e-STP

with

ELECTRO-COAGULATION

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Changing times demand more effective technology

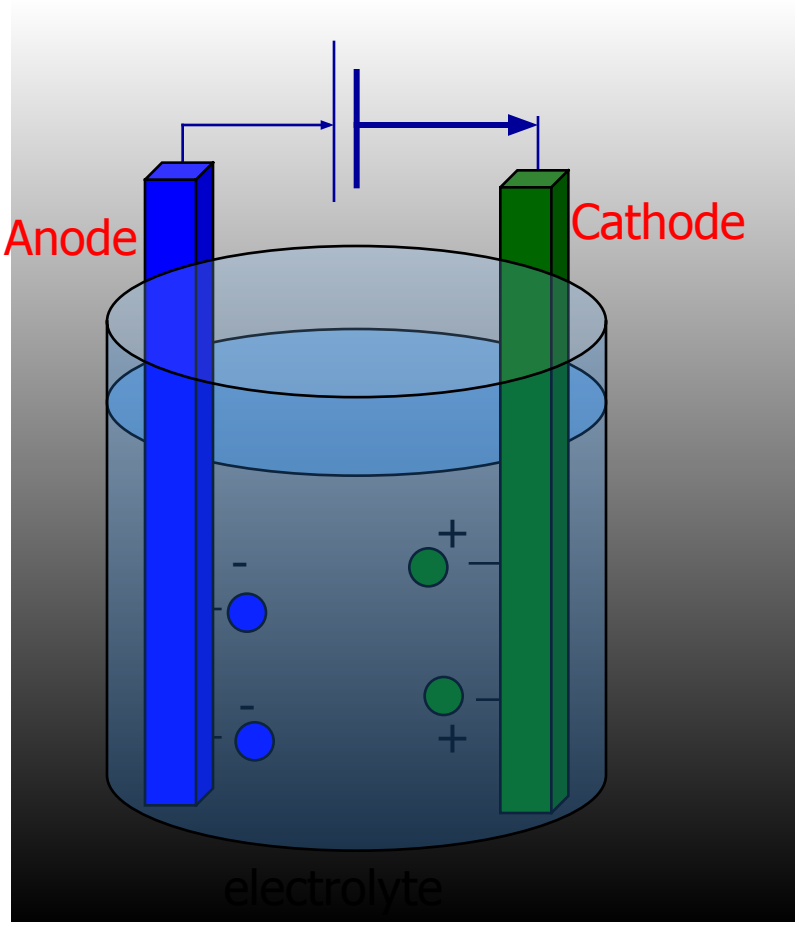
Executive Summary

- Sewage Treatment in India is with out dated conventional technology.
- Immediate need for new technology
- Electro-Coagulation technology offers tremendous advantages for sewage treatment.
- e-STP Saves on capital cost, operating cost, time
- e-STP makes recycling of sewage a reality
- e-STP process is also used for treating other industrial wastewaters.

What does e-STP do?

- **Coagulate suspended solids & settle into sludge**
- **Oxidize organics and reduce soluble COD**
- **Destroy pathogens**

How does EC work?



Key Reactions

- Oxidation / Reduction
- pH change
- Sweep coagulation
- Charge neutralization
- Floatation
- Electrophoresis
- Disinfection

How does EC work?

Example of electro-coagulation, Flocculation and floatation. The principle of this reaction:

Charge Neutralization / coagulation: (+ve charged ions react with negative charged ions. Reaction time: 0.2 seconds)

$$Al(s) - e + H_2O \longrightarrow Al(OH)^{2+} + Al(OH)^{+}_{2} + Al_7(OH)^{4+}_{17}$$

Sweep Coagulation / Flocculation: (Al complexes adsorb on to colloidal particles. Reaction time: 7 seconds

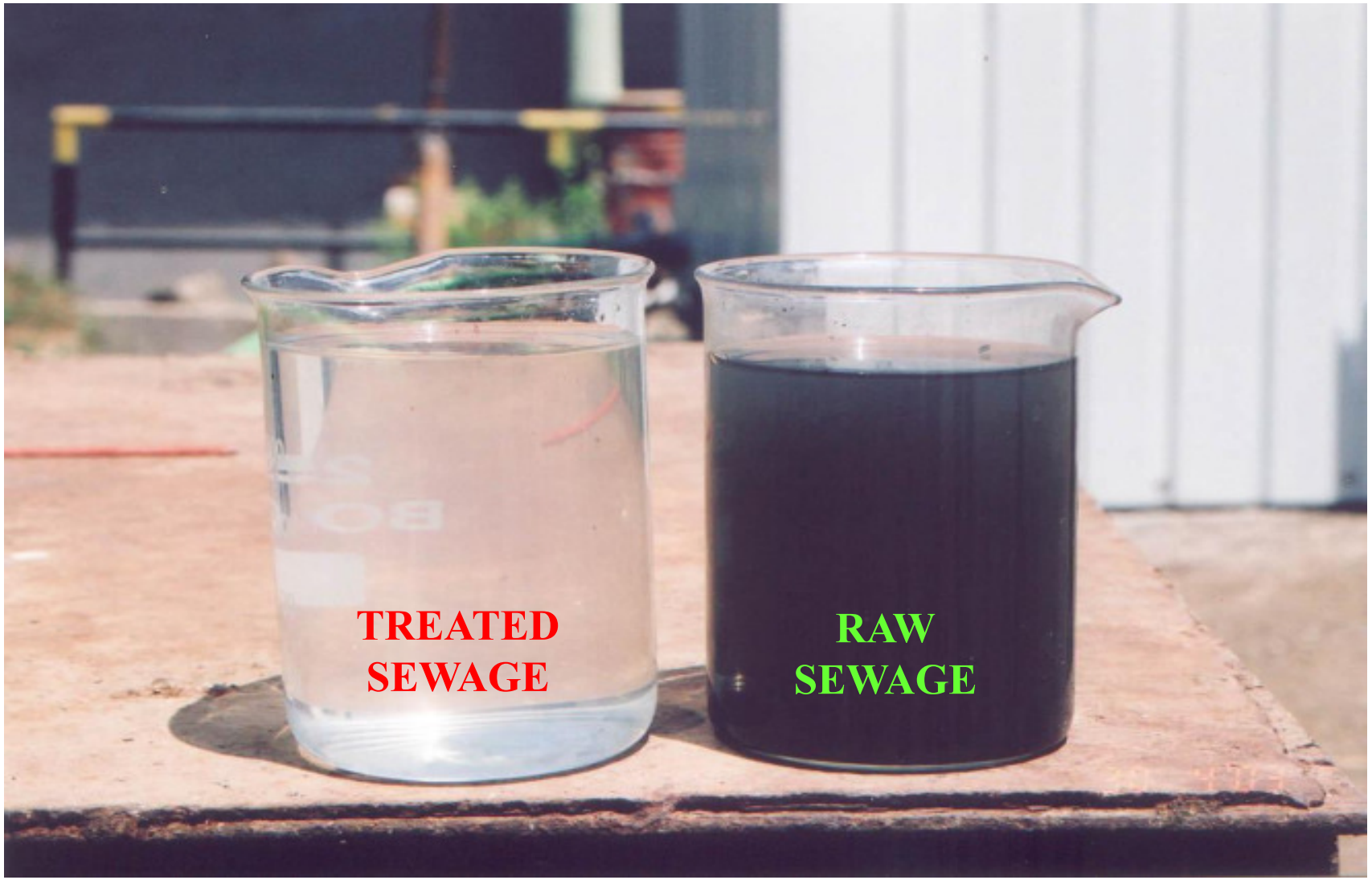
$$Al(OH)^{2+} + Al(OH)^{+}_{2} + Al_7(OH)^{4+}_{17} \longrightarrow Al(OH)_{3(s)}$$

COD Reduction with EC

Removes COD by 70-80% in a single step. Sewage & sullage COD range 500- 700 Mg/l. With EC this will be reduced to 100-150 Mg/l.

BOD is also reduced proportionally. BOD will be below 10 Mg/l

Treated water confirms to discharge standards of CPCB.



THE RESULT

e-STP with electro-coagulation

ecowater has developed e-STP with electro-coagulation.

e-STP treats sewage, sullage and laundry water effectively.

Complete sewage treatment plant comprising of pumps, oxidation chamber, sand filter and activated carbon filter.

It also comes with modern sludge de-watering system for hygenic sludge dewatering and disposal

e-STP Advantages

- Instant treatment
- Independent of climate / temperature
- Plug & use
- Easy to install
- No blower & No aeration
- No smell
- No chemicals added to the process
- Can be located on roof top / cellar
- Small footprint- 40% of conventional process
- Goodbye to large civil works
- Noise free

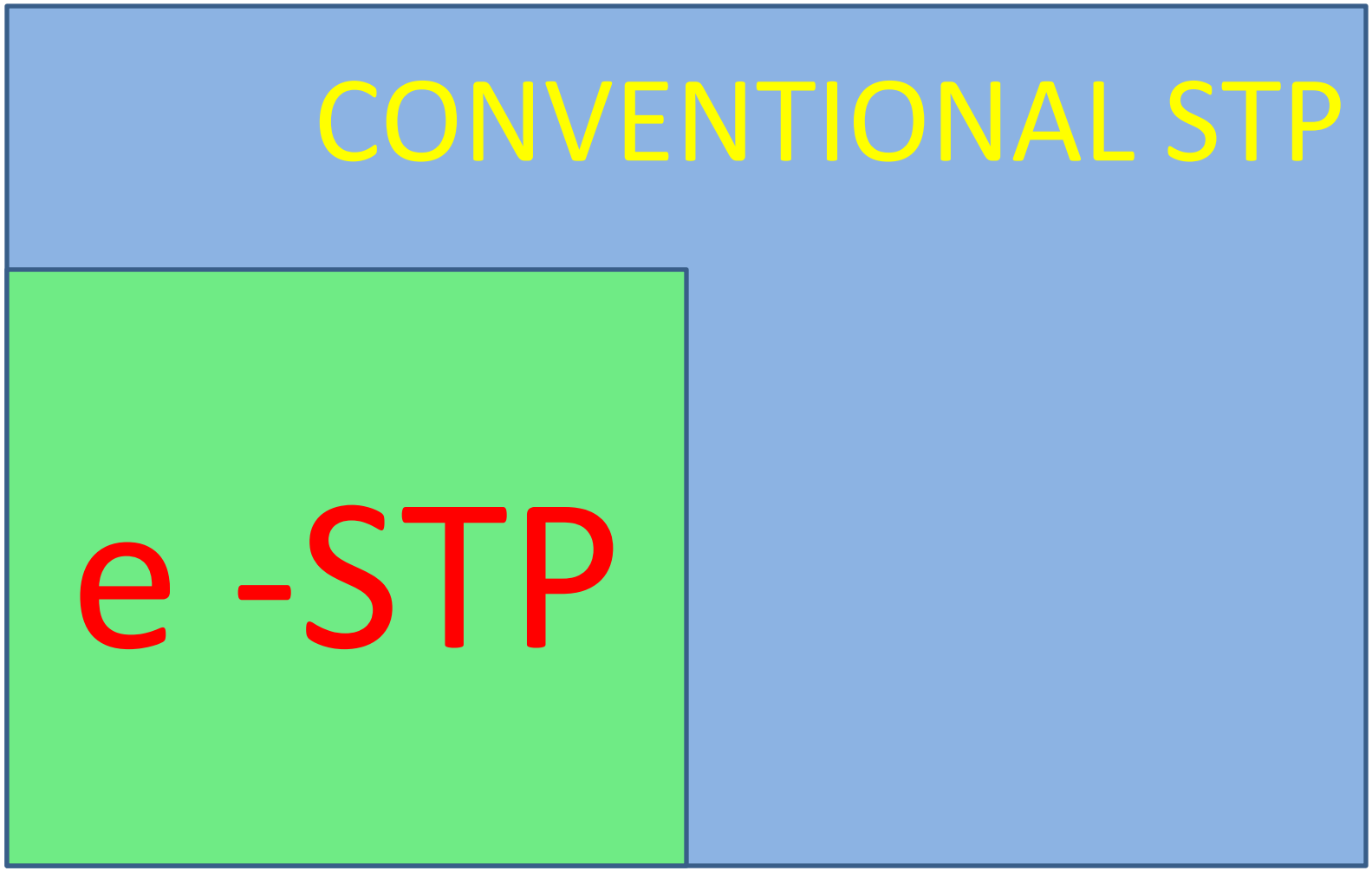
e-STP Save on

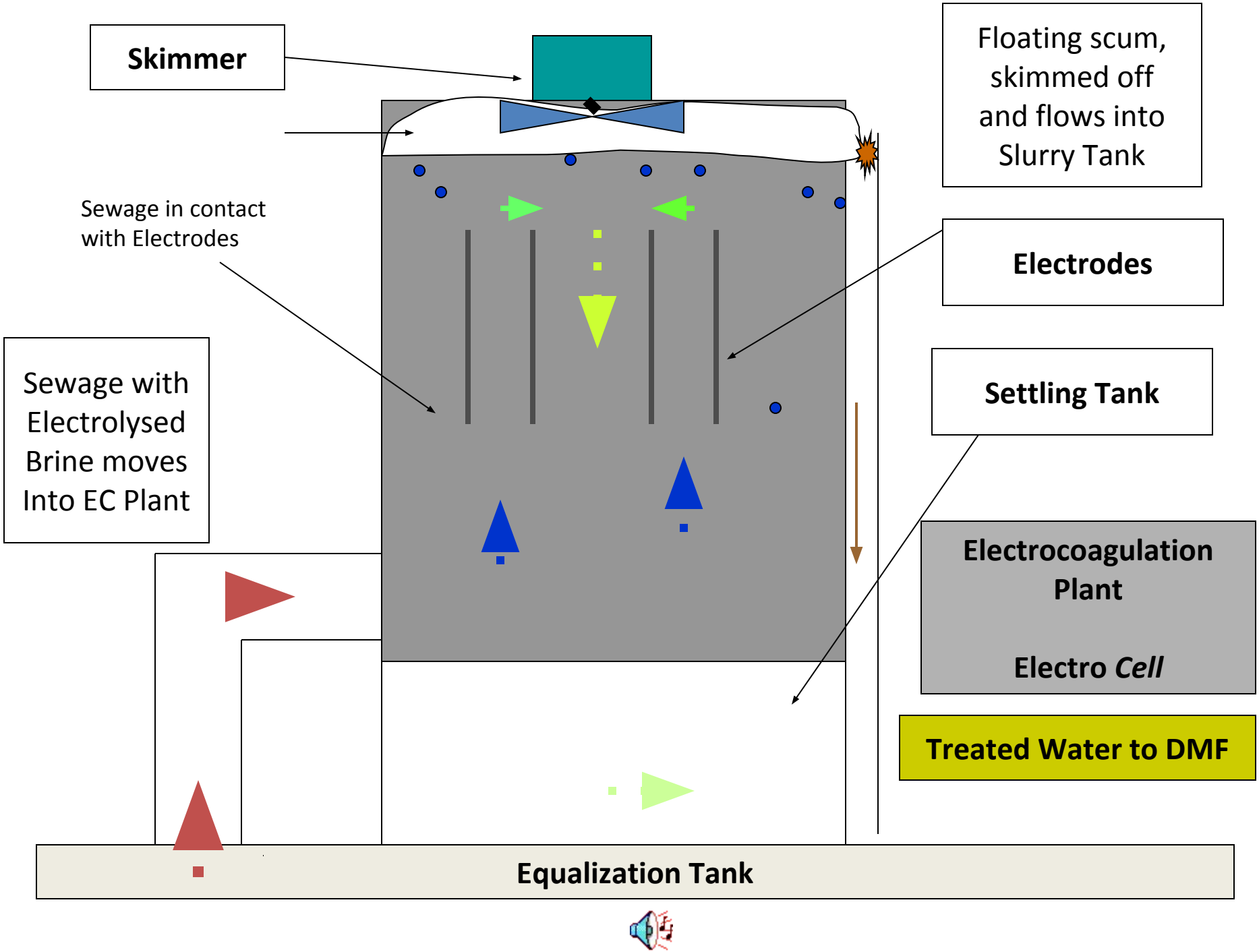
- Capital cost- 60% of land compared to biological process
- Large civil work cost
- Construction & stabilization time
- Manpower –single shift operation
- Fresh water purchase by recycling
- Sewer charges
- Operating cost- operate only if effluent is available

FOOT PRINT e-STP Vs ASP

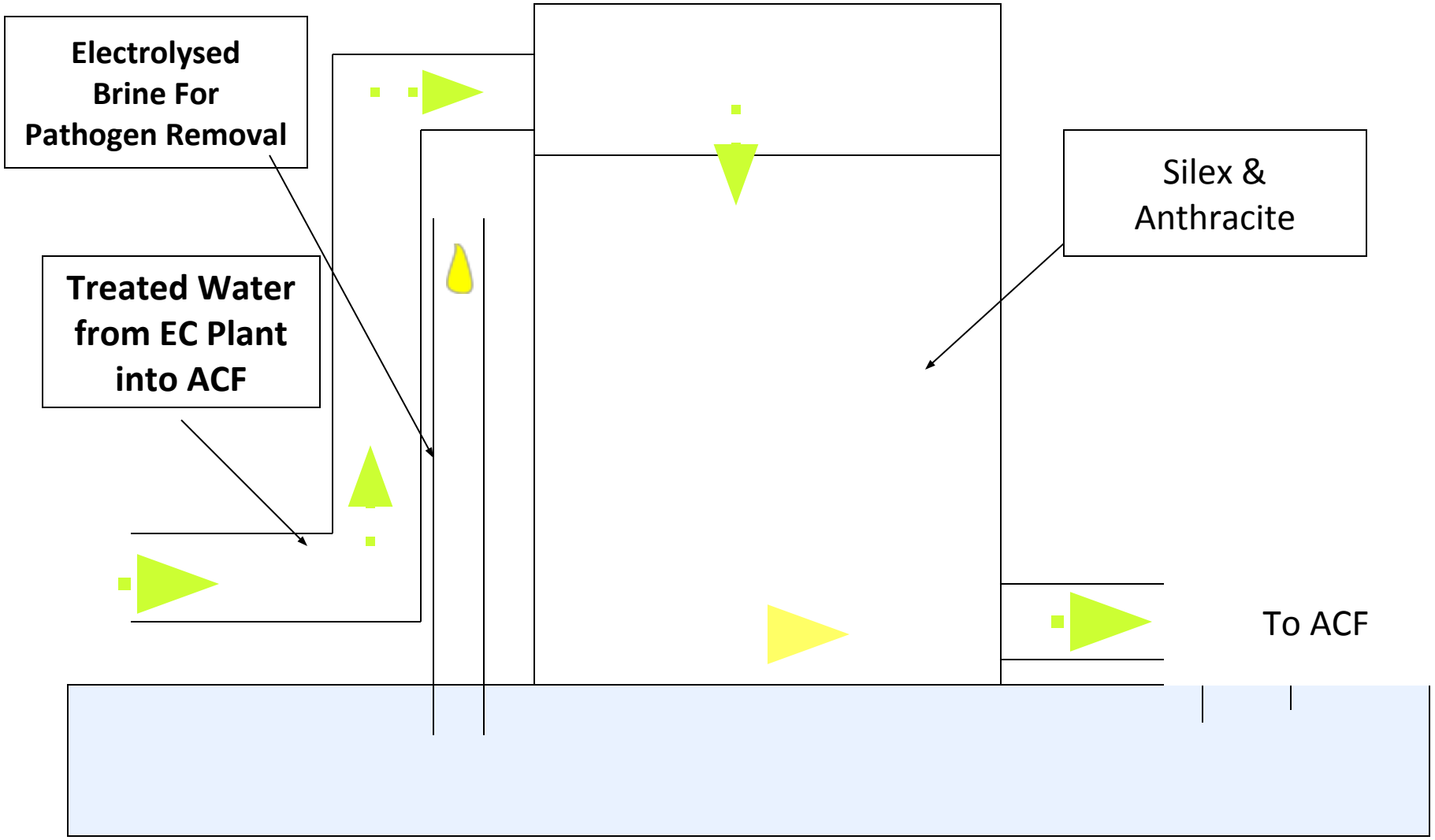
Civil Tank	E-STP	Conventional STP
Aeration Tank	Not required	Required
Settling Tank	Not Required	Required
Chlorination Tank	Not Required	Required
Sludge Digester	Not Required	Required
Sludge Dry Beds	Not required	Required

FOOT PRINT e-STP Vs ASP

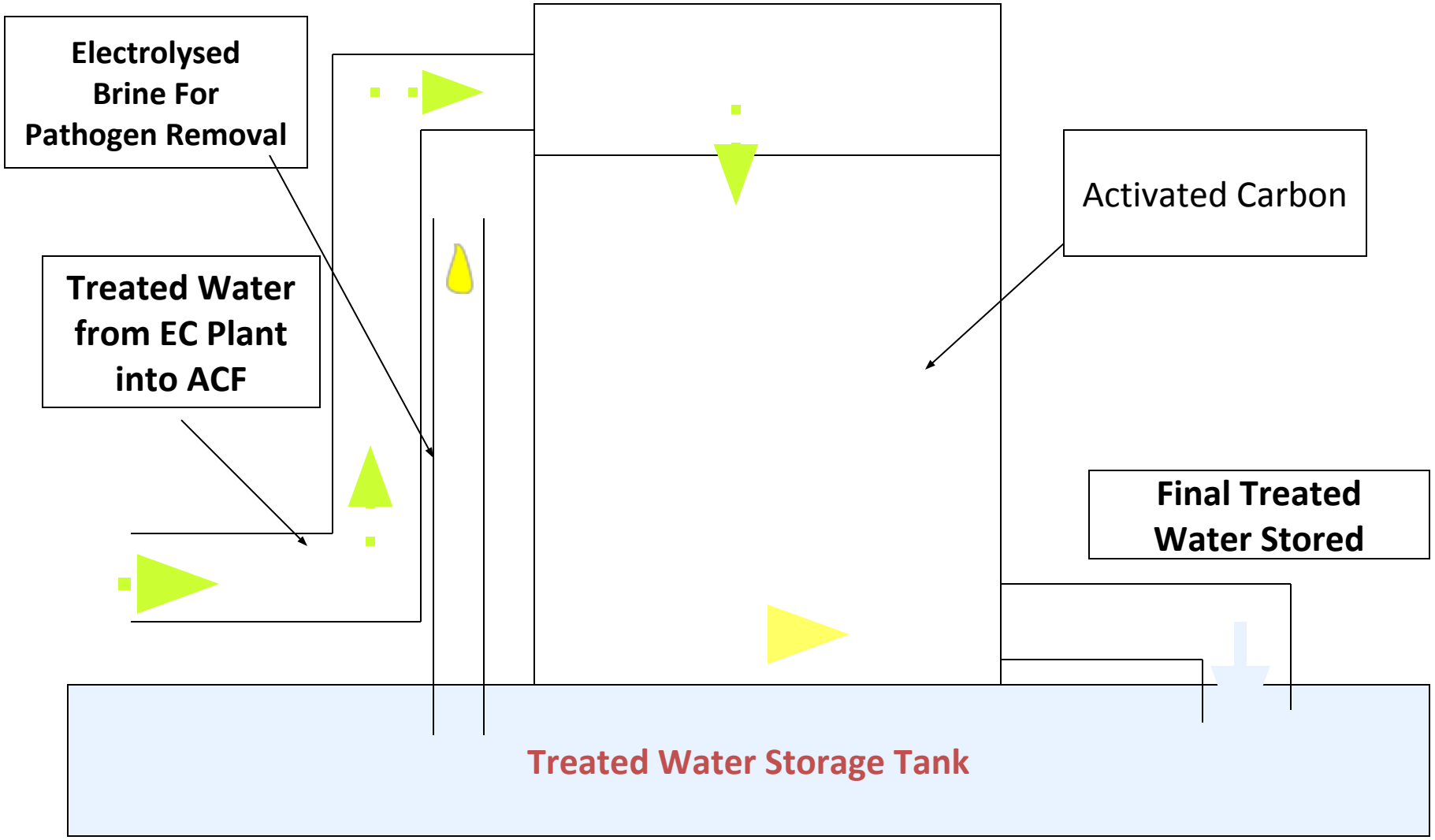



Skimmer
Floating scum, skimmed off and flows into Slurry Tank
Sewage in contact with Electrodes
Electrodes
Sewage with Electrolysed Brine moves Into EC Plant
Settling Tank
Electrocoagulation Plant
Electro *Cell*
Treated Water to DMF
Equalization Tank

Dual Media Filter

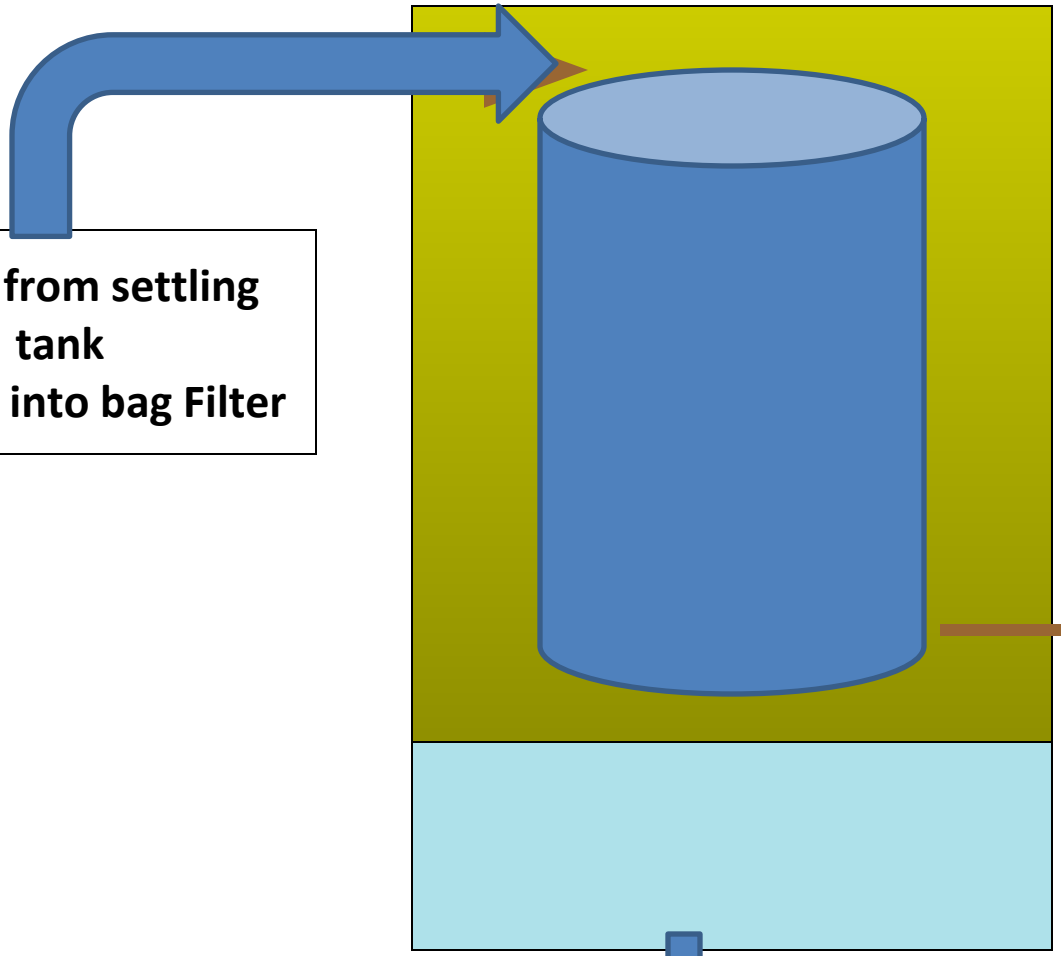


Activated Carbon Filter



Sludge Dewatering Bag Filter

Hygenic sludge disposal



Sludge from settling tank
Pumped into bag Filter

Sludge bags disposed every week

Drained water flows back to Collection tank

COMPARISON

with

CONVENTIONAL TECHNOLOGY

Changing times demand more effective technology

PARAMETER	CONVENTIONAL	EC-STP	BENEFITS
Chemical use	Need Alum & lime	Chemical free	
Start Up	1 to 2 months	Instant	
Operation	24 X 7 X 365	Only when needed	
Aeration	Required	Not needed	
Skilled Manpower	Required	Not Required	
Shock loads	Can’t handle	Easily handles	
Output	Has pathogens	Pathogen Free	
Output Re-use	Not suitable	Suitable	
Noise Levels	High	Very low	
Sludge Generation	High	Low	
Sludge dewatering	Poor	Excellent	
Foot Print	Large	Small	
Civil Works	Huge	Small	
Moving Parts	More	75% Less	

PARAMETER	CONVENTIONAL	EC-STP	BENEFITS
Down Time	High	Low	
Capital Cost / KL	XXX	0.75 XXX or less	
Operating Cost / KL	Rs. 25/-	Below Rs. 15/-	

Results EC-STP Vs Conventional STP

Parameter	Raw	EC Treated Result	EC Treated % Reduction	ASP Treated Result	ASP Treated % Reduction
Oil & Grease	300 PPM	< 50	84%	< 100	66%
COD	700 PPM	< 70	85%	< 100	
BOD	300 PPM	< 30	90%	< 30	90%
TSS	300 PPM	< 20	95%	100	66%
Turbudity	30 NTU	< 2	94%	< 10	66%
E. Coli	Present	Nil	99.99%	Present	NA
DO	Nil	4	NA	0	NA

Other applications of e-STP

- Automobile service stations: For treatment and recycle of wash effluent
- Commercial Laundry: For treatment & recycle of effluent
- Fuel Stations: For treatment & disposal of wash effluents
- Dairy Industry: Treatment & recycle of process effluents
- Textile industry: Color removal for dye bath effluent
- Coolants in engineering industry: Treatment & disposal of coolants
- Food processing industry: Treatment of high COD effluent and recover fats
- Chemical & Pharma: Treatment of high COD process effluents with solvents
- Plating industry: Heavy metal removal from effluents

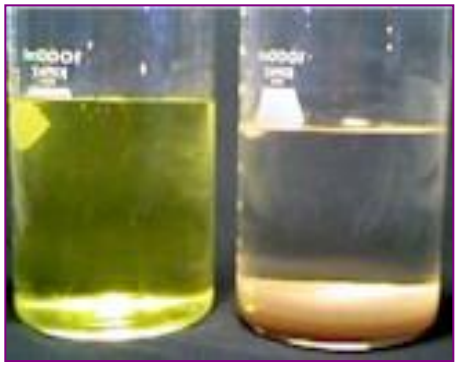
Color Removal in Textile Wastewater

Treatment results.. Industrial effluents

coolant

machine wash

Dairy effluent



Electro-plating

Textile

River water

INSTALL NEW GENERATION

e-STP

TODAY

Contact us

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