CK BIRLA GROUP

ORIENT CEMENT

Great Place To Work® Certified MAR 2022 - MAR 2023 INDIA™

Orient Cement Limited

Clinker Grinding Unit
Jalgaon-Maharashtra

Presentation By:

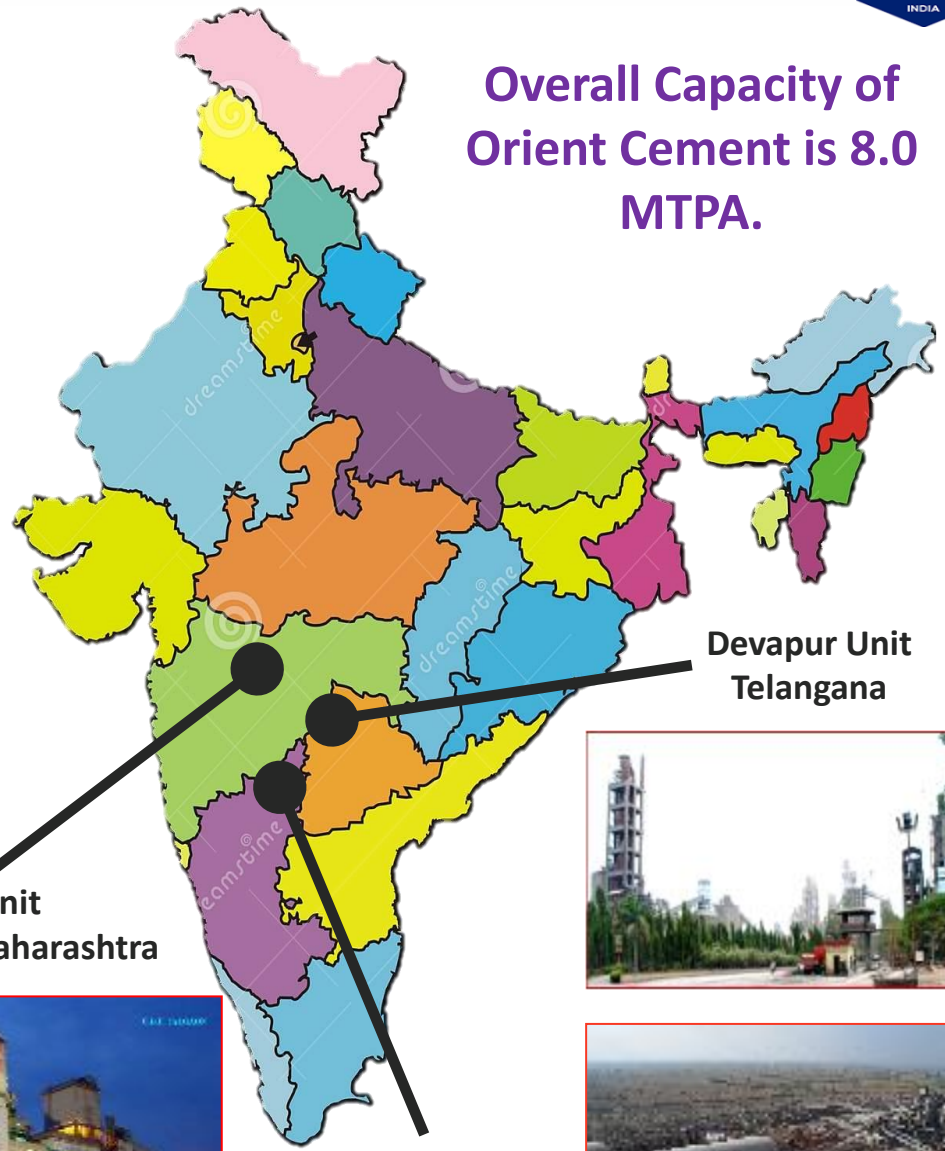
Chandan Parasar (HOD-Production)

Santosh Biyani (Dy Manager-Production)

ORIENT CEMENT LIMITED - COMPANY PROFILE

- Orient Cement is a part of CK Birla Group which was Established in 1979.
- Started cement production in the year 1982 at Devapur in Adilabad District, Telangana (Earlier Andhra Pradesh)
- In 1997 A split-grinding unit was added at Nashirabad in Jalgaon, Maharashtra and started production on 2000.
- In 2015 Orient Cement started commercial production at its integrated cement plant located at Chittapur, Gulbarga, Karnataka.
- With a total capacity of 8 MTPA, we serve Maharashtra, Telangana, Andhra Pradesh, Karnataka and parts of Madhya Pradesh, Tamil Nadu, Kerala, Gujarat and Chhattisgarh

Overall Capacity of Orient Cement is 8.0 MTPA.



Devapur Unit
Telangana

Grinding Unit
Jalgaon- Maharashtra

Chittapur Unit
Karnataka

ORIENT CEMENT LIMITED – CLINKER GRINDING UNIT, JALGAON

2000 : Plant Commissioned

Plant Cap.: 0.70 MTPA

2003 : PPC Production started

Plant Cap.: 0.80 MTPA

2007 : Line-1 upgradation with conversion into Close circuit

Plant Cap.: 1.0 MTPA

2009 : Line-2 Commissioned

Plant Cap.: 2.00 MTPA

Unit Overview

Unit : **Orient Cement Limited, Clinker Grinding Unit**

Address : **NH-6, Nashirabad, Jalgaon-425309 (MHS)**

Capacity : **2.00 MTPA**

Major Equipments Available :

1. Line-1 (Roller Press + Ball Mill circuit supplied by M/s Thyssenkrupp)

2. Line-2 (Roller Press + Ball Mill circuit supplied by M/s KHD)

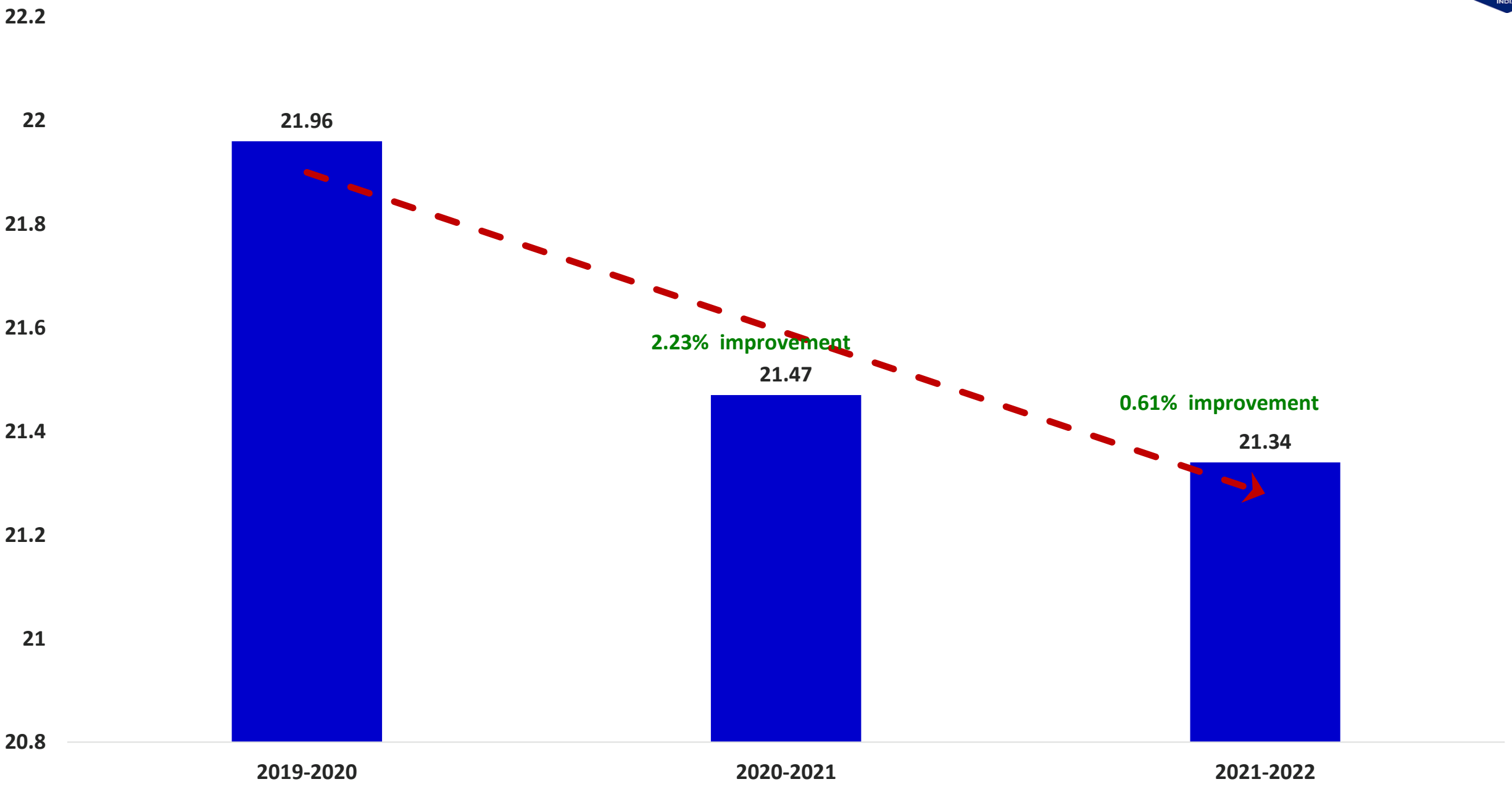
ORIENT CEMENT

Production Details

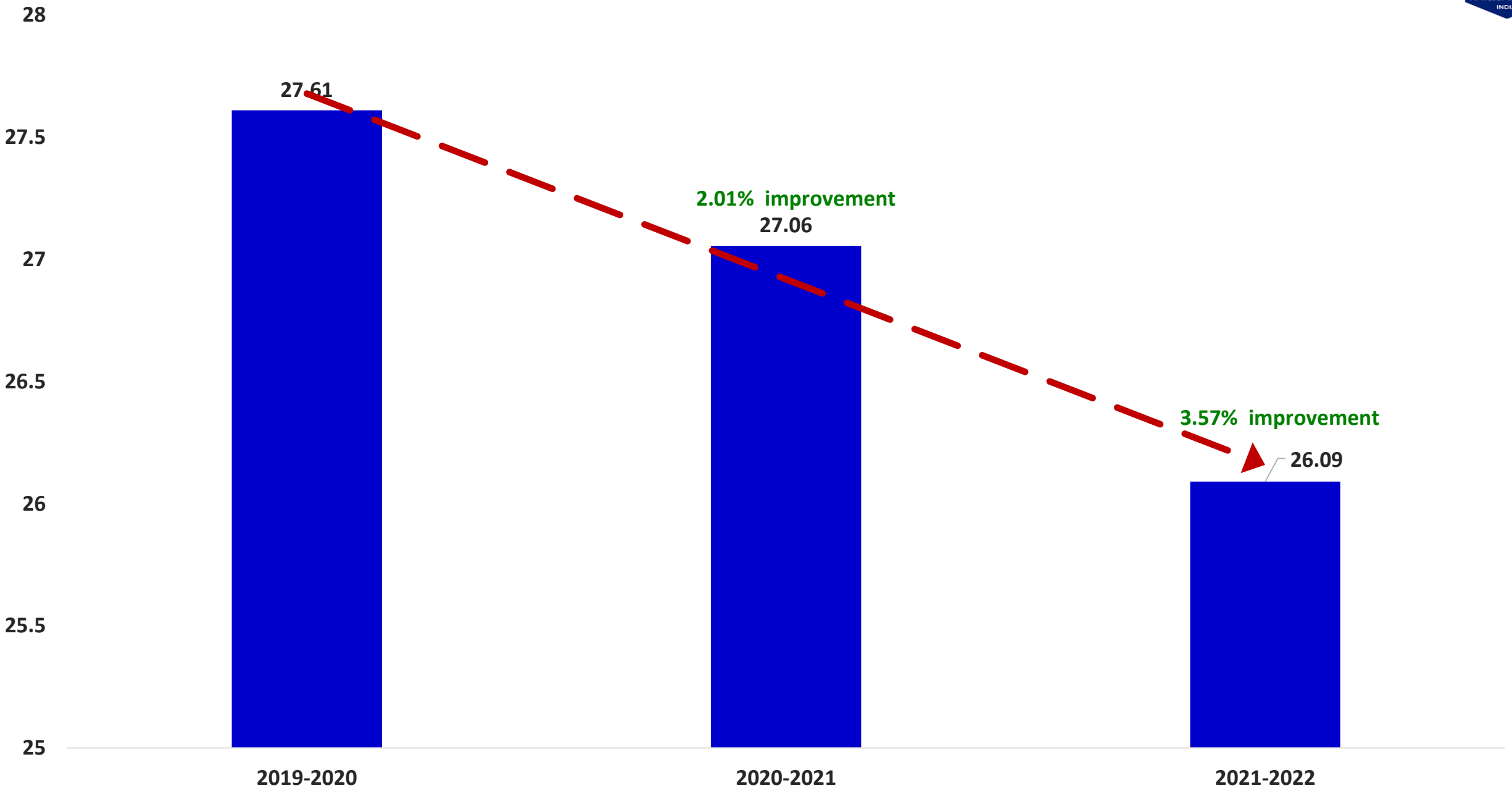
Great Place To Work. Certified APR 2021 - MAR 2022 INDIA

Parameters	UoM	2019-2020	2020-2021	2021-2022
Installed Cement Capacity	MMTPA	2	2	2
Cement Production	MMTPA	1.14	1.06	1.24
Product Contribution of PPC	%	87.62%	88.38%	88.49%
Product Contribution of OPC	%	12.38%	11.62%	11.51%
Clinker Factor for OPC	#	0.91	0.91	0.91
Clinker Factor for PPC	#	0.62	0.62	0.62

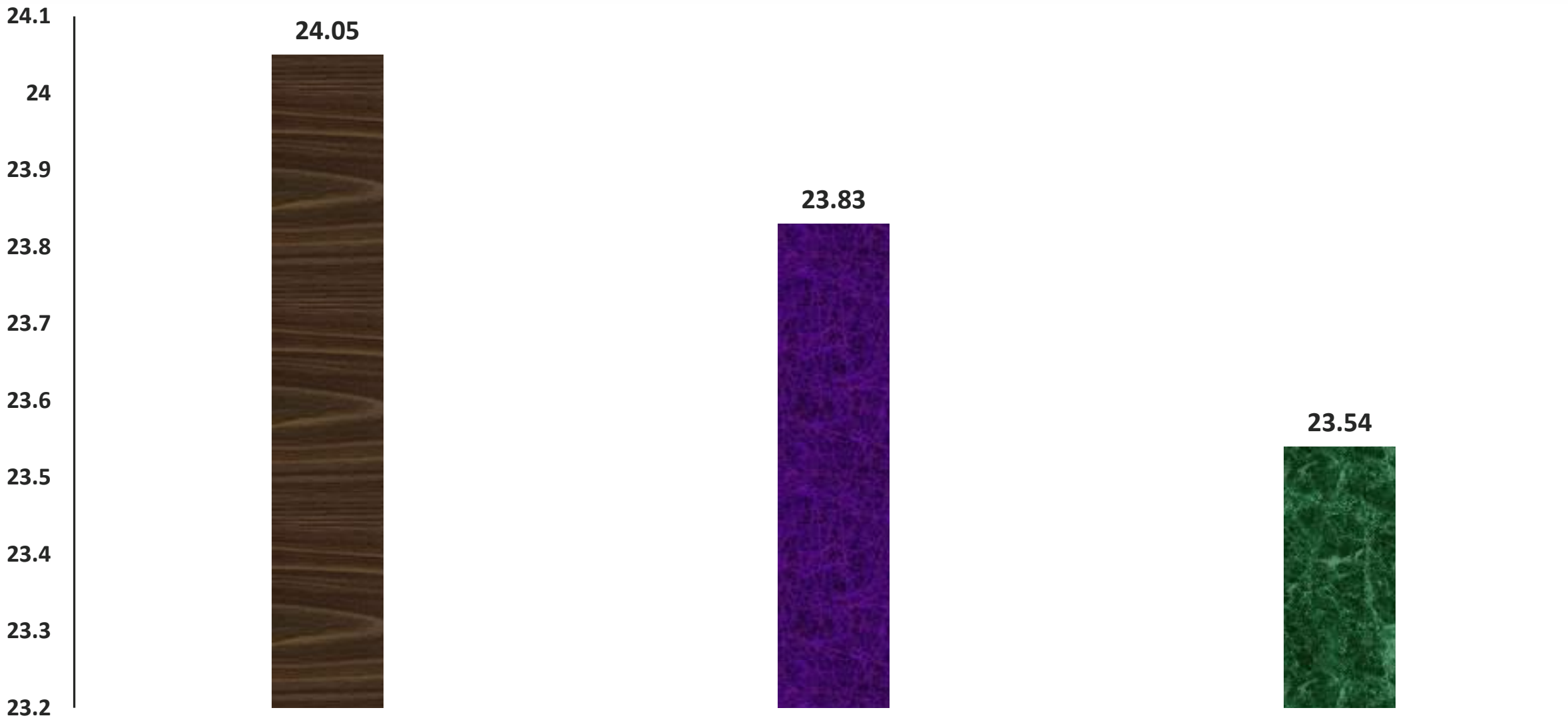
Specific Power Consumption-PPC



Specific Power Consumption-OPC



Competitors, National Benchmark



ORIENT CEMENT

LIST OF ENCON PROJECTS IMPLEMENTED DURING 2019-20

Great Place To Work. Certified MAR 2022 - MAR 2023 INDIA

Sr. No.	Title of Project	Annual Electrical Saving (kWh)	Annual Electrical Cost Saving (Rs. million)	Investment Made (Rs. million)	Payback (Months)
1	Removal of dust collector fan damper at Packer -01, Packer 02 and Packer 03	25347.71	0.179	0	
2	Replacement of Line 2 Mill liner by classifying type	532880.25	3.767	8	
3	Removal of Line -01 Polycom Sepol fan inlet damper. (GRR Driven	90399.20	0.639	0.433	
4	Replacement of Line-01 Mill Sepol fan impeller with high efficiency, high volume.	49135	0.347	1.84	
5	Rerouting of line 1 and line 2 dust collector material according to their sieve size and blaine	428377.98	3.029	0.40	
	Total	**1126140.14**	**7.961**	**10.673**	**16.09**

ORIENT CEMENT

LIST OF ENCON PROJECTS IMPLEMENTED DURING 2020-21

Great Place To Work. Certified MAR 2022 - MAR 2023 INDIA

Sr. No.	Title of Project	Annual Electrical Saving (kWh)	Annual Electrical Cost Saving (Rs. million)	Investment Made (Rs. million)	Payback (Months)
1	Replacement of Line-1 Ball Mill separator Coarse return air slide from 280 TPH to 400 TPH to avoid jamming.	46200	0.41	0.2	
2	Replacement of Fly Ash Bin Blower from 15 KW to 11 KW (available old drive)	19307	0.17	0.02	
3	Diversion of line 2 BF3 Dust collector material from mill inlet to mill outlet.	21396	0.17	0.02	
	Total	**86903**	**0.75**	**0.24**	**3.74**

ORIENT CEMENT

LIST OF ENCON PROJECTS IMPLEMENTED DURING 2021-22

Great Place To Work. Certified MAR 2022 - MAR 2023 INDIA

Sr. No.	Title of Project	Annual Electrical Saving (kWh)	Annual Electrical Cost Saving (Rs. million)	Investment Made (Rs. million)	Payback (Months)
1	Grinding Media Optimization	700403	5.72	0.200	0.42
2	Interconnection of compressed air line for unloading multiple Flyash bulker at a time	97912	0.80	0.025	0.38
3	Shortening of Clinker Silo tunnel (B) conveyor length by 40%.	5000	0.041	0.010	2.93
4	Installation of Oil lubrication system for SKS separator	10000	0.082	0.065	9.51
5	Replacement of Flyash bin extraction root blower from 15 KW to 5.5 KW blower	22000	0.18	0.200	13.33
	Total	**835315**	**6.823**	**0.500**	**0.88**

ORIENT CEMENT

Major EnCon Projects planned for FY 2022-23

Great Place To Work. Certified APR 2021-MAR 2022 INDIA

Sr. No	Title of Project	Annual Electrical Saving (Million kWh)	Annual Electrical Cost Saving (Rs. million)	Investment to be Made (Rs. million)	Payback (Months)
1	Low Pressure Compressor for DFA unloading from Tanker	0.44	3.7	3	10
2	Installation of Zero Energy Loss valve	0.059	0.5	0.8	8
3	Modification in Flyash feeding arrangement followed by Line-2 outlet Duct modification	1.47	12.5	21	20
4	PID Optimization	0.083	0.7	1.05	18

INNOVATIVE PROJECTS IMPLEMENTED 2021-22

Sr No	Innovative ideas
1	Strongcrete silo discharge air slide connection for Packer-1. **Availability of Cement loading from multiple Packers.**
2	Manual feeding arrangement and modification in packer-4 reject air slide. **Improvement in Packer reject handling and thereby the reduction in Fugitive Dust Emission.**
3	Belt conveyor from packer-3 to TLM-5 for Strongcrete cement loading to enable muti grade despatch from single loading machine **Availability of multigrade Cement loading from single Truck loading machine.**
4	StrongCrete Bulk Loading by In-House modification (Feeding Connection from the SC Steel Silo to existing Bulk Loading system) **Availability of Strongcrete for Bulk loading.**

GHG INVENTORISATION

Reduction in GHG emission in Ton of CO2/Ton of Cement by

- Optimization of Fly ash utilization from 34.95%
- Optimization of Chemical gypsum utilization 4.0 %
- Total 50% of green cover at plant site.
- Reverse logistic to reduce GHG emission due to transportation
- Railway logistics to reduce GHG emission due to road transportation
- Reduction in water consumption to sustain water positive status

CO_2 EMISSION POWER CONSUMPTION

Year	T CO2/T of Cement)
2020-21	0.0195
2021-22	0.0192
Reduction	1.54%

CO2 EMISSION REDUCTION CLINKER CONSUMPTION

Year	CO2 emission reduction (Ton)
2020-21	1750.1
2021-22	2500.7

Note : Reduction as compare to last year

GREEN PURCHASE POLICY & PROCEDURE

- Making all future purchases of Energy equipment and appliances considering the Bureau of Energy Efficiency Star Rating and energy efficiency.

use of Alternative fuels, identification and reduction of Energy losses through:

- Monitoring and analysing the Specific Energy Consumption (SEC) of the

creating ownership and training as necessary. The policy will be reviewed and updated as necessary.

S K PANDEY
PRESIDENT - WORKS

2.0 SCOPE:

3.4 HOD (Procurement) in consultation with Central Procurement Cell (CPC) is responsible for review of purchase orders related to all raw materials procured by the company.

3.5 HOD (Stores & Purchase) is responsible for co-ordinating all purchases affected by Purchase Department. HOD (Stores & Purchase) is also responsible for maintaining Approved Vendors' list.

	same on the comparative statement.		
5.2.2.7 b	When procuring energy services, products and equipment that have, or can have an impact on significant energy use, the	-do-	F-04(06-06)

5.2.2.7 b	When procuring energy services, products and equipment that have, or can have an impact on significant energy use, the organisation shall inform suppliers that procurement is partly evaluated on the basis of energy performance.	-do-	F-04(06-06)

	• Other terms & conditions		
5.2.2.10	Where applicable HOD (Stores & Purchase) stipulates inspection of manufactured goods at vendor's site / works, by company's representative in the purchase order.	HOD (Stores & Purchase)	F-05(06-06)
5.2.2.11	The purchase order contains the requirements for furnishing the test certificates indicating the conformity to the	-do-	F-05(06-06)

GREEN SUPPLY CHAIN

RESOURCE OPTIMIZATION

- Optimization of Fly ash Utilization i.e. 34.95% resulted in clinker consumption reduction.
- Contract with Power plants to ensure dry fly ash supply to ensure high blending ratio.
- Mineral conservation due to usage of fly ash
- Utilization of Chemical Gypsum 4.48% which is hazardous waste of other industry resulted in Gypsum mineral conservation

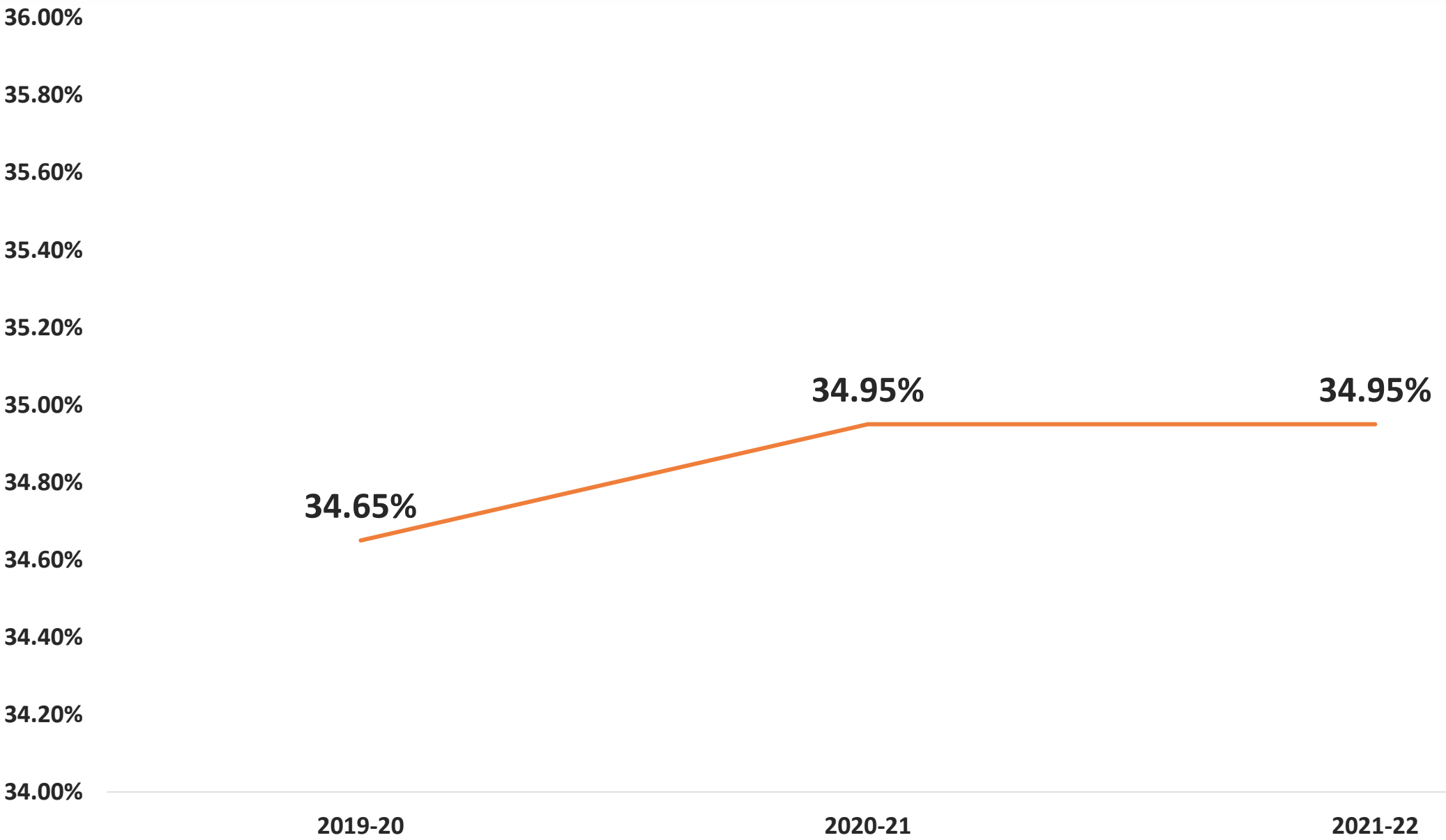
REVERSE LOGISTICS

- Transportation of Cement in truck carrying chemical gypsum to our plant
- Transportation of cement in bulkers transporting fly ash to our plant

MACHINERY & SPARE PROCUREMENT

- Vendor meets
- Encouraging local vendors to reduce carbon foot print & inventory
- Vendor Stocking to have just in time concept ie. Lubricants , PP Bags, etc
- ARC contract for fast moving spares
- LED lights installation

FLY ASH UTILIZATION



Energy Budget

Sr. No	Year	Budget (Rs. Million)
1	FY20	8.10
2	FY21	8.82
3	FY22	9.10
4	FY23	9.50

ORIENT CEMENT — CK BIRLA GROUP

ORIENT CEMENT : JALGAON

CLINKER GRINDING UNIT

DAILY POWER REPORT — DATE: 10-08-2022

EQPM./SECTION	ON DATE UNITS	PRODn	R.HRS IN HRS.	PRODn. RATE	LOAD		SP.ENERGY IN KWH/T				MONTH TO DATE UNITS	PRODn	R.HRS IN HRS.	PRODn. RATE	LOAD	SP.ENGY	
NAME	KWH	TONS	Hrs	TPH	KW	%	ACT.	ACT+CS +LOSS	TARGET	VAR.	KWH	TONS	Hrs	TPH	KW	ACT	ACT+ CS+LOSS
WAGON TIPPLER + LIGHTING	1625	4062.62	0.00				0.40	0.41	0.45	0.04	10775	24103.89	0.00			0.45	0.46
FLY ASH	3015	1104.60	0.00				2.73	2.81	2.50	-0.31	24360	9664.08	0.00			2.52	2.61
LINE -I																	
CEMENT MILL	0				0	0%	0.00	0.00		0.00	129550				1191	9.56	9.89
POLY-FIX	0				0	0%	0.00	0.00		0.00	45482				418	3.36	3.47
POLY-MOV	0				0	0%	0.00	0.00		0.00	46250				425	3.41	3.53
SEPOL FAN	0				0	0%	0.00	0.00		0.00	21533				198	1.59	1.64
POLYCOM SEPARATOR-160KW	11				0	0%	0.00	0.00		0.00	1123				10	0.08	0.09
CC SEPARATOR - 250KW	12				0	0%	0.00	0.00		0.00	5102				47	0.38	0.39
CC SEPOL FAN 70282 315 KW	9				0	0%	0.00	0.00		0.00	25122				231	1.85	1.92
OTHER AUX + LIGHTING	623				0		0.00	0.00		0.00	53985				496	3.98	4.12
TOTAL GRINDING - LINE-I	655	0.00	0.00	0	0		0.00	0.00	22.67	22.67	328147	13548.00	108.75	124.58	3017	24.22	25.06
LINE -II																	
CEMENT MILL	20834				868	72%	4.93	5.07		-5.07	116566				898	5.98	6.19
RP-FIX	20260				844	84%	4.79	4.93		-4.93	105795				815	5.43	5.62
RP-MOV	19355				806	81%	4.58	4.71		-4.71	102300				788	5.25	5.43
SKS FAN	10668				445	81%	2.52	2.59		-2.59	58680				452	3.01	3.12
SKS SEPARATOR - 250KW	1140				48	24%	0.27	0.28			6580				51	0.34	0.35
RP BE 2X132KW	4496				187	71%	1.06	1.09			25098				193	1.29	1.33
OTHER AUX + LIGHTING	13327				555		3.15	3.24		-3.24	79198				610	4.07	4.21
TOTAL GRINDING-LINE-II	90080	4227.00	24.00	176	3753		21.31	21.91	22.67	0.76	494217	19479.00	129.75	150.13	3809	25.37	26.25

Automatic EnMS software for daily power report generation

ENERGY COMMITTEE MEETING, TRAININGS, KNOWLEDGE SHARING & INTERACTION SESSIONS

- Plant level : Meeting is conducted on Daily Basis and Chaired by Plant Head & President Manufacturing
- COO Level : Review meeting is on Monthly Basis and Chaired by COO
- MD Level : Overall performance review meeting is on Monthly Basis and Chaired by Managing Director.

Kaizens

1. Wagon loading machine No- 8, 9 & 10 inlet chute ceramic coating by diffi slide material.
2. Packer 2 all bag chair coating by cerabed and cerametal also some tongue plate ceramic coating by diffi slide material.
3. Packer-1 & 2 discharge long belt old guide pipe (railing pipe) replaced by 65 mm C-class MS pipe.
4. TLM-1,2,3,4,5,9 &10 luffing and feed belt guide pipe replaced by SS guide pipe.
5. Wagon loading machine no 4& 5 inlet chute coating by metaline surface.
6. Line-2 Water cooled AC cooled water line direct feed to cooling tower.
7. Ceramic Lagging of BC107 belt for longer life of Lagging and Belt
8. Ceramic Lining of TLM-2 & 3 spiral chute

External training programs attended		
S.No.	**Topic**	**Man Hrs.**
1	CII - Online Certified Professional in Energy Efficiency (Cement Sector)	54
2	Power system study and relay coordination	20
Internal training programs conducted		
1	PAT awareness program	80
2	Calculation factors under PAT Scheme	80
3	Fan efficiency calculation	40
4	Bag filter Optimization	24
5	RP Maintenance	60
6	EnMS ISO - 50001	480
7	Utilities Performance Improvement	24
8	Training Programme on -L T Motor Maintenance	30
9	Optimization packing plant operation	42
10	Energy benchmark & Efficiency in Cement Industry	60

ISO Implementation

DNV·GL

MANAGEMENT SYSTEM CERTIFICATE

This is to certify that the management system of

Orient Cement Limited
P.O. Devapur Cement Works, Mancherial - 504 218, Telangana State, India
N.H. No-6, Nashirabad Village, Jalgaon - 425 309, Maharashtra, India
5-9-22/57/D, 2nd, 3rd & 4th Floor, GP Birla Centre, Adarsh Nagar, Hyderabad – 500 063, Telangana, India

has been found to conform to the Management System standard:
ISO 9001:2015
ISO 14001:2015
ISO 45001:2018

This certificate is valid for the following scope:
Manufacture and supply of cement

DNV·GL

MANAGEMENT SYSTEM CERTIFICATE

This is to certify that the management system of

Orient Cement Limited
P.C. Devapur Cement Works,Mancherial - 504218, Telangana, India
and the sites as mentioned in the appendix accompanying this certificate

has been found to conform to the Energy Management System standard:
ISO 50001:2018

This certificate is valid for the following scope:
Manufacturing of Cement.

Energy Management Cell :
Cross Functional Team of 11 members

EnCon Competition Frequency :
Quarterly Once

PAT DC registration No :
CGU0002MH

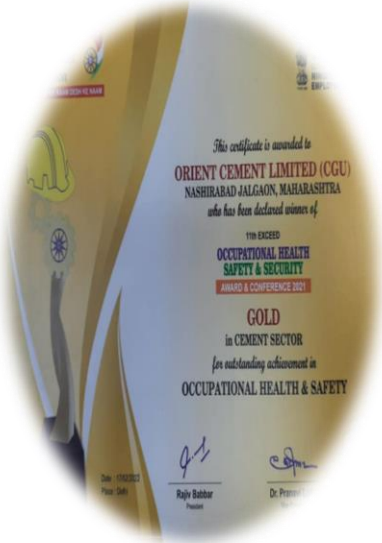
PAT Cycle (Undergoing) :
VI (2020-23)

PAT Target :
0.0086 TOE/Ton of Eq Pdt

Major Product :
Portland Pozzolana Cement (PPC)

➢ **Investment of energy saving projects on total turnover of the Jalgaon Unit (FY 21-22) : 0.21%**

AWARDs



Learning from CII Energy Award or any other award program

- **Active Participation in Energy Conservation Activities by getting exposure to other plan activities through such training Programs**
- **Every Year we are nominating min 2 participants for CII - Online Certified Professional in Energy Efficiency (Cement Sector) to get well trained for Energy Conservation activities**
- **Implementation of innovative projects/Ideas which may be applicable to us by observing the other Units presentations**
- **Energy Conservation activities became a habit of each and every one at our plant**
- **More Competitive natures builds up with such programs in the area of Energy Conservations**

RAIN WATER HARVESTING

- We are zero discharge unit, domestic sewage generated is being treated in STP and reused in green belt development
- Constructed 06 number of rainwater harvesting structures at various locations
- The total recharge capacity of all rainwater harvesting unit is **86470 m^3/**year including roof top and surface runoff of plant area
- We are water positive plant by 2.6 Times.




WATER CONSERVATION INITIATIVES AT VILLAGE JALGAON-KHURD AT VILLAGE JALGAON-KHURD

- Construction of Rooftop Rainwater Harvesting Structure, sub surface water dike, Gabion structures & dam at Jalgaon Khurd Village Panchayat Building.

GREEN BELT AT PLANT PREMISES

ORIENT CEMENT

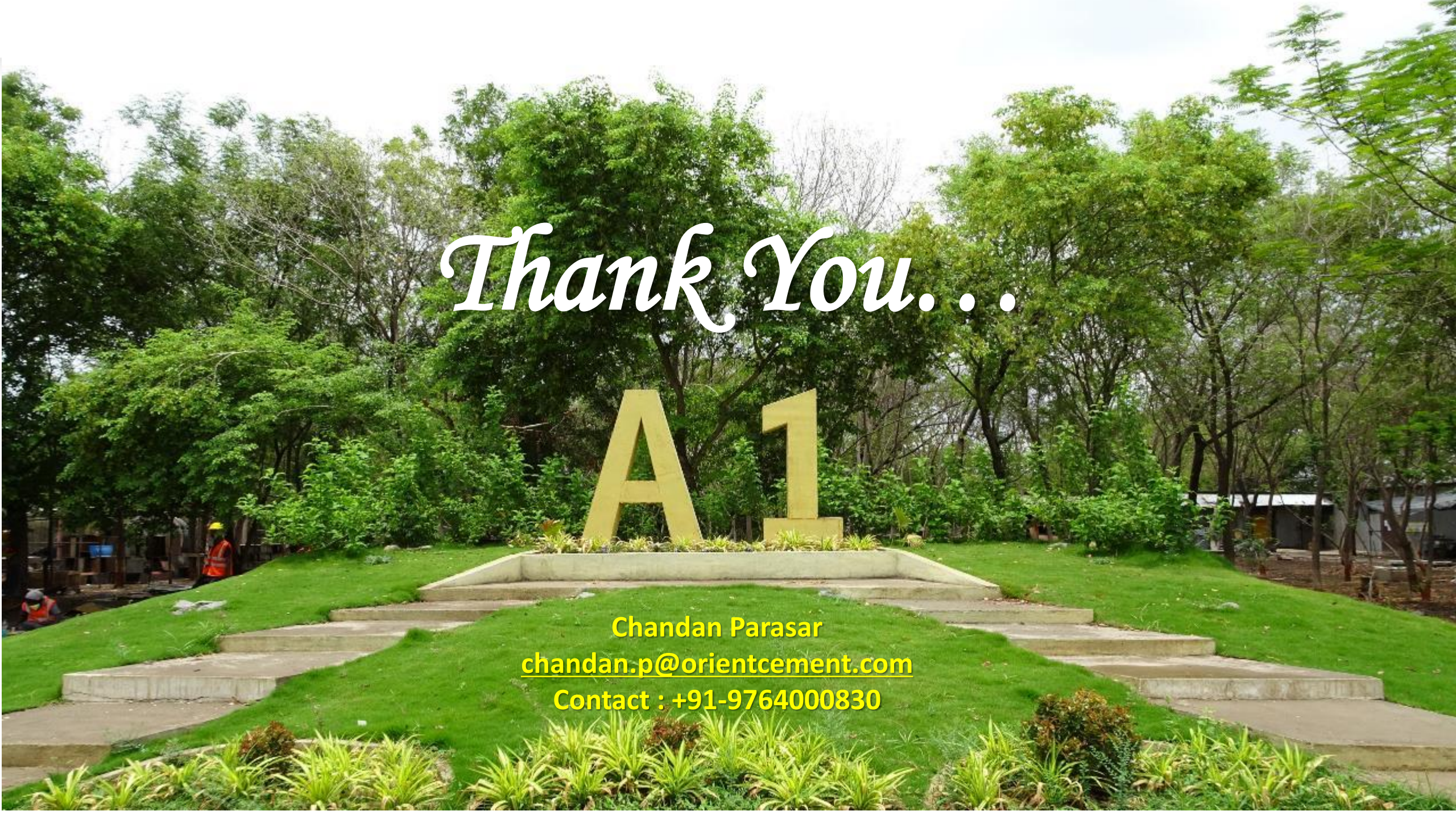
PROVIDING NATURAL HABITAT TO BIRDS & ANIMALS

Great Place To Work. Certified 21-MAR 2022 INDIA







Chandan Parasar
chandan.p@orientcement.com
Contact : +91-9764000830