Why Steel Industry is Not Healthy

by A N Md Mahfuzar Rahman

BANGLADESH, then East Pakistan, emerged in the world of steel as a steel making country on February 1, 1967, exactly 25 years back, when Chittagong Steel Mills Ltd (CSM), went on steam. It was a prestigious project for East Pakistan, since this was the first significant steel industry in the whole of Pakistan. The EPIDC Iron and steel works, now Chittagong Steel Mills Ltd (CSM), was built, designed, erected and commissioned by M/S Kobe Steel Ltd Japan. Total investment cost exceeds 60 crores Taka including a foreign exchange component of Taka 25 crore. Work at the site started in March' 63 and the project was completed by the end of December 1970. The plant is located on a 200-acre site on the river Karnafuli, Chittagong and the total covered area exceeds 22 acres. This is a mini steel mill as the crude steel making capacity of CSM is 250,000 metric tons per annum against today's mini mill capacity ranging upto one million ton while large integrated steel plant has annual capacities of six million tons or more.

The crude steel production of CSM was maximum of 135,700 ton against the rated capacity of 250,000 ton per annum. By crude Steel or raw steel is meant ingots, billets, blooms and slabs which have not been rolled.

The annual production of different units of CSM against rated capacities and maximum production attained are given below:

Table 1.

Production unit	Rated capacity ton per year	73-74	Production 1980-81	89-90	(ton) 1990-92	Max. Prod
Steel melting shop	250,000	73,600	1,35,700	75,000	57,615	135,700
Bloomuing Mill	146,000	57,000	92,600	52,000	37,895	106,400
Bar Mill	110,000	39,700	94,940	38,550	23,890	100,200
Sheet Mill	50,000	4,260	1,160	450	185	12,900
Thin Plate	15,000	4,300	8,300	6,150	3,304	9,000
Heavy plate	57,000	6,560	5,220	3,900	1,995	7,950
Galvanising	50,000	4,140	8,940	13,590	8,386	45,200

Table 2.

Annual av. sale

Item	72-75	78-81	87-90
Billet & MS Rod	34,840 ton	98,760 ton	60,050 ton
M.S. plate	8,890 "	12,540 "	8,320 "
CI Sheet	3,880 "	10,560	23,150 "

The production level indicates poor performances compared to rated capacities but in the context of maximum production of different production units, as attained, these performances are not that bad. It is expected that production rate are likely to vary from 75 to 90 per cent in developing countries against rated capacities. Besides majority units of CSM attained monthly/ weekly/daily production close to rated capacities and at times exceeding much above these rated capacities.

Technology

It is often preached that the poor performances of CSM are due to adoption of obsolete technologies. The principal processes by which common steels are produced in an industrial scale are: Basic Oxygen Furnace, Electric Arc Furnace and Open Hearth Furnace (OHF). During mid sixties when CSM was set up, the open hearth process of steel making comprised at least 50 per cent of world steel output. Today 57 per cent of world steel output comes from Basic Oxygen Furnace, 26.4 per cent from Electric Arc Furnace and 16.6 per cent from OHF. OHF Steel making is on longer in existence in Japan and EEC countries but in USSR and Eastern Europe around 50 per cent of Steel is produced through OHF. At least 34 per cent steel is produced through OHF in India and 4.5 per cent in USA. This OHF steel making has been adopted in CSM.

The sheet mill in CSM has been totally closed though 6700 tons of 26 G and 4400 tons of 24 G CI Sheet were produced in 1967-68 from black sheets produced within the mill but since 1976-77 practically all black sheets needed for CI sheet production, are imported. The imported black sheets are much cheaper and better in quality than CSM sheet. Black sheet production requires heavy muscular labour and this sheet mill is obsolete in the present day context though similar type of sheet mills and comparatively less mechanised, are operating profitably in India.

CSM could not sell more than 12,200 tons of CI sheet in a year till 1982 when a private CI sheet plant was set up in Chittagong. With the restructuring of import policy the demand for CI sheet went up suddenly and thus the production and sale of CI sheet rose dramatically leading to substantial profits for CSM. This profit was further accelerated with the use of abnormally low priced Bakhrabad Gas as fuel against furnace oil of Eastern Refinery priced abnormally high for CSM alone.

The average profit during those five years 84-89 exceeded Tk 6.5 crore annually but the loss alone in 1990-91 exceeded the total profit made during those five year.

The CI sheet production boom of 45,200 tons in a year which is above 90 per cent of rated capacity, attained 18 years after the plant was commissioned, is over with the setting up of at least two dozen CI sheet production plants in the private sector. The fate of these CI Sheets are often seen in newspaper photos or Bangladesh Television after every cyclone or tornado. Similarly, most of the MS Rods, and sections do not conform to any standard specification as available in the market but only a few rerolling mills produce MS rods and sections conforming to standard specifications of USA, UK, W Germany, Japan and International Standard Organisation (ISO).

MS roads, angles, flat bars and shapes are produced from billets of CSM and other three dozen producers of billet besides ship scrap is another source of raw material. Thus there is no monopoly for CSM except MS Plates whose demand is just negligible.

Marketing

The marketing of CSM products continue to be the biggest problem since 1967. At times there was demand for one item or so for a while but most of the years the sale constraint persisted. The production had to be curtailed very often. Thus this production curtailment tantamounts to go-slow practices at the desire of the management resulting in lower productivity adoption and it is difficult to attain higher productivity in times of demand. The sale volume continues to shrink and products had to be varied so as to meet the market.

During 80-82 the revenue income comprised 70% from billet, 14% from MS plate and 13% from CI sheet sale while during 84-86 the revenue comprised 35% from billet, 6% from MS plate and 58% from CI sheet sale. But during 90-91, revenue comprised 53% from billet, 13% from plate and 33% from CI sheet sale.

The annual sale quantities of main three products during three distinct periods based on three years average sale are as follows:

The mill was designed to produce 55,000 ton MS Rods, 72,000 ton MS plates and 50,000 ton CI sheet annually. The MS rod producing unit ie bar mill, was converted into billet producing mill during 1970-71 considering the immediate requirement of billet while there were a dozen rerolling mills in operation.

Raw material

The principal raw materials and others for steel making and CI sheet production, are pig iron, Scrap, ferroalloys, refractories, lime stone dolomite, black sheet, Zinc, lead, chemicals and various other materials. In the absence of non availability of all these materials locally, CSM has to import — pig iron from Egypt, Bulgaria, USSR, Australia, Pakistan, China, Iran, Korea, Czechoslovakia.

A small number of refractories are locally produced and local scrap availability is just negligible. Due to poor port handling facilities, lower draft for bulk carriers and human management problem at Chittagong port, the freight per ton is abnormally high especially in case of scrap, pig iron and similar bulk cargo. It is worthwhile to mention here that the current freight cost for a ton of iron ore between Western Australia and Japan is less than US dollar 7.00 whereas this freight from India and Pakistan ports are several times more than the above freight rate. Japanese transport industry in respect of bulk carriers has done miracle in transporting globally for her raw materials needed for her industries. Japan imported 125 million ton Iron ore, W Germany 44 million ton and S Korea 23 million ton in 1990 and this is inconceivable on our part while Chittagong and Mangla handle less than eight million ton import and export cargo in year.

Very often consumers and politicians pose a question why the local steel shall be so costly compared to world market price while Japan is importing all the raw materials for her steel industry. Japan imports 99.5 per cent of iron ore and 90 per cent coal/coke needed for steel industry. The answer is not difficult to find in the context of transportation cost and well educated disciplined work force of Japan.

Profit and Loss

It is abnormal by any standard to observe that CSM maintained a bank overdraft of at least Tk 120 crores during 1990-91 and Tk 100 crores during 1989-90 against sale volume of Tk 117 crore and Tk 159 crore respectively.

The profit and loss figure indicates that CSM's loss was Tk 35 crore in 1990-91 against Tk 26 crore loss in 1989-90. Besides, there was tremendous loss to properties and assets during the cyclone of April 29-30, 1991. The production and sale quantities are very low during the past years compared to eighties in this context the current export prices of MS rods, MS plates and billets from EEC countries, Antwerp or Latin America are US dollar 290, 380 and 220 respectively. Thus the landed cost of MS rods, plates and billets without duties and taxes would be abnormally low compared to the current price of MS rods at Tk 25,000 per ton, MS plates at Tk 30,000 per ton and billet at Tk 20,000 per ton.

At time it is suggested that CSM products be exported in view of marketing constraints but it is evident that CSM products are too expensive compared to would market price. It may be mentioned here that major steel producing countries are also major importers of steel as follows:

In developing countries the satisfactory operation of iron and steel industry requires a tradition which does not exist in Bangladesh and which is to be created. There is absolute need for responsible workers to permit operation to a reasonable degree. The universe of iron and steel making is complex and needs to be mastered. The processes involve a variety of technologies like metallurgy, chemical and physical sciences, mechanics of fluids and so on. The grafting of an iron and steel industry may take poorly or not at all and even it may be the cause of a deterioration of the economy which it was intended to advance through its own development.

The balancing, modernisation and rehabilitation (BMR) of CSM have been being discussed since the last two decades and money and also being provided by the government of Japan. The BMR plan envisages changing the process of steel making from OHF to Electric are Furnace (EAF) and introduction to new casting system known as continuous casting (CC) instead of the existing ingot casting. Continuous casting is also a new technology like EAF steel making and to-day nearly 60 per cent of world steel is cast by this process. The percentage share of CC of steel is Japan 93.5 per cent, USSR 17.3 per cent, USA 64.6 per cent, EEC 87.9 per cent and E Europe 18.4 per cent.

Value Added Terms

Probably the productivity in value added terms does not justify such move considering the present level of production and sale constraints. The manpower remains practically static as follows but the production varied widely due to reasons explained earlier.

Considering the annual pay ment made to workers and employees, it indicates that approximately 5000 people were engaged for a mini mill with such meagre production as mentioned. Japan produces 110 million ton with an workforce of 307,000 EEC has a workforce of 303,000 for a production of 139 million ton, USA has a workforce of 208,000 for a production of 89 million ton and India has a workforce of 290,000 for a production of 14 million ton.

The share of value addition under wages, salaries and benefits, has gone very high recently as it comprised 19.4 per cent of the total sale of Tk 117 crore in 1990-91 and 14.3 per cent of Tk 158 crore sale in 1989-90. While this figure was less than 10 per cent in early eighties. These figures are likely to rise tremendously with the introduction of benefits of recent pay and service commission and the coming wage commission. The operation records indicate that most of the production units remained idle for more than 50 per cent of the scheduled operation hours due to breakdown, maintenance, overhauling etc. The energy consumption per unit is atleast 50 per cent higher if not more than the prescribed quantity. More than 50 per cent of the crude steel produced are not intended to be produced. The percent yield ie acceptable output, against input is abnormally low and at times steel produced finds its way to scrapyard for recycling alone. All these facts suggest poor performances at various points though it is normally expected that efficiency is likely to improve with time.

Input and output

The existing system of procurement through tender in small lots needs a change especially for pig iron and scrap. Though 532 million ton pig Iron was produced in 1990, the trading volume was only 10.5 million ton and Japan alone imported 3.3 million ton. Similarly 350 million ton steel scrap was consumed in 1990 but the trading volume was 31 million ton. Brazil and USSR are the biggest supplier of pig iron while USA, Germany, France and UK are the supplier of scrap in the world market. In this context long term arrangement could be ideal considering our meagre requirement. Besides the plundering of Pig Iron, Scrap and others during transit from port to mill site, is another big concern for mill management.

Thus it is quite natural that the cost of production will be higher and then poor consumers are likely to bear the cost of inefficiency in a protected market.

A true steel industry is yet to be established inspite of the fact that a population of 110 million live here. Iron and steel comprise about 95 per cent of all tonnage of metals produced annually in the world. State initiative in promoting the steel industry continuous to be predominant in developing countries regardless of their system and their economic and social preferences. In developing countries 80 percent of the projects depend on government initiatives or ownerships direct or indirect.

In is true that a steel industry is a must for developing in all the sectors of economy and it should generate wealth but an unmanageable industry often robs public wealth instead of generating wealth.

Employees deserve praise that the natives alone have kept the CSM running for the past years without expatriate assistance. Human resource development, which is the software for success of industrialisation, has been totally neglected during all these years comparing steel mill operation with operations of jute mills, textile mills and sugar mills. Here in the country the planners and enterprises operate in isolation with no mechanism to facilitate the flow of information between the two. The statistical yearbook indicates that the country's production of MS rods during 85-89 was only 12,500 ton, 34,300 ton, 32,400 ton and 25,200 ton respectively.

On the other hand eight rerolling mills of steel and engineering corporation produced on an average 61,000 ton MS rods during 79-82 and gave at least Tk 3 crore as duties, taxes etc to the government annually.

Against such a backdrop, it is necessary to make a through study of the steel sector and assess the actual capabilities of both the public and private sector against the need of the country alone. It is essential to have deliberations among private industrialists, bankers, labour unions, relevant institutions local and foreign, government officials and knowledgeable persons for proper appraisal and decision making.

Table 3.

The sale quantities of items produced for some years are shown below :

Item	73-74	78-79	84-85	87-88	90-91
Billet	30,700	98,540	77,780	72,300	36,840
MS Rod	3,600	860	900	450	200
Balck sheet	1,580	750	240	270	250
MS Plate	9,300	8,790	6,630	8,280	5,140
CI sheet	2,440	12,240	42,600	32,200	10,850

Table 4.

Country/Region	Production	Imports	Exports
EEC	139 Million ton	55 Million ton	70 Million ton
Japan	110 "	6.9 "	23.3 "
W. Germany	38 "	14.1 "	20.1 "
Italy	25 "	9.1 "	6.8 "
USA	89 "	19.3 "	1.9 "
USSR	156 "	10.5 "	9.4 "
S. Korea	23 "	3.4 "	7.0 "
France	19 "	9.5 "	11.4 "
UK	18 "	5.2 "	6.7 "

Table 5.

Man power

	1972-73	1978-79	1982-83	1990-91
Worker	2780	2980	2810	2588
Staff	490	680	580	569
Officer	190	270	350	379
	3460	3930	3730	3533

To Have or Not to Have Satellites

Thailand, Malaysia and Singapore each go for their own satellites while industry veteran Indonesia considers other options. Surya Gangadharan of IPS reports.

BUCKING the trend to go regional Thailand, Malaysia, and Singapore each have embarked on ambitious and costly programmes to own and operate their own satellites.

This has surprised some communications experts here since all three countries have leased transponders from the only country in the Association of South-east Asian Nations (ASEAN) which owns satellites — Indonesia.

The three have so far relied on Indonesia's two Palapa satellites. Two years ago, Jakarta even offered ASEAN the use of one of the satellites for regional communications. Indonesia even offered the Palapa-4 scheduled to be operational by July.

But Thailand is eager to become a trade and communications hub for Indochina. Malaysia says it wants to reduce costs and dependence on neighbours. And Singapore aims to upgrade its status of a regional telecommunications centre by going global.

Faced with these developments, Indonesia is now looking to North Asia and the Pacific islands, although it will not give up on South-east Asia. A new private company with powerful political backing is also poised to enter the market.

Thailand's privately-owned Shinawata Computer and Communications has already ordered two satellites for US$100 million from Huges Aerospace of the United States.

The first satellite, Thaisat 1, will be launched in late 1993 or early 1994 by the Eruopean consortium, Arianespace, at a cost of US$35 million. It will provide telephone, telex, data and television transmission throughout Thailand and will cover parts of Indochina, Singapore, Korea, Taiwan, Hong Kong and Japan.

"Countries close to Thailand can switch to our satellites because this will have a better focus of the region than Asiasat, Palapa, or Intelsat," said Shinawatra Chairman Thaksin Shinawatra. "It will help reduce costs to users."

The Thai government has granted the company eight years to enjoy a monopoly status. Shinawatra is aggressively aiming for the domestic market for satellite entertainment and data communications and will be setting up a national network through its Cable TV affiliate.

Meanwhile, Malaysia has signed a memorandum of understanding with the US-based Hughes Communications International for HS376 spin-stabilised, satellites costing a total of US$250 million. Called the Malaysian East Asia Satellites (MEASAT), the equipment will be launched by Arianespace in 1994 from Korou in French Guyana.

Malaysia hopes to use MEASAT in monitoring its forest cover and catching illegal loggers. Kuala Lumpur is also forging ahead with plans for a sophisticated receiving station.

"Now we are paying an exorbitant sum for using satellite facilities and getting images and pictures from some of our neighbours," said Malaysian Science, Technology and Environment Minister Law Hieng Ding. At present, Thailand shares meteorological and other data with Malaysia.

Six user firms involved in the MEASAT project from the start — including the Philippine Long Distance Telephone Company — will have priority use of its services once it becomes operational.

Singapore Telecoms, due to be privatised this year, also wants to launch its own telecommunications satellite as hedge in the global market. Estimated costs add up to US$123 million including purchase, launch and insurance.

Telecom will use the satellite for broadcasting purposes aside from transmitting international telecommunications data. It now transmits overseas using submarine cables and through Intelsat and Immarsat, two consortia where its equity investment stands at US$50 million.

A satellite-aided search-and-rescue system is expected to be commissioned in two years for air and sea disasters. The US$ 2.4-million system will likely strengthen Singapore's position as an important free port.

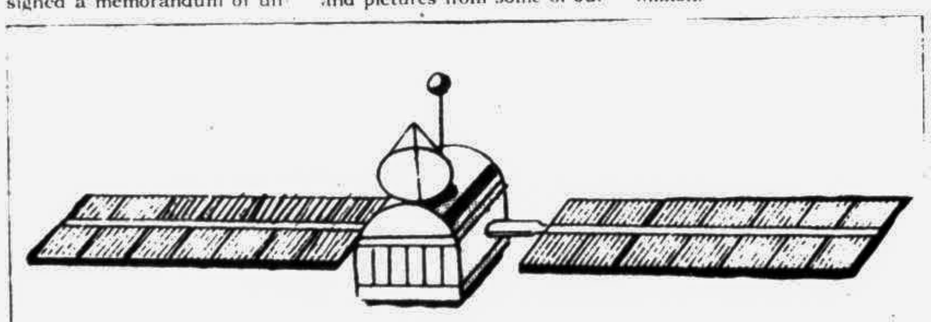
Meanwhile, Pasifik Satelit Nusantara (PSN) — a new Indonesian private company — will use a Palapa satellite already in orbit and compete with Intelsat in offering cross-Pacific telephone traffic.

Bambang Trihatmdojo, President Suharto's son, owns 30 per cent of PSN while Telekommuniksi (Telekom) owns 40 per cent. The balance is split between two other partners.

PSN will buy the Palapa B-1 satellite launched by Telekom in 1983. The B-1 will be moved to another orbit and gradually inclined to save fuel and extend the satellite's life by three years. PSN plans to buy other Palapa satellites as they near the end of their operating lives. Transmissions will begin in May.

Observers say PSN has an edge over the others since it will not have to fork over hefty sums as launch and related costs. Its customers will pay only US$250,000 for a full transponder as against a US$1.1 million fee for a Palapa and US$1.3 million for Asiasat.

Main customer targets include satellite news gatherers CNN, the US Public Broadcasting Service, and video, voice, or data transmitters needing a satellite back-up for fibre-optic transmission network. — (IPS)



Busy Port's New System

At the world's busiest passenger port — Dover, southern England — a ferry moves in or out of harbour on average every six minutes, every day, 264 days of the year.

In summer months the number of movements of ferries, hovercrafts, catamarans, jetfoils and pleasure craft often exceeds 800 a day. More than 15 million passengers, two million cars, 12,000 coaches and one million freight lorries carrying more than 13 million tonnes of cargo, pass through Dover's two harbour entrances each year.

Despite an ever-increasing volume of traffic, safety and efficiency is ensured by a new state-of-the-art vessel traffic management system (VTMS) designed and produced by a specialist British Company, Cornix, of Coventry in the English midlands.

Dover's VTMS, which was officially "launched" in July is accommodated in an ergonomically-designed console, housed in a new purpose-built operations tower which provides 360 degree visibility.

It has been designed to display concise information to the port control officers, allowing them to process and pass on accurate information to both marine and shore-based personnel.

A comprehensive colour radar presentation shows the entire harbour, and its approaches, on high definition television monitors.

The all-weather system tags, tracks, and records all radar contacts — from large vessels to windsurfers — to a normal operational range of six miles, but can be extended much further.

Radar input is received from three aerial units and the information is transferred via fibre optic links to and from the radar displays. Integrated with the radar information is navigational and vessel schedule data, providing operators with audio-visual alarms of all changes in operation.

The system also manages and controls all the harbour traffic signals, navigation aids and marine communications, and weather and tidal information is monitored and recorded for transmission and analysis.

Dover, with its famous white cliffs, just visible on the right side of the photograph, has always played an important role in Britain's history. Site of the Roman invasion in 55 BC and other subsequent such events, it is located at the narrowest part of the English channel. For this reason it is set to take a leading role in Britain's European future, as Dover's Shakespeare Cliff is where the Channel Tunnel emerges onto English shores. — (LPS)

Electronic Compass will be Smaller and More Accurate

A newly developed sensor could lead to an electronic solid-state compass so small that it could fit onto a silicon chip, reports *London Press Service*.

Researchers at the Polytechnic South West in Plymouth, England, led by Professor Des Mapps, have produced a double bifilar magneto-resistive sensor that can detect magnetic fields in the nano-Tesla magnetic field region. This is one thousand times smaller than the earth's magnetic field.

Because of its high density, the sensor could be used for a variety of applications, says Dr. Mappes. In security applications, it could detect a door closing in a room, or count vehicles and check their speed, eliminating the need for expensive buried coils in the road.

It is claimed that an electronic compass would be more accurate, smaller and cheaper than any of its predecessors. It has no moving parts since it achieves its measurements by the interaction between the earth's magnetic field and microscopic electronic spins in magneto-resistive sensors, leading to a detectable conduction-electron scattering effect.

The electronic compass is made by microfabricating two double serpentine, snake-like sensors at right angles on the same chip so that their outputs can be combine to give magnitude and direction.

The serpentines are interleaved and sensed differently to remove temperature effects and improve linearity. The sensor is supplied with a square wave current at a repetition frequency of one thousand pulses per second on a chip five mm square.

The limits of the new technology are being investigated with the aim of reducing the sensor size so that it fits inside a one-mm square at the corner of an electronic chip that carries the microminiaturised drive and sense circuits. This could led to a new liquid crystal display on quartz wristwatches which could give a compass bearing in addition to time.