



**IIM**  
Metallurgy  
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# NEWSLETTER

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### INTRODUCTION

This News Letter is containing brief on 8th meeting of the Executive Committee of IIM-DC held on 10.2.2012. The News Letter also contains the following Technical write-ups:

1. Iron and Steel Scenario by Mr. S C Suri (Life Fellow & Vice Chairman, IIM DC)
2. Copper, Zinc, Nickel and Molybdenum demand all trending up by Mr. P R Chandna, Life Member, IIM DC
3. Brief on IIM Chapters' meeting of Northern Region
4. Library facilities at IIM DC
5. India's Aluminium Growth Story
6. Presentation of Papers at Global Steel 2012 Conference
7. The News Letter also contains National and International News

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## Chapter News

### E C Meeting

The 8<sup>th</sup> meeting of the EC of IIM Delhi Chapter was held on 10.2.2012. The issue of progress of MMMM 2012 was discussed. The contents of the announcement brochure for MMMM 2012 Technical Conference were finalised. Members were also informed about the successful conduct of the quiz contest organized for school students.

## IRON AND STEEL SCENARIO

S C Suri  
Life Fellow IIM, Vice Chairman IIM-DC

There are signals of a slowdown and cut-back in the iron and steel sector. A brief review of the market scenario capacity expansion, mining problems and future outlook is briefly reviewed in the forthcoming paragraphs.

### Slowdown and Cut-back in the European Iron and Steel Sector

Tata Steel, the world's no.7 steel maker is set to mothball a processing mill in Britain on weak demand for steel and a poor economic outlook. The closure of the mill at the Llanwern site in Newport, South Wales, resulted in 115 job losses. Tata Steel runs a similar mill in Port Talbot with lower costs and will be able to cater to market. The company had already cut production capacity from 85-90% in the first half this year to 80-85% in October 2011. In September 2011, Tata Steel's European unit (Corus) shut down one of four blast furnaces in Scunthorpe and another furnace at the site was idled a few years ago on a long-term basis. Tata Steel Europe is the continent's second-biggest steel producer with an annual capacity of 18 Mtpa.

Other steel makers in Europe have made cutbacks to deal with flagging demand. Germany's biggest steel maker ThyssenKrupp has decided to idle a blast furnace in Duisburg, Germany, to carry out planned maintenance earlier than expected as customers ordered few flat steel products. Luxembourg-based ArcelorMittal has closed two furnaces at its Liege plant in Belgium and idled production in Germany, Poland and Spain because of flagging demand and Europe's poor economic outlook. The past six months have seen steel prices decline from US\$ 767 to US\$ 637 a tonne. Given the European economic scenario, no improvement in demand is foreseen in the medium term. However, some benefit from falling ore and coal prices would start from the March quarter. The fresh coking coal contracts have been signed at US\$ 235 a tonne from that quarter, compared with US\$ 330 a tonne in the June quarter. The iron ore price has also come down by over 20%.

### Indian Steel Market Scenario

The prospects for Indian steel companies that looked bright at the beginning of calendar 2011 turned bleak towards the year-end. This was mainly due to sluggish sales coupled with high input costs, such as coking coal and iron ore that exerted pressures on the companies' bottom lines. The Indian steel makers bore the brunt of high input costs, mainly coking coal, as prices hit the roof owing to flooding of mines in Queensland, Australia. As a result, the profits of Indian vendors came under pressure that intensified further towards the latter half of the 2011, when the Rupee got devalued significantly against the Dollar.

The slowdown in growth for steel demand is a concern for steel makers. The steel production may end up at around 4% higher than last year but that is nowhere near the projected 8-10 % growth. An industry official said, "Even though the demand has fallen to 3%, it is still more than last year. According to the Joint Plant Committee's data, the increase in real consumption of steel in April-November 2011 stood at 3.9%, at 45 Mt. Total production in the period rose 7.9%. It is felt that though

the steel production might increase in the coming months, but demand pick-up will take longer to revive. Despite weakening demand, steel prices in India have been hiked in January 2012. Total imports from April-November 2011 stood at 4 Mt as against 5 Mt in the same period last year. The import rose in November 2011, but steel imported in the month of November 2011 was booked in September 2011. The Rupee fall coupled with fall in steel prices internationally have caused heavy losses to traders importing steel. Imports will fall mirroring the current year's trend. Exports have grown by 31% to 2.7 Mt.

Some of the bright spots for the Indian steel industry are:

- ◆ India became the 4<sup>th</sup> largest producer of crude steel in the world in 2010 as against the 8<sup>th</sup> position in 2003 and is expected to become the 2<sup>nd</sup> largest producer of crude steel in the world by 2015.
- ◆ India also maintained its lead position as the world's largest producer of direct reduced iron or sponge iron. In the next five years, demand of steel is likely to grow at a higher annual average growth of over 11-12% as compared with the average annual growth of 8% achieved between 1991-92 and 2010-11.
- ◆ Capacity for crude steel production expanded from 51.17 Mtpa in 2005-06 to 78 Mtpa in 2010-11.
- ◆ Crude steel production grew at 8% annually from 46.46 Mt in 2005-06 to 57 Mt in 2010-11.
- ◆ Consumption of finished steel has grown at a CAGR of 9.6% during the last six years.
- ◆ The demand of steel from the automobile sector and consumer durables has been rising steeply over the years and it is likely to continue.

### **Capacity Expansion**

Notwithstanding the demand-supply scenario, Indian steel makers such as SAIL and Tata Steel are investing in capacity expansion with a view on long-term prospects. The ongoing modernisation will increase SAIL's capacity to 24 Mtpa by 2013 even as the country's largest steel maker is eyeing newer projects, both in India and abroad. Similarly, Tata Steel, which will see its capacity expand to 10 Mtpa by March 2012, is building a 6 Mtpa steel projects in Orissa. JSPL is also expanding its capacity vigorously at different locations such as Angul and Patratu besides its existing plant at Raigarh. NMDC is moving fast to place orders for its 3 Mtpa Greenfield steel plant in Chhattisgarh.

### **Mining Ban**

JSW Steel, which has seen an aggressive ramp-up in recent years, is reducing its capital expenditure for the year and plans to go slow with its expansion at Bellary. The curbs on iron ore mining imposed by the Supreme Court in Bellary, Karnataka, on environmental grounds disrupted supplies to JSW Steel and other producers dependent on the region. Though monitored iron ore sales have commenced through electronic auctions and the country's largest miner NMDC has been allowed to operate two mines in the region. The steel-makers may take some more time to normalize their operations. The recent hike in export duty on iron ore to 30%, on both fines and lumps, effective December 2011 should deter exporters from exporting and domestic availability will improve.

### **Outlook**

The year 2011 also saw the Indian steel makers, both private and public sector, come together and successfully clinch a bid to develop overseas mines in Afghanistan. Going forward, it would be interesting to watch how this initiative unfolds. Though the Indian public sector companies joined hands to form the International Coal Ventures Ltd to acquire overseas coal assets, the special purpose vehicle is yet to crack a deal abroad.

The struggle of global steel makers such as Posco and ArcelorMittal to gain a foothold into the Indian market continues. Though Posco got the clearance almost after a six-year wait for its Orissa Plant, the land acquisition is yet to be completed. Posco's another venture in Karnataka has also faced land acquisition issues.

The brownfield expansion at SAIL is behind schedule, but it will be completed. The expansion to 10 Mtpa by Essar, JSW and Tata Steel are more or less over. The Greenfield projects of Tata Steel at Kalinganagar, JSPL's projects at Patratu and Angul, Monnet Ispat's 1.5 Mtpa steel plant at Raigarh are taking shape. Thus, it will be finally possible for India to cross the 100 Mtpa target by 2012-13. The experience of Indian steel producers to set up and run steel plants abroad has not been very satisfactory so far in terms of profit and other legal issues with the local governments, e.g., JSPL at Bolivia, Essar Steel at Zimbabwe.

The year 2012 will remain challenging for steel producers across the globe.

## **Copper, Zinc, Nickel and Molybdenum demand all trending up**

P R Chandna  
Life member, IIM DC

### **General**

RBC Capital Markets forecasts copper demand growth of 3.6% in 2011, 5.5% in 2012, 5.6% in 2013, and trend growth of approximately 4.0% in 2014 and 2015. Molybdenum growth is forecast at 8.4% in 2012 and 8.8% in 2013, before settling back to trend growth of a little over 5.0% in 2014 and 2015. For nickel the forecast growth is 9.5% in 2012, 10.3% in 2013, and trend growth of approximately 5.0% thereafter. Finally for zinc, RBC says growth of 5.9% in 2012 and 6.0% in 2013, followed by trend growth of 3.1% in 2014 and 2015.

### **Global Copper**

Global copper demand grew by 8.4% in 2010 after declining 0.8% in 2009. Western World demand grew by 8.7% while growth in China slowed to 7.4%. "We expect Western World demand to decline by 0.1% in 2011 with the end of restocking and Chinese growth to increase to 9.7%. While leading indicators continue to point to slowing economic growth, we have so far factored only a modest slowing in growth in the US and low but positive growth in Europe into our analysis. We forecast growth of 3.6% in 2011, 5.5% in 2012, 5.6% in 2013, and trend growth of approximately 4.0% in 2014 and 2015." RBC analysis suggests that in 2009, refinery capacity utilisation rates fell to levels not seen since the early 1980s. Restricted mine and scrap supply constrained refined production in 2009, and mine disruptions remained a constraint in 2010. Despite ongoing mine constraints, global refined production growth rebounded to 4.2% in 2010. "We estimate production grew by a further 4.7% in 2011. We forecast growth of 8.1% in 2012, 3.6% in 2013, and 4.8% in 2014. In 2015, we forecast growth of only 3.0% due to a shortage of mine supply. Mine capacity remains the bottleneck. "We expect inventories to increase modestly in 2012 and then to declining trend throughout the remainder of our forecast period, supporting historically strong pricing. We estimate that the market was in a deficit in 2011 although reported inventory changes suggest a balanced market. A small forecast surplus in 2012 should lead to an increase in inventories and limit any price increases. In 2013 and beyond, we expect renewed deficits to draw inventories down below critical levels, supporting strong price increases. In 2015, inventories are forecast to drop to minimum levels, thereby driving prices to levels that would restrict demand in order to balance the market." In pricing, the copper market remains tighter than the other base metals. Inventories are relatively low, there is little excess mine capacity, and mine utilisation rates remain high, thereby supporting strong pricing. "We forecast a modest correction in 2012 on the back of our forecast surplus. However, we expect prices to increase to new highs in 2013 and beyond in what we expect will be a very tight market. Copper remains our preferred base metal. However, there is significant downside price risk in the event of a global economic downturn. We forecast an average price of \$3.50/lb in 2012, \$4.00/lb in 2013, \$4.25/lb in 2014, and \$4.50/lb in 2015. Our long-term price forecast is \$2.25/lb in 2011 US dollars.

### **The risks to these forecasts are:**

**Economic Growth:** A 1% decrease in forecasted 2012 global demand would decrease our forecast growth rate to 4.4% from 5.5% and increase the forecast surplus by over 200,000 t.

**Investment Demand:** Investment demand remains a key driver of commodity prices, leaving prices vulnerable to increased volatility.

**China:** Slower demand growth in response to government measures to cool economic growth could increase the forecasted 2012 surplus.

**Supply:** A higher level of production disruptions and hence lower operating rates than we currently assume could limit supply to levels below the current forecasts.

### **Global Zinc**

Finally, global zinc demand grew by 15.3% in 2010. Western World demand grew by 15.1% while growth in China accelerated to 15.0%. "We expect Western World growth to slow to only 0.5% in 2011 and Chinese growth to decrease to 2.2%. While leading indicators continue to point to slowing economic growth, we have so far factored in only a modest slowing in growth in the US and low but positive growth in Europe into our analysis. We estimate global demand grew by 1.2% in 2011, and forecast growth of 5.9% in 2012 and 6.0% in 2013, followed by trend growth of 3.1% in 2014 and 2015. "Global refined zinc production rebounded by 13.7% in 2010 after declining 4.1% in 2009. We estimate supply grew by 2.1% in 2011, and forecast growth of 4.4% in 2012, 3.7% in 2013, and 4.0% in 2014. In 2013 and 2014, we expect mine closures to begin to constrain supply, and by 2015 we forecast a decrease in refined zinc production of 0.6% as supply is limited by concentrate availability. "The global zinc market recorded a surplus of 282,000 t in 2010, the fourth straight year of surplus and we estimate the market was in surplus again in 2011. We forecast inventories to peak in 2012 and remain at historically high levels until 2015, when we expect an acute shortage of concentrates to leave the market in a large deficit and result in a sharp drawdown in inventories. Our forecast rebound in demand should be matched by rising mine production in 2012, leaving the market in surplus. In 2013 and 2014, we expect mine closures to begin to constrain supply, leaving the market balanced although with inventories at historically high levels. In 2015, we expect a shortage of mine supply to result in a large deficit, drawing inventories down significantly." The zinc price remains above the bottom of its historical range in real terms compared to inventories as weeks of consumption. With inventories high, capacity utilisation less than full effective rates, and the market in surplus, the fundamentals do not justify current price levels. In a surplus market, the marginal cost of production would normally be expected to be a key determinant of prices. The RBC cost analysis and the historical inventory/price relationship suggest fundamental price support around \$0.70/lb, pointing to further downside risk from current levels. "We forecast an average price of \$0.90/lb in 2012, \$1.00/lb in 2013, \$1.30/lb in 2014, and \$1.50/lb in 2015. Our long-term price forecast is \$0.90/lb in 2011 US\$.

### **The risks to these forecasts are:**

**Economic Growth:** A 1% decrease in forecast 2012 global demand would decrease the forecast growth rate from 5.9% to 4.8% and increase forecast surplus by 134,000 t.

**Investment Demand:** Investment demand remains a key driver of commodity prices, leaving prices vulnerable to increased volatility.

**China:** Slower demand growth in response to government measures to cool economic growth could result in a larger surplus in 2012.

**Supply:** Higher mine capacity than currently forecast, particularly in China, could result in larger surpluses in 2011 and 2012 and leave the market in surplus in 2013 and beyond.

### **Global Molybdenum**

After a decline of 9.9% in 2009, global molybdenum demand rebounded by 14.6% in 2010 on the



strength of restocking in the developed world. China has been the main driver of growth in molybdenum demand over the past five years and RBC expects this to continue throughout its forecast period. "We estimate demand grew by 6.2% in 2011, and we forecast growth of 8.4% in 2012 and 8.8% in 2013, before settling back to trend growth of a little over 5.0% in 2014 and 2015. "We forecast a dramatic acceleration in mine production growth throughout our forecast period, as new projects, both primary and secondary, come on stream. After rebounding strongly in 2010, we estimate that global mine production declined by 3.0% in 2011. We forecast growth of 5.0% in 2012, 3.4% in 2013, 8.6% in 2014 and 8.9% in 2015. "We estimate that the market was in surplus for the fourth year in a row in 2011. However, we expect the market to move into deficit in the second half of 2012 and become very tight in 2013 and 2014. Our analysis continues to suggest that projects delayed in the 2008/2009 downturn will not allow supply to keep up with the growth in demand in the medium term.

"We forecast deficits of 2 Mlb in 2012, 34 Mlb in 2013, and 15 Mlb in 2014. Assuming that current production plans are met, we expect the market to face a large and growing surplus beginning in 2015 and beyond. "We remain quite positive on the prospects for significant molybdenum price increases over the next two to three years. However, we do not believe that a significant increase in molybdenum prices is likely before the second half of 2012. After increasing in the first two months of 2011, prices were under downward pressure through most of the rest of 2011. From a high of \$17.75/lb in February of 2011, prices declined to a low of \$12.60/lb at the end of October. Prices rallied modestly in the last two months of 2011 to finish the year at \$13.30/lb and currently stand at \$13.75/lb. We forecast an average price of \$17.50/lb in 2012, rising to \$25.00/lb in 2013 and \$20.00/lb in 2014, before falling back to \$15.00/lb in 2015 in the face of our forecast growing surplus. Our long-term price forecast remains \$11.00/lb in 2011 US\$ terms."

### **The risks to these forecasts are:**

**Economic growth:** While leading indicators continue to point to slowing growth, RBC has so far factored only a modest slowdown in the USA and low but positive growth in Europe into its analysis. Slower growth than currently forecasting could increase the forecast surplus in 2012.

**China:** Slower demand growth in response to government measures to cool economic growth could delay a significant price increase until 2013.

**Supply growth:** Difficulties or delays in starting up new projects could limit supply, leaving the market tighter for longer than forecast.

### **Global Nickel**

After three consecutive years of declines, global nickel demand grew by 18.0% in 2010. Western World demand grew by 11.8%, while growth in China accelerated to 29.9%. RBC expects Western World demand to decline by a modest 0.3% in 2011 and Chinese growth to slow to 19.4%. While leading indicators continue to point to slowing economic growth, it has so far factored only a modest slowing in growth in the US and low but positive growth in Europe into its analysis. It estimates demand grew by 7.5% in 2011, and forecast growth of 9.5% in 2012, 10.3% in 2013, and trend growth of approximately 5.0% thereafter. Global refined production increased 9.5% in 2010 after declining for two years in a row. The return to work at Vale's Canadian operations after lengthy strikes and continued growth in nickel pig iron production in China were largely responsible for the rebound. Supply growth moderated in 2011 as new projects were delayed. But despite ongoing problems, RBC expects new projects to begin to make a significant contribution to supply in 2012. On top of that, and despite declines in the latter part of 2011, nickel pig iron production could be running at much higher rates than currently forecast. RBC estimates supply grew by 6.4% in 2011, and forecast growth of 12.3% in 2012, 9.8% in 2013, 5.1% in 2014, and 4.6% in 2015. "While the market was in deficit in the first half of 2011 on the back of strong demand and production disruptions, we estimate that the market moved into surplus in the fourth quarter of the year as production increased and demand

stalled. Our analysis suggests that inventories will remain well above the critical level throughout our forecast period. Our forecasted growth in demand in 2011 and beyond looks likely to be matched by increases in supply, leading to balanced markets and no significant drawdown in inventory. "With the market expected to be in surplus for the remainder of our forecast period, we expect marginal costs to be a key determinant of prices. Based on the historical inventory/price relationship and our cost work, we see fundamental price support in the \$8.50/lb to \$9.00/lb range. In 2012 and 2013, we expect prices to remain within this range to limit production increases and balance the market. We forecast an average price of \$8.25/lb in 2012, \$9.00/lb in 2013, \$10.00/lb in 2014, and \$11.00/lb in 2015. Our long term price forecast is \$8.50/lb in 2011 US\$.

### **The risks to these forecasts are:**

**Economic Growth:** A 1% decrease in forecast 2012 global demand would decrease our forecast growth rate from 9.5% to 8.4% and increase forecast surplus by 17,000 t.

**Investment Demand:** Investment demand remains a key driver of commodity prices, leaving prices vulnerable to increased volatility.

**China:** Slower demand growth in response to government measures to cool economic growth or higher nickel pig iron production could increase forecast surplus in 2012.

**New Capacity:** Delays or difficulties in bringing new projects (many of which rely on new technologies) on stream could result in tighter markets and higher prices than currently forecast.

### **Littoral Combat Ship (LCS) – High Quality Aluminium Ship**

#### **One of the Single Largest Uses of Aluminum in the World**

Alcoa Defense congratulated Austal USA on the christening of the *Coronado*, the second *Independence*-variant Littoral Combat Ship (LCS), recently inaugurated in Mobile, Alabama. The *Independence*-variant LCS is a 127-meter all-aluminum vessel, with a trimaran hull–design which offers manoeuvrability, stability, endurance, shallow draft, and a flight deck larger than any other U.S. Navy surface combatant. The LCS is one of the single largest uses of aluminum anywhere in the world. Each LCS features more than one million pounds of high-quality aluminum, helping make the ship lighter, stronger and faster. The LCS is the largest aluminum vessel being constructed today and most of the hundreds of thousands of pounds of the 5083-alloy aluminum plate for each ship is supplied by Alcoa's Davenport Works in Riverdale, Iowa. In addition to marine plate, Alcoa Defense also supplies fabricated aluminum subassemblies for the Austal LCS. The LCS is capable of being outfitted with reconfigurable payloads (mission packages) which can be changed quickly to support mine countermeasure, anti-submarine and surface warfare missions. The vessel has a maximum speed of more than 45 knots. The *Coronado* is the second of an expanded 12-ship, *Independence* Class LCS program, with the potential for more. "Austal selected Alcoa aluminum for this critical supply contract, for many reasons, including our unmatched dimensional capabilities of our rolling mills – delivering the widest range of sizes available in the industry," said David Dobson, President of Alcoa Defense. "Alcoa and Austal are working together to introduce innovative flight deck tie downs, aluminum armor solutions and large, thick plate sub-assemblies to subsequent LCS vessels that will take even more weight off the ship and improve shipbuilding efficiency." In addition to the LCS program, Alcoa Defense and the Davenport plant are supplying Austal with high-quality aluminum for the Joint High Speed Vessel (JHSV) program. Austal has been awarded contracts for 7 of the 10 planned JHSV's as part of a \$1.6 billion contract. Three of the JHSV's are currently under construction – *USNS Spearhead* (JHSV-1), *Choctaw County* (JHSV-2) and JHSV 3. For the LCS and JHSV programs, Austal is teamed with General Dynamics Advanced Information Systems, a business unit of General Dynamics.

From Mr. P R Chandna, Source: Business Wire 26 January 2012

### Steel at an inflexion point

The country's steel industry is at an inflexion point. The industry is given a roadmap by the government to lift crude steel capacity to 150 million tonnes (mt) in the terminal year of the 12th Plan and then to 180-200 mt by 2020 from the present 80 mt. Steel Authority of India Ltd (SAIL) Chairman Chandra Sekhar Verma says to make this happen, "We steelmakers will have to embrace breakthrough ideas to be able to run our mills at new efficiency levels, allowing us to make steel with higher strength to weight ratio." Capacity growth here will be sustainable provided the industry makes use of leap-forward technologies occurring periodically, from raw material uses to finishing of steel to utilisation of mill waste, argues Mr. Verma. Not only the proposed ventures, but any industry that requires big space will be hitting a roadblock in acquiring land. The luxury of owning large tracts of land, in many cases a lot more than what is actually needed, is a thing of the past.

Harping on the theme that necessity is the mother of invention, Mr. Verma says when land supply is becoming increasingly tight, with many attendant challenges like proper resettlement and rehabilitation, integrated steel plants will perforce have to be a lot more compact in their layout than is the case so far. Mr. Verma's pronouncement carries conviction since SAIL is having success in building a uniquely compact 2.5 mt mill at Burnpur in West Bengal on a 953 acre plot, that is 381 acres per 1 mt capacity. In terms of land use, the unit, equipped with finishing mills, compares favourably with plants built in other parts of the world more recently.

Compactness of the Burnpur kind or even better than that is achievable by use of a large blast furnace of 4,060 cubic metre size or even bigger, with stepped-up use of auxiliary fuel leading to lesser number of coke oven batteries. BF's of the size of 5,000 cubic metre capable of producing as much as 3.8 mt of hot metal a year are in operation elsewhere in the world. So, there is scope for replacing three BF's by one super-sized one, leading to considerable saving of land. Furthermore, employment of "endless casting-rolling technologies in flat products" will make a significant cut in the length of the facility under the conventional slab caster hot strip mill, running over a kilometre. A compelling reason for SAIL to pursue a joint venture with Posco to build a 3-mt steel mill based on Finex technology at Bokaro is the limited land requirement. Mr. Verma says Finex technology, as it dispenses with coke ovens and sintering units and allows direct use of ore fines and non-coking coal in a 'melter gasifier' after being routed through a hot DRI compactor and coal briquetter, will claim only 250 acres per 1 mt capacity. Land saving is also effected by a mini flat mill in the downstream, facilitating direct and continuous casting and rolling of steel. In fact, Posco for its Orissa venture will be building a steel plant using Finex technology, along with a mini flat mill. There are other non BF technologies which allow making of hot metal using ore fines and non-coking coal. Such processes make sintering and coking plants redundant. The list is led by Siemens VAI, developed Corex, Kobe Steel invented ITMk3 and Rio Tinto's Hismelt. All such technologies allow restricted CO<sub>2</sub> and waste water emissions and economy of land use. Using the 'Global Steel 2012' platform, Mr. Verma built a thesis that technology, if rightly harnessed, will be the game changer in land use for new mills, reduce CO<sub>2</sub> emissions from the current 2 tonnes per tonne of finished steel as is the case with the best mills, to first 1.4 tonnes and then ideally to a tonne. It will also allow steel to hold its ground against emerging competition from aluminium, magnesium and carbon composites.

To fend off competition from substitutes, mills will have to focus on making better and better grades of ultra high strength steels through management of alloys and ideal thermo-mechanical rolling. Mr. Verma says that this would require the integration of iron and steel making. The reason for his use of a mythical expression is that such integration could happen only when the industry starts using hydrogen for iron ore reduction, leaving little carbon in hot metal. Hydrogen use will unquestionably usher in a new dawn in steel making. But this will be possible only when a commercially viable technology is available to obtain hydrogen from renewable sources. Hydrogen-based steelmaking has the potential to cut CO<sub>2</sub> emissions to 1 tonne per tonne of finished metal. But the Holy Grail remains in the distant horizon since work on hydrogen-related R&D is still at early stages. Parallel to



the local industry taking steps to use growing volumes of ore fines to make pellets and seek substitution of coking coal by non-coking coal, action is needed to find value in dusts, slags and sludge generated in the process of steelmaking through their recycling.

Source: Business Standard

### **Is the economy at an inflection point?**

A part of recent economic data suggests the outlook is not uniformly gloomy. Are the mixed signals, however, enough to conclude the business cycle has turned and the economic momentum is again building up?

Finance Ministry's Chief Economic Advisor Mr. Kaushik Basu believes recent economic data signals a cyclical upswing. "We are at an inflection point," Mr. Basu said during a meeting with journalists on Tuesday. "We are beginning to turnaround," he added. Mr. Basu's case rests on recent readings of four key indicators, which are categorized as lead indicators of the Indian economy. Mr. Basu identified recent data on industrial output, bank credit to industry, performance of core sectors such as steel and surveys of business managers as reasons for his optimism. In November and December, data of lead indicators improved as compared to the preceding two months. In November, industrial output rose 5.9 per cent on year after having contracted 4.7 per cent the month before. Year-on-year bank credit to manufacturing in November grew 21.8 per cent, higher than the corresponding period of the previous year, and manufacturing surveys moved up in December. In addition, there are indications that headline inflation is finally beginning to dip. It was 7.5 per cent in December and Mr. Basu forecast it would drop below 7 per cent in January. Mr. Basu's call may have been premature. The signals remain mixed.

"On the overall trend, I would say this is some sort of turning point," said Mr. N.R. Bhanumurthy, professor at National Institute of Public Finance and Policy. "I would not say it's robust, one may have to wait for one more month," he added. Mr. Bhanumurthy felt mixed signals from some lead indicators and Reserve Bank of India's apprehension about inflation meant it was too early to confidently conclude that the cycle has begun to reverse. The latest data set to be released sent mixed signals and suggest it may be too early to take a call on a cyclical upswing. On 30 January, government released core sector data for December. The growth rate was 3.1 per cent, a decline compared to the previous month's growth rate of 6.7 per cent. Core sector (made up of coal, steel, cement, fertilizers, electricity, natural gas, crude oil and refinery products) has a weightage of 37.90 per cent in the industrial output. The dip in December growth rate means the overall industrial output for the month could well fall. Another important lead indicator, output of capital goods, continues to be negative. For three consecutive months, September to December 2011, output of capital goods has contracted. Given the patchy performance of lead indicators, it seems premature to conclude the economy has turned the corner. The inflection point may be some time away.

Source: Business Today

### **SAIL's steel-making capacity to go up to 19 mn tonne in FY'13: Mr. C S Verma**

NEW DELHI: Manufacturing capacity of state-owned Steel Authority of India (SAIL) will go up to 19 million tonne (MT) next fiscal from 14 MT now, with the start of production in two blast furnaces, a top company official said today. "Two blast furnaces will start production next fiscal. This will help us to raise our steel capacity to 19 MT from 14 MT now," SAIL Chairman C S Verma said on the sidelines of the Global Steel Summit here. SAIL has embarked on a whopping Rs 72,000 crore expansion plan intending to take its steel-making capacity to 24 mt by 2013-14. The company also plans to further expand its capacity to 45 MT by 2020. Verma said SAIL's Rs 12,650 crore capital expenditure plan for the current fiscal was the highest in its history. Next fiscal, it will go up further to Rs 14,500 crore. On steel prices, Verma said they would remain more or less stable in the short-term, though the demand for the metal would be "brisk" in the current quarter. "I don't think price will go up or down in short-term. The demand is very good currently. This quarter is going to be a brisk quarter. For the year as a whole, steel demand growth should be seven per cent," he said, adding the price of raw material

should also stay at the current level. On the proposed joint venture with Posco, Verma said it is "very very close" and everything should happen "very soon". "I am using the words "very soon" for the first time," he said. The SAIL-Posco joint venture aims to set up a plant at an investment of Rs 16,000 crore in Bokaro to produce 3 mtpa auto-grade steel at Bokaro.

Source: The Economic Times

### **SAIL bottom line hit on coking coal prices and FOREX losses**

Steel Authority of India Limited's turnover for the first nine months at INR 35563.73 crore was 5% higher than corresponding period of last year. But, profits were impacted YoY due to higher input costs and foreign exchange variations. The company's PBT and PAT during the April to December'11 period were recorded at INR 2849.51 crore and INR 1965.74 crore, lower by 42.7 % and 41.7 % respectively. The difference in PBT at INR 2120 crore, was primarily because of impact of coking coal price increase at INR 1849 crore and foreign currency variation of INR 1079 crore. However, SAIL's net worth grew by INR 2503 crore to INR 38618 crore as on 31st December'11. SAIL Q3 profit before tax at INR 903.76 crore and Q3 profit after tax at INR 632.12 crore, registered a growth of 26 % and 28 % respectively, over Q2FY12. Q3 PBT was down by INR 724.44 crore ie 44% over CPLY, owing to impact of INR 578 crore on account of increase in prices of coking coal, and INR 499 crore on account of foreign exchange variation. The impact of these two factors, among others, also brought down PAT by INR 475.35 crore (43 %). The turnover for Q3FY12 at INR 11685.95 crore was 4.8 % less than CPLY. Mr CS Verma chairman of SAIL said "The uptrend over the preceding quarter performance is an indication of the overall steel scenario becoming positive and internal measures yielding desired results. With prices of coke stabilizing, steel demand strengthening and increased production volumes in the offing for SAIL, 2012 is likely to be a year of fresh beginnings."

Source: Steel Guru

### **SAIL aims to reach 60 million tonnes of steel output by 2020**

Steel Authority of India is in the process of implementing an unprecedented modernization and expansion program to enhance its annual hot metal production capacity from the present 13.8 million tonne to about 24 million tonne by 2012-13. According to the growth plan unveiled by SAIL, besides targeting higher production, it also addresses the need for eliminating technological obsolescence, achieving higher energy savings, enriching product-mix, reducing pollution, developing mines and collieries, introducing customer centric processes and developing matching infrastructure facilities. Orders for more than INR 52,000 crore have already been placed under this modernization plan, according to a statement from the PSU. It said the steel major has set the ball rolling for its Vision 2020. Keeping in line the estimated requirement of steel in the country and the potential SAIL has, an action plan is under way for achieving 60 million tons production by 2020, which would be approximately 30% of the Indian steel industry market share.

Towards this direction, SAIL has carried out an assessment of the ultimate potential of plants at the existing locations. The cumulative production of steel at these locations would be between 47-48 million tons. The remaining 12-13 million tons would be in the form of Greenfield investments in the new locations a part of which will be outside India. The company said that as scaling up production of steel to such a high level will open a number of opportunities for business diversification, SAIL is contemplating to diversify into areas where synergy exists or which are related to the core strength of the company. This diversified portfolio will have an added advantage of de-risking the business from the fluctuations in steel business cycle, besides optimizing opportunities in related business areas.

Source: Steel Guru

### **Orissa asks SAIL to stop iron ore mining at Bolani**

BS reported that State Steel and Mines Department has asked the Steel Authority of India Ltd to stop mining activities immediately at Bolani mines following the expiry of forest clearance on February 11. The steel maker has closed mining at the area and said it will resume mining within three to four days.

A top SAIL official was quoted as saying that "We could not get the forest clearance for Bolani iron ore mines in time, but we hope to get the clearance in next three or four days." The official said that "The MOEF could not give its consent in time to renew the clearance as the state government delayed in sending its recommendation. But we will try our best to get the clearance as soon as possible otherwise it will affect our production." SAIL is excavating the Bolani mine under deemed extension provision mentioned in the Mineral and Mineral (Development and Regulation) Act, 1957. However, the company had received forest clearance from the Ministry of Environment and Forest (MOEF), Government of India for about 706 ha forest land that was valid till February 11. Bolani mines, spread over 1,597 ha in Keonjhar district under Joda mines circle, possess best quality iron ores that are primarily used for the Durgapur plant of SAIL. The mine has an estimated iron ore reserve of about 150 million tonne. In 2008, SAIL had announced to invest INR 120 crore to develop Bolani mine that included deploying highly efficient earth moving equipment and other effective mining methods. Following the expansion, Bolani mine alone will supply about 10 million tonne iron ore every year to the national steel producer.

### Library Facilities at IIM Delhi Chapter

- 1 IIM DC has prepared a catalogue of books / journals / Seminar proceedings. This list is being put in the IIM DC website
- 2 IIM DC is subscribing the following technical journals on regular basis.
  - (i) Steel Tech
  - (ii) Minerals & Metals Review
  - (iii) Joint Plant Committee
  - (iv) Metal World
  - (v) Metal News
  - (vi) Stainless India
  - (vii) Journals of Engineering Council of India
- 3 We have also procured the following publications
  - (i) Alternate Routes for Production of Iron
  - (ii) Blast Furnace Ironmaking
  - (iii) Steelmaking Technology in India

We plan to augment our library facilities for chapter use / assistance to IIM DC members.

**The suggestions of readers are most welcome**

Source: Steel Guru

### SAIL Optimistic about joint venture with Posco: Chairman

Steel Authority of India Limited (SAIL) is optimistic about its proposed joint venture with South Korean steel major Posco, a senior SAIL official said today. "You will get good news about SAIL's joint venture with Posco very soon," SAIL chairman Mr. C S Verma told reporters, replying a question on the fate of SAIL's proposed 3 mtpa steel plant in a joint venture with Posco. Saying consensus had been reached on different issues with Posco, Verma said negotiation with the South Korean steel major had been "very positive". SAIL and Posco earlier had differences over issues like the ratio of share in the joint venture. While Posco was claiming 51 per cent share in the joint venture, SAIL also claimed an equal share. Meanwhile, the country's biggest blast furnace would be operational at the Rourkela steel plant in Orissa by end of July, Mr. Verma said. The plant's massive expansion and modernisation work would be completed much before the committed time frame, he said. SAIL had taken up expansion and modernisation work at the plant at an investment of Rs 12,000 Crore, he said. The current capacity of the plant would be doubled from 2.5 mtpa to 4.5 mtpa and subsequently to 5 mtpa, Mr. Verma said.

Source: Business Standard

### Steel Sector in India: A Crisis Brewing

The domestic steel sector that supports the growth of economy's key manufacturing and infrastructure sectors is going through an unprecedented slowdown. Worse, the Union Government sees no silver lining in the horizon. In fact, the Ministry of Steel has painted a bleak picture of the sector in the next five-year plan period (2012-17) beginning this April. It has predicted a demand growth that would be lower than even that during the Tenth Plan, while pegging production only a notch higher. Also, both the growth indicators would just be marginally up from the current Plan

achievements. Steel is one of the eight core infrastructure industries that have a combined weight of 38 per cent in the index of industrial production. A host of issues, including a historic low demand, supply constraints at the back of a lull in commissioning of green-field projects coupled with a severe raw material crunch from the ongoing crisis in coal and iron ore sectors, have brought down the sector's growth to an all-time low. Such bottlenecks, added to a depleting production efficiency of the integrated steel majors like SAIL and RINL, have left the government worried. "The prospects of domestic demand appear grim and gloomy on the eve of launching the 12<sup>th</sup> Plan, "according to the government's working group for the Twelfth Plan, chaired by the Steel Secretary Mr. P K Misra. "Also, all the macro-economic indicators point out the onset of overall economic slow-down of the Indian economy which will have a profound impact on investment," the body states in its recent report. Both production and consumption of steel during the current plan period – at 5.8 per cent and 8.8 per cent respectively – were significantly lower than the 9.4 per cent and 10.4 per cent during the 10<sup>th</sup> Plan period. Even for the 12<sup>th</sup> FYP, the steel sector is unlikely to achieve a double-digit growth – a goal that was initially set for the current plan period. The government expects a modest 9.1 per cent growth in consumption through 2017, even assuming a high gross domestic product (GDP) growth rate of over 8 per cent, against 8.8 per cent over the past five years. Steel demand grew by 8.8 per cent during the past four years of the current plan period, compared to 10.4 per cent in the Tenth Plan.

Source: Business Standard

### [Strong Growth Predicted for China's Steel Industry in 2012](#)

Growing concern that a property bubble is bursting in China is leading to increasingly dire predictions for the country's steel industry. In the latest edition of its China Steel Insight report, steel consultancy MEPS International argues that these fears are misplaced and that demand for steel in China remains sufficient to support 8% growth in domestic apparent consumption this year. There is little denying that a property crisis is currently unfolding. The cost of homes has fallen for five months in a row, according to SouFun, a company which tracks property prices. In larger cities such as Shanghai, developers have been slashing prices by as much as one-third. This is concerning because a downward trend in prices will reverse the logic that has underpinned growth in this industry over the past decade. This has the potential to bring to a halt the break-neck pace of construction which the steel sector has reaped such benefits from. This property boom, which has seen sustained double-digit growth in floor space under construction, has been fuelled by speculation. Negative real bank deposit rates and a volatile equity market have meant that investors have piled into real estate, investing heavily in high-end property.

This speculation driven demand has enabled construction of prime developments to far outpace real demand. The result is millions of empty houses and entire ghost towns - purchased as a bet that China's urbanisation process will eventually generate buyers, willing to pay a higher price for these units. A large part of China's construction boom has therefore rested on property being an attractive investment for cash rich speculators. But as house prices fall, speculation driven demand has inevitably disappeared. The momentum driving construction of these units, and the logic which underpinned real estate's golden years, has collapsed. In a positive sense this will encourage developers to sell off their stock and halt new construction activity, enabling real

#### [Global Per Capita Energy Consumption](#)

Given below is the data on global per capita energy consumption for different countries:

Rank	Country	KWh
1	Canada	17,053
2	USA	13,647
3	Australia	11,174
4	Korea	8,853
5	Japan	8,072
6	France	7,703
7	Germany	7,148
8	UK	6,067
9	Russia	6,443
10	Italy	5,656
11	South Africa	4,770
12	Brazil	2,232
13	China	2,471
14	India	779
	<b>World average</b>	<b>2,782</b>

Source: Steel Tech



demand to catch up with supply. In the worst case scenario, however, the existing owners of these properties will join in this sell-off. The fact that most home owners are not highly leveraged may avert this more serious outcome, but some sort of collapse is clearly on the cards. These scenarios have played out before, as real estate bubbles in countries such as Japan and Ireland have burst. But there is one important difference here. China is a developing country where a vast swathe of the population still needs basic housing. Even in modern Shanghai whole families are still living in single rooms in colonial-era houses. It is often forgotten that until 1999 most of urban China lived in state allocated homes.

A pertinent question is, if the property boom of recent years has been driven by speculative real estate, how has this need for ordinary housing stock been satisfied? Quite simply it has not. In other countries a real estate bubble was burst to reveal the absence of any real demand to sustain construction activity. In the case of China, a deflating bubble has revealed the extent to which this speculative boom has suppressed real demand. As a result of a real estate sector chasing higher returns from luxury developments, the government estimates that a staggering 36 million economic housing units needs to be built between 2011 and 2015. This is only the tip of the iceberg – the bare minimum which must be done to prevent a social crisis. The market for affordable housing is far bigger and at the moment does not even include most migrant workers, who until they are granted residency rights are unlikely to make their family home in the city. Sustaining growth in the construction sector will require real estate developers to engage with this demand. Private sector construction of residential units collapsed to less than 5% growth, year-on-year, at the end of 2011, but the figure for government sponsored affordable housing surged above 40%. Focusing on this lower priced market requires a fundamental shift in the business models of many real estate developers. It will involve accepting substantially lower returns. Developers need to recognise that the good times of seemingly endless demand for luxury developments are over. The more astute companies are already making this transition, from a focus on speculative real estate to construction of affordable housing. Others will simply choose to, or be forced to exit the property market.

This shift in strategy will not only sustain output growth in the steel industry but will substantially increase consumption of this material. Affordable housing units are generally more steel intensive than top-end housing. Moreover, unlike empty properties purchased for speculation, these units will be furnished, generating further demand for steel from the white goods sector. Rafael Halpin, MEPS' China analyst comments, "China has witnessed a phenomenal boom in demand for steel from the real estate sector over the past few years. But this has been achieved by leapfrogging over real demand, straight into a speculation fuelled property bubble. As this bubble bursts, the Chinese steel industry can look forward to several more years of record output, as developers step back and begin supplying the country with the affordable homes it desperately needs".

Source: MEPS Steel News

### **Problem with always saying 'YES'**

*Many times we commit to too many things and fail to say no. We say, "Sure, I'll do it," or "No problem, I'll take care of it," when deep down, we know we don't really want to, or that we already have too much on our plates.*

*The problem with always saying yes is two-fold. First, the end result is almost always feeling overwhelmed, stressed and tired. There is simply a point when enough is enough; a point of diminishing return when our attitude, spirit and even our productivity begins to suffer. By saying yes too often, we begin to feel victimized and resentful that we have so much to do. Because we tend to feel guilty when we say no, it's often difficult to see that we were the ones who got ourselves into this mess by failing to say no more often.*

*The second major problem with failing to say no when it's appropriate to do so is that you end up with a slightly insincere attitude. In other words, you are doing things you really don't want to be doing or shouldn't be doing – but you are acting, on the surface, as if everything is just fine. For example, you'll agree to perform a task by saying, "Oh, it's all right," when what you really need is a day off to yourself. Then because you don't get your much-needed rest, you feel victimized or angry that so many people ask favours from you!*

*Again, you played a key role in the creation of your own stress, but you believe the stress is caused by outside forces, or that it's inevitable.*

*Received from Mr. P R Chandna*



## [China drives continuing growth in Stainless Steel Output](#)

Official figures for global crude stainless steel production in 2011 are estimated to have reached another all-time high total of 32.05 million tonnes, 3.1 percent above the previous record, set one year earlier. In the traditional stainless steel making regions, only the EU and South Korea exceeded the 2010 outturn. The United States, Japan and Taiwan all produced less than in the previous year. Production in other countries increased by 6 percent, including double-figure growth in Russia and Ukraine. Chinese production, according to officially reported figures, climbed by 11.1 percent, to 12.5 million tonnes. However, it is believed that much stainless steel, particularly 200-series material, is made by companies who are not CIS members. This material is, therefore, not included in widely quoted statistics. This under-reporting may have amounted to as much as 2.5 million tonnes in 2011, or an additional 20 percent. Worldwide stainless steel output is forecast to grow by 5.8 percent, year-on-year, in 2012, to give another new record total of 33.9 million tonnes. If Chinese unreported production continued at the same rate, the figure would be 36.6 million tonnes. Stainless steel making in the EU picked up in the fourth quarter of 2011, to total an estimated 7.6 million tonnes, 1.4 percent more than in 2010. We forecast a further increase of 3.9 percent in 2012. However, this figure may be affected by possible capacity reductions arising from consolidation in the European stainless steel sector. Annual production in the United States fell in 2011. There are now signs of increased economic and industrial activity in the US and a rise in forecast for 2012. Japanese output slipped in 2011, inevitably affected by the earthquake and tsunami in March. A modest recovery is predicted this year. Taiwan's producers appeared to suffer most from reduced demand in the region. Last year's output was substantially down on the 2010 figure. A minimal increase is foreseen for 2012.

Source: MEPS Steel News

## [India's aluminium growth story is just getting unfolded](#)

A seasoned public-sector strongman, Mr S.K. Roongta, former chairman, Steel Authority of India Ltd (SAIL), has a new challenge in hand — taking aluminium to new heights for Vedanta Aluminium. As Managing Director of the private-sector metals major, Mr Roongta is upbeat about aluminium prices going up, bringing in better profits. Excerpts:

### ➤ **What made you switch tracks to aluminium?**

I spent 38 years of my professional life in steel. Meeting the challenges of SAIL's transformation and putting it on a high-growth path was an experience to cherish. Aluminium is the metal of the present as well as future. I found it challenging to be able to steer Vedanta's 2.5-mtpa fully integrated aluminium facilities along with power generation capacity of 6,000 MW.

### ➤ **Is Vedanta planning new investments in aluminum?**

Vedanta's largest greenfield investment here has been in the aluminium sector. Jharsuguda (Odisha) is being developed as an aluminium and power hub. We are putting up a new smelter of 1.25-mtpa capacity in Jharsuguda and another smelter of 0.325-mtpa at BALCO. Once commissioned, both these smelters will produce around 2.5 mtpa of aluminium.

### ➤ **How do you assess the current policy-making scenario?**

There is a general consensus that Indian economy is in need of fresh reforms to sustain the growth momentum. In the metals and power space, and other sectors as well, issues relating to coal availability and regulatory issues pertaining to environment and forest clearances, etc., remain a big challenge.

The state of aluminium industry is a case in point. Aluminium production hinges on backward linkages to bauxite and coal. India is home to one of largest reserves of coal and high-grade bauxite in the world. It can certainly be at the bottom of the cost curve of global producers. The country should realise this potential and can become a global hub for aluminium.

### ➤ **Environmental issues have affected some of your projects. Your views?**

Economic growth and environment protection must go hand in hand. We accord the highest priority to issues related with environment, social and human rights, and endeavour to adopt the world's best practices.

Our Lanjigarh alumina refinery is the first zero-discharge refinery in the country, with lower energy

and water use than the world average. Clearly, international benchmarks are the driving force behind all our endeavours.

➤ **What is the status of your power projects?**

Power plants with combined capacity of 3,615 MW at Jharsuguda are our largest capacity at a single location. At BALCO, we have 810 MW captive power plants that are operational and a further capacity of 1,200 MW is getting ready.

The first of 4 x 300 MW power units would go on stream in Q4 FY 2012 and other units will be commissioned thereafter.

At Talwandi, in Punjab, construction is on to set up a super-critical plant of 1,980 MW capacity (660 x 3) which will be fully operational in 2014. This will add a capacity of about 8,000 MW, besides 847 MW in other group companies, including 273 MW of wind energy.

➤ **What is your outlook for bauxite, a key resource for the aluminium industry?**

India is home to some of the world's best bauxite deposits in Odisha. As a policy, the country should harness this advantage by encouraging value addition in its vicinity, with resultant industrial, economic and all-round development of backward areas. This will also reduce the overload on Indian Railways and roads, as it will cut down expensive logistics. We are hopeful that Orissa Mining Corporation will adhere to its commitment and provide us with the required mine, as substantial downstream investments have been undertaken.

➤ **What is the scope of growth for aluminium in India?**

India's aluminium growth story is just getting unfolded with per-capita consumption at just 1.3 kg, compared with 14 kg in China. At present, the power sector consumes a major share of aluminium, but as the economy grows, consumption in transportation, construction, consumer durables and packaging segments will grow faster. What is important is that the aluminium Vedanta produces has to be further processed into end products. Thus, there is potential for a few hundred new entrepreneurs to set up downstream industries. Vedanta doesn't intend to enter this segment, but would like to facilitate new entrepreneurs to set up units.

➤ **Is the worldwide decline in metal prices affecting your profit margin?**

Metal prices, including aluminium, were somewhat depressed in the latter half of CY 2011, which did affect profit. There has, however been some recovery in 2012. China remains a major force in the world space and with Chinese economy still growing and demand on the rise in other emerging markets, global demand should grow well.

➤ **What are the prospects for aluminium prices?**

We see better prospects in the coming months. Both China and Europe are bottoming out and are unable to maintain their production levels, given the rising costs and non-availability of raw materials. The demand from the infrastructure segment will also see a rise in Asia. By March 2012, we expect London Metal Exchange prices at \$2,300 to \$2,400.

Source: Business Line

### [IIM Chapters meeting of Northern Region](#)

Mr. L. Pugazhenthay, Past President IIM and Co-Chairman of IIM Chapter Relations Committee convened a meeting of Chapters of the Northern Region on 11<sup>th</sup> February 2012. The following Chapters attended the meeting:

- a) The Indian Institute of Metals, Delhi Chapter and
- b) The Indian Institute of Metals, Hisar Chapter

The following attended the meeting:

- 1 Mr. L Pugazhenthay, Co-Chairman, IIM Chapter Relations Committee
- 2 Mr. S C Suri, Vice Chairman, IIM Delhi Chapter
- 3 Mr. B R Choudhary, Treasurer, IIM Hisar Chapter
- 4 Mr. Bhim Sain, Executive Officer, IIM Delhi Chapter

The office bearers of other Chapters of Northern Region, namely, Kanpur, Roorkee, Jaipur, Chittorgarh, Chandigarh and Khetrinagar Chapters could not attend the meeting on account of prior commitments.

Mr. Pugazhenty welcomed the members of Delhi and Hisar Chapters representatives. He spelt out the objectives of convening the meeting and highlighted the various initiatives at the national level, i.e. Task forces on Membership & Chapter Relations, Directory of Members, Strategies for Membership Development and certificates of honour being awarded for the best performing chapter office bears at NMD every year.

On behalf of Delhi Chapter, Mr. S C Suri gave the details of the various activities of Technical talks, Seminars, Chapter New Letter, Students Quiz programmes undertaken by the chapter during 2011-12. He also spoke about the major forthcoming event of 2012-13 i.e. MMMM 2012 planned for September 2012 at Pragati Maidan, New Delhi. He appealed to the other chapters for assistance for this event.

Mr. Choudhary of Hisar Chapter indicated the Chapter's membership strength and expressed his desire to step up their level of activities with guidance of IIM Headquarters and Delhi Chapter

The following suggestions were made by Mr. Pugazhenty for the Chapters:

- a) Bringing out a directory of members of the chapter
- b) Visiting nearby schools to brief the students on metallurgy, emerging scenario of metal industry, career opportunities in metals industry, research, teaching etc. Chapters to address B.Sc. students and impress upon them about the AMIM examinations to make them graduate engineers.
- c) Enhancing visibility of IIM by increasing corporate membership and frequent interaction with local metals industry, especially the SME sector and organising periodic technical programmes and rendering technical assistance to them.

The meeting ended with a lunch.

### GLOBAL STEEL 2012

A Seminar "Global Steel 2012" was organized by Gujarat NRE Coke and The Economic Times in New Delhi on 27<sup>th</sup> and 28<sup>th</sup> January 2012. The highlight of the Seminar was presentation of the technical papers by various speakers. IIM DC has collated the material presented at the Seminar. The texts of the following papers are available in IIM DC Library for reference.

	<b>Title of Papers</b>	<b>Name of Author</b>	<b>Designation of Author/Name of Organization</b>
1	Scripting the Renaissance – Setting the Scene	Dr. Neil J. Bristow	M/s H & W Worldwide Consulting
2	Challenges and Road Ahead for Steel Sector	Dr. Sanak Mishra	Vice President of ArcelorMittal & CEO, Greenfield Projects India
3	Corporate Sustainability	Dr. Sanak Mishra	Vice President of ArcelorMittal & CEO, Greenfield Projects India
4	World Steel Dynamics: Steel Survival of the Fittest		
5	Steel Market Outlook	Mr. Colin Hamilton	M/s Macquarie Capital (Europe) Limited, UK
6	Charge of the Steel Bridges	Mr. Shuman Mukherjee	Director (Commercial), SAIL
7	The Changing Landscape for Global Metallurgical Coal Supply	Mr. Jeff Watkins	M/s Wood Mackenzie
8	Vale's Role in Mozambican Coal: Unleashing a New Source	Mr. Binod Singh	Country Head and MD, Vale India
9	Panel Discussion on Steelmaking Raw Materials and India's Future Demand of Coking Coal "Coking up the Future"	Sir Ganesan Natarajan	Whole-time Director & President Ennore Coke Ltd
10	Iron Ore: Ore to the Core	Mr. S K Das	Director (Commercial), NMDC Ltd, Hyderabad
11	Dry Bulk Freight		M/s SSY Consultancy & Research
12	Indian Steel Industry-A Credit Perspective	Mr. D R Dogra	MD & CEO, M/s CARE Ratings
13	The Evolution Continues for Ferrous Pricing		Steel Index
14	International Zinc Association		