



# FRENCH MYANMAR CHAMBER OF COMMERCE & INDUSTRY

## Connect@Breakfast – World Environment Day 2018

SUEZ Consulting

### Wastewater management in Myanmar: Example of Mandalay





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### Wastewater management in Myanmar: Example of Mandalay

01 | WED, Plastic, Wastes, SUEZ & Myanmar

02 | Case study of wastewater in Mandalay, Problem

03 | Case study of wastewater in Mandalay, Solution

04 | Conclusions & perspectives in Myanmar





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*“Waste is material without an identity”, Thomas RAU, architect, AGG conference, 2016*



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Credit: Naing Wynn Htoon / The Myanmar Times



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5th June, 8AM – 10AM, MELIA hotel, Yangon



# Wastewater management in Myanmar: Example of Mandalay

01 | WED, Plastic, Wastes, SUEZ & Myanmar

## UN World Environment Day & Plastic





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01 | WED, Plastic, Wastes, SUEZ & Myanmar

*Our philosophy...*

 <p>1 <b>CONSERVING WATER</b> FOR THE LONG TERM</p>	 <p>2 <b>TRANSFORMING WASTE</b> INTO RESOURCES</p>	 <p>3 <b>COMBINING ECONOMIC AND ENVIRONMENTAL CONCERNS</b></p>
 <p>4 <b>MAKING CUSTOMERS OUR PARTNERS</b></p>	 <p>5 <b>PREPARING THE BUSINESSES OF TOMORROW</b></p>	 <p>6 <b>SHARING ALL OUR KNOWLEDGE</b></p>
 <p>7 <b>PREPARING THE FUTURE WITH YOU</b></p>	 <p>8 <b>ENSURING GREATER SAFETY FOR EVERYONE</b></p>	 <p>9 <b>CONTRIBUTING TO EMPLOYMENT AND LOCAL DEVELOPMENT</b></p>

“ SUEZ, a human adventure for more than 150 years that continues to be written everyday. ”



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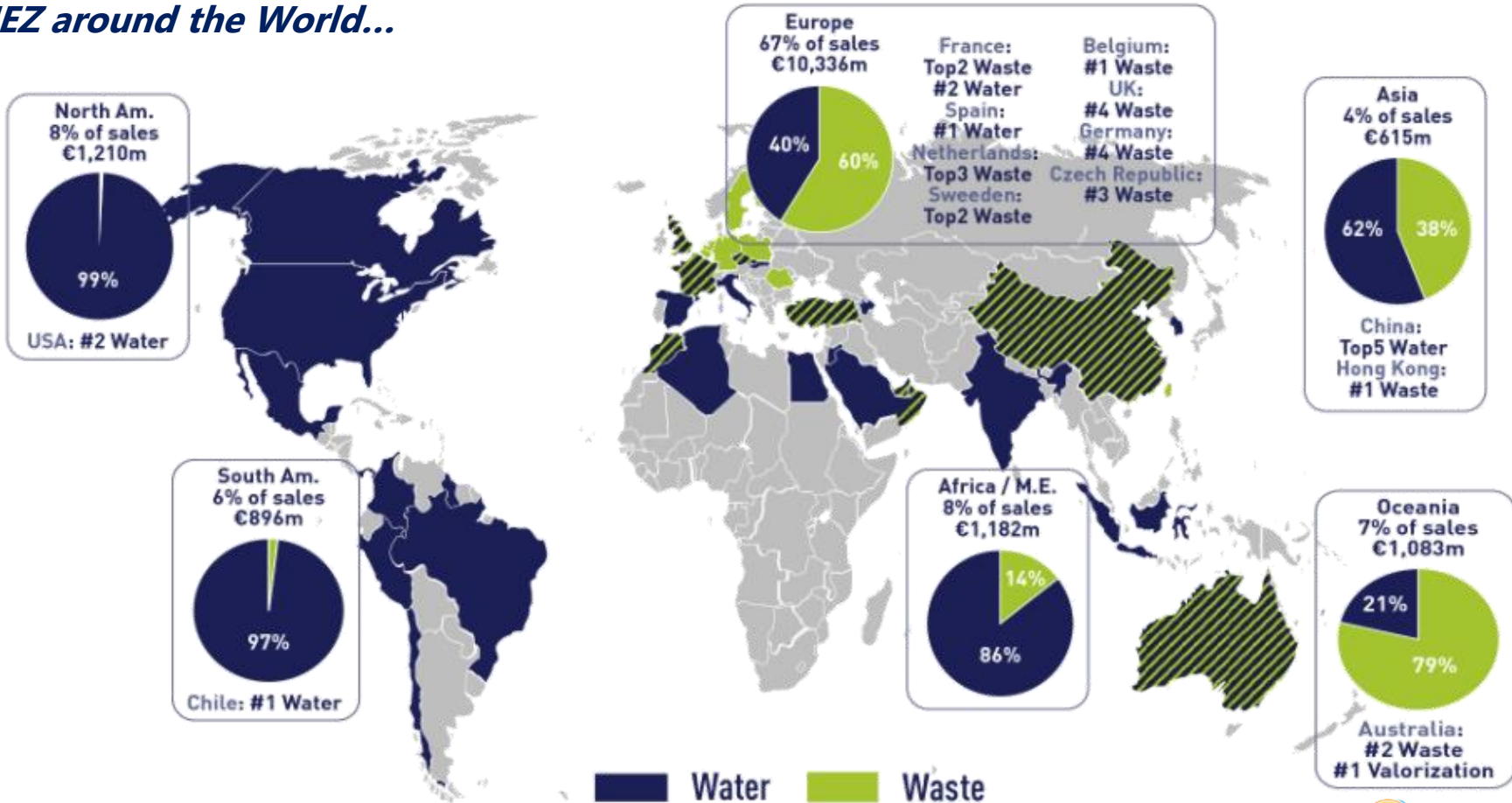
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#### SUEZ around the World...







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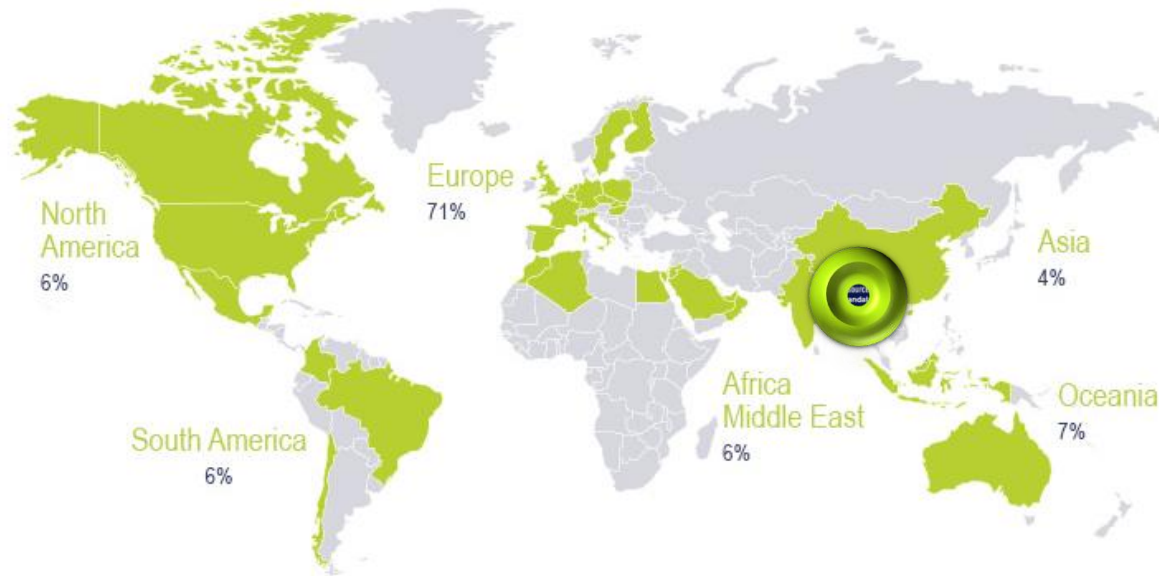
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*SUEZ around the World...*



Breakdown of turnover





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*SUEZ in Myanmar...*



- ☑ Amarapura Water Supply and Sanitation Project (AFD financed project)
- ☑ Mandalay Urban Services Improvement Project (MUSIP) covering water supply, wastewater, drainage, solid waste, transportation, institutional strengthening and capacity building (AFD and ADB financed project)
- ☑ Consultancy Services for Improvement of Water Supply System and Water Management in Mandalay (AFD financed project)
- ☑ Preparation of urban services improvement project covering solid waste management and water supply in provincial towns (Hpa-An and Mawlamyine) of Kayin and Mon states along GMS Corridor (ADB financed project).





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02 | Case study of wastewater in Mandalay, **Problem**

#### *Waste Water & Identity*

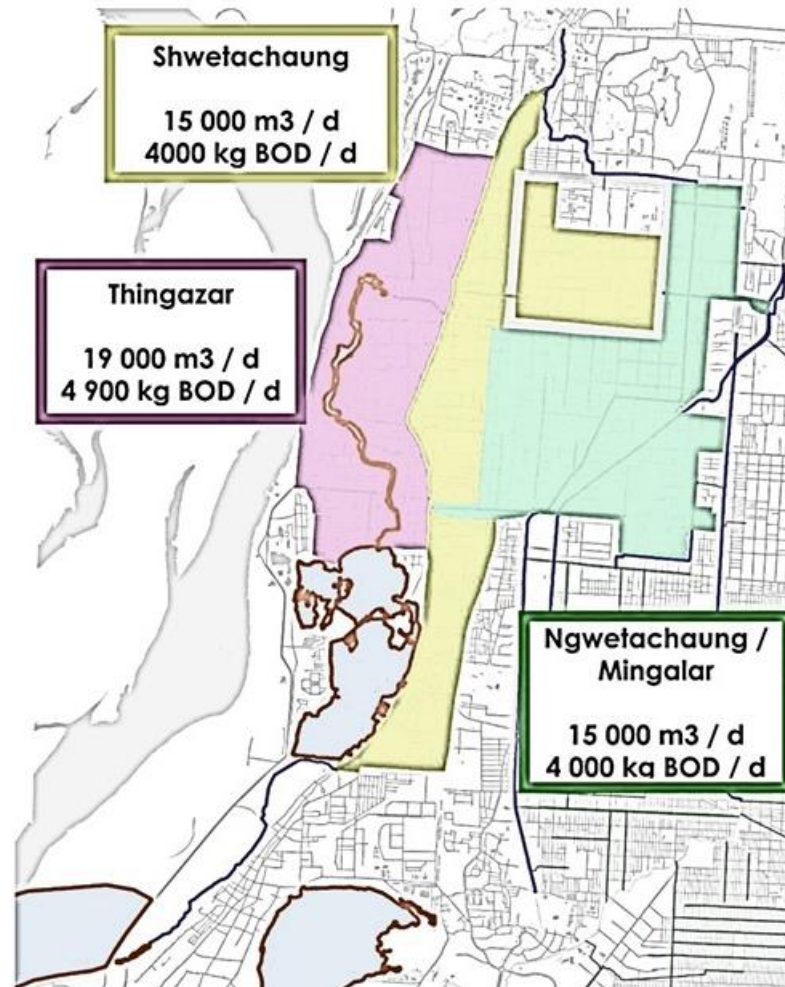




## Wastewater management in Myanmar: Example of Mandalay

### 02 | Case study of wastewater in Mandalay, Problem

#### Catchment studied





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### Wastewater management in Myanmar: Example of Mandalay

02 | Case study of wastewater in Mandalay, Problem

*ThinGazar creek*





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*Water gate damaged by wastes in Mandalay*







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#### *ShweTaChaung canal*





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*Irrawaddy & Nankad lake*





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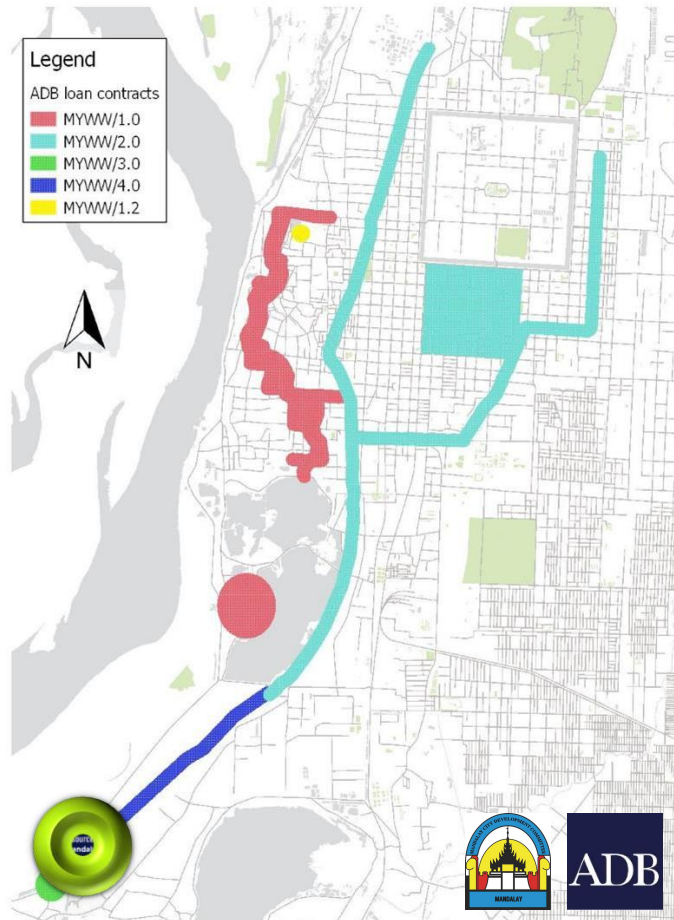
04 | Conclusions & perspectives in Myanmar



03 |

Case study of wastewater in Mandalay, **Solution**

### ADB & SUEZ projects in Mandalay



- **MYWW/1.0:**
  - Thingazar interceptor: two circular pipes on both side of Thingazar Creek (11.4 km)
  - Thingazar WW Pumping Station: a facility collecting wastewater at the lowest point of the interceptors and sending it to Shwetachaung via a force main
- **MYWW/2.0:**
  - ShweTaChaung interceptor, from North of Mandalay down to KetKyaw Pumping Station (nearly 13 km)
  - NgweTaChaung / Mingalar
- **MYWW/3.0:** ShweGe Pumping Station.
- **MYWW/4.0:** Nankad Lake WWTP and ancillaries (DBO). The package includes KetKyaw pumping Station rehabilitation, pressure pipe from KetKyaw to ShweGe and the first phase of a 75 000 m<sup>3</sup>/d WWTP.
- **MYWW/20.0:** Septage vehicles
- **MYWW/1.1:** Thingazar Clean-up. This package set up a list of actions and goods to purchase to enhance Thingazar Creek clean up.
- **MYWW/1.2:** Solid Waste Pilot Reception Facility.





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#### *ThinGazar creek interceptor principle*



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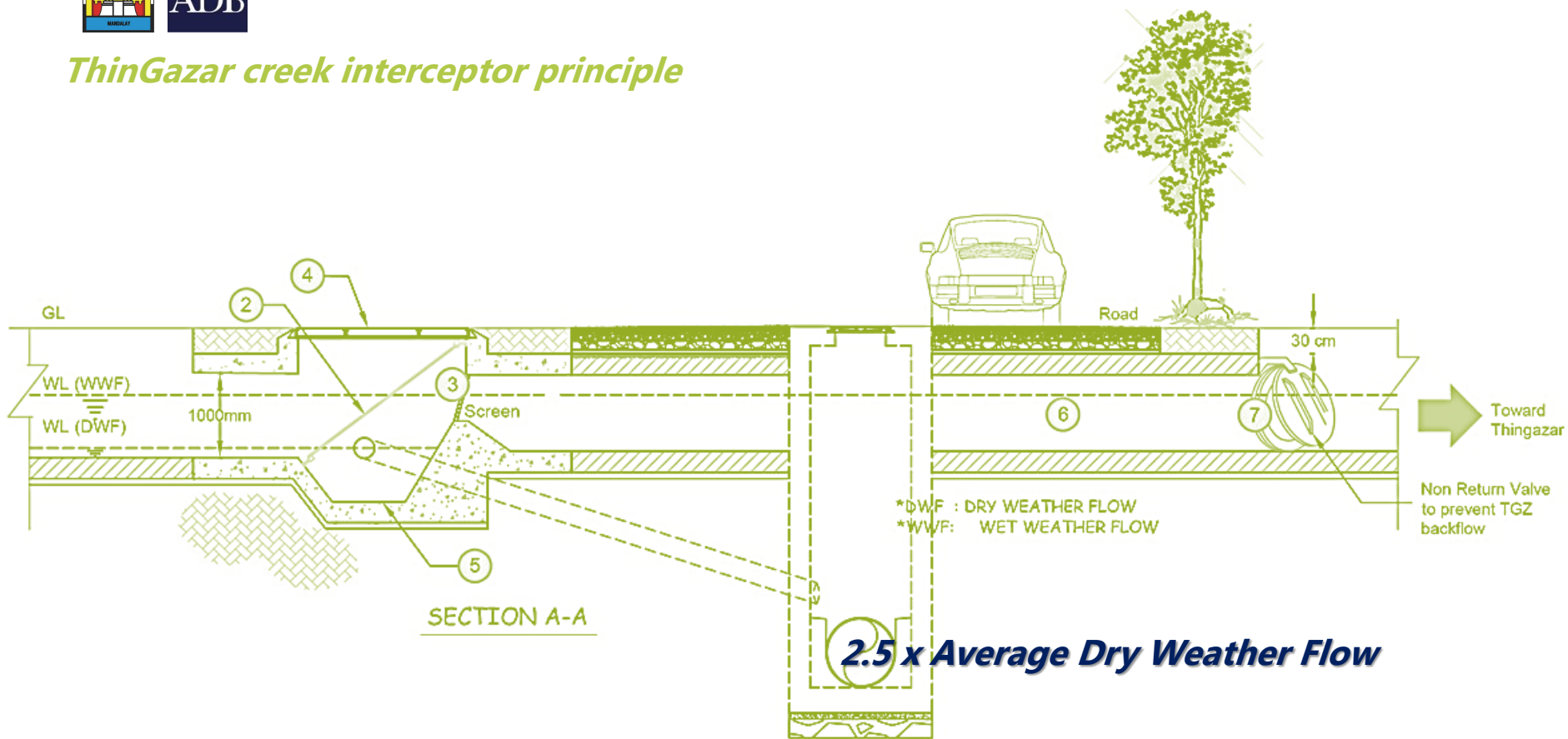
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### ThinGazar creek interceptor principle







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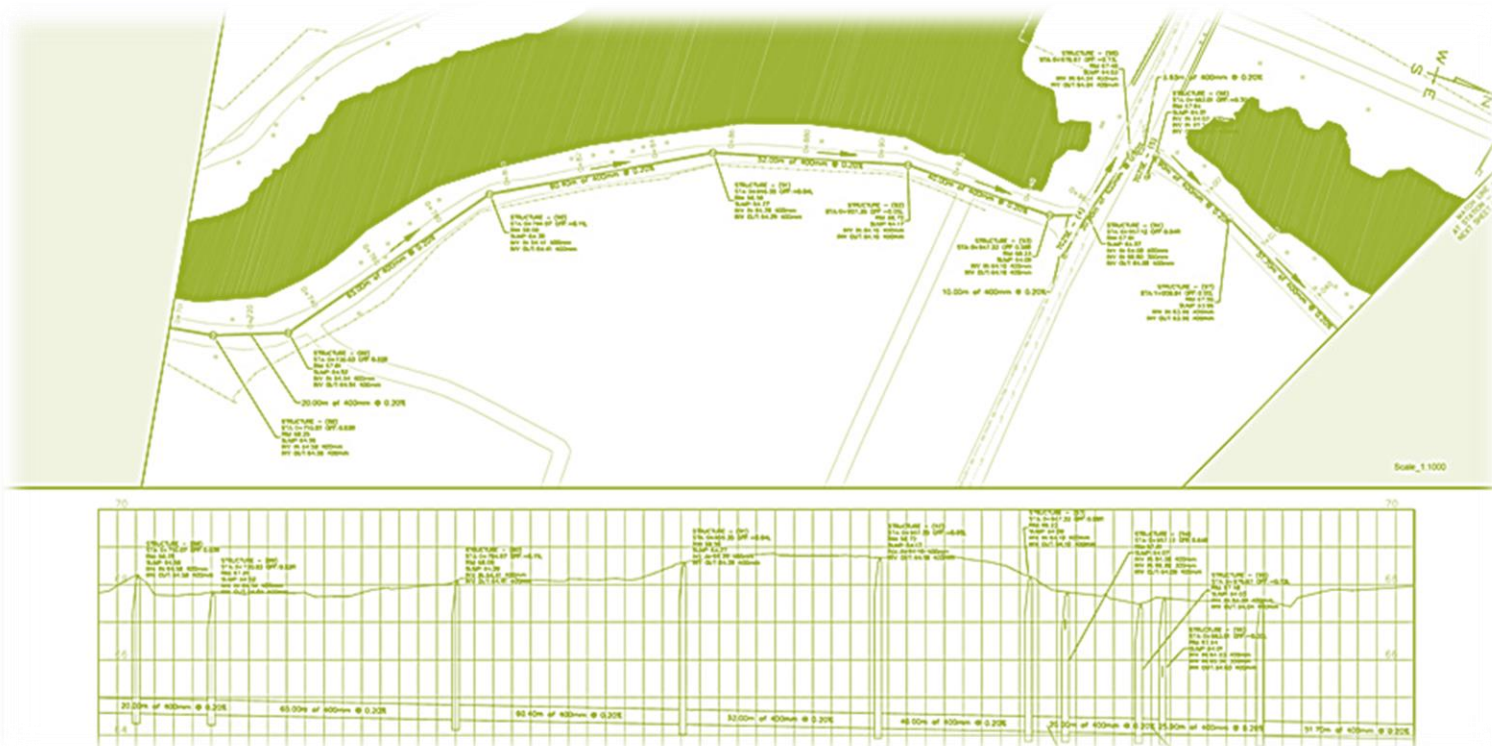
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## Wastewater management in Myanmar: Example of Mandalay

03 | Case study of wastewater in Mandalay, Solution



### ThinGazar creek interceptor alignment and long section

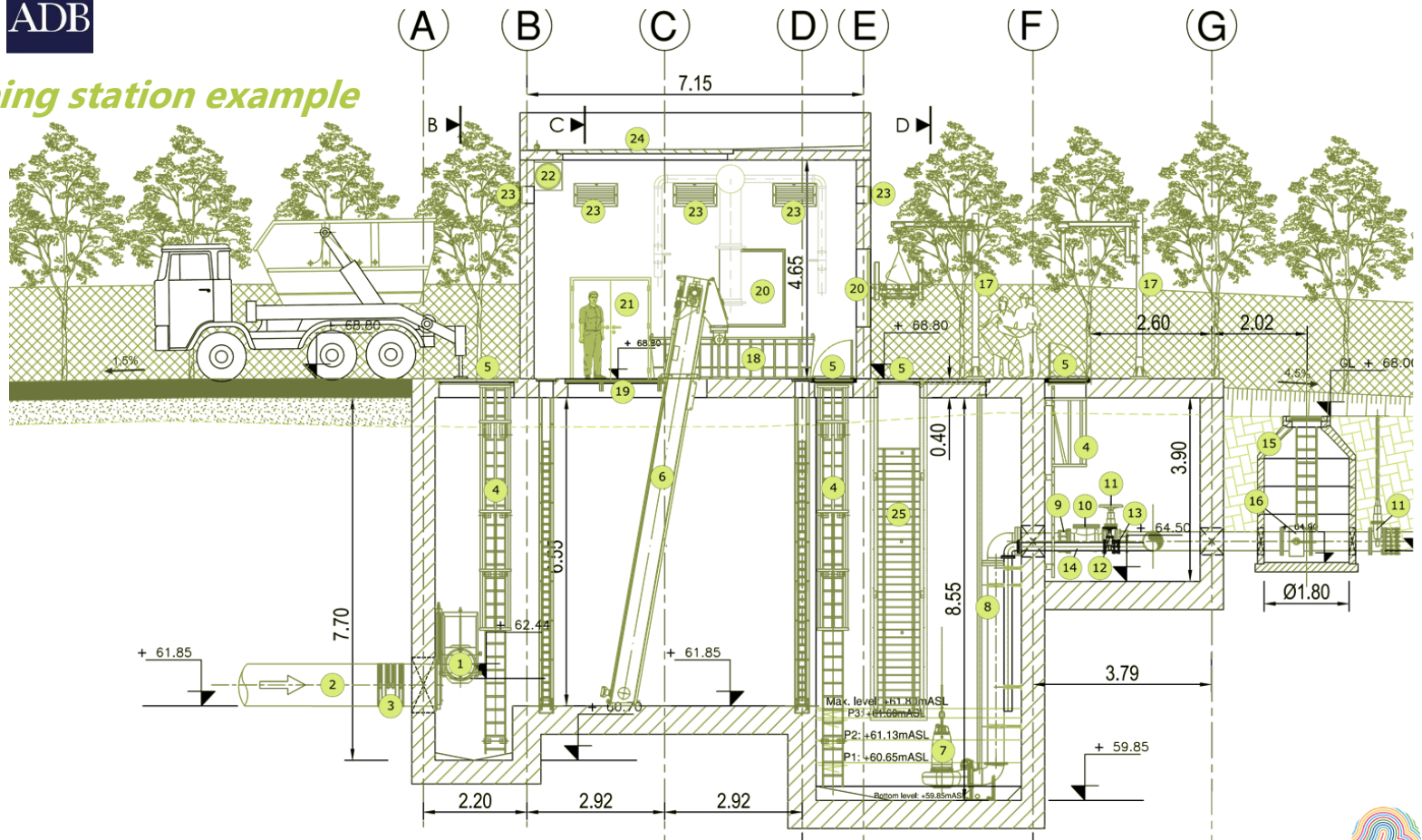




#### 03 | Case study of wastewater in Mandalay, Solution



#### Pumping station example





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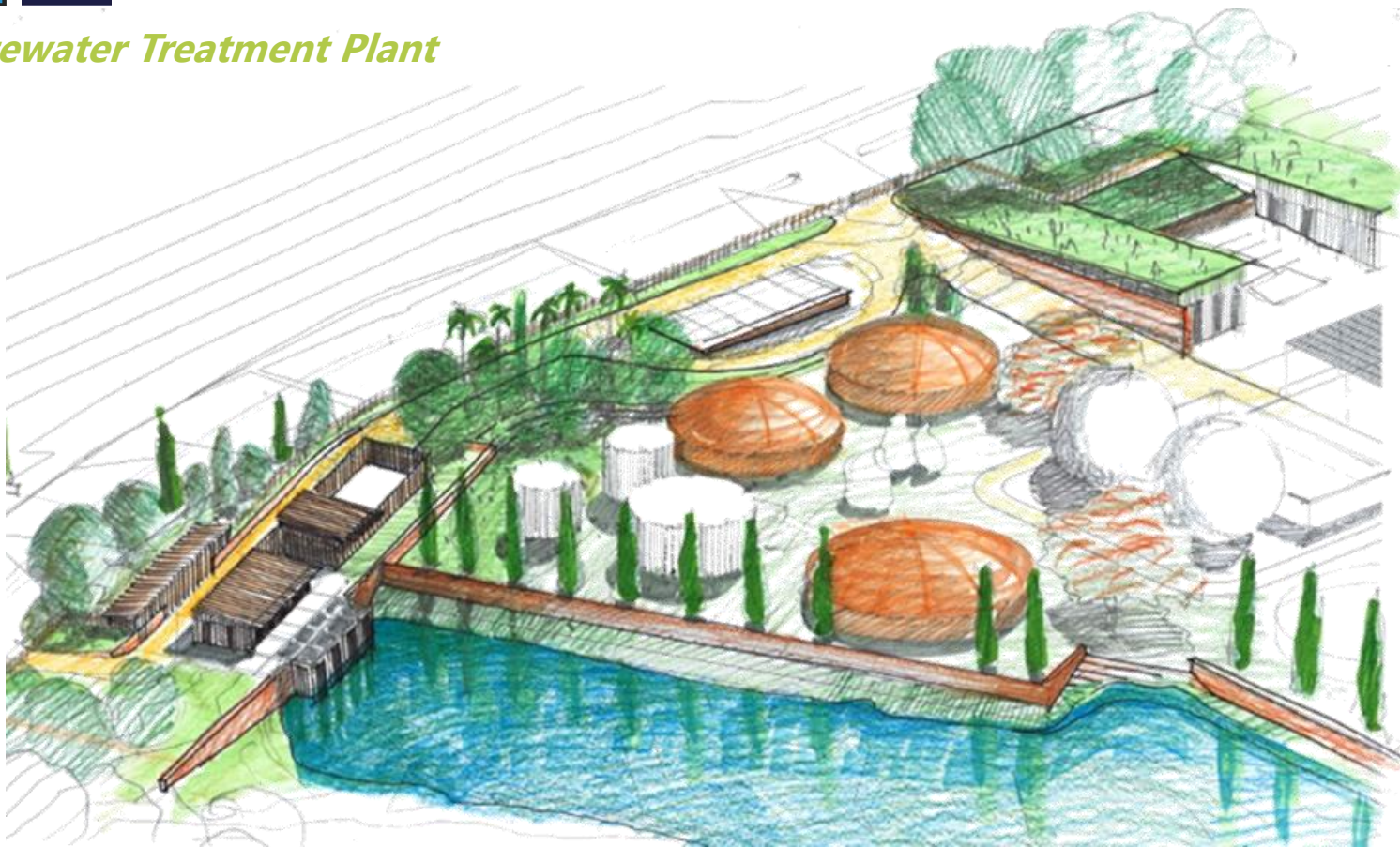
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### Wastewater Treatment Plant





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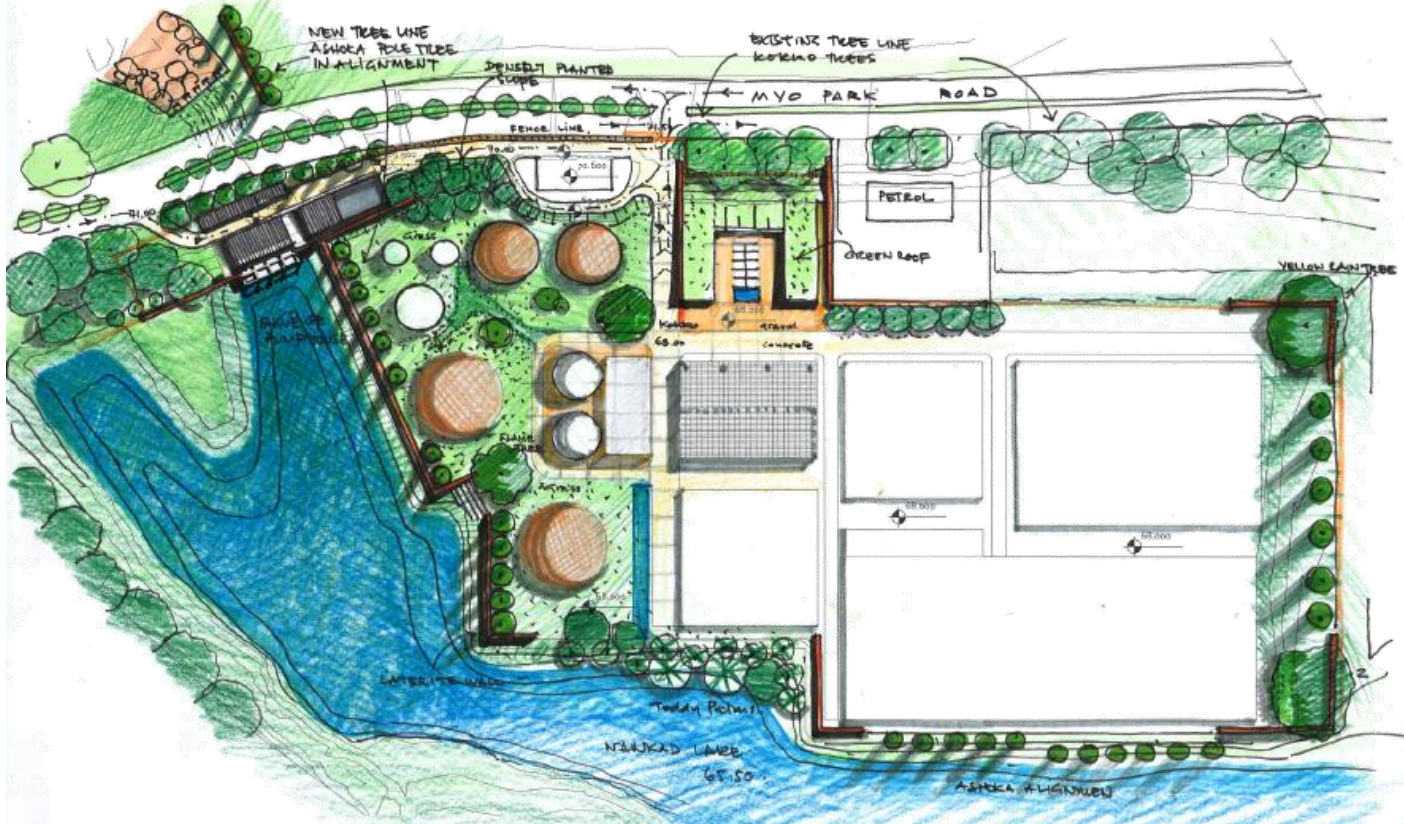
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### Wastewater Treatment Plant





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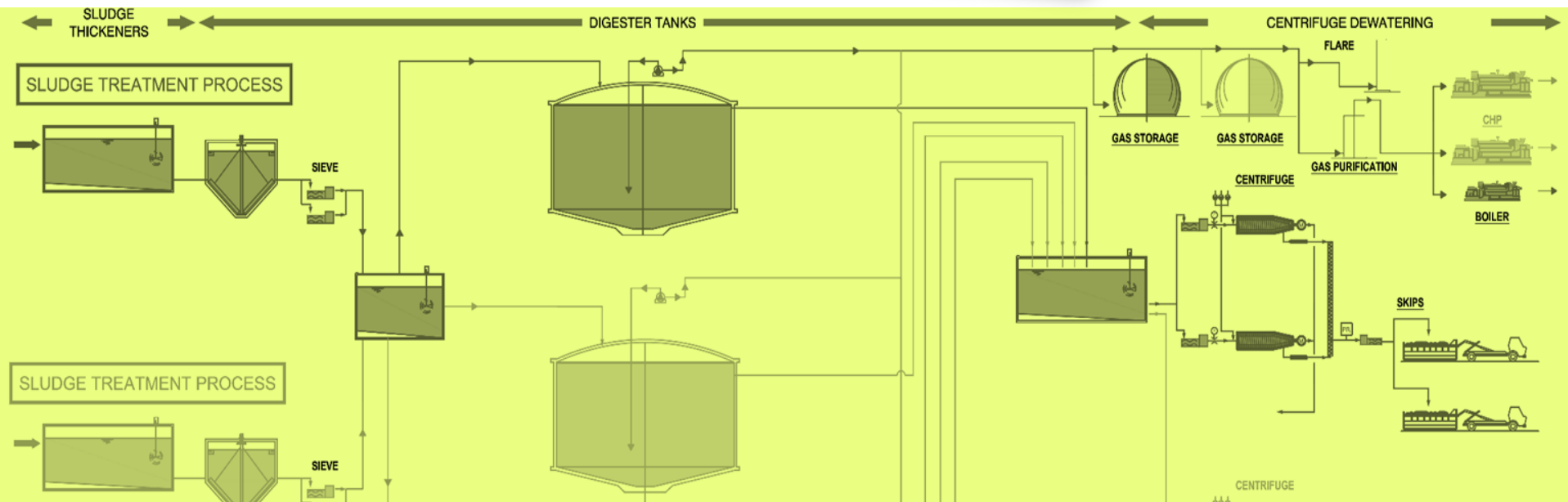
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### Wastewater Treatment Plant – Circular Economy



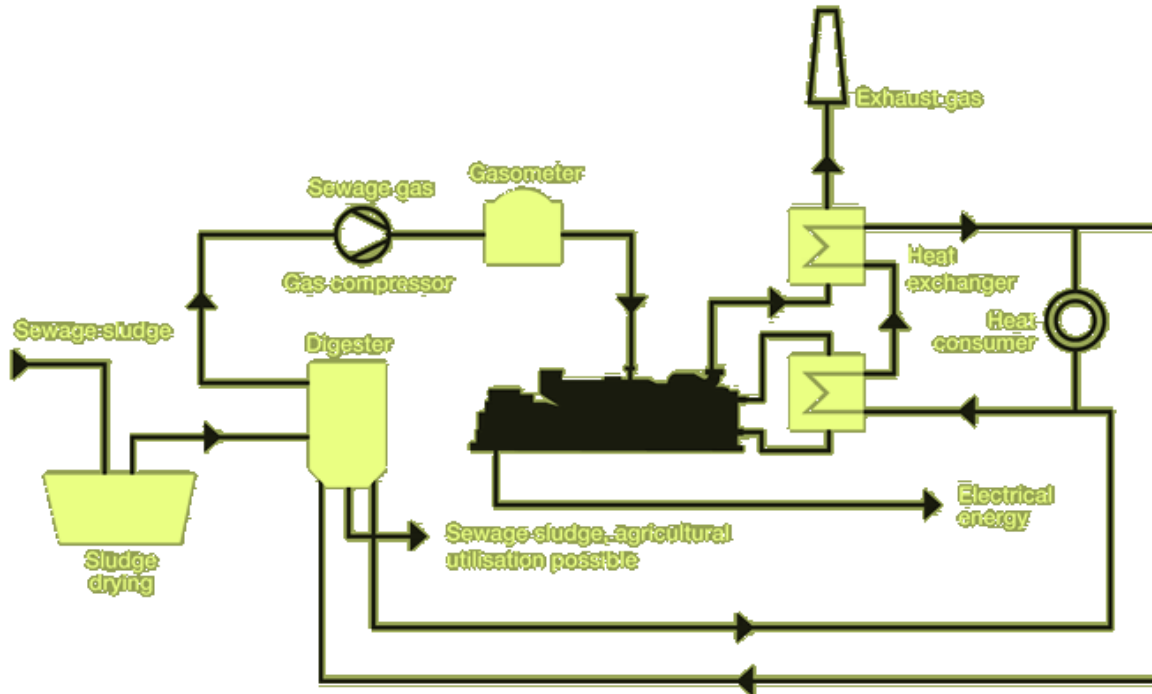


## Wastewater management in Myanmar: Example of Mandalay

03 | Case study of wastewater in Mandalay, **Solution**



### Wastewater Treatment Plant – Circular Economy





## Wastewater management in Myanmar: Example of Mandalay

03 |

Case study of wastewater in Mandalay, **Solution**



### Our responses to climate change



#### Increased extreme rainfall frequency

- The project requires a design based on IDF anticipating climate change
- The project requires green roofs and SuDS



#### Increased flood levels

- Project parallel to a stormwater pumping station project also funded by ADB
- Platform level 1 m above max design flood level.



#### CO2 footprint

- High efficiency pumps and equipment
- Outlet by gravity toward the river during the dry season
- CHP will allow to generate power and to lower energy costs consequently



#### Monitoring

- The proximity of the project with the new and main stormwater pumping station for Mandalay allows to protect and monitor optimally via SCADA wastewater and stormwater.



#### Dry season/Heat

- Installation designed to resist high temperatures (50°C);
- Process and architecture adapted to Myanmar climate.



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04 |

Conclusions & perspectives in Myanmar

- Less health issues
- Safer and greener city
- Bad odours reduction
- Employments and skills generation
- Visitor centre will provide a cultural dimension



- More attractivity for tourists
- Increased value of lands
- Wastewater sector development
- Power generation
- Circular economy

- Water table and water bodies downstream protected
- Plastic and solid wastes intercepted
- Wastewater solution at a minimal footprint (land & energy savings, long life duration, low maintenance and operation costs).



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