

**Stainless Steel Usage Growing Rapidly**  
**Rides on the transport and construction sector growth**  
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**Indian economy nudges a perfect 10 in 2006-07**

Double-digit growth in the economy is no longer the preserve of China or some oil economies. India's growth rate for 2006-07 is likely to be revised upward from the current estimate of 9.4% to almost 10%. India's GDP increased by 9% in 2005-06, and 7.5% in the year before. Per capita income has grown by 8.4% in 2006-07 against 7.4% in the previous year.

This rapid growth of the economy combined with the government's priority on infrastructure has seen tremendous growth in the construction, transportation and the process industry sectors. In construction and transportation, particularly rail transportation, stainless steel is a new preferred material of construction because of its light-weight, corrosion resistance, aesthetics, minimal maintenance and durability. In the process industry, various grades of stainless steel are mandated. As a result, the growth of stainless steel usage in the economy as a whole is growing at a faster pace than the GDP at about 14-15% per annum.

In previous issues of 'JPC Bulletin on Iron & Steel', we have chronicled the spread of use of stainless steel in new user sectors such as construction and transportation. This article focuses on the new applications emerging in these sectors. The continuous growth in the use of stainless steel in existing sectors and the spread of stainless steel into newer applications is driving the future of stainless steels in India.

**Introduction**

Not long ago, stainless steel was considered good only for kitchenware by the common man and professionals in the construction industry and the transportation sector. The process industry professionals, such as power generation, chemical industry, pharma, food and dairy, however, knew the importance of stainless steels for their every day operations. Now, ever increasing numbers of architects, designers, railway engineers, auto industry professionals, city planners, civic agencies, airport, railway station and road transport authorities and even designers of malls, multiplexes, retail space etc., have realized that stainless steel with its elegance, durability and minimal requirement of maintenance is ideal for their use and in fact prefer this over traditional materials.

**The present**

India has been outpacing global stainless steel growth rates consistently over the last several years. During the last 15 years, Indian stainless steel production has grown at an average of 16% per annum against the world average growth rate of 6%. The Indian stainless steel market is expected to grow by 11% annually during the next decade.

During 2004-05, India's stainless steel production was 1,708,000 tonnes. India's share of world production rose from 2% in 1991-92 to around 7% in 2004-05.

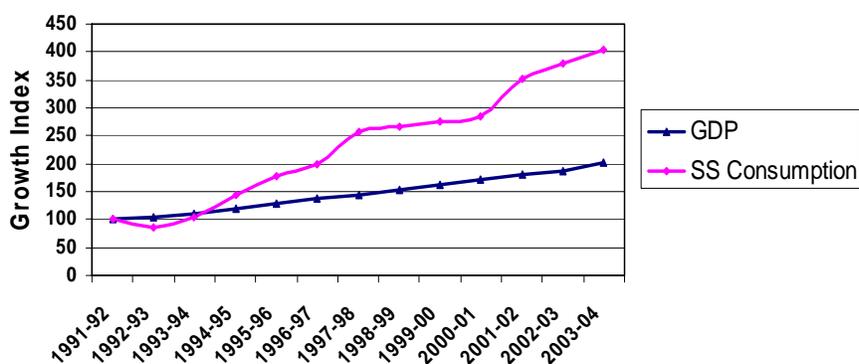
### Distribution by Product Form and Grade (2004-05)

Production tonnes	Flat products %	Long products %	200 series %	300 series %	400 series %
1,708,000	80	20	74	22	4

### The GDP factor

The last 15 years' stainless steel consumption data in India indicates a strong relationship with the GDP.

### GDP vs SS Consumption



Given the past trend, a 6% increase in India's GDP is likely to result in 11.6% growth in domestic consumption of stainless steel.

### End-use pattern

End-use sector	2004-05	Estimated 2015-16
Metal products (mainly kitchenware)	75%	53%
Process industry	10%	12%
Construction	2%	12%
Transportation	2%	6%
Engineering	5%	6%
Electro mechanical / electronics	2%	3%
Others	4%	8%
<b>Total (tonnes)</b>	<b>1,154,000</b>	<b>4,084,000</b>

At 75% market share, the kitchen utensil and catering sector continues to be a major user for Indian stainless steel. In the late 1980s, this sector had a market share of 85%. This market share is expected to reduce further to 53% in 2015-16. But kitchen utensil tonnage is expected to increase from 865,000 tonnes in 2004-05 to over two million tonnes in 2015-16.

Due to the persistent efforts of ISSDA and its member companies, the share of the construction and the transportation sectors have increased from a hitherto 'almost nil' level in the 1990s. Use in the construction sector is expected to rise from the present 23,000 tonnes to nearly 500,000 tonnes in 2015-16. The corresponding figures for transportation usage are 23,000 tonnes and 250,000 tonnes.

Compared to the overall expected growth rate of 11% in the next decade, long products are expected to grow at a faster rate of 15% while flat products will witness 10% growth. The projected apparent consumption (2015-16) is expected to be about four million tonnes.

### **Construction sector**



The construction sector is booming. The current stainless steel consumption in this sector (includes sinks, elevators, architectural products like hand rails, roofing, cladding etc, street furniture and builders' hardware) during 2004-05 was about 28,000 tonnes. In this sector, on account of this boom, it is expected that by 2015-16, the stainless steel consumption will rise to 500,000 tonnes per annum.

### **Urban renewal**

Delhi is getting set to lead the way for all metros and other cities in the country in terms of urban renewal --- especially with generous use of stainless steel. Through innovative means of financing, the municipal corporations plan to convert just about all public railings, in shopping centres, parks, bus stops, foot paths, road dividers etc. into stainless steel. In addition, seating in all public areas including parks, the playground equipment there etc., will also undergo a switch to stainless steel. Dust bins in the city and food vending carts will also be converted soon.

Such a massive and visible presence of stainless steel will not only show the way for other cities leading to mass usage, but will fundamentally change the attitude of architects and designers towards stainless steel and encourage them to innovatively use this material in a lot more products and applications. Hopefully, in a few years' time India will be aflame with widespread use of stainless steel across the country.

### **Few Thousand Stainless Steel Bus-Q-Shelters coming up in Metros**

In preparation for the Commonwealth Games in 2010, the New Delhi Municipal Council (NDMC) has already started replacing all the existing bus shelters in its jurisdiction (about 225), made of concrete and carbon steel with sleek stainless steel bus shelters. M/s JC Decaux Advertising Pvt Ltd is in charge of putting up these bus shelters. Each bus shelter approximately uses about 900 Kg of stainless steel.



One of the new 225 bus shelters in the New Delhi Municipal Corporation area

The Delhi Transport Corporation (DTC) with its plans to redefine the street-space of Delhi has awarded the contract of construction operation and maintenance of 225 plush and modern bus-q-shelter on BOT (Build Own Transfer) on a lease of ten years to Jindal Stainless Ltd.



One of the new 225 DTC all stainless steel bus-Q-shelters

The 225 stainless steel bus shelter with unique design and provisions are aimed at giving a bridal make up to the city of Delhi as it hosts the next Commonwealth Games. These bus shelters would be placed alongside the road stretch starting from Delhi International airport to the Ring Road from Rao Tula Ram Marg, till upto ISBT, Nizamuddin, adjoining areas near JLN Stadium, IG Indoor stadium, Yamuna Velodrome, Commonwealth Games, including areas near New Delhi & Old Delhi Railway station, Red Fort etc. The conceptual designs of the bus shelter have been provided by Rites, consultant to DTC. Another 500 stainless steel bus-Q-shelters will up in Delhi shortly, in the upcoming High Capacity Bus Corridor. These bus-Q-shelters will be double in size.

In Mumbai, 1,500 such gleaming stainless steel bus-Q-shelters are to shortly come up. Another 500 in Hyderabad and 364 in Chennai. Do not be surprised if a lot more cities, big and small, adopt this as the standard for their bus stands.

### **Modernization of Airports**

Airports in the country are vying with each other to go beyond flight operations. Call it an aeropolis or aerotropolis – that's the buzzword in Delhi, Mumbai, Hyderabad, Bangalore and Nagpur. With city centres, plush hotels, convention centres, restaurants multiplexes and banks, the airport projects in these centres aim to become self-contained cities. The airport city theme is gaining ground with greenfield airports at Hyderabad and Bangalore providing enough scope even as the proposed cargo hub at Nagpur plans to include a special economic zone (SEZ) besides logistics facilities and a township.

Not to be left behind, the joint ventures modernizing Delhi and Mumbai airports are also planning to host hotels, retail space and entertainment options. A similar attempt is expected by smaller airports as the government goes in for upgrade of 35 non-metro airports.

While the government is expected to invest Rs. 12,000 crore in modernizing airports over the next five years, current estimates indicate private investors and developers would pump in Rs 24,000 crore.

The Hyderabad and the Mumbai international airports are also scheduled to get luxury hotels, convention centres and speciality restaurants by 2010. The Accor Group, for example, is planning a 309-room business hotel at the Hyderabad airport.

### **Railways**

The Indian Railways is the largest railway system in the world under a single ownership. The Indian Railways is drawing up an ambitious Rs 1 lakh Crore modernization plan spread over the next five years. This amount will be spent on modernization of railway signaling, track and rolling stock so that modern services could be provided to passengers in their coaches and platforms and freight customers at low prices by bringing down the unit cost.



Stainless steel furniture for passenger comfort at railway platforms and lounges

**Coaches:** The Indian Railways have been producing painted stainless steel passenger coaches for important trains such as Rajdhani and Shatabdhi. Now the railways plan to convert all new production of railway passenger coaches (about 3,000 per annum) to unpainted stainless steel coaches. The Railways are considering 300 series (nickel-containing) stainless steels for all exterior surfaces on account of their superior corrosion resistance to withstand the harsh tropical climate in India and a suitable cost-effective steel for all internal structural members. Stainless steel is also specified for a good amount of furnishing inside the coaches.



Delhi-Mumbai Rajdhani Express

Delhi-Lucknow Shatabdi Express

**Stainless Steel coach fabricated with LBH Design(Germany)  
at the Rail Coach Factory, Kapurthala**

**Wagons:** About 80,000 MT of 409M is being tendered by the Indian Railways to make 7000-8000 coal wagons in 2007-08. Each of them uses about 10T of 409M. This quantity is likely to multiply in the years to come as Indian Railways is considering stainless steel options for ores, minerals, fertilizers, food grains, lime stone, fly ash, cement, oil tankers etc.



Australian stainless steel coal wagon



Painted stainless steel coal wagon of the Indian Railways

### **Metro coaches**

Expansion of Delhi Metro's services and adoption of the Delhi Metro-type transport system, using all-stainless steel coaches, is being replicated in other cities like Mumbai, Bangalore, Hyderabad, Ahmedabad, Chennai. This will significantly add up to stainless steel tonnage. Each coach uses 12 tonnes of stainless steel.



Delhi Metro Coach

**Delhi Metro to get 340 more rail cars:** Montreal-based Bombardier Transportation recently won a \$590 million order for 340 rail metro cars from Delhi Metro Rail Corporation (DMRC). Deliveries of the trains are scheduled to begin in the last quarter of 2008, with the final deliveries expected to take place in 2010 before the Commonwealth Games. In the phase-II expansion of Delhi Metro, Bombardier's metro cars will transport 4 million passengers every day.

The vehicles integrate the world's most advanced technologies in metro vehicle manufacture, such as stainless steel car bodies and Mitrac-propulsion and control system featuring IP technology.

**BEML to supply 156 standard gauge coaches for Delhi Metro:** M/s Bharat Earth Movers Limited (BEML) has emerged as the lowest bidder to supply 156 coaches for about Rs 1,200 crore to Delhi Metro Rail Corporation. This would be the first time when standard gauge metro coaches would be manufactured in the country. Earlier orders of DMRC have been for broad gauge metro coaches. BEML manufactures coaches in the country after a transfer of technology agreement with Korean firm Rotem. The negotiations for the tender are going on as on date, and the coaches have to be delivered before the 2010 Commonwealth Games to be held in Delhi. Delhi Metro is rapidly expanding its coverage of the city and every few months more is added to their plans.

### **Conclusion**

In the immediate future ISSDA plans to make inroads into the transportation sector like stainless steel structural members and panels for buses, trucks for transportation fish and other materials, introduction into indoor plumbing and water & sewage treatment industry.

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