



# **GEO SMART INDIA**

## **Construction & Infrastructure**

**Keynote Address**

**BIM in Construction**

**Bikshapathi Kondai**

**Director General  
National Academy of Construction,  
Hyderabad, Telangana**

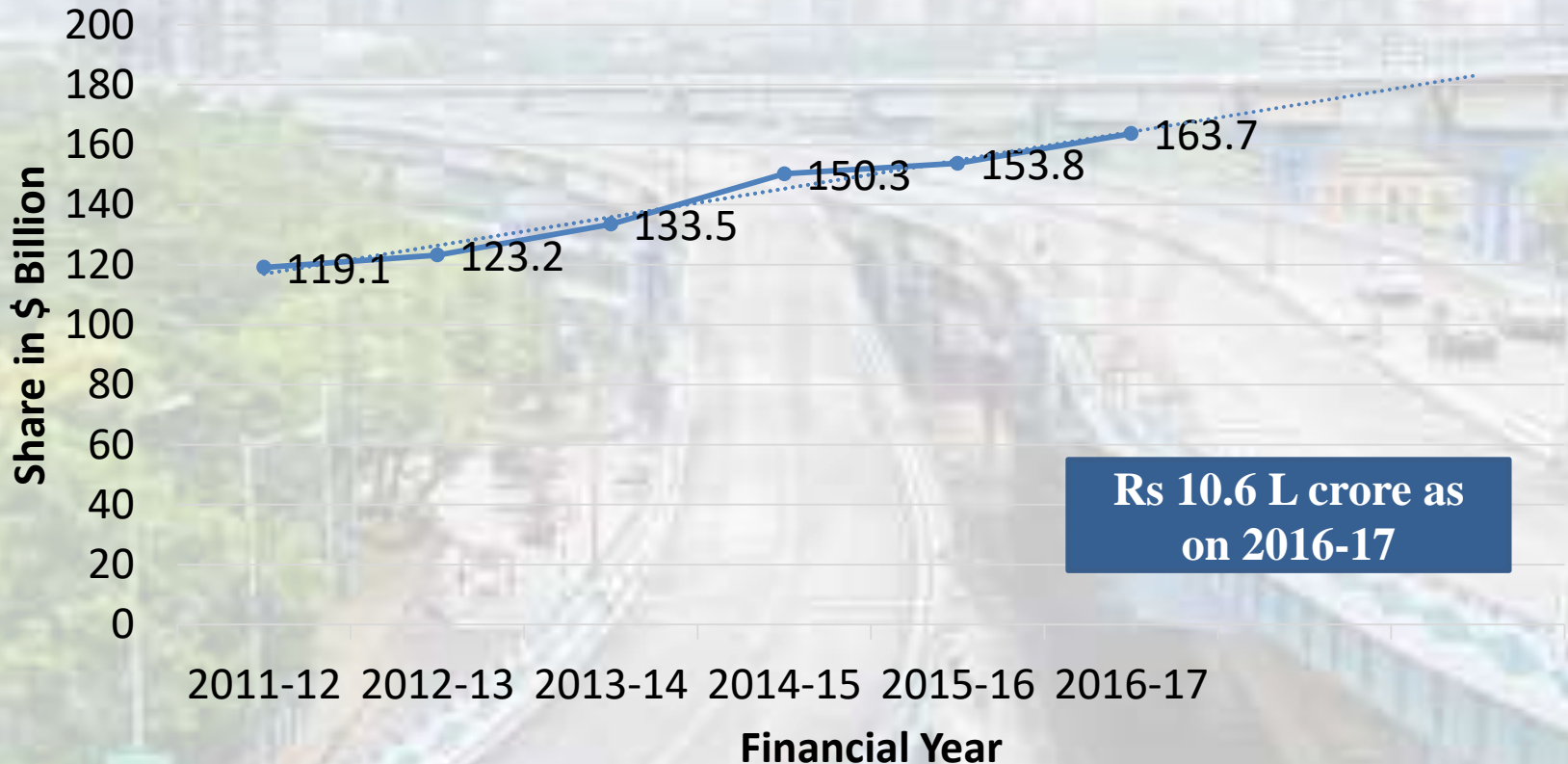
# Construction Industry Overview

- **Second largest contributor to national GDP**
- **4.73 Cr human resources engaged : to reach 6.6 Cr by 2022**
- **100% FDI allowed in real estate**
- **Real Estate sector projected growth US\$ 650 billions by 2025**
- **Development agenda by Centre and States**
- **India embarks on US\$ Five Trillion economy by 2024**
- **Rs 100 lakh crores investment envisaged by govt to create Infrastructure**
- **7-8% growth rate**

# Construction Share in Indian GDP (In US\$ Billion)

Expected to see impressive growth over next one decade

Stands at around 8% on average basis



# Diverse Perspectives of Stakeholders

- **Owners are in a hurry to deliver the Projects**
- **Activists see a major threat to environment**
- **Customers expect timely delivery with right quality**
- **Contractors represent about low profitability ,  
difficulties related to financing**
- **Vendors express difficulty in marketing innovative  
products**

# Industry Issues

- **The Paris Declaration 2015 committed for low carbon infrastructure projects**
- **Changing regulatory environment**
- **Slow in adopting innovative , modern, energy efficient construction technologies**
- **Access to digital technologies**
- **Lack of real time coordination among key players**
- **Low skill levels**
- **Time and Cost overruns**
- **Contractual litigations**

## 25 % of 1231 projects incurred 77 % cost-overrun in total

Infrastructure Projects Implementation Status Report as on June'18					Projects with cost overruns				
S.No.	Sector	No of Projects	Original Cost Rs Cr	Anticipated Cost Rs Cr	No of Projects	% No of projects	Original Cost Rs Cr	Anticipated Cost Rs Cr	Cost Overrun %
1	Telecommunications	3	15,863	27093	1	33%	13334	24664	85%
2	Atomic Energy	3	27,271	29779	1	33%	3492	6000	72%
3	Steel	34	57,350	57563	5	15%	1640	2211	35%
4	Coal	92	88,125	88310	7	8%	18877	19914	5%
5	Urban Development	36	1,45,945	158435	6	17%	22920	35590	55%
6	Petroleum	104	1,90,143	191522	17	16%	24522	30951	26%
7	Road Transport & Highway	482	3,17,374	323746	19	4%	25599	32656	28%
8	Power	124	3,39,545	397302	44	35%	105405	163161	55%
9	Railways	353	3,54,063	454175	213	60%	121595	283482	133%
	<b>Total</b>	<b>1231</b>	<b>1535679</b>	<b>1727925</b>	<b>313</b>	<b>25%</b>	<b>337384</b>	<b>598629</b>	<b>77%</b>

## 23 % of 1231 projects resulted in time-overrun

Infrastructure Projects Implementation Status Report as on Oct'16					Projects with time overruns			
S.No.	Sector	No of Projects	Original Cost Rs Cr	Anticipated Cost Rs Cr	No of Projects	% No. of Projects	From (month)	to (month)
1	Telecommunications	3	15,863	27093	1	33%	47	47
2	Atomic Energy	3	27,271	29779	3	100%	47	89
3	Steel	34	57,350	57563	17	50%	5	72
4	Coal	92	88,125	88310	39	42%	4	132
5	Urban Development	36	1,45,945	158435	20	56%	2	72
6	Petroleum	104	1,90,143	191522	35	34%	1	93
7	Road Transport & Highway	482	3,17,374	323746	74	15%	5	116
8	Power	124	3,39,545	397302	61	49%	3	136
9	Railways	353	3,54,063	454175	36	10%	12	261
		<b>1231</b>	<b>1535679</b>	<b>1727925</b>	<b>286</b>	<b>23%</b>		

# Transformation is the need of hour

- **Policy reforms by govt**
- **Construction Technology**
  - Prefab construction , modular construction, 3D printed components, Energy efficient materials
- **New Digital technologies for life cycle integration of infrastructure projects**
  - Data analytics, artificial intelligence
  - Augmented reality, Virtual reality
  - Internet of Things
  - Block Chain
  - Drones, Robotics
  - BIM



# Relevance of BIM in Construction

- Life cycle management
- Multi dimensional approach
- Collaboration on real time
- Birds eye view to all stake holders
- Optimising construction processes
- Alerts to users
- Sustainable construction



**Collaboration  
on real time**

# Effective Change Management is Critical to Digital Implementations

- Awareness
- Standardisation
- Business models and pricing
- Simple and user friendly
- Interoperability for integration with legacy systems
- Include BIM as subject in B. Tech education
- Policy interventions

# Thank You

