

A Long Way to Go



Petronas Malaysia MG3: Image Courtesy - L&T

The 12th Five Year Plan envisages investments of approximately USD 1 trillion which will contribute about 10 per cent to the country's GDP. The scenario has necessitated the need of globally competent Engineering Procurement and Construction service sector in the country for rapid and sustainable development. Eminent industry stalwarts **B Narayan**, Group President (Procurement & Projects), RIL; **Dr A K Balyan**, Chairman & Managing Director, Petronet LNG; **Dr Benno Lueke**, Managing Director, Uhde India Private Limited & CEO, ThyssenKrupp Uhde Cluster for India, Middle East & Egypt and **Alwyn Bowden**, CEO & Managing Director, Essar Project (India) Ltd argued over the traditional approach of splitting the project in E-P & C followed in India during the panel discussion at EPC World Expo, recently organised by CHEMTECH Foundation.

By
Mittravinda Ranjan and Harshal Y Desai

India will witness huge investment in coming years and a number of large scale projects across industries including chemical & petrochemical, fertiliser, refinery, will be launched. It will create a huge demand for capable EPC companies in the country. However, as the fact remains, Indian EPC companies are not seen as capable partners for many and a lot of foreign players are likely to be benefited.

Reliance industries is one of the largest users of the engineering contracting services in the country but has continued opting for the EPCM mode of contracting rather than EPC services. "We are setting up the third phase of Jamnagar refining complex which is going to require significant EPC efforts," said Narayan, "But where are the EPC players in India?" he questioned. The kind of EPC projects that Reliance is executing are very large in scale and complexities and the so called EPC players in India are not geared to handle them. "The players are more of the E&P contractors with limited capabilities to undertake the risks and provide reliabilities for such large scale projects," he commented. Secondly, they lack the abilities to undertake construction on their own and rely on the sub-contractors for the equipment as well as labour. "As one of the users of the EPC industry, I am looking forward to the Indian EPC sector to grow in terms of project management and execution capabilities to undertake such complex large scale projects," he stated.

On the other hand, Alwyn Bowden said that there are couple of capable EPC players in the country but it is the mind-set of the customers who restrict the ability of the EPC players to executing construction jobs rather than work on all the facets of the project. He said that many of the project owners believe that the project owners can procure more effectively and better than the contractors irrespective of the fact whether they have experience in procuring. As far as construction labour for large mega scale projects are concerned, EPC player still rely on construction service providers, Bowden added.

Dr Benno Lueke echoed the same sentiment and said, "Indian customers

still opt splitting the job than giving it to the single EPC contractor, which comes to around 5-10 per cent of the total project cost. If this is the scenario, a company like us can reach maximum up to 50 million in India and not higher than that." He further added that public sector that forms a major part of the industry in India, do not prefer appointing single contractor for large scale projects and private companies like Reliance Industries could probably be the trendsetters and consider appointing EPC contractors for the upcoming projects.

Why Foreign EPC Players are Preferred?

Dr A K Balyan, CMD Petronet LNG stated, "Considering the burgeoning requirement of energy sector in the country, the gas business sector is going to provide tremendous business opportunities to the EPC players." He said that the willingness of global large scale EPC players to participate had significantly increased in the Indian market and on the contrary participation of the Indian companies had dropped. "Looking at our country's long term growth trajectory, India would definitely offer ample scope for the EPC as well as EPCM players. However this will necessitate the need for the Indian EPC players to improve their capabilities and strengths through collaborations and investments," he explained. He observed that the willingness of global EPC players to participate in has significantly increased in the Indian market whereas there has been a notable drop in the participation in EPC projects of the Indian companies. The opportunities are abundant, but it depends on how Indian EPC players make the most of the opportunity, he added.

According to B Narayan, it is the risk taking capabilities and excellent project management skills that set foreign players apart from Indian companies. "You find more and more companies from Korea and Far East coming forward with the EPC project proposals as they have their own construction equipment and do not mind testing new waters," he said. Narayan is of opinion that the growing competition in the Indian market would compel the Indian E&P companies to increase their capabilities and diversify to become EPC contractors.



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Group President
(Procurement & Projects)
RIL

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Petronet LNG

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Dr Benno Lueke, MD
Uhde India Pvt Ltd &
CEO, ThyssenKrupp Uhde
Cluster for India
Middle East & Egypt

"So far, we acted locally with the Indian people only, but now we have started bringing international talent not only from the parent company in Germany but from across the globe to improve our talent pool."



Alwyn Bowden
CEO & Managing Director
Essar Project (India) Ltd

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However this would require lot of efforts and investment on their part.

Bowden noted that very few Indian E&P contractors with the existing equipment building capabilities had made the leap and become EPC contractors through investment in new technologies. On the other hand, major Korean engineering contractors with existing manufacturing facilities took the horizontal expansion route adding construction as the new vertical thus diversifying their portfolio. Those Korean companies have been recognised and accepted as the EPC companies globally. "We did the same thing in India, but we are still looked upon as an internal construction company and are facing the challenge of being accepted as the EPC company amongst Indian customers which has more to do with the mind sets than anything else. However, on the international platform, Essar is a well-established EPC company and these operations contributes about 45 per cent of total revenue," Bowden said.

The Significance of Lump sum Projects

The contracting formats in India are not much different from contracts operated in USA and many other countries around the globe, except for the Middle East and the Europe where project owners still opt for the lumps sum contracts, a trend that the Indian user industry has continued to stay away from. "Lump sum contracts are not easy, even a USD 100 million project requires tremendous amount of definition in terms of core specifications which otherwise have a high risk of running into debates," articulated Narayan. The whole process of preparing the basic engineering design, defining the processes, fully preparing the directory of specifications, scope of document and asking the bidders to bid on EPC basis leaves no scope for changes later on for the project owner, he added. Moreover this whole process from bidding to appointing the contractors is very lengthy, which at times may extend to over a year and a half before even the project gets started. Public sector projects would be a typical example where the time gap can be seen between getting into the job and when would they let out the job to the contractors.

Contradicting Narayan's statement, Dr Balyan said, "Sometimes the lump sum approach is a better because as an owner we don't want small things to be done separately so we encompass in a bigger package and make single contracting company as the main responsible entity for executing the project until it is commissioned." However, he added, that meticulous planning is the critical part of successful execution of any project or it may require retendering, an experience that Petronet LNG faced for its Kochi project, which eventually turned out to be a boon as the project could be completed in lesser time and cost. Though Narayan fully agrees with the meticulous planning part but is not in favour of the idea of retendering since it takes away important man hours thus leading to unwanted cost and time overrun.

Bridging the Gaps

Indian EPC companies can bridge the gap, if core issues such as talent, contract formats, approval process, engineering capabilities, etc. are addressed appropriately.

The engineering contractors are now developing their project management and construction management skills by bringing in the international talent to enhance their capabilities. Uhde has already taken few steps in this direction, Dr Lueke shared, "So far, we acted locally with the Indian people only, but now we have started bringing international talent not only from the parent company in Germany but from across the globe to improve our talent pool and build the customer confidence and go step by step into larger risk taking projects." However he feels that building international culture could be a bit of challenge but that can be addressed by imparting international training.

Dr Balyan reemphasised on the need to spend enough time on planning and deciding the nitty-gritty of the contract structure, which is one of the most critical part for successful partnership of the project owner and the contractor for the success of the project.

Narayan explained this point further and said, "Reliance has adopted the open

book contract approach, which is the most feasible option when the project is not fully defined to share the risks between the project owner and the services provider. This allows the contractor and the owner to work side by side to procure the hardware as per required specifications since the owner is very much interested that the asset must run for its life span and look at sparing the maintenance and operation costs." However this varies in case of lump sum contracts Narayan added.

Dr Balyan expressed the need of reforms in regulatory mechanisms and change in age old outdated labour laws and that the Indian EPC industry was lagging in order to compete at the global level when it came to lift the skills of our talent. Balyan advocated adopting better practices and being more forthcoming towards complying with the best practices in the industry globally to compete in the global market. He referred E&Y study on Indian universities done five years back which indicated a drastic shortage in producing employable people right up to ten years back despite the fact that India has some of the world class universities and stressed on developing project managers through proper training programmes in the companies.

"Engineers are capable but they lack project management skills," Narayan said. According to him, talent must be identified at early stage and capable engineers should be groomed them over the period of time.

A Long Way to Go

The Indian EPC industry is faced with many challenges but the engineering contractors have been meticulously working towards building their strengths and capabilities to attain global stature for the Indian EPC industry. The future for the Indian E&P players is bright provided they make the right moves in the right direction and look at having a larger geographic spread than just being India centric.

However, this would require enormous efforts on the part of the services providers and the change in mind sets of the project owners to truly create a world class sustainable EPC industry within the country.

Where do We Stand?

Construction capability is indeed a challenge for Indian EPC companies. As discussed by panelists, there are not many of them in country which can really eliminate user industry's dependence on foreign players. Some EPC players are doing extremely well, but they can be counted on fingers of one hand. EPC sector needs to be strengthened to take up the challenge. The 12th Five Year Plan has opened up a number of opportunities for all players in the EPC space as the performance of this sector is closely aligned to growth in infrastructure investments. The major beneficiaries would be EPC contractors in Oil and Gas, Power, Roads and Railways. **CEW sought views of some of the key leaders on their capabilities and their strategies to deal with the prevailing issues. Excerpts:**



K Venkataramanan
CEO & MD
Larsen & Toubro Limited

L&T would like to play the role of responsible front runner in nation building and would like to take advantage of Investment thrust especially in the sectors like hydrocarbon, power, urban infrastructure, transportation infrastructure, water projects, nuclear, space and defence.

EXTERNAL CHALLENGES

K Venkataramanan: The key challenges that EPC industry currently faces are many. Land acquisition is at present the major roadblock for infrastructure development. Many projects are planned and often awarded without substantial parts of land being acquired. Further, delay in regulatory and environmental clearance is another major issue. Some more issues are prolonged deferment in investment cycle due to complexity and size of infrastructure projects and bureaucratic framework; currency and commodity price fluctuations along with interest rate burden; talent acquisition and retention; etc.

There is stiff competition in the EPC sector with entry of new players. Many EPC players without proper technical and financial credentials are entering the market by taking advantage of relaxed bid evaluation criteria. This often leads to projects not completed on time and with significant cost overruns.

Sanjay Joshi: On the exploration side, Indian companies are facing challenges in deep water exploration as the financial

risks are very different. We have over fifty years of invaluable experience in the area of exploration and production in deep water and under harsh conditions especially in the North Sea. Although we do not directly contract EPC services, we do believe that a more conducive climate for EPC contractors will help the industry grow further. Currently the terms and conditions are skewed towards the buyer and push all the risks onto the EPC contractors.

Arun K Jain: External conditions affect all businesses and I believe that this fact is understood and appreciated by most EPC players. Among the external factors which EPC players need to recognise and address are the changing structures of the world economy, national socio-political conditions that can often result in bureaucratic business barriers, the threat of subversive activities leading to unsafe site working conditions and local content requirements. Other challenges, such as shortage of skilled resources, unethical practices, volatility in commodity prices, and increased competition are also factors which EPC players have to address.



Sanjay Joshi,
MD,
Aker Powergas Pvt.Ltd

The proposed investment of oil and gas which is around ₹ 2623 billion augurs well for us, as this will propel demand from upstream and downstream companies.

The challenges require a concerted effort on the part of all EPC players to create conducive business conditions for the EPC industry. For sustenance, silo thinking amongst EPC players must give way to coordinated action. Fluor has taken a small but important step in this regard by organising a Business Integrity Workshop in concert with CII to assist EPC companies in adopting common anti-corruption principles to ensure a level playing field.

J P Haran: Tata Consulting Engineers Limited is an EPCM player in the projects. We offer integrated engineering solutions in key industry segments and our services range from concept to commissioning such as Pre Project Activities, Basic & Detail Design Engineering, Procurement Services, Inspection & Expediting, Project Management & Co-ordination, Construction Supervision and Commissioning Support. Some major external challenges are timely clearances for land acquisition, funds, raw material linkages, regulatory and environmental clearances, etc. These challenges at times considerably hamper the progress of projects.

Swarup Mukharjee: In Indian context the major challenges remain private industry's ability to arrange funds to service the project

requirement leading to major cash flow issues. Apart from this other major external challenge is local administrative and political interface at the time of execution.

HANDLING LARGE SCALE PROJECTS

K Venkataramanan: L&T has garnered a reputation for executing multiple large projects in parallel. On schedule delivery, cost competitiveness, international quality standards with focus on best-in-class HSE practices – all form key aspects of the our business philosophy. Company has built manufacturing capacities in areas of strategic significance and in low cost regions.

Some of the major challenges faced by EPC companies in executing such large scale projects are mainly managing vendors, finance, retaining and hiring new talents, increase input costs.

L&T is constantly striving to address these challenges by adopting In-house engineering with state of the art software and hardware; Expeditious execution: exceptional coordination between all disciplines ensuring deliverables from various disciplines/departments as per requirements and pre-set targets. The challenge for PMT team was to ensure healthy interaction between all disciplines; Global procurement including from Low Cost Countries (LCCs); Project purchase agreements; Change order management in line with international practices; Rigorous working capital management; Productivity improvements measures such as automation in construction, construction driven EPC planning; Effective use of established IT enabled project management systems; Implementation of Innovative ideas like team building workshops covering all stakeholders (including clients & PMC), ICONS, project completion bonuses etc; Institutionalising a five step leadership development initiative in association with a global consultancy firm to ensure robust leadership pipeline; Establishing L&T Institute of Project Management for creating global project management professional there by making L&T as a centre of excellence in project management; and Establishing

Safety Innovation Schools at Hazira and Kanchipuram to train contractors and employees to integrate skill set and safety.

Sanjay Joshi: Aker Solutions is probably the only player to be in the entire value chain. Our services cover the entire spectrum of activities in the oil and gas sector, right from the initial phase of conceptualisation to FEED (Front End Engineering Design) and to execution of complex projects in the sector. We also supply key equipment like subsea manifolds, umbilicals and technology packages for oil and gas processing.

Execution of complex projects requires specialised skill sets. To address the acute shortfall of skill sets that we see in the industry, we have developed training programmes where we develop our young engineers. During training we take them through various modules designed by different departments and thereby create a strong base for our project execution. Large scale procurement is also a challenge which is taken up by our supply chain team.

The complex nature, pace and size of the projects necessitates the use of intricate planning and scheduling software. We also have a proven integrated delivery model in place and it has led to successful execution of projects in the upstream and downstream sector.

In addition to that, value engineering workshops are conducted, very often at the concept definition stage itself. These workshops are attended by all major stake holders and often result in major savings in time, material and resources. Both our Mumbai and Pune offices have also been designed so as to accommodate large taskforces for fast tracking complex projects.

Arun K Jain: Fluor has a long tradition of handling complex, world scale projects across geographies. What equips Fluor well for mega project execution is Proven work processes tested on several such projects. In response to changing business dynamics and differing regional

considerations, Fluor continues to re-visit its work processes, systems and practices; Extensive training via Fluor University to upgrade skills and mitigate the effects of workforce flux; Re-use of historical data efficiently stored in a central knowledge repository called Knowledge Online and quick access to acknowledged subject matter experts for resolution; Strong network of worldwide offices spread across the continents; and Multi-office execution to quickly summon the large work teams required to execute mega projects.

J P Haran: Our organisation is quite well equipped to handle large scale projects. The internal challenges across the areas such as effective management of project execution, cash flow, procurement and construction are in terms of managing the ever changing customer and project needs and while benchmarking with best of international companies. This makes it imperative for us to constantly keep improving on capabilities and capacity building. In order to address these challenges we have well organised processes in place that help us work towards continuous improvement.

Swarup Mukharjee: For handling large scale projects, following points are crucial: **Effective project management:** Project management for ensuring both time and cost remains a big challenge despite drastic improvement in availability of various tools and communications. Though there is substantial improvement in 'on time delivery', absence of full kitting at micro levels brings up the Murphy. We are highly structured with designated project groups for complex projects and geared up for proper implementation of large scale projects. We are working to reach to the standards set in many developed countries. Various tools like integrated project management and critical chain management is being debated to take us to the world class management levels.

Cash flow management: Availability of debt fund in last financial year remained costly and hence as a corollary cash flow management continues to govern the project progress. This becomes further complicated due to inability of various customers

including electricity boards to meet the financial commitments for the project.

Procurement and bulk: Supply side availability of major raw materials was not major constraint in the last year primarily due to slow down and capacity utilisation issues of major suppliers. Here again the major challenge was arranging specialty material required for high technology projects and quality of the supplies. As we have specialised groups for procurement in different types of engineering goods we do not foresee any issue in near future.

Construction management: Going forward availability of labour is going to be a determining factor for pace of construction. Substantial reduction in the labour pool due to availability of some employment through NREGA and other subsidies in the rural area are observed. This in turn is pushing up the construction cost. On the brighter side availability of better material handling equipment and processes aids to reduction for the requirement of the unskilled labour. Accordingly we are looking for more mechanised construction in major projects.

RISK MITIGATING STRATEGIES

K Venkataramanan: L&T has a very robust risk management protocol for evaluating viability, profitability, credit worthiness along with operational and technical risks of the projects during proposal as well as execution stage. It is observed that Indian companies have initiated to build and maintain a risk culture in the organisation. They have started taking advantage of software tools to make informed decisions. Tools for cost estimation which tells the percentage confidence attached to your bid value based on the uncertainty in the cost elements, Contingency calculation and Schedule risk analysis which highlights primary schedule drivers. Further, some companies are also focusing on opportunity management while dealing with risks having negative impacts. Companies have realised the importance of efficient resources management. Utilising the expertise developed over several years and take learning's from past projects. Not only focus on 'what went wrong' but also on 'how things could have been done better'.



Arun Kumar Jain
Managing Director
Fluor Daniel India Pvt Limited

“Fluor has kicked off a business transformation initiative. A number of strategic groups, while drawing on Fluor’s 100 year legacy, have looked at significantly improved ways and means of achieving sustainable growth in the next 100 years.”

Sanjay Joshi: To increase the ability to take risks, it is absolutely critical for EPC companies to establish robust processes for risk identification and risk management. Such a process would address risks identified at both the sales and execution stages of the project. We actively assist our customers in identifying and mitigating such risks throughout the lifecycle of the project. Early placement of orders for critical and high value items is vital to securing the major part of the project cost. Ensuring that our deliveries are adhered to reduces the risk of schedule overruns. Critical elements in this are the improvement of engineering capabilities to avoid cost overruns down the line, and development of FEED capabilities to facilitate LSTK bidding.

Arun K Jain: Most contract forms in India are skewed against EPC contractors whilst also seeking to pass on all risks to EPC contractors. To overcome this inherent bias, a robust risk management framework to identify risks, agree upon mitigation strategies, implement actions and monitor residual risks is required. Fluor implements risk management progressively via selectivity in bidding, proposal risk review, delineation of mitigation execution

methodology and effective project management and handover.

J P Haran: We are an integrated engineering solutions provider and often work with EPC players. Focusing on risk mitigation strategies by effective planning and adequate pre-bid engineering is a key need. This with better clarity on procurement strategies will enable EPC players manage their risks better.

Swarup Mukharjee: As a mitigation tactics, EPC players need to clearly mention the tax change issues in the contract stage. The currency fluctuation can be addressed in the traditional methods of hedging as well as cost diversification to source material/ services in appropriate currencies. Various insurance products are becoming available though at a higher cost to mitigate risks like terrorism etc.

BUILDING SUSTAINABLE EPC INDUSTRY

K Venkataramanan: Leveraging domestic track record EPC companies should try to expand their portfolio internationally which will help them to grow on sustainable basis. Benchmarking with global EPC players will certainly be of great help. Following points must forcibly be considered to ensure sustainable development:

- Stringent qualification criteria needs to be developed to ensure that projects are timely completed without any cost overruns for the client.
- Streamlining the land-acquisition process.
- Fast-tracking policy and regulation reforms for their enhanced implementation.
- Facilitation of funding for infrastructure projects.
- EPC companies need to improve their financial and balance sheet strength to be able to take on larger jobs.
- Indian EPC companies need to significantly improve their front-end engineering capabilities.
- Deploy latest construction methodologies and techniques, both managerial as well as technical to execute projects faster and to better quality.
- Develop empowered project managers, so that they can act as more than just coordinators, and can interface with the senior most levels in the client hierarchy and take decisions to resolve project issues.
- Emphasis is on technical leadership development. Companies should encourage multicultural leadership and international exposure in order to develop their leadership pipeline.

Sanjay Joshi: Employing prudent risk management strategies and optimum project scheduling abilities with stronger focus on HSE will help the Indian EPC industry be more sustainable. There is also a strong case for making the terms and conditions on such contract less onerous and more amenable for sustaining the EPC industry in India.

Arun K Jain: EPC companies are actually master builders. A plant designed and built by an EPC company will generally last for 20 or more years. We owe it to our society and ourselves to act in a sustainable manner. Some actions that Fluor has implemented in its quest to increase the sustainability of operations are Strategies that have reduced its carbon footprint by more than 30 per cent; Reduced water and energy consumption in our offices and the plants that we build; Creating and enhancing local resources and skill-sets; Modularisation of plant at shops to reduce disruptive impact of site work on local



*Swarup Mukherjee
President-Projects
Walchandnagar Industries Ltd*

“The investment will lead to cascading impact of growth to the capital intensive manufacturing industry as well. The investment in the nuclear power projects and other power plants indirectly has growth opportunities in EPC sector in which for our organisation may be benefited.”

infrastructure and communities; Identification of, and support for, local vendors and contractors and Volunteering and monetary efforts in the communities in which our offices, plants and projects are located.

J P Haran: Indian EPC industry can be sustainable as long as they continue to offer reliable services with full focus on cost and timely delivery along with total compliance to international quality standards.

Swarup Mukharjee: Considering the consumption needs of the developing nations, the requirement of industries in the core infrastructure sectors like power, oil & gas, roads and civil constructions will continue to remain in demand. Hence sustainability of the EPC business in the developing for underdeveloped countries is assured in the foreseeable future. However increasing risk in the EPC business is likely to make the EPC organisation more and more conservative in taking risky projects.

EPC industry in general is showing the phase of maturity in Indian perspective. Growth in the industry will primarily hover around the Government’s injections into the drivers of infra projects and international project where Indian companies can take advantage of manufacturing cost arbitrage. ■



*J P Haran
Managing Director
Tata Consulting Engineers Ltd*

“Tata Consulting Engineers offers integrated engineering solutions and is closely linked with sectors such as energy, transport, urban development and infrastructure. We, as engineering consultants, see opportunities in these sectors.”