

SIMA

Sponge Iron Manufacturers
Association

Indian voice for the ore based
metallic & steel industry

DRI UPDATE



DECEMBER, 2017

GLIMPSES OF 2017

Editorial	Page 1
Chairman's Message	Page 2
Seminar on Secondary Steel Producers	Page 3
International Exhibition and Conference on Steel Industry	Page 4 - 5
SIMA Venturing into New Territory	Page 6 - 9
Interactive Session in Goa	Page 10
Iron & Steel Summit, Raipur	Page 11
Initiative for Skill Development for Industrial Workers	Page 12 -13
Technology Related Issues	Page 14 - 15
Food for Thought	Page 16

EDITORIAL



Dear Readers,

Turbulent year 2017 is coming to end. It is a time to look back and ponder on the issues which have impacted sponge iron and sponge iron based steel producers. The industry faced many challenges like sluggish market, shortage of vital raw materials like iron ore & non coking coal and their rising prices, logistic constrains etc. Fortunately, Q3 of the current financial year has undoubtedly brought some cheers. I am sure Q4 would be further better. As per the different national and international agencies, price of steel would continue to be firm. We expect that Government expenditure on infrastructure and affordable houses would boost the steel demand in the country in 2018.

It is, undoubtedly, a matter of great satisfaction that SIMA has come in to the prominence of the central and state policy makers, planners and our views are heard with due respect.

During the year 2017 we initiated various new activities about which we have been continuously informing our members. In this special issue we have tried to club all those major activities for the convenience of the stake holders. This again a new initiative and I am sure you would like it.

We are about to enter the new promising year. We wish Happiness, Prosperity and Fulfilling New Year 2018 to all our readers.

A handwritten signature in blue ink that reads "Deependra Kashiva".

Deependra Kashiva



CHAIRMAN'S MESSAGE

The year that went by took your association further from strength to strength. In the immediately preceding years, the conduct of the association and its views on many issues such as coal block cancellation or policies and notifications leading to auctions of coal block or their linkage had won the trust and confidence of the various ministries in the Government of India. In the year 2017 your association not only lived upto it, but also took it to new levels.

SIMA took upon itself a responsibility to garner the views of its members in anticipation of issuance of policy steering notifications and proactively sent these views to the concerned departments or ministries of the GoI. This led to getting invitations from the ministries to participate in the policy making process...collecting and Sharing inputs, commenting on the drafts, making representations or presentations as appropriate, circulation of policy papers, assessing the impact of the policy change, giving feedback and sometimes suggesting the corrective actions and so on....such as, safeguard duties and steps, coverage of the resultant actions, separating Sponge iron industry from "others" category and giving it a separate identity, allocation of coal, coal rakes, iron ore, iron ore price regulations, scrap imports, quality orders, making gas available to the gas based Sponge iron plants, energy utilisation and setting targets for improvement etc.

The best of all was to participate in preparation of National Steel Policy 2017. You will notice and appreciate the prominence the Sponge iron and the secondary steel sector got in the NSP 2017.

Your association did not stop there. It sought a collaboration from a financial firm and organised in August a symposium jointly with the Ministry of Steel and sought to engage the financial sector in implementation of the policy. One of the components of the policy is also to "skill Sponge Iron and secondary steel sector in India". It has taken a big initiative of "skilling the industry" and has already organised programme at Dhenkenal, Odisha and many more are planned in different states like Karnataka, Gujrat, Chhattisgarh.

It organised jointly with Steel world a two day seminar to collect process, debate improve and disseminate the knowledge... Know why and know how.....amongst its members.

The association believes that through its own processes, it has been able to play the role of a two way bridge between the Government and the industry.

Finally, the association can be only as good as the strength of bondage of its members. We appreciate the contribution of its active and semi active members and wish to thank you all.

May the New Year be prosperous and happy for the industry, all the members of SIMA and their captains.

A handwritten signature in black ink, appearing to read 'D P Deshpande', written over a light grey rectangular background.

D P Deshpande

Seminar on Secondary Steel Producers, Vigyan Bhawan, New Delhi

Ministry of Steel organized **National Seminar on Secondary Steel Producers** on 5th April, 2017 at Vigyan Bhawan, New Delhi to consider the problems and prospects of the secondary steel producers to augment the steel availability in the country. This important event was attended by Union Steel Minister, Union Minister of Shipping, Road Transport and Highways, Minister of State of Steel, Minister of State of Consumer Affairs, Food and Public Distribution, Secretary, Ministry of Steel and other dignitaries. SIMA was in the Organizing Committee and contributed significantly about topics and speakers on this occasion.

ED, SIMA presented a paper on Challenges & Issues Impacting Indian Sponge Iron Industry.



View of seminar speakers

3rd International Exhibition and Conference on Steel Industry
April 19th – 21st, 2017 at Mumbai

3rd International Exhibition and Conference on Steel Industry on 19th – 21st April, 2017 at Mumbai organized by Ministry of Steel along with FICCI



ED, SIMA speaking on this occasion.



ED, SIMA receiving mementos from Shri Jayant Acharya, Director (Comm.), JSW Steel.

SIMA VENTURING INTO NEW TERRITORY

Sponge Iron Manufacturers Association (SIMA) with active support of Ministry of Steel had organized a one day Symposium in Mumbai on August 23 on the subject of “**Unfolding 300 Million Tonnes Steel Vision**”. The symposium held at Taj Santacruz East, Mumbai and attended by the senior managers of the mutual funds and insurance companies & captains of steel industries and mining industries was inaugurated by the Minister of State for Steel. In the Symposium, Dr. Aruna Sharma, Secretary, Ministry of Steel made a presentation elucidating the journey of steel making, the challenges it is facing, and impact of policy measures on the industry performance. The entire audience was captivated by the snapshot they got to get. The key points of the snapshot were :

1. While it took ten years for the country to go up from 50 kg to 60 kg of per capita steel consumption, it just took less than two years for it to go up to 64 kg per capita. This is expected to further increase to 160 Kg by 2030 -31.

2. The secondary steel sector, better called as MSME sector, is expected to play a significant role in the 300 MTPA steel capacity visions. With their advantages of low capex , about Rs 2000 Cr per mtpa and low switching costs, they will be at least be producing 50 percent of the steel requirement. The MSME sector has little to no NPA as an added advantage.

3. Some of the policy measures that seem to hit the bull's eye are anti dumping measures and insistence on consuming in all give projects steel made domestically or having a domestic value add of at least 15%. This has already led to a reduction of imports from 11.7 MT to 7 MT and doubling the exports from 4 MT to 8 MT. The GST rates are set supportive to the steel manufacture.

4. Some of the other policy measures the results of which are in the pipeline are :

- a) Coking coal dis aggregation and making it available at 13 percent ash to the steel industry.
- b) Advocacy for right of way along the railway lines to slurry pipeline for iron ore fines.
- c) Reclassification of iron ore /pellet to reduce logistics cost.
- d) Suitable modifications in MMDR act to make the iron ore mine auction in 2020 predictable and effective.
- e) Reduction in power rates for steel making already started with the states of Punjab and Chhatisgarh.

5. The NCLT is expected to resolve the NPA issue in a maximum time period of nine months.

The inaugural session was followed by three sessions, one each on steel industry, banking and minerals / logistics. These sessions were chaired by the Joint and Additional Secretaries of the Ministry of Steel.

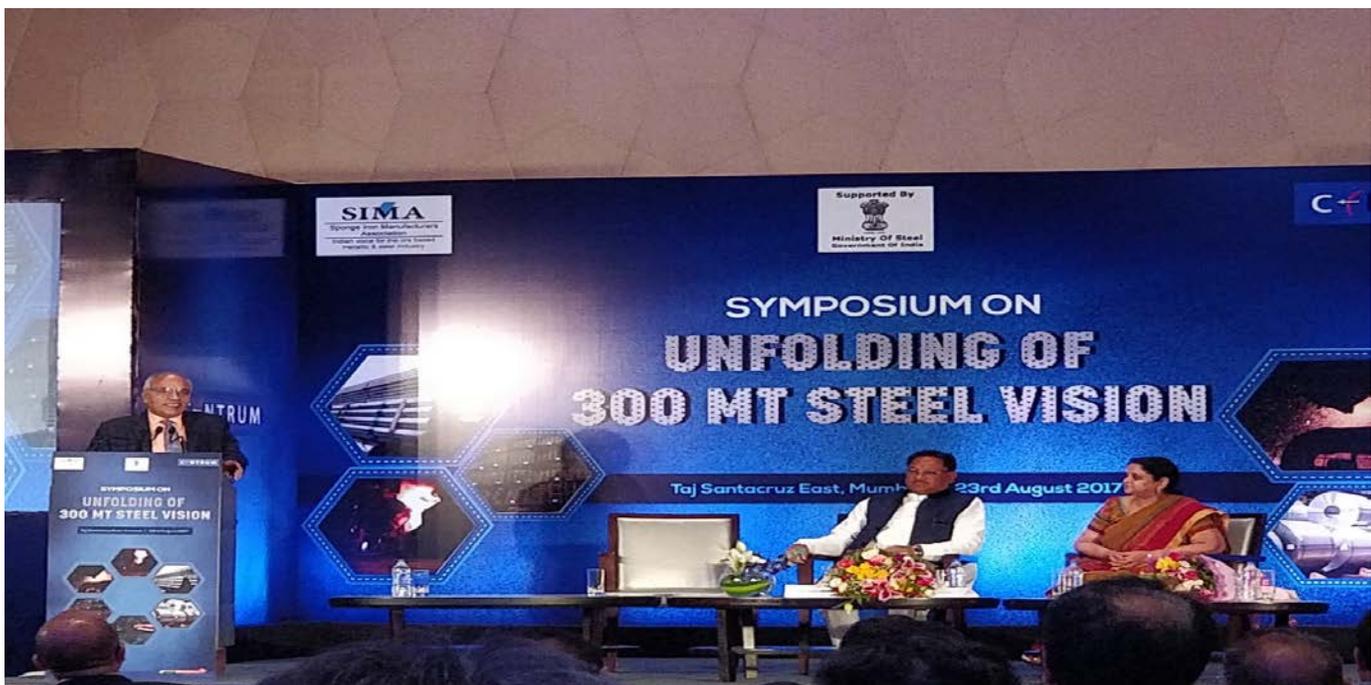
Some of the solutions/ suggestions that came up for further action are :

1. Need to ensure the total value creation in a just manner across the entire value chain. If the bulk of it stays with the miners, the rest of the chain has only a little left to pay back the interest burden in a capital intensive industry.

2. A follow up on policy measures for reducing the cost of vital raw materials and logistics.

3. Improving productivity, specific consumptions by the industry as a permanent measure to improve the profitability, even after the disadvantage of poor quality of raw materials.
4. Improve the quality of domestic coking coal and increase its consumption in steel making
5. Examine alternatives such as creating bonds similar to the infrastructure bonds, for investment in steel industry. That will enable banks to the cost of capital low.
6. Freight corridors, waterways, mechanized goods sheds, enhanced tracks, faster loading, unloading will enable Railways also to reduce freight rates.
7. Reducing power/ energy consumption will not only reduce costs but also cover distance to meet the targets post Paris Climate Agreement.
8. Landing rates needs to be reduced from the current level of 9 - 10% to 6 - 7% in order to have sustainable margin for steel companies.
9. Mutual funds need to invest more in the equity.

The symposium was fairly successful in communicating to the investor community, the preparedness of the industry and the government to deal with the cyclical low points of profitability and promise a viable option for further investment and growth. Key photographs of the event are:



Inaugural Session

Shri Vishnu Deo Sai, Hon'ble Minister of State of Steel, Dr. Aruna Sharma, Secretary, Ministry of Steel and Mr. D P Deshpande, Chairman, SIMA



Panel discussion moderated by Shri Syedain Abbasi, Joint Secretary, Ministry of Steel.

Panelists - Shri D P Deshpande, Former MD, Tata Sponge Iron Ltd, Shri Seshagiri Rao, Jt. MD & Group CFO, JSW Steel, Shri T V Narendran, MD, Tata Steel, Shri B K Goenka, Chairman, Welspun Group and Shri Deependra Kashiva, ED, SIMA



Dr. Arundhati Bhattacharya, Chairperson, SBI moderated by Shri Saraswati Prasad, Addl. Secretary & Financial Advisor, Ministry of Steel.



Panel discussion moderated by Shri Syedain Abbasi, Joint Secretary, Ministry of Steel.

Panellists - Shri Suba Rao, CMD (Acting), KIOCL, Shri Prabhas Dansana, ED, (TTS), Railway Board, Shri Tuhin Mukherjee, MD, Essel Mining and T R K Rao, Director, NMDC Ltd.

Interactive Session organized by SIMA 19th September, 2017, Goa

As a part of Silver Jubilee Celebration, **Sponge Iron Manufacturers Association (SIMA)** is organising regional events. Last month a Symposium was organized in Mumbai. On 19th of this month SIMA organised an Interactive Session in Goa which was attended by Secretary and Joint Secretary, Ministry of Steel. After the Session, discussions were held with the Chief Secretary and Chief Minister, Government of Goa. A press release of the Navhind Times Goa is as under:

Goan sponge iron units seek permission to expand

NT NETWORK

PANAJI: Sponge iron units in Goa are asking for permission for brown-field expansion in capacity as well as permission to participate in the preferential government purchase programme. They are also asking for a rationalization of power costs.

Units in Goa, Jalna and Kolhapur region on Tuesday had an interactive meeting with Dr Aruna Sharma, steel secretary and S Abbasi, joint secretary of steel. The meeting at a Bambolim hotel was organised by the Sponge Iron Manufacture Association (SIMA). Unit owners appraised the government of their problems and said that most of them are small companies belong to the small and medium sector.



Steel secretary Dr Aruna Sharma addressing the meeting

Deependra Kashiva, executive director, SIMA, pointed out that, hurdles in production is adversely affecting the physical and financial performance of small units particularly of induction furnace based steel producers and re-rollers of Goa, Jalna and

Kolhapur.

Taking note of the problems faced by sponge iron manufacturers, Dr Sharma said that, it is a matter of great satisfaction that non-performing assets from the MSME steel sector is almost nil compared to the big steel

producers. She stated that her ministry is working on proposal to provide the financial assistance to the sector at a interest rate of seven- eight percent.

She assured the full support from the government to the cause of sponge iron units.

Efforts are being made to organize events in Kharagpur, Odisha, and Bellary, Karnataka in the coming months.

Iron & Steel Summit, Raipur

15th Iron & Steel Summit, organized by “Steelworld” in association with “Sponge Iron Manufacturers Association” was held at Raipur on 22 – 23rd September, 2017. Many vital issues such as viability, costing at various stages of processing, technology upgradation, new generation business models, role of financial institutions etc. were discussed. The highlights of the conference were special sessions on “Industry Analysis”, “Solid Waste Management in Steel Plants”, “Cost Cutting and Efficiency Improvement in Plant Operation”. Informative presentations, interesting discussions and debates, networking sessions and innovative displays made this event a unique one and fulfilling for all the participants.



Shri R K Padhy, JPC, Shri D P Deshpande, Chirman, SIMA, Dr. Susmita Dasgupta, ERU, Shri Paramjeet Singh, NISST

Initiative for Skill Development for Industrial Workers

First time in the 25 years history of SIMA, we have organized a training programme for the semi skilled /skilled industrial workers on 14th December, 2017 in the Training Centre of Narbheram Power and Steel, Dhenkanal, Odisha. This event was organized in association with Indian Iron and Steel Sector Skill Council (IIS SSC). IIS SSC is promoted by Institute of Steel Development and Growth (INSDAG) and Bengal Chamber of Commerce and Industry and is mandated under National Steel Development Corporation (NSDC). Workers would be awarded merit certificate by the Ministry of Skilled Development and Entrepreneurship.

Some of the photographs of the event are





We wish to organise such training programme in different clusters like Raipur, Bellary and other places as per the requirement of the members.

This initiative was brought to the knowledge of Ministry of Steel. We have received the appreciation from Dr. Aruna Sharma, Secretary, Ministry of Steel. Quote” **Congratulations SIMA. Please send photographs with small write up to Ms. Urvilla Khati, Joint Secretary, Ministry of Steel. We will put this item in our Annual Report 2017-18**” Unquote

Technology Related Issues

1. Substitute of Natural Gas for gas based sponge iron plants

Quality & quantity of non coal for coal based sponge iron and natural gas availability for the gas based sponge iron plants have always been critical issue for the sustainable growth of Indian sponge iron industry. It is unlikely that the natural gas would be made available to the iron and steel industry although GAIL is in advance stage of laying down gas pipe line from Jagdishpur to Haldia covering the entire eastern belt and passing through the hub of iron & steel plants in Jharkhand, Odisha and West Bengal. However, basic price of this imported gas and transportation cost are the big question marks and may impact its usage.

For quite some time Midrex Technology Inc., USA has been advocating the suitability of their MXCOL® technology under the prevailing Indian conditions. Most coal gas plants are designed for higher grades of coal but the MXCOL® plant with SES targets is designed for coals that are inferior grades like E and F grade.

Grades of Non-coking Coal

Grade	Useful Heat Value -UHV (Kcal/Kg) UHV= 8900-138(A+M)	Corresponding Ash + Moisture (%) at 60% RH & 40°C	Gross Calorific Value GCV (Kcal/ Kg) at 5% moisture level
A	6,200 ~	19.5 ~	6,454 ~
B	5,600 ~ 6,200	19.6 ~ 23.8	6,049 ~ 6,454
C	4,940 ~ 5,600	23.9 ~ 28.6	5,597 ~ 6,049
D	4,200 ~ 4,940	28.7 ~ 34.0	5,089 ~ 5,597
E	3,360 ~ 4,200	34.1 ~ 40.0	4,324 ~ 5,089
F	2,400 ~ 3,360	40.1 ~ 47.0	3,865 ~ 4,324
G	1,300 ~ 2,400	47.1 ~ 55.0	3,113 ~ 3,865

In the Useful Heat Value formula: A = Ash (wt%), M = Moisture (wt%) E and F Coal are the target coals for MXCOL® feedstock coal as highlighted in our above paragraph.

Major Operating Parameters for Coal Gasification based MIDREX® DRI Plant

Parameter	Value	Unit(/ton of DRI)	Remark
Iron Oxide Pellet	1.42 – 1.45	ton / ton	Depend upon quality of iron or and also on battery limits for calculation
Coal	0.8 – 1.0	ton /ton	Coal consumption is very dependent on the plant configuration and coal specification
Power	120 – 150	KWh/ton	Depend upon reducing gas fuel sources
Water	1 - 2.0	M3 / ton	

2. Efficient Use of Producer Gas in Coal based Sponge Iron Plants

We have been informed by Orient Engineers Pvt. Ltd, Rourkela that they have developed a new process for injecting producer gas with high hydrogen content through the recharge end of the rotary kiln. The company claimed following advantages:

Features		Advantages	
1.	In all rotary kiln sponge making coal dust is injected from the discharge end.	1.	By injecting gas instead of coal.
	(a) Coal dust has a lot of ash. Very little space and time is there in the discharge end and that is used up in heating ash, instead of FeO reduction to Fe, hot ash with its energy and time is immediately thrown out.	(a)	No ash has to be heated up and again thrown out, thus coal required for heating is completely saved, which is around 12%.
	(b) The ash reacts with sponge reduces its Fe content.	(b)	The space and time of the discharge end is, that is utilized in reduction of FeO to Fe by CO + H ₂ in the gas, without bad effects of ash; and thus production of the rotary kiln is increased, which is more than 10%.
	(c) The ash also reacts with the castable lining and builds up a wall.	(c)	The reaction of the ash with the sponge reduces its metalisation and thus high metalisation approaching that in a shaft kiln is achieved. The higher percentage of metalisation achieved is more than 10%.
		(d)	Ash reacts with the castable lining building up a wall, that does not happen and thus availability of the kiln increases by more than twice.
2.	Coal gas injection in rotary kiln's end have been tried and are not entirely successful. Coal gas is produced near but few in all Indian rotary kilns by <u>Lurgi process</u> and is taken inside the kiln at <u>ambient temperature</u> . Orient's process of producing gas is by a newly developed process which allows more steam to be used, and thus more H ₂ is available. It is also attached to the end of the rotary kiln and thus temperature of the gas enters at 700°C-800°C.	2.	(a) Higher H ₂ content in the gas, enables quicker reduction of FeO to Fe. (b) At 700°C - 800°C higher than red hot, makes CO + H ₂ to immediately react with FeO to reduce it to Fe. (c) Besides the great help of sensible heat, enthalpy and entropy of the gas is available to increase the value of energy and rapidity of reduction.
3.	Gas is injected through a separate door, one door is always available to direct coal injection.	3.	Thus advantage of direct coal injection can be always taken, from 0 to the extent found useful.
4.	Investment in Indian or Chinese coal gasification is around Rs.1/- crore.	4.	By Orient's process it can be done in Rs.40/- lacs.

Members may like to explore the technical feasibility and economic viability of this claim.

Food for Thought

While gas based sponge iron plants are highly eco-friendly and energy efficient, there always has been question about the energy efficiency of the presently used coal based sponge iron technologies. Therefore, there has been continuous efforts to make the presently used technologies more energy efficient. Today, almost all the mid size coal based sponge iron plants in India have waste heat recovery power plants to make use of sensible heat of outgoing flow gases. Insulation, feeding producer gas from the discharge end of the kiln, automation, pre heating of raw materials etc are the efforts being incorporated to further reduce the energy losses.

SIMA has taken an initiative to explore the possibilities of capturing the waste heat while cooling the sponge iron from about 1000 degree to 100 degree before charging the same to the magnetic separator. In this connection, ED, SIMA along with the energy experts from BEE / GIZ visited coal based sponge iron plant in Anjar, Gujarat on 16th November, 2017. The issue is under consideration of BEE / GIZ, mini turbine producers, SIMA and others.

We invite the views of the experts / sponge iron producers to give their suggestions to make this concept a reality.
