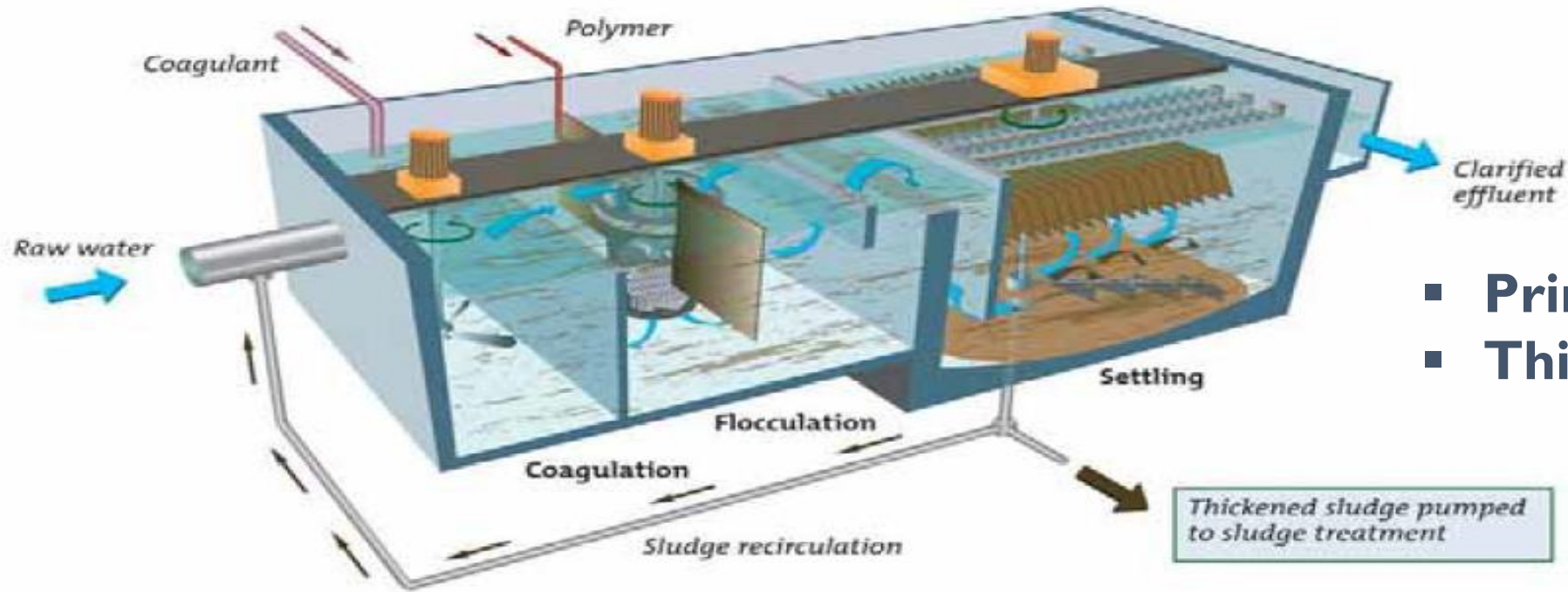
- **Peak flow (dry weather): 3.3 m³/s**
- **Peak flow (wet weather): 6.6 m³/s (13.2 m³/s)**
- **Plant Objectives:**
 - BOD: 25 mg O₂/L
 - COD: 125 mg O₂/L
 - SS: 35 mg/L
 - E.Coli: 2,000 Un/100 mL (option)





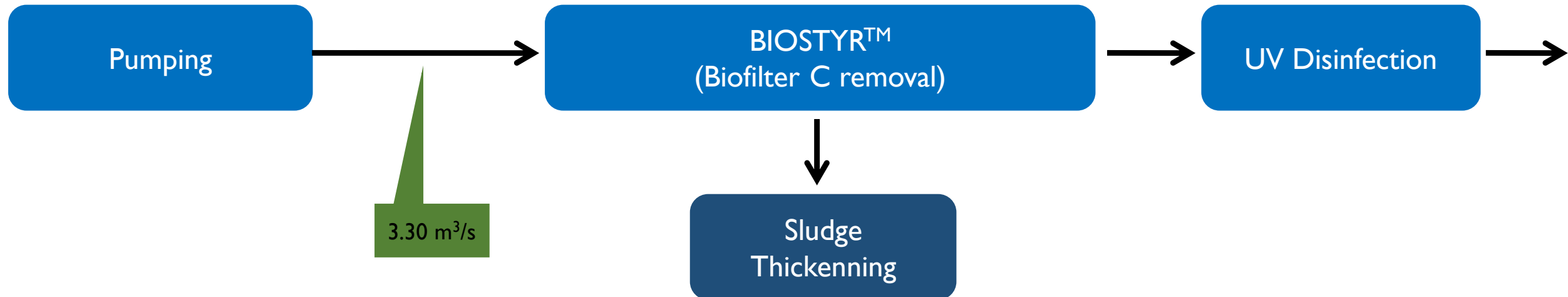


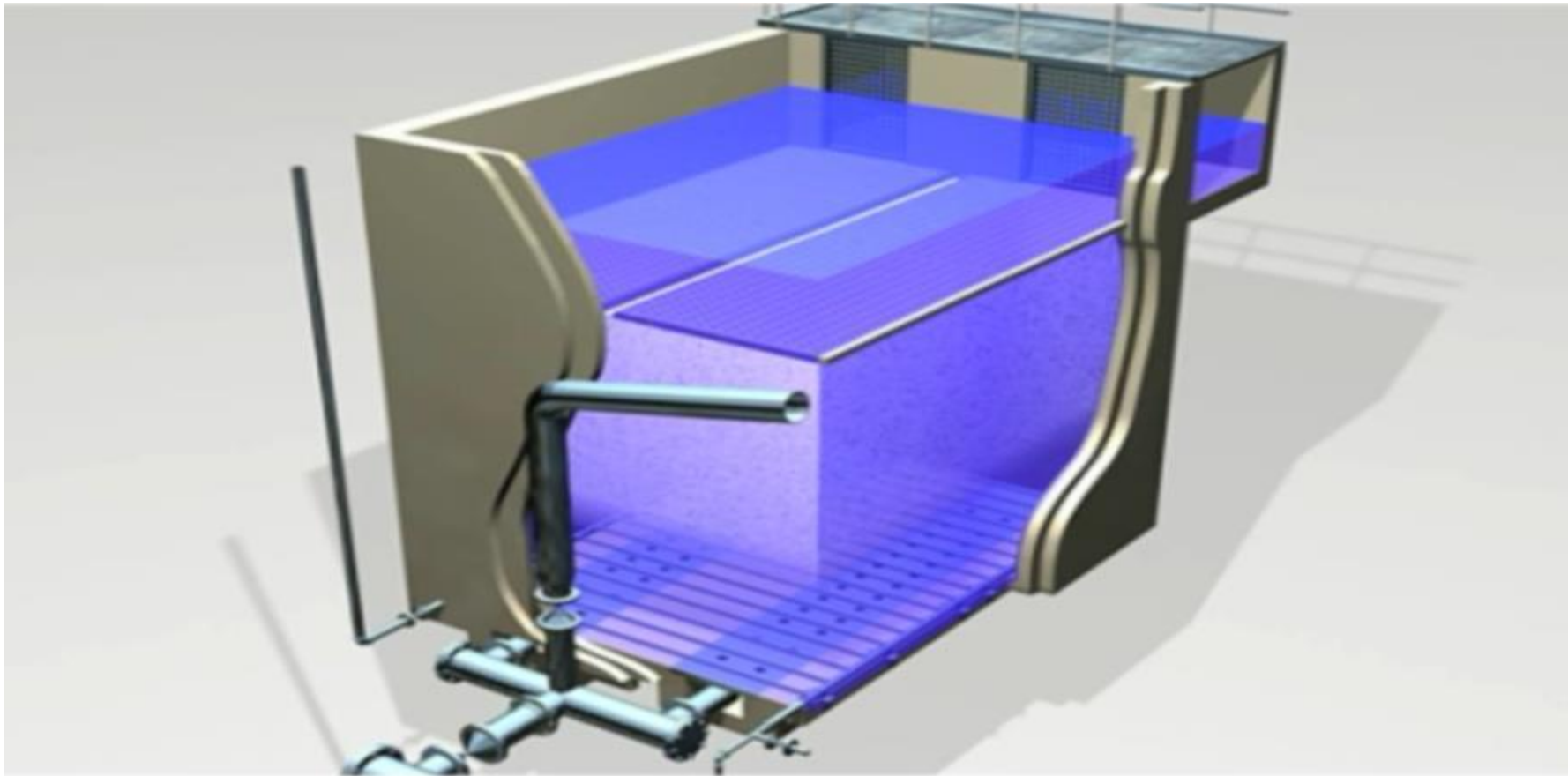




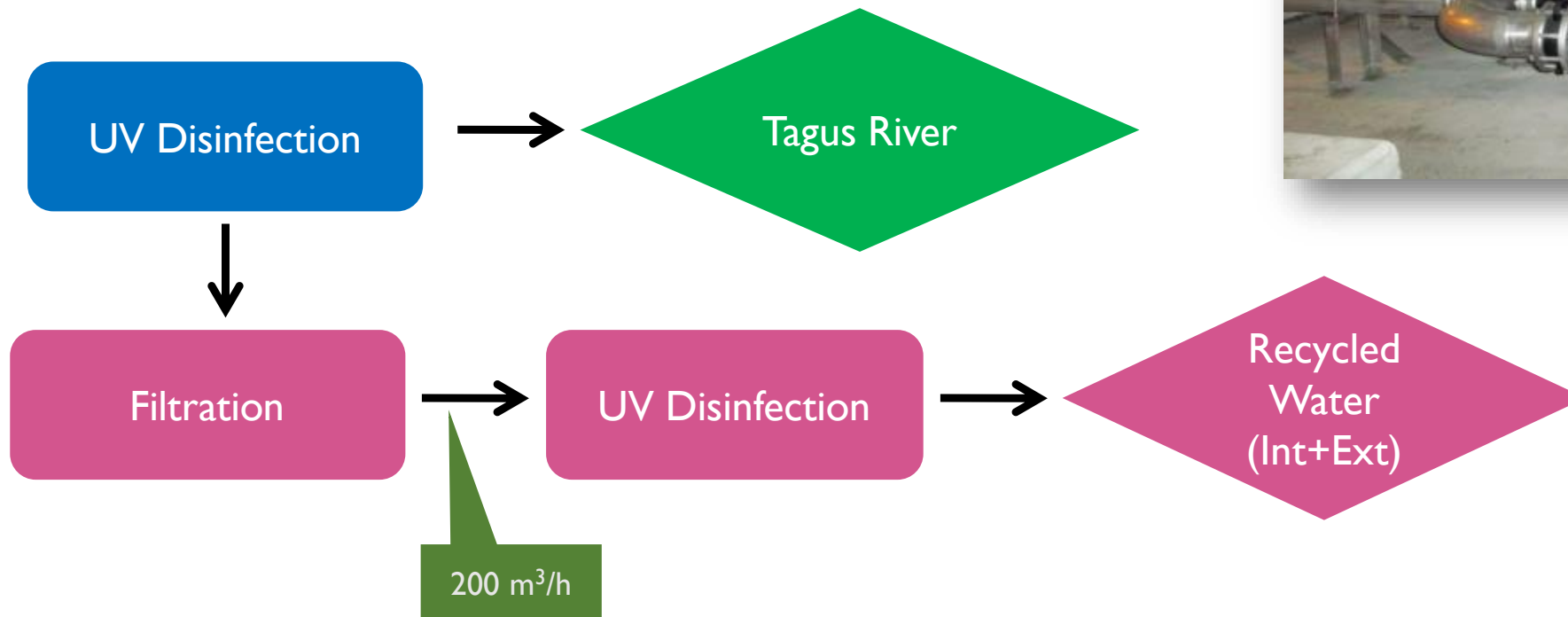
- Primary decantation
- Thickening

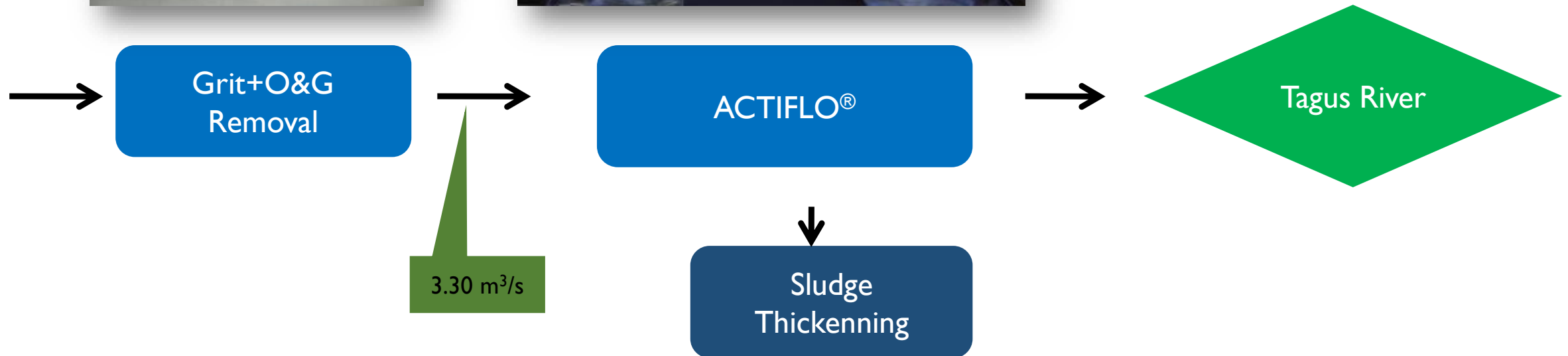
- 12.8 m³/m².h
- No chemicals (Dry Weather)
- Sludge recirculation
- Option (iron chloride + flocculant)

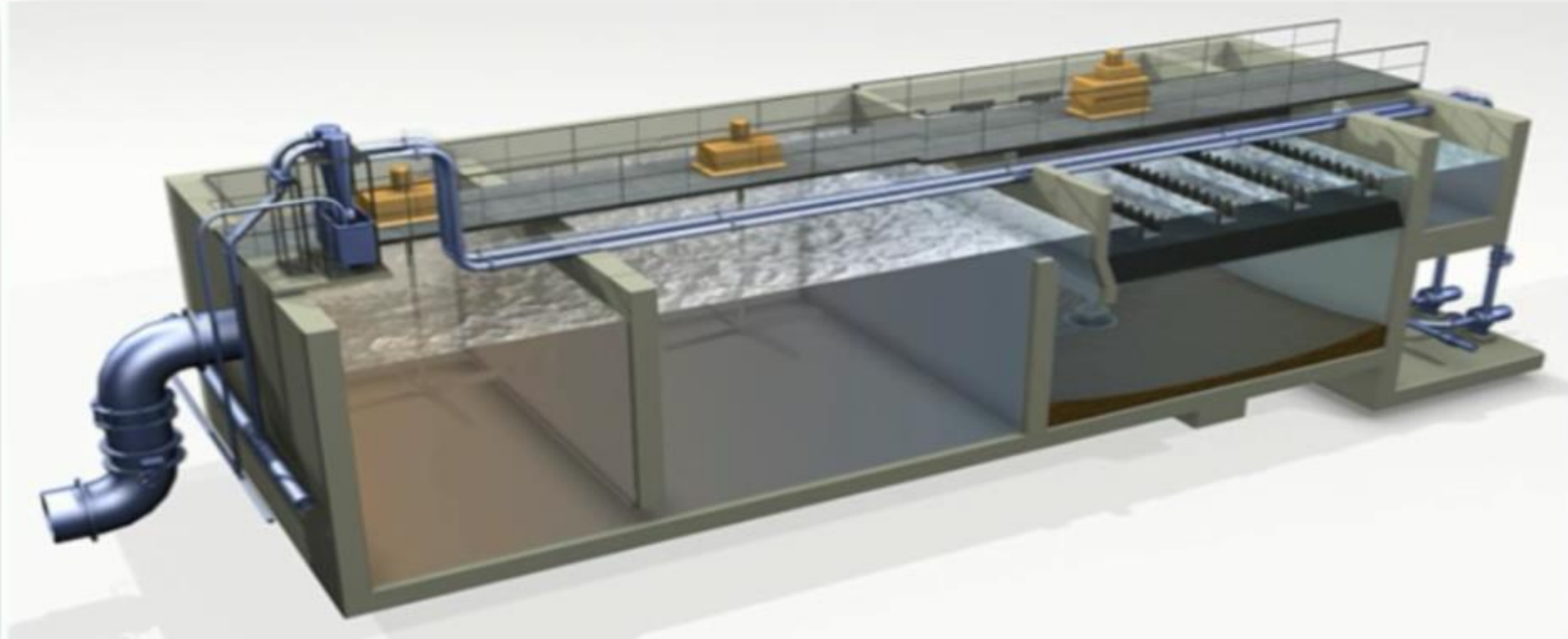




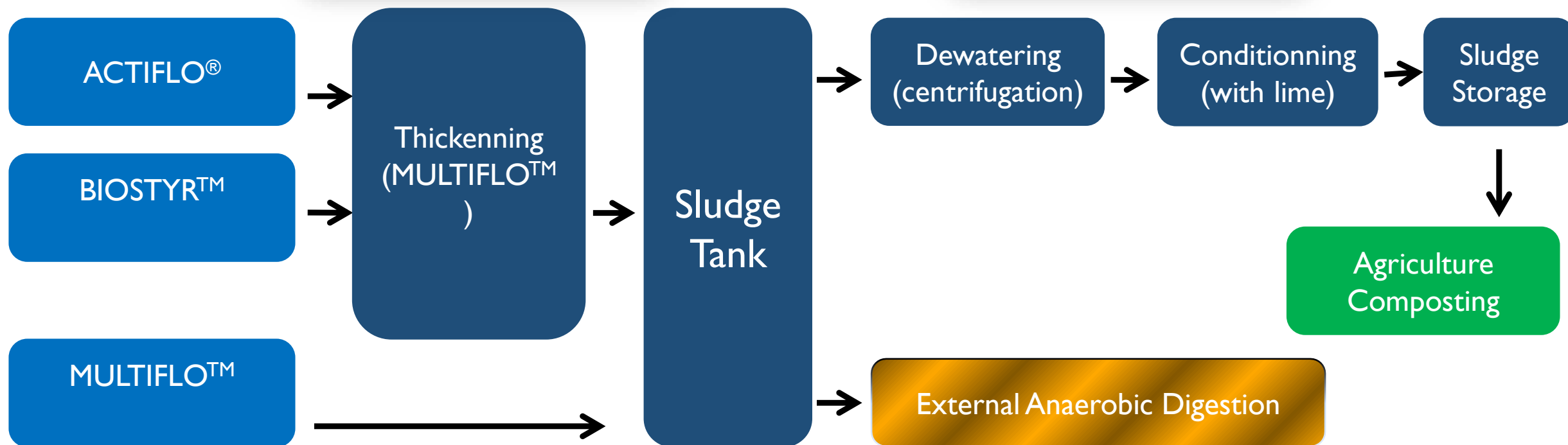
- 15 units
- 215 m²/unit
- Media depth: 3,8 m
- Media size: 3,5 mm

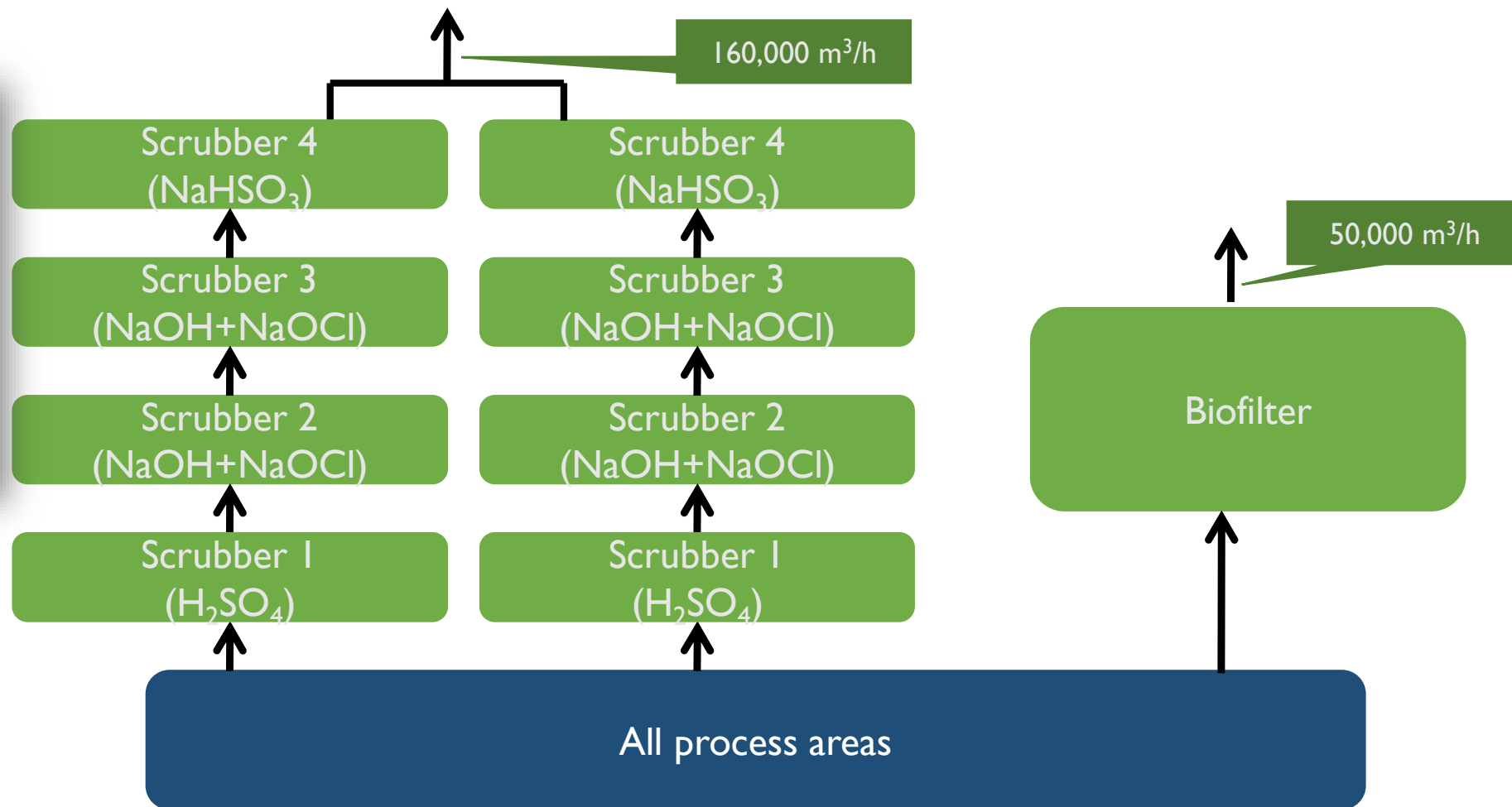


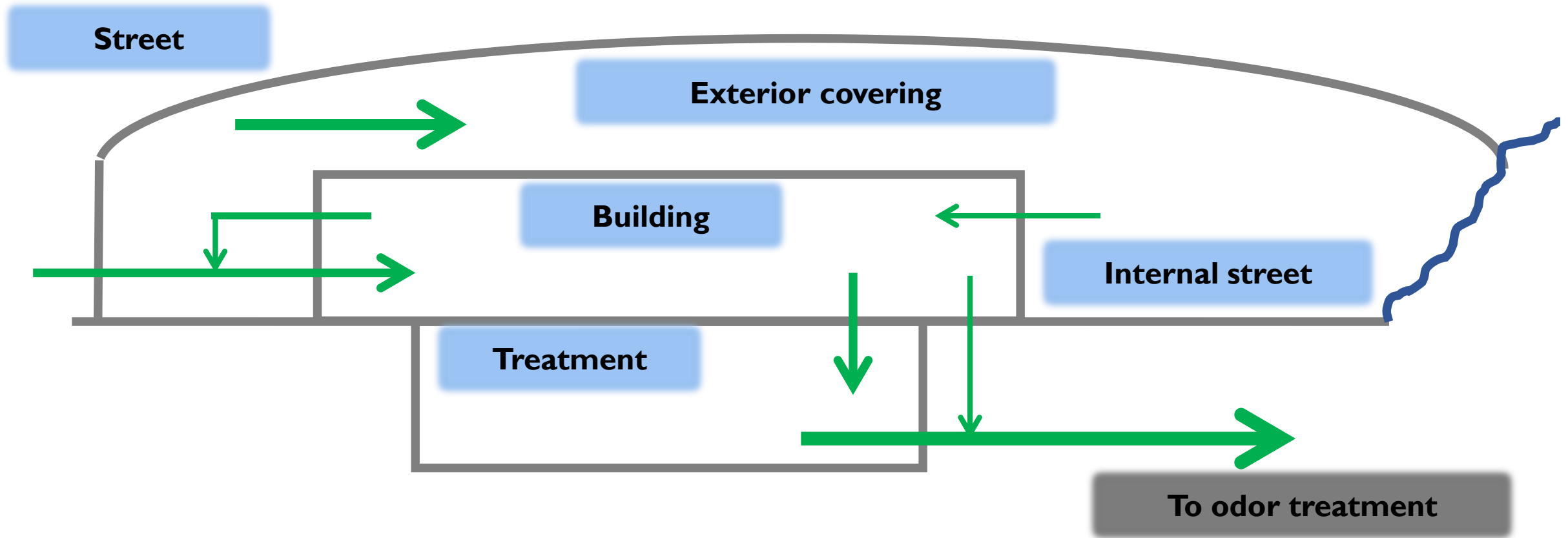




- Iron chloride + micro-sand + flocculant
- 120 m³/m².h
- 80% SS removal; 60% BOD/COD removal







ALCÂNTARA WWTP - GREEN ROOF



- **Thermal insulation of buildings
(less electrical consumption)**
- **CO2 fixation**
- **Noise reduction (internal and
external)**
- **Rain retention**
- **Landscape integration**

ALCÂNTARA WWTP - GREEN ROOF

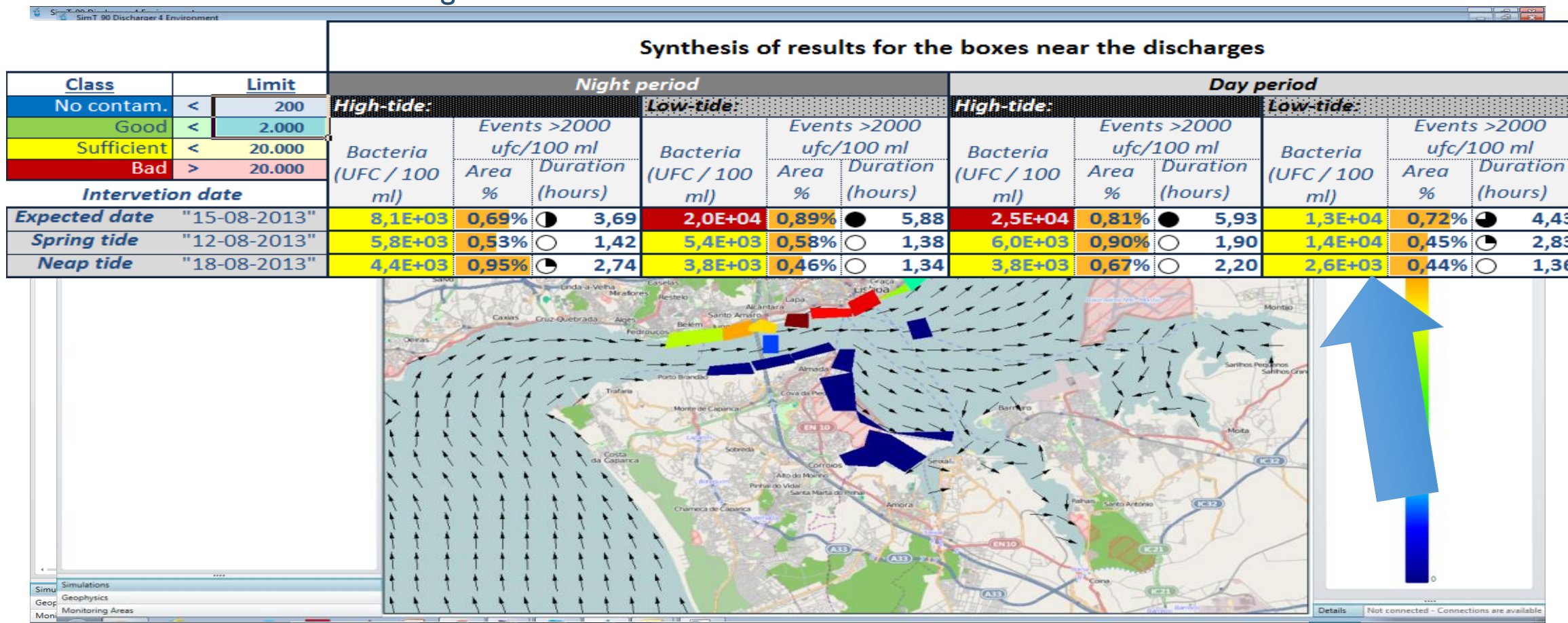




SIMT_90 SMART OPERATION

Real case example:

- Emergency stoppage intervention in the Agências Pumping Station.
- What is the most suitable timing for the intervention?



LISBON FACING TAGUS ESTUARY

THANK YOU

