

PPC



2017

SLURRY SITE VISIT

03 FEBRUARY 2017

Strength in diversity

EXECUTIVE TEAM



Darryll Castle
CEO



Johan
Claassen
MD, PPC Cement
SA



Hardie de Beer
Executive:
Technical



Leon du Plessis
Executive:
Projects

PROGRAMME



09:30	Welcome and introductions	Hardie de Beer, executive: technical
09:35	Group operational update	Darryll Castle, CEO
09:50	PPC Slurry – in summary	<ul style="list-style-type: none"> Johan Claassen, MD, Cement SA Frikkie van Zyl, GM: PPC Slurry
10:15	The SK9 project	<ul style="list-style-type: none"> Leon du Plessis, executive: projects Dipeen Dama, SK9 project manager
11:15	Introduction to PPC's Technical Skills Academy	Louis Fouche
11:30	Safety briefing	Jaundre Smook
11:45	Site visit	All (in groups)
13.00	<i>lunch</i>	All
14.00	Coach transfer to Mafikeng International Airport	All

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GROUP OPERATIONAL UPDATE

Darryll Castle

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BALANCE SHEET FURTHER DE-GEARED



- PPC's balance sheet significantly de-geared to September 2016.
- Improved further in December 2016 following conclusion of the first empowerment transaction which resulted in a cash inflow of R1 billion.
- Cash will be used to further reduce the Company's debt and fund capital expenditure, in particular, the Slurry kiln 9 project.

B-BBEE

- In terms of the Broad-Based Black Economic Empowerment ("B-BBEE") Codes of Good Practice, PPC's contributor level improved from Level 8 to Level 4 in December 2016.
- Details relating to the proposed new B-BBEE III transaction will be communicated to shareholders during the first half of the 2017 calendar year.



GROUP CEMENT SALES



For the first nine months of the trading period ending December 2016, PPC's group cement sales volumes were up 4% compared to the previous nine month period ending December 2015.

South Africa

- For the nine month period to December 2016, cement sales volumes in South Africa increased by 4% and the average selling prices decreased by 4%.
- Following selling price increases implemented in the Gauteng and Inland regions in October 2016, these areas experienced high single digit declines in cement sales volumes for the quarter ending December 2016 when compared to the quarter ending December 2015.
- Despite strong volume growth in the Western Cape region, overall cement sales volumes in South Africa declined marginally when compared to the same quarter in the previous year.
- Further price increases implemented in select regions, effective 1 February 2017 - the impact of which will begin to reflect on the average selling price in the next few months.

Zimbabwe, Rwanda and Botswana

Zimbabwe, Rwanda and Botswana collectively recorded cement sales volume increases of 9% for the nine month period to December 2016.

- On the back of increased sales promotions, cement sales volumes in **Botswana**, have shown a 12% growth for the quarter ending December 2016. Pricing in all the territories does, however, remain under some pressure.
- **Rwanda** recorded 81 000 tonnes of cement sales volumes in the quarter ending December 2016, bringing cement sales recorded for the nine month period to December 2016 to a total of 230 000 tonnes.

PPC Lime

- Performance in the lime division continues to be negatively affected by the local steel and alloys industries.

Aggregates and readymix division

- Volumes in the aggregates and readymix division continued to show growth on the back of the recent acquisition of 3Q Mahuma Concrete.



Zimbabwe

- The US\$82 million Msasa mill in Harare was completed on time and US\$3 million below budget without a single lost time injury.
- The project debt was initially anticipated to be US\$75 million however, the use of own-cash resources reduced debt drawdowns by US\$20 million.
- The first bi-annual debt and interest repayment was made in December 2016.
- Following commissioning of the mill, cement sales volume performance, which had been trending lower, has shown an improvement when compared to the previous quarter ending December 2016.
- Liquidity challenges in Zimbabwe make it difficult to import key inputs; management is exploring various solutions to overcome these challenges.
- All the performance tests have now been successfully concluded with final handover achieved late in January 2017.

Slurry SK9

- The Slurry SK9 new kiln line project is progressing well with overall progress at 54%.
- Commissioning and ramp-up remains scheduled for the first calendar half of 2018.

PROJECTS UPDATE



Democratic Republic of the Congo (DRC)

- As at January 2017:
 - overall project construction was at 95%,
 - construction of the cement factory complete and ready for commissioning,
 - village construction is now 80% complete and handover of houses to the operation is in progress.
- Construction of the 13km overhead transmission line to the plant, line testing and commissioning with SNEL is complete.
- Full power to the factory and village was available from the end of January 2017.
- Factory cold commissioning is complete and hot commissioning will commence in February 2017.
- Saleable cement production will commence at the end of March 2017.

Ethiopia

- Project construction is at an advanced stage.
- Electrical installation work from the limestone crusher to the cement proportioning station, including the general substation has been completed.
- The national utility company will shortly commence with the requisite tests and energising of the substation is anticipated early in February 2017.
- Once power is available on site, the kiln will be fired and hot commissioning will commence.
- Saleable cement production is expected in the second calendar quarter of 2017.

MANAGEMENT FOCUS



- The company remains focused on delivering its expansion projects timeously and cost effectively.
- As the international projects are at advanced stages, the focus has largely shifted to operational performance and achieving maximum ramp-up without disrupting the market.
- Management also continues to give special attention to the cash generating units; specifically managing costs within management's control while maximising efficiencies.
- Work is also underway to further optimise the company's capital structure while also exploring ways to de-risk the project in the DRC.



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AN INTRODUCTION TO PPC SLURRY

Johan Claassen
Frikkie van Zyl

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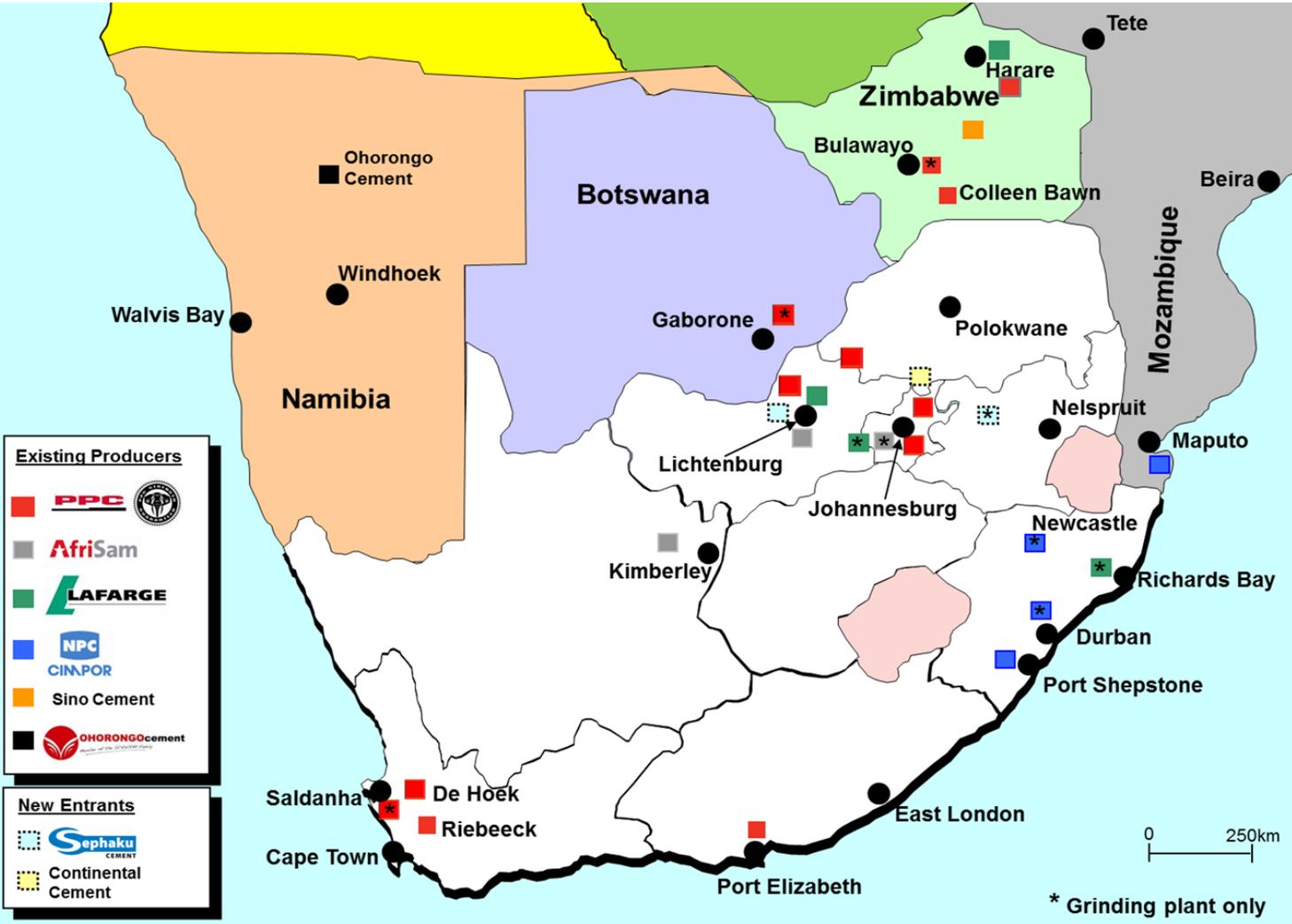
PRESENTATION OVERVIEW



- PPC's footprint
- Slurry's supply footprint
- Optimal sourcing
- History of Slurry
- Slurry journey map
- Mining overview
- Production data
- Markets and products
- Environmental management
- Focus on safety
- Community involvement

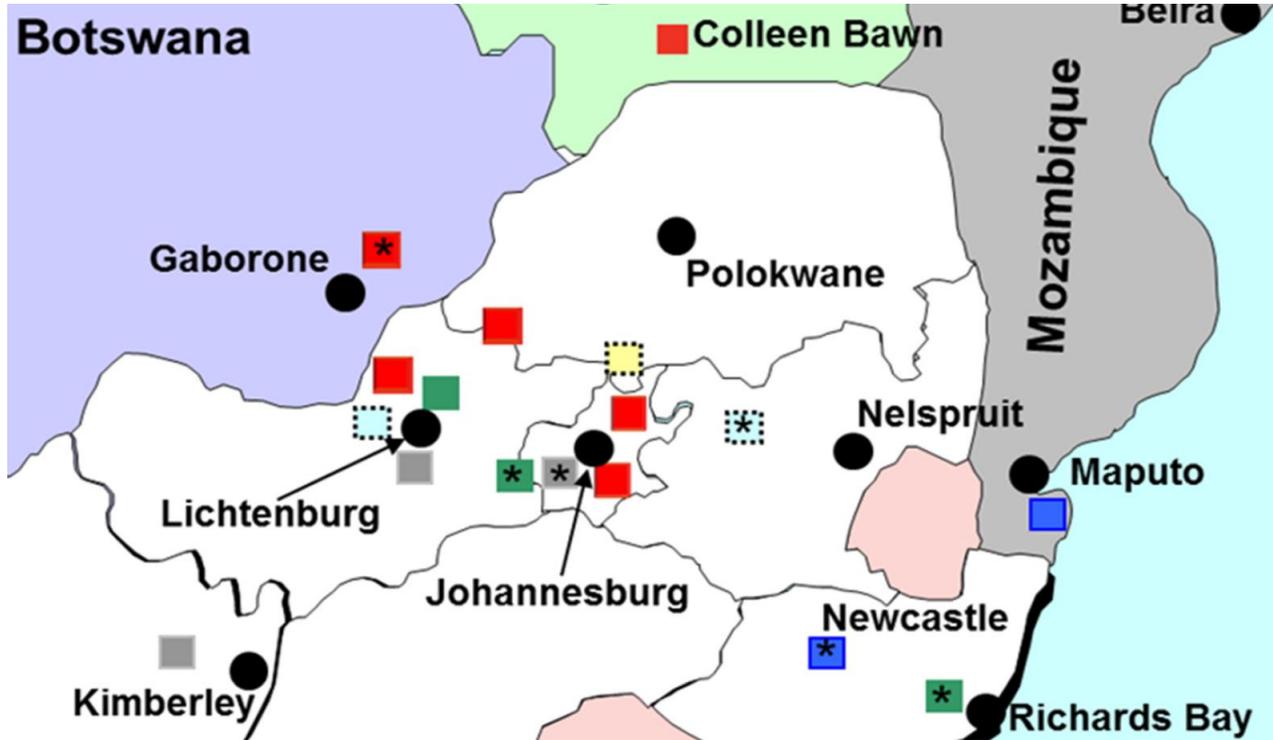


PPC'S FOOTPRINT IN SOUTHERN AFRICA



- PPC has nine kilns in the Inland region
- Slurry and Dwaalboom are the main clinker manufacturing facilities
- In most instances, four inland kilns are used – two at Slurry and two at Dwaalboom
- In 2018, PPC's Inland region will have capacity that is as energy efficient as modern cement plants
- PPC favours an optimal sourcing model that solves for the lowest variable delivered cost of any product

SLURRY'S SUPPLY FOOTPRINT



- Rail is largely used for the delivery leg into Botswana
- Some clinker transfers do occur between Slurry and Jupiter – these are largely to benefit from back haul opportunities in the supply of raw materials like boiler ash and gypsum into Slurry

- Slurry predominantly supplies product to five regions:
 - Botswana: 26%
 - North West: 25%
 - Gauteng: 21%
 - Mpumalanga: 19%
 - KwaZulu Natal: 8%
- Some limited product goes to the Eastern Cape and Free State provinces
- 712 000km are travelled per month to service 387 unique customers
- Average distance travelled is 460km per trip

- Logistics make up a sizable proportion of cost to serve and so optimal sourcing is a key activity at PPC

Slurry to Botswana

- The rail network from Slurry into Botswana is used extensively:
 - To supply bulk cement (to be processed into finished product in Gaborone),
 - To rail in some bagged cement from Slurry into areas outside of Gaborone.
- Bagged cement is also transported by road into Gaborone.
- Road transport into Gaborone is 15% - 20% cheaper than rail however the majority of PPC product into Botswana is by rail.
- The use of rail into Botswana, though more expensive, is beneficial as it can handle the volumes necessary to supply the Botswana market.
- PPC is the only cement producer with a dedicated rail line into Botswana.
- Use of road infrastructure into Botswana is limited and can lead to unexpected delays due to border transfer inefficiencies.

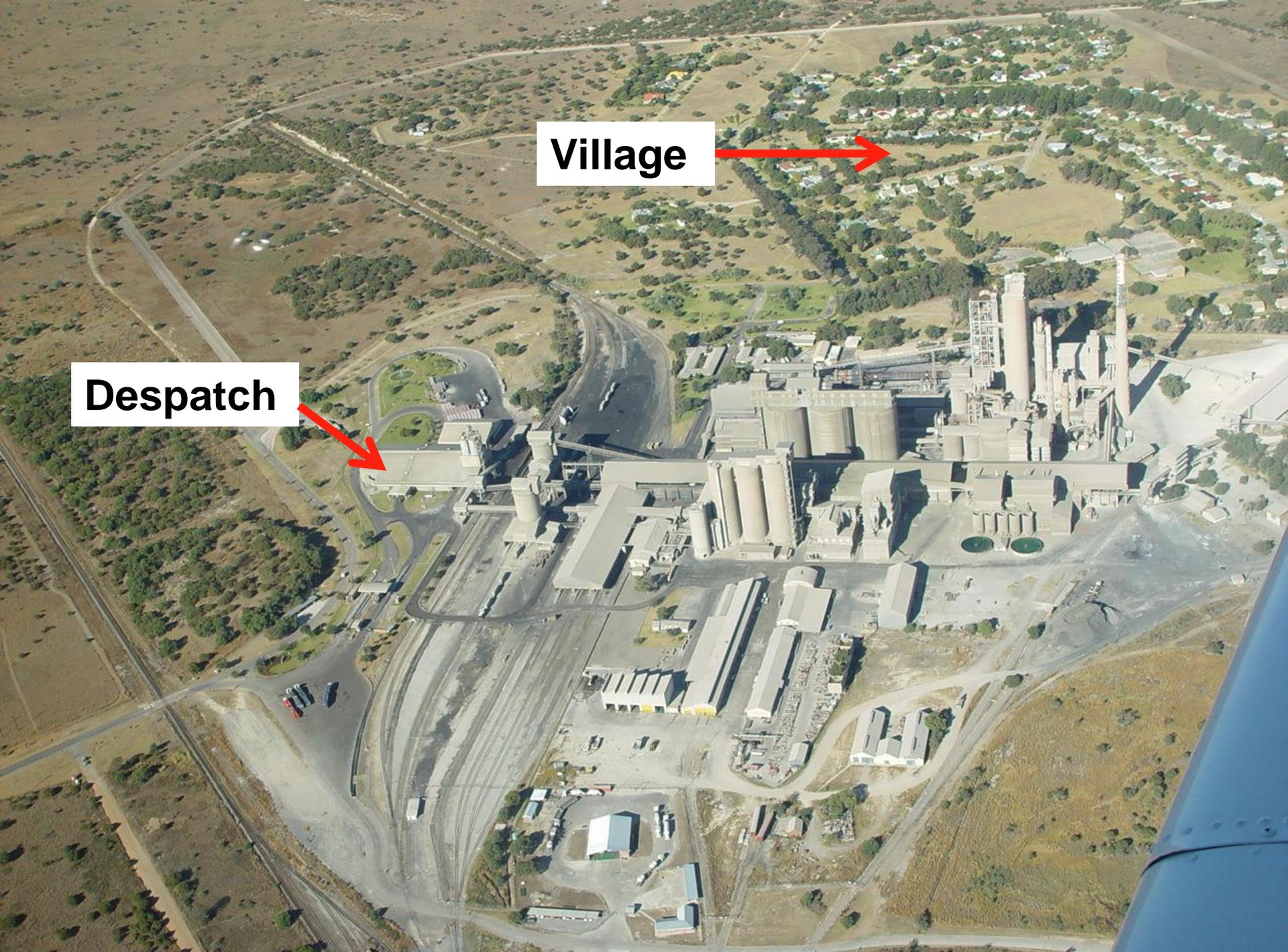
Slurry to South African market

- Bagged cement is also transported by road into Gauteng, Mpumalanga and KwaZulu Natal.
- **PPC's Dwaalboom** plant mainly services the Limpopo and Gauteng provinces
 - Bagged cement travels predominantly by road into Limpopo (few bulk clients)
 - Clinker is also railed at cost effective rail rates into Hercules and Jupiter for milling into the final product
 - In this instance, rail is much more cost effective than road as one block load (3000 tons) would require the use of one hundred 30 ton trucks
 - PPC makes use of several block loads into Gauteng per week

Village



Despatch



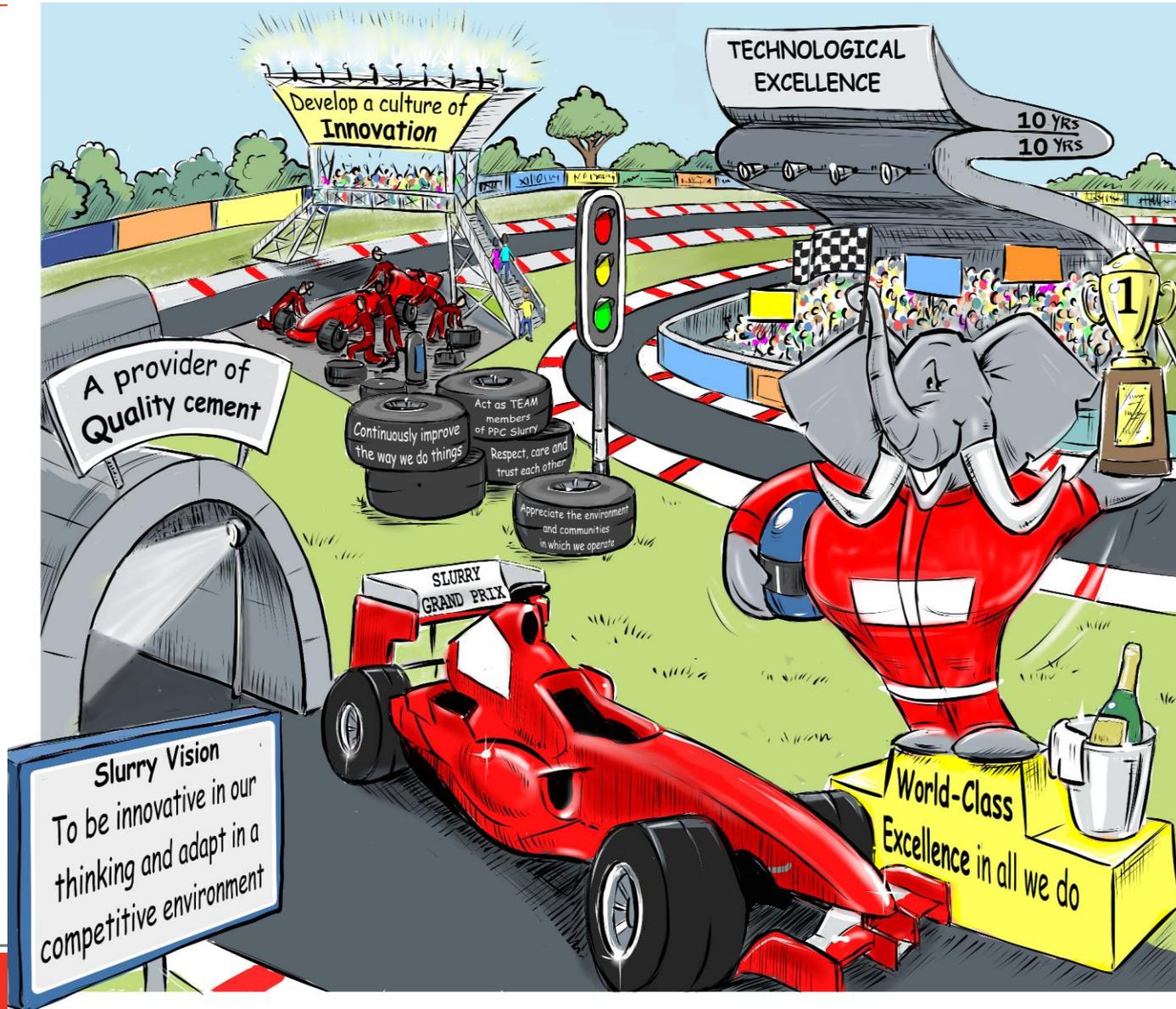
HISTORY OF SLURRY



- 1913 - Limestone Deposit found at Rietvlei
- 1913 - MD Zeke Davidson and Director O'Connell Maggs bought farm
- 1914 - Board approval and ordered Kiln
- 1916 - November first cement produced
- 1959 - SK5
- 1961 - SK6
- 1968 - SK7
- 1976 - SK8
- 2017- SK9



SLURRY VISION 2016 AND BEYOND



PLANT OVERVIEW



- Currently, Slurry has 4 production lines:
 - SK5, SK6, SK7 and SK8
 - with a combined clinker nameplate capacity of approximately 4500 tons/day (tpd)
 - This equates to cement nameplate capacity of ~2 million tons/annum (tpa)*
 - Of this however, the 'efficient' cement capacity is ~1,5 million tpa*.
- SK5, SK6 and SK7, with a combined clinker capacity of 2000tpd, are not energy efficient and will be decommissioned at the end of 2018.
- SK8, with a clinker production capacity of 2500tpd, will not comply with the legislated dust emission limit of 30mg/Nm³ from April 2020.



*Assuming 100% utilisation at a 20% extension factor

MINING OVERVIEW



- Limestone reserves confirmed for 41 years
- Crushing Plant 1000 tph capacity Osborn Crushers
- Crusher Material stored on stockpiles
- Then extracted into factory by conveyor belts



Quarry rehabilitation

- Rehabilitation is done concurrently with the operation
- Alien eradication is done on rehabilitated areas to ensure only indigenous flora is kept
- Unrehabilitated area is less than 6% of mining area



Quarry before and after rehabilitation

MINING OVERVIEW - QUARRY EQUIPMENT



Earthmoving equipment

- 2 X CAT 770 haul trucks
- 6 X Heavy Construction Vehicles
- 3 X CAT 988 Front end loaders



PRODUCTION DATA



- 1 x FLS Raw Mill
- Kilns include
 - SK7: long dry, 1 stage preheater
 - SK8: 4 stage preheater,
 - All with planetary coolers and no pre calciners
- Cement milling : 4 mills
- 2 x Packer/Palletizers
- 24/7/365 operation
- Produces a bag of cement per second



MARKETS AND PRODUCTS



- Road bulk, rail bulk and palletised-covered options,
- Slurry predominantly sends bagged cement by road in South Africa (80% bagged),
- Cement in paper and woven polypropylene bags.



Products

- OPC(CEM I 52.5 N) – bagged & bulk
- SUREBUILD (CEM II /A-L 42.5 R) – bagged & bulk
- SUREROAD (CEM II/B-L 32.5N) – bagged & bulk
- BOTCEM & BestBuild (CEM II/B-L 32.5 N) – bagged only



FOCUS ON ENVIRONMENTAL MANAGEMENT



- Environmental management system includes
 - an environmental policy
 - procedures to manage activities that interact with the environment.
 - Aligned to group best practice guidelines.
 - Internal and external audits are conducted on a regular basis
 - Reports generated as part of the Group Reporting Index (GRI)
 - Best Practices implemented on
 - Air Quality
 - Green House Gases
 - Energy Consumption
 - Resource Consumption.

- Follow limits as prescribed in the AEL (Air Emissions License) as well as the National Environmental Management Air Quality Act (Act no. 39 of 2004).

- No waste water is generated.

- Sewage waste water is recycled using treated water as a dust suppression medium on the quarry haul roads.

PPC ALIVE – SAFETY STATISTICS FOR 2016



Monthly Number of employees	268
Monthly Number of contractors	150
Hours worked	980 233
Lost Days	18
Number of LTI's	3
LTIFR	0.61

The safety of our employees' is our number one priority

UPLIFTING OUR COMMUNITY – A SNAPSHOT



- Development of our own employee's
- Creating employment and employ from local community
- Training of local community through Adult Basic Education Training (ABET) programme
- Involved in numerous projects over wide spectrum
 - Local schools (Mapetla, Onkgopotse Tiro)
 - Day care centers (Ramatlabama, Mapetla)
 - Feeding scheme, food gardens
 - Informal settlement roads and water upgrades
 - Water supply project



THANK YOU



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SLURRY UPGRADE PROJECT

Leon du Plessis
Dipeen Dama

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PRESENTATION OVERVIEW



- Project background
- Key project highlights
- Guaranteed performance
- Project organogram
- SHE management & quality assurance



PROJECT BACKGROUND



- An analysis of the Inland market revealed that additional energy-efficient and environmentally friendly clinker capacity would be required in 2018.
- Main considerations for expansion were:
 - affordability,
 - long term environmental compliance,
 - plant down time, and
 - Location and proximity to the market.
- Why Slurry?
 - Benefits of utilising existing infrastructure and auxiliaries,
 - No negative impact on PPC's footprint,
 - Life of Mine (41 years) suited for increased capacity,
 - PPC Inland flexibility will be maintained - four Inland kilns (DK1, DK2, SK8, SK9) "equal" in size,
 - Existing distribution and optimised sourcing model for product to market,
 - Existing rail infrastructure into SA and Botswana.
- The following benefits will be realised from the SK9 project:
 - Improvement in thermal energy consumption,
 - Reduction in maintenance costs,
 - Increase in installed clinker capacity in the Inland region.

PROJECT BACKGROUND



- The R1,7 billion Slurry kiln 9 project therefore includes:
 - Construction of a new 3000tpd production line (SK9) using the latest energy efficient technology
 - Replacement of SK8's electrostatic precipitator (ESP) with a bag filter in order to ensure compliance with environmental legislation in 2020
- Post commissioning in 2018, Slurry's clinker production output will rise to 5500tpd
 - This equates to 'efficient' cement capacity of ~2,5 million tpa*
- The project is classified as a brownfields project as it will upgrade and expand capacity at an existing plant.

Slurry has 4 production lines:

- SK5, SK6, SK7 and SK8
- with a combined clinker nameplate capacity of approximately 4500 tons/day (tpd)
- This equates to cement nameplate capacity of ~2 million tons/annum (tpa)*
- Of this however, the 'efficient' cement capacity is ~1,5 million tpa*

*Assuming 100% utilisation at a 20% extension factor

KEY PROJECT HIGHLIGHTS



- **A kiln system with six cyclone preheater stages and a precalciner:**
 - The use of six stages of preheating is state-of-the-art as it enables energy to be used more efficiently in the system
 - The lower preheater exhaust temperature means less gas cooling required to protect the bag filter while significantly reducing the process water requirements
 - Slurry's clinker production capacity will increase but will not require any changes to the existing water usage permit
 - The improved thermal efficiency of the SK9 kiln will significantly reduce the carbon emissions for every ton of clinker produced
 - PPC's Dwaalboom (DK2) is currently the only cement plant in South Africa that boasts a 6 stage preheater kiln with a calciner
 - By comparison, SK8 has a four stage preheater while SK7 only has 1 stage of preheating
 - The use of an in-line calciner ensures that the kiln feed is almost completely calcined when it enters the kiln - a calciner increases the capacity of the plant and reduces nitrogen oxide emissions
 - Use of alternative fuels has been considered in the design of the calciner

PROGRESS PHOTOS



SK9 six cyclone preheater under construction.

PPC's Dwaalboom is currently the only cement plant in South Africa that boasts a 6 stage preheater kiln with a calciner (DK2)

KEY PROJECT HIGHLIGHTS



- **A kiln system with six cyclone preheater stages and a precalciner:**
 - SK9's guaranteed specific thermal energy consumption is 3.1 MJ/kg clinker which compares well with modern cement plants globally
 - This is more than 25% and 50% more energy efficient than SK8 and SK7 respectively
 - Once SK9 is commissioned, PPC's inland kilns will collectively perform at an average of 3.4 MJ/kg, which is equivalent to the performance of a new 5 stage preheater kiln system
 - For improved thermal energy consumption to be achieved, slightly higher electrical energy is required due to increased use of fans – however, this is vastly outweighed by the improvements in thermal energy consumption
- **Meaningful reduction in maintenance costs:**
 - The state-of-the-art system will also lead to reduced maintenance costs
 - SK9 effectively replaces SK5, SK6 and SK7 – on average, these older kilns' average maintenance costs are R22/ton clinker
 - SK9 offers an expected maintenance cost reduction from R22/ton to R12/ton clinker
 - These costs are expected to be even lower during the first 3 years of use for SK9
 - This compares to SK8's maintenance costs of R15/ton clinker

KEY PROJECT HIGHLIGHTS



- **A multi-channel kiln burner which allows for flame shape adjustment to achieve optimal heat transfer to the kiln feed**
- **Latest generation 'walking floor' grate cooler**
 - Each channel or lane in the walking floor grate clinker cooler will have its own drive which will enhance available production time because the cooler will be able to continue operating even when the drive system of one lane fails
 - The 'walking floor' grate plates are less prone to mechanical failures as they have 'pockets' which contain a permanent layer of clinker which protects them from both thermal and mechanical stresses – hence much reduced wear/breakage of plates and lower maintenance costs
 - Cooler design maximises heat recovery to reduce total energy consumption
- **Process fans are high efficiency units (equipped with backward curved impellers) to reduce the specific electrical energy requirements of the kiln system**

PROGRESS PHOTOS

Lifting of kiln shells onto support rollers



KEY PROJECT HIGHLIGHTS



- **An undercover storage facility for raw materials**
 - To reduce fugitive dust emissions
 - To keep the moisture content of the raw materials to a minimum
- **A new raw materials proportioning facility with improved proportioning accuracy**
 - Contributes to a more consistent kiln operation which ultimately improves kiln output and clinker quality
- **All of the major fan motors in the plant will have VSD's (variable speed drives) for flow control purposes**
 - These are more efficient than the typical fixed speed fans with damper control and hence will reduce the specific electrical energy requirement of the kiln system
- **Increased level of process control and optimization**
 - This will be done through automated plant control and operations throughout the various process stages
 - This will enable better tracking and quicker adjustment of process parameters in order to ensure high efficiency and product quality

PROGRESS PHOTOS

Undercover corrective materials storage facility



Raw materials proportioning station



KEY PROJECT HIGHLIGHTS



- **State of the art-dust-control equipment**
 - The kiln/raw mill and coal mill dust collectors are bag filters with a guaranteed emission of $<30 \text{ mg/Nm}^3$
 - The dust collector for the grate cooler vent air is an electrostatic precipitator and this is also designed for a maximum dust emission of 30 mg/Nm^3 .
 - SK8's existing ESP will also be replaced with a bag filter to limit dust emissions to a maximum of 30 mg/Nm^3

- **Centre discharge raw mill (ball mill) with drying chamber**
 - Ball mill preferred as upstream raw materials handling equipment (crushing plant, stacker, reclaimer) are all designed to handle limestone with a particle size distribution suitable for the current ball mill operation
 - In comparison, a vertical roller mill (VRM) would require a much larger feed size in order to run efficiently
 - Energy consumption was calculated to be $15,8 \text{ kWh/t}$ for the ball mill vs. 15 kWh/t for the VRM
 - However the VRM would have required an additional R60 million investment for the circuit as well as the necessary changes to the raw materials handling equipment

PROGRESS PHOTOS

Raw meal silo, Preheater and Bag Filter



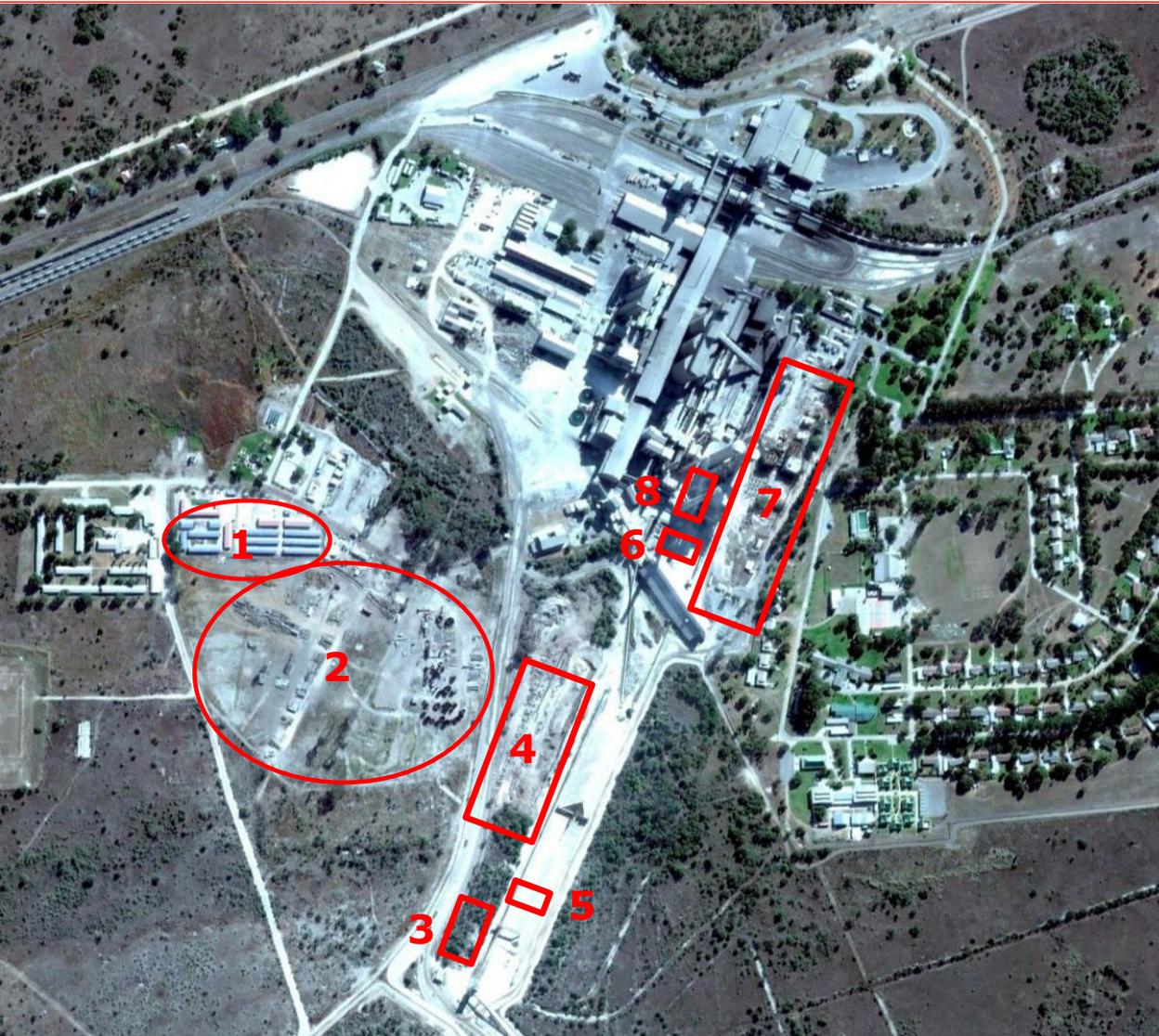
KEY PROJECT HIGHLIGHTS



- **Project status as at 31 December 2016**
 - Detailed engineering is 93% complete
 - Equipment delivery is 87% complete
 - On-site manufacturing is 83% complete
 - Overall project is 54% complete
- First clinker production is estimated for first calendar half of 2018
- EPC Contractor: CBMI Construction Co. Ltd (subsidiary of SINOMA)
- Consulting and project management: ERCOM Engineers
- Project Quality Assurance: The Beijing Axis (China), ERCOM & PPC



PROJECT OVERVIEW



- 1 - CBMI Camp
- 2 - Onsite fabrication & laydown area
- 3 - Road tipping station
- 4 - Undercover storage facility
- 5 - Limestone reclaimer
- 6 - Proportioning station
- 7 - SK9 pyro-processing line
- 8 - SK8 bag filter

GUARANTEED PERFORMANCE

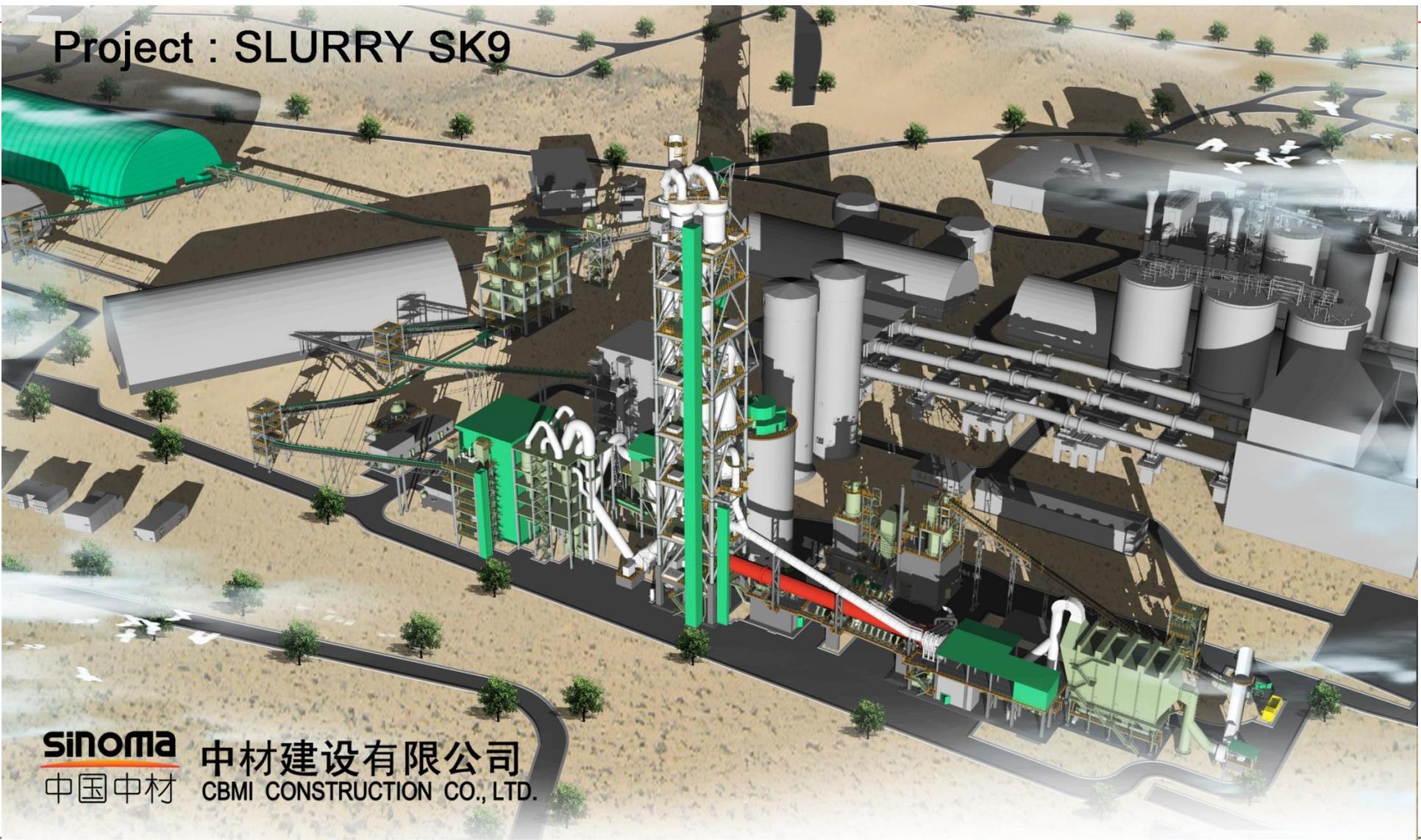


Criteria	Guarantee
Stacker feed rate	600 tons per hour
Reclaimer (correctives) rate	250 tons per hour
Reclaimer (limestone) rate	800 tons per hour
Raw mill output	270 tons per hour
Kiln output	3000 tons per day
Kiln heat consumption	< 3.10MJ/kg of clinker
Coal mill output	24 tons per hour
Nitrogen oxide (NO _x) emissions	< 800 mg/Nm ³
Sulphur dioxide (SO ₂) emissions	< 50 mg/Nm ³
Dust emissions	< 30 mg/Nm ³
Power consumption of the production line	68.5 kWh/t of clinker

PROJECT OVERVIEW



Project : SLURRY SK9



sinoma
中国中材

中材建设有限公司
CBMI CONSTRUCTION CO., LTD.

SECTION 12I TAX INCENTIVE



- The section 12I tax allowance is available to large manufacturers which are establishing new or expansion projects which will be energy efficient and will focus on skills development.
- The objectives of the incentive programme are to support the following:
 - Investment in manufacturing assets, to improve the productivity of the South African manufacturing sector; and
 - Training of personnel, to improve labour productivity and the skills profile of the labour force.
- PPC qualified for the section 12i tax incentive on the 8th of October 2014.
- Total cash benefit of R100.5m (after tax) - allowance to be claimed when assets are brought into use.
- In order to qualify for the section 12I incentive, a project must score 5 points for the section 12I point scoring criteria.

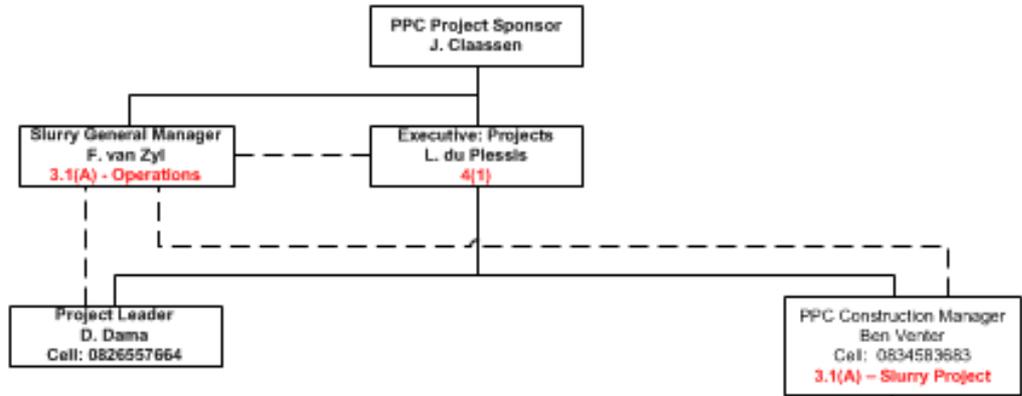
SECTION 12I TAX INCENTIVE



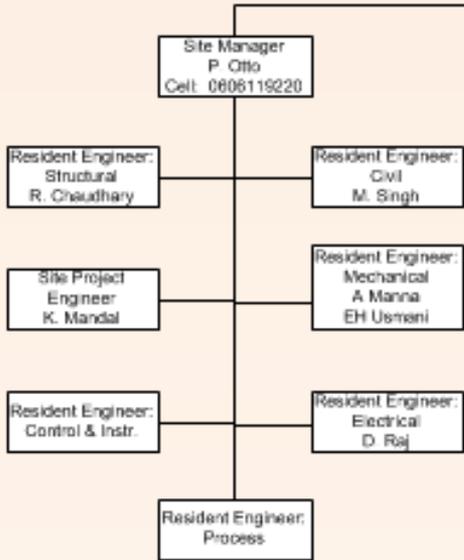
■ PPC's 12I scorecard

Qualifying Criteria		
Criteria	Explanation	Brownfield
Mandatory requirements		
Energy efficiency	Brownfield - 10% saving mandatory. 12.5% saving for 1 point or 15% saving for 2 points	2 points
Skills development	Training spend of at least 2% of annual wage bill for the project. 2.5% spend for 1 point or more than 2.5% spend for 2 points.	2 points
Further point scoring requirements		
Business Linkages	Produce goods of which less than 40% is produced in SA or the project will contribute to the global competitiveness of industrial sector.	0 points
SMME procurement	Brownfield - Acquire 10% of raw materials, intermediate products and services from SMME's for 1 point or 15% for 2 points	2 points
Employment creation	Removed in the Tax Laws Amendment Bill	0 points
Innovation	Utilise innovative processes or will improve production time, reduce production cost or improve product longevity	1 point
Maximum points		7

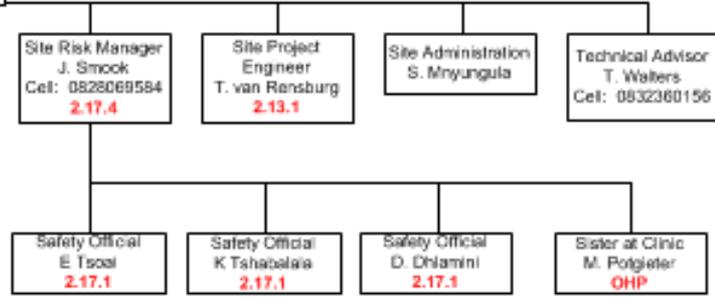
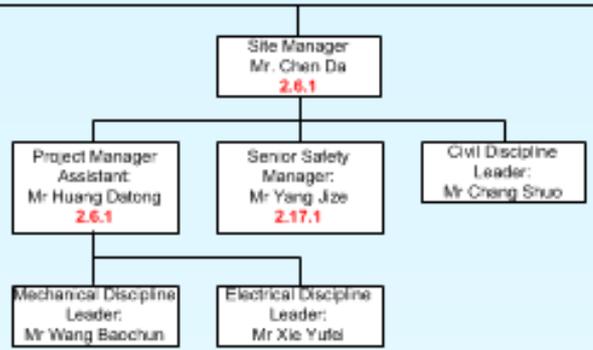
PROJECT ORGANOGRAM – SITE TEAM



ERCOM SITE TEAM



CBMI SITE TEAM



- All employees complete medicals and SHE Induction
- Dedicated site access routes
- Job specific training
- Legal appointments and authorisations
- Dedicated waste management team
- Occupational Health Management programmes and support
- Daily compliance monitoring by dedicated SHE TEAMS
- Safety non-conformances are addressed through site safety instructions
- Approved QCP's and adherence to construction drawings are used for quality management.

THANK YOU. QUESTIONS?



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TECHNICAL SKILLS ACADEMY (TSA)

Louis Fouche

Strength in diversity