

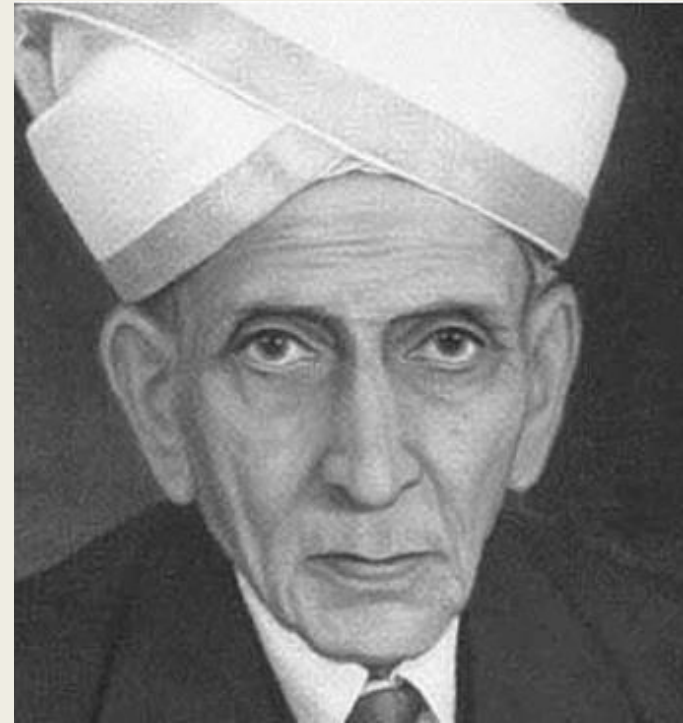
**OPPORTUNITIES AND EMPLOYMENT  
PROSPECTS  
TO YOUNG CIVIL ENGINEERS  
DURING AND AFTER COVID19 -**

A LECTURE SESSION FOR STUDENTS OF B.E AND M.E CIVIL ENGG. DEGREE

**DAYANANDA COLLEGE OF ENGINEERING,  
BENGALURU.**

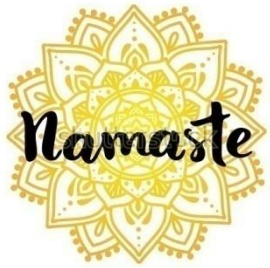
**H.R.GIRISH**

Thursday, 7<sup>th</sup> May 2020.



We prostrate before  
Bharat Ratna Sir Mokshagundam Visvesvaraya





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# H.R.GIRISH

Consultant to the Construction & Infrastructure Sector – India & the Middle East.

# Career Options for Civil Engineering Students – the conventional routes

- Higher education, Ph.D, continuing Research
- Innovator
- Entrepreneur
- Public Sector, UPSC, Army, Navy, Airforce , Govt.
- Private Sector
- Academics
- Constructor, specialized Contractor
- Consultant- Engg. Designs, PMC, CM, HSEQ, PDI
- Contract Formulator/Admn, Valuer, Surveyor, ADR
- .....Many more

# Civil Engineering - Sectors – (Conventional ones so far)

- Buildings & Factories
- Infra – Expressways, Roads, Bridges
- Railways, Ports, Marine works, Airports
- Urban Transport- Flyovers, Metro Rail, Monorail
- Special structures, special applications
- Power Infra – Gen., Transm., Dist. (Nuclear, renewable etc.)
- Water, SWM
- Environmental
- Materials, systems, processes

*(restricted to few for brevity)*

# Challenges our Society / Country/ World is facing.

..... *Dire Situations*.....

- Pandemic/ Covid19 !
- Water ?? Climate Change
- Housing ??
- Transport ?? Infrastructure
- Resource utilisation ??
- Mind-set ??
- Technology ??

# Challenges & Opportunities – Present & Future



Water

# Dire Situations...

**Times Special** THE TIMES OF INDIA, BENGALURU FRIDAY, FEBRUARY 9, 2018

## WORLD'S FIRST BIG CITY TO RUN OUT OF WATER?

**3 YRS** The length of the drought that the city is grappling with. Add to it the pressures of growing population and, you guessed it, climate change, and you have the worst water crisis in Cape Town's history

**13.5%** The water level in dams at which the city's water supply will be turned off. Dams are at 30% of capacity now

**25L** Water allowance for each Capetonian after taps are turned off. Water supply thereafter will be available at 200 municipal water points across the city under watchful eyes of police

**4M** The population of Cape Town. It is South Africa's second-largest city

**DAY ZERO**  
May 11\* 2018 | The day when Cape Town's water supply is predicted to become critical

While water scarcity remains a universal problem, and an urgent worry for India, South Africa's **Cape Town** is poised to become the first big city to run out of water with about 90 days left before supplies hit critical levels. As the clock ticks down, here's a look at how the city is coping...

**DWINDLING SUPPLY**

Year	Dam levels (percentage of capacity)
2013	~80
2014	~75
2015	~65
2016	~55
End Nov 2017	~45
Dec 4 2017	~35

**CAPETONIANS ADVISED TO...**

- 1 Use no more than 50l of water per person per day
- 2 Keep their showers under two minutes. Not wash their cars
- 3 Flush toilets as little as possible
- 4 Not water their gardens, or fill swimming pools
- 5 Recycle bathwater and limit usage of washing machines

**AS AUTHORITIES TRY TO...**

- 1 Drill into aquifers
- 2 Recycle wastewater
- 3 Undertake desalination of sea-water

**WATER SHORTAGE STARTED TO DISRUPT SUPPLIES**

A giant message board warns Cape Town residents of dipping supplies

\* Supposed to arrive in mid-April according to earlier estimates, Day Zero was pushed back by about a month due to a decline in agricultural water use, raising hopes that the city can hold out till the rainy season, which has historically arrived in May

**FACED WITH A SIMILAR SITUATION IN INDIA, WE SENT IN A WATER TRAIN...**

In 2016, the parched Latur district in Maharashtra had to rely on trains for its water supply after a poor monsoon and inadequate planning saw the Latur Municipal Corporation's ability to supply water being severely hit

According to a World Bank report, at least 21 Indian cities are moving towards zero ground water level by 2020. A report by World Resources Institute says water demand in India will reach 1.5 trillion cubic meters in 2030 while India's current water supply is only 740 billion cubic meter

Source: Agencies, Bloomberg





# Challenges – Present & Future



# Challenges & opportunities –



# Challenges & opportunities – Present & Future



# Challenges & opportunities – Present & Future

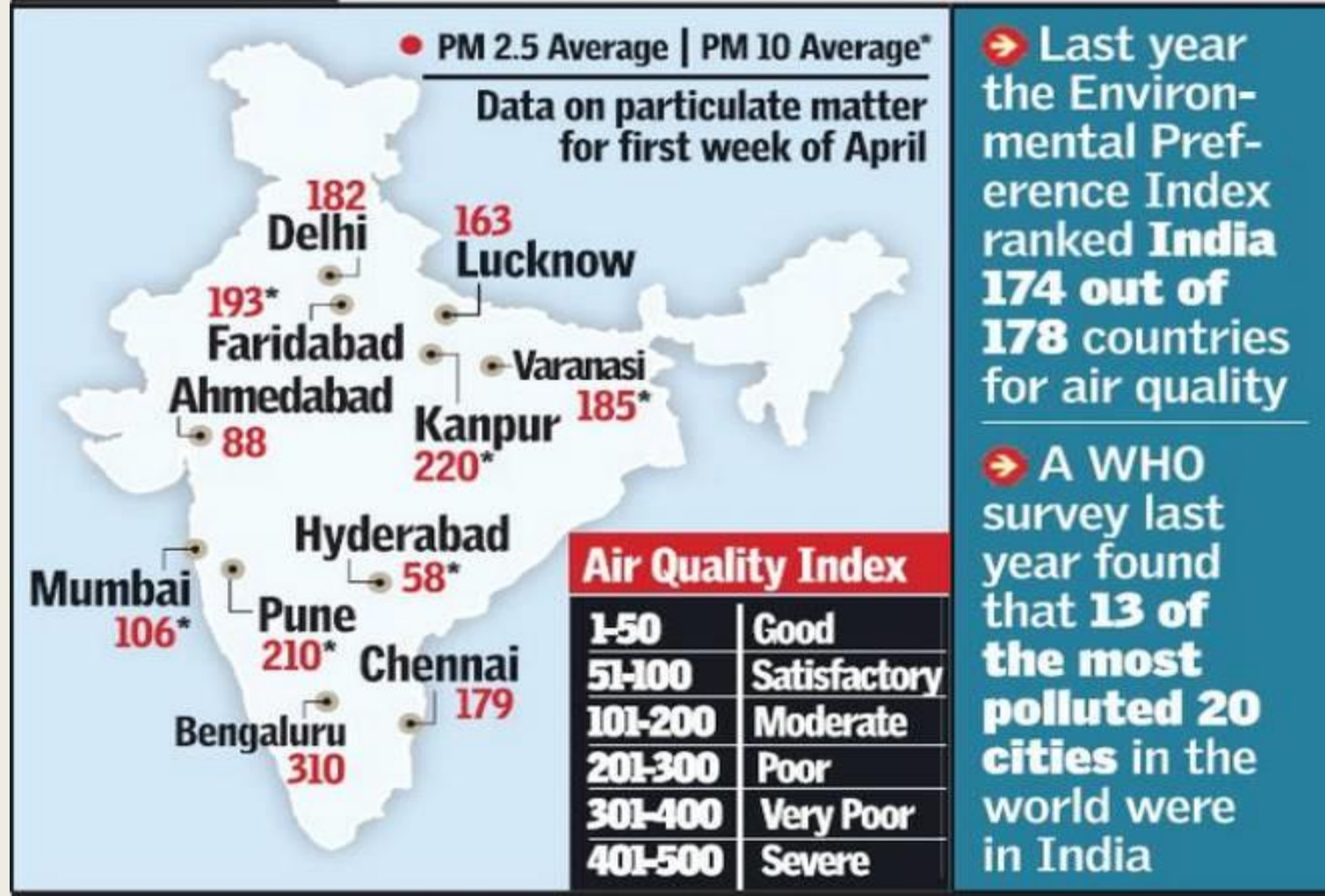
- Watch this Video of Sri.Bhargava

# Challenges – Present & Future - **Air Pollution**



# TOXIC SKIES

## AIR QUALITY IN INDIA'S MAJOR CITIES IS FAST DETERIORATING



# Dire Situations... Housing

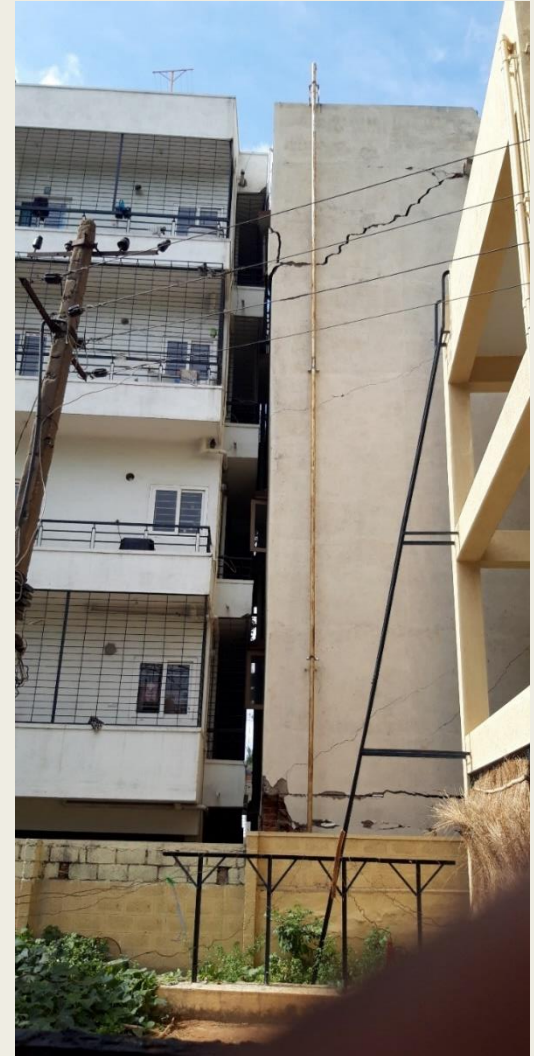


# Challenges & opportunities – Present & Future





# Dire Situations...



# Challenges & opportunities – Present & Future



# Challenges & Opportunities – Present & Future



# Challenges & Opportunities – Present & Future



# Challenges & Opportunities – Present & Future - Technology



# Challenges & Opportunities – Present & Future



# Challenges & opportunities – Present & Future – Urban Transportation



# Challenges & Opportunities – Present & Future – Urban





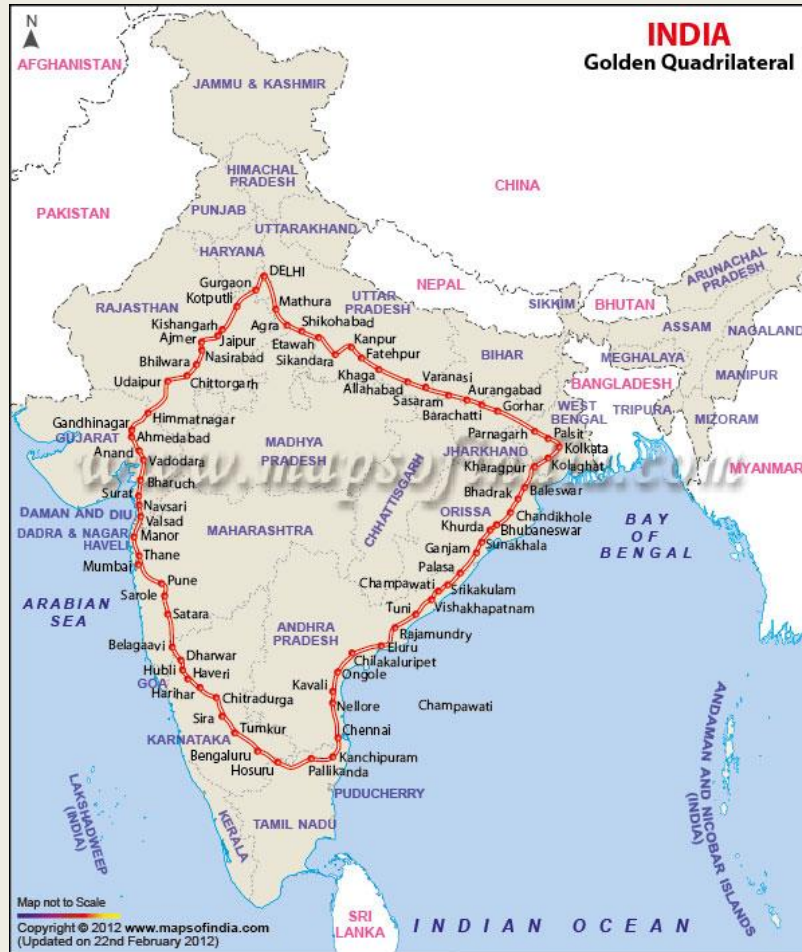
# Challenges & opportunities – Present & Future



# Challenges & opportunities – Present & Future



# Challenges & Opportunities – Present & Future



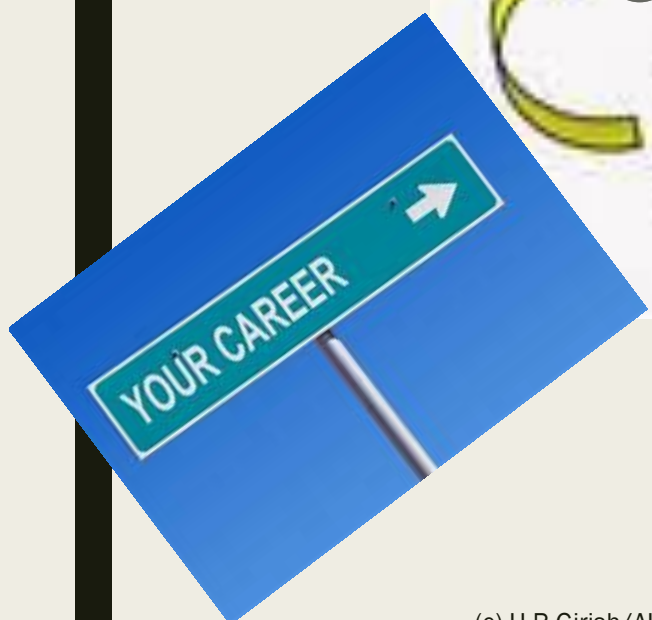
# Challenges & Opportunities – Present & Future RETROFIT/ RENEWAL/ RESTRENGTHENING



# Challenges & opportunities – Present & Future SOLID WASTE MANAGEMENT



# Way ahead to a Successful Career.....



# Way to Successful Career.....

CHOICE

Be a  
Differentiator  
??!

Also  
Ran??  
!

Look around you.  
Solutions and options  
abound.  
..... You only need to  
reach out to decide

# A re-look at Challenges & Opportunities – Present & Future

- Ever changing demands-Larger spans, Taller Strs. etc
- Varied clientele
- Technology convergence
- Innovative Materials, Designs, Methods
- Environmental Degradation
- Resource depletion
- Huge barrage of Information availability
- Tremendous Population rise
- Ambiguous mentoring
- Understanding the World Order in perspective



# Challenges & Opportunities – Present & Future

- Rapid Urbanisation
- Large FARs' / Vertical growth
- Need for rapid Hor. Vert. commute
- Incorporating rapid advancements in existing built-space
- Innovative materials & their effectiveness
- HSE Q
- Green Tech
- Resource Management
- Technology adaptability

# Summarising Opportunities – The Way Forward

- **INNOVATION, INNOVATION, INNOVATION**
- **HSE, Quality**
- **3D Printing**
- **IoT, AI, MI, Programming skills**
- **Robotics**
- **Mechanisation, Reduce Labour**
- **VR, AR**
- **Drone, Remote working, Sensors, Monitors**
- **Big data, Analytics, Predictive technologies**
- **Precast, Preform, PreEngineered**
- **Material of Construction, Composites**
- **Green technologies, Environment**
- **Systems, Procedures, Documentation**
- **Real time, transparency, Accountability**

# What's your Differentiator??!

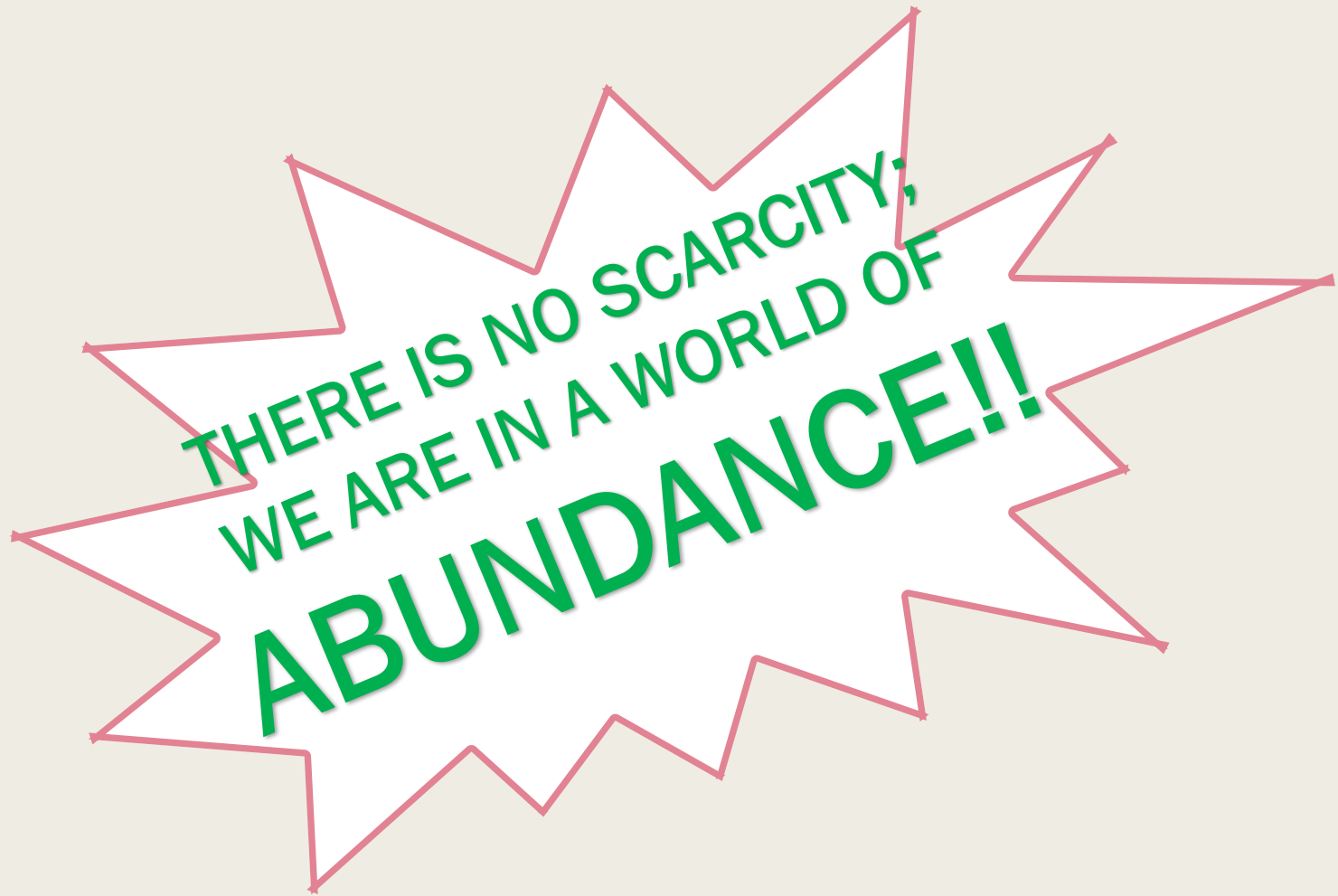


# Prepare, Train, “Arm” ..... to stay relevant!

- Clear Road-map, Plan
- ‘Train and Arm before the strike/ before you launch’
- Communication
- Perseverance & discipline
- Observation and Patience
- Inquisitiveness – never say “that’s it”
- Innovate
- Un-learn, Re-learn, Kaizen
- Team spirit & Team Player
- Physical and Mental attitude, Empathy, Integrity
- Confidence, guts, Resolve. Plan-B, C
- Enjoy the moments

# Attributes

- **Build Network**
- **Develop Skills**
- **Stay abreast; Update your Knowledge**
- **Document; Review Experiences**
- **Personal Attributes**
  - *Define Goal(s), Enrich progressively, THINK BIG*
  - *Be at Peace with yourself, Non-comparative approach, accept what-is*
  - *Philosophy, SPIRITUALITY*
  - *Most important: **HEALTH – EP & Physical***

A red starburst shape with multiple points, containing green text. The text is arranged in three lines, slanted upwards from left to right. The first line reads "THERE IS NO SCARCITY;", the second line reads "WE ARE IN A WORLD OF", and the third line reads "ABUNDANCE!!".

**THERE IS NO SCARCITY;  
WE ARE IN A WORLD OF  
ABUNDANCE!!**

## Special slide - extract of my article during Covid times, to Industry Practitioners

- **Precast, Prefab will be imm. Future. (Immediate means 12-18M); Present 90% onsite and 10% offsite will reverse.**
- **During Covid, speed of execution will drop**
- **Cash flows – thoroughly review; DSDE; DMO; Saving doesn't mean denying pymnt to vendor; it means spending wisely. Colloborate and empathise with vendors.**
- **“Waste is Cash” – reuse, repair, retrofit. Barter/ buy 2<sup>nd</sup> hand. Remember DSDE.**
- **Embrase technology**
- **Reskilling – not a one-time event – incl for MD,CEO, Top Mgt.**
- **Adaptive, Humble, Positive**
- **Deeds to be with good intent. Remember this Pandemic.**

..... Until we meet next ....



**Dhanyavaadhagalu!**

Email: [iimbgirish@gmail.com](mailto:iimbgirish@gmail.com)



**Jai Hind**

... and remember, the onus is on  
each one of us, Indians,  
to ensure swift & high quality solutions  
to challenges, just not within our Country  
but to those across the Globe  
In the NEAR FUTURE!