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## THE INDIAN INSTITUTE OF METALS DELHI CHAPTER

# NEWS LETTER

ISSUE NO. 76/2014

VOL. LXXVI "MONTHLY"

DATE: 31.05.2014

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Published By

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## INTRODUCTION

The new Government has taken over. It is expected that with the advent of stable Government at the Centre, economic activities will pick up. The sectors which were facing slow-down will bounce back in terms of production, consumption and profitability. The thrust on infrastructure sector will boost the demand in the various sectors including ferrous and non-ferrous sector.

This Newsletter contains a write-up on Transformation of India's Manufacturing Sector. The Newsletter also contains National and International news items in the ferrous and non-ferrous sector.

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Lecture by Dr. Baba N. Kalyani, CMD, Bharat Forge Ltd. in the  
Dr. Dara P. Antia Memorial Lecture at Pune on 12.3.2014

### Transformation of India's Manufacturing Sector

#### Overview

Over the last decade and a half, we have witnessed globalization of manufacturing, leading to employment generation and rising standard of living across developing economies like China, India and South East Asian economies. Important new trends are emerging due to rapid globalization and changing economic dynamics, which will re-define manufacturing and competition over the next 20 years. Keeping this in view, it is very important to understand what transformational changes have to be made in the Indian setting to create a robust domestic manufacturing sector that hinges upon technology driven innovation and advanced manufacturing capabilities.

I will try to elaborate on the following important issues in this context –

- Why is Manufacturing essential to the prosperity of a country?
- Where does India position itself in the Global Manufacturing Landscape?
- Today, Manufacturing is receiving a renewed thrust across all major economies of the world. I will take you through some very effective interventions being made in the US and UK in this regard.
- Finally, we will try to understand, what it takes to transform Indian Manufacturing and build a Coherent Manufacturing Ecosystem in India?

#### Why is Manufacturing Important?

Manufacturing is critical to prosperity of a nation because it generates economies of scale and has a greater multiplier effect stimulating demand across industries like mining, logistics & transportation, software, banking, healthcare etc.

Manufacturing sector –

- Creates SUSTAINABLE EMPLOYMENT opportunities, with a GREATER MULTIPLIER EFFECT – Provides direct and indirect employment opportunities, e.g. one job created in advanced manufacturing industries would create five to six jobs across the direct supply-chain.

- Sparks INNOVATION – new technologies, products and industries – A whole set of new technologies, capabilities, products and industries that have wide-ranging impact get developed due to innovations in the manufacturing sector.
- Reduces TRADE-DEFICIT of a nation – International trade largely (~70%) involves manufactured goods. A robust manufacturing sector not only meets domestic consumption needs but also enhances exports.
- Determines / improves the GLOBAL COMPETITIVENESS of a country.

### Where Is India Positioned Today?

As you are all aware, the Indian economy over the last couple of years has been embroiled with rising inflation, higher interest rates, depreciating currency, low levels of capital investment, widening CAD, widening fiscal deficit etc. putting in a lot of pressure on the policy makers. The monetary policy has been tightened and the overall business confidence levels have hit a low. You'll be startled to know that the heavy commercial vehicle industry, an indicator of the state of any economy, in India has been sliding downwards continuously for over 22 months starting April 2012. Subdued IIP numbers, widening fiscal and current account deficits have resulted in various analysts forecasting India's GDP growth for 2013-14 to be a modest 4-4.5% only. The CSO claims that the GDP growth rate for the fiscal year ending 2013-14 is projected to be 4.9%. With General Elections slated to be held this season, a sense of uncertainty would continue to prevail till about middle of 2014-15. Thus, we do not see any substantial optimism in the Indian economy in the near - medium term.

Today, India's manufacturing sector has stagnated at about 14-15% share of GDP. And, India's share in global manufacturing is a mere 2.1% as against that of China at 22% and USA at 17.4%. (Japan – 9.7%; Germany – 6.0%; Korea – 2.8%; Italy – 2.4%; Russia -2.3%; France – 2%; UK – 1.9% etc.)

A key cause for widening Trade Deficit and Current Account Deficit is India's heavy reliance on imports (approx. 6 times in the last 10 years) resulting in a galloping current account deficit resulting in free fall of the Rupee:

- ❖ From Rs. 45/USD to Rs. 54/USD and to Rs. 66-67 /USD and now Rs. 60/USD.
- ❖ With Rupee sliding to 67/68, Indian economy was touted to be in distress and the policy makers had to make a slew of interventions to curb imports to gold and these short-term measures have resulted in another problem which is yet to surface i.e. the sudden increase on smuggling of gold.

As a result, India is turning poorer by the day. In January 2013, The Economist magazine [2.1.2013] reported that the real value of the rupee, namely its purchasing power, equated a dollar to just Rs 19.75 – a third of the market value of the dollar today. The Economist further stated that the rupee is the most undervalued currency in the world market.

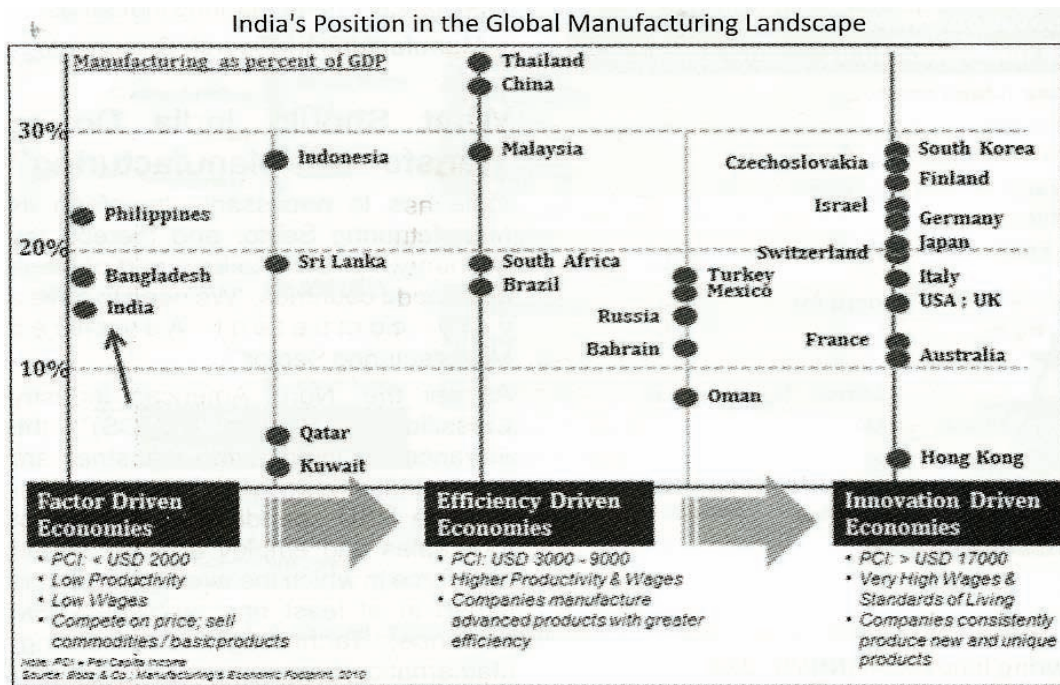
Let us now understand what has been the cause of this depreciating rupee?

From 2004-2013,

- ❖ Oil imports after off-setting exports are at about USD 515 billion
- ❖ Gold imports (net of exports of gems & jewellery) were at USD 161 billion
- ❖ Capital goods imports were at USD 587 billion.

The surge in the imports of capital goods and manufactured goods has not only widened the trade and current account deficits but also destroyed the domestic manufacturing industry. If all our demands are being met by Japanese/European/ Chinese/US manufactured items, then, what is basically left for the large PSUs and Private Sector to manufacture and produce?





Let us look at **Figure-1** and understand India's positioning in the Global Manufacturing Landscape – The percentage share of manufacturing in a country's GDP has been plotted as a function of the evolution of economy from a Basic factor Driven to Efficiency Driven to an Innovation Driven economy.

*Factor Driven Economy* indicates: Per capita income of <USD 1700; low productivity, low labour costs and producing basic products/commodities etc.

*Efficiency Driven Economy* indicates: Per capita income levels of USD 3000 – USD 9000; relatively higher productivity and wages; industry manufacturers advanced products with greater efficiency.

*Innovation Driven Economy* indicates: Per capita income levels of USD 17000+; very high wages and high standards of living; industry in these economies also produce new and unique products.

Figure-1 clearly indicates that –

- ❖ Developed countries like US, UK, Germany, Japan, South Korea, etc. are Innovation Driven economies.
- ❖ Developing economies with good manufacturing base are in the Efficiency Driven category e.g. China, South Korea, Brazil, Thailand etc.
- ❖ India on the other hand figures in as part of a Basic Factor Driven economy with share of manufacturing to GDP as a mere 14-16%.
- ❖ Oil rich Middle Eastern countries like Qatar, Kuwait, Oman, have low levels of manufacturing. But can a country like India afford it?

We also observe that among the BRICS nations, Brazil, China, South-Africa, are all in the Efficiency Driven category with higher share of manufacturing and Russian Federation is even better placed than others in the list.

However, as an exception, India despite being counted among the BRICS, is in the Basic Factor Driven Category. This is largely because of the tremendous growth achieved in the country's Services Sector. Both, the agriculture revolution and the manufacturing revolution encompassing a larger set of population have been totally missing in our country.



### Transformation of Indian Manufacturing from Factor Driven to Efficiency Driven and Subsequently to Innovation Driven Economy

The government about 3 years ago released its “National Manufacturing Policy” set to achieve a few ambitious objectives by the year 2022 (or 2025):

- ❖ 25% share of manufacturing to GDP
- ❖ High-technology and advanced manufacturing
- ❖ Greater efficiency
- ❖ 100 million incremental jobs.

As Figure-1 shows, the National Manufacturing Policy intends to transform India from a Basic Factor driven to an Efficiency Driven economy. However, our goal should be to position India amidst the most advanced manufacturing destinations on this planet by about 2030.

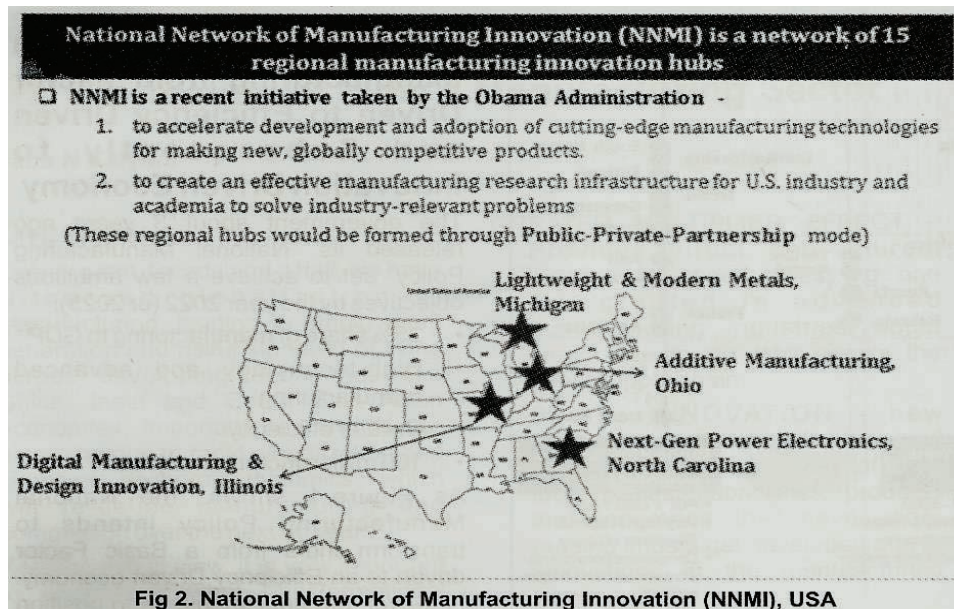
Having said that let us now look at what the National Manufacturing Policy states and where we are today as compared to those lofty goals enshrined in our policy document. The current status is as follows:-

- ❖ Subdued growth of industrial production over last 2 years (average IIP growth rate is ~1%)
- ❖ Manufacturing job contraction unfolding
- ❖ Current share of manufacturing in the national economy is merely 15-16%; with almost negligible growth.

Moreover, even the basic building blocks of manufacturing are in peril i.e. energy, power, infrastructure, land, labour, regulatory mechanism are all in shambles, proving once again that we have miles to go..... “, a lot is at risk” for the nation!!

### Renewed Thrust on Manufacturing Globally

Rising unemployment and the need to increase jobs has brought back the focus of policymakers across developed nations, on the manufacturing sector. Let me take an example of a very relevant and fast-in-execution, policy intervention by the Obama Government – Launch of a National Network of Manufacturing Innovation (NNMI) – a network of 15 regional manufacturing innovation hubs, created by the Federal government in USA (**Figure 2**) to –

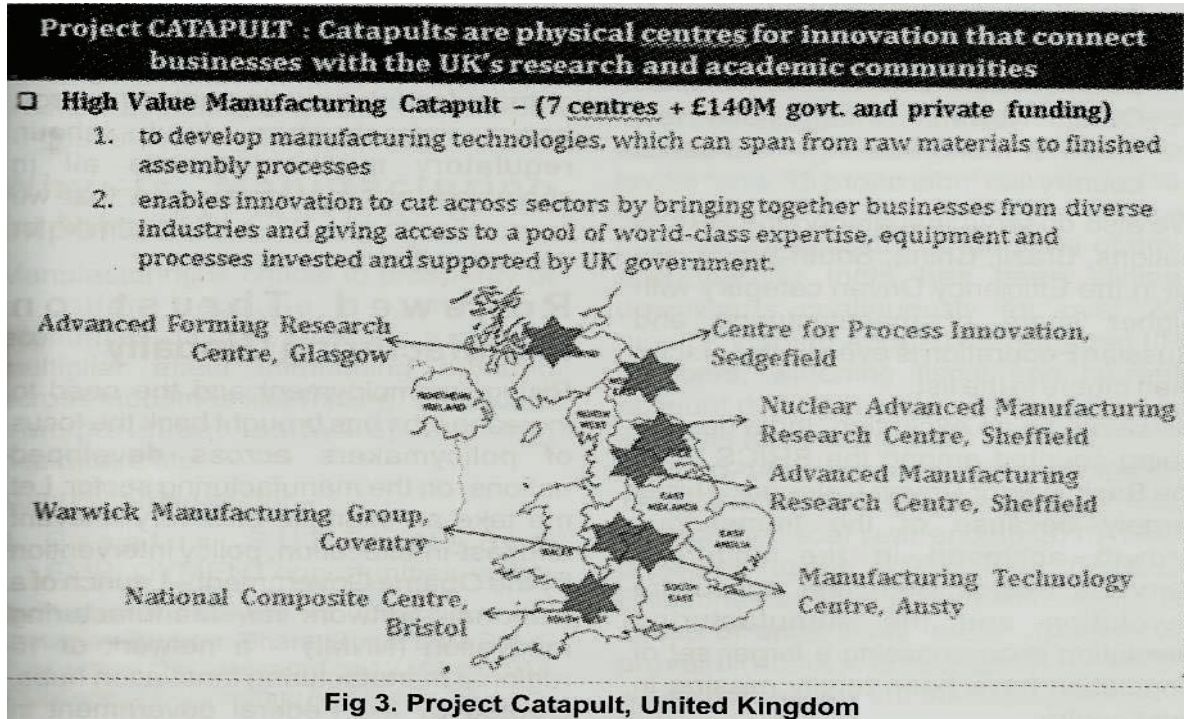


- ❖ Accelerate development and adoption of cutting-edge manufacturing technologies for making new, globally competitive products.

- ❖ Create an effective manufacturing research infrastructure for US industry and academia to solve industry-relevant problems

Technologies under focus include lightweight metals; 3D printing; power electronics; digital manufacturing and many more futuristic technologies.

A similar pioneering effort by the UK government has been to create a cluster of manufacturing technology driving centres at existing large universities in collaboration with the private industry (Figure 3).



Project CATAPULT includes creation of physical centres for innovation that connect businesses with the UK's research and academic communities.

Technologies in focus include –

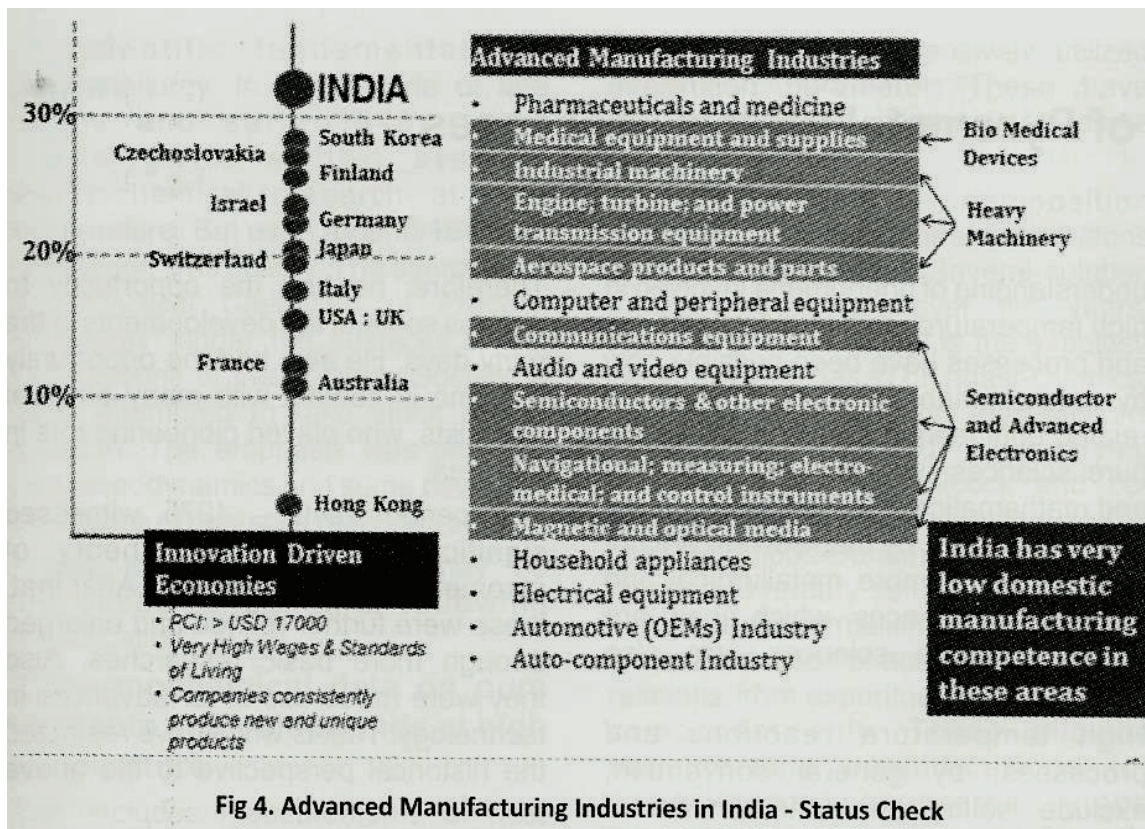
- ❖ Forming
- ❖ Composite materials
- ❖ Process innovation
- ❖ Advanced manufacturing industries
- ❖ Manufacturing research & technology etc.

#### What should India Do to Transform Its Manufacturing?

India has to necessarily transform its Manufacturing Sector and thereby the economy. For India to be a part of these developed countries, "We need to have a very competent Advanced Manufacturing Sector".

As per the "North American Industry Classification System (NAICS)", the Advanced Manufacturing Industries are those industries that display above-average R&D spending as a share of total sales and employ a highly skilled workforce in which the average worker is expert in at least one discrete STEM (Science, Technology, Engineering, Mathematics) field.





The primary characteristics of Advanced Manufacturing Industries (**Figure 4**) are –

- ❖ High R&D Spend
- ❖ Skilled Manpower
- ❖ Futuristic Technologies
- ❖ They drive Innovations & Productivity in other sectors.

It is important to note that in India we have very low domestic manufacturing competence/capability across all the sectors highlighted in Figure 4 i.e. largely, the bio medical devices industry, heavy machinery (mechanical + electrical) industry and the semiconductor and advanced electronics industries. Just like the capital goods imports over the last decade caused depreciation of the Rupee, there is every chance that if adequate measures are not taken now, a huge imports bill of electronics items will cause a much more severe dent to the economy in the years to come. It is also startling to observe that the only competence we have today in India is in industries like – automotive, auto-components, consumer goods, basic computer hardware, pharmaceuticals – all of which are being largely driven by private industry and not the public sector.

Developing India's Advanced Manufacturing Industries will not be easy. Strong challenges from other nations, inconsistent engineering and workforce training systems, absence of a good talent ecosystem will continue to haunt us.

Moreover, while efforts to develop the Advanced Manufacturing sector will largely depend on private initiative, political paralysis in center and across states, has stalled the needed national action on R&D investment, skills-building, taxes, trade, and infrastructure. As a result, at a city / cluster level, Industry and Academia will have to take the lead to support innovation, invest in local industry clusters, drive trade, and build the necessary skills base to revamp and build a robust Manufacturing Sector; a Transformational Shift is the need of the hour.

There is an urgent need for India to Build a Coherent Manufacturing Ecosystem comprising value creators in the form of – INDUSTRY and ACADEMIA and an effective drive agent / catalyst in the form



of GOVERNMENT or SOCIETY at large. In my view, some of the measures that these three value creators should take are listed below.

#### INDUSTRY –

- ❖ Look beyond “ Low Cost”
- ❖ Focus on technology driven innovation
- ❖ Increase value addition
- ❖ Build or acquire new capabilities
- ❖ Engage with academia to develop technical skill development clusters/institutes.

#### GOVERNMENT –

- ❖ Focus on effective implementation of National Manufacturing Policy
- ❖ Encourage public and private sectors to together build advanced technical capabilities.
- ❖ Prioritize indigenization of key sectors viz. Railways, Defense, Power, etc.
- ❖ Accelerate the creation of NIMZs and Industrial Corridors.

#### ACADEMIA –

- ❖ Partner with Industry to develop state-of-the-art advanced technical & research institutes
- ❖ Encourage R&D in alternate elements, material sciences and key emerging technologies
- ❖ Strong emphasis on creating Intellectual Property.

Our Motto should be to, “Develop, High Technology Advanced Manufacturing and, Availability of Skilled Human Resources, as key competitive advantages for India”.

Source: IIM Metal News

#### **Indian steel PSUs to tap technology for special products**

Economic Times reported that the Steel Ministry has directed major PSUs to form collaboration to develop necessary technology for production of high-grade steels to meet domestic demand and reduce reliance on imports. At a recent meeting with Steel Authority of India and Rashtriya Ispat Nigam, Mr G Mohan Kumar Secretary of Steel Ministry has asked them to sign memorandum of understanding or JV agreement for development of technology for high grade steel. Mr Kumar said that special or high grade steels fetch better price than the traditional products, place a firm ahead of the competition and make the job of the marketing team easier. Handicapped with hardly any captive mine reserves, steel makers of Japan and South Korea are more inclined to produce high grade products to boost their profitability. He also asked them to come out with blueprint for production of special and high grade steel. Indian steel makers rank relatively low on the special steel front compared to their counterparts in Japan or South Korea but things are improving with almost all domestic firms realizing that these are the key to survival in the long run. Mr Kumar said that "This is due to the fact that India has free trade pacts with Japan and Korea and until and unless, Indian steel makers brace themselves from now on, these two Asian peers may take away with the biscuit."

Source: Steel Guru

#### **SAIL to ramp up hot metal capacity to 19 million tonnes by Sept end**

Business Line cited Mr C S Verma chairman of SAIL as saying that after the operationalization of a new blast furnace at Burnpur steel plant, Steel Authority of India Limited's hot metal capacity would go up to 19 million tonne by September end. Now, the capacity is 14 million tonne per annum. Mr Verma said that “The new blast furnace at Burnpur steel plant will be commissioned in August. In addition, the first heat in the new converter in Rourkela plant will be made on May 10th. The converter in Rourkela steel plant first heat we are taking on May 10th and in the next three months, in August, SAIL is going to commence one more blast furnace in Burnpur steel plant.” He said that the country's largest blast furnace is operating in Rourkela steel plant and the volume there is 4,060 cubic meter. He said the company has also drawn up its "Vision 2025" plan to ramp up its hot metal capacity from 24 million tonnes to 50 million tonnes with the additional capital outlay of Rs 1,50,000 crore. He said "We have prepared a Vision 2025 for ourselves. We plan to escalate our hot metal capacity from 24 million tonnes to 50 million tonnes by 2025. Rs 1,50,000 crore capital investment will

be made by the company to ramp up the capacity to a level of 50 million tonnes by the year 2025-26."

Source: Steel Guru

### **SAIL RSP production surges in April 2014**

PTI reported that Rourkela Steel Plant, a Unit of Maharatna Company SAIL, has commenced the fiscal 2014 to 2015 with soaring production performance, recording its best ever Hot Metal production of 267010 tonne. RSP sources said that in the first month of April, the same trend was also reflected in the Crude Steel production of RSP which was 240153 tonne. Similarly, sinter production during the month was all time best at 409300 tonne. Saleable Steel production figures at 210010 tonne marked a jump of 30% over the corresponding period last year. The overall performance of the plant during the month was laced with many achievements by individual units. On April 29th, the Blast Furnaces produced 10240 Tonnes of Hot Metal which is the best ever performance for any single day. Similarly on April 26th, Steel Melting Shop-II made 8456 tonne of steel thereby pushing the total steel production for the day to 9930 tonne. These 2 are again the all-time best performances. The Sinter Plants too carved out their best ever performance for any single day on April 26th by making 16183 tonne of sinter. Out of this 8218 tonne have been contributed by the new Sinter Unit-III, which was again its best ever performance. Another new unit that made a mark during the month was the new Coke Ovens Battery-6 that notched up an average of 79.3 pushings per day which was its best April performance. The performance of the Plant in the Rolling Mill zone too was quite encouraging. By producing 46492 tonne of Plate Mill Plates, 151681 tonne of HR Coils, 20240 tonne of HR Plates, 2405 tonne of Spiral Weld Pipes, 10410 tonne of Galvanised Sheets and 5258 tonne of CRNO steel, RSP has registered growth of 18.2%, 41.2%, 7.4%, 16.9%, 20.9% and 5.1% respectively over the Corresponding period last year. Mr G S Prasad CEO of RSP, has expressed happiness over the performance of the plant and has said the year 2014 to 2015 is crucial for RSP and the best efforts have to be made by each unit from the very beginning to achieve the challenging targets set for the year.

Source: Steel Guru

### **Indian steel offers hold stable; steel mills kept flat prices unchanged for May deliveries**

Steel offers held broadly steady across all segments recently as the fundamentals saw some improvement on the back of increased off-take from the secondary steelmakers. The sentiments are buoyed as the demand for long products, which is slated to go further up in the near term. Moreover, the primary steelmakers kept their flat steel prices unchanged for May deliveries. Independent report suggested that even though hot-rolled market had remained stable despite some profiteering by traders in some parts of the country there was an element of caution by the mills. Initial session saw steel offers in the semi-finished segment holding stable at the benchmark centers with good cues for the next month. Offers were reported around INR 31,700 per ton and INR 32,200 per ton (ex-works) at Raipur and INR 35,900 per ton and INR 36,400 per ton (ex-MGG) at Mandi Gobindgarh for ingots and billets, respectively. Furthermore, the intermediary steelmaking products like sponge iron and pig iron saw offers taking cues from the changes in the semi-steel segment and were mostly unchanged. The respective spot offers at Mandi Gobindgarh were around INR 24,000 & INR 29,200 per ton (basic price). Indigenous scrap prices also held steady at Mandi Gobindgarh with MS scrap and Old scrap offers being quoted around INR 32,400 per ton and INR 29,900 per ton (ex-MGG). Moreover, at Alang, the offers of ship breaking scrap were reported around INR 26,700 per ton (ex-works). In the finished steel category, the long steel prices have moved sideways in at some of the demand centers, as the rebar offers gained INR 100-200 per ton at Mumbai and Raipur, while remaining steady across other hubs. Similarly, the flat steel offers held stable at most of the trading hubs; at Mumbai, the HR Coil offers were quoted around INR 45,000 per ton (ex-works), while the CRC offers were reported around INR 50,000 per ton (ex-works). (It seems that the market awaits the results of general elections for the any adjustments in the steel prices, wherein if the stable government is formed than the steel would see good year for the rest of the fiscal). Although, the steel demand has seen a robust increment off-late as the prices have improved drastically mainly on the back of demand from construction and infrastructure segments.

Source: [www.oreteam.com](http://www.oreteam.com)

## **Top 10 hot metal producing countries in Q1 of 2014**

Country	Mar'13	Mar'14	YoY	Q1'13	Q1'14	YoY
China	61624	61550	-0.10%	177416	178273	0.50%
Japan	7174	7067	-1.50%	20554	20514	-0.20%
India	4287	4470	4.30%	12379	12971	4.80%
Russia	4204	4278	1.80%	12532	12588	0.40%
South Korea	3201	3841	20.00%	9768	11359	16.30%
United States	2662	2710	1.80%	7937	7590	-4.40%
Germany	2363	2600	10.00%	6844	7368	7.70%
Ukraine	2514	2522	0.30%	7271	7060	-2.90%
Brazil (a)	2158	2100	-2.70%	6336	6121	-3.40%
Taiwan, China	1187	1170	-1.40%	3117	3265	4.70%

In '000 tonnes: Worldsteel

Source – Steel Guru

## **Indian sponge iron imports slide in April 2014**

Indian importers of sponge iron including HBI went fairly silent in April 2014 due to the low demand for imported material amidst lower domestic lumps prices and fluctuating currency. In April 2014, India imported 18664 tons of sponge including HBI from countries like UAE, Russia and Sweden with the majority load landing from Russia. As compared to the same month last year, the imports are down by almost 75 percent in April 2014. The importers were quite stiff with their negotiations and had been eyeing the scrap imports as well which were higher than the average monthly scrap import recorded for 2013-14. In 2013-14, India imported a total of 0.334 million tons of sponge iron and nearly 4.6 million tons of scrap translating into an average 0.38 million tons of scrap per month and nearly 0.028 million tons of sponge per month. Comparing the figures to April saw less than average imports of sponge but expectations are going ahead the scenario could change and shipments may rise heavily.

Source: [www.oreteam.com](http://www.oreteam.com)

## **ArcelorMittal Europe reports \$79m operating profit**

Steel giant ArcelorMittal Europe (NYSE:MT) announced positive financial results as net loss narrowed during the first quarter at \$205 million, but the company expressed "cautious optimism" for the rest of 2014. The European segment of Luxembourg-based global steel and mining company reported an operating profit of \$79.7 million, compared to an operating loss of \$545 million last quarter. Earnings before interest, taxes, depreciation and amortization for the quarter also rose by 29% to \$536 million, compared with \$416 million last quarter. Sales in the Europe segment also increased by 1.6% to \$103 billion, due to higher steel shipments as the company predicted in February. "As the pace of recovery in the EU has been slightly stronger than expected when we announced our full year results in February, we have upgraded our forecast for European steel demand in 2014 from around 2%, to 2-3%," said CEO ArcelorMittal Europe's Aditya Mittal in a statement. Global market-wise, the firm expects apparent steel consumption to increase by approximately 3%-3.5% in 2014, based on current economic outlook. Apparent steel consumption refers to the sum of net industry shipments within a given country or region, plus its imports and minus its exports. In 2013 the world's largest steel producer had revenues of \$79.4 billion and crude steel production of 91.2 million tonnes, while own iron ore production reached 58.4 million tonnes.

Source: [www.mining.com](http://www.mining.com)

## **Danieli's innovative technology supporting steel industry progress**

Danieli has been providing highly successful technology in the most competitive way for over 41 years in steelmaking. Overall, its experience in EAF-based technology in steelmaking and rolling facilities dates back to the 1960's which is still successful, thanks to flexibility, lean company structure. Danieli is the leader in minimills, in long product casting and rolling plants, and is among the frontrunners in flat



product and iron ore sectors. Danieli's mission is to serve customers with competitive plant and process technology/automation to produce quality products at the lowest depreciation and production cash costs and offer friendly after-sales service from top-specialized engineers. The company's advanced technology have helped support the progress of the steel industry. This has been possible thanks to continuous co-operation between Danieli and its customers, investments in R&D, and the company-owned industrial and pilot plants. Globally, Danieli ranks third amongst the largest suppliers of plants and equipment to the metals industry, worldwide. Among all its group companies established across the world, Danieli Centro Combustion is leader in design and installation of heating equipment, with hundreds of furnaces successfully operating worldwide. Walking beam furnaces and pusher furnaces are specifically designed for feeding hot strip mills and plate rolling mills, with stringent requirements of heating uniformity and production flexibility. The average investment of 60 million euro/year demonstrates Danieli's commitment to research and development. The remarkable number of innovative process technologies developed and successfully applied for production of both long and flat products allows them to use the term "innovaction" to indicate 'innovation in action'. In recent years, Danieli has strengthened its commitment to securing patents through a concrete policy aiming at optimizing the management of registrations and promoting all patents through a suitable selection and extension policy.

#### *EAF – steelmaking*

Danieli Centro Met offers a complete range of melting units- high-impedance AC EAFs, single and twin-cathode DC EAFs – with the capacity for producing heat sizes from 20 to 420 t with the world's most powerful twin-DC EAF and the jumbo AC EAF (320 tph). Raw material may be up to 100% scrap or various mixes of hot metal, pig iron, DRI (hot and/or cold) and HBI, utilizing electrical and chemical energy, according to unit costs and power grid characteristics. The EAF operation can be made fully automatic by applying a series of technological packages to optimize the process, to be selected on a case-by-case basis depending on the performance figures to be achieved.

#### *Ladle furnaces – steelmaking*

Its main purpose is to improve steel temperature and analysis control between tapping and casting removing and/or modifying inclusions and acting as a buffer in the total logistics of the meltshop. Different solutions have been developed, such as: LF with inert roof, supported from one side only for optimal accessibility; Twin LF with two treatment positions and swivelling electrodes; Handling in the ladle furnace by ladle cars.

#### *VD/VOD vacuum degassers – steelmaking*

The vacuum treatment is used for simultaneous hydrogen and nitrogen removal, decarburization, de-oxidation and desulphurization. Intensive gas stirring in fully inert conditions provides good removal of non-metallic inclusions from molten steel. Capacity: 10 - 300-t heats. Oxygen lance, additionally installed in the vacuum station, makes it possible to carry out the VOD and VD-OB processes, which is principally used for stainless steels and ultra-low carbon steels for deep drawing applications. Capacity: heats up to 150 t (stainless steels) and up to 300 t (ultra-low carbon steels). Danieli's another division under the name of Danieli Centro Metallics have introduced direct reduction field (1998) in order to offer its clients with complete turnkey facilities for steelmaking. A crucial step in this market has been done in 2006 with the introduction of the ENERIRON® Technology, the innovative HYL Direct Reduction technology jointly developed and marketed by Danieli and Tenova. The Energiron Direct Reduction Process is designed to convert iron ore (pellet/lump) into highly-metallized iron by the use of reducing gases in a solid-gas moving bed shaft furnace. Oxygen is removed from the iron ore by chemical reactions for the production of highly metallized DRI with controlled carbon content in the form of Fe<sub>3</sub>C (from 1.5% to 4%) which is the best metallic unit for the EAF. In 2006, the first ENERIRON plant has been supplied for the Emirates Steel (Abu Dhabi), sparking a revolution in the world's DRI production scenario: considering the DRP's installed or under construction since 2006, more than 12 Mtpy of DRI are or will be produced using an ENERIRON plant. This remarkable

achievement confirms a growing acknowledgment of the economical and environmental advantages of this technology, backed by the excellent performances of the plants already in operation, such as the two Emirates Steel modules already in operation since more than two years.

### *Danieli Automation*

Danieli Automation provides services for a quick, effective and professional assistance to customers, with advanced solutions to decisively contribute to get an edge on competitors in a highly dynamic market. Through web assistance, e-ticket, teleservice, preventive maintenance, and its worldwide presence, the company's customer can benefit of a 7/24 assistance. Danieli Automation has developed – HiPAC Automation system which is integrated system for the control of high speed controls and modelling of flat mills, single or multi-stand, hot or cold. Autoadaptive models and specialized sensors such as HiWIDTH (for width measure) or HiWEDGE (for wedge gauge) are the means to produce in quality, together with specialized technological packages. Additionally, it has developed sophisticated process models such as the Coil Quality Estimator, for inline assessment of coil mechanical properties. Danieli also provides a suite of technological solutions applicable to new or existing mills to optimize the rolling process, on single- or multi-stand mills, and cluster mills, designed to roll steel, stainless steel, and nonferrous metals. Processing lines are equipped with dedicated technological packages aiming at best quality with maximum productivity.

Similarly, Danieli has introduced Q-ROLL automation systems which is a family of system dedicated to rolling mill control, resulting from the vast experience gained in supporting Danieli Group's divisions to transfer the process know-how in long products rolling to the end users. We also provide a suite of technological functions, applicable to new or existing mills, to optimize the rolling process. Additional benefits for quality control and productivity are given by its on-line sensors such as HiPROFILE (laser profile gauge) or HiGAUGE (optical diameter gauge), HiSECTION (section gauge) or HiWEIGHT (weight per meter). The DMC2000 is the company's solution to control long product mills of any kind. It is a proven, robust system suitable for any rolling requirement in terms of product dimensions, metallurgical structure, plant productivity, and product lead-time, for both high-quality and commercial steel grades.

### *Energy recovery from EAF*

In order to reduce carbon emission and to remain cost effective, Danieli Environment has introduced technology to increase the overall energy efficiency of the electric steelmaking process. The ducts used to convey the hot primary fumes can be cooled by evaporative systems which is able to produce steam to be used internally or sold to outside consumers. In addition to using the steam for industrial process and district heating, a steam turbine can drive a generator to produce electric power. The evaporative cooling system proposed by Danieli, in addition to allowing for energy recovery, is more efficient and has a longer life than the traditional water-cooling system.

Source: MMR

### **China shutting down 28.7 million tons of steel smelting capacity**

China is planning to shut down 28.7 million tons of outdated steel smelting capacity this year. The shutdown is due to its high energy consumption and polluting issues being faced. The shut downs aims to bring in better technologies and introduction of new standards for the industries. As a target, the cut in capacities are likely to be in the range of 12 million tons in coking coal facilities, 50.5 million tons of cement and 2.65 million in paper making. This closure plans also include to seal 60 million tons of crude steel production between 2014 and 2017 in Hebei Province.

Source: [www.oreteam.com](http://www.oreteam.com)

### **Indian steel consumption may touch 75 million tonnes in 2014-15 - TATA Steel**

Business Standard reported that TATA Steel expects the metal's consumption in India to grow by about 5% to 75 million tonne in 2014-15 on hopes that the economy will kick start with the advent of new government. Mr Peeyush Gupta VP, Marketing & Sales of TATA Steel said that "We expect the economy to kick start post the new Government. Fundamentals of the economy remain strong and the need for infrastructure creation is stronger." He said that "Consequently, we expect robust

improvement in investment led demand in FY15 and steel consumption should touch 75 million tonne, a growth of 4.5% to 5% over FY' 2014." Mr Gupta said in the company's newsletter posted on the website that projections for long term growth continue to be bullish and the country will gear itself to touch 125 million tonne by 2020 and 175 million tonne by 2025. He also projected rural consumption to grow as the economy improves. India's per capita steel consumption is 58 kilogram as against world average of 250 kilogram while rural India consumes only 14 kilogram per capita. Mr Gupta further said that as the economy matures, rate of urbanization improves, and this gets reflected in increased steel usage in construction and in consumables. Therefore, steel demand will get a major boost from increased RCC housing type construction and conversion of thatched and sand tile roofs to various types of steel roofing. He said that the other significant action is from the government to drive inclusive growth, as enumerated in the 12th Five Year Plan, with the launch of schemes like MGNREGA, Sarva Shiksha Abhiyan and Bharat Nirman. With the improvement in income levels and direct support to pukka housing, steel companies have a good prospect in rural India.

Source: Steel Guru

### **CISA predicts China price fall while miners feel the levels to retain near USD 100**

The government-owned China Iron and Steel Association (CISA) said that prices of imported iron ore are expected to fall further because of oversupply into China which has already seen the port stocks rising to almost 113 million tons in the last few days. Also the average iron ore import prices fell 4.65% m/m in April which clearly indicates a weak demand amidst high inventories and a tight liquidity situation in the country. As per CISA and other government owned trading bodies the prices of iron ore are likely to fall further but the limit or extent of the fall was not noted clearly by them. Another major reason cited by them for the fall was the weak production figure of pig iron. China's pig iron production only increased 0.1% during the first three months of the year that could hurt the demand in the coming months. Meanwhile as CISA indicated of a further fall, ex-perts from the pricing field, traders and even miners of iron ore are witnessing the market to slow down to levels of USD 100 – 105 per ton in the coming months. OreTeam expects that a new round of buying would be visible around the lows of USD 100 per ton in China allowing a slight pick-up in the prices pulling back the levels to 105, if in case the prices fall to that level. So expecting a fall below USD 100 per ton may not be wrong but the life span of such levels could be very short in 2014. Going ahead into 2015, the life span of such levels could increase and even stay settled for a much longer duration as supplies would increase and even the linkages or acquisitions of iron ore and coal assets by the Chinese steel mills would take shape.

Source: www.oreteam.com

### **KIOCL RINL and NMDC sign pact to set up iron ore slurry pipeline**

Economic Times reported that state owned steel firms KIOCL, NMDC and RINL have decided to set up 13 million tonne per annum slurry pipeline between Nagarnar and Vizag for carrying iron ore with INR 3,500 crore investment. A source said that all the parties agreed to develop the pipeline project in the JV with shareholding of 48:26:26 by KIOCL, RINL and NMDC, respectively. They will have the option to bring in an international technology and or equity partner to join the project at an appropriate time. The source said that the slurry pipeline will be used to transport iron ore fines from NMDC's Bailadila mine in Chhattisgarh to Vizag in Andhra Pradesh, where RINL has its lone steel-making facility. A 6 million tonne per annum pellet plant will also be set up by the partners in Vizag. A techno-feasibility report will ascertain the project cost, which is initially expected to be around INR 3,500 crore. It will be shared by the parties in proportion of their shareholding. NMDC will facilitate land, infrastructure and the required approvals for the project. The parties have also agreed that NMDC will supply the input material to the JV Company as per a long term supply pact to be entered between NMDC and JVC. The JVC shall have arm length relationship with KIOCL, NMDC and RINL. The JV will offer finished products to KIOCL, RINL and NMDC as per their shareholding, and the parties can use them for its captive consumption or free trade by the firm. The transportation of fines through the pipeline will reduce RINL's dependence on rail. RINL uses NMDC's ore for making steel. The usage of pellets will also help RINL improve productivity of its blast furnace and reduce its coke consumption. Besides, the pipeline will help NMDC resolve evacuation problems and KIOCL



pellet maker to enhance its 7.5 million tonne per annum capacity and grow businesses. The MoU will be valid for 2 years and the companies will have the option to extend it.

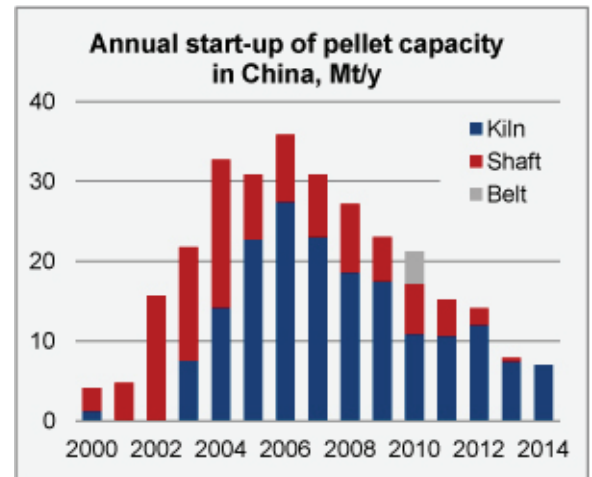
Source: Steel Guru

### **Iron ore pelletising in China: a sector in decline**

This Insight is a summary of CRU's latest research paper that considers the historical, current and future development of the Chinese pelletising sector and analyses the reasons behind the current low utilization of domestic facilities. Domestically produced pellet suffers from poor and inconsistent quality that negates many of the benefits typically associated with using pellet in a beneficiated burden strategy and, coupled with constraints on the supply of pellet feed, this has undermined the viability of many facilities. These factors are described and their influence on blast furnace burden strategy and, ultimately, pellet usage rates, is discussed.

#### *Chinese pellet capacity boosted by a beneficiated burden strategy*

As demonstrated by the European iron-making experience, pellet imparts various advantages in the blast furnace (BF) burden, such as improving overall furnace stability. In recognition of this, in 2000, the National Metallurgical Industry Planning Department in China published the '2000-2005 Guidelines for Iron and Steel Making Technology'. These guidelines recommended that steelmakers lift the pellet ratio in the BF burden. Following that, the '2006-2020 Guidelines' stated that "China should strive to develop pellet production, upgrade pellet facilities, develop rotary kiln technology and quicken the elimination of small shaft furnaces" and, together, these two Guidelines provided a positive policy environment for the development of pellet operations. As a result, the period from 2000 witnessed the rapid construction of pellet facilities across China, as set out in the plot. CRU's full breakdown of pellet plant capacity indicates that, as of 2013, rotary kilns accounted for approximately 60% of Chinese pelletising capacity.



#### *Why is the rotary kiln the preferred process choice in China?*

There are several reasons why rotary kiln technology is preferred over travelling grate, not least as it uses coal as the primary reductant, a fuel that is widely available and cheap in China, and it has a comparatively high adaptability with regard to pellet feed characteristics, a perceived necessary requirement given the fragmented structure of the domestic iron ore sector and availability of diverse pellet feed sources. Moreover, the CAPEX requirement for rotary kilns has fallen in recent years, now equivalent to a capital intensity of \$20-25 /annual Mt, significantly lower than that for the travelling grate process. Turning to the shaft furnace, although out-of-date, inefficient, polluting and lacking overt government support, this technology continues to be a viable option for steelmakers as BF gas can be used to fire the pellets and the CAPEX requirement is only half that for the rotary kiln process. However, given the upsizing of BFs in China, the shaft furnace is becoming increasingly less viable from a capacity perspective alone.

#### *Pellet quality has improved, but lags global standards*

As indicated above, pellet quality from the shaft furnace process is poor but, given the greater adoption of rotary kiln technology, overall Chinese pellet quality has been improving. However, quality is still well below world-leading levels, owing to both the inferior quality of pellet feed and facility and processing issues. Key quality issues include:

- ❖ Low Fe-content in pellet:
  - Chinese pellet producers typically use low-Fe pellet feed for cost considerations
  - Bentonite consumption is high

- ❖ High SiO<sub>2</sub> content in pellet:
  - More SiO<sub>2</sub> in the pellet translates both into a lower pellet Fe content and increased coke consumption in the BF, factors that reduce the value of the pellet to the iron maker
- ❖ Physical properties of pellet:
  - Poor quality pellet feedstock available on the domestic market and process limitations lead to poor and variable physical characteristics of the produced pellet

#### *Widespread idling of pellet facilities*

Due to the decline in concentrate production in recent years and the increasing volume of concentrate used in sintering, enabled by pre-agglomeration technology, pellet producers have felt a tightening of supply of pellet feed from the domestic market. This situation has led to a comparatively higher price for domestic pellet feed than previously that, combined with the quality concerns for Chinese pellet, has undermined the economics of the pellet process. Contrarily, imported sinter fines are plentiful and the price advantage versus domestic concentrate, after taking into account Value-in-Use considerations, is increasingly apparent. In view of the above, the current preference of Chinese steelmakers is to charge more sinter to the BF so as to reduce costs, especially when profit margins are poor, as is the case currently. According to CRU's research, reduced pellet rates in the BF burden have been widely adopted, except in those cases where sintering capacity is insufficient to support required production. As a result, we estimate that the average utilization for Chinese pellet plants in 2013 was just under 50%.

#### *Inevitable shift to an economic burden strategy*

The beneficiated burden strategy has encountered a significant challenge, both from a material availability and pellet quality perspective. It would be too early to say that this strategy has run its course but, more and more, iron makers have shifted towards an economic, or cost driven, burden strategy. Having said this, the environmentally unfriendly characteristics of sintering are also a concern for steelmakers (n.b. in China, around 40-60% of SO<sub>2</sub> emissions from all processes of iron making are from sintering). However, we don't think the cost increases due to environmental controls will curb the shift to an economic burden strategy and the sinter plant is far too useful to the iron maker for a number of reasons beyond, simply, the production of sinter. Chinese pellet producers will find it difficult, if not impossible, to overcome the inherent quality issues associated with domestically produced pellet that broadly negate the benefits that an iron maker typically seeks for the burden. As a result, the pellet rate in the BF burden in China will, in our view, continue to see further declines and the average utilization rate for Chinese pellet plants will remain low.

Source: www.crugroup.com

### **24.6 MnT Iron Pellet Capacity Expansion in India in FY15**

India's Iron Pellet installed capacity was 66.6 MnT pa in FY14 and estimated to reach about 91.2 MnT pa in FY15, that's a 24.6 MnT of capacity expansion in pipeline.

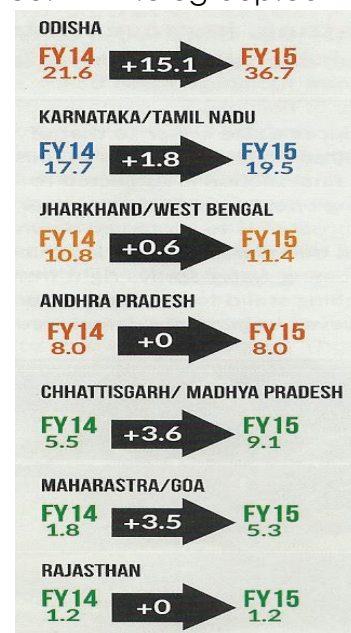
The country's Pellet capacity has observed an exceptional growth since 2008 menacing from superior quality Iron ore Lumps dearth. Following enforcement of Iron ore mining ban in Karnataka and Goa, Indian Iron ore production slumped enormously from 219 MnT in FY10 to 136 MnT in FY14.

Most of the plants are commissioned in Chhattisgarh and Odisha for captive consumption, however additional availability will show up in merchant market.

Source: Steel 360

### **Essar Steel will be India's largest Pellet Producing Company**

After subsequent achievement of having 6 MnT pa Pellet plant in Paradip, Essar Steel will become country's leading Pellet making company with 20 MnT pa installed capacity, although with no captive Iron ore mine.





Jindal Steel & Power (JSPL) will be the 3<sup>rd</sup> largest Pellet producing company in India after JSW Steel Ltd.

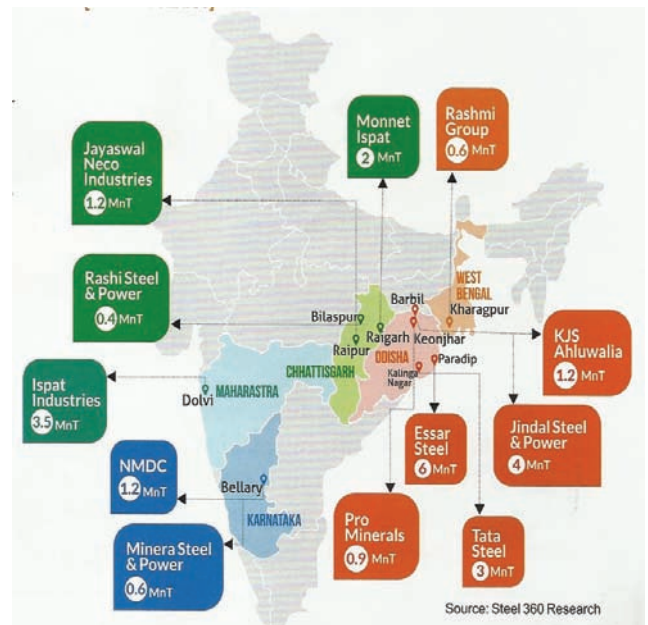
Odisha will continue to be the major Pellet producing state for the reason that enough Iron ore is available. And access to port will facilitate export sale.

### Outcome of escalating Pellet Production

Growing Pellet capacity will ascend merchant availability, which in due course might squeeze prices. Consequently, DRI plants will have a preference to make most of Pellets to a certain extent. Blast Furnace operators will possibly avail themselves of economical Pellets.

### New Plant may not come in FY16

In dialogue with trade sources & equipment suppliers, Steel 360 figured that not many Pellet plants may come up in FY16 owing to higher capacity against the present demand.



Source: Steel 360

Analysis of Indian Iron Ore Industry		
	FINANCIAL YEAR 2014	FINANCIAL YEAR 2015
PRODUCTION	<p><b>Iron ore production plunged nearly 8% Y-o-Y to 136 MnT on resumption of mining activities in Karnataka</b></p> <ul style="list-style-type: none"> <li>➤ Odisha remained steady at 62-63 MnT production, may witness rise in FY 15</li> <li>➤ NMDC production touched 30.2 MnT</li> <li>➤ Karnataka's fresh production touched roughly 16 MnT</li> <li>➤ Serajuddin Mines obtained EC limit of 15 MnT; production stood at about 7 MnT</li> <li>➤ Production from Essel (Jhilling), R P Sao, KJS (Thakurani) slumped remarkably</li> </ul>	<p><b>Iron ore production can ascend to nearly 150 MnT with an expected resumption of few A&amp;B class mines in Karnataka &amp; restarting of mining operations in Goa</b></p> <ul style="list-style-type: none"> <li>➤ Production should improve in Karnataka; 19 MnT of fresh production is projected</li> <li>➤ Supreme Court lifts mining ban in Goa with cap of 20 MnT pa. One can assume fresh production of roughly 9-10 MnT</li> <li>➤ Production may well escalate in Odisha by 4-5 MnT if no caps are set by the Supreme Court on Shah Commission's Counsel</li> <li>➤ Production numbers could step up from Serajuddin, Essel &amp; Rungta Mines</li> </ul>
EXPORT	<p><b>Export fell by 20% Y-o-Y to 14.4 MnT, for the reason that iron ore mining and export ban were sustained in Goa</b></p> <ul style="list-style-type: none"> <li>➤ Export from Paradip stood at around 5.6 MnT, followed by Vizag Port at 4.8 MnT and balance from Haldia, Dhamra, Gangavaram, Kakinada &amp; Redi Port</li> <li>➤ Rungta Mines were status quo as largest exporter with 2.6 MnT of export in Jul'13-Mar'14, ahead of MMTC (on behalf of NMDC), which was at 1.8 MnT</li> <li>➤ Respite for exporters as the Indian Apex Court permitted sale of 15 MnT stockpile in Goa through e-auction; 1<sup>st</sup> shipment went on 2 Apr. 2014</li> </ul>	<p><b>Perhaps, Export may restore at 18-19 MnT, as export from Goa picks up. Conversely, China spot Iron Ore prices and INR can be challenged.</b></p> <ul style="list-style-type: none"> <li>➤ Paradip port will possibly hold on to export at same level. As Indian exporters are paying high plot rent at Paradip, they would be looking forward to exploit extensively</li> <li>➤ Goa should give close to 5 MnT on the back of existing movement in export</li> <li>➤ Odisha government curbs export of Iron Ore Fines generated through production of Sponge Iron; might not blow exports to a major quantity.</li> </ul>
PRICES	<p><b>Prices continued to crash</b></p> <ul style="list-style-type: none"> <li>➤ Disparity between Fines &amp; Lumps prices in Odisha was at around INR 3,950/MT by the end of FY 14</li> <li>➤ Sponge iron makers used more of Pellet on techno-economic viability</li> <li>➤ Price variation between NMDC Fines &amp; Lumps kept on contracting</li> </ul>	<p><b>Possibly, prices will be under stress</b></p> <ul style="list-style-type: none"> <li>➤ In front of 20 MnT Iron Pellet capacity adding up this fiscal, merchant availability of Pellets will build up undoubtedly</li> <li>➤ Requirement of Fines ought to remain unvarying</li> <li>➤ Price differential between Fines, Lumps &amp; Pellets may continue to thin down</li> </ul>
E-AUCTION	<p><b>India sold about 29.2 MnT Iron Ore via E-auctions</b></p> <ul style="list-style-type: none"> <li>➤ MSTC sold about 29.2 MnT iron ore all through Karnataka e-auctions</li> <li>➤ NMDC contributed 10 MnT to total sales; JSW Steel remained leading consumer at 17.1 MnT</li> <li>➤ DGM, Govt. of Goa put 1.7 MnT iron ore for sale and got rid of 1.6 MnT via two e-auctions</li> </ul>	<p><b>Iron Ore offering through E-auction should ascend</b></p> <ul style="list-style-type: none"> <li>➤ E-auction of 13.4 MnT Iron ore still to take place in Goa; most quantity may well be exported as is low grade</li> <li>➤ Offered quantity from Karnataka may ascend considering a few A&amp;B category mines can reopen</li> </ul>

Source: Steel 360



## **New coke oven at Tata Jamshedpur commences operation**

ACRE Coking & Refractory Engineering Consulting Corporation of MCC (ACRE) announced that, the No. 11 coke oven under the Jamshedpur Coking Project of Tata Steel, was put into operation and generated the first batch of coke products on May 1, 2014. This is the first EP Project independently undertaken by ACRE. Established in 1907, Tata Steel has established itself into the representative of Indian steel industry. The EP Contract of the JAMSHED-PUR Coking Project was inked between ACRE and Tata Steel in September 2009. As per the contract, ACRE shall be responsible for the plant design, procurement of equipment and materials, guidance on construction and installation works and trial run service. The project scope covers: four tamping coke ovens (5.0m, and the No. 11 oven is the last one); ground station for coal loading, coke discharging and dedusting operation; and the by-product workshop (including the facilities for condensation blower, sulphur ammonia washing, de-acidification, sulphur recovery and naphthalene distillation). On this ground, the coke oven and the main body of the chemical production parts have been fully put into operation, and will be subject to the inspection and acceptance in the next period. At present, all the parts are proved to be running well. The employer places a high premium on the design, supply and construction work of the project, and the transitional work is being promoted steadily.

Source: [www.oreteam.com](http://www.oreteam.com)

## **Copper boosted by China trade data**

Copper futures closed higher on the London Metal Exchange, boosted by some solid trade data from top metals consumer China. The LME's flagship three-month copper contract was up 1.1 per cent at \$US6,729 a metric ton at the close. China posted unexpected gains in both exports and imports for April, beating market estimates and adding up to a trade surplus of \$US18.5 billion. Its April copper, copper-products imports rose 52.5 per cent on the year to 450,000 tons. "Chinese traders have clearly taken advantage once again of the low copper prices - the red metal dropped by 10 per cent in price for a time in March, losses that it has only partially been able to recoup in the meantime - to buy up material opportunistically," said analysts at Commerzbank AG. China is the world's largest copper market, accounting for 40 per cent of the world's imports of the industrial metal.

Source: [www.news.com.au](http://www.news.com.au)

## **China copper smelters scale back exports as domestic prices recover**

China's smelters have cut exports of spot refined copper recently to sell more in the domestic market where prices have risen, easing a supply shortage in the world's top consumer of the metal. Reflecting the easier availability, premiums copper buyers in China pay on top of the Shanghai Futures Exchange front-month contract to secure physical metal have halved to around 500-600 yuan (\$80.28-\$96.34) per tonne recently from more than 1,000 yuan in April, traders and sources at smelters said. But the drop in exports could mean constrained supplies in the international market, supporting benchmark London Metal Exchange (LME) prices that have fallen more than 8 percent this year due to an expected global surplus. Large Chinese copper smelters jointly drew up a plan in March to boost exports of refined copper in an effort to cope with low domestic prices. They exported more than 100,000 tonnes in April for spot and term shipments, the traders and sources at smelters said. The bulk of the metal had been delivered to bonded warehouses in China on requests by buyers, they said. Smelters' exports were likely to fall to about 75,000 tonnes in May as they only kept term shipments after increasing spot selling in the domestic market, a trader and an executive at a large smelter said. "Smelters' exports in May won't be as high as last month because they are selling more domestically," the executive said, who declined to be named because he was not authorised to talk to the media on the subject. He added that smelters had already contracted to export about 75,000 tonnes of refined copper per month for 2014, which, coupled with spot selling in March and April, would push up China's shipments to a record 1 million tonnes this year.

## **FALLING STOCKS**

China copper premiums in April hit their highest levels since 2011 after smelters cut domestic supply in favour of exports. In March, buyers could get discounts. The high premiums became a draw for smelters to sell more domestically but prompted some copper end-users to delay spot purchases, even though seasonal demand pushed up their orders, according to the traders and sources at smelters. A high price also led to importers bringing in metal into the domestic market, traders said.

Premiums for bonded copper stocks in Shanghai have nearly doubled to \$130-\$140 per tonne over cash LME prices this week compared to early April, traders said. Wu Yuneng, vice president of top producer Jiangxi Copper, said buyers may face tight supply in coming months due to falling stocks in China and the LME. He added that the global refined copper market may see a deficit of about 600,000 tonnes this year, similar to 2013. "Many institutions have expected a surplus in the global market this year. That's right for concentrates but it is not right for refined copper," Wu said. Bonded copper stocks in Shanghai stand at about 600,000-700,000 tonnes currently, down from 650,000-700,000 tonnes in late April, even after smelters increased exports to the bonded warehouses last month, three traders estimated. Copper stocks in the Shanghai exchange CU-STX-SGH were at the lowest since December 2011. LME stocks were at the lowest since October 2008 MCU-STOCKS on Friday. (\$1 = 6.2280 Chinese Yuan) (Editing by Muralikumar Anantharaman)

Source: Reuters

### **Wood Mackenzie says Indonesia export ban points to questions over China's long-term bauxite supply**

In light of the Indonesian mineral ore ban that came into force on January 12<sup>th</sup> 2014, Wood Mackenzie says the aluminium industry – particularly in China – faces a challenge to address a growing shortage of the raw material bauxite, an aluminium ore. It poses a compelling question for China – the world's largest aluminium producer and consumer – with its alumina refinery production forecast to rise by almost 17 million tonnes (Mt) by 2018 and a further 40Mt by 2030. Wood Mackenzie estimates China will need access to an additional 130Mt of bauxite over 2013 levels and expects China to consume as much as 240Mt of bauxite by 2030. Until now Indonesia was the main supplier of bauxite to China, accounting for around 65% of overall supply in 2013. However, the mineral ore export ban that came into force in January this year, created a significant supply gap for China to fill. Wood Mackenzie believes the ban could be transformative to the global bauxite market in the longer term, but in the short to medium term the impact will be less significant due to swollen stockpiles and source diversification. Julian Kettle, Head of Metals and Mining Research for Wood Mackenzie explains: "China is the main global player in the aluminium market representing between 40% of supply and 60% of demand. Our most recent forecasts indicate that global alumina refinery production will rise to almost 140Mt by 2018, which means we'll see bauxite demand rise by almost 80Mt to 350Mt. With China's alumina demand set to increase so sharply, there will be huge implications for bauxite demand. We estimate China will need access to as much as 240Mt of bauxite by 2030 and as it only produced 72Mt domestically in 2013, huge uncertainty remains over the import versus domestic supply mix." So where will China now source its bauxite from? Undoubtedly if Indonesia sticks to the ban in the longer term, China will have to look to alternative import sources or develop new mines domestically. However Wood Mackenzie suggests that China has in fact been making moves to diversify supply for some time in preparation for the ban. Carl Firman, Aluminium Analyst for Wood Mackenzie says: "In recent years we've seen China sourcing additional quantities of bauxite from a variety of other countries, most notably Australia and India – and while the alternative sources are not supplying huge volumes to China currently, in time they could do." Wood Mackenzie believes that China has been actively increasing imports of bauxite since the mineral ore ban was first mooted in 2009. "This is a strategic move by China to ensure it can firstly meet the direct needs of the coastal aluminium refineries it's built up over the years, but secondly in preparation for the ban coming into force. We estimate that China has accumulated more than a year's worth of bauxite supply. This works out at about 40Mt, or four-fifths of the entire volume of bauxite exported by Indonesia in 2013," Mr Firman adds.

Mr Kettle asserts: "Ultimately China's vast bauxite stock piles mean that in the short-term at least, there won't be any immediate impact on metal production. This strategic effort on China's part has ensured the breathing space required to either develop new bauxite mines domestically, or establish new sources of supply through imports." Wood Mackenzie suggests one viable option that China is exploring is the utilization of coal fly ash. "By investing in the development of new technology to extract alumina from the by-product (which occurs when burning coal for power generation) China could significantly reduce its bauxite requirement, but then again if it doesn't produce enough, it will still have to explore other options," Mr Kettle adds. There are plenty of opportunities to develop bauxite production domestically and elsewhere in the world, and Wood Mackenzie suggests that

three major basins in Guinea, Australia and Vietnam could more than meet China's needs, but there are significant challenges to be overcome. Mr Firman cautions: "Is China going to put all of its eggs in three baskets – its history of diversifying supply would suggest otherwise." "China does have options, but they come at a price. Developing new bauxite sources in other parts of the world will require significant investment as host governments don't just want mines – they want added value in the form of refineries and smelters. There are also the high cost hurdles of resource nationalization, surrounding politics and developing infrastructure that China will have to negotiate in order to establish new trade routes. The big question is, will China look to these alternative sources and significantly increase imports or will it develop its own domestic resources to meet its insatiable demand? One thing that is for sure is that there are lots of opportunities for host governments open for China's business." Mr Firman offers in closing.

Source: [www.mining.com](http://www.mining.com)

### **Nickel at two-year high after Vale suspends Goro plant**

Mining giant Vale SA (NYSE:VALE) suspended production at its New Caledonia's Goro nickel processing plant and mine due to an effluent spill, Reuters reported recently.

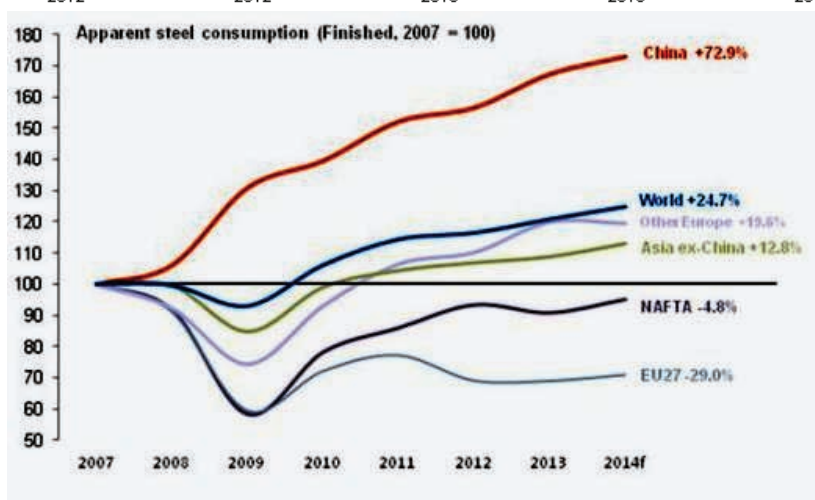
The president of New Caledonia's Southern Province, Cynthia Ligeard, ordered Brazil's Vale, the world's second biggest nickel producer, to halt operations immediately, after an estimated 100,000 litres of effluent ended up in a creek, according to Radio New Zealand International (RNZI). The provincial government and the environmental authority have sent a joint mission to evaluate the state of the US\$6 billion plant.

Vale said in response the spill was due to a misconfiguration of the circuits transferring solution and the water quality of the creek is now back to normal.

The Goro mine had been targeting to produce about 40,000 tonnes of nickel this year, out of a total worldwide production of about two million tonnes. Earlier this week Glencore Xstrata said output at its Koniombo mine, also in New Caledonia, had been disappointing, and that its 26,000-tonne production forecast for this year was being reviewed. Nickel prices hit a two-year high in London Metal Exchange recently, reaching \$19,786, the biggest one-day gain in nearly four years, over supply concerns including Indonesia's ban on nickel early this year. According

to Bloomberg Deutsche Bank analysts expect nickel to peak at \$27,000 a metric ton in 2017. Despite being one of the best-performing commodities this year, with prices rising over a third since January, nickel doesn't seem to be in the cards for diversified giant Anglo American (LON: AAL). The miner said it is mulling the sale of its Brazilian nickel unit to Vale, the South American country's largest miner, as part of its ongoing efforts to swing back to profit.

Source: [www.mining.com](http://www.mining.com)





## **Gold may trade rangebound to downward on poor demand: Emkay**

*Emkay Commodities has come out with its fundamental outlook on commodities. According to the research firm, Gold prices are expected to continue in range-bound to downward movement over poor demand from Asia and easing fear in Ukraine and Russia.*

### **Emkay's fundamental outlook on commodities:**

#### **Precious Metals:**

U.S. Comex gold futures for June delivery moved down by 0.09%. Gold for June delivery on the Multi Commodity Exchange (MCX) remained flat at Rs 28,523/10gms and silver moved down to Rs 41,587/kg. Gold prices remained flat in Indian as well as International market as poor demand from Asian economies and easing fear in Ukraine kept the prices in range. Pro-Moscow separatists in eastern Ukraine ignored a public call by Russian President Vladimir Putin to postpone a referendum on self-rule, declaring they would go ahead with a vote that could lead to war. The decision, which contradicted the conciliatory tone set by Putin, caused consternation in the West, which fears the referendum will tear Ukraine apart. We expect Gold prices to continue in rangebound to downward movement over poor demand from Asia and easing fear in Ukraine and Russia. We expect Gold prices to continue in rangebound to downward movement over poor demand from Asia and easing fear in Ukraine and Russia. We expect Crude oil prices to remain down over easing fear in Russia and higher gasoline inventories. We expect Copper to remain down over stronger dollar and worries over China.

#### **Energy:**

Crude- U.S. crude oil futures settled down by 0.51% at \$100.26 per barrel. Front-month Brent futures closed down at \$108.04 a barrel moving down by 0.08%. Crude Oil prices moved down nearly half a percent as easing fear in Ukraine and higher inventories pushed the prices further down. A Libyan government deal to reopen major oil ports controlled by rebels looks likely to unravel as the appointment of a new Islamist-backed prime minister fuels distrust that is eroding support for the accord. Japanese trading houses say they will push on with investments in North American shale oil and gas fields, despite write downs in the sector on low gas prices and reduced reserve estimates. We expect Crude oil prices to remain down over easing fear in Russia and higher gasoline inventories

Source: [www.moneycontrol.com](http://www.moneycontrol.com)

## **Aluminium giant Rusal says losses narrowed in Q1**

Rusal, the world's largest aluminium producer, on Tuesday said its net loss in the first three months of 2014 had narrowed sharply and signalled a pick-up in global demand for the metal. The Hong Kong-listed Russian giant reported a loss of \$325 million in January-March, compared with a \$2.71 billion loss in the previous quarter. Chief executive officer Oleg Deripaska said in a filing to the Hong Kong Stock Exchange that cost cutting and curtailing of inefficient capacity had led to "significant improvement" in the firm's bottom line. "While it is too soon to say the aluminium market has fully turned the corner, we are seeing positive trends, such as robust consumption growth," he said. The firm has been hit by record-low aluminium prices triggered by excess global supply and economic uncertainty and it suffered a loss of \$3.22 billion last year owing to tumbling prices and restructuring costs. Total revenue in the first quarter shrank \$559 million to \$2.12 billion year-on-year. Shares in Rusal were up 2.86 percent by the break in Hong Kong. The firm forecast global demand to surge six percent to 55 million tonnes in 2014 driven by growth in China as well as in advanced economies such as those in Europe and the United States. The average price of aluminium has fallen to \$1,708 per tonne from \$1,769 in the previous quarter as quoted at the London Metal Exchange. A plan announced in November last year by the London Metals Exchange to streamline deliveries of base metals have angered producers around the world and Rusal in December triggered a judicial review of the plans.

Source: The Economic Times

## **Aluminium's day dawns as iron ore dims**

*RIO Tinto's much-maligned aluminium business could be a surprise saving grace for the miner as iron ore prices soften, with the company's cost-cutting drive set to produce strong cashflows and boost the chance of big returns to shareholders.*

The turnaround in aluminium, which Deutsche Bank is forecasting will contribute \$US2 billion (\$2.1bn) of annual free cashflow to Rio by 2017, comes as chief executive Sam Walsh predicts an end to the

Chinese overcapacity that has hobbled the industry in recent years. While there is no hope of recovering the \$US25bn of value wiped from the aluminium unit's book value since Rio paid \$US40bn in cash for Alcan just before the global financial crisis, some investors are positioning themselves for a rebound. "We have shareholders on our portfolio because they believe our aluminium business is going to be very prospective," Mr Walsh told the company's annual meeting in Melbourne last week. "That's their call, but it is an indication that people expect there will be improvement in the business."

Deutsche Bank analysts also sense a change.

"The value of Rio's aluminium business has been mentally written-off by the market," analysts Rob Clifford and Paul Young said few days back a detailed report on the business using new information provided by Rio. "We expect this to change in 2014, with the division close to completing the majority of its transformation." A focus on cost-cutting and the closure of high-cost assets led Rio to report a \$US550m aluminium profit last year, when most analysts were expecting it to just break even. After redoing its Rio numbers recently, Deutsche has boosted its 2014 aluminium forecast to \$US955m this year, up nearly \$US300m on its previous forecast. "After years of generating negative cashflow, the long process of restructuring Rio's aluminium division is about to pay off," the analysts said. "The improvement in aluminium free cashflow will offset the slide in iron ore prices in our view." Rio's Alcan acquisition was made as China started building enormous aluminium capacity. Half of this is now thought to be losing money, but there are no signs it will be shut down in the short term.

This has depressed prices, which have fallen from about \$US3000 a tonne in 2008 to about around \$US1800. At Rio's London AGM last month and again in Melbourne a few days back, Mr Walsh spoke of an end to the Chinese aluminium overcapacity, which he says is partly the reason the investors he spoke of are backing Rio. The reason is that the growing Chinese middle class, like aluminium production, is energy-hungry. The increasing middle class will buy refrigerators, televisions, airconditioners, you name it, and they'll need to power those up," he said. "I believe there will be a transition from using stranded power in China to power aluminium smelters to actually using that power to provide power for middle class houses and for small and medium enterprises. "It's what happened to Japan in the 1970s — Japan had a very vibrant aluminium smelting industry back then; today they have none." Mr Walsh expected this to happen within the next decade. Billionaire fund manager Kerr Nielsen, who runs Platinum Asset Management, is also a believer in aluminium. In a recent fund update, Mr Nielsen said a bigger Chinese focus on returns on capital, pollution abatement, an export ban in Indonesia and reduced alumina supply following the closure of Rio's Gove refinery were all set to slow capacity growth. "The industry itself has seen demand growth of 6 to 7 per cent per annum and any slowing of capacity additions could see a strong move in the metals price." Deutsche Bank is forecasting prices will rise to \$US3000 a tonne again by 2020.

Source: [www.theaustralian.com.au](http://www.theaustralian.com.au)

### **Copper plate dating back to 1655 CE found**

A copper plate charter issued by Thirumalai Nayak, who ruled Madurai from 1623 CE to 1659, on his donating land to a person belonging to the Piramali Kalar community, has been found in possession of that person's descendants.

The charter is with P. Mathiazhagan (44) of Vellaiamlaipatti village in Tamil Nadu's Madurai district, who belongs to the lineage of Pillai Thevan, who received the grant of land from Thirumalai Nayak in 1655 CE. The plate, 18 cm long and 12.5 cm broad, has an inscription in Tamil on both its sides that talks about the king's gift. The script runs to 28 lines on one side and 11 on the other.

On being told that a copper plate was in the possession of Mathizagan, a farmer, a team comprising K. T. Gandhirajan, who has discovered several rock art sites in Tamil Nadu, A. K. Alagarsamy, P. Mohan Kumaramangalam and Paraman reached the house of Mathiazhagan at Vellaimalaipatti village and he showed it to them. Mathiazhagan's family, unaware of the historical value of the copper plate charter, was safekeeping it in a trunk, taking it out once a year and worshipping it, said Mohan Kumaramangalam.

The inscription talks about how Pillai Thevan of Urappanoor village met Thirumalai Nayak with gifts of "a parakeet figurine made of gold, and silver and gold flowers." This gladdened the king, who donated gold and also wet and dry land to Pillai Thevan, and told him to be the Kaval ambalam

(protector of the Urappanoor village and the surrounding area). The charter specifically mentions the boundaries on the four sides of the land gifted. Manickam Achari inscribed the plate, it says.

According to Mr. Gandhirajan, the plate can be dated to June 1655 from the Tamil year, Manmatha, and the month, Avani, and the date mentioned in the charter. Another copper plate, found recently in the area, also talked about Thirumalai Nayak talked about his gifting land to Adhi Thirumalai Pinna Thevar of Keezh Urappanoor village, he said. This plate and the latest discovery with a similar charter, indicated that Thirumalai Nayak, perhaps, wanted to forge an understanding with the martial Pirmalai Kallar community that lived in the area, Mr. Gandhirajan added.

Both Mohan Kumaramangalam, a schoolteacher, and Alagarsamy, a college teacher, said several copper plate charters, issued by Thirumalai Nayak, have had been found in the area.

Source: The Hindu

### **No bauxite mining at Niyamgiri till local nod: Vedanta**

Anil Agrawal-led Vedanta Resources has made it clear that it would not mine bauxite from the Niyamgiri hills to feed its Rs 5,000 crore Lanjigarh alumina refinery in Odisha until it gets approval from the local community. "In deference to the sentiments of the community, Vedanta confirms it is not seeking to source bauxite from Niyamgiri bauxite deposit for its alumina refinery operations and will not do so until we have the consent of the local communities," Vedanta said a few days back. The announcement comes nearly four months after the ministry of environment and forest turned down Vedanta's mining proposal, paying heed to the local villagers' verdict. All 12 gram sabhas held in July-August last year had unanimously expressed opposition to the mining operation in the hills saying it would violate their social, cultural and religious rights.

"Accordingly, in terms of the MoU with the Odisha government, which assures supply of 150 million tonne of bauxite for our processing facility, we are working with the state government and pursuing alternate options for our long-term bauxite security," Vedanta said. The tribal villages, located on hills, are part of Rayagada and Kalahandi districts. They were selected after an SC order directed the Odisha government to conduct gram sabha meetings to decide whether mining will affect the religious, community and cultural rights of the villagers, especially their right to worship Niyam Raja, the deity. Agarwal had earlier told PTI, "Niyamgiri was a very small deposit and the Odisha government has promised us that it will give this and also work on other deposits.

Source: Financial Express

### **Existence of elusive element 117 confirmed**

The periodic table is about to get crowded with the addition of a new, super-heavy element. Researchers, including some from India, have created atoms of element 117, matching the heaviest atoms ever observed, which are 40% heavier than an atom of lead.

The decay properties measured by an international team working at the GSI accelerator laboratory in Germany match previous data, strengthening the case for official recognition of element 117 as a new element. The finding marks an important step towards the capability to observe still more long-lived super-heavy nuclei.

The experiment was performed by an international team of chemists and physicists headed by Christoph Düllmann, from SGI Johannes Gutenberg University Mainz and the Helmholtz Institute Mainz. The team included 72 scientists and engineers from 16 institutions in Australia, Finland, Germany, India, Japan, Norway, Poland, Sweden, Switzerland, the UK, and the US.

Elements beyond atomic number 104 are referred to as super-heavy elements. Although super-heavy elements have not been found in nature, they can be produced by shooting accelerated beams of nuclei at the heaviest possible target nuclei. In the new research, the special berkelium target material, essential for the synthesis of element 117, was produced over 18 months. Atoms of element 117 were separated from huge numbers of other nuclear reaction products and were identified through their radioactive decay.

These measured chains of alpha-decays produced isotopes of lighter elements with atomic numbers 115 to 103, whose registration added to the proof for the observation of element 117.

Source: Times of India



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