

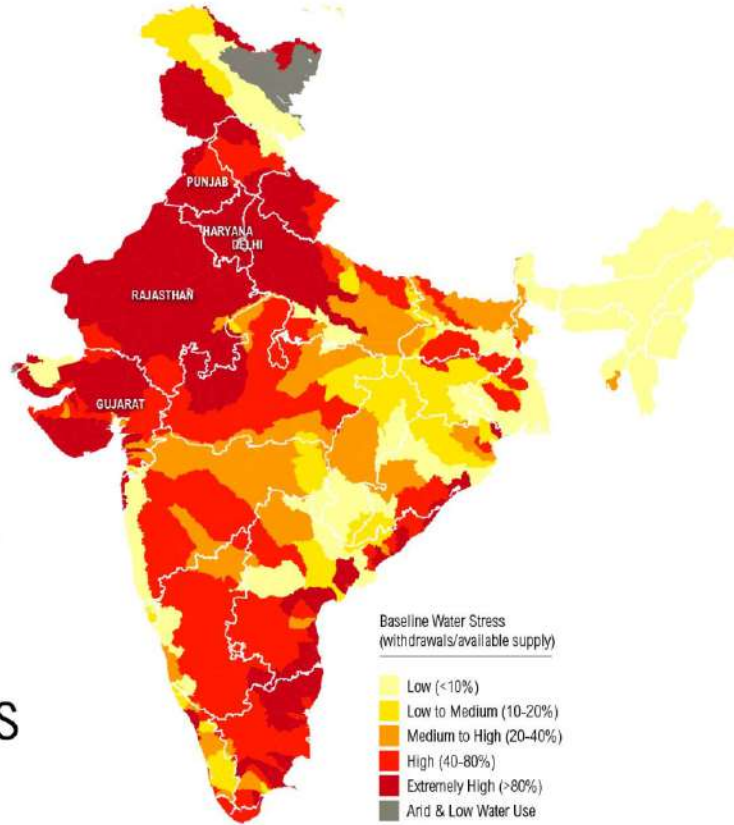


Capacitive De – Ionization (CDI)

Water Treatment Plant

Water Crisis

54%
of India
Faces
**High to
Extremely
High**
Water Stress



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 WORLD RESOURCES INSTITUTE



Solution

Capacitive De-ionization Water Treatment Plant

A effective and economic way to treat the water

The way it works,

Conserves Water by wasting only what is needed to take out impurities

Less Energy to use treat water and leaves less carbon footprint

Low Operating Cost to customers having long life

Improves health benefits by taking out toxins like fluoride, Nitrate, Arsenic, Iron etc.....retaining minerals like Calcium, Magnesium, required for body.



CDI Cells



It removes all the toxic contamination from Water

A effective and economic way to treat the water

Salts

- Total Dissolved Solids
- Total Hardness
- Calcium Carbonate
- Magnesium Carbonate
- Sodium Chloride
- Phosphates
- Sulphates
- Chlorides
- Nitrates
- Fluoride.....

Metals

- Chrome
- Iron
- Arsenic
- Nickel
- Copper
- Zinc
- Cadmium
- Mercury
- Manganese
- Lead
- Vanadium.....

Others

- Bacteria
- Ammonia
- Chromium 6
- Radionuclides
- Nitrites
- Nitrates....



A Key benefits.....

A effective and economic way to treat the Water

Low Water Wastage < 20%

What is this mean to us?

CDI has 80% water recovery when purifying to drinking water quality compare with 30% recovery from RO Technology

Assuming 1 million people consume 5 Litre of water every day, we need 5 million water to be treated every day

RO Technology need 12.50 million Raw water to produce this clean water every day

CDI System need 6 million Raw water to produce this clean water every day

This means **saving of 6.50 million** water every in 1 million people's drinking water



A Key benefits.....

A effective and economic way to treat the water

Low operating Cost

How its Economical?

CDI Technology requires very low energy – Can also operate in Solar energy or any other Renewable energy

CDI requires less consumables and **NO replacement parts** required. CDI cell lasts for 10 years+

CDI Cost approximately Rs.8 per 1000 Ltrs compare with Rs.15 to Rs.25 per 1000 Ltrs with RO.

CDI is not required any periodic maintenance work as its automatically cleaning the System



A Key benefits.....

A effective and economic way to treat the water

Healthy & Environment Friendly

How retaining important minerals?

CDI has ability remove only toxins and retains essential mineral like calcium, magnesium etc.

Use less energy leaves less carbon footprint. It consumes one sixth of power required by RO Technology

CDI does not required any Hazardous Chemicals to operate.



A Comparison against RO Technology

A effective and economic way to treat the water

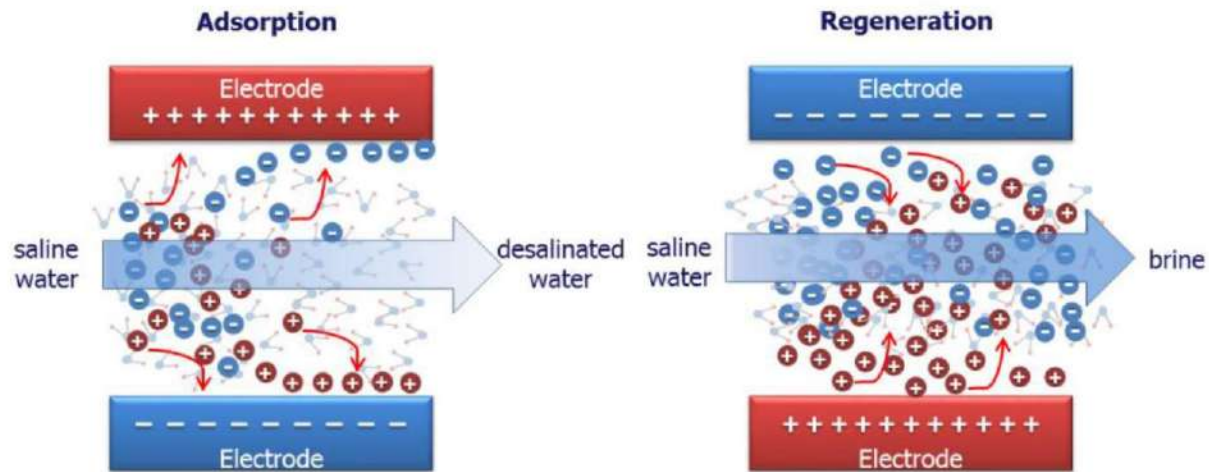
RO Technology	CDI Technology	Savings / ROI
3000 liters of water is required to produce 1000 liters of drinking water	Only 1200 liters of water is required to produce 1000 liters of water	100% saving in Raw water for the same output
30 units are required to produce 1000 liters	Only 10 units are required to produce 1000 liters	200% saving in energy – resulting in green credits
Membranes and consumables needs frequent changes resulting in higher consumables costs	CDI cells need not be replaced for 5-6 years.	80% savings in consumables costs
All essentials minerals are taken out from RO systems leading to health issues in long term	Has ability to regain essential minerals like Calcium, Magnesium that is required for body	Huge health benefits



How CDI works?

A effective and economic way to treat the water

Our patented technology of capacitive deionization works when electricity is applied to the electrode, ions of opposite charge pass through the ion exchange membrane and move to the surface of the electrode and are electrically adsorbed



How CDI works?

A effective and economic way to treat the water

1. The system comprises of “CDI Cells” which has several electrodes stacked in a compact case
2. Water is sent at a low pressure through these electrodes and as it passes, a direct current at a potential difference of 1.6 Volt is supplied.
3. This creates an electrostatic field that attracts the ions dissolved in water to the electrodes. Operating as low voltages, electrolysis and gas production will not occur. The result is the partial or total demineralization of the water.



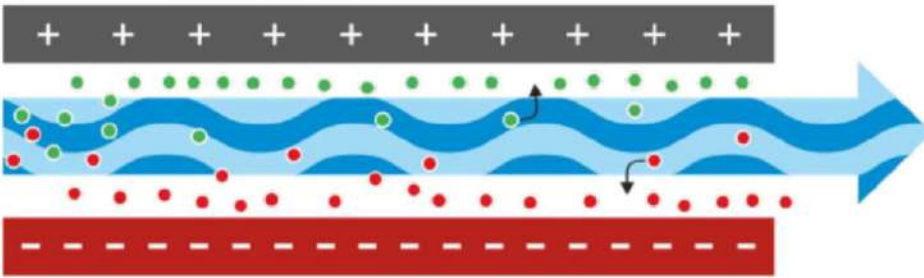
How De-ionization happens?

A effective and economic way to treat the water

STEP
01

Ion Removal

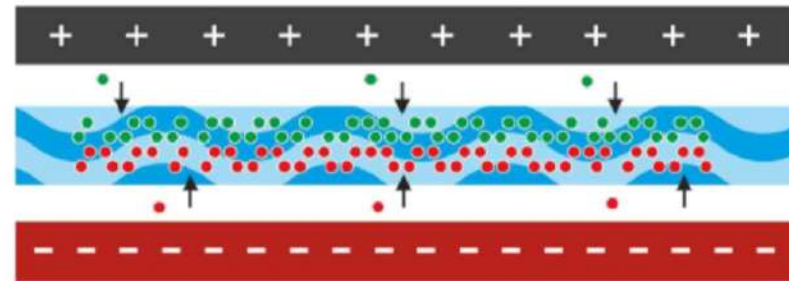
Water is sent at a low pressure through the electrodes. As they pass a low voltage is given and the ions get attracted to opposite charged electrodes. The water which is void of these salts and metals come out of the system.



STEP
02

Regeneration

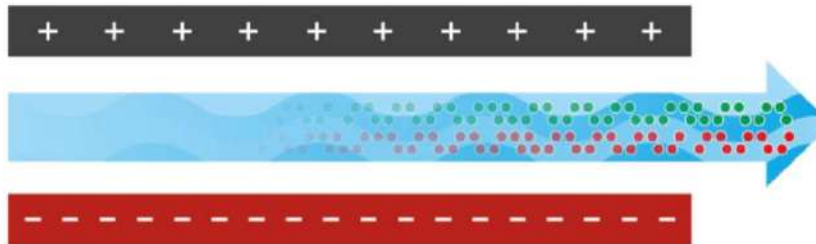
With more and more ions sticking to the electrodes, they become saturated – when this happens, the system automatically changes the polarity. The ions sticking to the electrodes fall off resulting in the drain



STEP
03

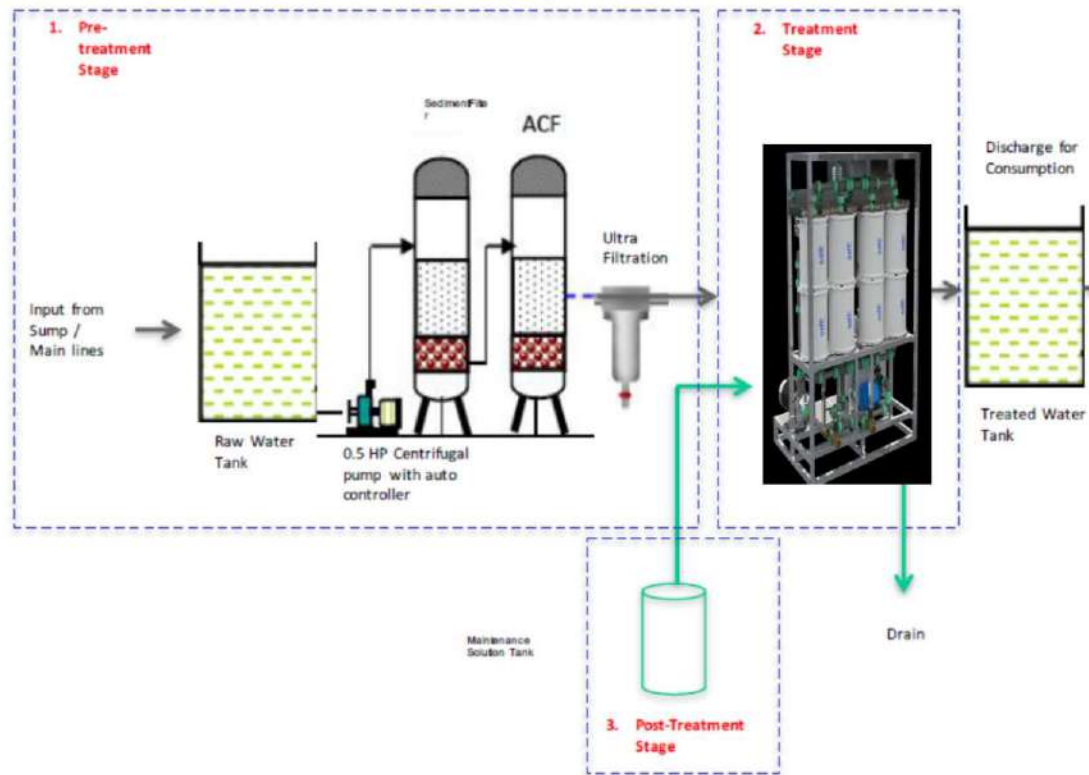
Drain

The water with the concentrated salts gets out as the system as drain. Once these salts are removed, the Polarity is reversed and the cycle to remove ions starts again (Step 1)



A Overview.....

A effective and economic way to treat the water



Few of our projects.....

A effective and economic way to treat the Water



SDI AT MOTHER TERSA HOME ALWAR RAJASTHAN



SCHOOL IN RAJASTHAN



Thank you!

