



# **Ambuja Cements Limited-Farakka**

**National Energy Award for Excellence in Energy Management 2023**

**Presented By:**

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# 1. Brief introduction of Adani Cements

- ❑ Adani Cements becomes India's Second Largest Cement Player
- ❑ Largest acquisition in India's Infrastructure and Materials space valued at USD 6.50 billion
- ❑ Post the transaction, Adani will 63.15% in Ambuja Cements and 56.69% in ACC (of which 50.05% is held through Ambuja Cements)
- ❑ The combined market capitalization of Ambuja Cements and ACC is USD 19 billion as on date
- ❑ With this acquisition, Adani is now India's second largest cement manufacturer (**Capacity 67.5 MTPA**)
- ❑ 14 integrated units, 16 grinding units, 79 ready-mix concrete plants and over 78,000 channel partners across India



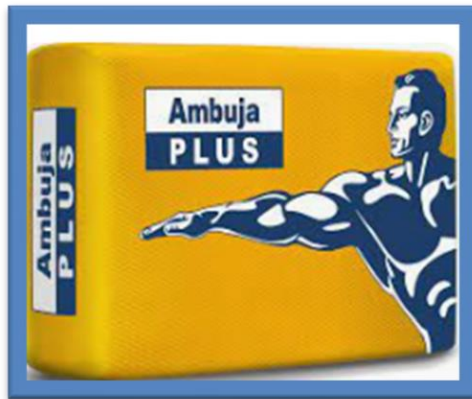
# Brief introduction of Ambuja Cements Limited Unit-Farakka

- ❑ A Grinding Unit situated in Farakka, West Bengal (India)
- ❑ The Plant was commissioned in May 2007
- ❑ Plant rated capacity is 1.50 Million Ton per annum
- ❑ Plant Contract Demand: 7.5 MVA
- ❑ ISO Certified by TUV SUD under ISO 14001:2015, ISO 9001:2015 and ISO 45001:2018
- ❑ 1.1 Times water positive

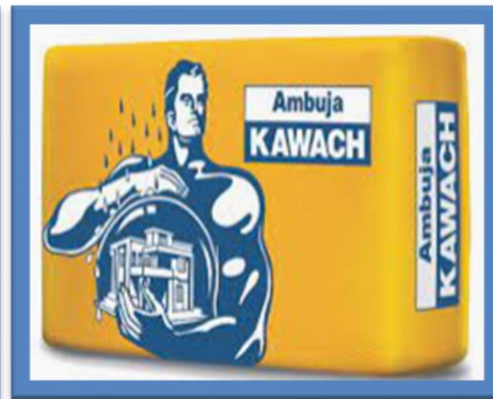
## PRODUCT



PPC



Ambuja Plus



Kawach



# Plant Farakka- Technical Details

Cement Mill



Existing: 1 Mills X 150 TPH ,  
Make: ThyssenKrupp

Cement Silo



Existing: 2 X 7000 Tons each  
Steel Silo: 2 X 400 Tons each  
Total Capacity = 14800 Tons

Clinker Silo



- Clinker silo (1 no)  
Capacity : 20000 T

Packing House



- Packer: 2 X 240 TPH each
- Model -16RS-E,
- EEL Make

Wagon loading



Wagon loading machines 11X 120 TPH Each.  
Model:2026 ,Make EEL

Truck loading



Truck loading machines 8 X 120 TPH Each.  
Model: M15,Make PBL

Wagon Tippler



Wagon tippler Mark-3,  
No of tips per hours :15 tips/hr  
Make-Elecon

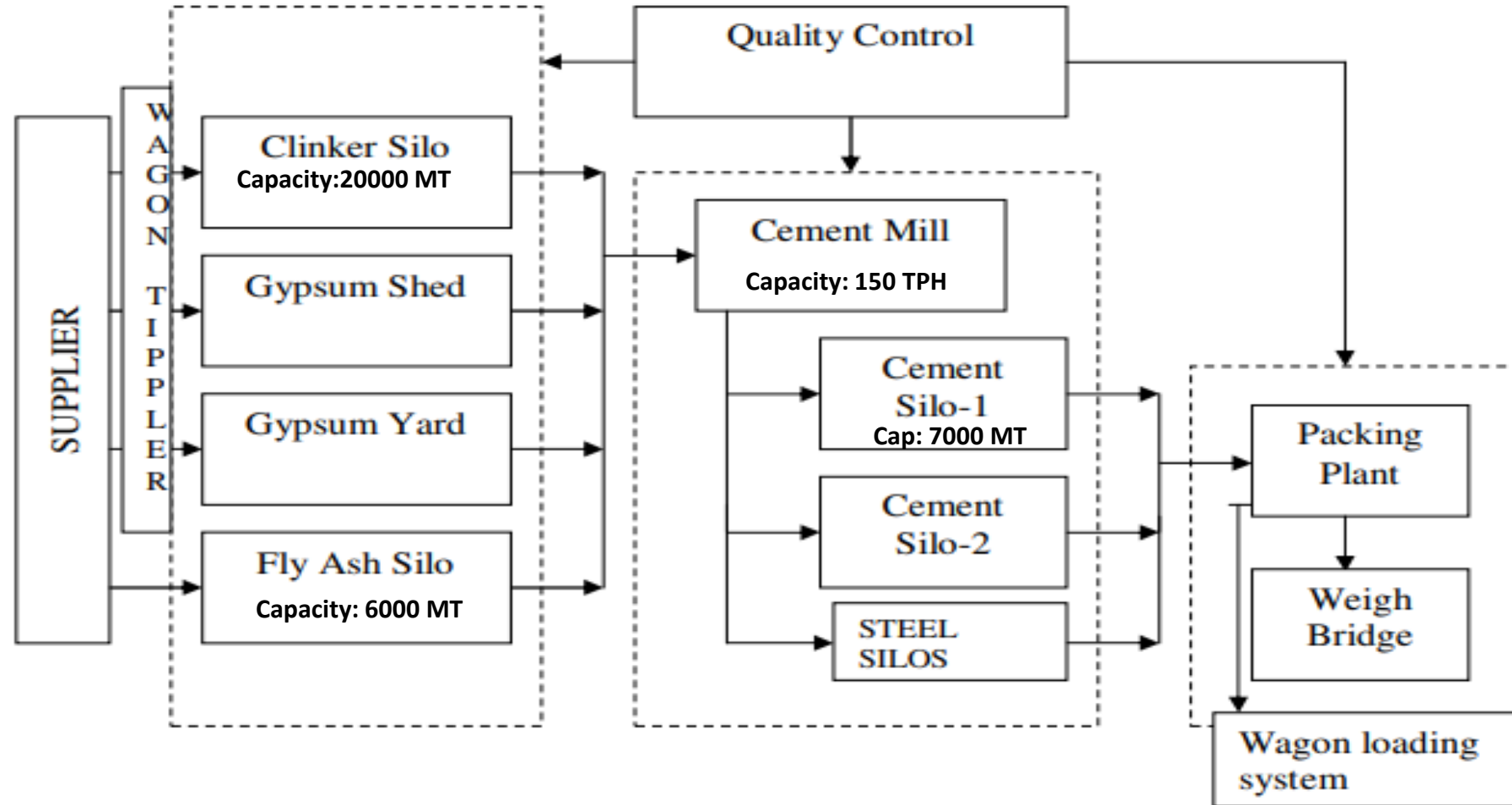
NTPC DFA System



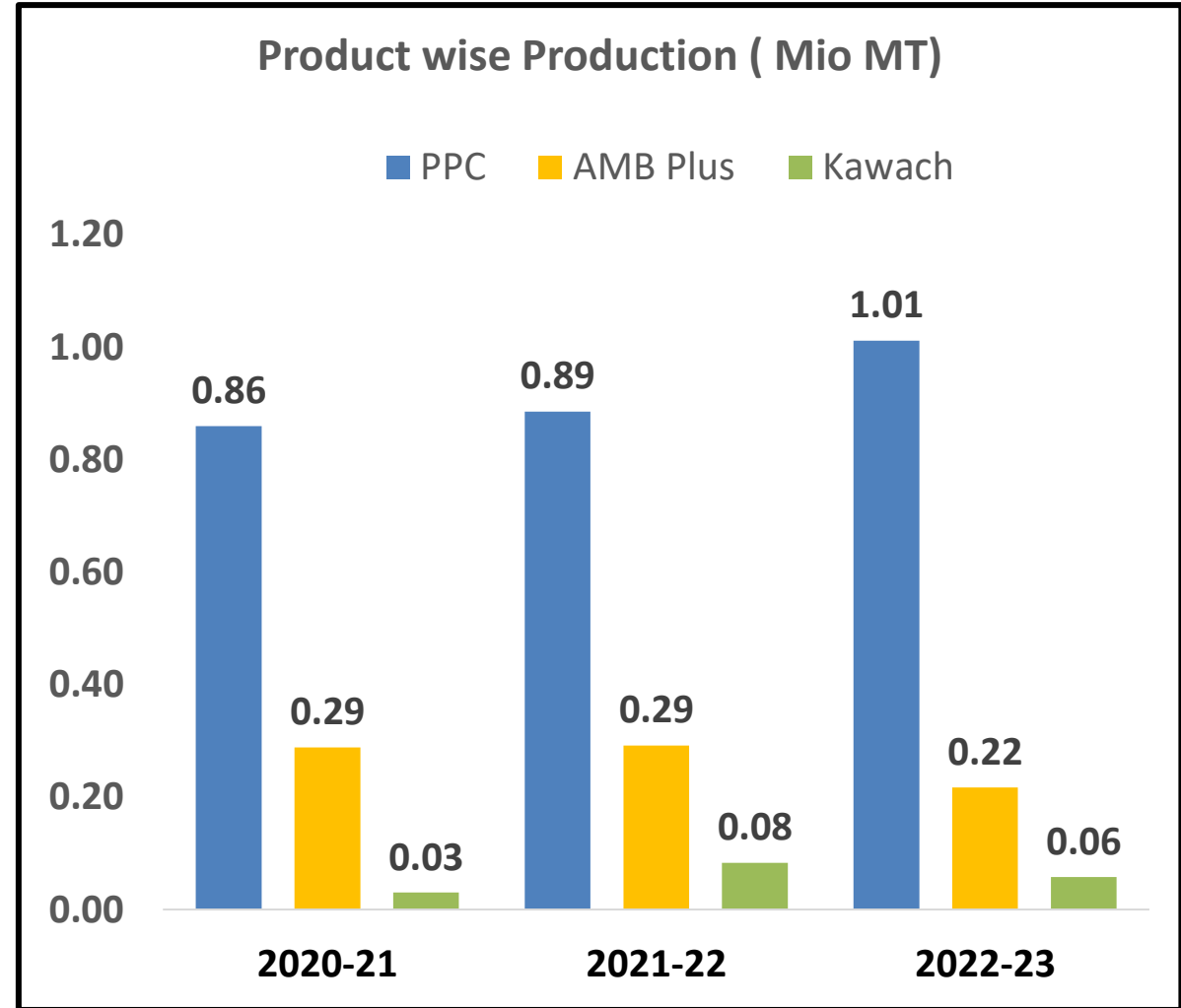
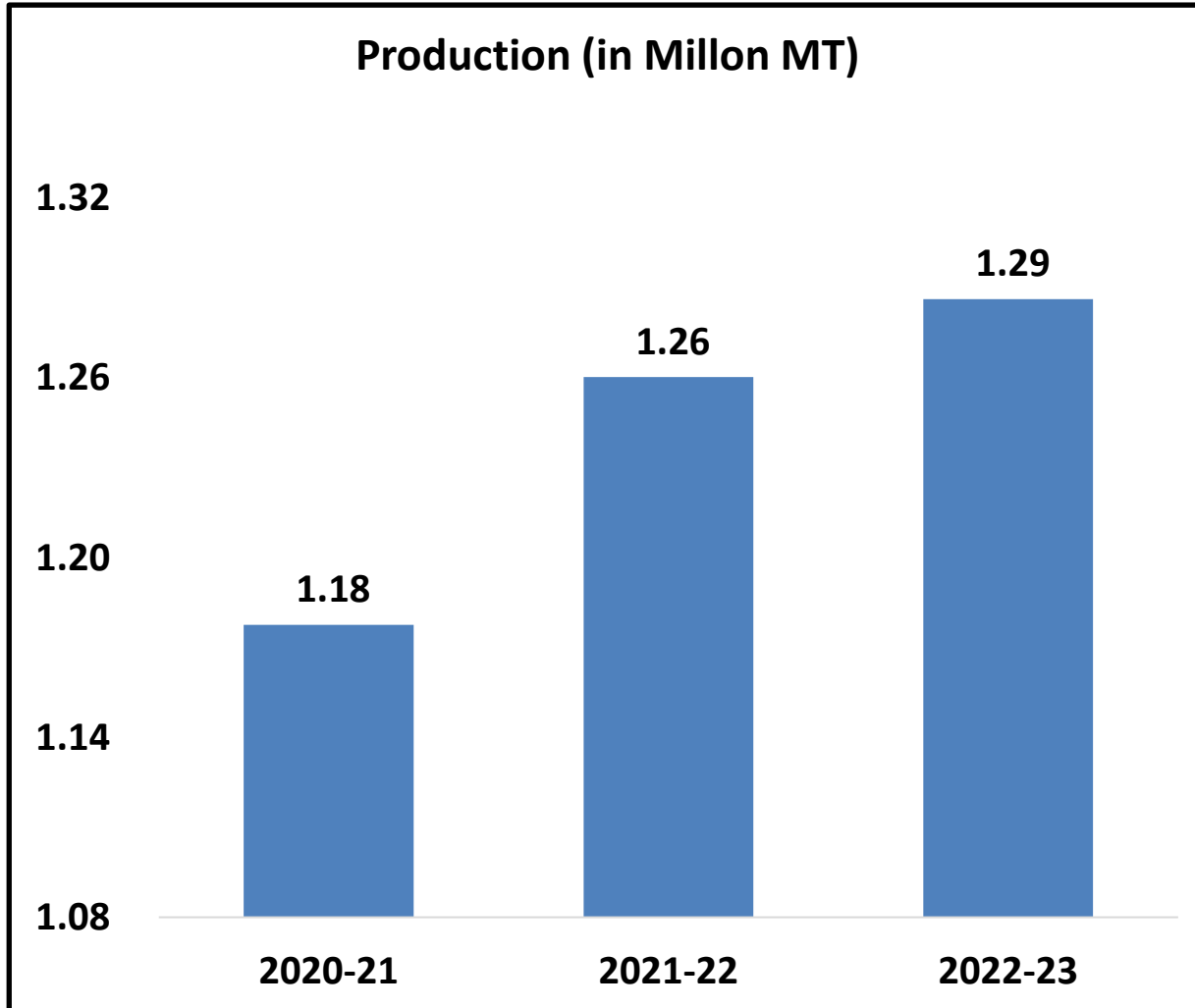
Dense phase system  
2 x 50 TPH Each  
Make- Mecgale

# Process Flow Chart

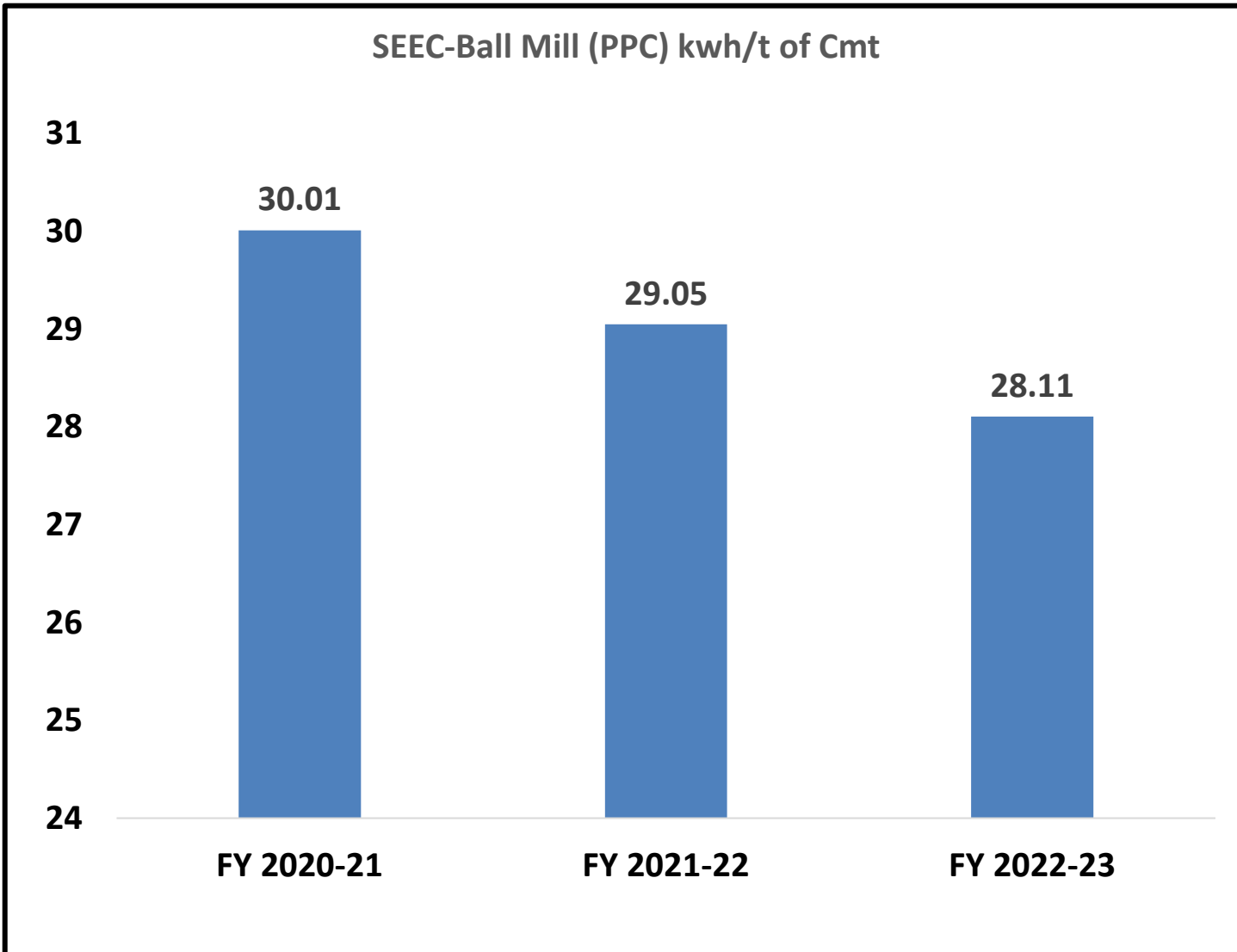
## PROCESS FLOW CHART



# Production Journey for the last three years



## 2.Sp. Energy Consumption in last 3 years

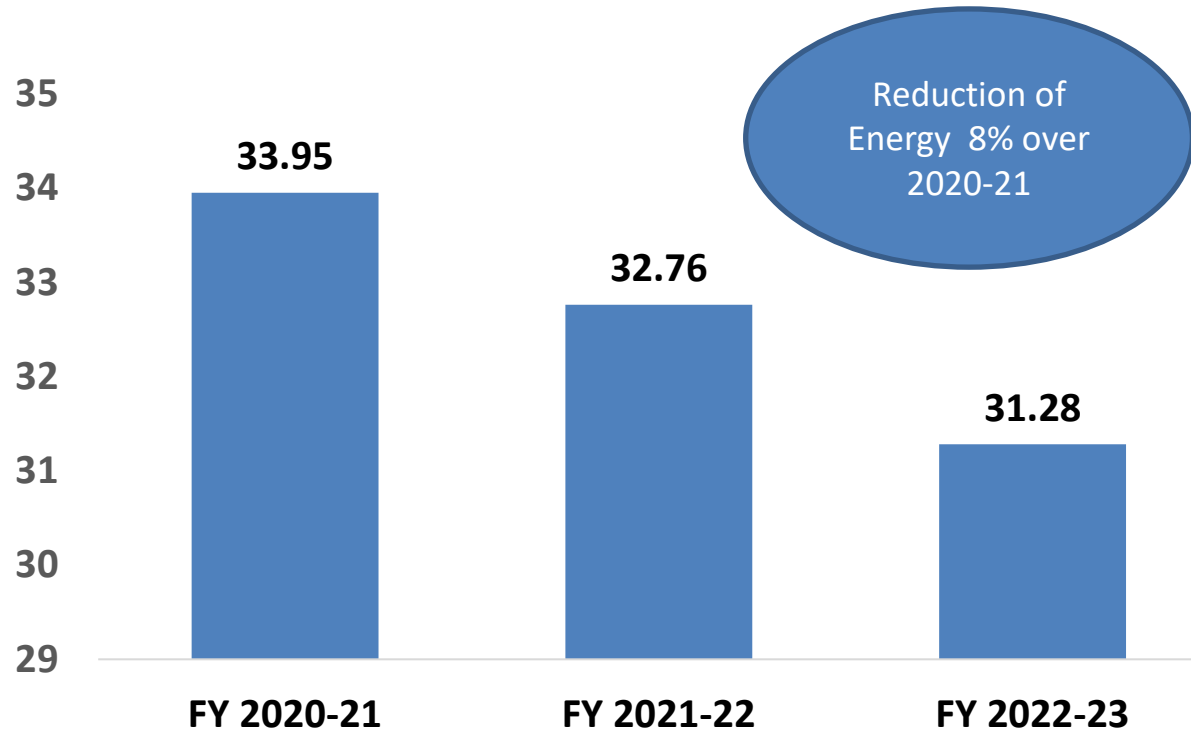


- Mill drive (Ball Mill)
- Mill vent fan
- Mill separator fan
- Separator vent fan
- Auxiliaries

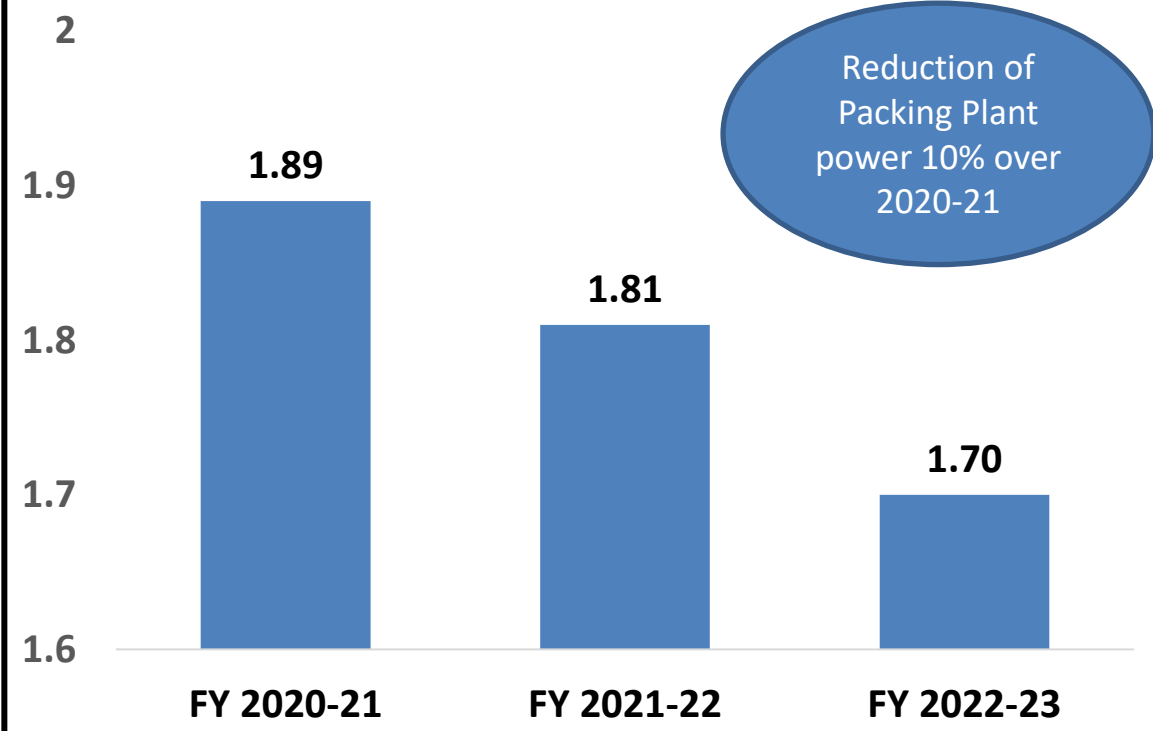
Reduction of Energy  
6% over 2020-21

## 2.Sp. Energy Consumption in last 3 years

### SEEC-Cement Grinding kwh/t of cmt

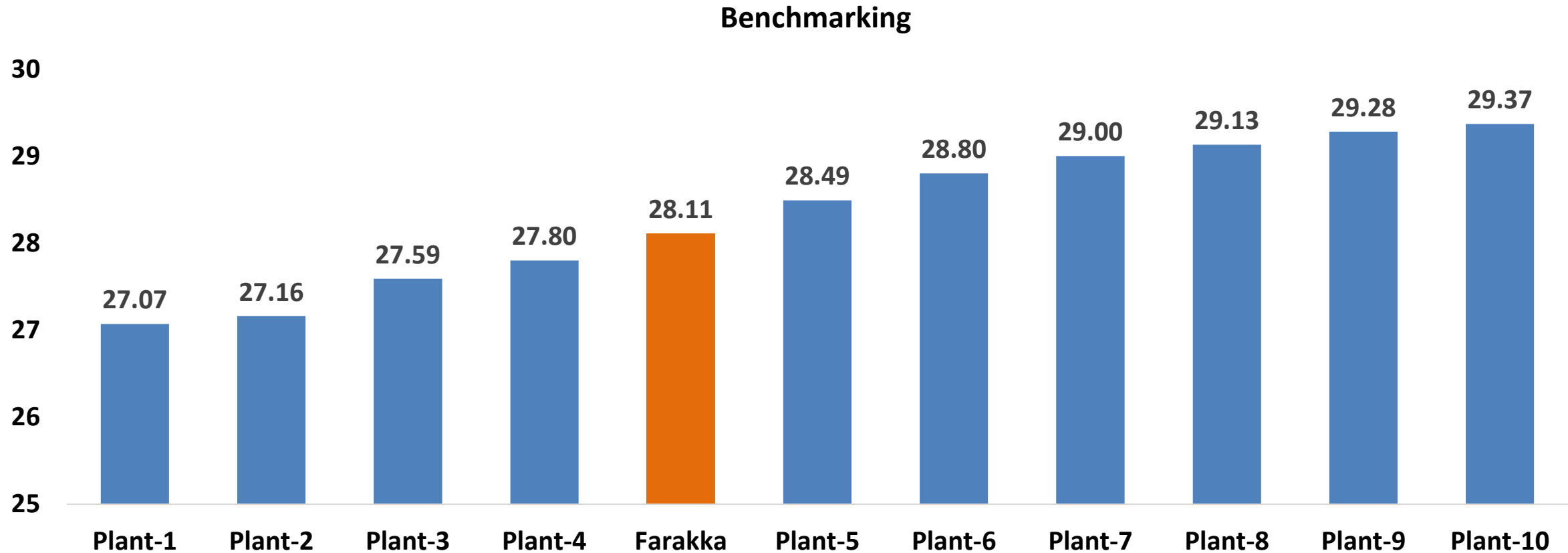


### SEEC-Packing Plant kwh/t of cmt





### 3.Information on Competitors, National & Global benchmark



**Farakka:**

**Design TPH-150 PPC**

**Operating TPH:175 PPC**

Ref. [Energy Benchmarking for Indian Cement Industry 6.0](#)

## 4. Energy Saving Projects implemented in last three years

Year	No of Energy Saving Projects	Investment(INR Million)	Total Saving (INR Million)	Saving in Mio Kwh	Saving Kwh/t of Cmt
2020-21	1	Nil	0.67	0.11	0.09
2021-22	6	3.20	10.39	1.61	1.28
2022-23	8	Nil	13.21	2.04	1.59

## Projects implemented (2020-21)

Year	Energy Saving Projects	Investment (INR Million)	Total Saving (INR Million)	Saving in Mio Kwh	Saving Kwh/t of Cmt
2020-21	Replacement of HPSV light with LED, Energy Efficient Electrical appliance	0.03	0.67	0.11	0.09
	<b>Total</b>		0.67	0.11	0.09

## Projects implemented FY 2021-22

Year	Energy Saving Projects	Investment (INR Million)	Total Saving (INR Million)	Saving in Mio Kwh	Saving Kwh/t of Cmt
2021-22	Cement Mill TPH Increase from 166 to 171	Nil	8.03	1.25	0.99
2021-22	Replacement of HPSV light with LED, Energy Efficient Electrical appliance	0.05	0.97	0.15	0.12
2021-22	DP Based purging , Fan flow optimization through VVFD & Elimination of dumper at Packing Plant, Optimization of Idle running of equipment	Nil	0.65	0.10	0.08
2021-22	Optimization of Air flow in closed circuit through MV Drive	Nil	0.32	0.05	0.04
2021-22	Fly ash Bulker unloading through low pressure compressor at Mill side, Rigorous Monitoring of all Air slide blower & PD Blower	Nil	0.24	0.04	0.03
2021-22	Installation of VVFD & Elimination of dumper at Fly ash Feeding area	Nil	0.16	0.03	0.02
	<b>Total Saving</b>		<b>10.39</b>	<b>1.61</b>	<b>1.28</b>

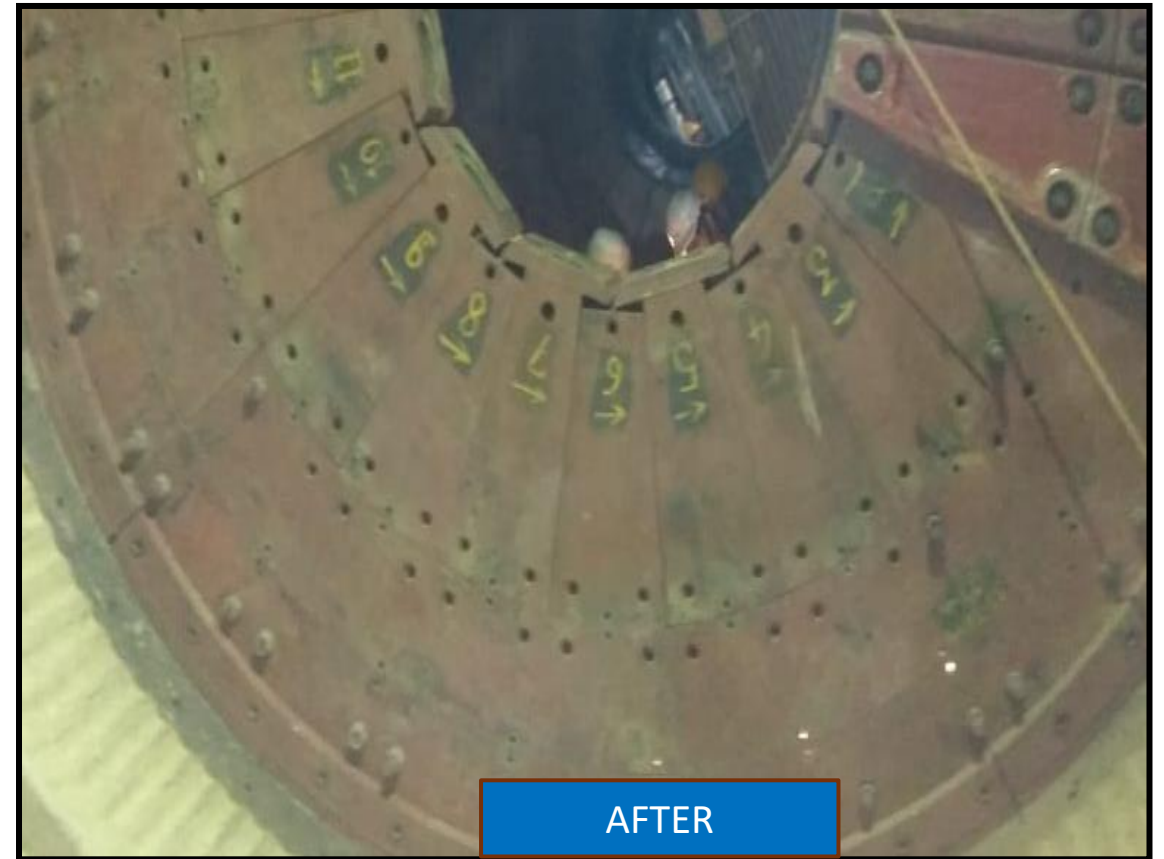
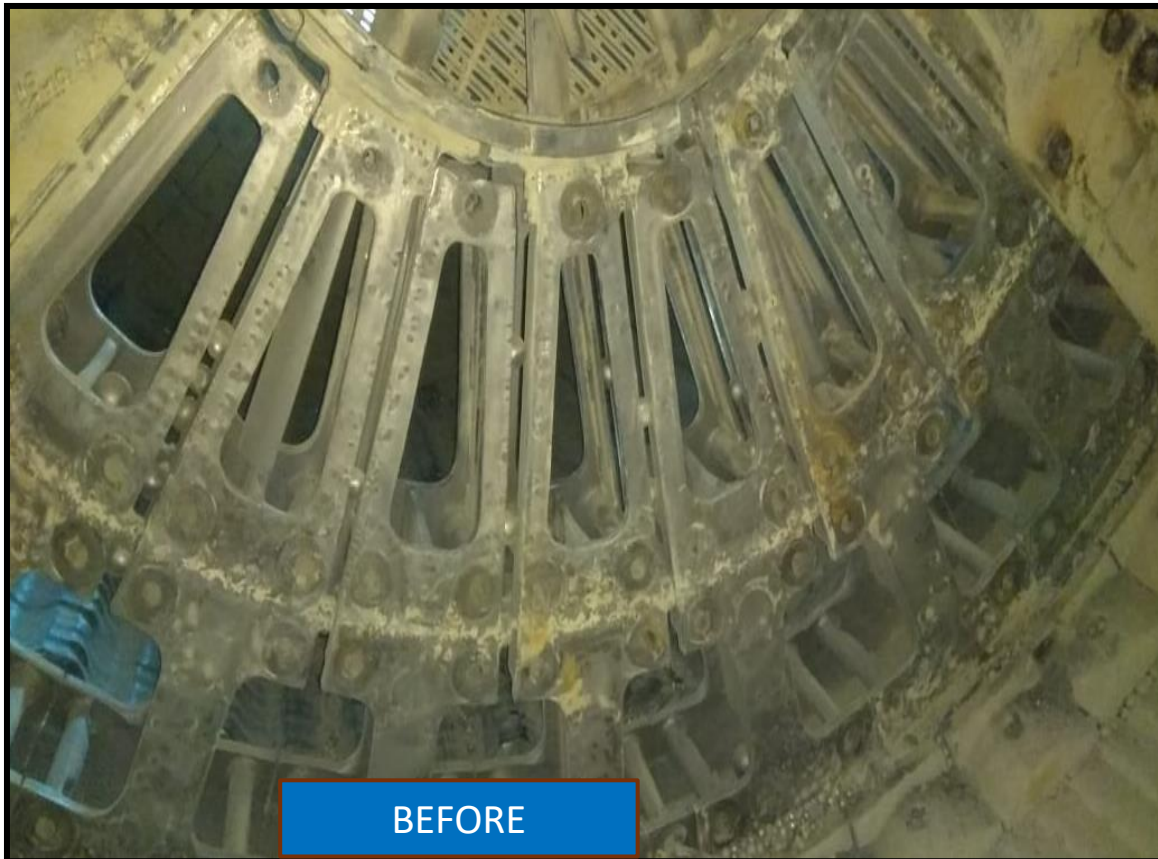
# Projects implemented FY 2022-23

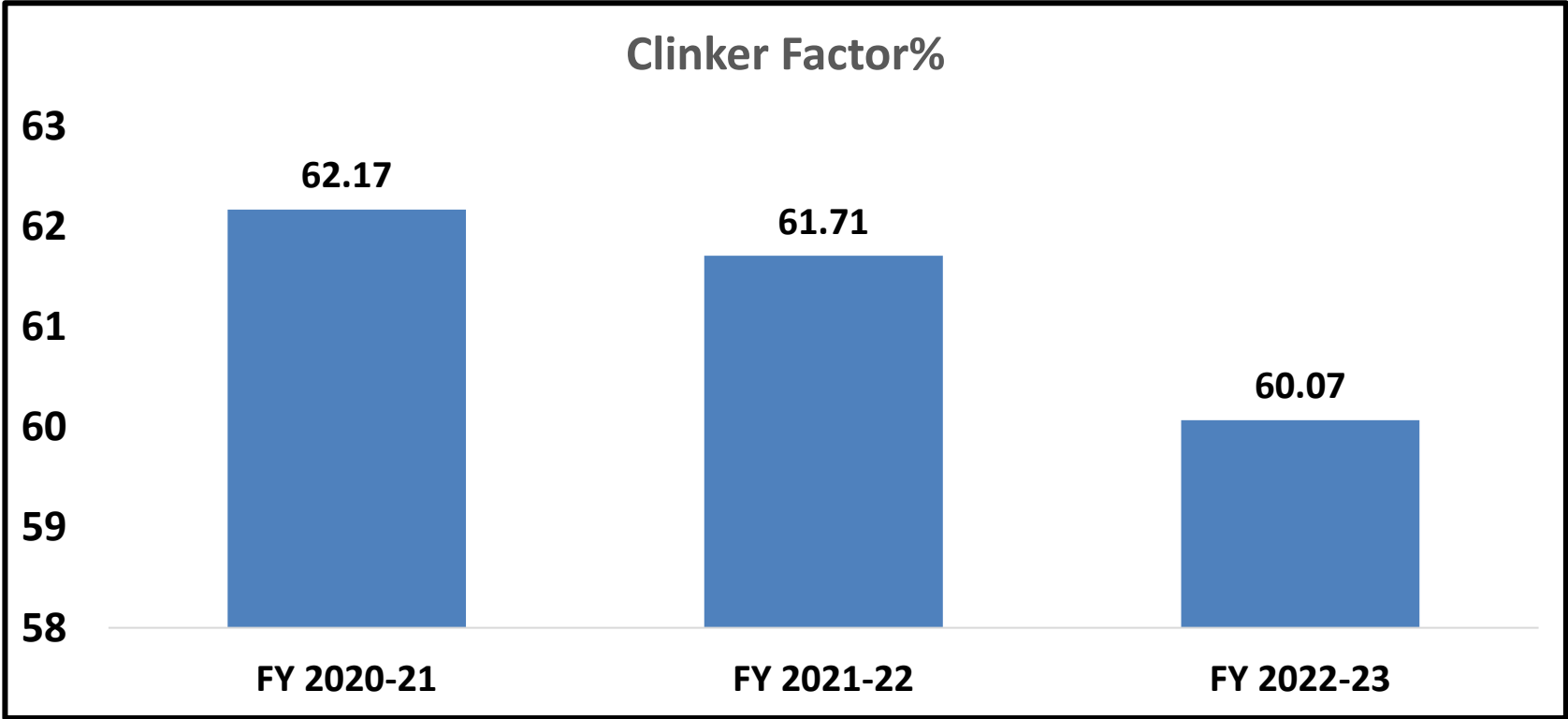
Year Wise	Energy Saving Projects	Investment (INR Million)	Total Saving (INR Million)	Saving in Mio Kwh	Saving Kwh/t of Cmt
2022-23	Cement Mill TPH Increase from 171 to 175	Nil	6.07	0.94	<b>0.73</b>
2022-23	Optimization the usage of Instrument compressed air, Arresting of air leakages	Nil	2.08	0.32	0.25
2022-23	Installation of Energy efficient bag filter at Wagon tippler	2.50	1.33	0.21	0.16
2022-23	Optimization of Densephase operation & CBM for Flyash unloading	Nil	1.08	0.17	0.13
2022-23	DP Based Purging ,Interlocking with Bucket Elevator KW with Packer to minimize the Idle running ,optimization of truck loading operation	Nil	0.91	0.14	0.11
2022-23	Installation of Air Blaster & SS Liner at Raw material Feeding hopper	0.4	0.66	0.10	0.08
2022-23	Reduced running hrs of Packaged AC by changing office layout	Nil	0.66	0.10	0.08
2022-23	Old Air condition system in PLC & IO panel , VFD Room replaced by energy efficient AC	0.3	0.42	0.06	0.05
	<b>Total Saving</b>		<b>13.21</b>	<b>2.04</b>	<b>1.59</b>

## 5. Innovative Project Implemented

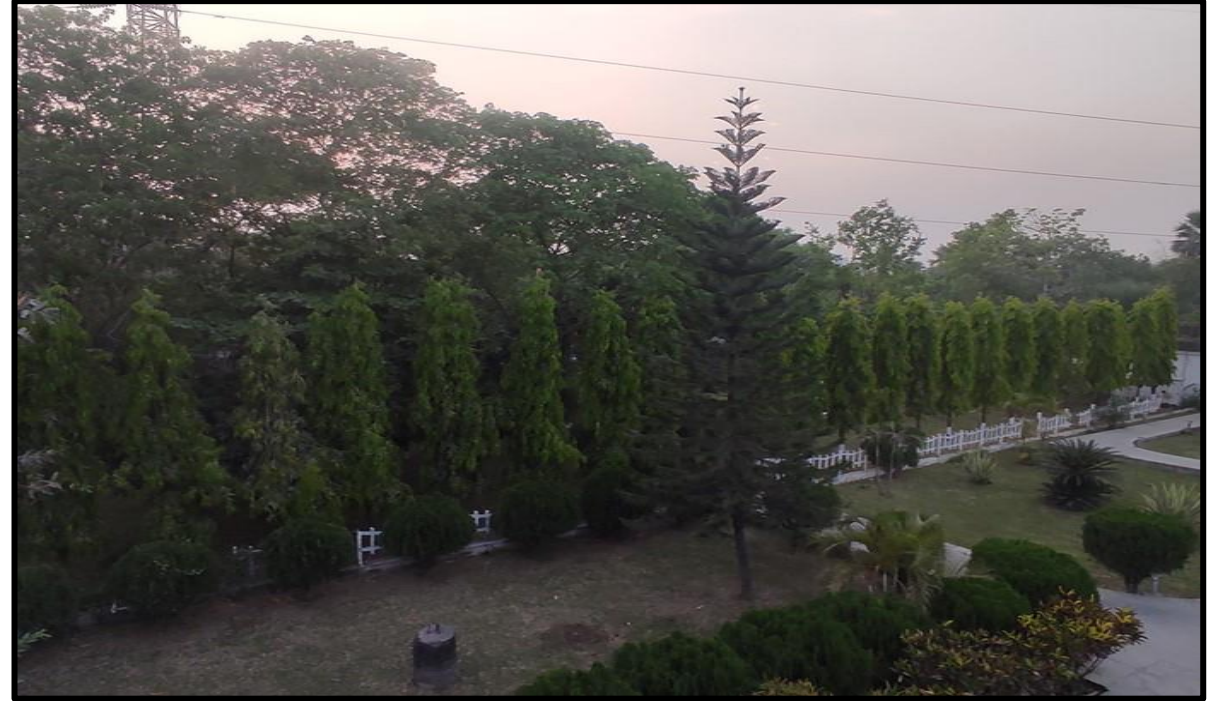
### Modification in LCD Back Plates:

During failure or worn out of back plate of LCD small size of grinding media entered into the structure segments causing LCD structure frame damage hampering production. Then structure modification done with the help of supplier preventing mixing of grinding media & thus improvement in smooth production and Mill TPH.





Clinker Factor Reduced by 2.10 % over 2020-21 (Cost Saving Rs 102 Mio)



Total Plant Area:72.80 Acre  
Green Area: 25 acre (34 % Green Belt area)



# 7. Daily Performance Monitoring Report

**Energy Monitoring System**  
Ambuja Cements Limited - Unit - Farakka

Running KVA: 5397.91  
6.6 KV Incomer Volt: 6597.90  
Power Factor: 0.9952  
132KV Incomer kW: 5372.18

Real Time Energy Monitoring System

**Detailed Energy Management System**

6.6 KV BUS, PCC-11 (415V, 3200A), PCC-12 (415V, 3200A), PCC-13 (415V, 3200A)

Detailed Energy Management System

**adani AAA Visualization**

Leadership Summary (1 Cluster - 1 Plant) Farakka

Clinker Production (MT): Act. (Blank), Budget: 0  
Cement Production (MT): Act. 76,916, Budget: 70,988  
Clinker Factor (%): Act. 60.0%, Budget: 58.1%

TSR (%): Act. (Blank), Budget: (Blank)  
STEC (Kcal/Kg Clinker): Act. (Blank), Budget: (Blank)  
SEEC Clinker (kwh/T Clinker): Act. (Blank), Budget: (Blank)  
SEEC Grinding (kwh/T Cem): Act. 31.9, Budget: 29.8

CFA/WFA (MT): Act. 1,414.5, Budget: (Blank)  
Kiln OEE (%): Act. (Blank), Budget: (Blank)

Alarms: (1) Stopped Hours, Stopped From: 8/21/2023 5:00:00 AM

Daily Monitoring Manufacturing Dashboard

23-08-2023	Uom	Best Ever	Udson	Balance	Asking Rate	Day Target	Day Actual	MTD Target	MTD Actual	Var
<b>Production</b>										
PPC	MT	1,34,003	1,20,000	30,702	3,838	4,000	4,135	32,000	89,298	2,702
AMB PLUS	MT		86,200			2,873	3,540	66,087	76,447	-1036
Kawach	MT		28,800			960	201	22,080	9,516	12564
	MT		5,000			167	394	3,833	3,335	498
CM-TPH	TPH	187.46				160	172		174	
Dispatch	MT	1,36,811	1,20,000	35,425	4,428	4,000	4,043	32,000	84,575	7,425
<b>Power</b>										
SEEC-CG	KWh/t of cmt	28.75	29.80			32.00	31.91	32.00	32.00	0.00
SEEC-PP	KWh/t of cmt	1.37	1.50			1.50	1.33	1.50	1.47	0.03
<b>Operational</b>										
Clinker Factor	%	58.06	58.40			59.10	60.86	59.10	60.06	-0.96
Gypsum	%	6.73	6.20			5.50	4.16	5.50	4.59	0.91
Flyash	%	34.93	34.30			34.30	34.98	34.30	34.98	-0.08
DFA	%		33.30			33.30	30.98	33.30	32.84	
CFA	%		1.00			1.00	4.00	1.00	2.14	
WFA	%		-			-	-	-	-	
Slag	%		0.50			0.50	-	0.50	0.37	
<b>Costing</b>										
Maint.Mat	Rs	8,00,000	8,00,000	3,28,266		25,806	2,692	5,93,548	4,71,734	12184
Diesel	Liter			4,736		258	-92	5,335	3,264	267
Variable Cost	Rs/t com					601	551	601	593	
SACC	Rs/t com					684	627	684	679	

Daily Review Report



Social Leadership Awards Ceremony organized by Bengal Chamber of Commerce & Industries (BCC&I)

**THANK YOU**