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Dalmia cement FUTURE TODAY

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Our Uniqueness

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- Only Plant in the World , Making 16 Varieties and Operating 8 Management systems
- A Pre-independent, first born Indian Cement Plant, has won several National Awards, including the CII EHS 5 Star / CII National Energy Leadership Award , all the three times , since inception and as one of the top 5 out out 150 plus Cement units of our Country.
- Lowest Carbon footprint in the World. (as a Group)
- Our Dalmiapuram Green Fuel TSR % in Jan21 touched 25%. Indian Avg., is @ 4%.
- Green fuel/AFR enhancement to replace Fossile is not only part of our National Agenda but also a Global main lever as well towards Carbon Nertrality & to combat climate change challenges.
- Water Positivity target – Our DPM Plant is 4.8 times
- Carbon Neutral Ambition - Carbon Negative Cement Group 2040.
- DPM is the First Green Pro Certification in the Country for PPC

Our Uniqueness

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- First Rank in the country in the CDP League Table .Ranked no.1 cement group globally on business readiness for low carbon transition (Source : CDP Global Cement Sector Report, April 2018)
- RE 100 - first cement company in the country to join RE100 (Third amongst all after Tata Motors and Infosys . (RE 100 is a global collaborative initiative of the world's most influential companies committed to 100 per cent renewable power.)
- 100% renewable power under fossil free electricity initiative – 2030 . (Being one of the greenest cement companies in the world, Dalmia Cement has set an ambitious interim target to increase four-fold its percentage of renewable energy consumption by 2030)
- Double energy productivity - 2030 (EP 100)
- Renewable biomass and waste to replace fossil fuel use - 2035
- Third Indian Cement Company to sign the CSI Charter
- Wash Pledge adopting

Our Uniqueness

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Management Systems

IS/ISO 9001:2015
Quality

IS/ISO 14001:2015
Environment

IS 18001:2007
Health & Safety

IS/ISO 50001:2011
Energy

API SPEC 10A

API SPEC Q1

SLSI 107

CE Marking

TRIGGER OF THE PROJECT

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Sustainability is rooted in our Corporate Vision with the philosophy that a clean and green company has a profitable & sustainable future. Accordingly, several Sustainability initiatives are on focus, out of which, **this Paper deals with our journey in brief towards becoming a Water Positive Plant**. This incidentally is also in line with United Nation's Sustainable Development Goals (SDG 6), viz., "Sustainable Management of Water for all by 2030".

- ❖ 700 million people worldwide could be displaced by intense water scarcity by 2030.
- ❖ 2.1 billion people live without safe water at home.
- ❖ 4 billion people - nearly two-thirds of the world's population experience severe water scarcity
- ❖ One in four primary schools have no drinking water service
- ❖ 159 million people collect their drinking water from surface water, such as ponds & streams.

Keeping in view the **alarming facts** above and as a social cause, **it is imperative that water conservation is every one's responsibility** and we need to adopt judicious approach.

CHALLENGES & METHODS

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We embarked on our journey towards attaining water-positivity with the two steps as below:

i. **to reduce the water consumption and then**

ii. to harvest more water than the consumption by creating structures, as needed.

Several water conservation initiatives implemented thro' internal brainstorming & structured water audit, which has brought down the Consumption by about 500 Cum/day. Also, increased Water harvested thro' structures created in Plant/Mines as well as thro' CSR interventions.

CHALLENGES & METHODS

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Step-1 to reduce the Water Consumption

Conservation efforts in Plant DOMESTIC Water Consumption: (Achieved-50 M3/Day)

- Optimization of Domestic Water usage in Plant thro' awareness, Pep talk and education
- Installation of Automatic control system to Line-2 Domestic Water Over Head Tank
- Ordinary tap cocks were replaced with Lifting & Push type tap Cock.
- Flow Meter Installation to all Consumption Points
- Daily Water Monitoring System introduced and followed to monitor the consumption closely.
- Discussion in Daily Co-ordination meeting by HODs
- Introduction of Drip irrigation to all the Gardens inside the Plant

CHALLENGES & METHODS

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Step-1 to reduce the Water Consumption

Conservation efforts in Plant PROCESS Water Consumption: (Achieved-100 M3/Day)

- Fresh Air damper introduced to Cooler Take off duct to reduce the ESP inlet Temperature and reducing the Water Spray quantity
- Automation in all Process Water Tank (Cement Mill, Coal Mill & Cooler water spray tank) by providing Level Sensors with Auto Valve interlock
- Installation of Electro Magnetic Flow Meters to all Process Consumption Points for close monitoring
- Capacity de-bottlenecking at our STP (Sewage Treatment Plant) to increase the yield

CHALLENGES & METHODS

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Step-1 to reduce the Water Consumption

Conservation efforts in Plant PROCESS Water Consumption: (Achieved-100 M3/Day)

- Treated STP water usage for Plant process, replacing the existing Raw Water Consumption, which is contributing to attain Water Positive
- Leakage Management-End to End Water Flow measurement to identify the Leakages from Under ground Pipeline.
- Major Leakage in an underground pipeline identified thro' a meticulous inspection/check and arrested by replacing 300 Metre length pipeline.
- Cooling Tower Management

CHALLENGES & METHODS

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Step-1 to reduce the Water Consumption (Achieved-25 M3/Day)

Conservation efforts in CPP Water Consumption:

- Re-usage of RO Reject from CPP for ACC Spray and Service Water usage
- Boiler Blowdown is reduced from 1.5% to 0.6% for bothe the CPP
- Cooling tower management by using Treated Effluent water with RO from ETP for make-up Purpose
- AC drain water is used for Gardening purpose
- Leakage arresting and conversion of ordinary Tap cocks with Push Type.

CHALLENGES & METHODS

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Step-1 to reduce the Water Consumption (Achieved-125 M3/Day)

Conservation efforts in COLONY Water Consumption:

- Overflow from over head tanks avoided by Float Valves provision/repairing at Over Head Tanks.
- Colony gardening water replaced with treated Sewage Water.
- Awareness on Water Conservation given in Ladies Club through Power Point Presentation. PEP talk given at our School.
- Signage boards on Water Conservation are provided at all the important junction points in our Colony and School Areas
- Scrolling in TVs is arranged in all the TVs at our Colony

CHALLENGES & METHODS

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Step-1 to reduce the Water Consumption (Achieved-125 M3/Day)

Conservation efforts in COLONY Water Consumption:

- Provision of Flow meters to our Colony & School usage points and close monitoring by Daily report
- Around 130 Ordinary tap cocks were replaced with Lifting & Push type tap Cock in our Plant, our Colony, Schools and our Community Centre.
- Leakage of Water taps in Colony is arrested by Inspection, Repairing & Replacement in all Colony Houses, Schools and Guest House.
- Sprinkler system for Watering to Garden
- With all the above optimization efforts, reducing the pumping hours of Raw Water to Colony from 17 hours to 9 hours is achieved and sustained.

CHALLENGES & METHODS

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Step-2 - to harvest more water by creating structures thro' Plant/Mines/CSR Interventions (as in few sample visuals below)

Rain Water Harvesting Structure at VP Quarry

CHALLENGES & METHODS

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Rain Water Harvesting Structure thro' CSR
De-silting of 450 Acre Manodai Lake

- ✓ 450 Acres of Manodai Lake
- ✓ 3750 Cubic Meter silt removed.
- ✓ 2.2 km bund strengthened.
- ✓ 70 Acres of Seemakaruvel trees removed.
- ✓ 1.25 Mtr level got filled by recent rain out of 2.0 Mtr capacity.
- ✓ 2700 Acres of irrigation land is getting benefited

CHALLENGES & METHODS

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Rain Water stored in farm ponds constructed in at Watershed Village

CHALLENGES & METHODS

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33 numbers of Re-charge Pits created (as in Tabulation & few visuals below)

Rain Water Harvesting Pits		
Sl.No.	**Locations**	**Qty in Nos.**
1	Dairy farm	1
2	Dalmia Higher Secondary School	3
3	Vivekananda Mat. School	2
4	Ramar Koil	2
5	Gandhi Colony	1
6	In front of Time Office (Plant)	2
7	New Apartments	20
8	Hospital	2
Total		**33**

CHALLENGES & METHODS

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At our Dairy Farm

At our School

At our New Apartments

At our Hospital

TANGIBLE BENEFITS

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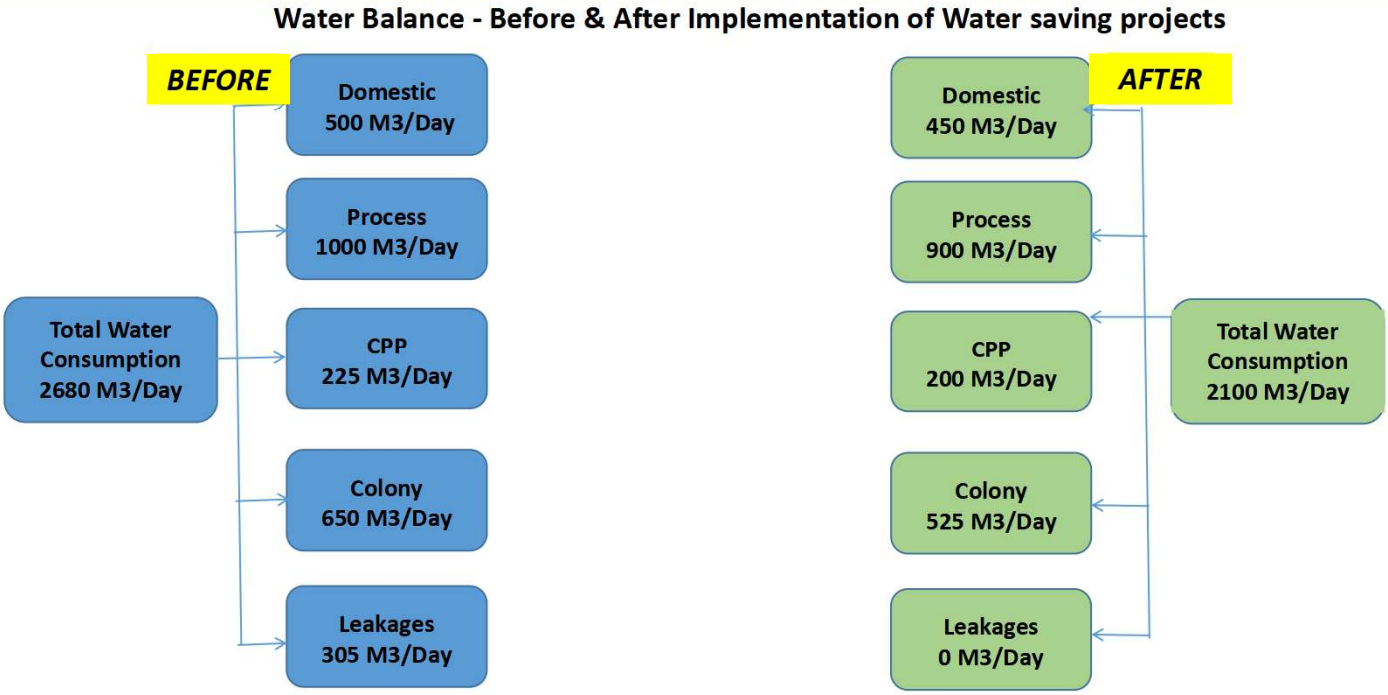

TANGIBLE BENEFITS

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❖ Subsequent to the implementation of the above two steps viz.,

i. Water conservation actions and

ii. More rain water harvesting, a re-assessment done and water balance arrived at, taking into account

- ✓ the Water Withdrawn from various sources
- ✓ Water recycled
- ✓ Water Harvested in Plant/Mines premises
- ✓ Water harvested from CSR Interventions

TANGIBLE BENEFITS

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Water Positive Calculation

Location	Dalmiapuram (2019-20)
Cement Production in MT	2088237
Surface water (River/ Lakes) (m3) A	441290
Harvested rainwater within the Plant/ Mines (m3) B	145468
Total Fresh water consumed annually in cubic meter (m3) C= A+B	**586758**
Water harvesting potential created in Plants and Mines (M3) D	1207850
Water harvesting potential created through CSR (M3) E	1609590
Total water harvesting potential created through CSR+Plant+Mines (M3) F= D+E	**2817440**
Water Positive Index G = F/C	**4.8**

INTANGIBLE BENEFITS

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- The United Nations Sustainable Development Goals (SDG 6) is Sustainable Management of Water for all by 2030
- Water is left in rivers, reservoirs, groundwater basins where it can be used for enhancing Environmental purposes
- Supporting rich Bio diversity
- Lower Energy Consumption by avoiding / Less extraction from ground source
- Reduced wastewater flows mean that less effluent must be disposed of, often with some Environmental impacts
- Rain water Harvesting/ Recharging is Increasing the Water Table
- Our Achievement towards Water Positive supports all the above

REPLICATION POTENTIAL OF THE PROJECT IN INDIAN INDUSTRY

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- Water Consumption is major requirement for Cement Industries, Captive Power Plant, Steel industries for Process and Domestic Purpose.
- By taking conservation measures, Encouraging Recycling and Developing Water Harvesting Structures within and beyond fence, can achieve Water Positive.
- Our other units also have replicated these initiatives and achieved Water Positive.

ACHIEVIENG INTERNATIONAL STANDARD

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- The United Nations Sustainable Development Goals (SDG 6) is Sustainable Management of Water for all by 2030
- In our Industry, we have achieved 4.8 times Water Positive level.
- By replicating this to all the water based industries, the international Goal is achievable by the Target date

Way Forward

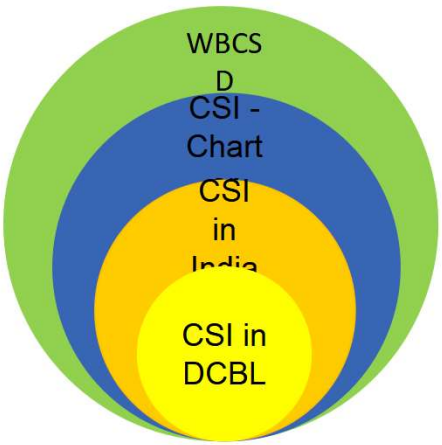
With the efforts above, as assessment carried out and as per the same, Our Plant has achieved Water Positive Status and it is 5 times Water Positive, without taking into account an additional harvesting initiative (namely Manodai as shown in visual above) , which is created after the assessment.

Motivated with the results achieved, our next step is to take this up & set a new target to become 20 times water positive by 2025. Our road map is thro' creating more rain water harvesting Structures to the local communities and make significant quantities of water available.

"One must care about the world one will not see"

Mahatma Gandhi

Top Management Committment Cement Sustainability Initiative (CSI)



MD Signing the new Charter at Seoul (Third Indian Cement Company to sign this Charter)

Dalmia Determined Contributions (DDCs)

Ambition - Carbon Negative Cement Group 2040

- Usage of 100% renewable power under fossil free electricity initiative - 2030 (RE 100)
- Double energy productivity - 2030 (EP 100)
- Renewable biomass and waste to replace fossil fuel use - 2035
- Carbon Capture and Utilisation (CCU) for process emissions and Carbon Sequestration - 2040

Dalmia Cement announces carbon negative roadmap at Future Economy session invited by Harvard Business Review in San Francisco

Dalmia Cement at COP-24

The progressive actions of Dalmia Cement (Bharat) Limited have been recognized by United Nations. DCBL was one of the two non-party stakeholders invited to the opening of Global Climate Action in COP-24

Right to Left: H.E. Minister Inia Seruiratu, Fiji Minister of Defense; H.E. Nicola Sturgeon, First Minister of Scotland; H.E. Mr. António Guterres, UNSG; H.E. Mr. Michał Kurtyka, President of COP 24; H.E. Mr. Mateusz Morawiecki, Prime Minister, Poland; Ms. Patricia Espinosa, Executive Secretary UNFCCC; Mr. Ralph Hamers, CEO and chairman Executive Board ING Group; Ms. Hindou Oumarou Ibrahim, Indigenous Leader and member of the Climate Action Leadership Network; Mr. Mahendra Singhi, MD and CEO DCBL

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FUTURE TODAY

"In the middle of every difficulty lies an opportunity" - Albert Einstein

Let us Convert Climate Challenge into an Opportunity

LET US BE RESPOSIBLE FOR OUR FUTURE GENERATIONS