

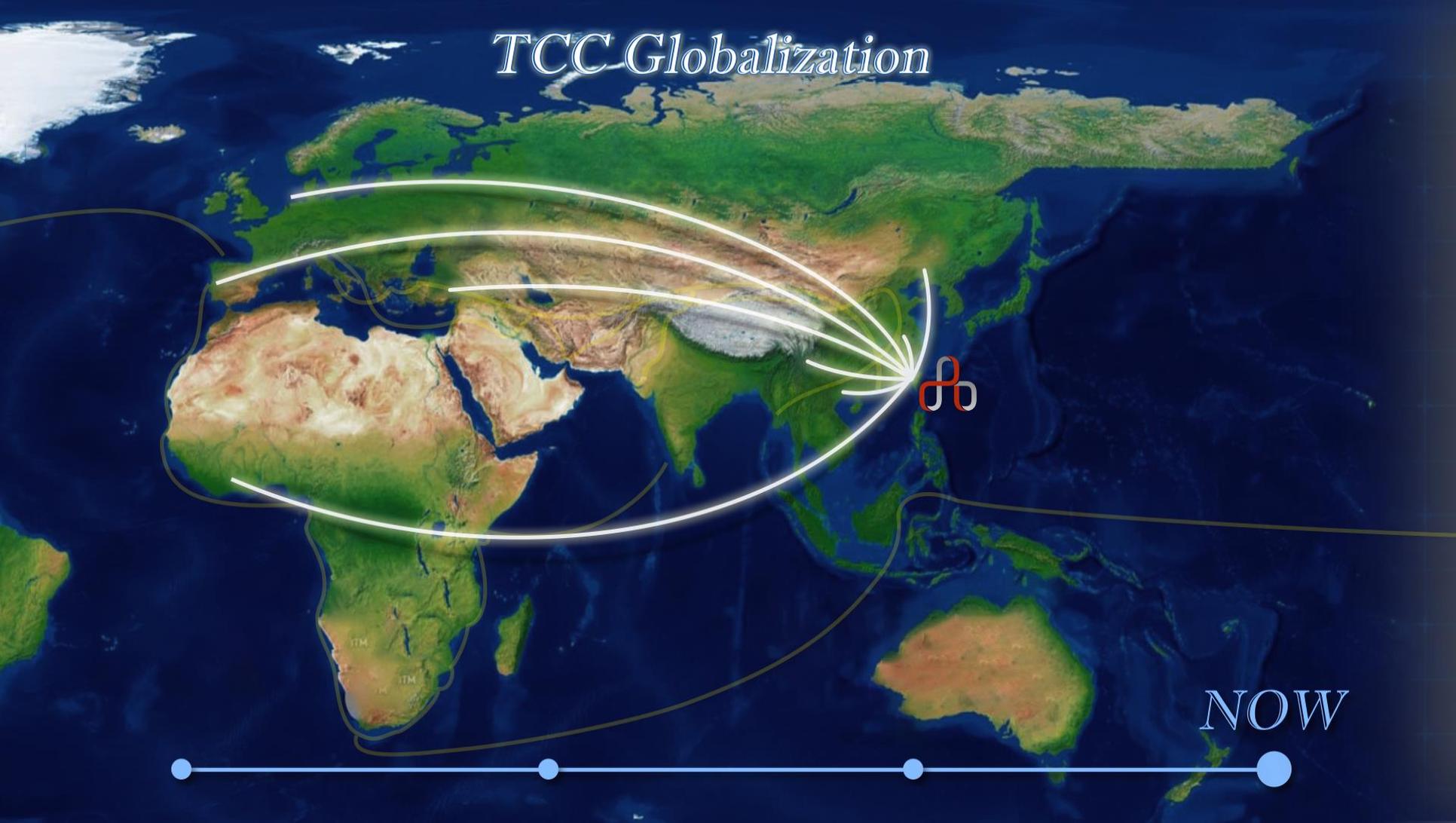
OTCC

THE FUTURE IS WORTH IT



2019 Q3
TCC GROUP
INVESTORS' CONFERENCE

TCC Globalization



NOW

2017 Turkey

GDP Growth Rate: 7.44%
Cement Consumption/Capita: 996.80 (KG)

2018 Portugal

GDP Growth Rate: 2.14%
Cement Consumption/Capita: 281.08(e) (KG)

2003 Mainland China

GDP Growth Rate: 10.04%
Cement Consumption/Capita: 667.11 (KG)

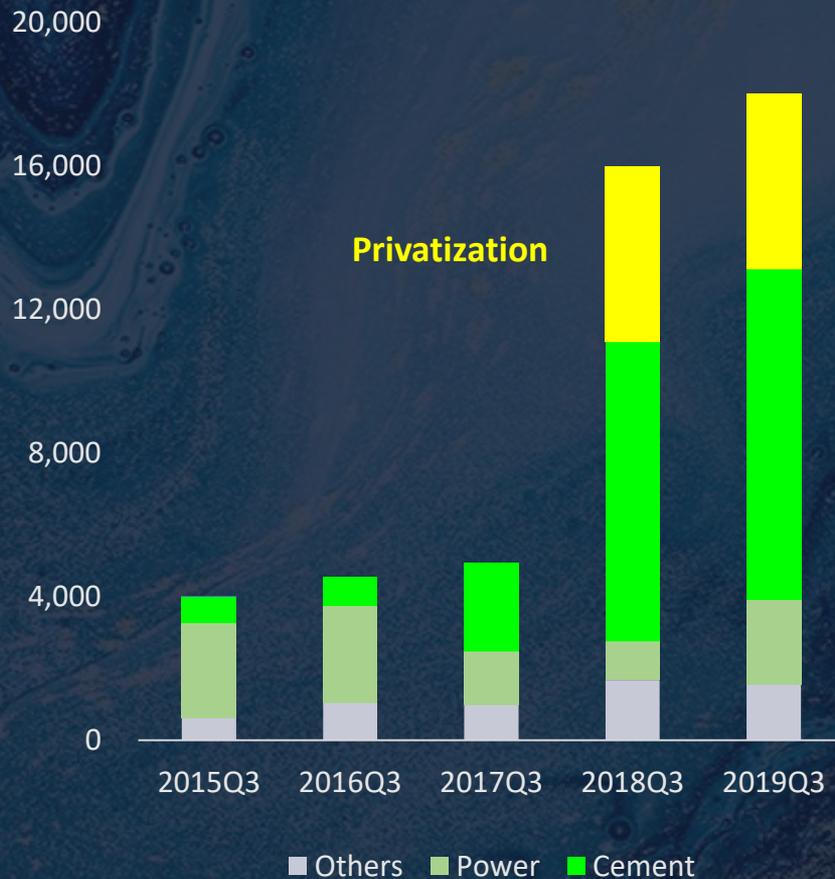
2018 Ivory Coast

GDP Growth Rate: 7.43%
Cement Consumption/Capita: 177.90(e) (KG)



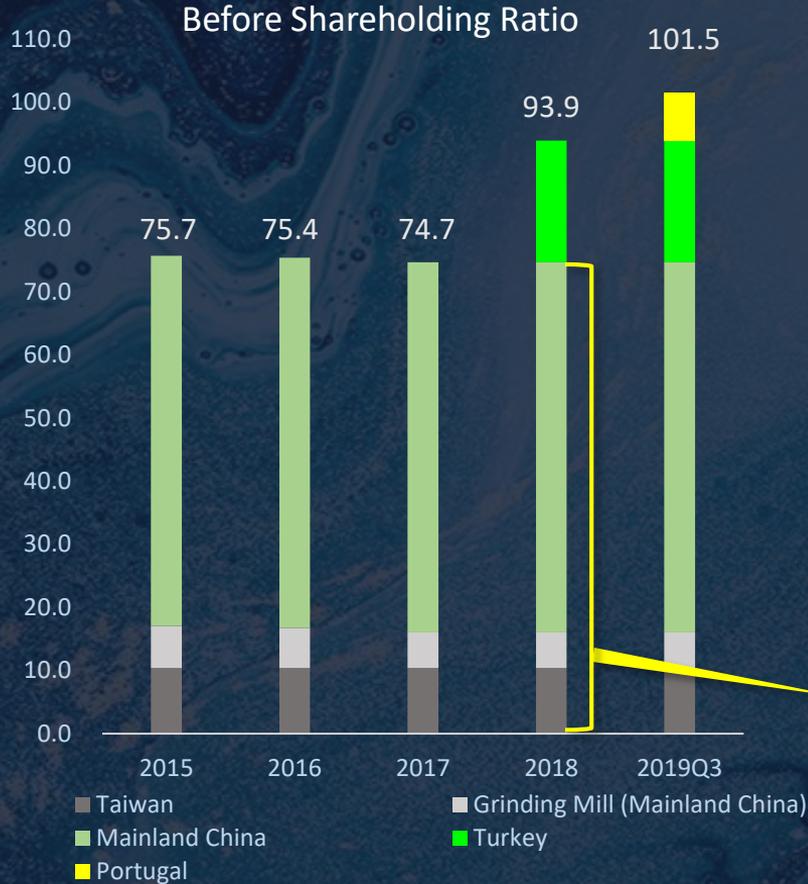
Net Income Growth

Unit: NTD Million



Cement Capacity Growth

Unit: Million Tons



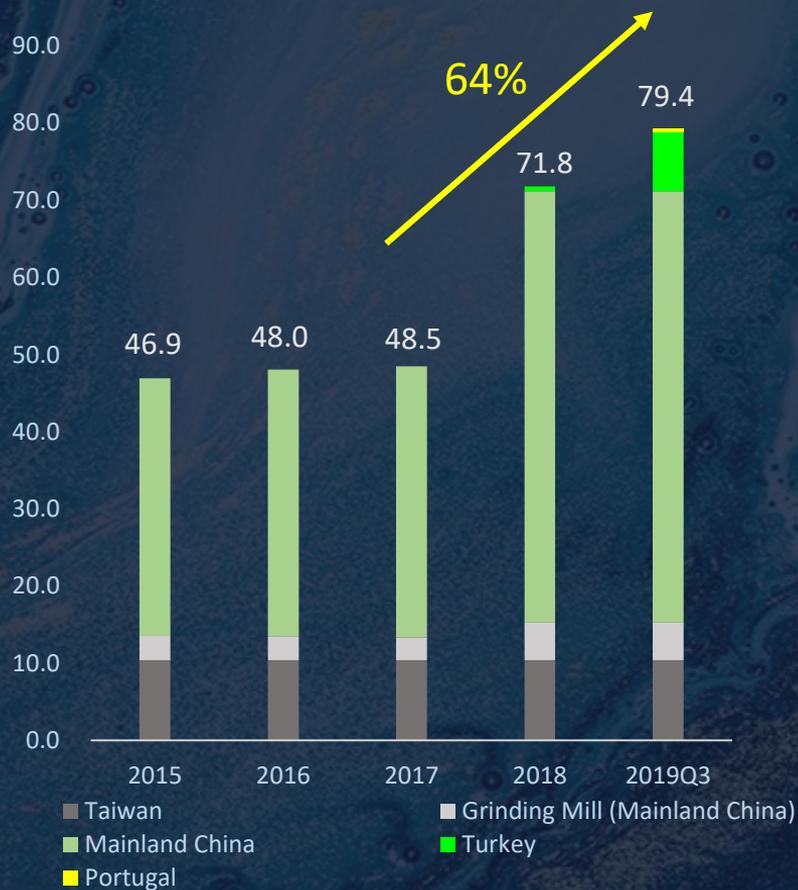
No.	Company	Production Capacity (tons/yr)	Logo
1	China National Building Material (CNBM)	521,000,000	
2	Anhui Conch Cement	353,000,000	
3	Lafarge Holcim	312,900,000	
4	Heidelberg Cement	195,600,000	
5	BBMG Corporation	170,000,000	
6	China Shanshui Cement Group (SUNNSY)	100,380,000	
7	Huaxin Cement	100,000,000	
8	UltraTech Cement	96,500,000	
9	Cemex	92,600,000	
10	China Resource Cement Holding (CR Cement)	83,300,000	
11	Taiwan Cement Corporation (TCC)	74,700,000	
12	China Tianrui Group Cement Company Limited	56,700,000	

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Cement Capacity Growth

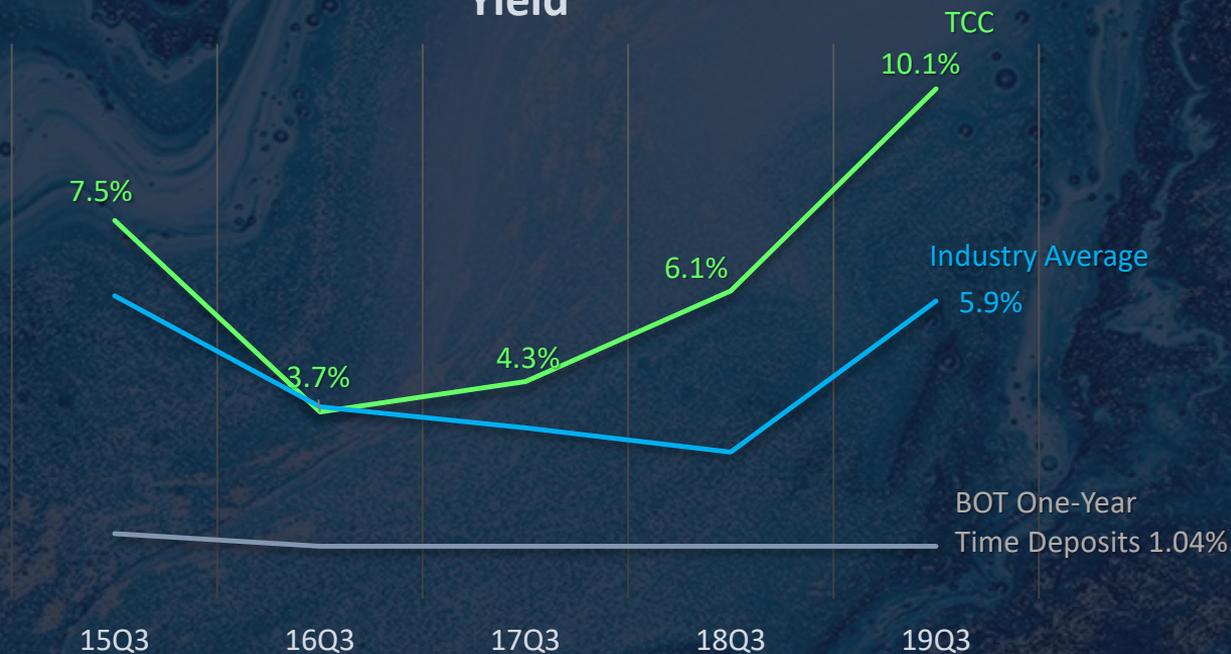
Unit: Million Tons

After Shareholding Ratio



Competitor Comparison

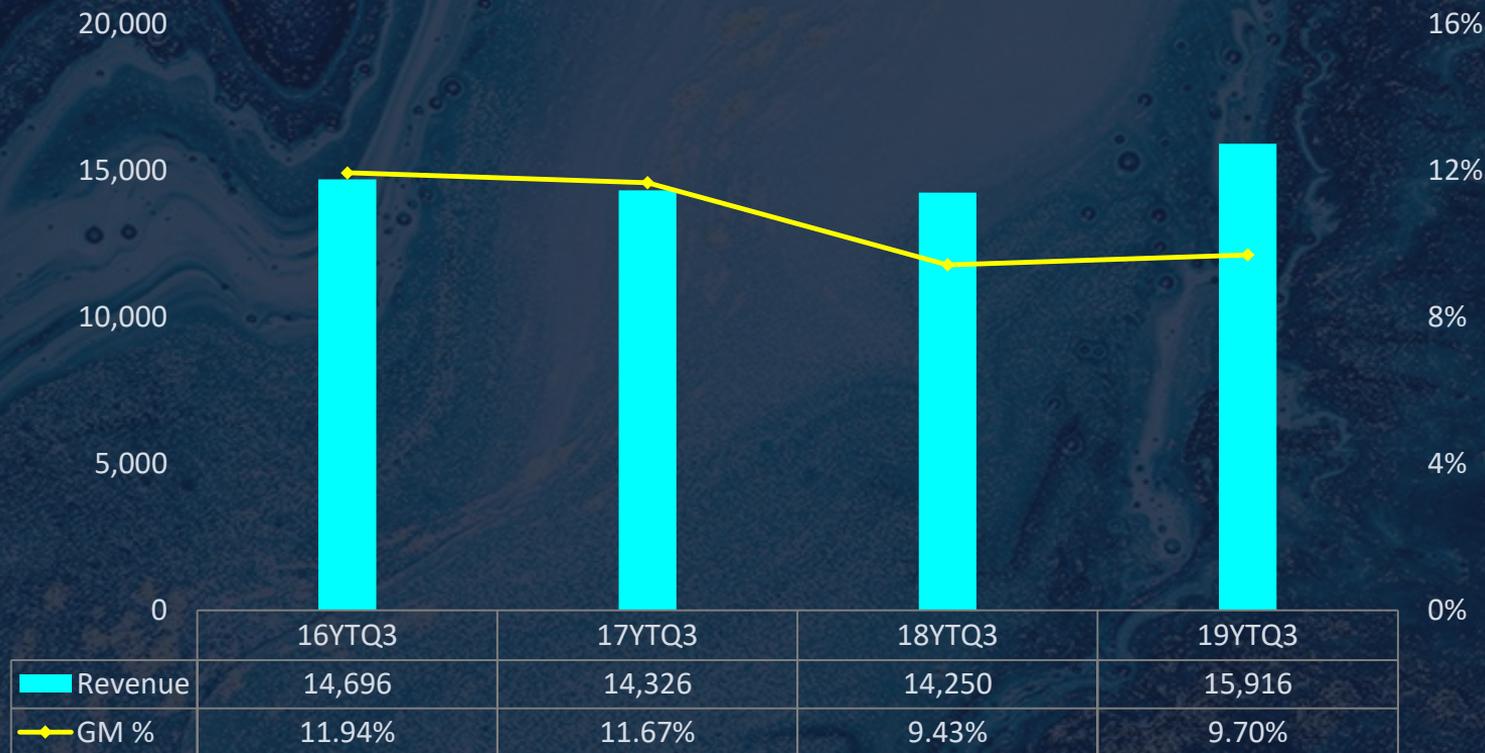
Yield



Dividend Yield = (Dividend Per Share/Closing Share Price)*100%

Revenue and GM % in Taiwan

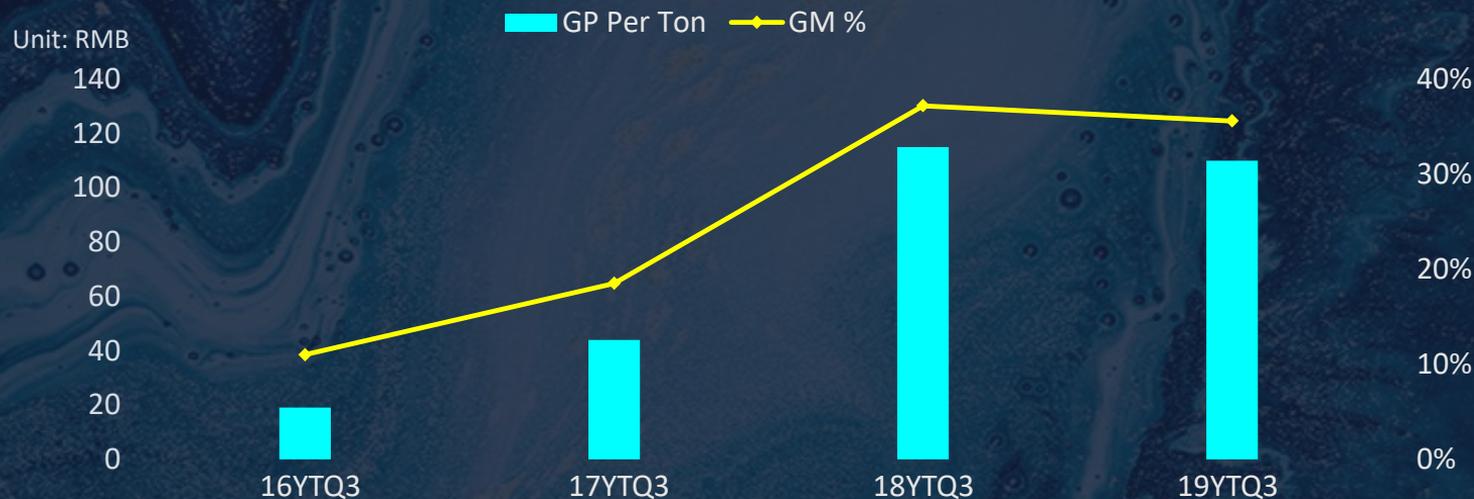
Unit: NTD Million
20,000



Gross Margin %
Gross Margin
Due to Different Sales Unit

= Gross Margin /Revenue
Includes Cement and RMC
=> No Profit Per Unit Provided

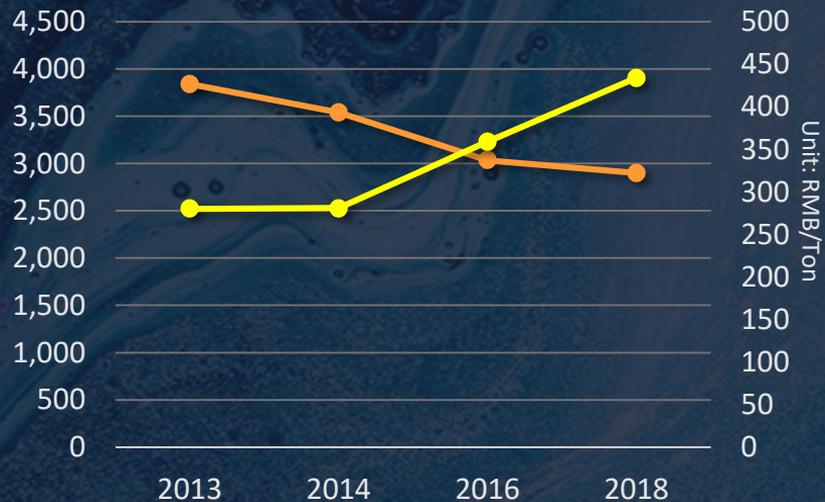
GP Per Ton in Mainland China



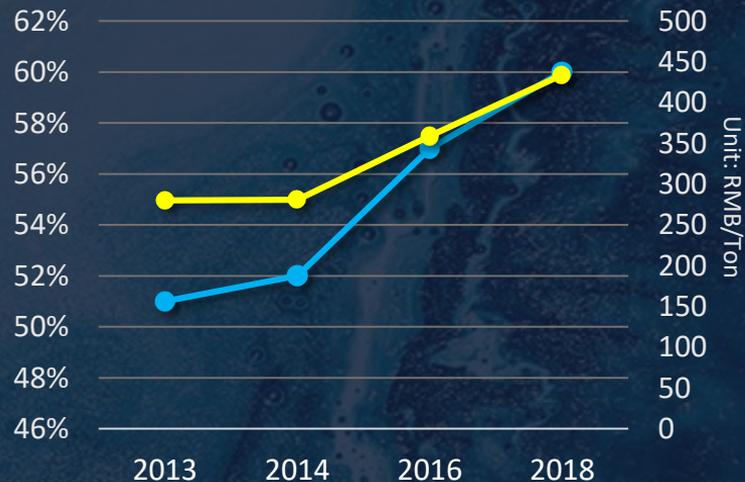
Sales Volume (Million Tons)	39.20	38.06	40.42	40.5
Revenue (RMB Million)	6,934	8,962	12,498	12,510
GP Per Ton (RMB)	19	44	115	110
Operating Profit (RMB Million)	251	1,109	3,734	3,299
GM %	11.0%	18.5%	37.2%	35.6%

Operating Profit = (Revenue – COGS – Operating Expense)

Mainland China Policy Effects



—●— No. of Cement Companies
—●— National ASP Trend of High-Grade Cement



—●— Top 10 Cement Companies' Combined Market Share
—●— National ASP Trend of High-Grade Cement

Cement Price Remains High with Milder Price Fluctuations

Mainland China Policy Effects

Supply Side Reform

- ✓ Off-Peak Production Halts
- ✓ Cement Kiln Co-Processing

Emissions Standards

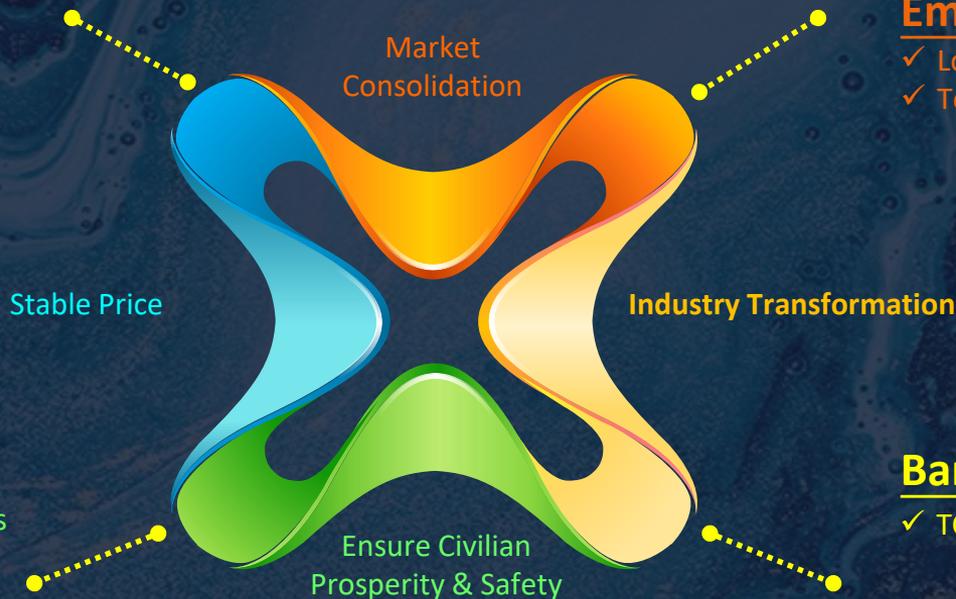
- ✓ Lower PM, SOX and NOX Emissions
- ✓ Tougher CO2 Emissions

Economic Growth

- ✓ Increase Infrastructure Projects
- ✓ Stable Property and Urbanization Developments

Ban PC32.5R Grade

- ✓ TCC Replacement %: PC42.5 ≅ 55%
M32.5 ≅ 45%



Solid Financial Figures

Net Debt/EBITDA Ratio (75% Cash)



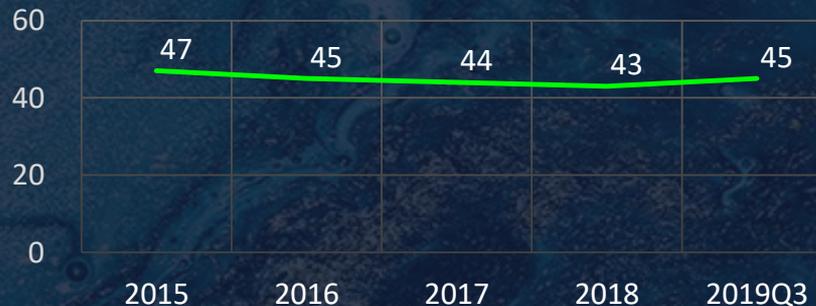
Cash Flow Ratio (%)



Book Value per Share (NTD)



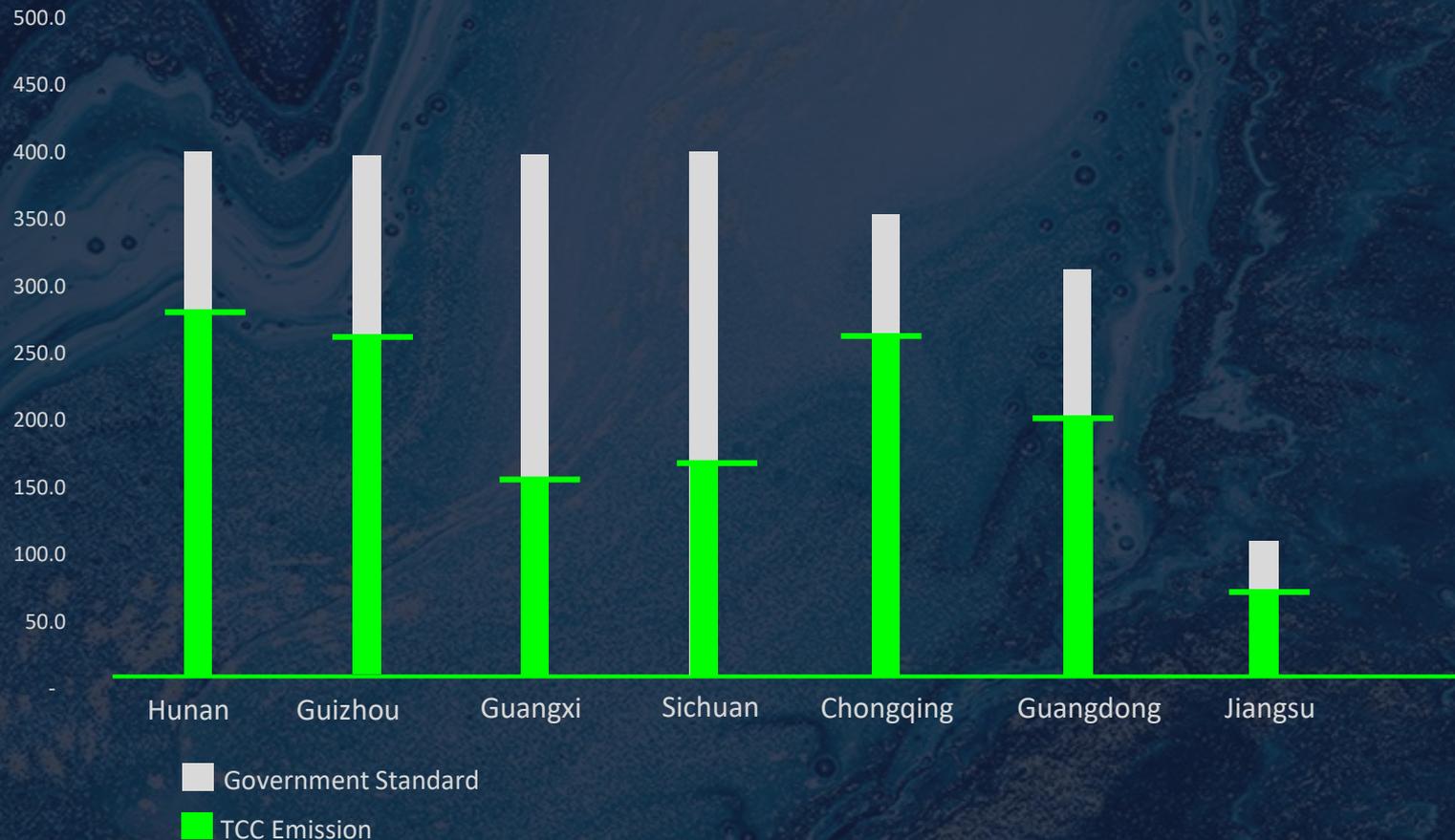
Debt Ratio (%)



A Proud Industrialist

Unit: mg/m³

2019Q3 NOX Emission



✓ Mainland China Standards

Quota System

1. Regional (Guangdong and Chongqing)
2. National

China Certified Emission Reduction (CCER)

3. Conserve energy by recycling waste energy
4. Alternative Fuel
5. Alternative Material
6. Reforestation
7. Renewable Energy



Certified Quota

Unit:Tons

2019YTQ3
(Yingde + Chongqing)

1. Process & Equipment Improvement 
3. Waste Heat Electricity 

=211,721

To Be Certified 2019YTQ3
Others (CCER Applicable)

1. Process & Equipment Improvement 
3. Waste Heat Electricity 

=342,098



Planning

CCER Certified

4. Alternative Fuel 
5. Alternative Material 
7. Renewable Energy 



Ongoing

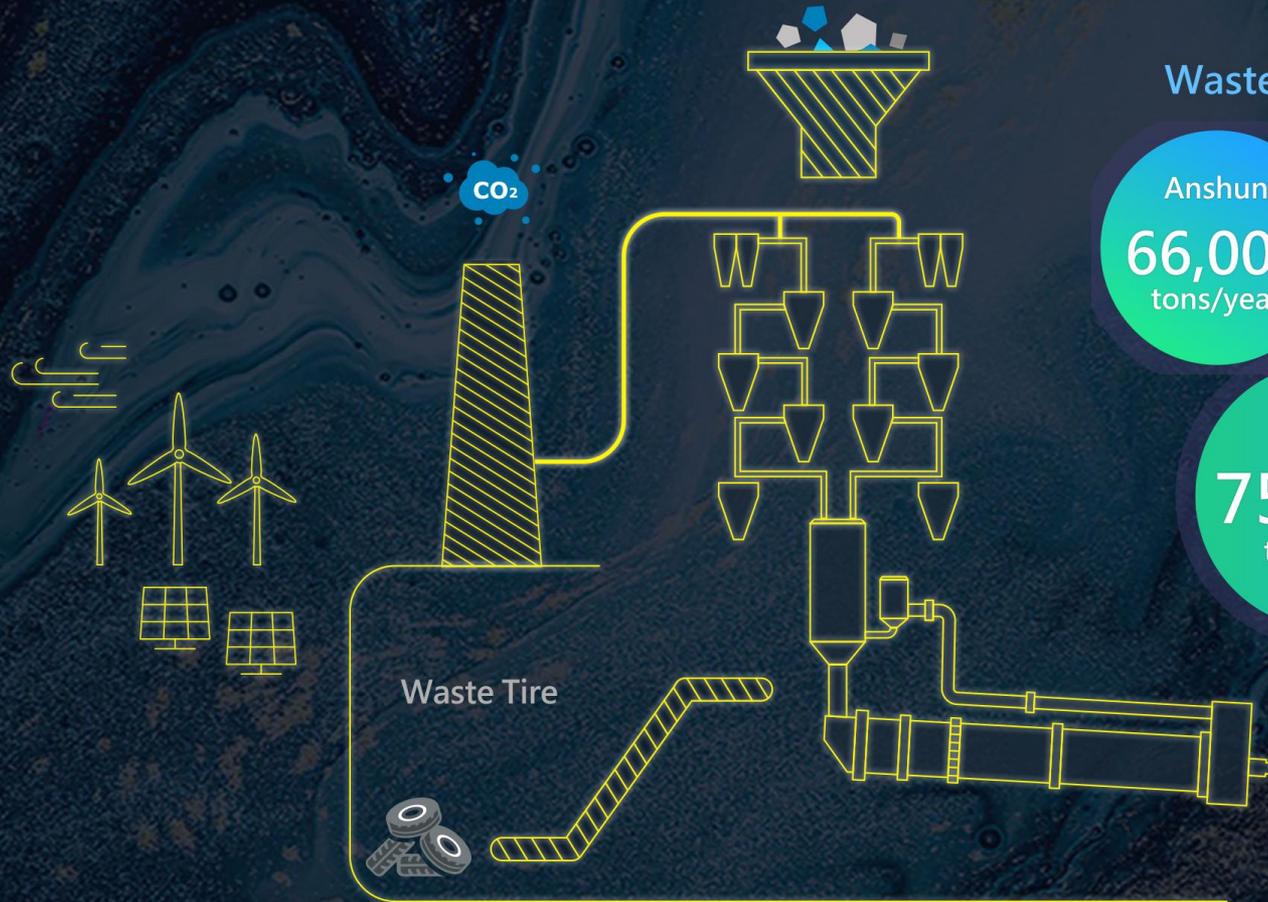
Yet To Be Recognized

8. Carbon Capture 
9. Greening 
10. Reduce Transportation CO₂ Emissions 



The Future of Cement Kilns

Carbide Slag



Waste Treatment Potential

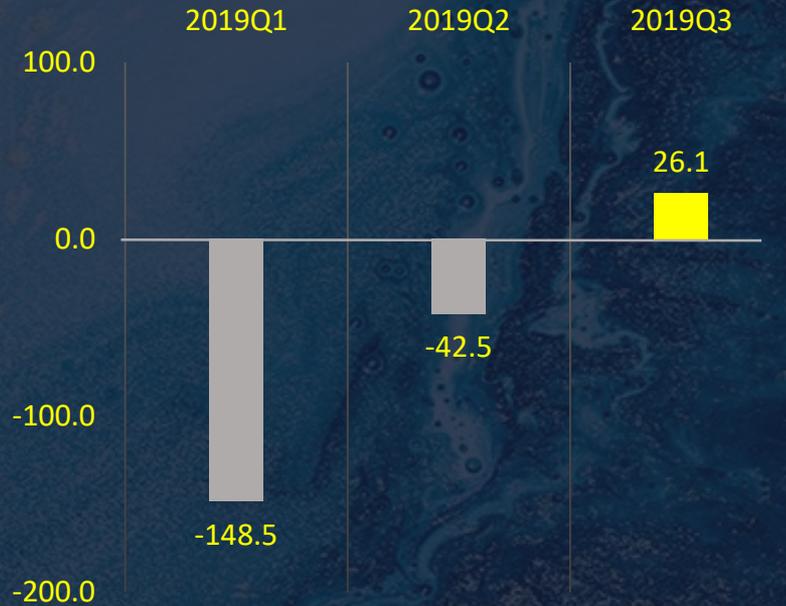
Anshun
66,000
tons/year

Guigang
330,000
tons/year

Jurong
75,500
tons/year

Oyak and Cimpor Net Income (TCC Share)

Unit: NTD Million



Eco-Friendly Cement (Ivory Coast)



GDP Growth and GDP per Capita (Current US\$)



Eco-Friendly Cement Benefits



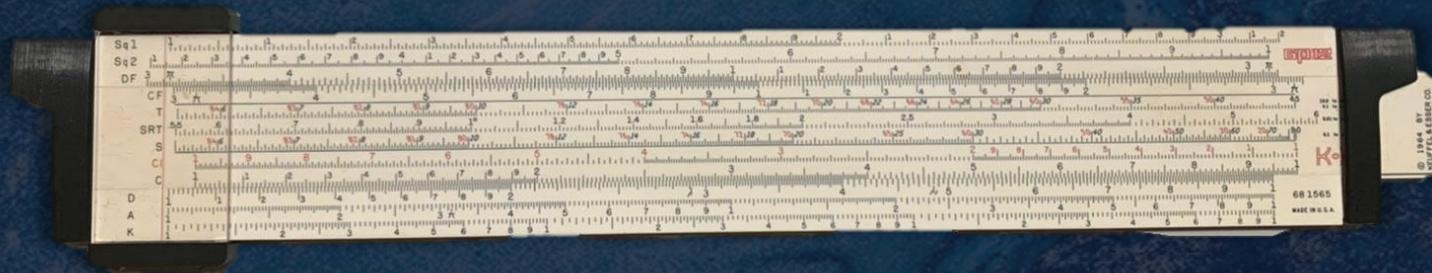
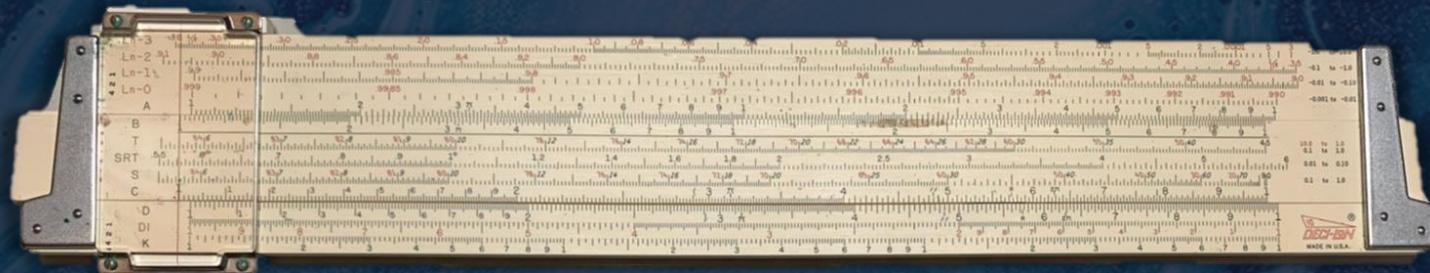
70% CO2 Emissions Reduction
(Eco-Friendly Material vs. Clinker)



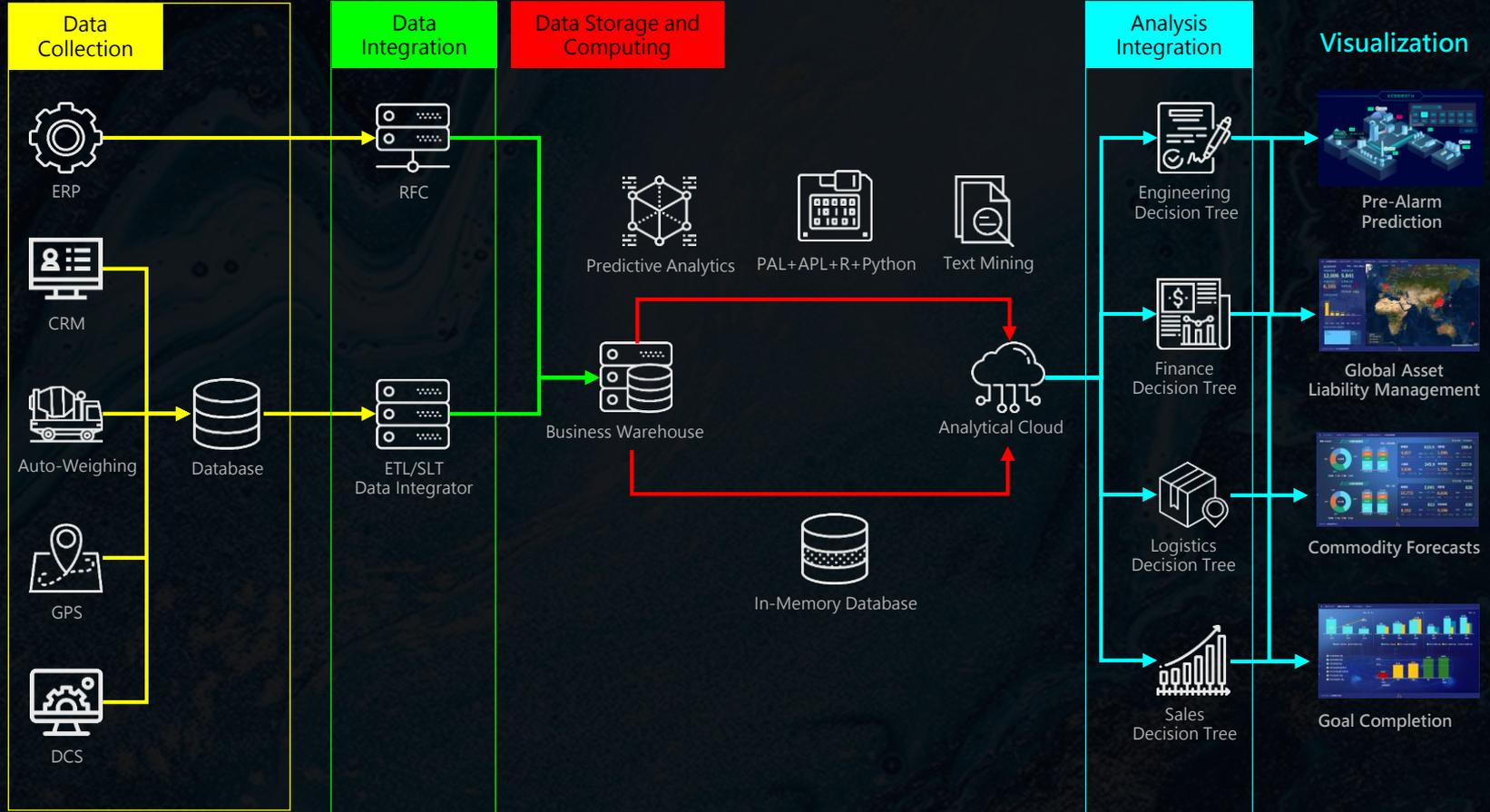
Capacity:

Eco-Friendly Material 240,000 tons/year
Cement 800,000 tons/year

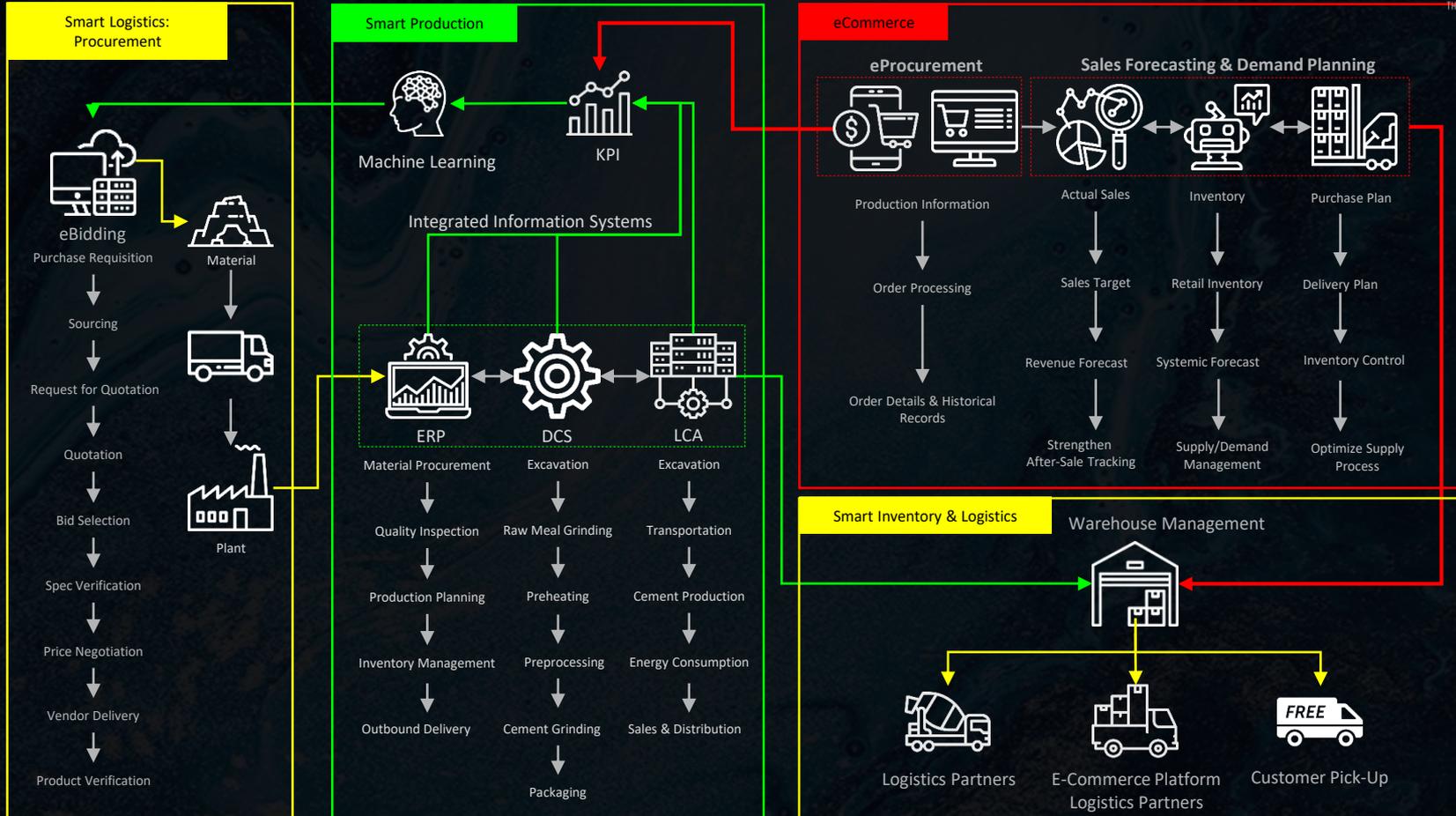
The Beginning of Intelligence



Smart Production System



Smart Production Framework



Intelligent Manufacturing Outcomes

-Smart De-NOx system (Liaoning):
ammonia usage ↓ **1.73%**
-Rotary kiln warning system:
ZERO re-tiling of the kilns

-Kiln temperature monitoring system
with real-time imaging
-**ZERO** deformed kiln shell issues

-Automated Packaging: ↑ **33%** efficiency
-Automated Stacking: **ZERO** human labor
& **ZERO** occupational injury

-Auto-weighing increased weighing efficiency
to **67%** and volume accuracy to **100%**
-Smart vehicle & ship logistics management
with capacity achievement rate of **93%**



-E-Commerce Platform App
↑ **70%** ordering process efficiency

My GUI System

Real-time monitoring
and inspections



-Early warning of emissions, leaks, and
errors via War Room Monitoring System
-Analytical system increased sales target
achievement rate to **98.7%**
-Forex position monitoring

Control and monitor
quality via XRD, XRF



-PDA monitoring to achieve a **100%**
plant operation systemization
-Administrative process digitalization
↑ **70%** efficiency

Predictive maintenance



-GPS for delivery management
-Contract-breaching deliveries **<0.005%**
-Added software and hardware protection programs
-**ZERO** information security breach incident





TCC Ying De Plant

CO₂ (K Tons)



Carbonate Coal Purchased Energy Diesel

0.83
Carbon Intensity



2018/01~10

0.83
Carbon Intensity



2019/01~10

CO₂ (K Tons/Month)



- K01
- K02
- K03
- K04

NO_x (mg/m³)



- K01
- K02
- K03
- K04

NH₃ (Kg/Ton of Clinker)

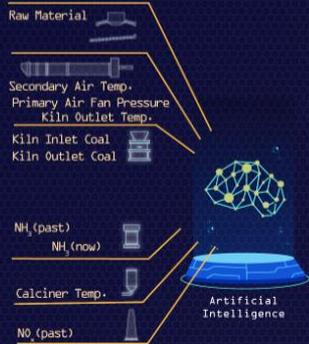
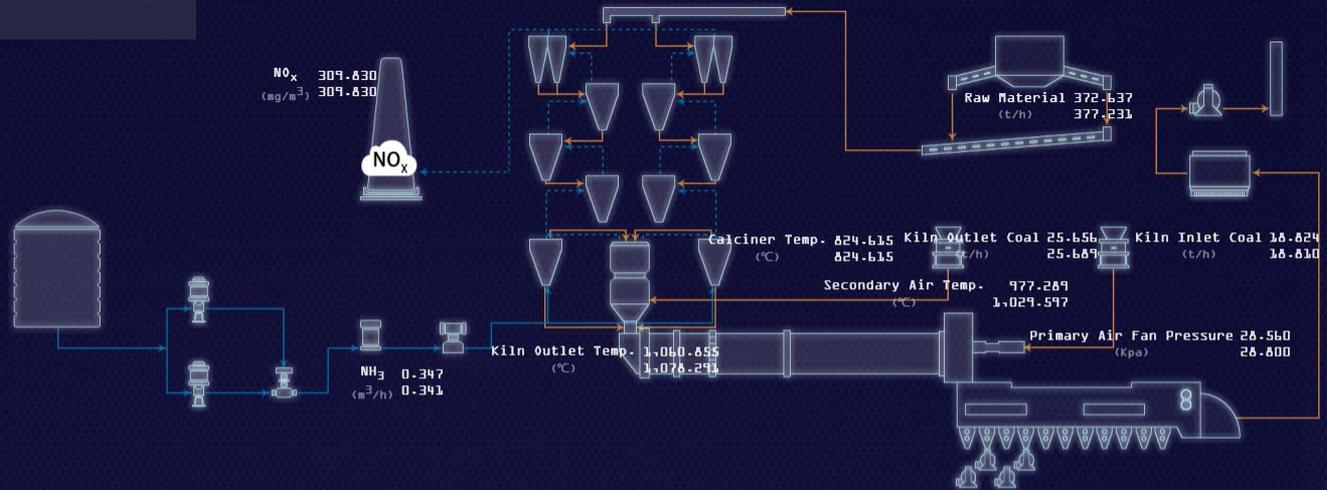


- K01
- K02
- K03
- K04



Environmental Control: NH₃ Emission

NO_x = 250 200
NH₃ = 0.446 0.767

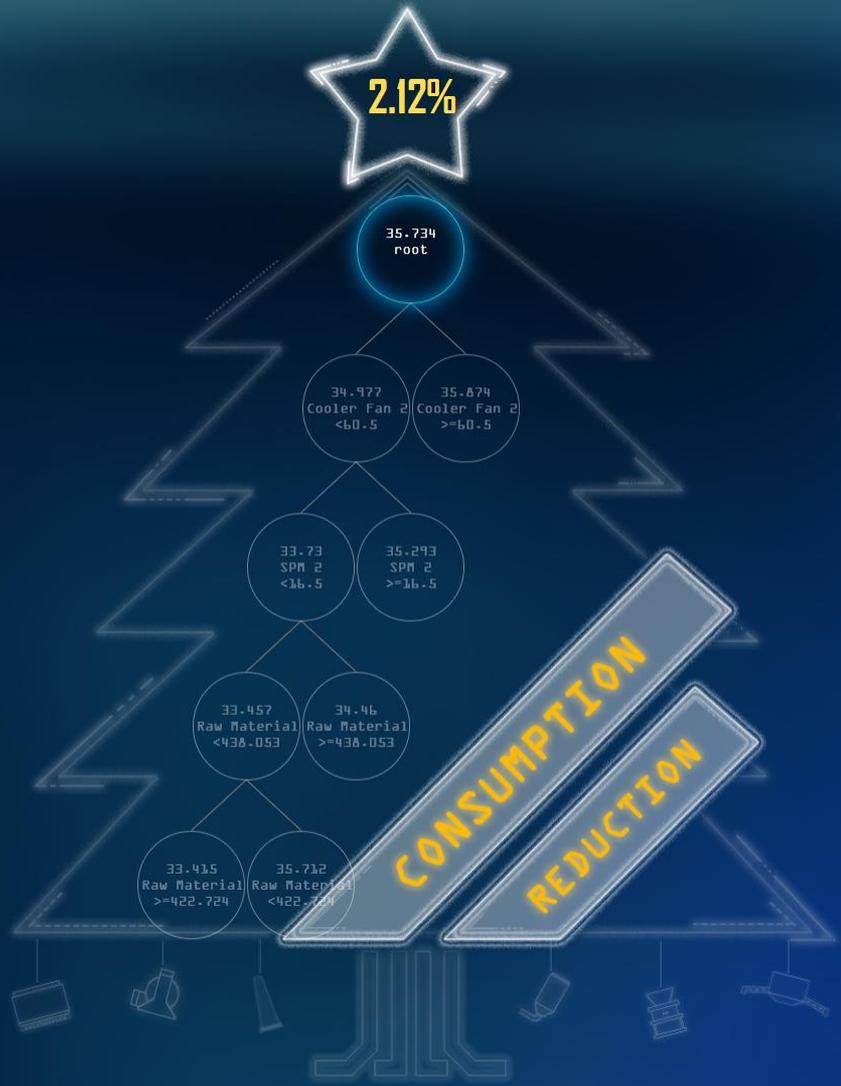
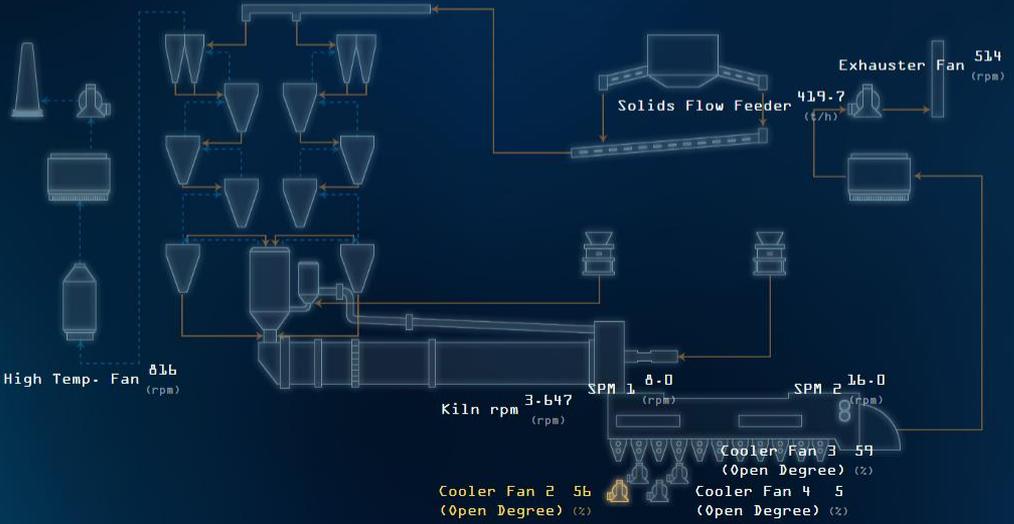


Prediction of NO_x Emissions

	NH ₃ (m ³ /h)		NO _x (mg/m ³)
Real-time Value	0.347	Real-time Value	309.830
Moving Average	0.341	Moving Average	309.830
		Predicted Value	302.447



-  Solids Flow Feeder
-  Fan:
Please adjust the opening % of cooling fan 2 to <60-500
-  SPM
-  Rotary Kiln
-  Coal Weighing Machine



2.12%

CSR Achievements & Goals (2016-2019)

-234,743

Tons CO₂ Emissions (Taiwan)



-13%

Air Pollution

-31%

Water Usage



102,000



Trees Planted

80%



Reforestation
Su-Ao Taibai Mountain



33.4GWh

Waste Heat
Electricity Generated

77%

Greening Rate at
Ho-Ping Mine

15%



CO₂ Reduction with
Ta-Ho Eco-Friendly Ships

2019 Top 1 in Traditional Industry in Commonwealth Magazine
Excellence CSR Award

TCFD Supporter

Goal: SBTi Commitment

2019 Top 9 in Little Giant Category in Commonwealth Magazine
Excellence CSR Award

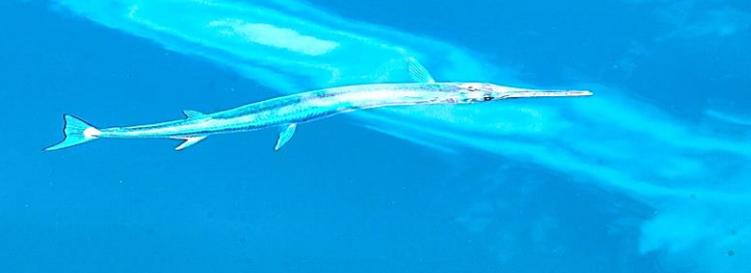
16GWh of Solar and Windpower in Changbin = 8,900 tons
CO₂ reduction/year

2018 CDP Management

33,309 Endangered Plants Preserved (2019/7/1)
Ho-Ping Port: 2019 EcoPorts

8 TCSA Awards (2019)

3 Smart Flower Solar Power Plants Scheduled
for Ho-Ping Open Plant by 2020



Ho-Ping Port



Test Factory of
Carbon Capture

Waste Recycling
Center

Multi-Purpose Venues
Plant Conservation Center

TCC Daka

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