Winds of change are blowing across every sphere of construction in India. It is perhaps nowhere as significantly evident as in the case of formwork systems that go hand in hand with scaffolding systems that are gradually becoming a part and parcel of the construction process in the Indian scenario. Formwork, which holds and supports wet concrete till such time it cures, is a very vital element in concrete construction. With formwork systems being important for proper curing, their use has long term implications that cannot be neglected.

One of the reasons for the increasing emphasis on formwork systems has been the growth in the number of high-rise structures and mega infrastructure projects in the country. Along with the increase in the number of these structures there has been a corresponding evolution of the formwork and scaffolding systems too. Earlier timber-based poles scaffolding were the staple in the Indian construction industry. They gradually gave way to pre-engineered systems that are usually made up of aluminium, plywood, steel or in some instances even plastics. With contractors almost always racing against time for project completion, a need for formwork systems and scaffolds that were relatively easy to establish and dismantle was felt. The advent of latest formwork systems from the developed world, has dramatically transformed the construction process. Faster construction, lesser labour and superior finish, all of which are possible with formwork systems has driven up their popularity.

Still at a Nascent Stage

While there is no denying the existence of several global players in the scaffolding and forming industry in India, the point to be noted is that the industry in itself at a nascent stage, catering only to about 50 percent of the total requirement. The global economic slowdown has been one of the reasons for stalling the growth rate of the sector in 2008 and 2009. The gradual rise of steel prices, almost to around 1.75 times in the past one year, has been another hindrance to the growth of the industry, since steel is the major input in the manufacture of scaffolding and formwork equipment. Despite the setbacks, the increased buoyancy in the construction scene, which is growing at a healthy rate of 15-20 percent and the economy recovery has meant that today there are several leading players vying for their market share. PERI (India), Doka, Mewa & Tac System Formwork, Dynamic Scaffolding and Equipment Co, Skaf Enterprises, Uday Structural, MAINI, etc are some of the leading names that are offering scaffolding and formwork solution in the market.
acceptance of formwork systems by builders and contractors. IS 14687:1999 is the only code that which talks about formwork. This paucity of codes had earlier lead builders and contractors to neglect the vitally important component of formwork systems in the construction process. Most of the formwork specialists in the country today use DIN standards that are from Europe for this very reason.

With increased overseas exposure and with the advent of the Internet, it was in the 1990s that builders realized that even though formwork is a temporary installation, it has an all pervasive impact on the construction process. The formwork system that is used in a construction site has its impact on the cost, quality, as well as the speed of construction. As a simple thumb rule, formwork costs about 15 percent of the total project cost. Formwork systems are also present up to 50 percent of the overall time of construction of a building.

Formwork systems are forever evolving with respect to the type of materials used, the size and the number of panels or connections that are required to form the whole system. The trend nowadays has definitely shifted towards engineered formwork. With increased emphasis on meeting strict project deadlines, especially with regard to housing projects in urban areas and in the case of infrastructure development projects, innovation in formwork technology has been driving the industry. The challenge before companies specializing in formwork has been to deliver systems that are safe, economical, and functional, at the same time.

One of the astounding pieces of innovation that has made its entry into India in recent times is the use of climbing formwork systems. They have cut out the need to provide scaffolding support to the formwork that drapes the external wall. Anchors are provided in the already cast wall as part of the climbing formwork system. A bracket is hooked onto the anchors. The brackets are provided with working platforms, which do not sway and are safe for the personnel working on them. The working platforms can be gradually shifted to the next level, thereby saving cost, time, and labour. Automated climbing platforms too have made their appearance in the country. In these systems the brackets which support the working platform climb smoothly on rails. Hydraulic
pumps are used to facilitate the climbing process in these automatic climbing systems. The use of climbing systems enables faster, efficient and cost effective construction.

Leading names in the industry such as PERI (India) and Doka have already successfully used climbing formwork in their projects. Doka has used climbing formwork successfully in the Bandra-Worli Sea Link Project. With a lot of emphasis on research and development companies today are coming out with innovative techniques to customize their solutions according to the specific needs of customers. Mewa & Tac System formwork, which helps in expediting project completion times, is another company that is known for its product innovations. Another good example is the introduction of aluminium and timber based scaffolding and formwork systems that are gradually making their entry in the market now.

**Need to implement safety regulations**

One of the issues which need the immediate attention of all the stakeholders involved in the construction process is address the safety issue. Since almost 60 percent of any construction work is carried on the scaffolds, accidents during or after the installation of scaffolding or formwork system is not uncommon. While in the developed countries, there are specific regulations available in the constitution to deal with accidents pertaining to scaffolding and formwork systems at construction sites, there is gross negligence of this aspect in India. This is an issue that industry experts need to address at the earliest. The use of protective equipment including trolley lines, points of anchorage, harnesses, and body belts need to be strictly implemented at construction sites to prevent accidents. Roadside fabricators and scrap scaffolding and formwork systems are areas of major concern, which the government needs to address in order to strictly enforce safety regulations. With around 75 percent of the accidents in the industry due to faulty erection, IS ranked manufacturers and materials are the way forward for the market. Implementation of safety regulations will further boost the growth of the scaffolding and formwork sector.

**Rentals to the rescue**

The general lack of awareness about scaffolding and formwork systems till now had given the typical Indian client the perception that using them is an expensive proposition. The key actually lies in proper planning of the formwork and scaffolding system before they are installed. Since most of the member sizes will be
repeated, it is preferable to build consistencies that allow for repetitious construction. The structure's design too must be such that it provides for sufficient anchorage for the formwork and scaffolding system. All these steps ensure reduction in the overall project cost.

The burgeoning rental scene has also been responsible for giving the much needed fillip to the scaffolding and formwork sector. Rental solutions have come in handy, especially for smaller contractors, for whom buying equipment would add to their financial constraints. Even leading developers and major players in the realty sector today are open to looking for rental options, for the flexibility it offers. The problem though lies in the fact that there are very few rental companies dealing with scaffolding and formwork systems. With rising demand for these equipment, it is only a matter of time that there is an increase in the number of rental companies offering scaffolding and formwork systems on hire.

**High Levies Stunting Growth**

The increasing cost of steel, sales tax, and excise duty are the factors that are inhibiting the growth of the scaffolding and formwork industry. With the sector gradually moving towards light weight and strong materials such as aluminium, higher levies have become a stumbling block, since end-users are forced to re-look at their purchase policies. Manufacturers are looking towards the government to take steps to reduce duties and levies or at least help them procure raw materials at reasonable rates, which would give fillip to the growth of the industry.

**India as an export hub**

The Indian scaffolding and formwork market has seen several global names make an entry. Many domestic firms are also tying up with overseas players in order to leverage the latter's technical strengths. The abundance of technically skilled and qualified manpower in India has meant that several companies today are looking at India as a potential hub for scaffolding and formwork systems. There is a huge demand for both the systems as well as accessories in the Gulf countries, South East Asia and Australasia regions, which were till now dependent on Chinese technology. With leading players making their presence felt in India, it is only a matter of time before scaffolding and formwork systems are exported to the neighbouring countries in the region. With the domestic construction market growing at an unprecedented rate of 15-20 percent and with the opportunity for exports, the scaffolding and formwork industry in India is set to grow exponentially in the next few years.