

Best Utilization to Save Natural Resources



Team Name : Best Utilization to save natural resources



Presenter :-
Mr. Abhay kumar Dwivedi
UUltraTech Cement Limited, Unit Bela Cement Works.

1

Vision & Mission



Business Vision

To be the leader in building solutions

OUR VISION
TO BE THE LEADER IN BUILDING SOLUTIONS

Unit Vision

Concrete Future





Mission Statement : To deliver superior value to stakeholders on four pillars of business mission viz. Sustainability, Customer Centricity, Innovation and Team Empowerment



Business Mission	<ul style="list-style-type: none"> • Sustainability • Customer centricity • Innovation • Team empowerment
Unit Mission	<ul style="list-style-type: none"> • Sustainability with prime focus on SHE • Cost Optimization • Stakeholder delight • Technological Innovations • Team Synergy • Competency & skill development

A Sprit With A Vision Is A Dream With A Mission

2

Best Utilization to Save Natural Resources



Project title :- Best Utilization by Saving of natural resources.
 Factory Address :-UltraTech Cement Limited, Unit Bela Cement Works. Rewa (MP)
 Project Started : April'2021
 Project End date : March'23



Project Team Leader Member : Mr. Sambhav Srivastava (Unit Head)
Project Team Leader Member : Mr. Shivpal Singh Sisodiya (Functional Head-Technical)
Member : Mr. Abhay Kumar Dwivedi & Mr. Dinanath Mishra (Head Quality control)
Member : Mr. Chandrakant Tiwari (Environment In charge)
Member : Mr. Prashant Tripathi & Mr. Om Shankar Kumar (PF Technical cell & Env.)

Business Case & Tigger of project :- Ultratech Cement Bela unit has a cement manufacturing capacity of 2.5 MTPA and clinker capacity of 2.38 MTPA.The unit has progressed substantially in driving our company's Sustainability agenda, particularly in our focus areas of decarbonization, circular economy, biodiversity management, water positivity, safe operations and community development. Here are the key highlights:

- Enhancement of fly ash in PPC from 31 to 35% in PPC and PI addition increased from 3 to 5% Portland cement manufacturing.
- Clinker to cement factor increased from 1.48% to 1.55% in PPC IN FY'23 compared in since LY 2 years.
- Clinker to cement factor reduction from in OPC from 1.05% to 1.07% in PPC IN FY'23 compared in since LY 2 years.
- By improved fly ash consumption, clinker factor got reduced resulted into CO2 reduction.
- Fossil fuel consumption reduction by reducing clinker cons. In cement manufacturing.
- We are Zero Effluent Discharge unit
- 9 MW solar power system installation under progress in captive mines area.
- 6.1 MW Solar Photo Voltaic Power Plant in colony premises.
- Introducing Digi check list for PM and daily check list synergize with sap against log book and check list.
- Live & monitoring thru alert generation followed wrt condition by indriducing digital technology by placement of IIOT Sensors.

3



Our Uniqueness

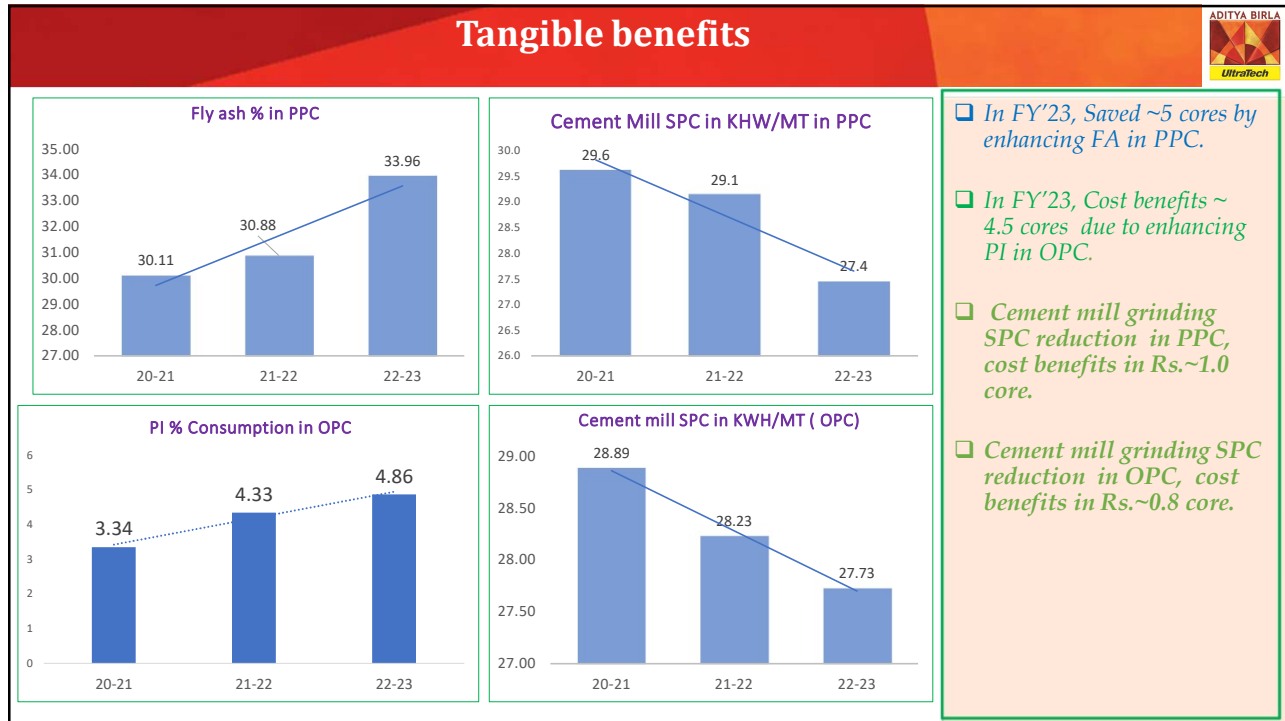
- ❖ Project tile :- To Save environment by utilization of waste for saving of natural resources.
- ❖ Conducted various brain storming sessions for circuit modification & digital surveillance.
- ❖ Quality of clinker was excellent and meeting quality requirement.
- ❖ CFT team identified to installation of new high capacity bin and one separate FA Feeding point to meet the requirement of FA up to desired level.
- ❖ Introducing Digital IIOT sensors & PM started thru Digi check list.
- ❖ Quality check and supply check frequency increased under digital initiatives.
- ❖ Supply check team formulated.



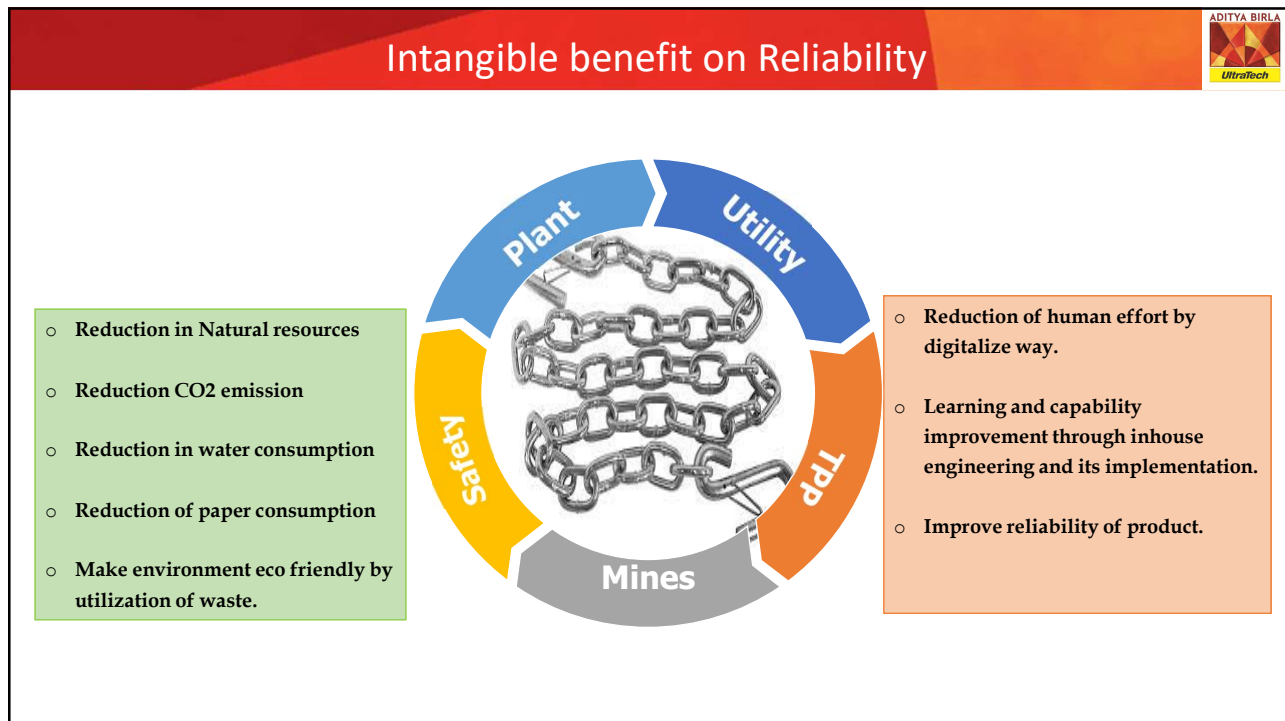
The diagram illustrates the cement manufacturing process flow: Mines → Crusher → Stackers & Reclaimers → Raw Material Hopper → Raw Mill → Raw Meal Silo → Preheater → Coal Mill → Kiln → Cooler → Clinker stockpile → Cement Mill → Cement Silo → Packer → Dispatch → Customer (via Delivery Bunker, Rake, or Truck).

We Aspire Quality, We Live Quality

4



5



6

Replication Potential of Project within Sector



Horizontally replicated IIOT sensors & digi-check in pre-clinkerization & TPP. Also replicated at our sister units by implementing the project known as to improve excellence journey through digital transformation.







7

Challenges & methods

P1

To overcome extraction issue the detailed engineering & circuit design was reviewed with CFT team & taken consultation from SME's installation of new bin & its feeding & extraction circuit upto the mill feeding area

P2

Bin extraction system modified to ensure continuous supply of fly-ash by modifying extraction gates, air-slide maintenance, enhanced bin aeration system.

P3

Major concern of this project is with fly-ash extraction due to bin capacity was less against desired volume required for cement mill operation

P4

Prior to execution of the project equipment reliability was a major concern due to manual inspection & some lapses in PM

P5

There was only one fly-ash unloading line available with the circuit which was not enough to supply desired fly-ash to the bin. So an additional unloading arrangement made for sufficient supply of fly-ash to the circuit

8

Achieving national benchmarks/Standards

ULTRA TECH CEMENT LIMITED
(INDIA) PVT. LTD.

**ISO 9001:2015, ISO 14001:2015,
ISO 45001:2018**

Bela Cement Works

GOLD AWARD – ENVIRONMENT PRESERVATION

SMART MANUFACTURING SUMMIT & AWARDS 2022

BUREAU OF ENERGY EFFICIENCY - EXHIBITION & DISSEMINATION OF TECHNOLOGIES IN WHRS IN INDIAN CEMENT PLANTS

MINES ENVIRONMENT & MINERAL CONSERVATION WEEK

International Safety Award Winner – 2023
Ultra Tech Cement Limited, Bela Cement Works, India - Department

Year	Value
2020-21	0.347 KL/MT
2021-22	0.316 KL/MT
2022-23	0.215 KL/MT

Specific water consumption for Cement

Year	Value
2020-21	0.685 MT
2021-22	0.690 KL/MT
2022-23	0.674 KL/MT

CO2 emission PMT of Cement

9

Way Forward

To explore the market feasibly to promote the blended cement.

Operation of critical equipment through remote.

Finness of cement to be establish wrt to Residue V/s Blaine.

New product to be explore to substituting the Ordinary cement.

Automation of cement auto samplers.

Online PSI monitoring for operational excellence.

LIMS connectivity through DCS.

Modification of PI feeding System and men less operation

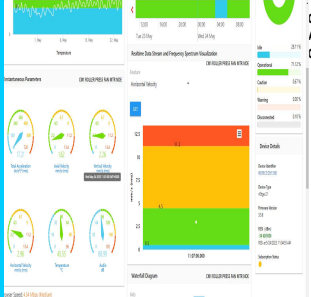
VEDA for CTM machine connectivity.

RM supply tracking through GPS

10

Best Practices

Live equipment monitoring snaps revealing about the equipment's healthiness conditions.



OR FY 23-24 TARGET OF 10% REDUCTION IN LUB COST TAKEN AS COMPARED TO FY 22-23 BY DOING FOLLOWING MEASURES:

- Identification & rectification of dust contamination sources & follow-up to arrest them to avoid early replacement of oil due to contamination.
- Identification & rectification of oil leakages from machines to avoid top-up of oil.
- By doing oil filtration & oil centrifuge.
- By doing periodic oil analysis & inspection & replacement of lubricant as per oil analysis report.



Category	FY 22-23 (RS/TON)	FY 23-24 (RS/TON)
LUBRICANT COST IN RS/TON OF CLINKER	4.34	2.35
LUBRICANT COST IN RS/TON OF	3.995	1.2

Inspection through online digital checklist through tablet implemented in Process, Mechanical & E&I to strengthen cement mill area equipment inspection which helps us in reducing breakdown as a result plant reliability is increasing.




Introducing... E Vehicle in Gate Pool



On 15th May 2023

11

Learnings from Project



Learnings

- Save Natural resources
- Better understanding of all environmental aspects.
- Got an idea Current Indian cement industry scenario & challenge to reduce CO2.
- To Make easier PM Compliances through Digi check.
- Live equipment monitoring through IoT sensor and improve the plant reliability.
- Road map for reduction of emissions for present & future norms through digitalization.
- Developed more interaction with my team and their competencies enhanced

12

