

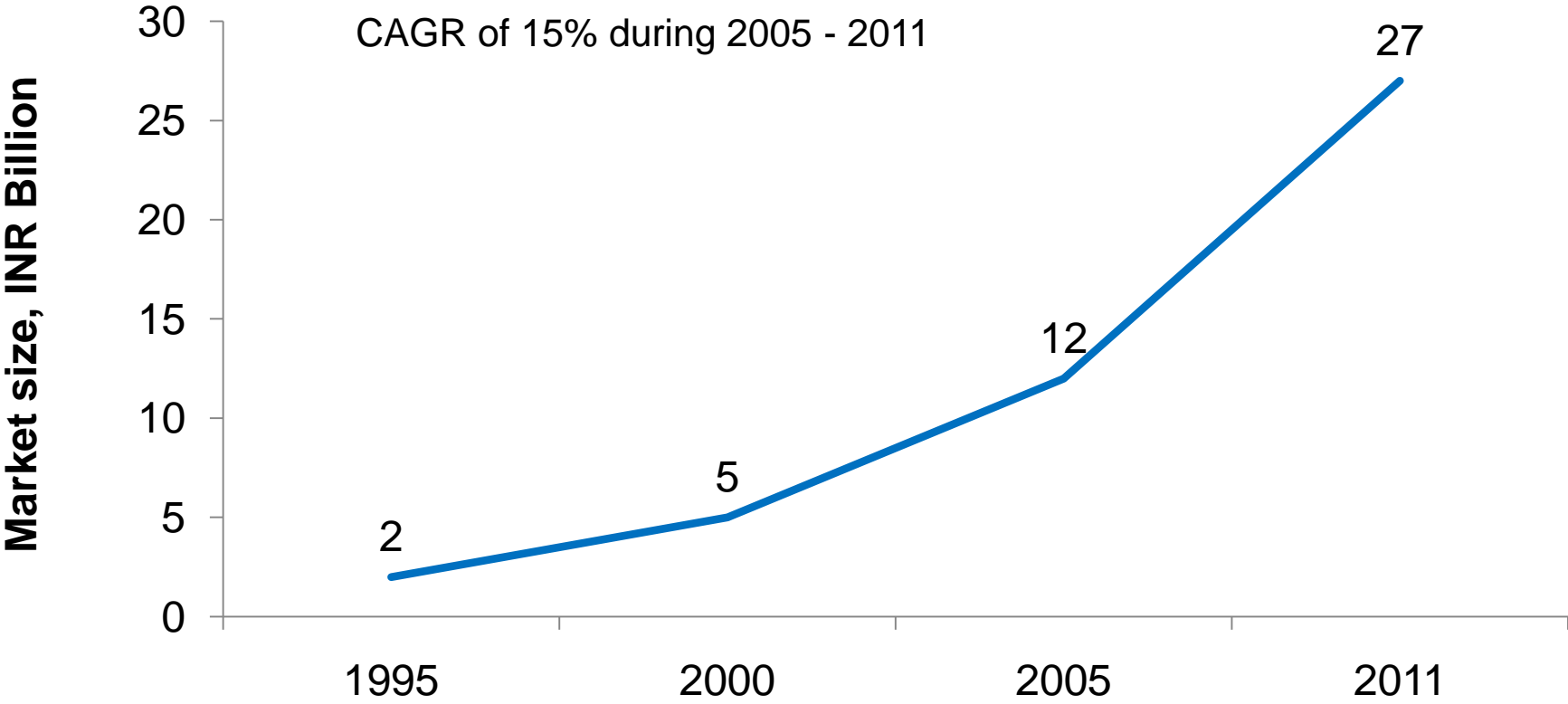


Indian Construction Chemicals Industry – Status, Opportunities, Challenges and Strategies

by Upen Patel, Business Director, South Asia

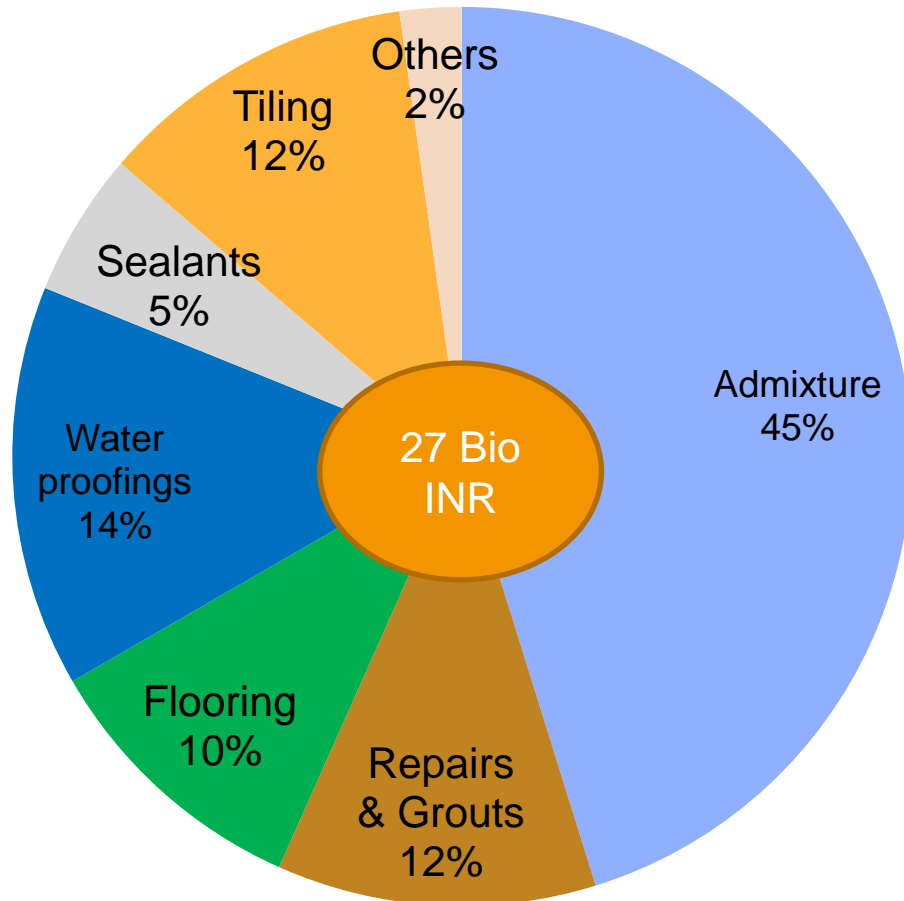
BASF India Limited

Construction Chemicals Market Growth



Source: primary field data

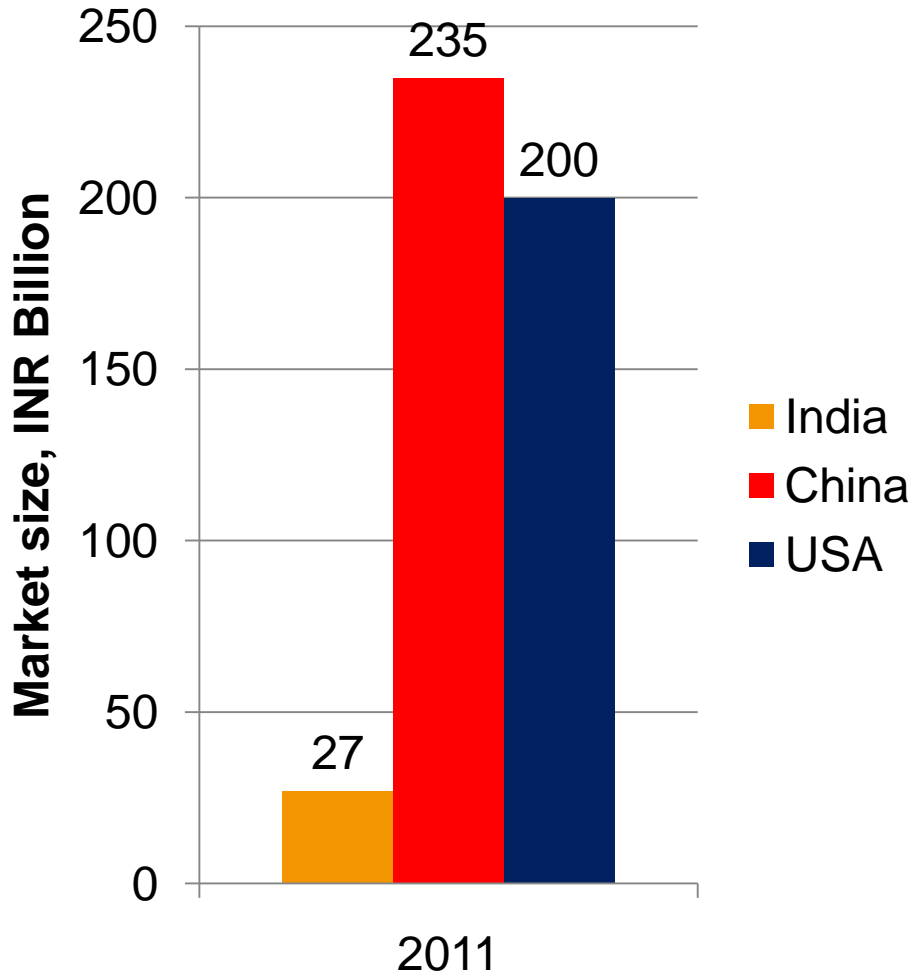
Indian Market split



comparison with developed world:

- High share of Flooring
- Low share of Tiling, Sealants and waterproofing
- Non-existent EIFS and wall systems & bitumen admixtures
- >80% business in new built

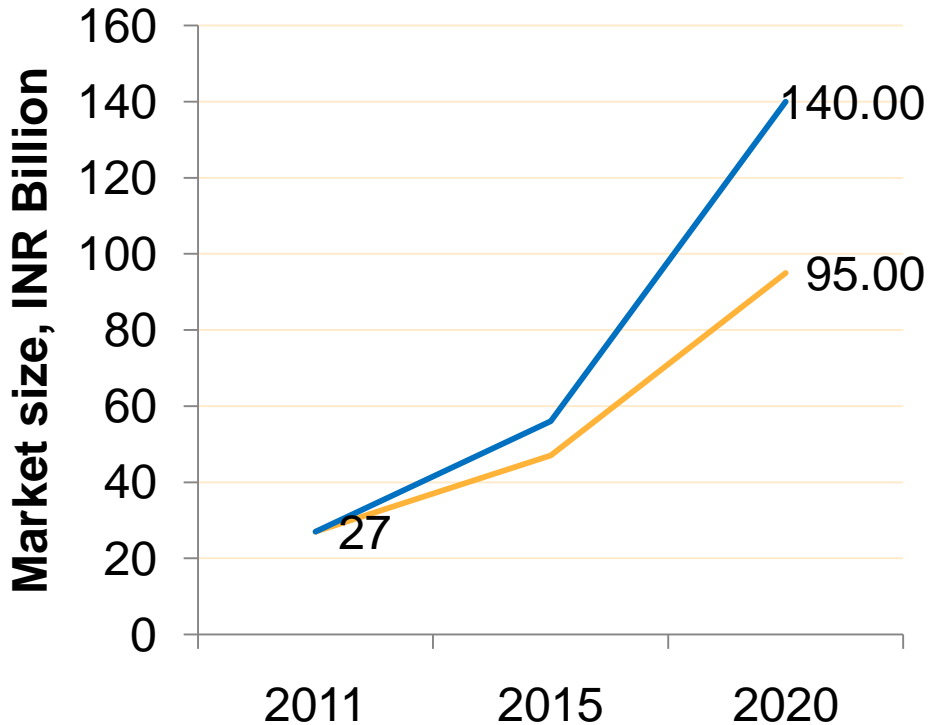
Indian construction chemicals market is INR 27 billion representing only 2% global demand



- Treatment ratio to construction is 0.5% in India
- China has 2-3 times the treatment ratio, while USA has 3-4 times the treatment ratio
- Lower mechanisation, site-batched mortar production and limited awareness is major challenges to achieve higher treatment ratio.
- Treatment ratio has improved by 25 basis points in last 10 years

INR 140 billion (US\$ 3 Bio) market by 2020?

- Pessimistic (15% CAGR)
- Optimistic (20% CAGR)



- 2006 – 2011 CAGR was 15%
- 20% CAGR can be targeted with strong support from government with favourable policy changes
- Treatment ratio need to triple

Source: WMI, primary field data

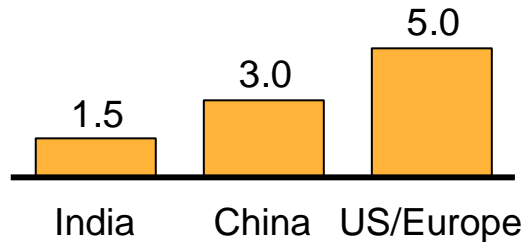
ADMIXTURES:

India's penetration levels are **50% lower than China's** penetration and **70% lower than the developed world**

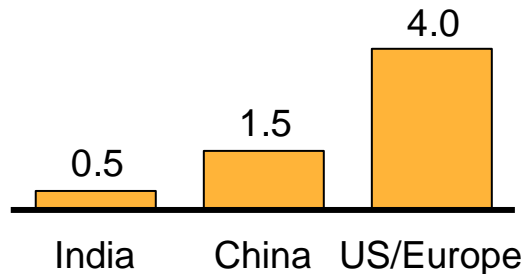
\$/m³ of concrete

Penetration of concrete admixtures

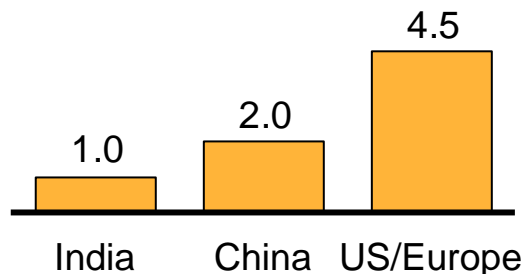
Infrastructure



Real estate (residential + commercial)



Overall



Factors

- PCE chemistry well accepted in Infrastructures in China as well in Europe
- Self-compacting still in infancy in India
- Rural houses have very low penetration
- Individual houses in Urban India still opts for hand-made concrete without chemicals
- China & Developed world does not allow hand-made concrete to be produced in the urban area
- Hand-made site-batched plaster is predominant in India having very low usage of admixtures.
- US/Europe has high focus on long-term life-expectancy of concrete structures, hence corrosion prevention is included.

Advantages of using specific constructions chemicals/new applications

	Benefits	Current usage in India	Examples from other countries
Polycarboxyles (PCE Admixtures)	<ul style="list-style-type: none"> ▪ High Strengths ▪ Early strength gains ▪ Self-compacting ▪ Durable concrete 	<ul style="list-style-type: none"> ▪ 5 – 10% penetration 	<ul style="list-style-type: none"> ▪ China > 25% ▪ Europe > 50% ▪ Japan >80%
EIFS (External Insulation & Finishing System)	<ul style="list-style-type: none"> ▪ Energy Efficient Facades ▪ High Aesthetics ▪ Weatherproof ▪ Low maintenance 	<ul style="list-style-type: none"> ▪ Does not exist 	<ul style="list-style-type: none"> ▪ USA: >30% of facades in Commercial buildings ▪ UAE: Mandatory by Municipality for Villas ▪ Europe: Has regulations ▪ China: Designing Standards & Regulations
Tile Adhesives	<ul style="list-style-type: none"> ▪ Long life of tiles ▪ Aesthetics & Hygiene ▪ Speed for renovation 	<ul style="list-style-type: none"> ▪ <5% of tiles fixed using tile adhesives ▪ Low regulations 	<ul style="list-style-type: none"> ▪ Europe: 90% penetration ▪ China: World-class standards under-implementation.

Consumption standards can play major role in growth of construction chemical industry in India

	<u>Current Indian standards</u>	<u>Examples of these specific standards from other countries</u>	<u>Benefits to society</u>
Concrete Production in Urban Area	<ul style="list-style-type: none"> No restrictions 	<ul style="list-style-type: none"> China, Europe and USA does not allow production without Concrete Plants 	<ul style="list-style-type: none"> Pollution control Saving of materials Standardization Scale of economy Speed of construction
Hand-made plaster in Urban housing	<ul style="list-style-type: none"> No restrictions Local sand is used without control of contaminants. 	<ul style="list-style-type: none"> Most of the work is mechanised with spray machines & plaster produced in plants 	<ul style="list-style-type: none"> Speed of construction Control on Raw materials Reduced cracking Long lasting facades
Energy Efficient Buildings	<ul style="list-style-type: none"> ECBC 2007 Guidelines (not mandated yet) 	<ul style="list-style-type: none"> Municipal regulations in most of the Europe, US/Canada on consumption of energy China/UAE started controlling wastage 	<ul style="list-style-type: none"> India should make ECBC mandatory Reduce Power demand Lower power cuts

Thank You

