

# Wastewater in Paraná: Implementation of a Wastewater Treatment Plant

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## Introduction

# PARANÁ

- **The capital city of Entre Ríos**
- **391,962 Inhabitants**
- **800 lts of water per person**



# Introduction

# WASTEWATER

**GRAY  
WATER**



**BLACK  
WATER**



# THE PURPOSE

- **Address the issue of the lack of treatment of wastewater**



# MAP OF THE PRESENTATION

- **Description of the context**

- **Statement of the problem**

- **Causes of the problem**

- **Consequences of the problem**

- **The solution to the problem**

- **Strengths and weaknesses of the proposal**



# Problem Definition and Analysis

## DESCRIPTION OF THE CONTEXT



Satellite photo of the  
Echeverría plant



## Problem Definition and Analysis

# DESCRIPTION OF THE CONTEXT



**Echeverría treatment  
plant**

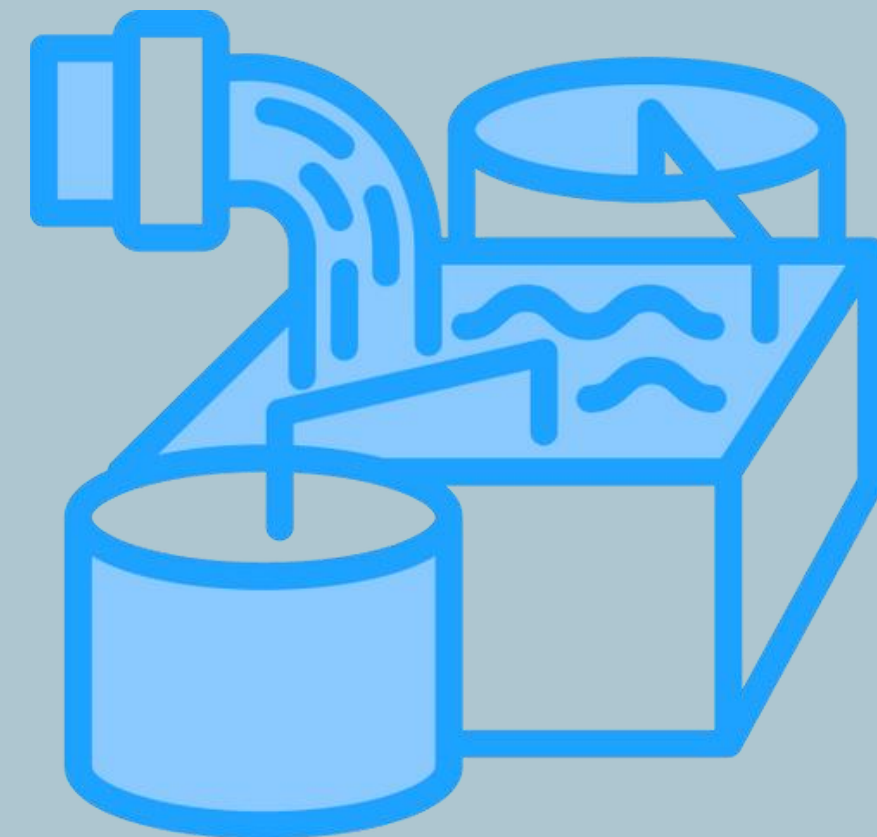


# Problem Definition and Analysis

# PROBLEM STATEMENT



**Wastewater**





## Problem Definition and Analysis

# DESCRIPTION OF SCENES



**Antoñico stream**

## Problem Definition and Analysis

# DESCRIPTION OF SCENES



**Contaminated water**



# Problem Definition and Analysis

## CAUSES OF THE PROBLEM



**Illegal sewerage installations**

**Overflow of sewer systems**



**Chemical components**

# Problem Definition and Analysis

## CONSEQUENCES OF THE PROBLEM



Contaminated water

Health problems



Damage to ecosystems  
and wildlife



## Problem Approach

# THE SOLUTION TO THE PROBLEM



**Wastewater treatment  
plant**

# THE SOLUTION TO THE PROBLEM



## Why?

- Eliminates microorganisms and solid materials
- Allows water to be reused for non-consumable purposes
  - Safely releases water



## Problem Approach

# WASTEWATER TREATMENT PROCESS

**First step**

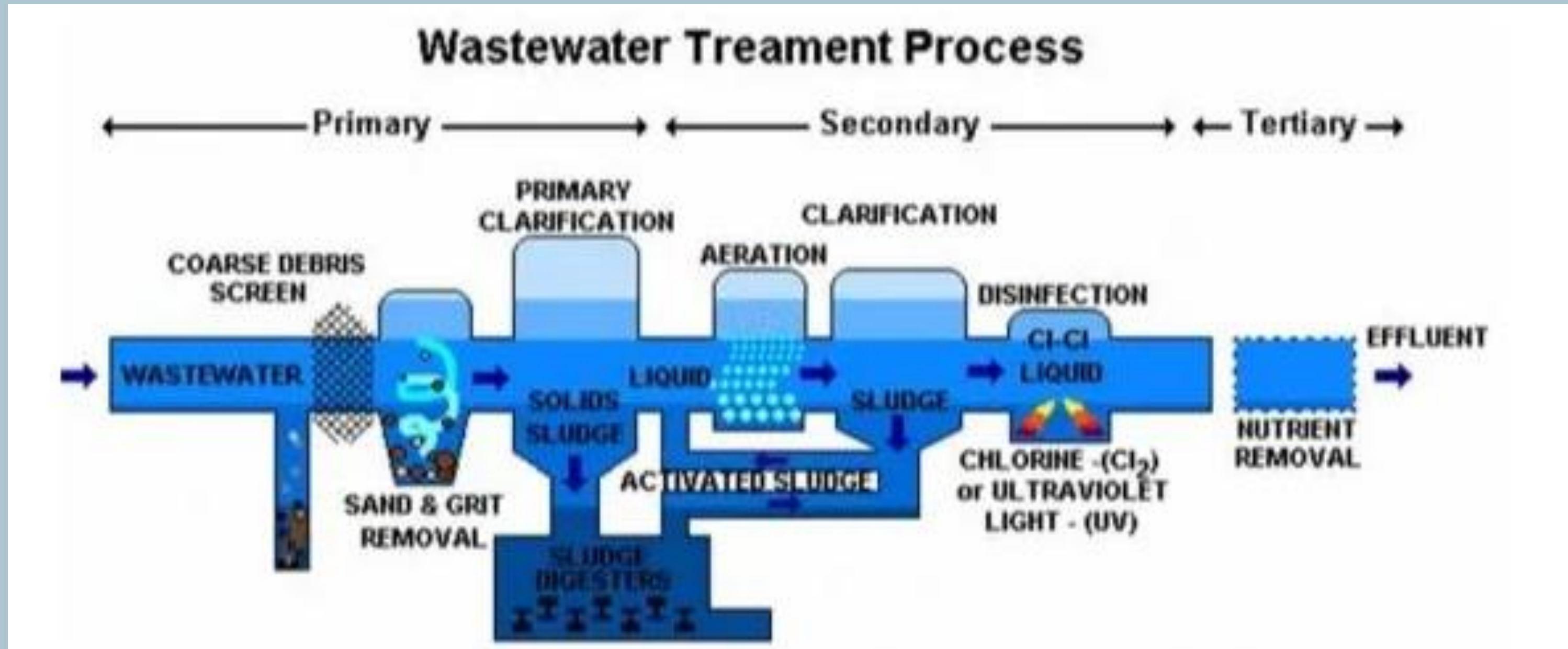
```
graph LR; A[First step] --> B[Collection of wastewater]; B --> C[Pretreatment];
```

**Collection of  
wastewater**

**Pretreatment**

## Problem Approach

# WASTEWATER TREATMENT PROCESS



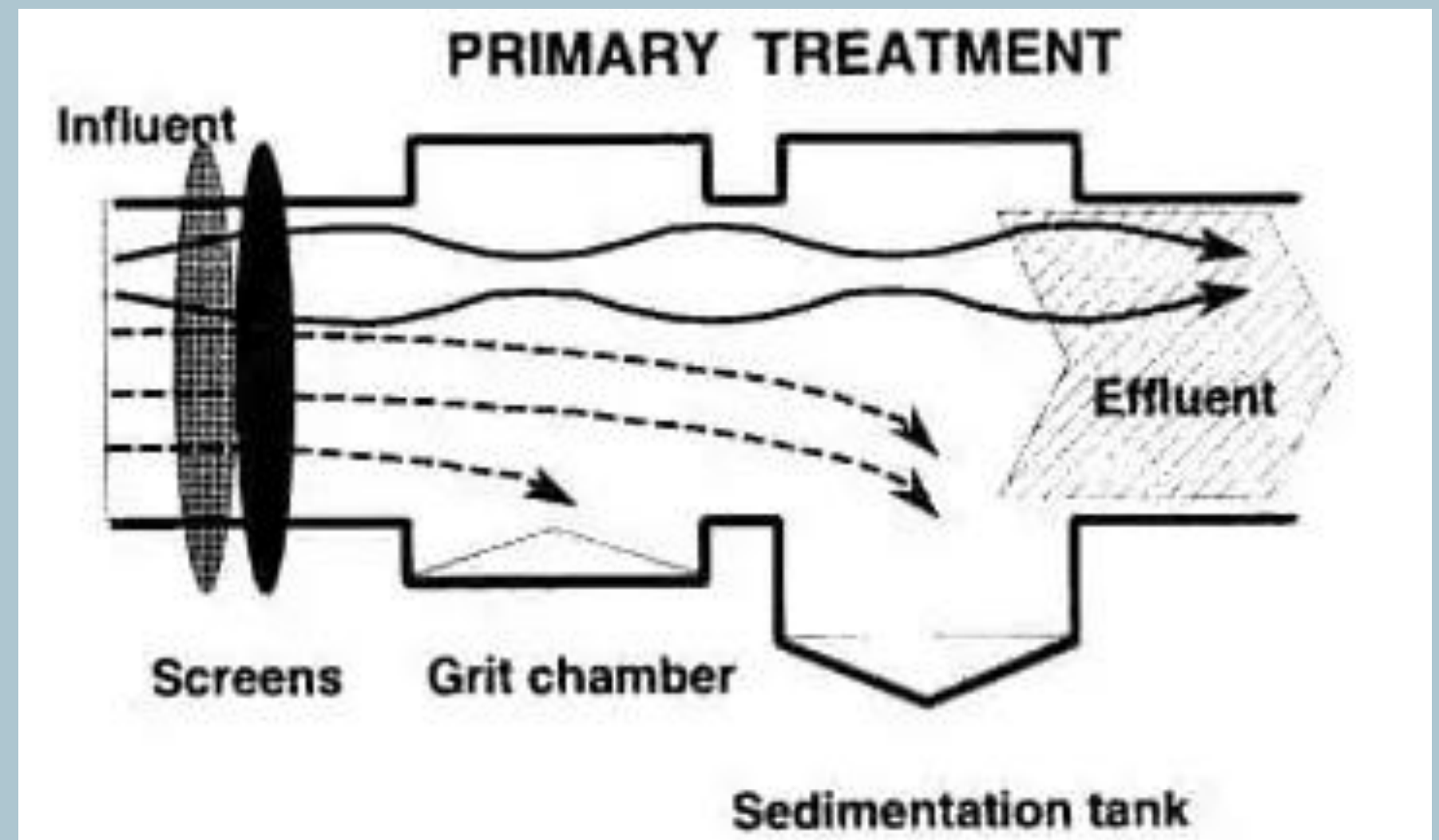


## Problem Approach

# WASTEWATER TREATMENT PROCESS

## Primary treatment

- Water screening
- Settling
- Solid removal

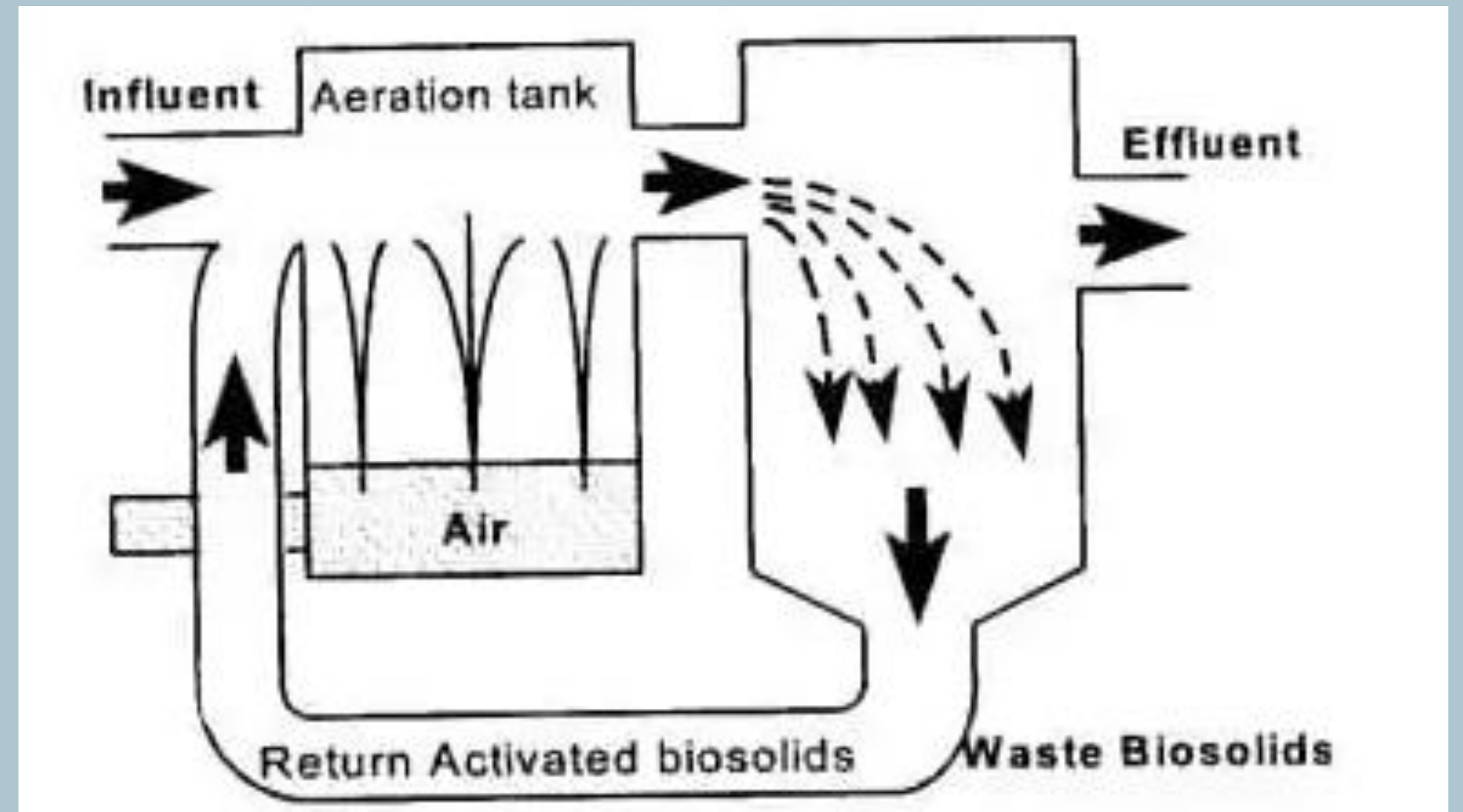


## Problem Approach

# WASTEWATER TREATMENT PROCESS

## Secondary treatment

- Removal through aerobic microorganisms
- Activated sludge process



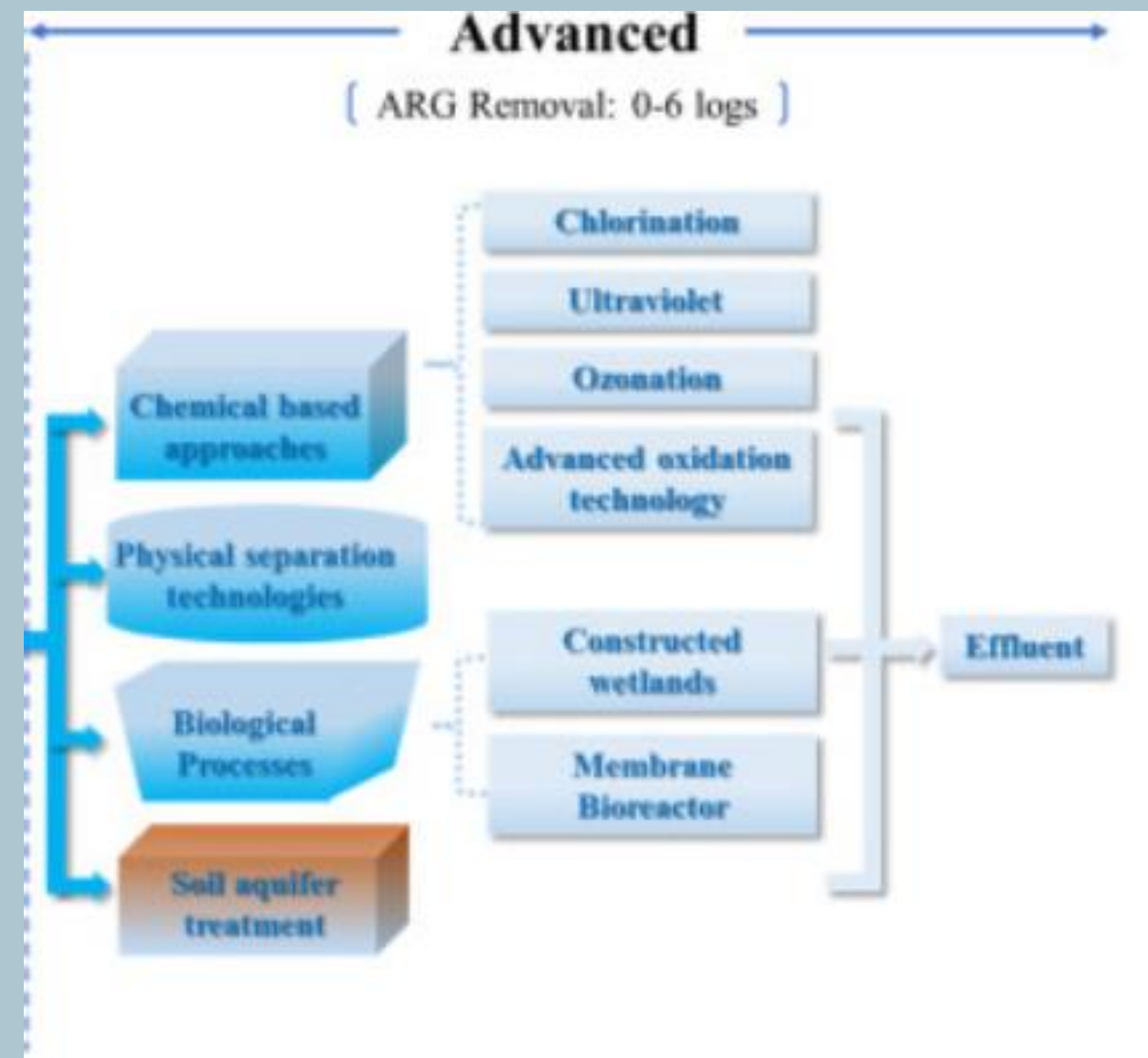


**Problem**  
**Approach**

# WASTEWATER TREATMENT PROCESS

## Tertiary treatment

- Physical, chemical, biological treatments



# STRENGTHS AND WEAKNESSES

## Strengths

- Environmental protection
  - Reduction of diseases
    - Water reuse
  - Odor reduction

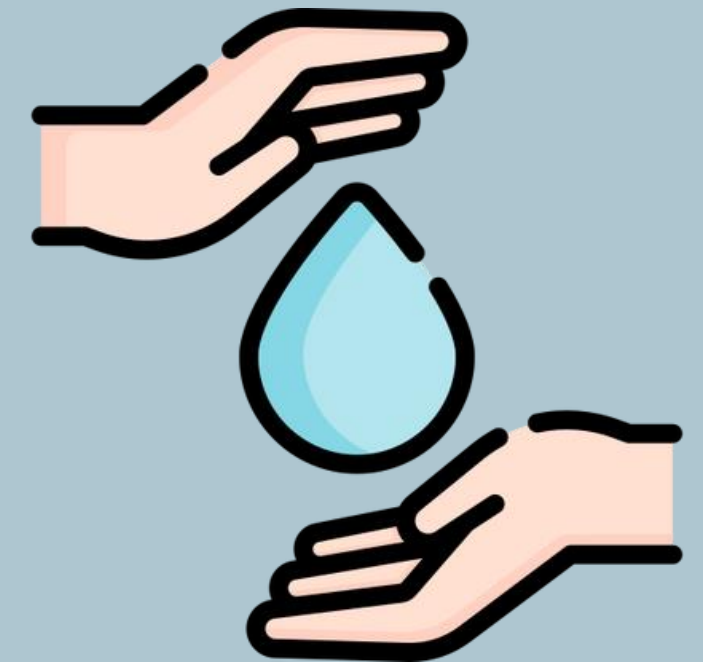
## Strengths

- Expensive construction
- Constant maintenance
  - Qualified personnel
- High energy consumption



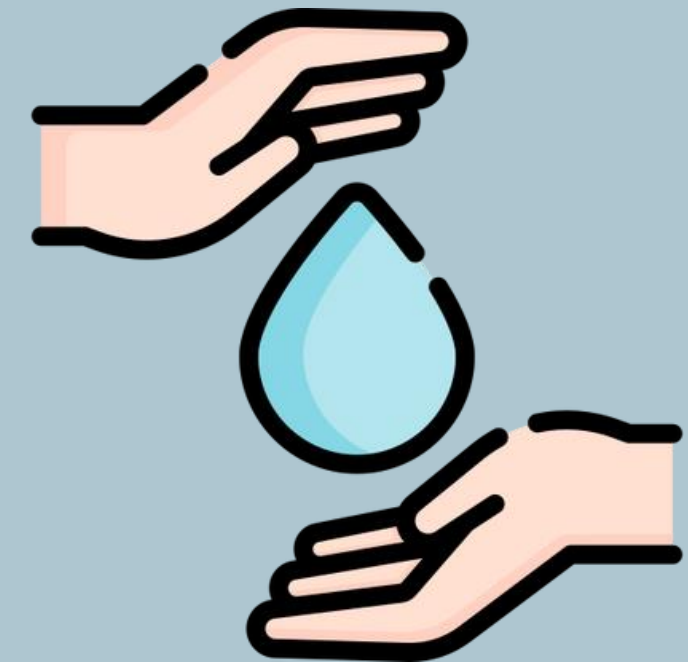
# CONCLUSION

The lack of treatment poses an **environmental** and **social** problem. We need to raise awareness about the care and treatment of water in our society. The idea is to **curb** water wastage by implementing a wastewater treatment plant



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The background is a light blue color with various abstract shapes representing nature: a water droplet at the top center, several leaves of different shades of blue and purple, and large, dynamic splashes of water in various shades of blue surrounding the central globe. The globe itself is a stylized Earth with green continents and dark blue oceans.

**THANK YOU!**



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