

# **Tirupur's Environmental Issues**

**From Wastes to Profits  
by**

**Effluent Recycling & Recovery Systems**

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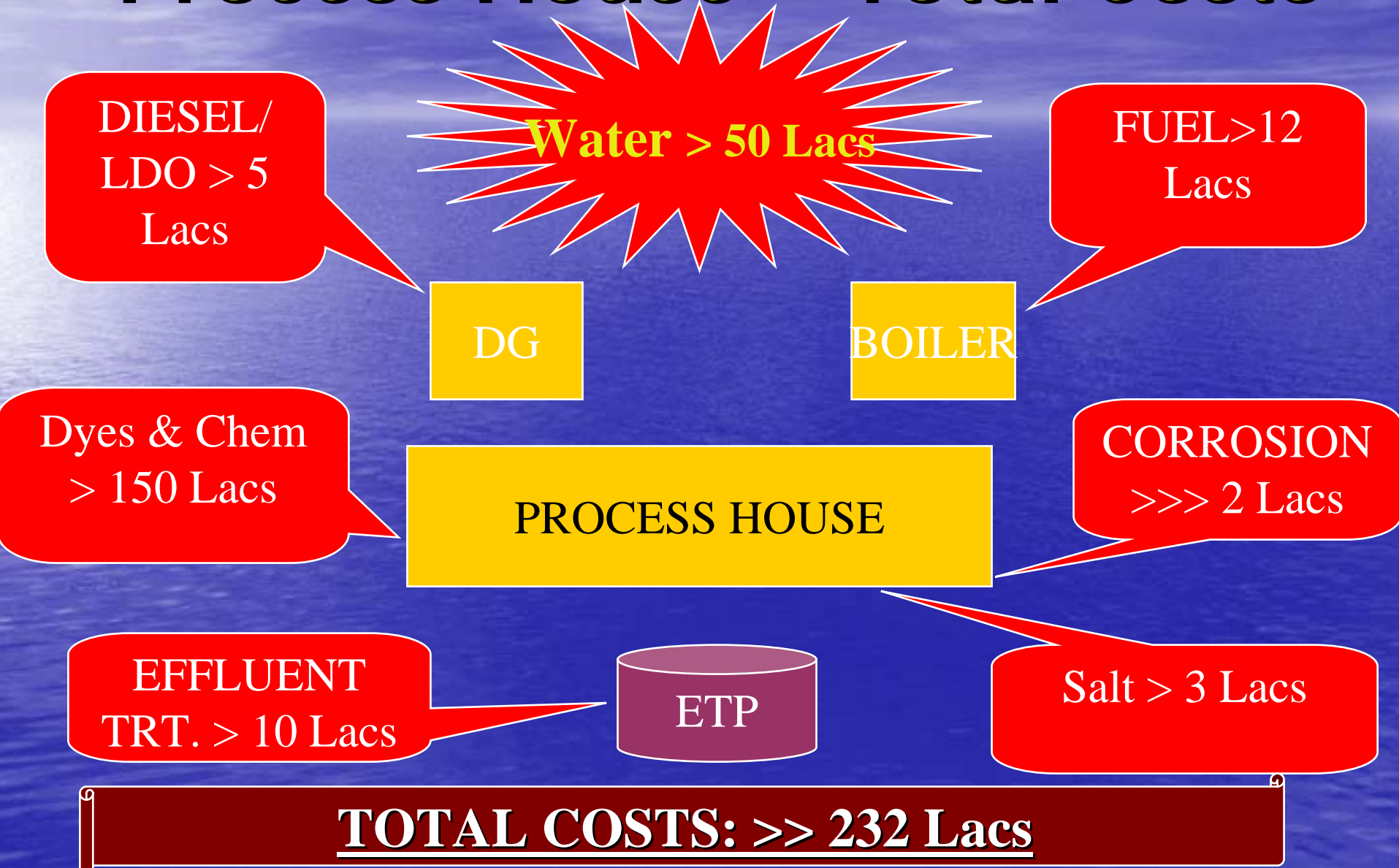
# Indian Water Crisis

- 70% of Water resources are Polluted
- Out of 3245 Towns only 21 have Sewage Trt. Facilities
- Major Depletion of Ground Water
- Regions of > 60 in. Rainfall are Water Scarce!
- WILL TEXTILE INDUSTRY SHIFT??

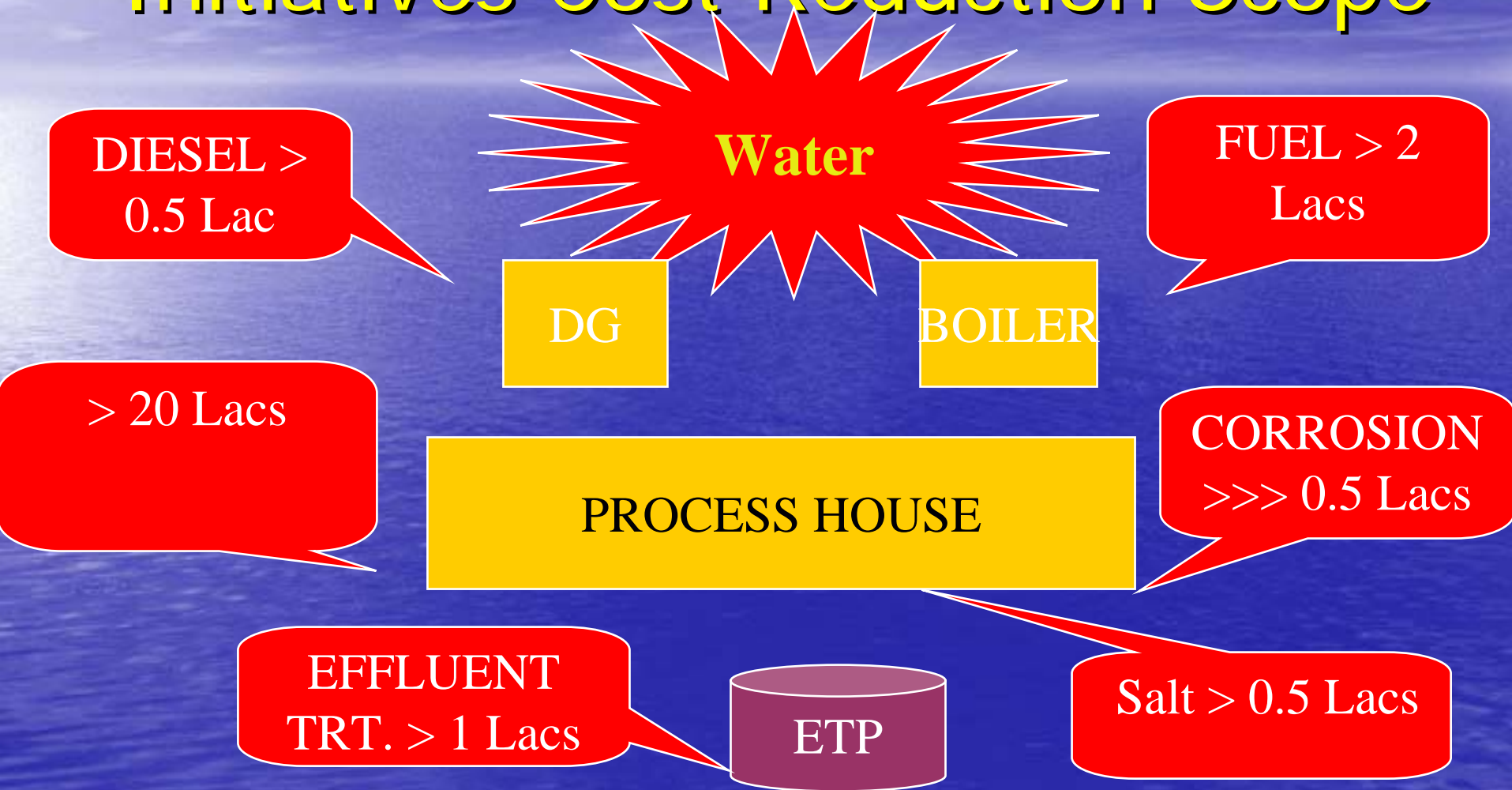
# Tirrupur Water Issues

- Water Costs @  $> 60 - 70$  Rs/  $M^3$  are highest in the country
- Fuel & Water Costs  $> 0.7$  Crores/ Year
- Water Costs to further Spiral Up
- Availability of Drinking Water after 5 Years?
- How to Remain in Business????

# Process House – Total Costs



# Process House – Paradise Initiatives Cost Reduction Scope



**TOTAL COST REDUCTION SCOPE: > 24.5 Lacs**

# Textile Wastewater Issues

- High Colour
- High COD, BOD Loads
- Huge Water Consumption
- High TDS
- Toxicity due to Dyes & Chemicals

# What are Tiruppur's Priority Concerns?

- High Water Consumption
- High Loads on Existing System
- Is Quality of RO Feed a Priority?
- Is Colour & COD a Priority? (Darker Shades)
- Reject Disposal
- Reducing Recovery of Existing RO (45 – 50%)
- High Pressure & Flux
- Operating Costs

# What are Tirupur CETP's Priority Concerns?

- High Water Consumption
- High Loads on Existing System
- Is Quality of RO Feed a Priority?
- Is Colour & COD a Priority? (Darker Shades)
- Reject Disposal
- Reducing Recovery of Existing RO (45 – 50%)
- High Pressure & Flux
- Operating Costs
- Which is the RIGHT Treatment Scheme???

# Disc Technology

- Advantages
- Good Results
- Can Recover Raw Materials
- Most Suitable for Difficult Effluents
- Disadvantages
- Very High Capital Costs
- High Operating Costs
- Single Vendor Options
- Fewer World wide installations

# Hollow Fiber + LF RO Technology

- Advantages
  - Excellent Results
  - Can Recover Raw Materials
  - Most Suitable for CETP
  - Low Capital & Oprtg Costs
  - Many Installations
- Disadvantages

# Paradise Effluent Solutions for Textile Industry

- Effluent Recycling > 80%
- Printing M/c Paste Recovery & Waste Water Reuse
- Dyebath Reuse
- Water Jet Weaving Effluent Treatment & Reuse
- Alkaline Scouring Bath Reuse
- Solvent Recovery Systems
- Size Recovery

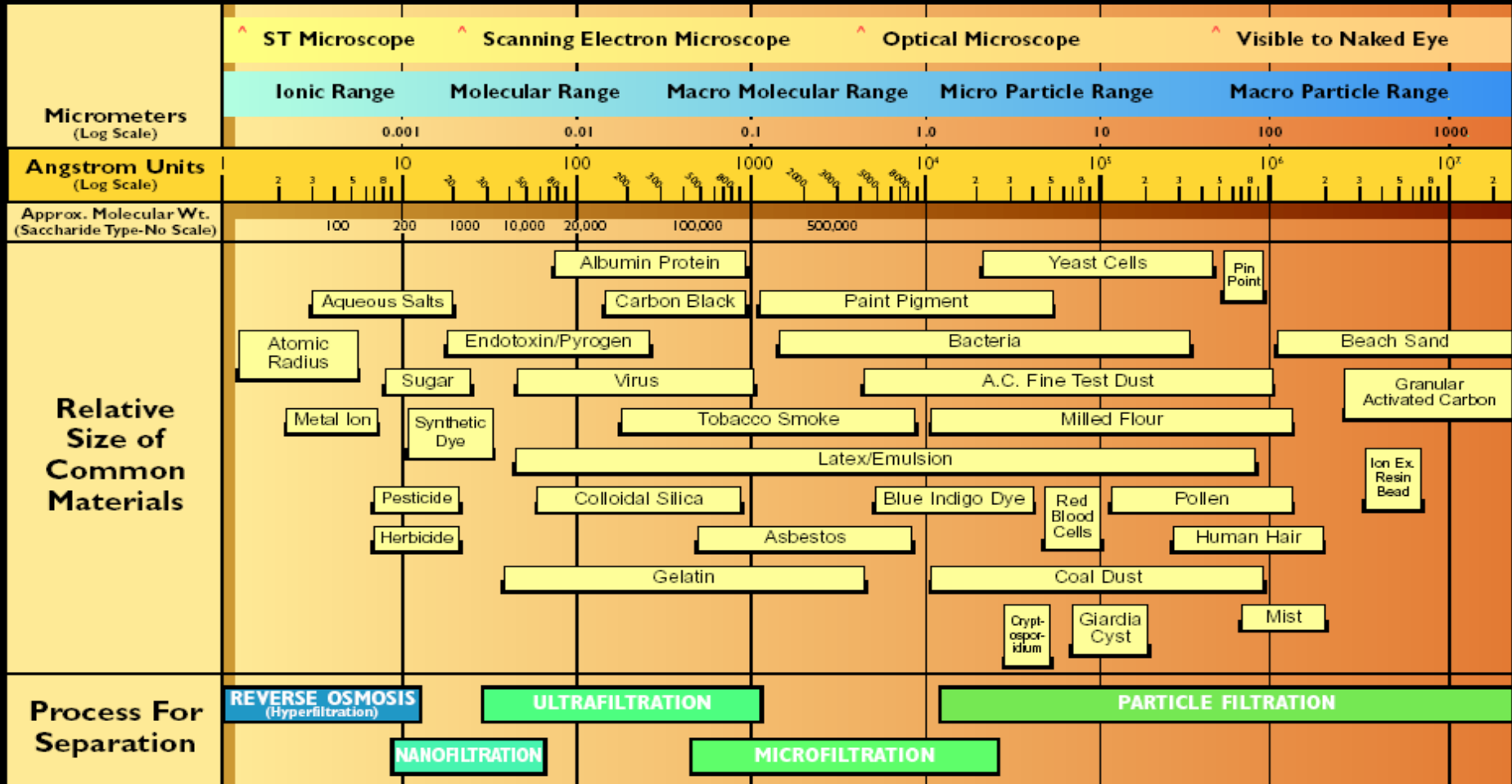
# Our Other Products

- Urjaa Lakshya © – Energy Conservation Software
- Chemicals for Effluent Treatment
- Chemicals for Boiler Water Treatment
- Chemicals for Boiler Water Treatment
- Sequestering Agent for Processing



# OSMONICS

# The Filtration Spectrum



Note: 1 Micron ( $1 \times 10^{-6}$  Meters)  $\approx$   $4 \times 10^{-8}$  Inches (0.00004 Inches)  
 1 Angstrom Unit =  $10^{-10}$  Meters =  $10^{-4}$  Micrometers (Microns)

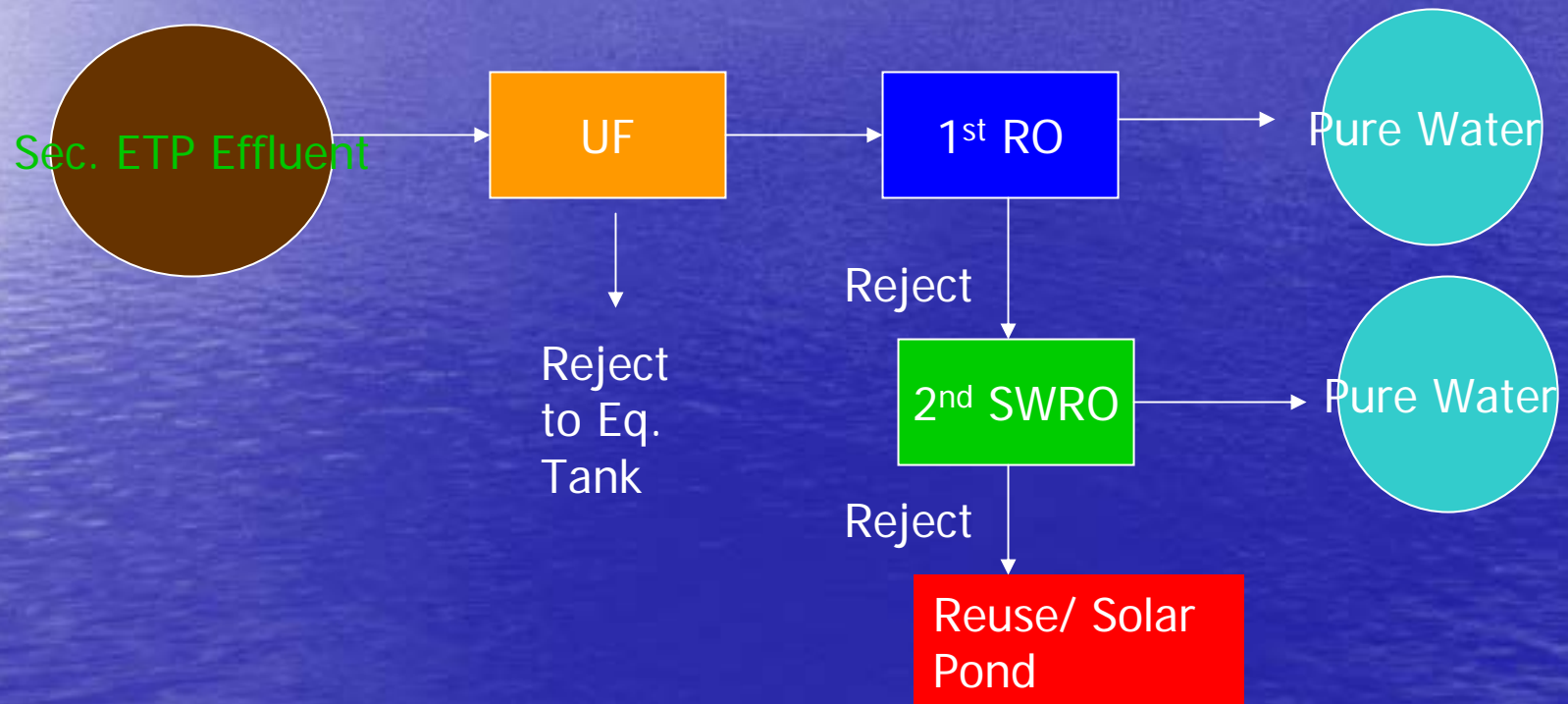
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# Paradise Effluent Recycling System





# UF Skid



# Advantages of UF

- UF is a robust membrane process
  - Remove problem components in the water supply
  - UF is chlorine resistant
  - Open Channel Fibers resist plugging
  - Backflushable
- Reduce foulants to the RO system
  - SDI < 1, even when feed is high
  - 99%+ silicates reduction
  - Higher RO Flux
- Reduce RO Cleaning Costs
  - Expect 2x/yr cleaning or less
- Reduce O&M Costs
  - 5-7 year membrane life
  - Lower energy
  - Fewer RO elements required

# Plant Capital Costs

No.	Capacity in M3/d	UF + 1 <sup>st</sup> RO	2 <sup>nd</sup> SWRO
1	150	21	11
2	300	35	14
3	450	48	14
4	600	58	18

# Plant Capital Costs

No.	Capacity in M3/d	UF + 1 <sup>st</sup> RO	2 <sup>nd</sup> SWRO
1	750	71	18
2	900	83	22
3	1050	100	22
4	1200	111	22

# Plant Sizes

No.	Capacity in M3/d	Permeate in M3/d	Reject in M3/d
1	150	92	21
2	300	205	51
3	450	304	69
4	600	419	110

# Plant Sizes

No.	Capacity in M3/d	Permeate in M3/d	Reject in M3/d
1	750	506	110
2	900	618	146
3	1050	719	171
4	1200	822	195

# Cost Reduction

- Recycle > 80% of Effluents
- Reduce your Water Costs
- Reduce your Steam Generation Costs
- Reduce your Chemicals Costs by > 15%
- Reduce your Dyes cost by > 5%

# Advantages of RO Water in Processing

- Dyes Depth & Brilliancy
- Dyes Dispersion & Dissolution
- Improved Fastness
- Better Feel of Fabric
- Redn. in Auxiliaries Cons.
- Acid & Soda Requirements
- Lower Scaling & Corrosion of m/cs
- Lower COD BOD Loads to ETP



# Other Benefits

- Compliance to PCB
- Conservation of Water Resource
- Improve the Image of your Company

# Paradise Advantages

- Cutting Edge UF Technology
- Complete Removal of Organics
- Hydrophilic Low Fouling RO Membranes
- Optimum Flux Operating System Design
- Sea Water RO System for Reduction of Discharge
- Multi Stage Evaporator if Zero Discharge required
- Grundfos Make High Energy Efficiency SS 316 Pumps
- No MSRL Vessels instead FRP Composite Vessels

# Paradise & You

- **New Era of Water & Energy Scarcity**
- **Shift to Fuel & Water Management from Just Treatment**
- **Water & Energy Conservation a Major Cost Reduction Tool**
- **Paradise Can Help You Reduce Your Energy & Water Costs**