

# How to bring Lean into government agencies? - Looking for the Right Approach



**Prof. N. Raghavan**

Professor of Practice

Indian Institute of Technology Madras, India

1

## No single approach across the spectrum

- Different approaches have to be adopted for different environments- Ex. Lean-mature Finland Vs Lean-nascent India
- Many practical examples are available for Lean in Public Sector for the former
- For latter case or for intermediate cases not many implementation Ex.s.

2

# Various Public Sector Avatars/ Manifestations

In general, Public Sector operates in fig. segments for Projects:

- As Govt. – Policy maker, Regulator, Planner, Investor; Ex. Various Ministries
- As Client– Owner of large Public Enterprises: Ex. Airports, Highways,...
- As a Constn./ Implementation Agency: Ex. Corporations doing construction



3

## Public Sector as Government

- This first Segment is a huge behemoth, steeped in decades of bureaucratic culture and with highly hierarchical procedures, political overseeing
- Difficult to make any headway with Lean practices such as Collaborativeness, Inclusiveness, Continuous Improvement, etc
- Possibly as the other two Public Sector Segments progress with Lean, this one may also be amenable for change!



4

## Public Sector Construction Agencies

- This third Segment has to generally compete with similar Private Sector agencies in the market place for Projects.
- Will start adopting Lean principles and practices once it sees the Private Sector gaining advantage with such practices.
- We need to first ramp up the Lean penetration in the Private Sector agencies arena and then such an impetus may help in approaching this Segment over time.



## Public Sector Owner Enterprises

- This second Segment is vital as it controls a huge extent of Infrastructure Projects and Investments.
- At present this is also having problems of hierarchical practices/ bureaucracy.
- However, once political pressure develops to show results quickly, the agencies concerned will try to mimic private sector practices to improve efficiency.
- They are becoming ripe for implementing Lean Practices



## Characteristics of this Segment

- These agencies generally promote the construction of large infrastructure projects- thermal/ hydro power plants, highways, airports, Oil& Gas projects, etc.
- Their role broadly covers four areas of operation:
  - A) Promoting Projects
  - B) Bidding them out for construction/ implementation on EPC basis
  - C) Overseeing the construction/ implementation
  - D) Facilities Management for these projects



## Possible Roles for Lean concepts & practices

- Possible Roles and progression:
  - A. BIM as a System integrator
  - B. Lean Design/ Engineering
  - C. Overall Lean practices such as IPD
  - D. Individual Lean practices such as Last Planner™
  - E. Lean Culture propagation



# BIM as a System Integrator

- Simplest step; To start with, BIM could be developed across E, P and C by the EPC constructor and handed over to the Agency for Facilities Management.
- Instils good confidence in Lean, as Agency will get a new technology to increase efficiency of implementation and for Facilities Mgmt. with an as-built system having complete breadth and depth.
- The many adv.s of a BIM platform to integrate multiple systems into a common framework, ease of making changes in project contours, possibilities for cost optimisation, etc would kindle considerable interest.



9

# Lean Design & Engineering

- Engg. governs the Project contours giving shape to the initial concepts bridging across multiple disciplines
- Often a problem area for large projects, taking long time for dvpt. and undergoing frequent changes.
- If Big Room/co-location concept is adopted, backed up by a BIM platform & concepts such as DSM, etc, Agencies would witness a sea-change: good integration between various players involved, reduction in number of engineering snags, overall cost optimisation, concurrent visual representations, etc



10

# Integrated Project Delivery

- Concept difficult to adopt for Public Sector, as L1 Price selection is mandated for bidding out.
- Possibly start with choosing IPD partners through a Cost-cum-Capabilities evaluation system.
- A Lean Maturity Rating system used for assessing the efficacy of Lean practices of the various bidders.
- All these would have to evolve over time after practising other systems outlined earlier.
- PPP projects or Joint Sector projects being practiced now could be good starting points.



11

## Further steps

- Where IPD is not possible, bids can stipulate isolated Lean practices by the construction agency, possibly progressively evolving into a Lean Culture.
- Since specific practices or tools cannot be stipulated and monitored over time effectively, monitoring can best be done indirectly through evaluation of the Lean Maturity Rating system for Lean practices followed.
- Other indicators such as PPC, Labour and Equipment Productivities, Lean Audit NCRs, etc can give an indication to the Client on the efficacy of the Lean practices.
- However, weaving in the above in a bid document would be quite challenging!



12

# Overall Indicators and Ratings

- Ultimately the “proof the pudding is in the eating”! Factors such as Timely Completion, Cost savings, Compliance with Quality, Safety and Sustainability norms etc can only bear witness to the efficacy of Lean implementations.
- Owner agencies can evolve a Rating System by which the Constructors are rated in their projects over time for above factors & LMR and given preferences while bidding to be IPD or Alliance partners.



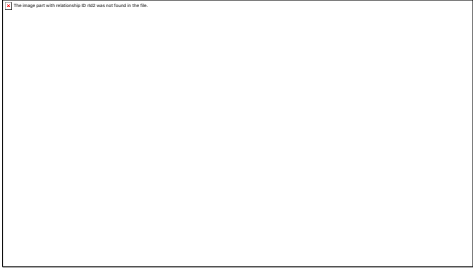
13

# The Final word!

- All said and done, the top managements of the Public Sector agencies have to be convinced of the importance of Lean Construction/ Management and their buy-in important for any of the above to succeed.
- One single approach will not suit all environments and countries. Each situation to be studied carefully & an appropriate solution evolved accordingly.
- Best possibility arises for Priority Projects announced by the political system where results have to be shown quickly, Ex. Indian mega projects such as Housing for All, National Ports Projects, National Highway Projects, etc.



14



# Thank you

