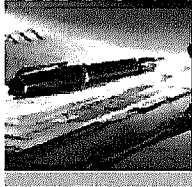




STEEL AUTHORITY OF INDIA LIMITED



Steel Learning Centre

FACTS AND FIGURES

Iron and steel in history

It is believed that iron in pre-historic times may have been obtained from fragments of meteorites and it remained a rare metal for many centuries. Even after man learned how to extract iron from its ores, the product was probably so relatively soft and unpredictable, that bronze continued to be preferred for tools and weapons. Eventually iron replaced the ferrous metal for these purposes when man learned how to master the difficult arts of smelting, forging, hardening and tempering iron.

Man's use of iron in antiquity is attested by references to the metal in fragmentary writing and inscriptions from the ancient civilizations of Babylon, Egypt, China, India, Greece and Rome. Archeological finds in Mesopotamia and Egypt are proof that iron, and later steel, have been in the service of mankind for almost 6000 years. In early times, iron was melted with the use of charcoal made from wood. Later coal was discovered as a great source of heat. Subsequently, it was converted to coke, which was found to be ideal for smelting of iron ore.

Iron kept its dominant position for around 200 or more years after the first successful iron works in America, was founded in 1646. With the advance of the Industrial Revolution, iron found its use for the newly invented railroad trains. It was also used to armour the sides of the fighting ships. About the mid-19th century, the age of steel began with the invention of the Bessemer process (1856), which allowed steel to be made in large quantities and at reasonable cost.

Use of iron in ancient India

Indian history is also full of references to the use of iron and steel. The massive beams used in the Sun Temple at Konark bear ample testimony to the technological excellence of ancient Indian metallurgists.

The use of iron in India goes back to the ancient era. Vedic literary sources such as the Rig Veda, the Atharva Veda, the Puranas and the Mahabharata are filled with references to iron and to its uses in peace and war. According to one of the studies, iron has been produced in India for over 3000 years in primitive, small-scale facilities.

Some milestones in iron and steel in Indian history

| | |
|---------------|---|
| 326 BC | Porus presented Alexander 30 lbs of Indian iron |
| 300 BC | Kautilya (Chanakya) showed knowledge of minerals, including iron ore and the art of extracting metals in 'Arthshastra'. |
| 320 AD | A 16-meter Iron pillar erected at Dhar, ancient capital of Malwa (near Indore). |

| | |
|---------------------|---|
| 330-380 AD | Iron pillar in memory of Chandragupta II erected near Delhi. This solid shaft of wrought iron is about 8 meters in height and has dia. 0.32 to 0.46m. |
| 13th century | Massive iron beams used in the construction of the Sun temple, Konar |
| 16th century | Indian steel known as 'Wootz' of watery appearance used in the Middle East and Europe |
| 17th century | Manufacture of cannons, firearms and swords and agricultural implements 1830 Suspension bridge built over the Beas at Saugor with iron from Tendulkhama (MP). JM Heath built iron smelter at Porto Nova, Madras Presidency |
| 1870 | Bengal Iron works established at Kulti |
| 1907 | Tata Iron & Steel Company formed |
| 1953 | Indian Government entered into agreement with Krupp Demag, Federal Republic of Germany to set up steel plant at Rourkela |
| 1954 | Hindustan Steel Limited formed to construct and manage three integrated steel plants at Rourkela, Durgapur and Bhilai |
| 1956 | Second Industrial Policy resolution vested the state with the exclusive responsibility for developing industries, including iron and steel, and the term Public Sector came into use for these |
| 1960 | Alloy steel plant installed at Durgapur |
| 1965 | Government of India signed agreement to establish steel plant at Bokaro |
| 1973 | Steel Authority of India Limited formed on 24th January |

Global Scenario

World's total crude steel production grew at a slower rate during the first half of this century and the growth rate picked up at a significant rate after the second world war:

| | | | |
|-------------|---------------|-------------|---------------|
| 1900 | 28 MT | 1986 | 713 MT |
| 1927 | 101 MT | 1987 | 736 MT |
| 1943 | 159 MT | 1988 | 780 MT |
| 1946 | 111 MT | 1989 | 785 MT |
| 1951 | 211 MT | 1990 | 770 MT |
| 1968 | 523 MT | 1991 | 736 MT |
| 1972 | 630 MT | 1992 | 723 MT |
| 1974 | 703 MT | 1993 | 730 MT |
| 1979 | 746 MT | 1996 | 750 MT |
| 1982 | 645 MT | 1997 | 799 MT |
| 1983 | 663 MT | 1998 | 777 MT |
| 1984 | 771 MT | 1999 | 788 MT |
| 1985 | 719 MT | | |

Growth of steel production in the world*

* Figures are from Statistics for Iron and Steel Industry in India, 2002

World Demand

The apparent consumption of steel is expected to grow at 2.4% in 2002. However world steel dynamics estimates this growth in 2002 to be around 1.4%. Recent estimates show that the total world apparent consumption of steel will be around 769.2 MT in 2001 and 830 MT in 2005.

The global steel markets growth from 1980 has been around 1% (However there are wide regional disparities among the developing world (4.7%), developed world (0.5%), and Eastern Europe (-5.5%).

According to World Steel Dynamics, steel consumption in the Pacific Basin during 1999-2010 is expected to rise by 43%, while in the Atlantic Basin, it is expected to rise by 25%. The Pacific Basin is expected to remain short of steel, while the Atlantic Basin is expected to remain with an excess supply of steel making capacity.