

Visit Report

November 2004

For 2 weeks at the end of November 2004 I toured India as guest of Composites Centre International. During that time I made many friends and viewed many factories in Delhi, Hyderabad, Pune and Mumbai. This note summarises the factories and technologies I saw and attempts to draw some useful conclusions.



Left; CCI HQ in Hyderabad Right; Seminar in Hyderabad sponsored by APITCO

The spread of capabilities was considerable, the best companies are world class with automotive system approvals and smart single level factories which are producing products for both home and export markets. The balance serve their indigenous markets with varying degrees of success.



An example of a company ideally suited to its market, Suvarna in Pune manufacture a large range of FRP parts varying from military equipment to windmill structures. CEO, P.I.Varghese seen here with me at their site in Pune, has received many awards from the Indian Government.

Organizations such as CCI, Maharashtra Chamber of Commerce, APITCO and others are keen to provide support to Indian composites producers. They all share the view that the dollar/euro cost to SMEs of foreign consultancy was excessive and that a co-operative attempt to make a once off transfer of technology to Indian trainers should be undertaken. This would enable training to be delivered in India at Rupee rates.

The principle observation I have to make is that Indian SMEs in the composites sector have not yet made the transition to leading customer expectations. They are happy to deliver what the customer expects, whereas European and American companies, driven by Japanese competition, and trained by Demming in the late 1970s, set out to please the customer and lead him to even higher expectations of quality and service. Only one Indian company included a wow factor in their mission statement.



Miland Upasani CEO of ICE in Pune demonstrates their indigenously designed RTM process which is used to make machine covers. of very high quality.

Sadly there are instances where major customers had abandoned composites all together due to poor quality from suppliers and it has only been through sustained lobbying by CCI that these customers are reconsidering their position.

The low cost of labour has made high levels of rework the norm since it is actually cheaper to "fix it" rather than "do it right first time", however rework causes disruption to the materials flow, missed delivery schedules and poor cash flow, so the emphasis needs to be on Right First Time even though the economics are skewed by low labour costs.

Additional training for laminators and an indigenous source of inexpensive accessories such as specialist rollers would be of benefit.

During my visit I identified that India has the indigenous capability of producing advanced composites from raw epoxy and carbon fibre, through weaving and 3D composites to pre-pregging, vacuum infusion and autoclave curing. With support from IIT in Delhi and MCCIA in Pune there is the possibility of providing world class research and test capabilities to back up

these indigenous materials to a standard which could be sold in European Markets. I identified several companies who have reached very high quality standards and have the infrastructure to move to high technology composites for exports. These companies are in the vanguard of the Indian Composites Industry. Where they lead, others will surely follow.



The Indian Institute of Technology in Delhi has a unique co-located capability in textiles and resin systems.

The technology of composites is ideal for India, and Indian designers are capable of reading across high technology ideas into clever low cost solutions for Indian infrastructure. Examples of this were found in the railway engineering, road transport and energy sectors of the Indian economy.

The CCI objective is for India to become a world hub for composites design and manufacture.