



**Carborundum Universal Limited**

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Email: cumigeneral@cumi.murugappa.com

Website: www.cumi.murugappa.com

CIN No.: L29224TN1954PLC000318.

12<sup>th</sup> December 2016

BSE Limited  
1<sup>st</sup> Floor, New Trading Ring  
Rotunda Building, P J Towers  
Dalal Street, Fort  
Mumbai 400 001

**Stock Code: 513375**

National Stock Exchange of India Ltd.  
Plot No. C/1, G Block  
Bandra - Kurla Complex, Bandra (E)  
Mumbai 400 051

**Stock Code: CARBORUNIV-EQ**

Dear Sir/Madam,

**Sub: Schedule of meetings with Investors**

Pursuant to Regulations 30(2) and 46(2) of the SEBI (Listing Obligations and Disclosure Requirements) Regulations, 2015, we furnish below the schedule of meetings with Investors during December 2016:

<b>Date(s)</b>	<b>Investor Event</b>
12 <sup>th</sup> to 15 <sup>th</sup> December, 2016	Non-deal Road Shows, United States of America

We enclose herewith the presentation proposed to be made at the aforementioned Road Show. The same is also uploaded on the Company's website [www.cumi-murugappa.com](http://www.cumi-murugappa.com).

Kindly take the above on record.

Yours faithfully  
For Carborundum Universal Limited

Rekha Surendhiran  
Company Secretary

Encl.: a/a



Ac	La	Rf	Hf	Zr	Ti
Th	Ce	Db	Ta	Nb	V
Pa	Pr	Sg	W	Mo	Cr
U	Nd	Bh	Re	Tc	Mn
Np	Pm	Hs	Os	Ru	Fe
Pu	Sm	Mt	Ir	Rh	Co
Am	Eu	Ds	Pt	Pd	Ni
Cm	Gd	Rg	Au	Ag	Cu
Bk	Tb	Cn	Hg	Cd	Zn

# Making Materials Matter

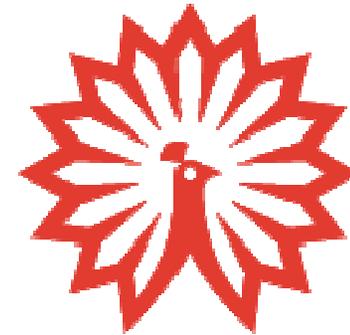
**CARBORUNDUM UNIVERSAL**  
INVESTOR PRESENTATION



# DISCLAIMER



**The communication may contain statements relating to future business developments, company's performance and economic performance that may constitute 'forward looking statements'. While these forward looking statements represent the company's judgments and future expectations, a number of factors could cause actual developments and results to differ materially from expectations. The company undertakes no obligation to publicly revise any forward-looking statements to reflect future events or circumstances.**



**murugappa**

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**Murugappa Group**

An Overview



# **MURUGAPPA GROUP**

**INR 295 Billion**

Conglomerate

One of the largest family promoted,  
professionally managed, diversified business groups

## The Philosophy we cherish



***The fundamental principle of economic activity is that  
No man you transact with will lose; then you shall not.***



# Murugappa Group Today



**~ INR 295 Billion Conglomerate**

*One of the largest family promoted, professionally managed, diversified business Groups...*



# The Spirit of the Murugappa Group



**The Spirit of the Murugappa Group**

**The five lights**  
The values, principles and beliefs that have always guided us and continue to show the way forward.

**Integrity**  
We value professional and personal integrity above all else. We achieve our goals by being honest and straightforward with all our stakeholders. We earn trust with every action, every minute of every day.

**Passion**  
We play to win. We have a healthy desire to stretch, to achieve personal goals and accelerate business growth. We strive constantly to improve and be energetic in everything that we do.

**Quality**  
We take ownership of our work. We unflinchingly meet high standards of quality in both what we do and the way we do it. We take pride in excellence.

**Respect**  
We respect the dignity of every individual. We are open and transparent with each other. We inspire and enable people to achieve high standards and challenging goals. We provide everyone equal opportunities to progress and grow.

**Responsibility**  
We are responsible corporate citizens. We believe we can help make a difference to our environment and change lives for the better. We will do this in a manner that befits our size and also reflects our humility.



# Social Responsibility



**AMM Foundation is a non-profit organization run by the Murugappa Group**

**1% of PAT from Group companies to AMM Foundation**

**4 Schools, a polytechnic; approximately 10,500 students**

**4 Hospitals - around 8.15 lakh patients treated last year**

**Scholarships for needy meritorious students**

**Scholarships for scholars for pursuing their professional degrees**



# The Indian Economy At A Glance





# The India Story



**India – A Haven of Macroeconomic Stability**

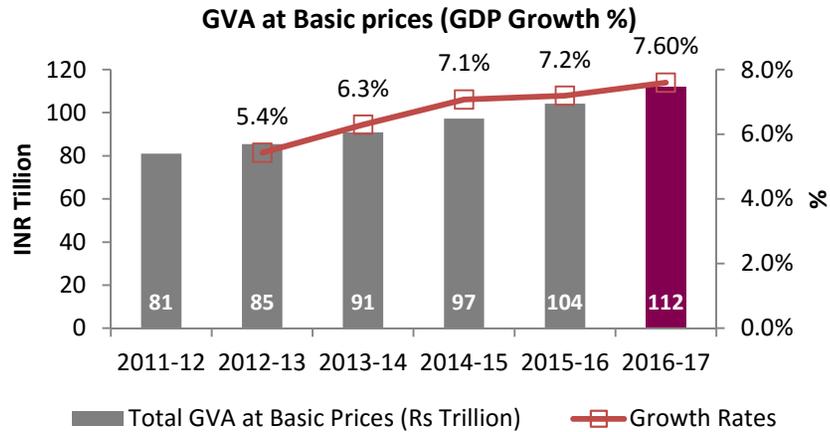
**Growth Over Strong Fundamentals**

**Strong Policy Momentum**

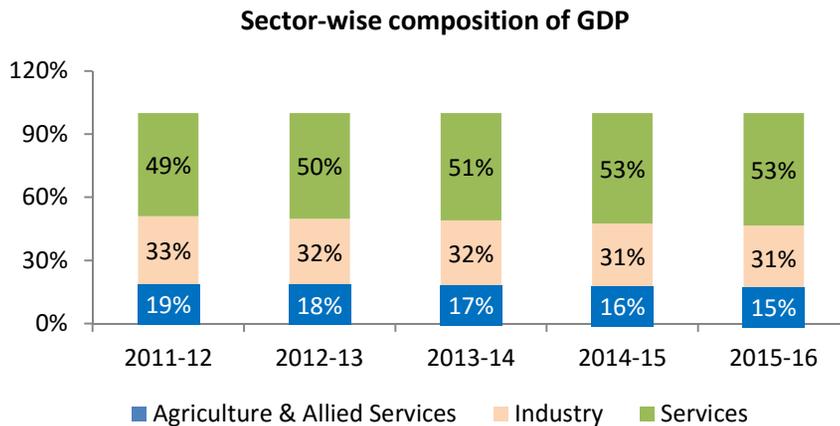
**Growth in Core Sectors**



# India: The Fastest Growing Major Economy in the World

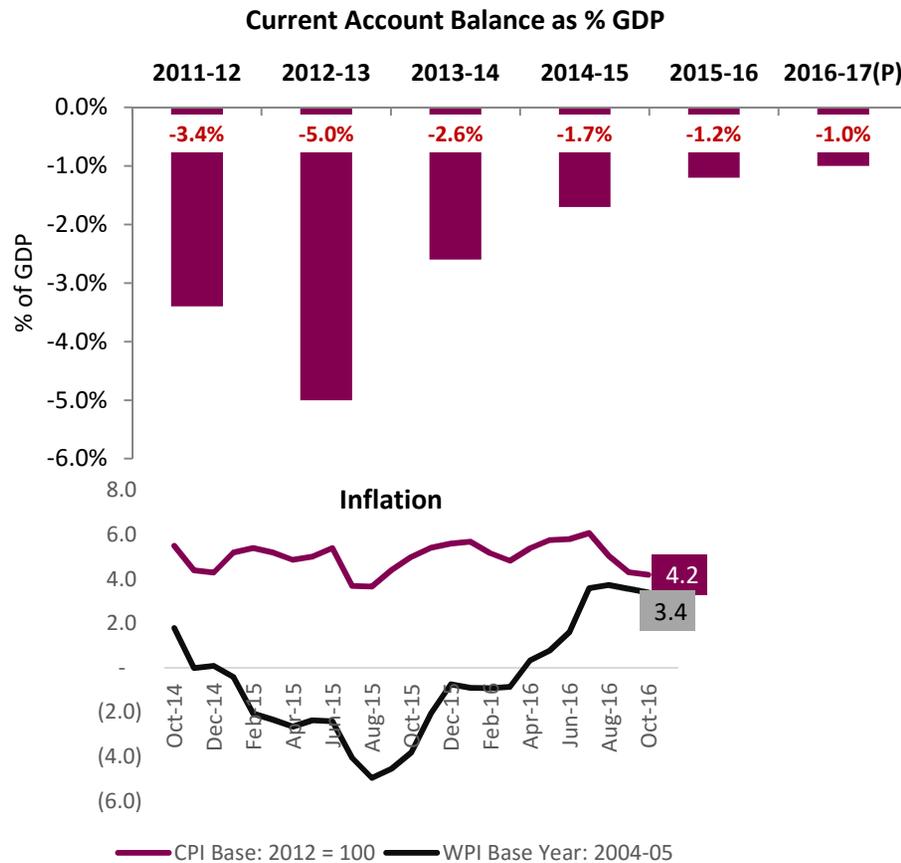


- India has been growing @ 7%+ GDP
- GDP sector wise data – Services continues to occupy a major pie (53%), followed by industry (31%) and agriculture (15%)
- India's share (17.5%) of manufacturing in output; China (30%)



Source: RBI  
Estimates for FY 17- IMF

# India: A Haven of Macroeconomic Stability



- Soft commodity prices help rein in Current Account Deficit
- Inflation target of RBI (until 2021) is 4% (+/- 2%)

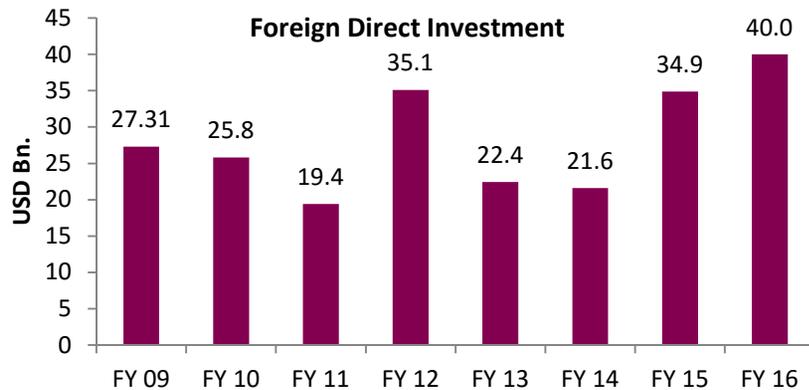
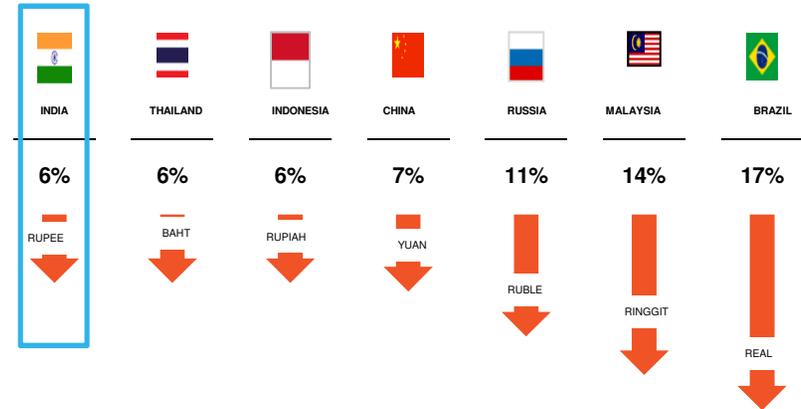




# Rupee Remains Relatively Stable, FDI growing up



## Depreciation since January 2015



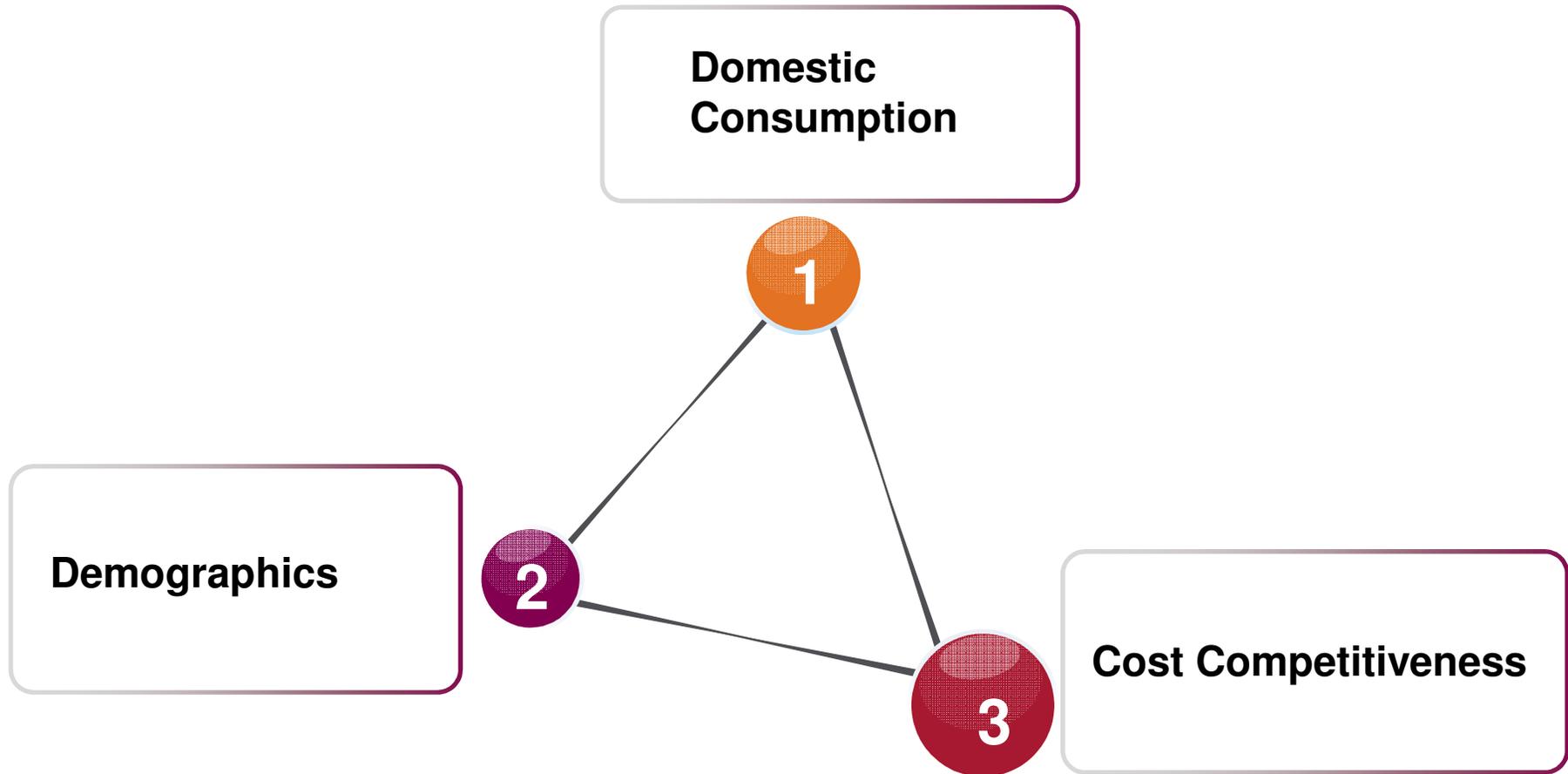
Source: RBI, MOSPI, XE.com

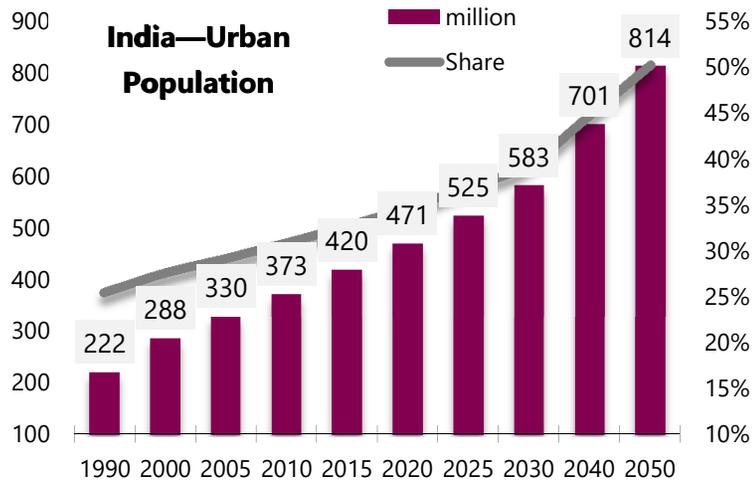
## The World Views India Positively

- FDI norms eased in 15 major sectors
- Consolidated FDI up to 49% under the automatic route for Defence, Insurance, Pension
- Consolidated FDI up to 74%. In Pvt Sector Banks
- 100% FDI under auto route for- townships, shopping complexes & business centres



# Growth Drivers



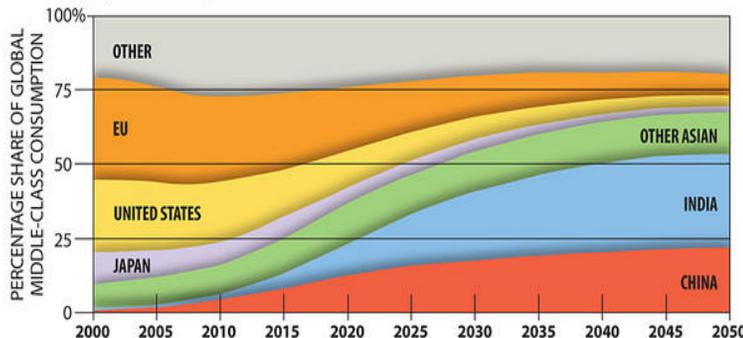


## The Demographic Dividend

- 60% of Indian population under 35
- 20 mn enroll in colleges each year
- Number of middle income families rose to 100 mn in 2015, from 61 in 2000
- India's urban population doubled over past 25 years to reach 420 mn
- Expected to add grow by another 200 mn over next two decades
- Share of GDP from urban India to increase from present 55% to 75% over next 20 years
- 68 cities of 1mn+ ; 13 cities of 4mn; 6 mega cities of > 10mn
- Purchasing power and consumption in leading Indian cities would match global levels
- 19,400 registered technology based start-ups

## The global middle-class wave

Global middle-class consumption will shift heavily toward China, India, and other Asian countries (excluding Japan) as the high-income countries see their share decrease.



SOURCE: H. Kharas (2010), 'The Emerging Middle Class in Developing Countries', OECD Development Centre Working Paper No. 285

RICH CLABAUGH/STAFF

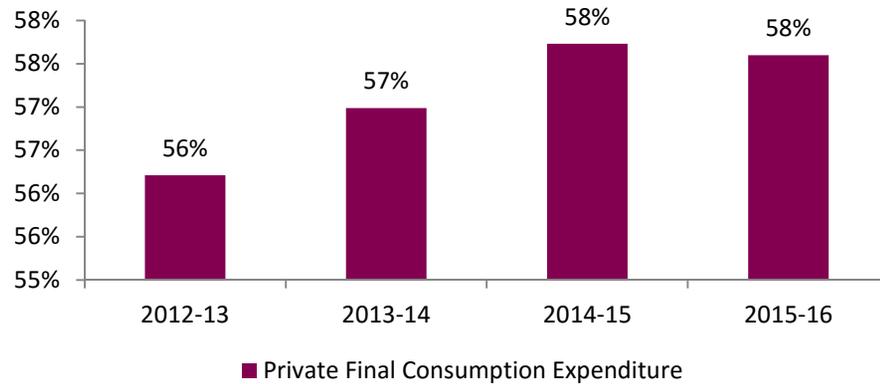
Source: ICRA, OECD



# Strong Domestic Demand



Pvt. Final Consumption Expenditure as % of GDP



Source: CSO

- Private Consumption accounts for close to 58% of GDP
- Better monsoons in FY 17 to drive consumption further
- Seventh Pay Commission payouts – wages and pensions increased by ~16% and ~23%
- OROP to increase consumption

## EXHIBIT 2 | Most Economies in the Index Fall into One of Four Distinct Patterns of Change

### Under pressure

- Traditionally low-cost countries whose deteriorating competitiveness is driven by a wide range of factors



Brazil



China



Czech Republic



Poland



Russia

### Losing ground

- Traditionally high-cost countries whose competitiveness continues to deteriorate, because of weak productivity gains and higher energy costs



Australia



Belgium



France



Italy



Sweden



Switzerland

### Holding steady

- Countries roughly maintaining their relative competitiveness versus global leaders



India



Indonesia



Netherlands



United Kingdom

### Rising global stars

- Improved competitiveness compared with the others, because of moderate wage growth, sustained productivity gains, stable exchange rates, and energy cost advantages



Mexico



United States

Source: BCG analysis.

Source: "The Shifting Economics of Global Manufacturing", BCG

## ***Make in India***

- Aims to increase Mfg. output from **17.5% of GDP to 25% of GDP** by 2022

## ***Goods & Services Tax***

- Transition to a simplified tax regime by 2017

## ***Ease of Doing Business***

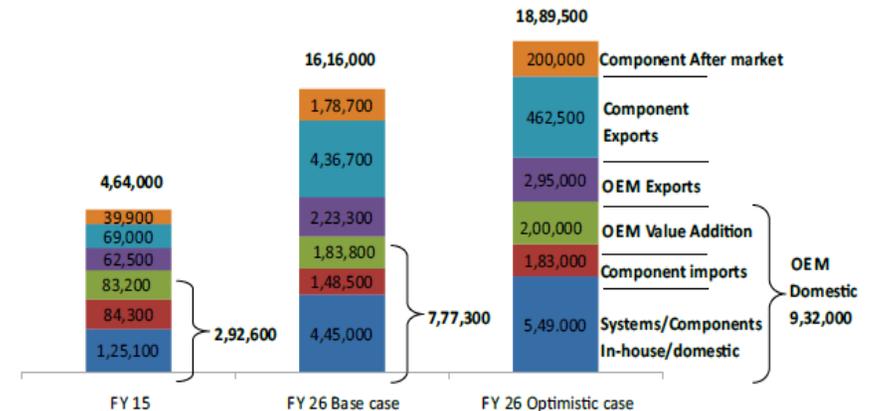
- E-permits, single window clearance mechanisms etc.
- India's position in the World Bank's **Ease of doing Business** Index improves, from 142<sup>nd</sup> to 130<sup>th</sup>

## ***Automotive Mission Plan –AMP -(Draft Policy)***

- Vision 2026 to get India amongst the top 3 countries in the automotive industry
- Aims Industry growth of ~ 3.5 to 4 times of the current value of USD 74 billion to USD 260 billion to 300 billion.



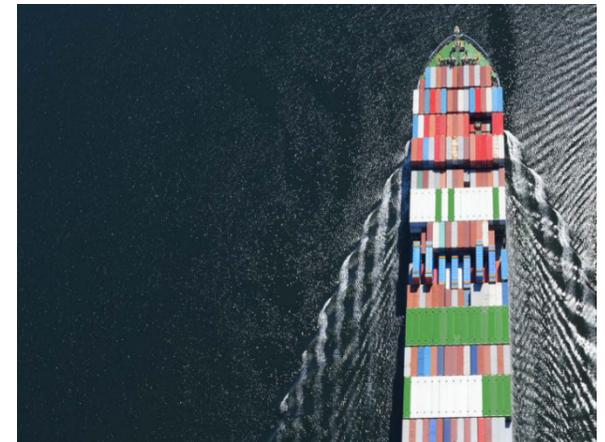
AMP 2026 target (Rs.Cr )



## ***Dedicated Rail Freight Corridors***

- Expected to be operational by 2019, and serve the Eastern and Western corridors.
- 3000 km of completely electrical railway, to be developed in association with Japan. Rails run at 300 kmph.

***Delhi Mumbai Industrial Corridor (collaboration with Government of Japan)***: estimated investment of US\$90 billion, and is planned as a hi-tech industrial zone spread across seven states, along the 1,500 km long Western Dedicated Freight Corridor which serves as its backbone





# Infrastructure



## **Sagarmala:**

- Aims to develop India's 7500 km coastline, estimated to create 10 million jobs (4 million direct employment) , boost merchandise exports by \$110 million and increase coastal shipping volumes by 5 times.
- Annual logistics cost savings is expected to be close to Rs 35,000 Cr.

## **100 Smart Cities:**

- US\$1.2 trillion will be required over the next 20 years across areas such as transportation, energy and public security . 10-15% rise in employment expected

## **UDAY:**

- Power sector reforms - financial turnaround and revival of Power Distribution companies.

## **Solar Power :**

100 GW solar power by 2022, likely to be achieved early



## Financial Inclusion (Jan Dhan) & Direct Benefit Transfers

- No frills account for all, DBT in LPG, Fertilizers etc.
- 210 million accounts created under scheme, 70% of accounts active

## National Optical Fiber Network

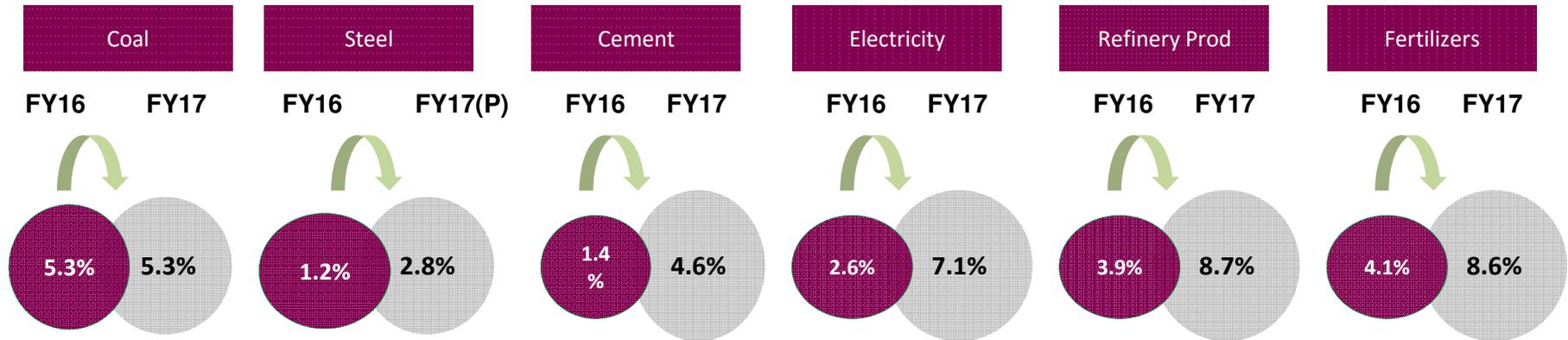
- Broadband connectivity to over 200,000 *gram panchayats*

## Demonetization, Black money

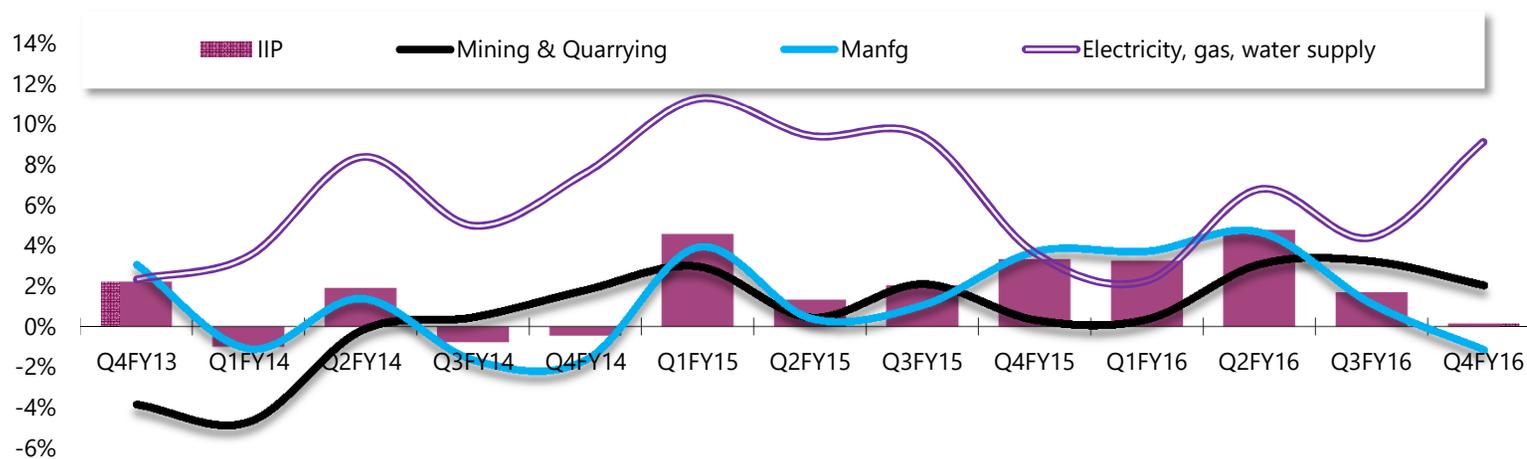
- Crack down on black money, imposition of super taxes and demonetization of Rs 500 and Rs 1000 notes



## Core Industries Growth in FY 17 over Growth in FY 16



Source: MOSPI, As on Sep 2016, comparison with CPPY





# Steel demand forecasts by World Steel association



**Table 1. Steel Demand Forecasts**

SRO April 2016, finished steel products

Regions	million tonnes			y-o-y growth rates, %		
	2015	2016 (f)	2017 (f)	2015	2016 (f)	2017 (f)
European Union (28)	153.3	155.4	158.1	2.8	1.4	1.7
Other Europe	40.1	41.3	42.6	8.1	3.0	3.0
CIS	50.0	46.3	48.4	-10.8	-7.4	4.6
NAFTA	134.5	138.8	142.3	-8.4	3.2	2.6
Central and South America	45.4	42.6	44.0	-7.3	-6.0	3.2
Africa	39.0	40.5	43.1	4.3	3.8	6.5
Middle East	53.0	54.3	56.4	-1.0	2.4	4.0
Asia and Oceania	984.8	968.5	958.7	-3.3	-1.7	-1.0
<b>World</b>	<b>1 500.1</b>	<b>1 487.7</b>	<b>1 493.6</b>	<b>-3.0</b>	<b>-0.8</b>	<b>0.4</b>
Developed Economies	399.1	405.9	410.4	-4.0	1.7	1.1
Emerging and Developing Economies	1 101.0	1 081.8	1 083.2	-2.7	-1.7	0.1
China	672.3	645.4	626.1	-5.4	-4.0	-3.0
MENA	72.1	74.4	78.0	-0.6	3.1	4.9
Em. and Dev. Economies excl. China	428.6	436.3	457.1	2.0	1.8	4.8
World excl. China	827.7	842.2	867.6	-1.0	1.8	3.0

f - forecast

**Table 2. Top 10 Steel Using Countries 2015**

SRO April 2016, finished steel products

Countries	million tonnes			y-o-y growth rates, %		
	2015	2016 (f)	2017 (f)	2015	2016 (f)	2017 (f)
China	672.3	645.4	626.1	-5.4	-4.0	-3.0
United States	95.7	98.8	101.5	-10.6	3.2	2.7
India	79.5	83.8	88.3	4.5	5.4	5.4
Japan	62.9	64.4	63.6	-7.0	2.3	-1.2
South Korea	56.0	56.3	56.4	0.9	0.6	0.2
Russia	39.4	35.9	37.4	-8.4	-8.8	4.3
Germany	39.0	39.5	39.9	-1.5	1.2	1.0
Turkey	34.4	35.5	36.7	11.7	3.3	3.2
Mexico	24.2	25.0	26.2	5.8	3.4	4.7
Brazil	21.3	19.4	20.1	-16.7	-8.8	3.1

f - forecast

China expected to remain in negative territory.

The decline in steel demand in China is expected to be -4.0% in 2016 followed by -3.0% in 2017

Outside China the construction sector is expected to maintain its mild, but steady recovery momentum particularly in India, the MENA and ASEAN regions.

India's prospects are brightening due to low oil prices, the reform momentum and policies to increase infrastructure and manufacturing output. India's steel demand will increase by 5.4% in both 2016 and 2017 reaching 88.3 Mt in 2017.

<https://www.worldsteel.org/media-centre/press-releases/2016/worldsteel-Short-Range-Outlook-2016-2017.html>



# Auto Sector



Category-wise demand (in million units)		Base case	Optimistic case
Category	FY 2015	FY 2026	FY 2026
Passenger Vehicles	3.2	9.4	13.4
Commercial Vehicles	0.7	2.0	3.9
Two wheelers	18.5	50.6	55.5
Three wheelers	0.95	2.8	3.0
Tractors	0.6	1.5	1.7
<b>Total</b>	<b>23.4</b>	<b>66.3</b>	<b>75.8</b>

Source: ICRA

- Indian automotive sector is ~\$74 Bn\* (FY 15) in size and contributes ~7% to the Country's GDP
- Sector to grow 3-3.5X in volume over the next 10 years.
- India is Asia's second largest two wheeler manufacturer, fifth largest producer of CVs and fourth largest manufacturer of PVs

- Investment in infrastructure will continue at the rate of \$200 bn per annum for the next decade
- Significant liberalization of financial sector underway for international investment into infrastructure
- REITs
- India has the largest PPP programme in the world



Source: ICRA





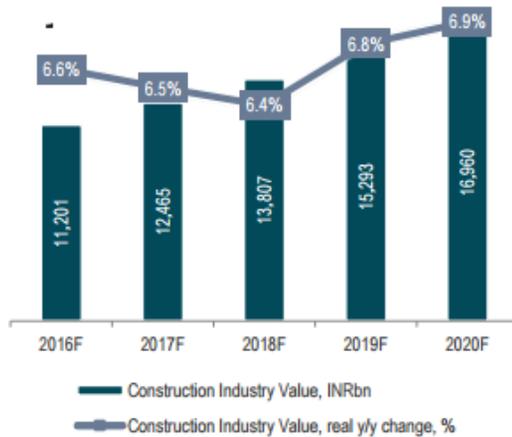
# INDIA CONSTRUCTION SECTOR

## 2016/2017- Source: EMIS Construction report 2016

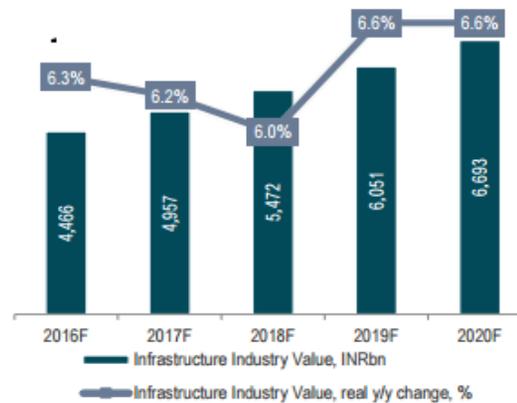


### Sector in Numbers 2016

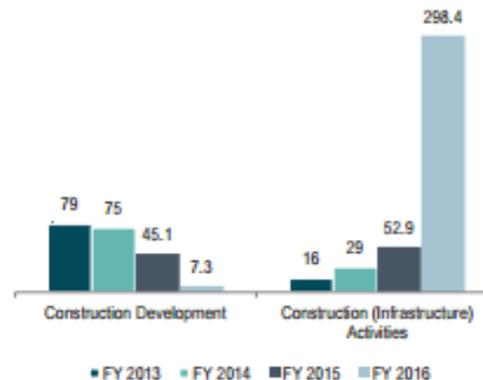
Construction Industry Value Forecast



Infrastructure Industry Value Forecast



FDI Inflow in the Construction Sector, INR bn

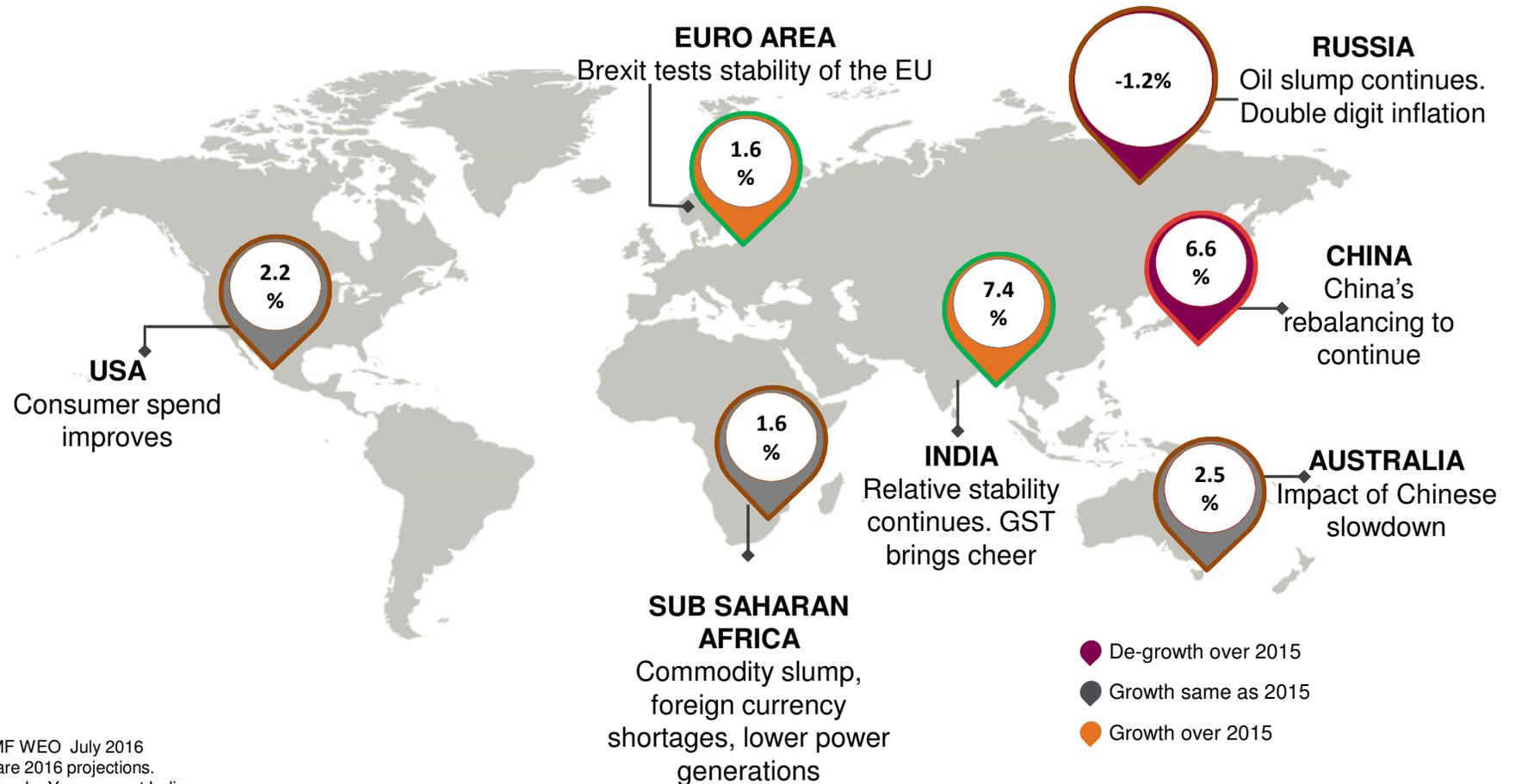


According to BMI Research, about one-third of the 1,000 ongoing construction and infrastructure projects (valued at a total of USD 210bn) were running behind schedule as of May 2016. The main reasons for this also include growing working capital needs, and the more conservative attitude of domestic banks, which are more reluctant to extend credits due to the rapidly increasing volume of stressed loans on their books

FDI in the construction sector – comprising construction development and construction (infrastructure) activities – more than tripled to INR 305.7bn, from INR 98bn in FY 2015.



# CUMI's Presence



Source: IMF WEO July 2016  
Numbers are 2016 projections.  
All are Calendar Year, except India



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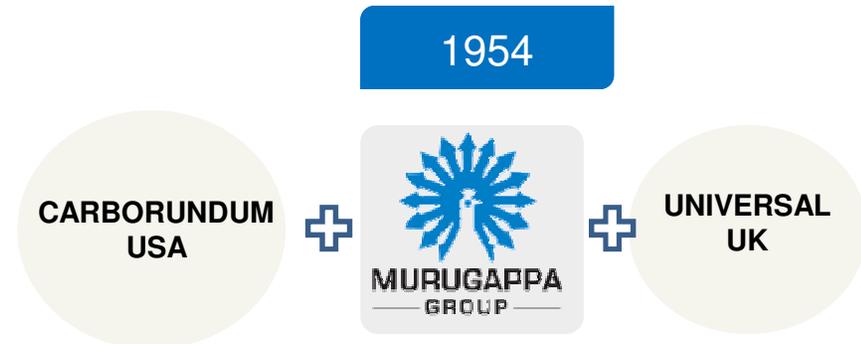
# Carborundum Universal



# Birth Of CUMI

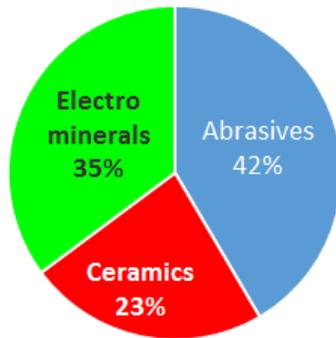


- Incorporated as a joint venture between Carborundum Company USA, Universal Grinding Wheel Company, UK and the Murugappa, India
- Acquired a coated abrasives facility from Ajax products Pvt Ltd
- Bonded abrasives facility set up in Chennai India





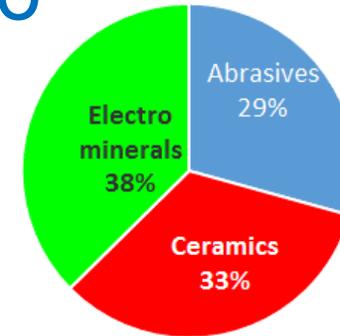
Sales Share



# Business Portfolio



PBIT Share



CUMI – FY 16	
Revenue	:Rs. 20.6 bn
EBIT	:Rs. 2.7 bn
Capital Employed	:Rs. 15.7 bn

Abrasives	
Revenue	: Rs 9.1 bn
EBIT	: Rs 0.9 bn
Capital Employed	: Rs 5.1 bn

Ceramics	
Revenue	: Rs 4.7 bn
EBIT	: Rs 0.7 bn
Capital Employed	: Rs 4.0 bn

Electro-minerals	
Revenue	: Rs 7.3bn
EBIT	: Rs 1.3 bn
Capital Employed	: Rs 5.0 bn



Abrasion

Industrial Ceramics



Wear Resistance  
Electro Resistivity

Super Refractories



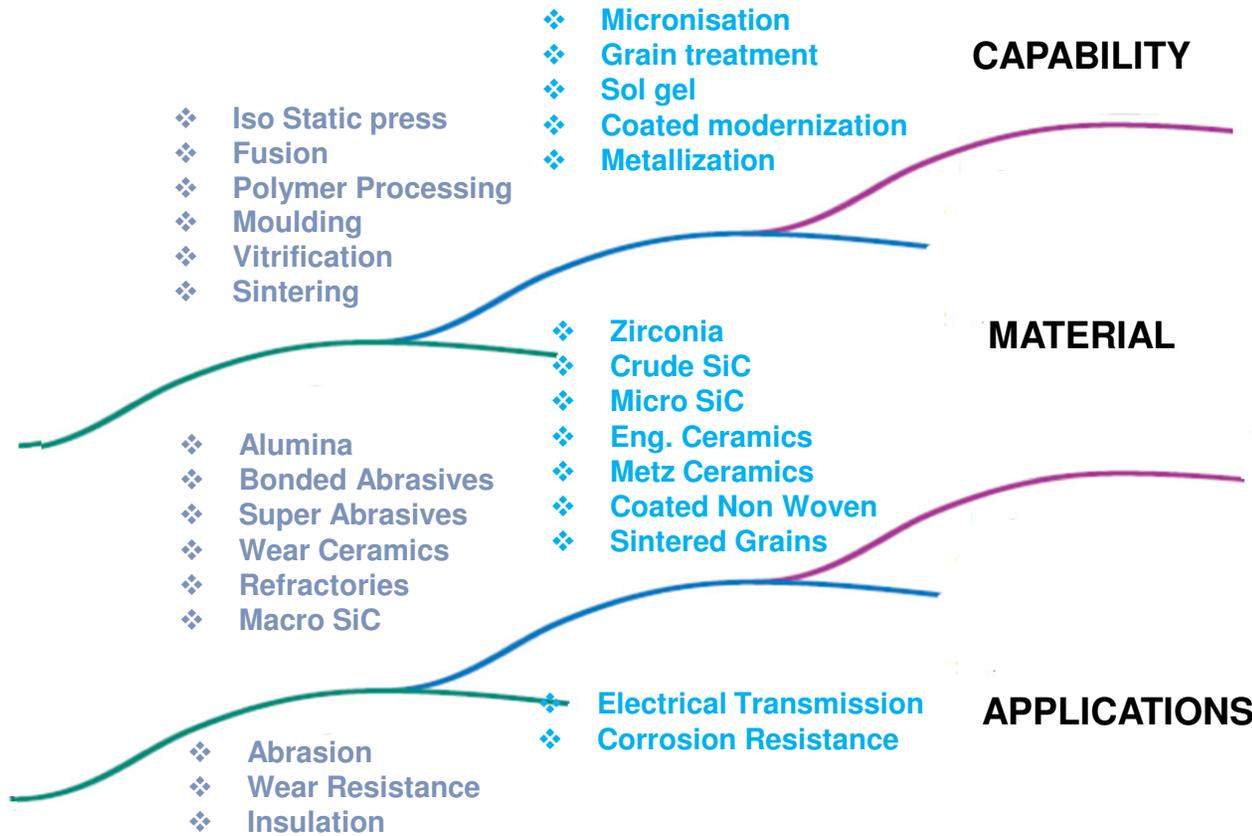
Heat and Corrosion  
Resistance



Electro Minerals



# The path traversed so far...



## ENABLING PROPERTIES

- Hardness
- Toughness
- Inertness
- Heat Resistance
- Electrical Resistance
- Corrosion Resistance

.....2005

Core

2006-2015

Growth Engines

2016-2020...

Future



# CUMI Consolidated



- Exports its products to more than 50 countries
- Over 20,000 varieties of Products
- 29 manufacturing locations
- 7 countries
- Over 5000+employees – 1800+ outside India
- Consolidated Gross Sales Rs 2056 cr (FY 15-16 )
- Market Cap~ Rs. 5500 cr



# CUMI World Wide- By Business Verticals



**Abrasives | Ceramics | Electro Minerals**



Manufacturing Base



Marketing & Distribution Base

CUMI@2016



# OUR VISION/MISSION



## VISION

**We will be an Admired Company in Abrasives & Technical Ceramics, driven by Innovation, to create Stakeholder Wealth.**

## MISSION

**Become one of the largest Abrasives (including Super Abrasives) / Technical Ceramics in the Company in the World by 2022.**



# ABRASIVES



# ABRASIVES – Products & Application



Bonded Products



Ball Grinding & Ball Lapping



Bearing Industry



Camshaft



Crank Shaft



Gear Grinding



Valve Industry



Rice Whitening

and other applications ....



Thin Wheels



For Rough Grinding and Cutting applications:-

- General Engineering
- Fabrication
- Foundry
- Rolling Mills
- Projects

and other applications ....



Coated Products



Auto OEM



Auto & Auto Ancl.



General Engineering

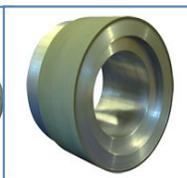


Flooring



Wood

and other applications ....



Super Abrasives and Power Tools



# ABRASIVES – Facilities



## Manufacturing

*Thiruvottriyur, Chennai*



*Hosur, Tamil Nadu*



*Sriperumbudur, Chennai*



*Uttarkhand*



India

*VAW, Russia*



Overseas

*Wendt, India*



*Wendt, Thailand/CME*



*Sterling Abrasives, Gujarat*



*CACCL, China*



Subs / JV's

## Marketing & Distribution

*CUMI Middle East*



*Venlo Netherlands*



*CUMI USA*





# Global Abrasives market SIZE



Total Market Size Estimate (2014): \$32.0 bn,  
growing at a CAGR of 3-4%



Source: Techanvio Market Report & internal findings

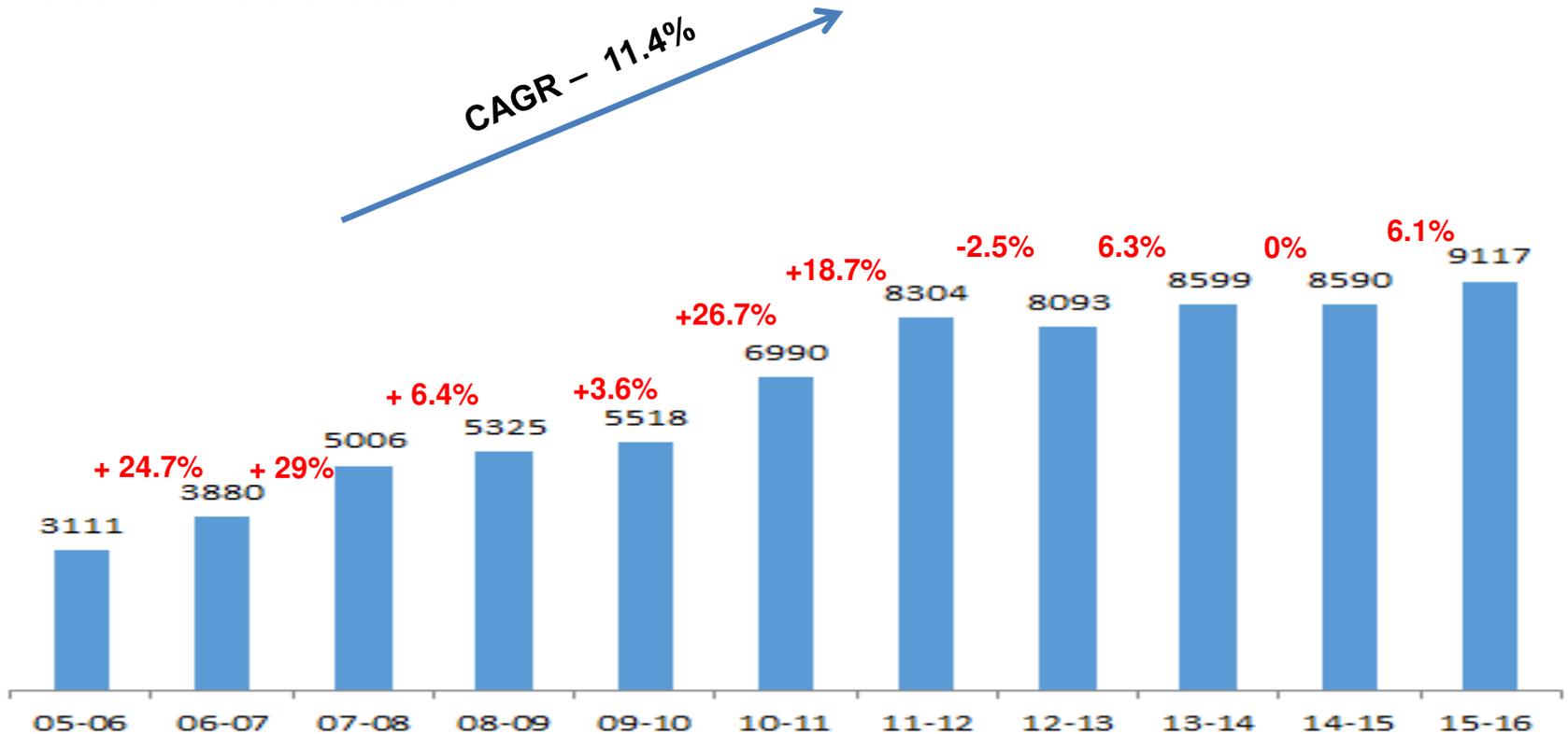


# ABRASIVES – Performance



Consolidated Net Sales - Annual

CAGR – 11.4%



% sales in India	05-06	06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16
	87%	83%	75%	70%	78%	74%	74%	74%	73%	77%	76%



# Opportunities for CUMI Abrasives



## Infrastructure

- 100 smart cities across India
- Freight corridor, Industrial Corridor
- Sagar mala - connectivity to the Port
- Gas Grids
- National Optical fiber network up to the village level
- Agri Rail Network
- Diamond Quadrilateral project – Bullet train



**Steel Industry – Roll Grinding wheels**



**Fabrication – Thin wheel**



**Auto Refinishing – Coated**



**Auto & Auto Components – Crank/ Cam**



**General Engineering – Off hand/ tool room wheels**



**Construction Industry- Thin wheels/ super abrasives**



# Opportunities for CUMI Abrasives



## Energy Scarcity

- Oil-1 mbpd to be added
- Gas – 135 bcm to be added
- 1000 TeraWh to be added
- Thermal / Nuclear will dominate
- Renewable energies will rise

- Turbine grinding
- Zircon alloy grinding in the nuclear energy space
- Fabrication
- Wind Mill Fabrication



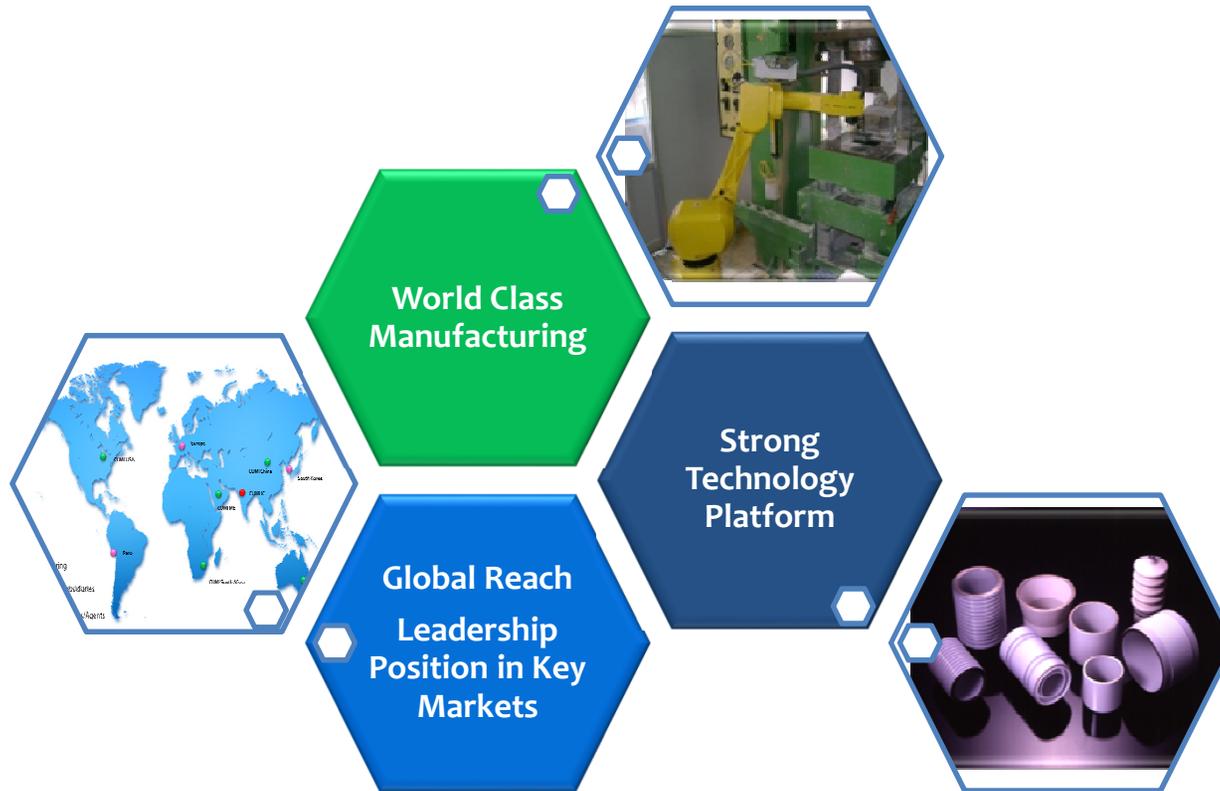


# Industrial Ceramics





# Industrial Ceramics





# INDUSTRIAL CERAMICS Product Range



## Wear Ceramics



**Grinding Media**



**Wear Resistant Liners**



**Ceramic Lined Equipment**

### Applications

- Bulk Material Handling
- Ceramic Tile/Mineral Processing
- Coal Based Thermal Power
- Mining
- Cement
- Steel

## Technical Ceramics



**Engineered Ceramics**



**Metallized Ceramics**



### Applications

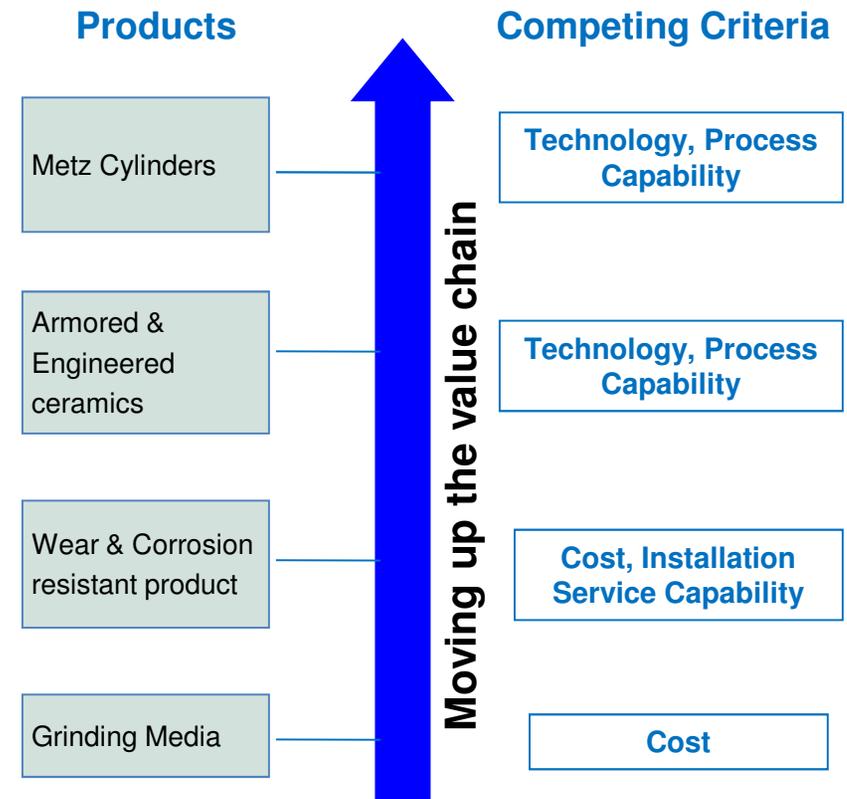
- Fluid Handling
- Battery Tooling
- Ignition System
- Ballistic Protection
- Vacuum Interrupters
- X Ray Tubes
- Night Vision Cameras
- Communication Devices



# INDUSTRIAL CERAMICS – Move up Value Chain



- Currently we are in the business of Alumina based Ceramics. We constantly look at extending offerings in that range and target newer industries.
- Move up the Value Chain constantly by offering high value products. We have been actively pursuing the same as depicted in the picture alongside.
- Build customer facing entities as we have in Australia to provide end to end solutions in other geographies – South Africa / North America.
- Grow in Ceramic medical business



## Infrastructure



## Urbanisation



## Mining



## Power Generation



## Power Transmission



- Wear Protection
- Metallized Cylinders

## Global Rebalancing



## Emergence of Affluent



## Manufacturing



## Healthcare



- Wear Protection
- Metallized Cylinders
- Engineered Ceramics



**Mullite Refractories      High Alumina Refractories      Zircon & Zirconia-Mullite Refractories**

**CUMILITE**

USER INDUSTRIES	APPLICATION
<ul style="list-style-type: none"> <li>Carbon black</li> <li>Cement</li> <li>Ceramics, Petrochemicals, Fertilisers, Steel</li> <li>Ceramics, Metallurgical industries</li> <li>Electro ceramics, Advanced ceramics</li> <li>Glass</li> </ul>	Reactor lining Rotary kiln lining Burner blocks Heating element carrying plates Kiln lining & Kiln furniture Regenerator Target wall / Division wall Port Neck Arches Rider Arch & Spopper tiles Forehearth super structures



**CUMILOX**

USER INDUSTRIES	APPLICATION
<ul style="list-style-type: none"> <li>Fertiliser</li> <li>Foundry</li> <li>Alloy Steels</li> <li>Steel</li> <li>Electro Ceramics</li> </ul>	Secondary reformer and gas generator lining Catalyst bed support Channel induction furnace lining Secondary refining vessels lining Ladle nozzles, Well blocks and sleeves Reheating furnace hearth Skid Rails



**CUMIZON & CUMIZITE**

USER INDUSTRIES	APPLICATION
<ul style="list-style-type: none"> <li>Glass</li> </ul>	CUMIZON for Melter Bottom Blocks, Filler Blocks below silica crown skew Blocks CUMIZITE for Forehearth sub structure Borosilicate furnaces: Forehearth superstructure Spool burner blocks Regenerator Top checkers Regenerator Crown.



# SUPER REFRACTORIES

**Silicon Carbide Refractories**

**CUMIFRAC**

USER INDUSTRIES	APPLICATION
<ul style="list-style-type: none"> <li>H.T. Insulators / Ceramics</li> <li>Sanitaryware, Tiles</li> <li>Ferro-alloys</li> <li>Foundries, Forge plants, Powder metallurgy</li> <li>Cement</li> </ul>	Kiln furniture Muffles and chamber-fronts Taphole linings Heat treatment furnace hearth Rotary kiln discharge end



**Nitride Bonded Silicon Carbide Refractories**

**CUMIREX & CUMISTAR**

USER INDUSTRIES	APPLICATION
<ul style="list-style-type: none"> <li>Ceramics</li> <li>Aluminium</li> <li>Copper</li> <li>Iron &amp; Steel</li> </ul>	Kiln furnitures, Burner tube Aluminium reduction cell lining, Tap-out blocks Shift Furnace lining, Louder, Thermocouple sheath Blast furnace lining.



**Insulation Refractories**

**CUMILAG**

USER INDUSTRIES	APPLICATION
<ul style="list-style-type: none"> <li>Ceramic, Metallurgical, Carbon black and sponge iron industries</li> <li>Ceramic, Metallurgical industries</li> <li>Fertiliser</li> <li>Steel</li> <li>Fertiliser and Power generation</li> <li>Electroceramic Industry</li> </ul>	High temperature kiln hot face / backup lining Laboratory kiln hot face lining Primary reformer and hydrogen transfer lines Blast furnace stoves High temperature air pre-heaters and secondary reformer cold face Puckler type furnace lining

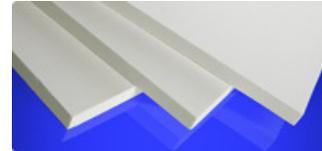
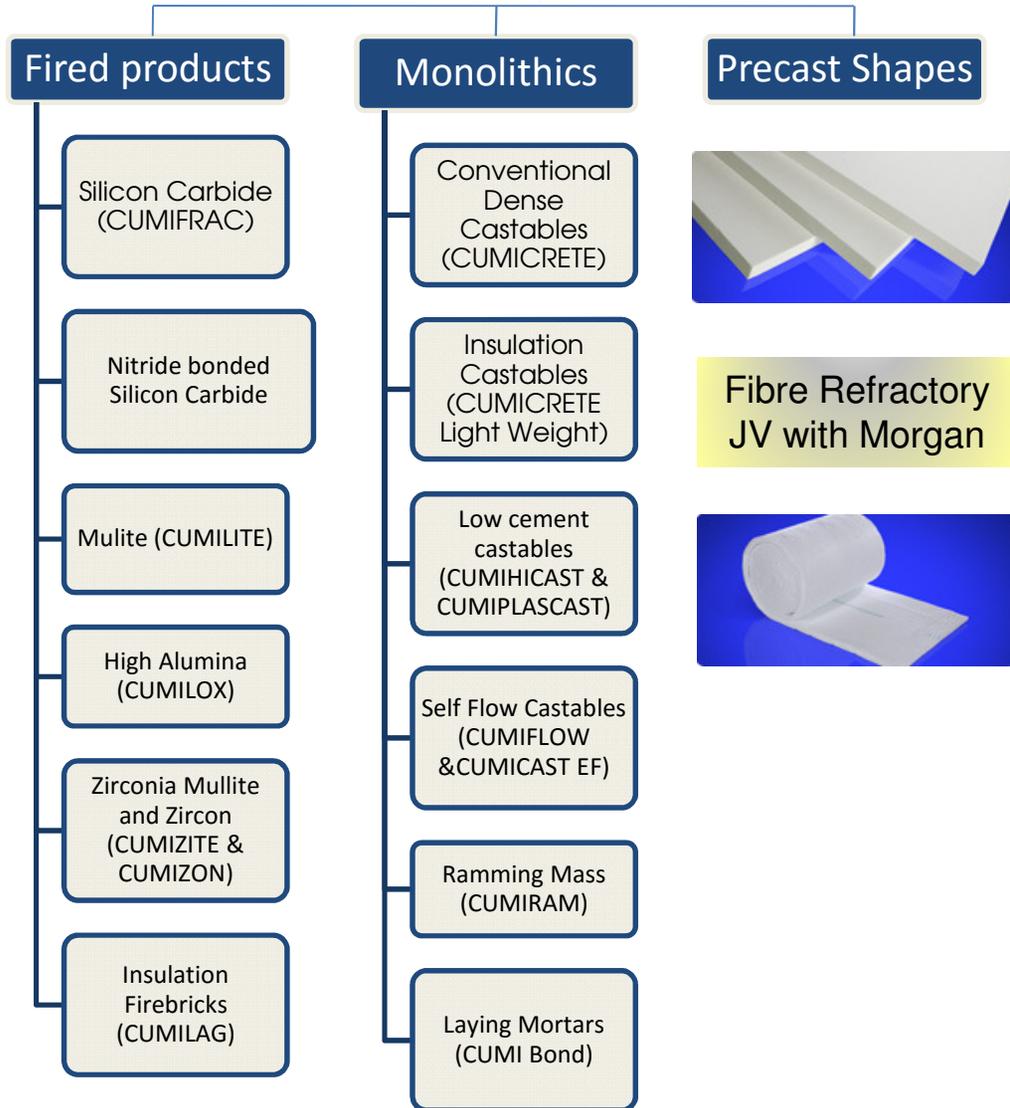




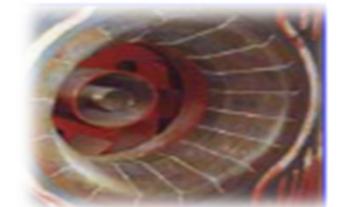
# SUPER REFRACTORIES– Product Range



## CUMI Refractory Products



Fibre Refractory JV with Morgan





# SUPER REFRACTORIES



- Refractory is any material that can withstand high temperature. CUMI is into High Alumina, Silicon Carbide, Zirconia based refractories which are capable to withstand very high temperature:-
  - **Fired Refractories:** Is a block of refractory ceramic material used in lining furnaces, kilns & fireplaces. A refractory brick is built primarily to withstand high temperature.
  - **Monolithics:** These are refractory material in powder form. These are materials which are installed as some form of suspension that ultimately harden to form a solid mass.
- The division also manufactures and sells Anti-corrosive products: Corrosion is a degradation of materials' properties caused by chemical reaction with their environments. Anti-corrosive products are used in plants/ products which undergo such corrosion.





# SUPER REFRACTORIES - Application



## Ceramic Industries

Insulators  
Sanitaryware & Tableware  
Abrasives  
Wall Tiles  
Refractories  
Electro Ceramics

## Glass

Container  
*Soda-lime*  
*Boro-silicate*  
Decorative  
Fibreglass

## Chemical Process Industries

Carbon Black  
Fertilizer  
Petro-Chem. / Refinery

## Cement

## Power Generation

Boiler

## Non – Ferrous

Aluminum  
Copper  
Zinc

## Iron & Steel

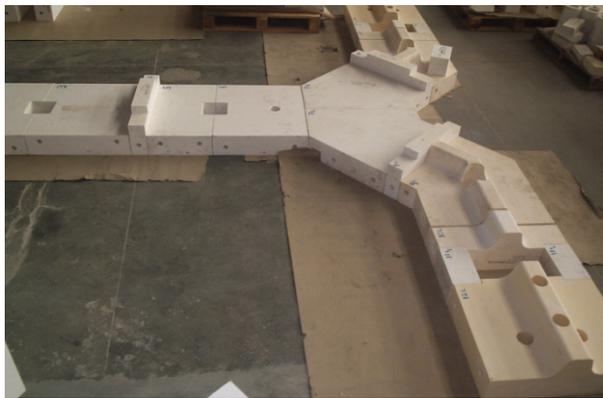
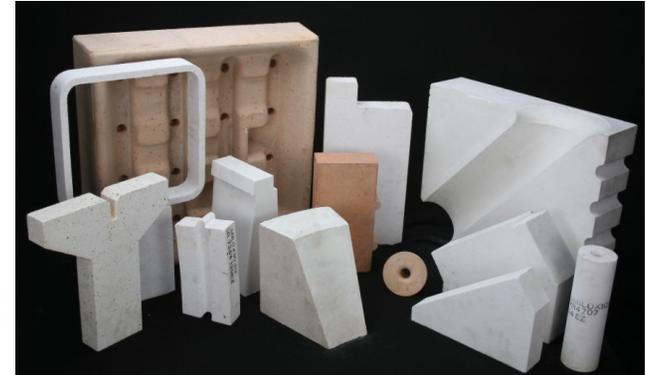
## Sponge Iron (DRI)

Gas-Based  
Coal - Based

## Foundries



## Ability to manufacture complex shapes and meet all surge requirements





# Opportunities for CUMI CERAMICS (IC+SR)



**Coal Washeries**



**Ceramics for Steel**



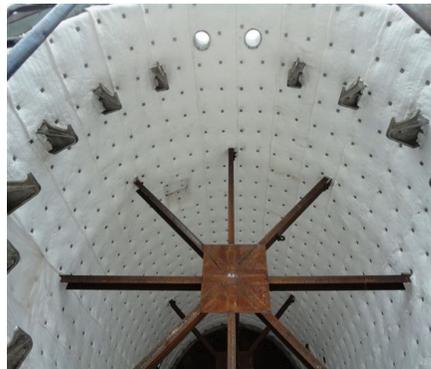
**Reheat/ Heat Treatment**



**Forging Furnaces**



**Annealing**



**Process Gas Heaters**



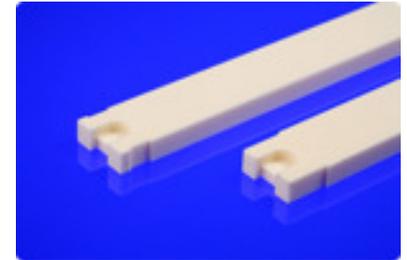
**Glass Melting Furnace**



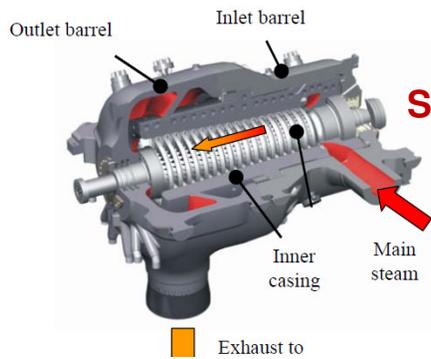
**Gunning**



**HRSG**



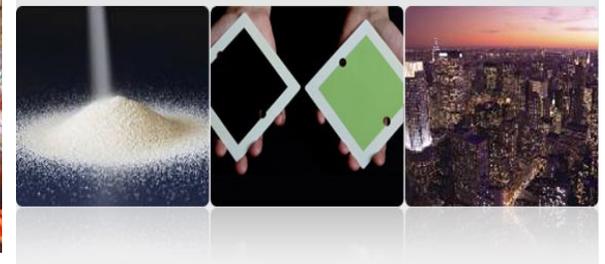
**High Alumina Ceramics for Renewable Energy**



**Super Critical Turbines**



**Passive Fire Protection**



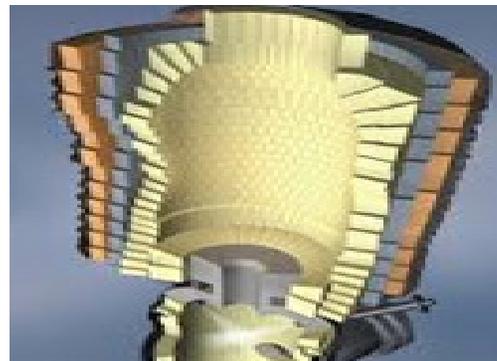
**Ceramics for SOFC**



**CFBC Boilers**

**Circulating Fluidised Bed Combustion Boiler**

**Gasification Projects**



**FGD Systems**



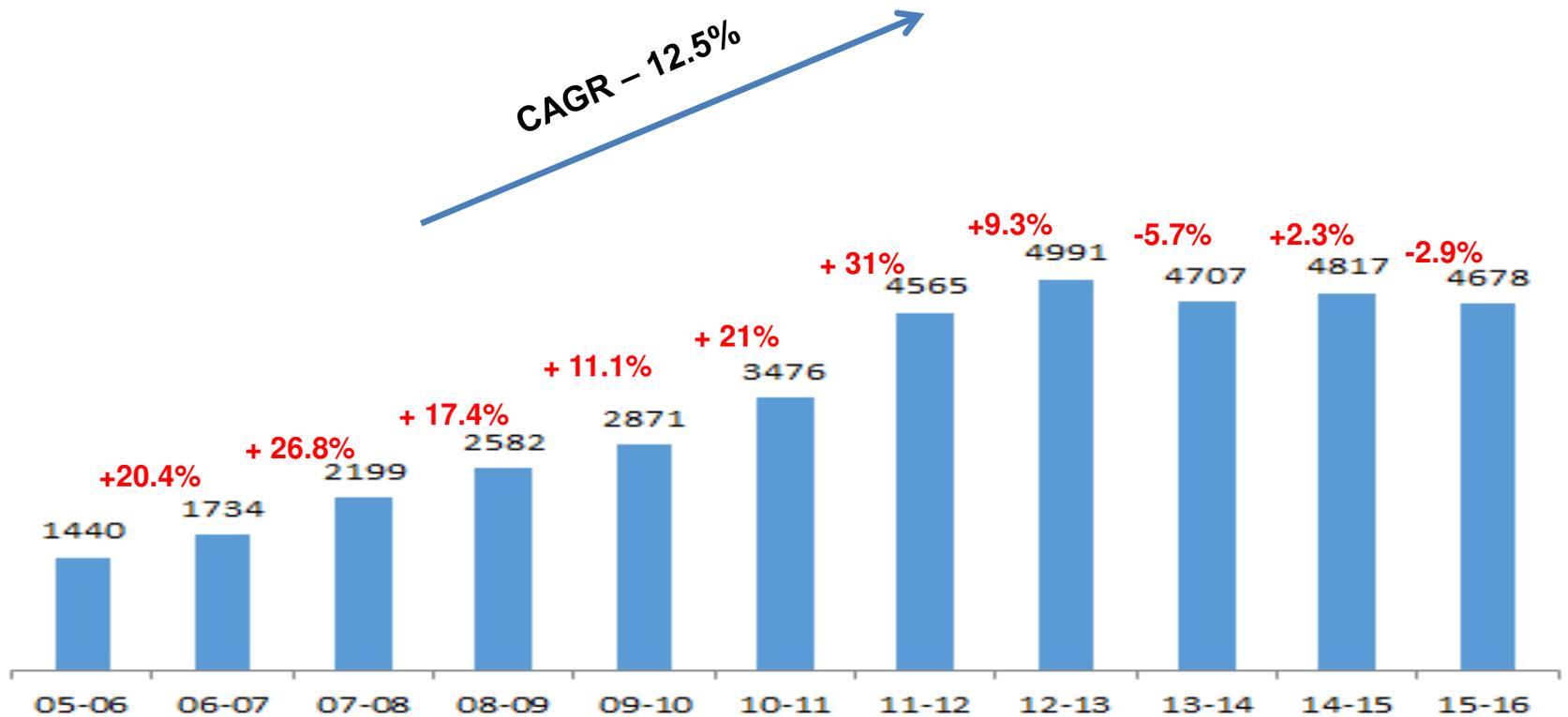


# CERAMICS (Industrial Ceramics and Refractories)- Performance



Net Sales - Annual

Rs. Mil



% sales in India	05-06	06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16
	44%	43%	53%	54%	53%	56%	62%	55%	55%	60%	53%



# ELECTRO MINERALS

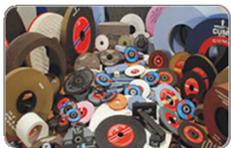




# ELECTROMINERALS – Product Range



Brown Fused Alumina | White Fused Alumina | Silicon carbide | Zirconia | Specialty minerals



Bonded  
Abrasives



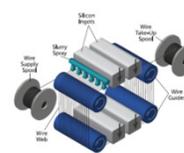
Coated  
Abrasives



Refractory



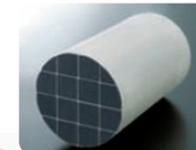
Metallurgical



Silicon wafer  
slicing



Investment  
casting



Particulate Filter



Floor  
Laminates

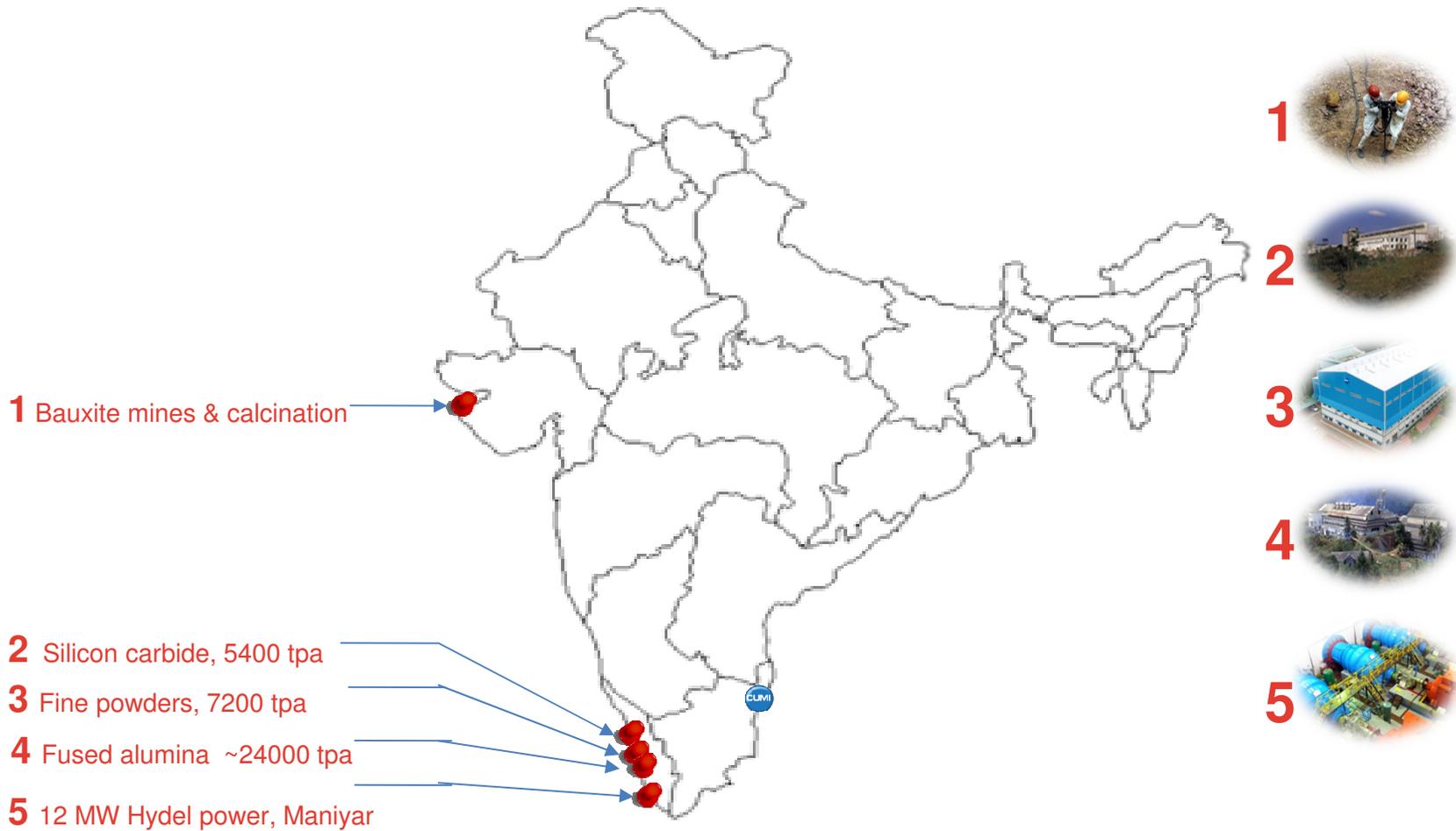
Surface Engineering

Refractories

Energy & Environment



# ELECTROMINERALS – Facility





# ELECTROMINERALS – Overseas Facility





# ELECTRO MINERALS – Global Capacity & Our Standing



## Global Capacity and Our Share

- Silicon Carbide
  - Global capacity is ~ 2 million tonnes. Price and Cost movements, macro factors, keeps these facilities either running or closed.
  - With 80k tons per annum in VAW we are the second largest after Saint Gobain
  - Around 50% of the capacity is in China, with no single identifiable big player
  - Around 40% capacity is in China
- Fused Aluminas
  - Global capacity is ~ 1.7 million tonnes
  - CUMI share is 1%
  - Around 50% of the capacity is in China

## Current Standing Point

- Established leadership in Russian and Indian market
- Locational advantage in Russia by way of low power and pet coke cost providing significant cost competitiveness in SiC business
- In Speciality products, CUMI has achieved leadership in this business by way of improving process capability and Micronisation

## Innovation Value Pyramid





# EMD Business Opportunity



## Environment

Euro 6  
Demand for water

SiC for DPF  
SiC and Alumina for  
Filtration

## Energy

Nuclear Energy  
Mobile energy  
Renewable energy

Zirconia  
SiC  
Graphite  
Thermal Powders

## Urbanization

Infrastructure  
Transportation  
Housing

Abrasives  
Refractories  
Thermal Powders

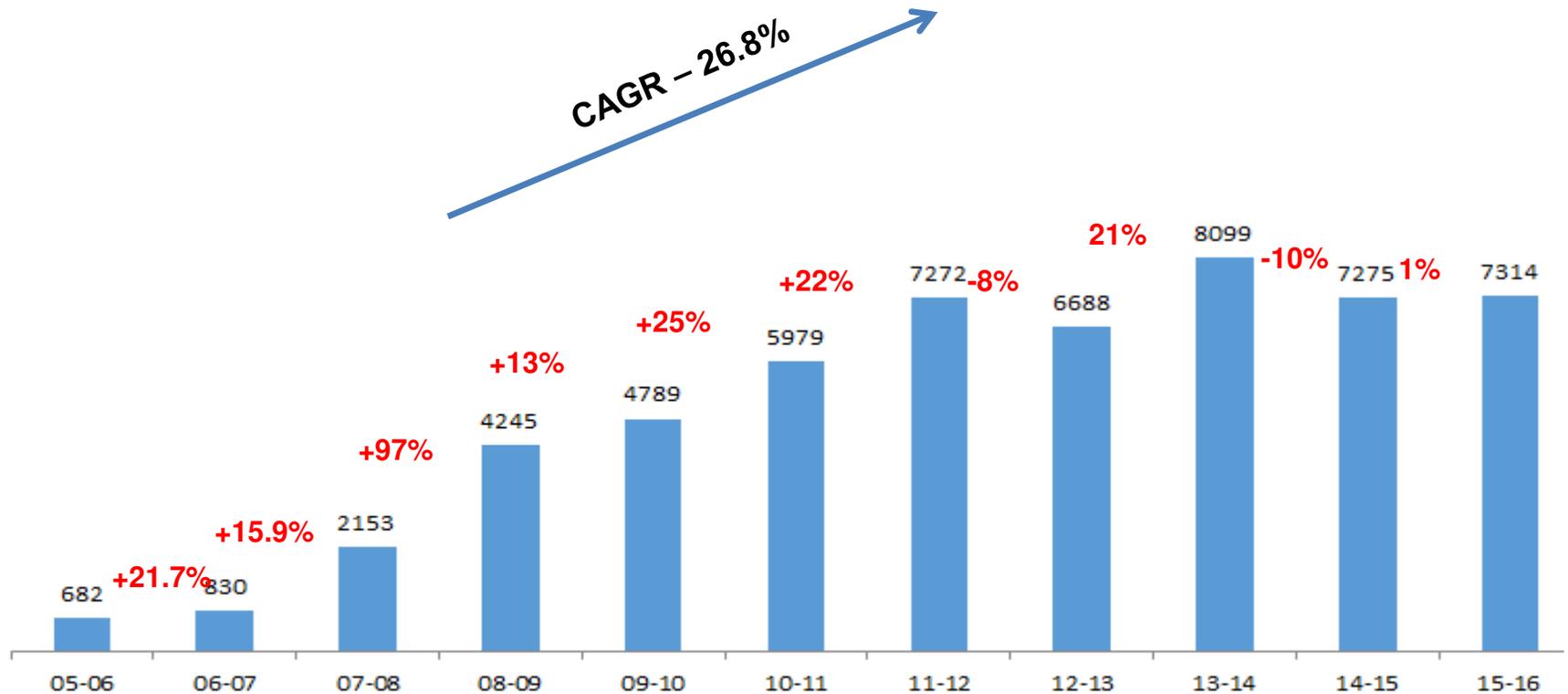


# ELECTRO MINERALS - Performance



Net Sales - Annual

Rs. Mil



% sales in India	94%	88%	40%	20%	24%	22%	21%	22%	25%	26%	34%
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# FINANCIALS



# Financials



## Income Statement

Y/E March	FY14	FY15	FY16
Net sales	20,939	20,187	20,564
Other operating income	315	315	280
Total operating income	21,253	20,502	20,843
Cost of goods sold	(9,599)	(9,306)	(9,367)
Gross profit	11,655	11,196	11,476
Gross margin (%)	54.8	54.6	55.1
Total operating expenses	(9,139)	(8,561)	(8,197)
EBITDA	2,515	2,635	3,279
EBITDA margin (%)	11.8	12.9	15.7
Depreciation	(911)	(1,004)	(944)
EBIT	1,605	1,631	2,335
Net interest	(282)	(253)	(227)
Other income	220	262	331
Exceptional Items		565	
Profit before tax	1,543	2,204	2,439
Total taxation	(592)	(822)	(895)
Tax rate (%)	38.4	37.3	36.7
Profit after tax	951	1,382	1,544
Minorities	(36)	(56)	(116)
Profit/ Loss associate co(s)	-	-	-
Reported net profit	915	1,327	1,428

## Balance Sheet

INR Million

Y/E March	FY14	FY15	FY16
Paid-up capital	188	188	188
Reserves & surplus	10,872	10,699	11,671
Net worth	11,060	10,887	11,859
Borrowing	3,924	3,403	3,109
Other non-current liabilities	500	400	368
Total liabilities	19,856	18,157	18,775
Gross fixed assets	13,829	13,636	12,846
Less: Depreciation	(5,966)	(6,865)	(6,814)
Net fixed assets	7,863	6,771	6,032
Add: Capital WIP	397	433	898
Total fixed assets	8,260	7,204	6,930
Total Investment	373	411	371
Inventory	4,340	3,883	3,866
Debtors	4,167	3,703	3,948
Cash & bank	754	992	1,173
Loans & advances	858	807	1,272
Current liabilities	3,674	2,888	2,725
Net current assets	6,445	6,496	7,534
Other non-current assets	1,105	1,156	1,215
Total assets	19,856	18,157	18,775



# Financials



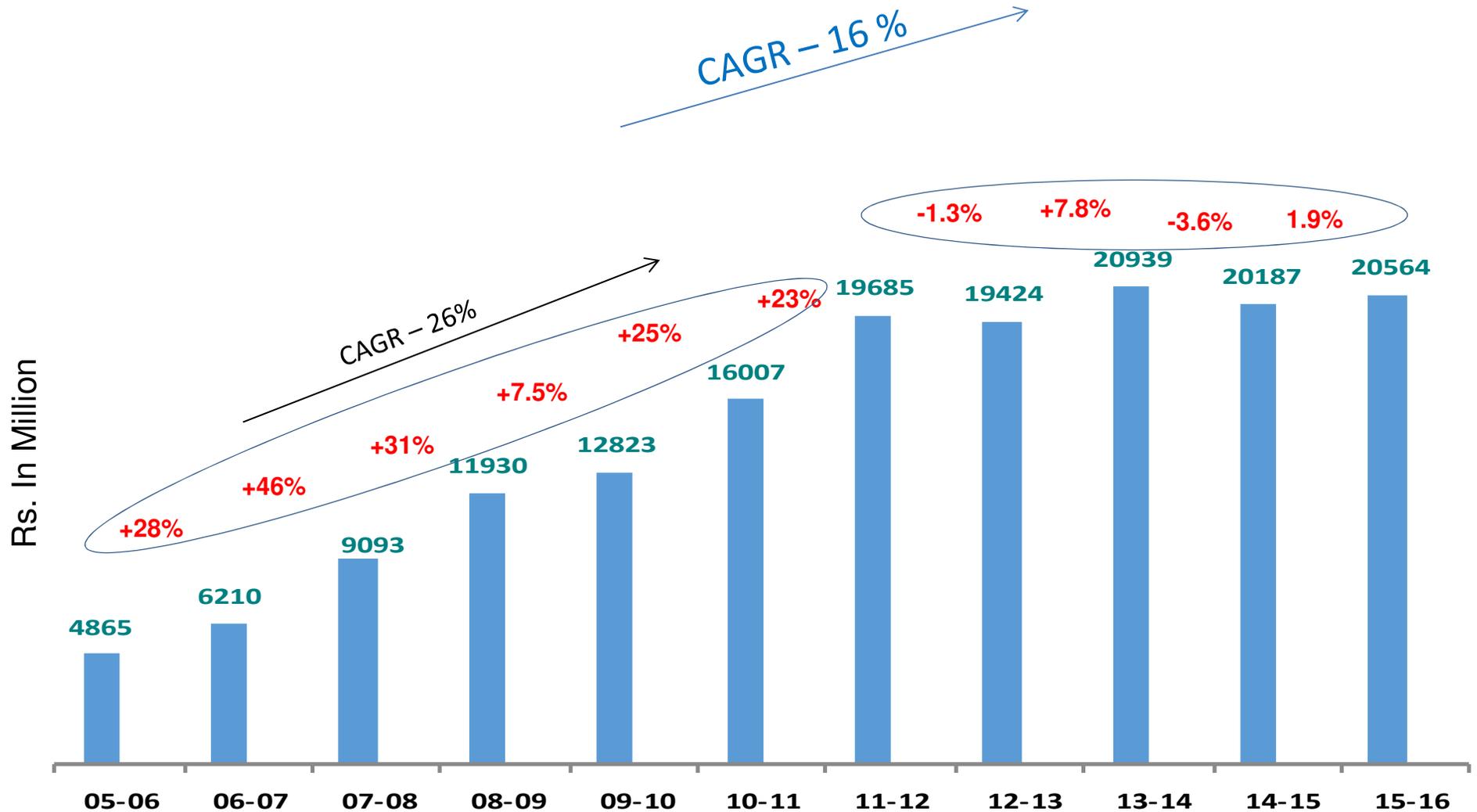
INR Million

## Cash Flow

Y/E March	FY14	FY15	FY16
Profit before tax	1,543	1,640	2,439
Depreciation & Amortisation	(911)	(1,004)	(944)
Chg in working capital	(774)	1,220	(291)
Cash flow from operations	1,315	3,258	2,239
Capital expenditure	(985)	(846)	(1,068)
Cash flow from investing	(987)	(2,138)	(1,218)
Equity raised/ (repaid)	26	47	25
Debt raised/ (repaid)	988	(1,161)	(293)
Dividend paid	(326)	(248)	(394)
Cash flow from financing	404	(1,614)	(890)
Net chg in cash	732	(495)	131

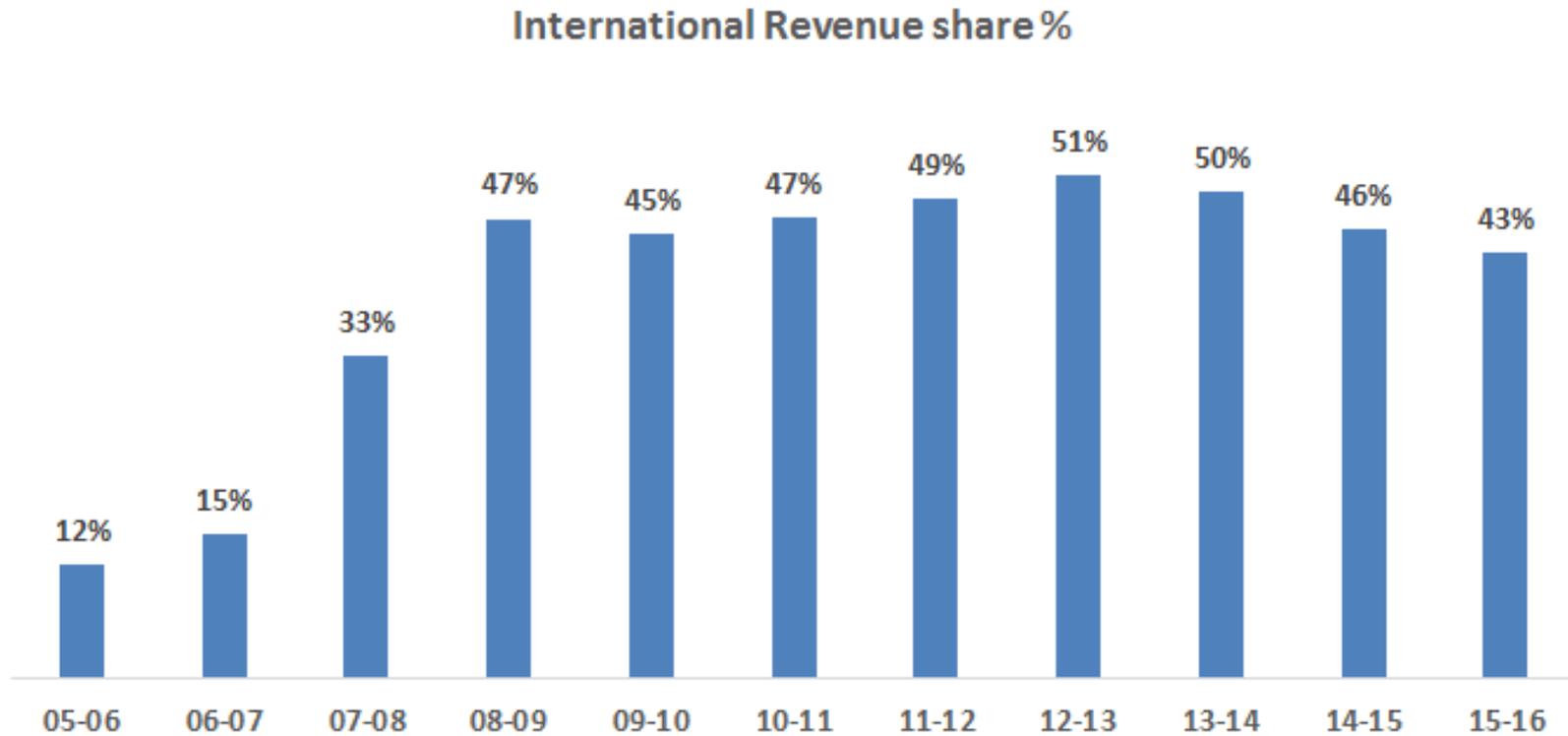


# Revenue Growth





# International Revenue share (%)





# Segmental Performance



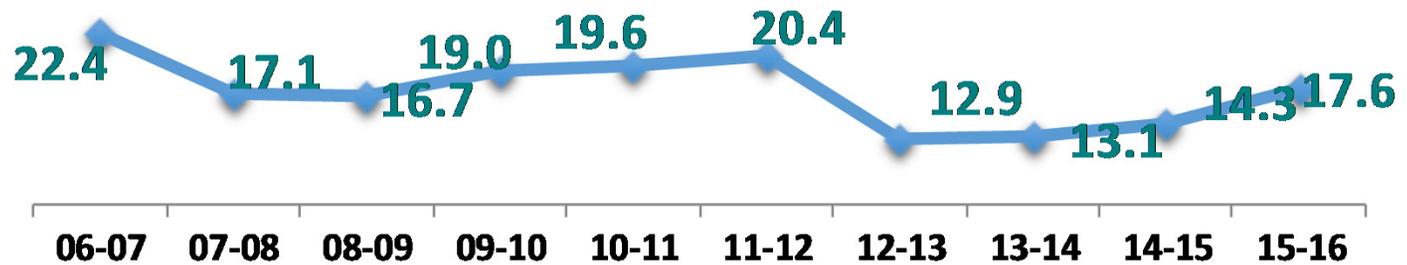
Net Sales (Rs. Mil)	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16
Abrasives	3214	3880	5006	5325	5518	6990	8304	8093	8599	8590	9117
Ceramics	1130	1734	2199	2582	2871	3476	4565	4991	4707	4817	4678
Electro minerals	681	830	2153	4245	4789	5979	7272	6688	8099	7275	7314
Inter segment	-311	-351	-382	-370	-596	-704	-773	-737	-830	-927	-1059
Others	151	116	116	148	241	266	316	389	364	432	515
Net sales	4865	6210	9093	11930	12823	16007	19685	19424	20939	20187	20564
PBIT Margin (%)	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16
Abrasives	16.3	16.0	13.4	9.8	9.4	13.7	15.0	10.3	7.0	7.2	9.7
Ceramics	19.7	22.5	20.0	20.3	19.4	17.6	19.7	15.8	12.5	14.7	14.0
Electro minerals	21.8	18.4	12.1	17.9	21.5	18.4	19.2	3.5	10.0	10.9	17.3
Total	18.9	19.2	14.5	13.7	15.8	16.4	17.5	9.2	8.7	9.4	13.0



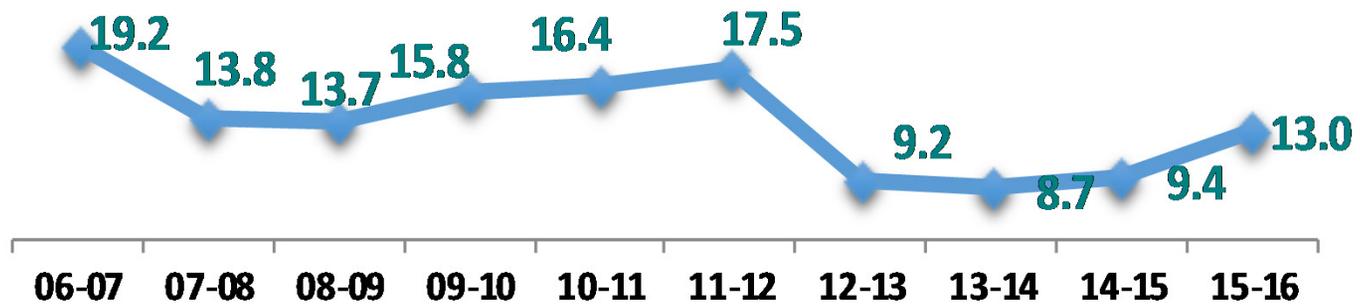
# Performance Ratios



EBITDA %



PBIT %

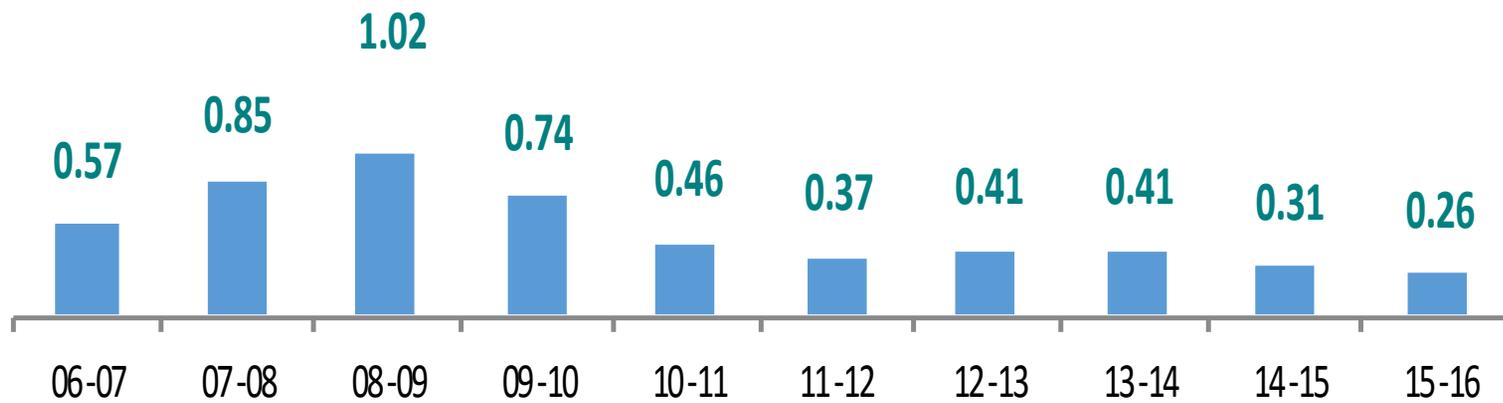




# Performance Ratios



## Debt Equity Ratio

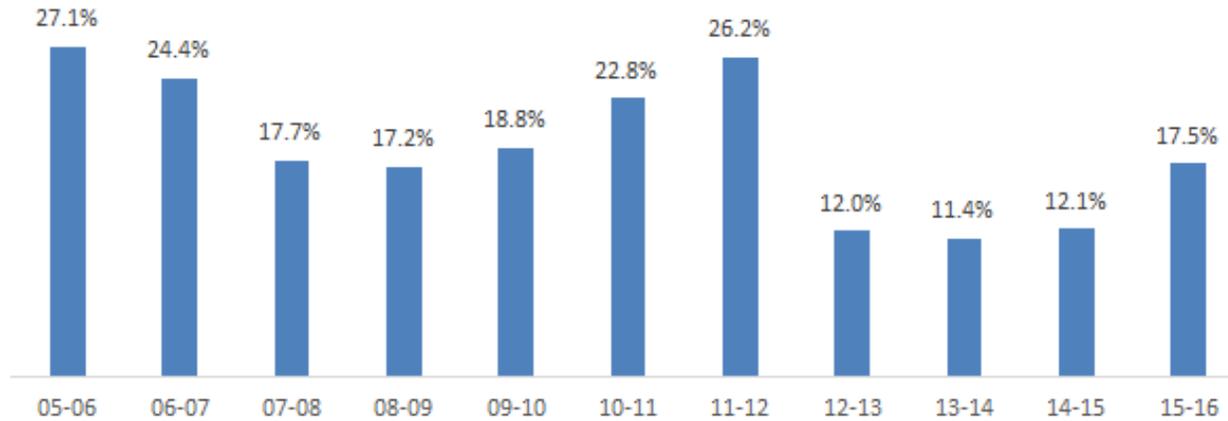




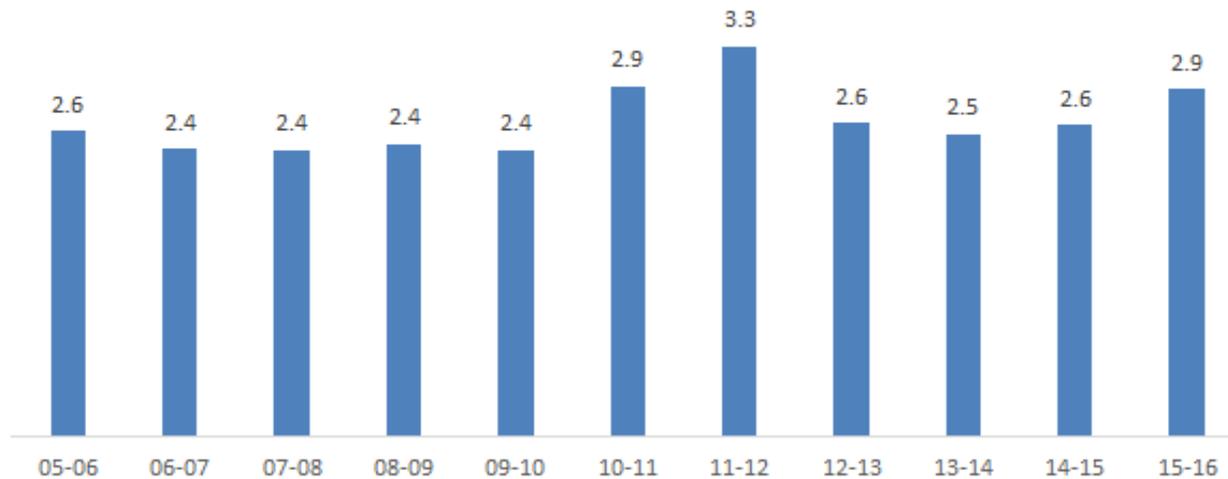
# Performance Ratios



## ROCE



## Net Fixed Asset Turnover times

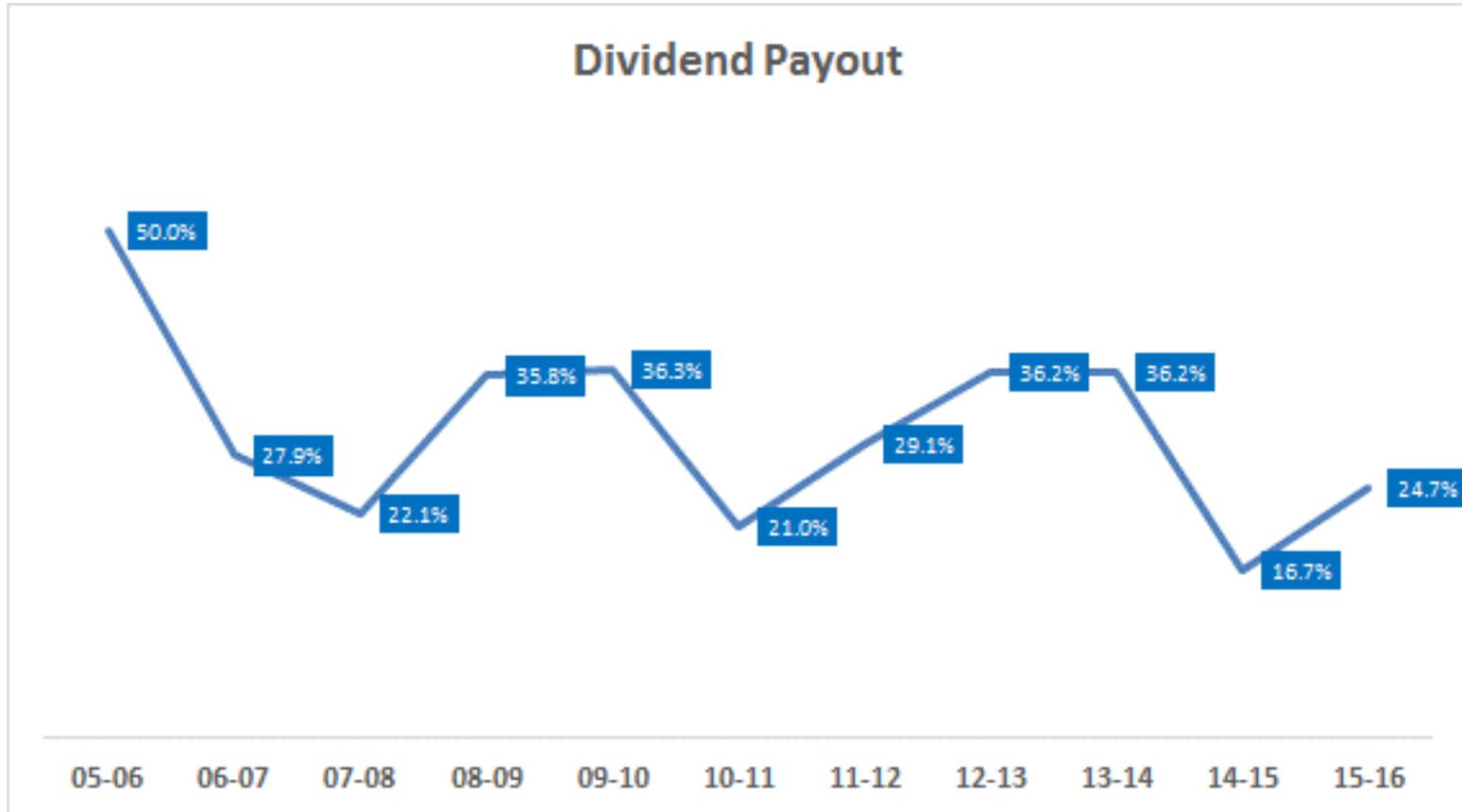




# Market Performance Ratios



## Dividend Payout Ratios





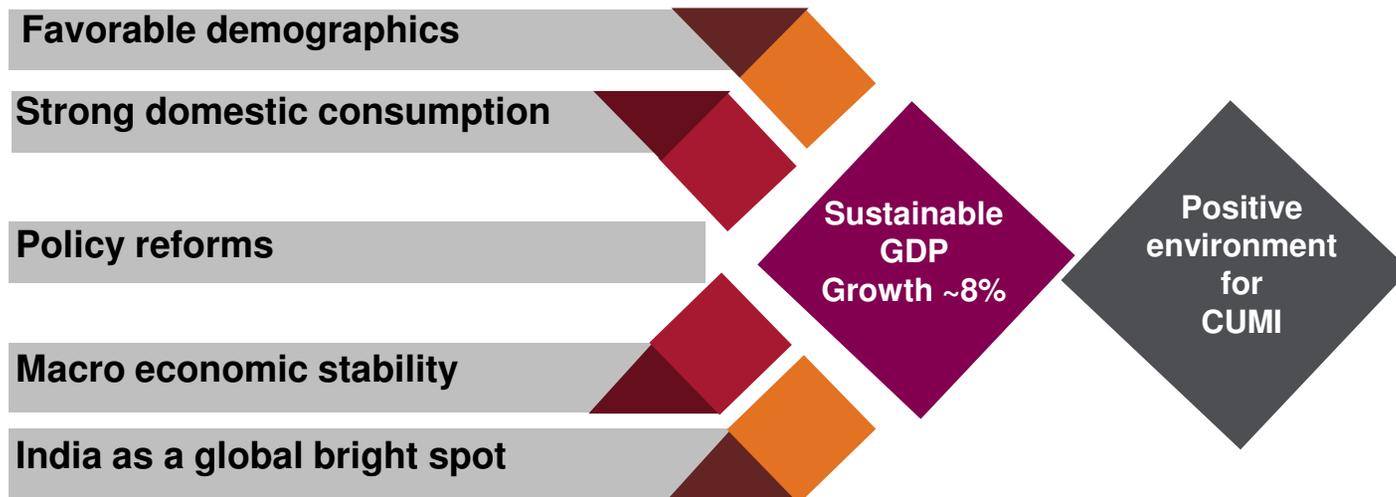
# Investor Friendly Company



- **43.82% held by the Murugappa Group, 36.46% held by FII's, MF, PE, Insurance Cos**
- **62 years of unbroken track record of Profit and Dividend**
- **Six Bonus Issues since inception – 89% of the current Equity is by way of capitalization of Reserves**
- **Growth over the years entirely funded by Debt, Internal accruals and by unlocking value**
- **Investor / Analyst Interaction**
  - **Quarterly Earnings Call and Transcripts upload**
  - **Minimum 2 investors Presentation in Mumbai and Abroad**
  - **Bi Annual Communication on company performance sent to all investors**
  - **100 plus investor visits / tele conference in a year**



# To Sum Up





**THANK YOU**

