



أرامكو السعودية  
Saudi Aramco

# Water Conservation Case Study- Water Pinch Analysis Technique

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# Outline

- Background
- Industrial Facility Description
- Water Pinch Analysis
- Results-Water Saving Ideas
- Summary

# Background

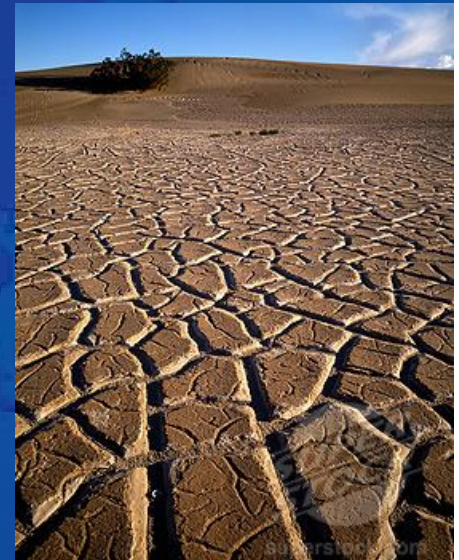
- The region is under extreme water shortage
- Groundwater wells are depleting

Water Pinch Analysis Study

Optimize water  
treatment processes

Minimize wastewater  
streams

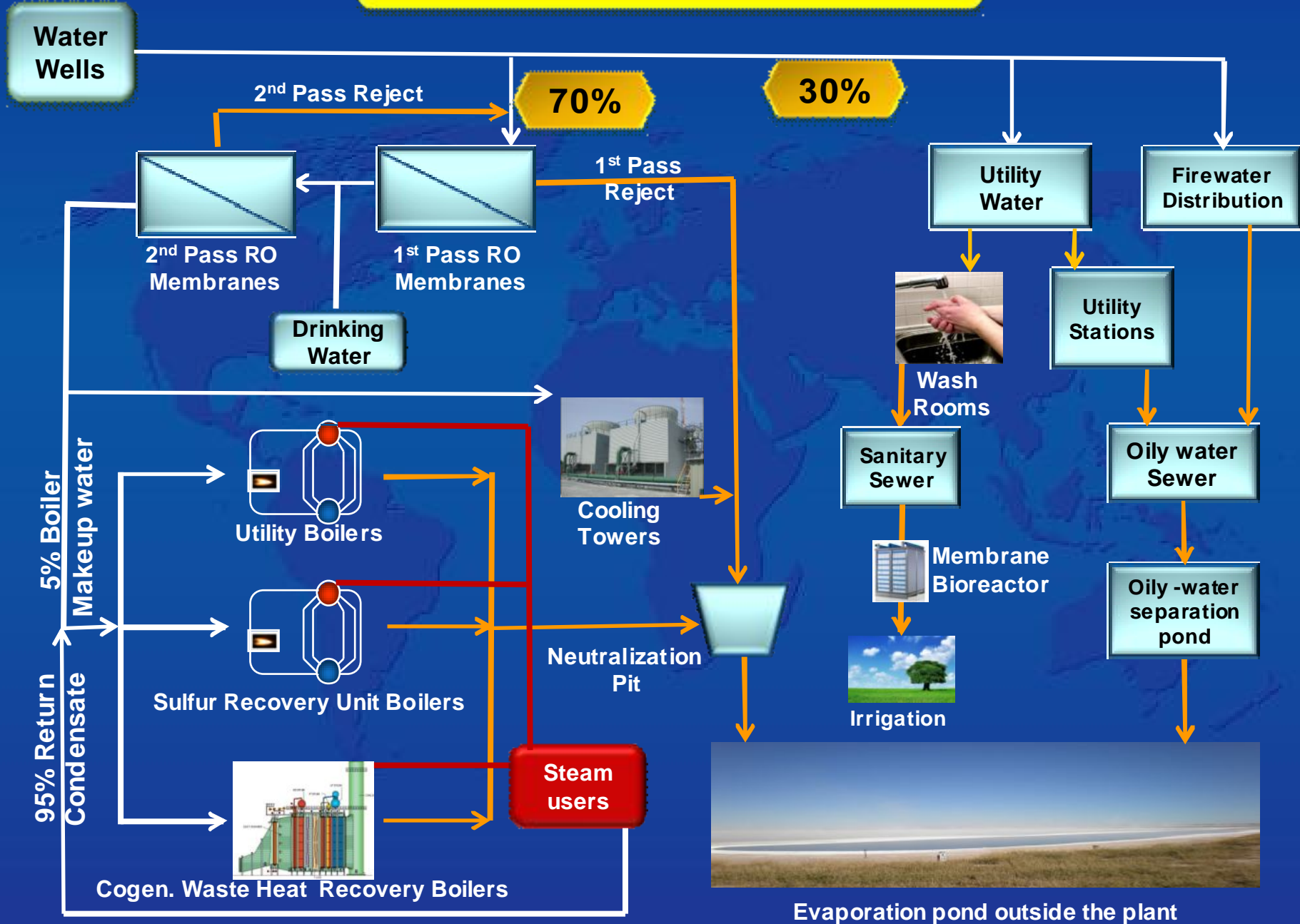
**Company Goal:**  
Save Groundwater  
for Future  
Generations



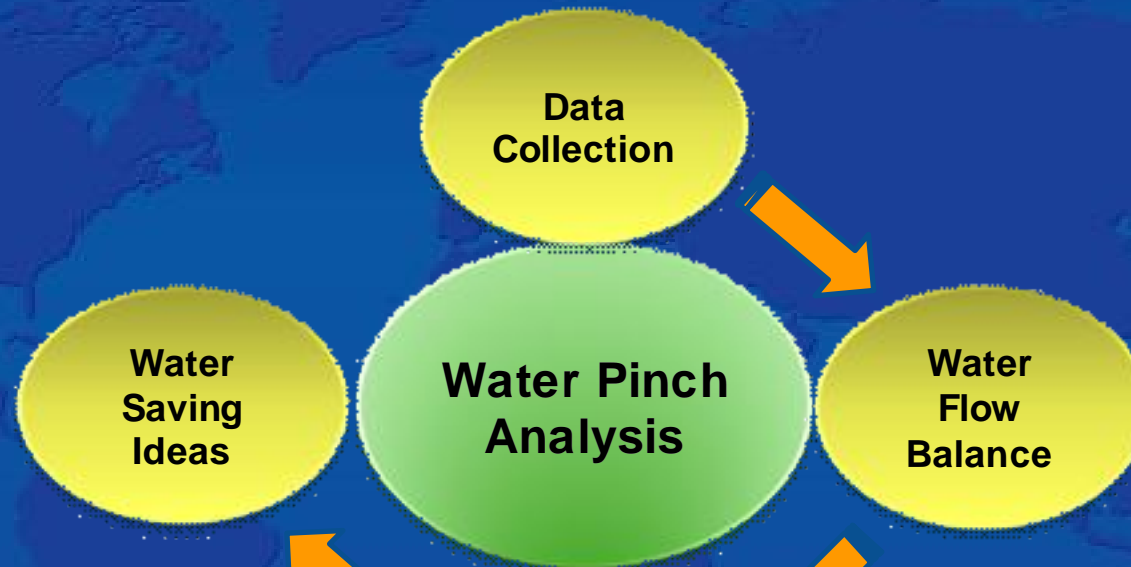
## Industrial facility selection criteria

- Facility depends entirely on groundwater
- Include major water treatment processes

# Facility Water Network

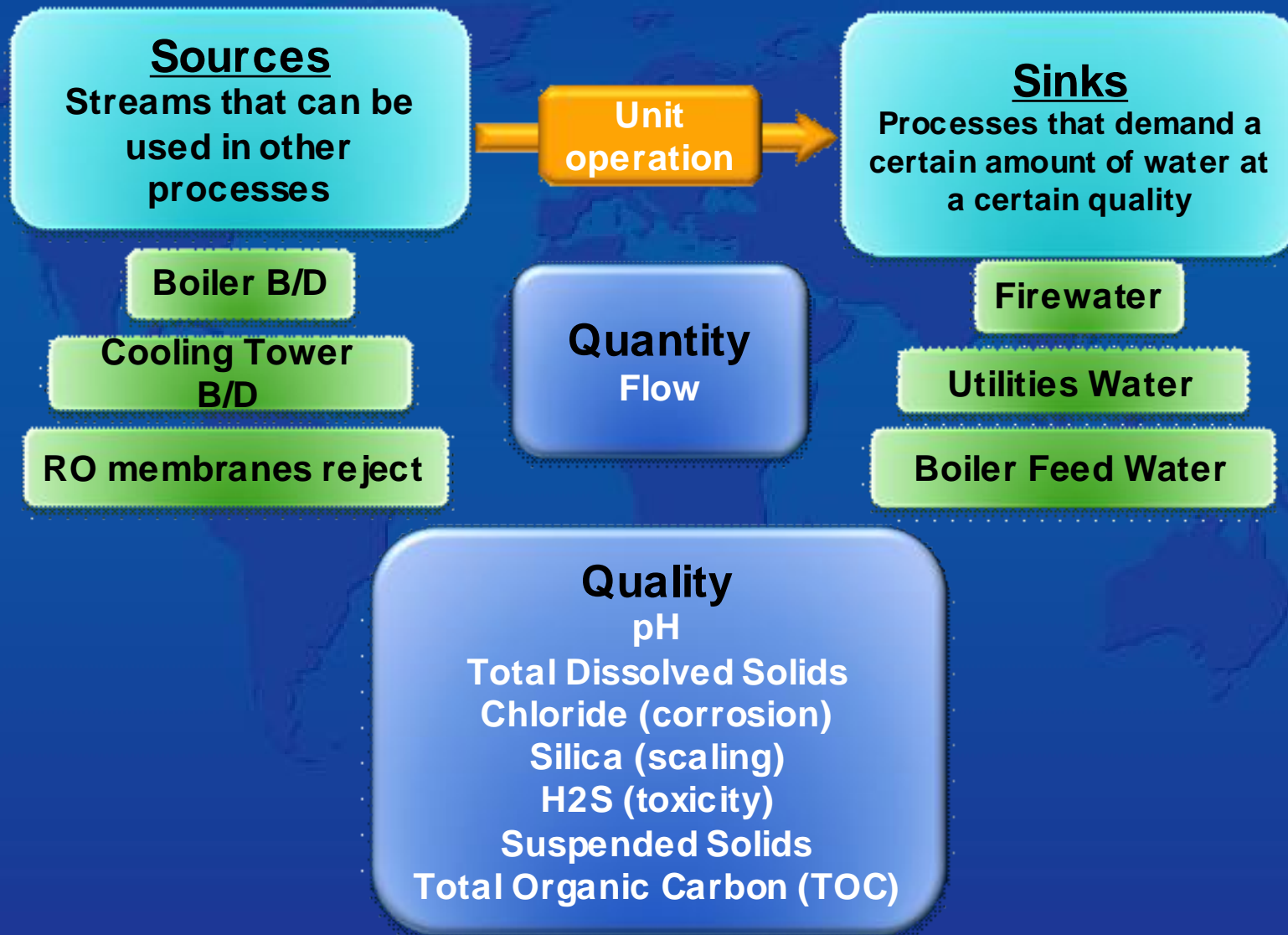


# Water Pinch Analysis



It's a systematic technique used to analyze water networks utilizing advanced software to identify the optimum methods to conserve water

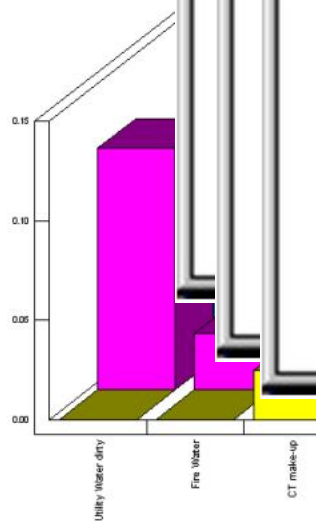
# Water Pinch Analysis



# Water Pinch Analysis

## Process evaluation

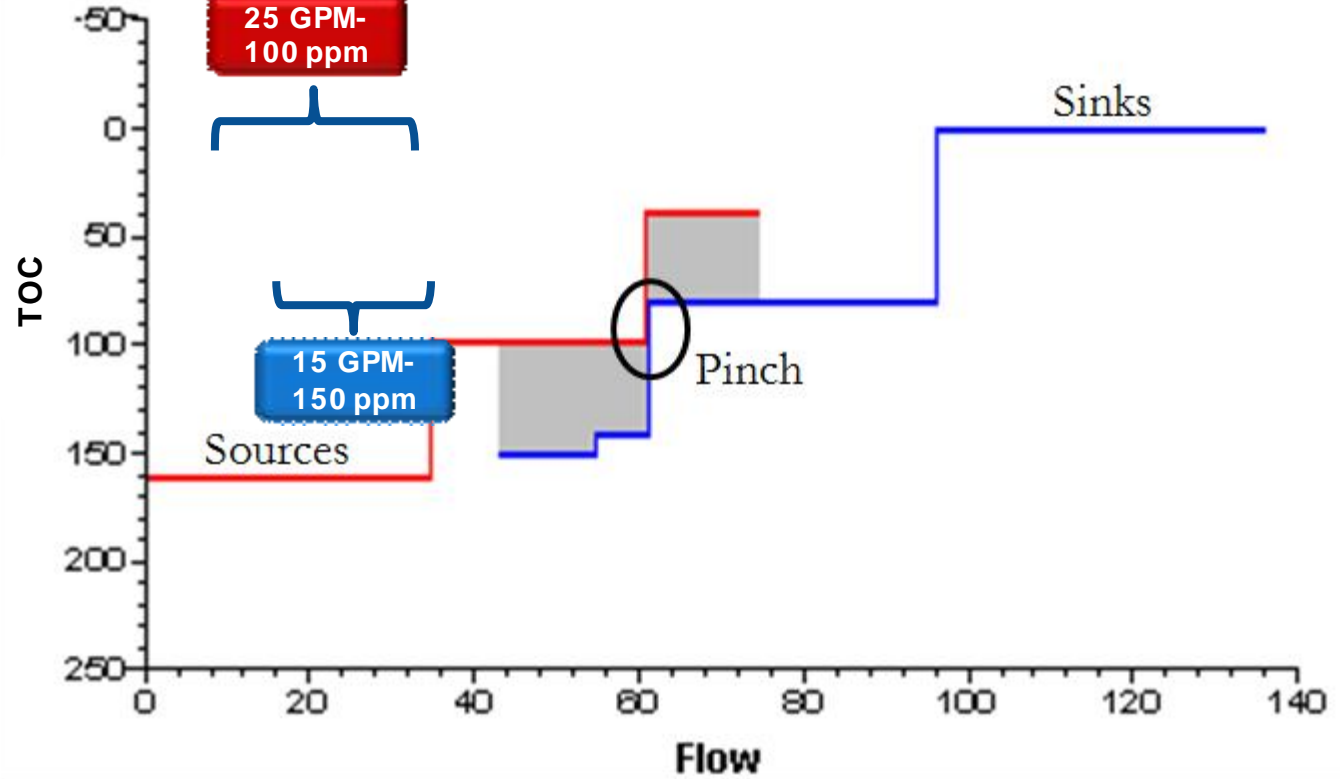
Inlet Sensitivity



Silica

Chloride

TOC



Flow



# Results

Software  
Results

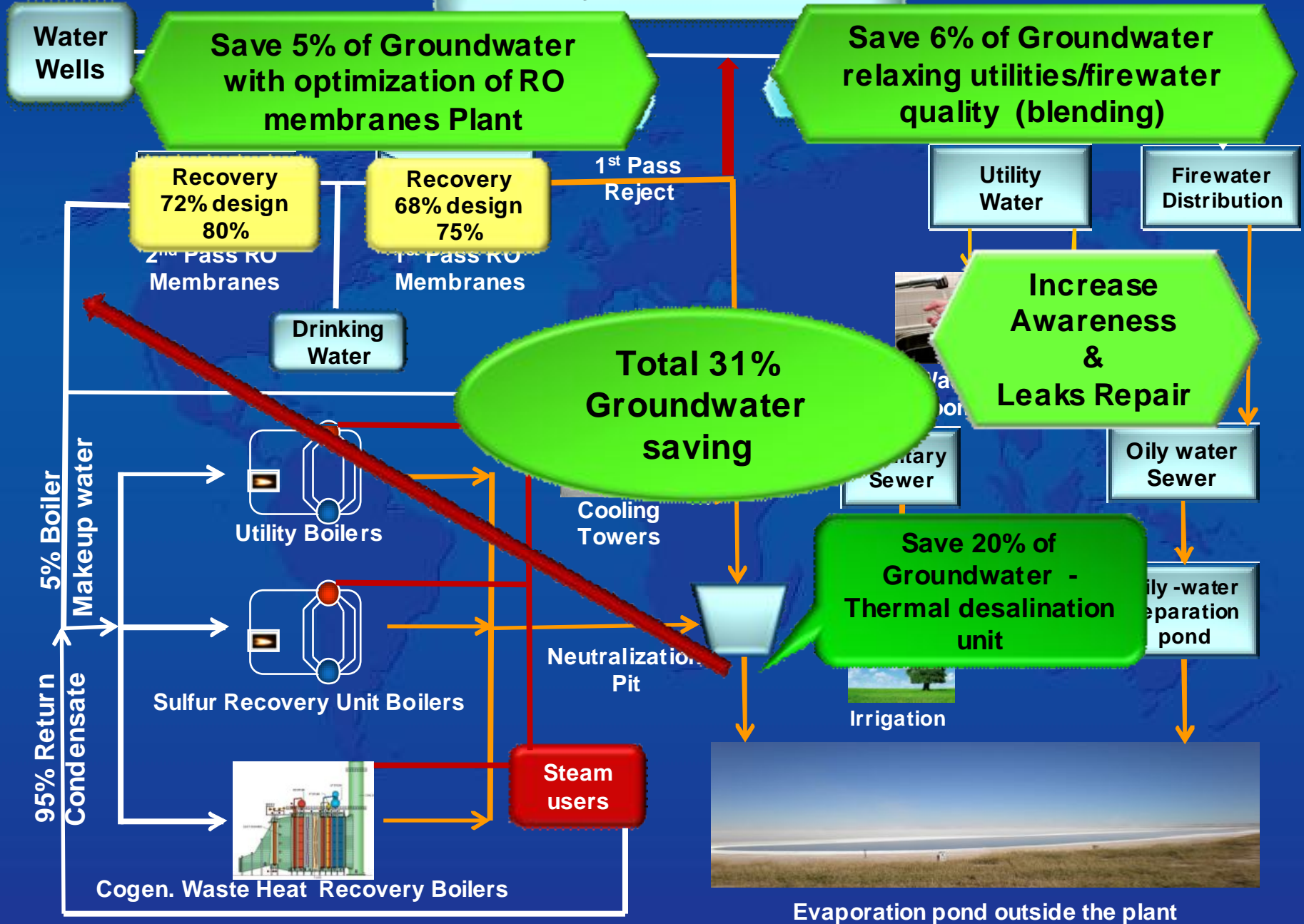


Engineering  
Evaluation



Optimum  
Water saving

# Facility Water Network



# Summary

- **Water Pinch Analysis technique is a good approach but requires**
  - **Good metering system-water balance**
  - **Sufficient historical data**
  - **Good engineering evaluation**
- **Save up to 31% of Groundwater**
- **Additional water saving through**
  - **Processes optimization**
  - **Leaks repair**
  - **Awareness**

**Thank you**

