BHILAI STEEL PLANT'S MODERNISATION & EXPANSION PROGRAMME GAINS MOMENTUM

As an integral part of SAIL's growth plan that envisages capacity augmentation to around 23 MT crude steel by the year 2012, projects worth Rs 17,265 crore are being executed for Bhilai's expansion and modernisation, after which Bhilai's capacity would be to enhanced to 7.5 MT of hot metal and 7 MT of crude steel. **(Annexure I)**

The major units under the modernization & expansion plan are :-

- New 7m tall Coke Oven Battery-11.
- Additional 360 m^2 Sinter Machine in existing Sinter Plant-III & Augmentation of Sinter Plant-II.
- New Blast Furnace-8 (4060m^3) of 8000 TPD capacity.
- Augmentation of existing Steel Melting Shop-II.
- New Steel Melting Shop-III of 4 MTPA capacity complete with all secondary refining & casting facility. Subsequently, the ingot route will be phased out
- New Universal Rail Mill (1.2 MTPA) to manufacture long rails and meet the growing demand of the Indian Railways
- Bar & Rod Mill (0.9 MTPA).
- Augmentation of capacity of existing Plate Mill to 1.65 MTPA.

Besides, several other small and big projects are being undertaken to support higher production such as a new compressed air station, oxygen plant, expansion of ore handling capacities and new installations for import of enhanced post-expansion power requirement.

The 50 year old plant that literally drives the economy of the region has seen two major expansions in capacity. Incremental modernisation done time to time in the past and carefully crafted production strategies have helped Bhilai to get the best possible volume and quality from its existing units & equipment. Subsequent to expansion to 3.925 Mt of crude steel, further investments have been made at BSP under Addition/ Modification/ Replacement schemes. The major schemes being Oxygen Plant-2 commissioned in Nov'97, Sinter Plant-3 in Sep'01 and Long Rail Facilities in Rail & Structural Mill in Aug'04. Bhilai modernised & upgraded its largest blast furnace, BF # 7 in 2006-07. The furnace was equipped with latest state of the art technology and its capacity enhanced.

At a time when almost every other steel producer, both in India and abroad, is either setting up new greenfield plants or expanding present production capacities, getting the best state of the art technology & world renowned equipment suppliers to participate in its new brown field projects at competitive rates has however not been easy. Working cohesively as a team with suppliers without disturbing the existing production units is also a challenge that is being met squarely by the Bhilai leadership.

In fiscal year 2009-10, Bhilai Steel Plant commissioned three important projects – the re-building of COB-5 with environment friendly technology, MSDS-VI to facilitate power availability from the new joint venture Power Plant of NSPCL and the new Slab Caster in SMS II. Ladle Furnace, RH Degasser and Hot Metal Desulphurisation unit were commissioned to strengthen BSP's special plate making capabilities.

The new 0.8-million tonne Slab Caster Complex, installed in Bhilai's SMS-II along with one ladle furnace and RH degasser has further enhanced Bhilai's steel-making capabilities. The plant now has the capability to produce superior quality slabs, especially API & IPI grade steel. The new slab caster will also facilitate replacement & modernisation of existing casters and make way for additional steel production of 0.165 MTPA.

MSDS-V & Transmission Network for evacuation of power and several components of the Augmentations of Plate Mill capacity project are the other big and important projects that were completed in the last fiscal year 2009-10.

Another ambitious project conceived in 2008-09, completed and commissioned in 2009-10 is setting up a new Second Normalizing Furnace in Plate Mill with in-house expertise and resources. Another project that was commissioned towards the end of last fiscal year is the installation of a 30 MLD (million litres per day) Sewage Treatment Plant (STP) in the township. The STP will contribute significantly to reduce BSP's specific water consumption per tonne of crude steel.

ONGOING MAJOR PROJECTS

The 7 metre tall COB 11, a major expansion project in progress, being built by M/s BEC-Giprokoks Ukraine - CUI is going to be equipped with state of the art environment-friendly batteries. Both the COB 11 and CDCP (Coke Dry Cooling Plant being built by M/s BEC-Giprokoks Ukraine - CUI) packages would cater to the needs of quality coke for the enhanced hot metal capacity of the plant. It is worth mentioning that the plant has already rebuilt and modernized the Coke Oven Battery No 5 and is already in the process of rebuilding Coke Oven Battery No 6.

Another ongoing important project is SMS III. M/s Siemens VAI, a global leader in the Steel Making Technology is the major supplier of equipment for Basic Oxygen Furnace Shop Complex package and the Continuous Casting Plant package of SMS III. The contract for the Secondary Refining Unit of SMS III was signed with the consortium comprising M/s Wisdri Engineering & Research Incorporation Ltd, China and Messrs Trafalgar International FZE, Dubai.

With such new equipment as the CNC Roll Grinding Machine and other components such as the new cooling bed, pilers, CNC gas profile cutting machine, additional metal testing lab and additional cranes for shipping bay,

the Augmentation of Plate Mill capacity Project that is now fast heading for completion will help Bhilai retain its leadership in plate manufacturing.

While work on several other projects begun in last fiscal year is in progress, in the current fiscal year 2010-11, the Project for installation of Compressed Air Station No 4 has been completed. Work is also on to ensure that backward integration of various facilities, expansion of logistics facilities inside the Works and other enabling packages are also in place.

A new and much bigger Plant Store near Boria Gate of the Plant has been completed. While the Project for installation of Compressed Air Station No 4 has been completed, work is progressing on other Utility packages such as 2 X 1250 TPD Oxygen Plant (BOO Basis) being installed by M/s Praxair as also other Enabling zone projects such as Installation of new Ore Handling Plant and Augmentation of existing OHP, Expansion of Peripheral Yard and three flyovers with connecting road network. Contract has also been signed with M/s BHEL for installation of Turbo-blower No 8.

Besides, the Plant would also be installing a 700 TPD air separation unit (ASU) in the Plant's Oxygen Plant II. This last project though does not fall under Bhilai's MODEX Programme.

Bhilai Steel Plant is also gearing up its power systems to meet the enhanced post-expansion requirement. When the new MSDS -V was commissioned on 18th Oct. '09, Bhilai became the first steel plant in SAIL to have commissioned gas insulated sub-station. While retrofitting jobs in MSDS IV are in full swing, equipment foundation work for MSDS VII has been completed. Retrofitting jobs in MSDS III have also begun.

Several other projects, contracts for which have been signed recently, are in the initial stages of design engineering or ordering of equipment. These projects include installation of Hot metal desulphurisation unit for SMS III, Lime calcination & Dolomite Plant at RMP III, Modernisation of SP II etc.

Following the approval by SAIL Board in July 2010, work has now begun on four important projects - the Blast Furnace 4, Universal Rail Mill, Bar & Rod Mill and second Sinter Machine in SP III. ***(Annexed at II)***

The highest-ever capital expenditure of Rs 1400 crore has been incurred on Projects in Bhilai in 2009-10 as against capital expenditure of over Rs 850 crore incurred in fiscal 08-09. Under Bhilai's 7 MT expansion plan, as many as 37 contracts worth over Rs 13,000 crores have been signed so far. Of this, as many as 17 contracts were signed during 2009-10. The total outlay for Bhilai's Modernisation & Expansion Programme is Rs 17,265 crore.

IT FOOTPRINT

The C&IT department of BSP has successfully launched SAP ERP for core business areas like Finance & Controlling, Materials Management, Production Planning, Quality Management and Plant Maintenance including Supplier Relationship Management and Advanced Planner-cum-Optimizer creating a strong foundation of Supply Chain Management. In doing so, BSP has completed the circle of converging manufacturing and business processes into an integrated information backbone.

Following the 1st April 2009 'go-live' of all six SAP modules - supported by many other technology modules - all the plant's business operations are 'happening live' on the ERP platform, without any interruption. The ERP project is being followed by the Manufacturing Execution System (MES) project. With the signing of contract with M/s Posdata, Korea on 10th November 2009, Bhilai Steel Plant, the first PSU Integrated Steel Plant to have successfully implemented Enterprise Resources Planning (ERP) SAP, has now taken up the implementation of MES, an Industrial IT tool for improvisation in Production Scheduling and Optimization of manufacturing operations.

ROAD CLEARED FOR ROWGHAT

The road has also been cleared for Bhilai to mine for iron ore in Rowghat, about 200 kms from the steel plant. With stocks at its existing captive iron ore mines in Dalli-Rajhara fast depleting, getting the forestry & environment clearances, the mining and land lease for Rowghat mining area with more than 510 MT reserves, has ensured that Bhilai continues to get the raw material, at affordable cost.

MODERN PROJECT MANAGEMENT SYSTEM

Bhilai's Projects Deptt has initiated various departmental steps in the organisation to take up the challenges of expansion programme. Induction of Modern Project Management System which includes monitoring through online Primavera, real-time monitoring through regular site visits, implementation of the concept of Integrated Project Management and strengthening of HRD activities in Projects Zone etc are some of the initiatives successfully undertook by the Projects Deptt. All ongoing projects under the 7 MT expansion plan have been mapped in the Primavera network and the network is updated regularly to monitor critical activities and enable the management rake well informed decisions to steer the projects in to the tight time track. The online monitoring reports generated are available to all concerned from BSP up to SAIL Corporate Office.

CONCLUSION

The flagship unit of SAIL, Bhilai is the sole supplier of world class rails to Indian Railways, manufacturer of heavy and the wider plates, TMT rebars and wire rods and other light structurals of superior grade and quality over that of other manufacturers. In this latest expansion plan, the focus is on acquiring latest technology and energy-efficient, environmental-friendly systems & facilities,

phasing out low yield and energy intensive units, enhancing capacities, broadening and value-addition in product mix and improvement of logistics. With Projects right from coke making to the finishing mills along with auxiliary units and several large projects in different stages of implementation, the skyline of Bhilai Steel Plant is now changing again. When commissioned, projects such as the COB 11, the new sinter machine in SP 3, BF 8, SMS 3 and both the URM & BRM are going to add entirely new dimensions to Bhilai's steel making capabilities. Strengthening SAIL's

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ANNEXURE I

BHILAI STEEL PLANT - GEARING UP FOR THE FUTURE

Item	Present Rated Capacity	Capacity After Expansion
Hot metal	4.080	7.50
Crude steel	3.925	7.00
Finished steel	2.620	5.85
Semis	0.533	0.72
Saleable steel	3.153	6.56

ANNEXURE II

P.S.

MAY MENTION FOLLOWING SEPARATELY AS ANNEXURE 1 – (..See Annexure 1 has been mentioned at the end of the concerned paragraph, pls)

Bhilai's Expansion & Modernisation programme received a major thrust with approval of SAIL Board for four important projects in July 2010. The implementation of the 7 MT crude steel modernisation & expansion plan has been high on the priority of the management and leadership of SAIL's flagship plant and its most consistent performer, and as the leader in domestic steel industry, Bhilai had been on the lookout for the best state of the art technology for its projects.

After months of intense deliberations and tendering activities, efforts to get the world renowned technology and equipment suppliers to participate in this round of modernisation and expansion programme were rewarded with technology leaders like M/s Paul Wurth, SMS Meer, Danieli etc. emerging as successful bidders. The four projects are, namely :

- A state of art Blast Furnace – 8 having a useful volume of 4060 m^3 with a rated capacity of 2.8 Mtpa (million tonnes per annum) of hot metal. To be built by consortium of M/s Paul Wurth, Italy (as leader), M/s Paul Wurth India Pvt. Ltd. and M/s Larsen & Toubro Ltd., the new furnace shall be with modern design and state of the art and environment-friendly technology and will be equipped with features like Top Recovery Turbine, Waste Heat Recovery system, Energy efficient equipment, Pollution Control Measures etc.

- A 360 m^2 new Sinter Machine with associated facilities in the existing SP III complex to produce 3.706 Mt/yr of gross sinter to meet the additional sinter requirement in Blast Furnaces. To be supplied, erected & commissioned by consortium comprising of M/s Larsen & Toubro Ltd., Kolkata, M/s Outotec GmbH, Germany and M/s Outotec India Pvt. Ltd., Kolkata.

- A new 1.2 Mtpa Universal Rail Mill capable of producing rails up to 130 metre length in single piece and provision for making still longer rails up to 520 metre. To be installed by M/s SMS Meer, the leader in rail technology, the new mill will help Bhilai meet the growing demand of the Indian Railways and also its requirement for head-hardened rails.

- Bar & Rod Mill of 0.9 Mtpa capacity, to be supplied and installed by Consortium of M/s Danieli & C SpA, Italy (as leader), M/s Danieli India Ltd., Kolkata and M/s Beekay Engineering Corporation, Bhilai. Having strengthened its capabilities to produce superior grades of earthquake and corrosion resistant TMT bars and rods, Bhilai has carved out a niche for its products in this highly competitive segment. The new BRM will enable BSP to produce products with better surface finish and closer product tolerances.