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A COMPARATIVE STUDY OF HISTORY AND DEVELOPMENT OF TATA STEEL AND BOKARO STEEL PLANTS IN JHARHAND

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ABSTRACT:
Iron and Steel were the harbinger of industrial revolution in the late eighteenth and early nineteenth century. It is one of the few industries that have assumed a global character with developments in one region affecting the industry almost everywhere else, and India is no exception. The real beginning of modern iron and steel was made in 1907 when TISCO, a private sector steel plant was set up at Jamshedpur (Sakchi). The iron and steel industry witnessed rapid growth after independence. The management of Indian iron and steel was taken over by the Government with Steel Authority of India Limited (SAIL) as the functioning organization. TISCO stood as the only Private sector Company in the nation with many plants under the public sector. Since iron and steel is known to be an industry witnessing periodic cycles of upswings and downswings, the mettle of steel industry in India also shares a same story.
The paper attempts to make a comparison of history and development of the steel plants of the public sector and private sector i.e. The Tata Steel and Bokaro Steel Plants.
Keywords: Iron and steel, Development, Industry, Growth

INTRODUCTION:

We live essentially in an age of iron and steel. “Because of its hardness, strength and durability, and the ease with which it can be cast and worked into any desired shape and because of its remarkable cheapness under modern methods of production, iron is the most important and widely used metal in the service of man”. Iron and steel were the harbinger of industrial revolution in the late 18^{th} and early 19^{th} century. Today this industry has proved to be the harbinger of globalization.
Although Indians are known for their technique of smelting iron since early time, the first iron and steel unit on modern lines was established in 1830 at Porto Nova in Tamil Nadu. However, it could not succeed and was closed down in 1866.The other efforts were made during the second half of the 19^{th} century

AIMS AND OBJECTIVES:

- To make a comparative study of the history of Tata Steel and Bokaro steel plant.
- To analyze the various levels of development of Tata steel and Bokaro steel plant.

DATABASE AND METHODOLOGY:

This study is based o both primary and secondary data. The primary source of data includes field survey and personal interview. Secondary data was collected through

- District Statistical Handbook
- Annual reports- Tata Steel and Sail
- Ministry of Steel
- Reports, e-journals and newspapers

Simple analysis method has been used.

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RESULT AND DISCUSSIONS:

HISTORY OF TATA STEEL

Inspired with a vision of building an industrial enterprise in India that would provide economic freedom to the country JamshedjiNusserwanji Tata devoted his entire energy to transform India into a modern industrial enterprise. In 1867 Jamshedji Tata had heard that "The nation which gains control of iron soon acquires control of gold." Thus the dream was born, to set up an iron and steel industry which would revolutionize the industrial scenario in India.

TISCO was founded by Jamshedji Tata and established by Dorabji Tata on 26th August as a part of Jamshedji Tata group.

Jamshedji Tata had started his quest for steel way back in 1882, but it was twenty five years later in December 1882 the site of Sakchi was discovered at the confluence of Subernarekha and Kharkai rivers.

In 1904, the early prospectors, CM Weld, the expert surveyor, Dorabji Tata and ShapurjiSaklatwala made their way towards Chanda district in Central Province in the search of the precious metal. The search continued, but unfortunately they found that the Chanda district lacked suitable coal and its iron ore deposits were meagre and too far scattered.

The failure of Chanda project led to the exploration of iron deposits at Durg, 224 km from Nagpur. The area had a rich store house of iron ore, but it lacked supplies of limestone, coking coal and water, the basic raw materials required for establishment of iron and steel industry.

In 1907, Gurumahisani hills in Mayurbhanj district of Odisha with an iron ore content of 60% were discovered. The deposits of coal and limestone were also located nearby, but the lack of water resource posed the problem and the site was abandoned.

In December 1907, the team came across a village called Sakchi, in the densely forested stretches of Chotanagpur plateau near the confluence of Subernarekha and Kharkai rivers.

In 27th February, the first stake was driven into the soils of Sakchi and the dream of a modern iron and steel industry, the backbone of a nation came alive.

HISTORY OF BOKARO STEEL PLANT

Bokaro Steel Plant - the fourth integrated plant in the Public Sector - started taking shape in 1965 in collaboration with the Soviet Union. It was originally incorporated as a limited company on 29th January 1964, and was later merged with SAIL, first as a subsidiary and then as a unit, through the Public Sector Iron & Steel Companies (Restructuring & Miscellaneous Provisions) Act 1978.

The decision to have the steel plant erected at this site had been taken by 1955.The task of preparing this site for the installation of the fourth steel plant in the public sector was given to HSL.On obtaining the preliminary report from the consultants, M.N.Dastur& Company; HSL set the task of developing the site. A more comprehensive report was prepared and the detailed soil investigation work was done at the site, the sources of building materials in the vicinity, the water supply requirements for the plant and the township, sources of water and power, as well as the rail and road communication. A site office was set up at Maraphari, along with some accommodation for staff

. While HSL and Dastur were busy doing spade work, the Government of India went ahead to formally initiate negotiations with the United States of America for the external finance required for the setting up of Bokaro Steel Plant. Since the first three steel projects in the public sector had already been supported by the Soviet Union, Germany and Britain

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in that order, USA was an obvious choice for the fourth. But somehow U.S.A could not lend the support. At that point, the Government floated global tenders for individual plant departments. Some countries did show interest in providing limited aid, but the bid was settled in favor of the USSR, which offered to take the whole project.

FAVOURABLE FACTORS FOR THE LOCATION OF STEEL PLANTS:

TATA STEEL

Geographically Sakchi (Jamshedpur) is the most convenient place for setting up of iron and steel industry. The site was chosen for the following favourable factors.

- High grade hematite iron ore is available from Noamundi mines of Singhbhum in Jharkhand and Gurumahisani mines of Mayurbhanj in Odisha. These mines are located at a distance of 75-100 km from Jamshedpur.
- Coking coal is available from Jharia and Raniganj coal mines and West Bokaro division located at 160-200km from Jamshedpur.
- Manganese comes from Joda mines of Keonjhar district in Odisha.
- Dolomite, limestone and fire clay used as flux material are available from Sundargarh district of Odisha.
- Kolkata, located at a distance of 250km, provide port facilities and its industralised hinterland provides market for the products.
- Sufficient water for cooling purposes is obtained from Subernarekha and Kharkai rivers.
- Jamshedpur is well connected with Kolkata, Mumbai, and Chennai by road and rail and enjoys good transport facilities.
- Densely populated regions of Jharkhand, Bihar and Odisha provide cheap labour. Major part of labour is drawn from the tribal areas of Chota Nagpur plateau.

BOKARO STEEL PLANT

The Bokaro steel plant enjoys the following locational factors.

- It receives iron ore from Kiriburu mines in Odisha.
- Coal is obtained from Jharia coalfields located at a distance of 65km.
- Limestone comes from Palamu district of Jharkhand.
- Kolkata, located at a distance of 250km, provide port facilities and its industralised hinterland provides market for the products.
- Water for cooling purpose is available from Damodar and Bokaro rivers.
- Densely populated regions of Jharkhand, Bihar and Odisha provide cheap labour. Major part of labour is drawn from the tribal areas of Chota Nagpur plateau.

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DEVELOPMENT OF THE STEEL PLANTS:

The triumph of the discovery at Sakchi was followed by long history of development. In 1908, the plant became functional and the next year in 1909, the blast furnace, steel furnace, coke ovens, power house and machine shops were laid down. This was followed by the acquisition of land for the mines and quarries in 1910.

TISCO obtained its first colliery in 1910, adding six more in course of time. Several mines were obtained over the states of Bihar and Odisha. The coal beneficiation plant at West Bokaro undertook beneficiation of low grade coals, thus helping in the conservation of the fast dwindling resources of high quality coals.

In 1911, the first blast furnace operation at Sakchi began and the first steel ingot was rolled on 16th February 1912, a momentous day in the history of industrial India.

The economic depression of 1920 resulted in escalating prices, labour and transport facilities. The company had to suspend its dividend for twelve out of thirteen years in this period and was on the brink of closing in 1924.

However surpassing all the odds TISCO emerged in 1930‟s as the biggest steel plant in the British Empire. The plant specialized in the manufacture of armoured cars, known as „Tatanagar‟ which were extensively used by British army.

In 1939, a capacity of 80,000 tonnes of crude steel was achieved. Tata Steel was then regarded as the largest plant in the British Empire and also the cheapest exporter of pig iron in the world

The post independence demand for steel for the newly devised five year plans came from the Tata Steel Jamshedpur. The company undertook the Howrah Bridge in Calcutta, the BhakraNangal project and the Damodar Valley Corporation, the Kandla port, the city of Chandigarh and many more important projects. It played a key role in recreation of post independence India.

The initial production capacity of the plant was 1.21 million tonne of pig iron and 1.1 million tonne of steel per annum.Later in 1951 a modernization and expansion progamme was launched with Kaiser engineering support for 2 million tonne expansion programme at Jamshedpur.

By 1970, TISCO employed 40,000 people at Jamshedpur and 20,000 people in the neighbouring areas.

By 1990, TISCO became India‟s largest non-public/ private company announcing a 30% increase in profits against a backdrop of general depression in the Indian economy as whole. The government made an attempt to nationalize TISCO in 1971 but it failed. TISCO was renamed as Tata Steel in 2005.

In 2008, the „H‟ blast furnace was set up at Jamshedpur which in addition to being the largest blast furnace in India also achieved its rated capacity in a record time.

Brown field expansion programme (FY 2011-12)

The Brownfield expansion programme was implemented to increase the crude steel capacity of Jamshedpur steel plant from 6.8mtpa to 9.7mtpa. The project included setting up of a pellet plant with a capacity of 6mtpa, a new blast furnace „I‟ with a capacity of 3mtpa, a new LD shop, a lime calcining plant and a thin slab and rolling mill(TSCR) of 2.5mtpa to produce hot rolled coils.

The expansion project was challenging as it required carrying out large volumes of construction work while ensuring minimum disruption of ongoing operations.

To enhance the captive coal availability initiatives such as high wall mining, shaft deepening, faster excavation methodology, use of high yielding capacity equipment, GPS implementation and mechanization wherever possible were implemented.
To increase the productivity of open cast mines fleet management system and advanced blasting techniques are used.
The Tata Steel plant achieved the target of 9.7mtpa crude steel production in the financial year 2013-14 along with good production in the terms of hot metal and saleable steel.

MAJOR LANDMARKS OF TATA STEEL:

YEAR	LANDMARKS
1907	Establishment of TISCO
1911	Blast furnace operation at Sakchi begins
1912	Production of first steel ingot
1912	8 hours day work introduced to maintain employee well being
1920	Leave with pay introduced, a practice rare before 1940‟s
1951	Modernization and expansion plan launched
2011	Brownfield expansion programme of 2.9mtpa launched
2013	Achievement of crude steel capacity from 6.8mtpa to 9.7mtpa

Bokaro Steel Plant: Bokaro Steel, the fourth integrated steel plant of the public sector shares the same phase of development. After the discovery of the site The Geodetic Survey & Investigation Division of the Bokaro project in collaboration with the Geological Survey of India lay out the main grid lines and control points along which various shop structures, overhead and underground communications, etc were to be set up. The plant was established near the confluence of the Bokaro and Damodar rivers in Hazaribagh district of Jharkhand.
The Plant is hailed as the country‟s first Swadeshi steel plant, built with maximum indigenous content in terms of equipment, material and know-how. Its first Blast Furnace operation started on 2nd October 1972. The initial capacity was 1 million tonnes which was raised to 4 million tonnes and the first phase of 1.7 MT ingot steel was completed on 26th February 1978 with the commissioning of the third Blast Furnace.
All units of 4 MT stage have already been commissioned and the 90s' modernization has further upgraded this to 4.5 MT of liquid steel. Later, plant capacity was raised to a nominal 2.5 million tonnes of ingot steel per annum by installing 5th Coke Oven Battery, the 5th LD Converter and an additional Oxygen Plant and other auxiliaries. The major events in the history of BSL are mentioned below.

MAJOR LANDMARKS OF BOKARO STEEL PLANT

YEAR	LADMARKS
1966	Construction work started
1972	First coke oven battery and Sinter band commissioned
1972	First blast furnace commissioned
1973	Steel melting shop- 1 started production
1974	Trial rolling of slabs in slabbing mill
1975	Hot strip mill commissioned
1976	Hot rolled coil finishing commissioned

1977	Cold rolling mill complex-1 commissioned
1980	Expansion programme of 4 million tonnes launched
1983	Steel melting shop-2 started production
1991	Cold rolling mill complex-2 commissioned
1997	Continuous casting shop started production

The new features added in modernization of SMS-II include two twin-strand slab casters along with a Steel Refining Unit. The Steel Refining Unit was inaugurated on 19th September, 1997 and the Continuous Casting Machine on 25th April, 1998. The modernization of the Hot Strip Mill saw addition of new features like high pressure de-scalers, work roll bending, hydraulic automatic gauge control, quick work roll change, laminar cooling etc. New walking beam reheating furnaces are replacing the less efficient pusher type furnaces. A new hydraulic coiler has been added and two of the existing ones revamped. With the completion of Hot Strip Mill modernization, Bokaro is producing top quality hot rolled products that are well accepted in the global market.

The hot metal production capacity at Bokaro is likely to touch 7.44mtpa by 2012-13 from 4.59 mtpa in 2006-07. The facilities as planned for expansion include new Steel Melting Shop Complex (SMS III) with an installed annual capacity of 3.8 million tonnes crude steel, a Cold Rolling Mills Complex of 1.2 mtpacapacity and rebuilding of three coke oven batteries.

The Bokaro steel plant is designed to produce flat products like Hot Rolled Coils, Hot Rolled Plates, Hot Rolled Sheets, Cold Rolled Coils, Cold Rolled Sheets, Tin Mill Black Plates (TMBP) and galvanized Plain and Corrugated (GP/GC) Sheets. Bokaro has provided a strong raw material base for a variety of modern engineering industries including automobile, pipe and tube, LPG cylinder, barrel and drum producing industries.

PRODUCTION: TATA STEEL (in million tonnes)

YEAR	2008	2009	2010	2011	2012	2013	2014	2015	2016
Hot metal	5.51	6.25	7.23	7.50	7.75	8.6	9.90	10.17	10.66
Crude steel	5.01	5.65	6.56	6.86	7.13	9.7	9.16	9.33	9.96
Saleable steel	4.86	5.37	6.44	6.69	6.87	7.94	8.93	9.07	9.70

Source: Tata Steel Annual Report (2008-2016).

PRODUCTION: BOKARO STEEL PLANT ('000 tonnes)

YEAR	2010-11	2011-12	2012-13	2013-14
Hot metal	4108	4012	4124	4100
Crude steel	5329	4901	5008	5136

Source: Annual report, Bokaro steel plant

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AWARDS AND RECOGNITIONS:

TATA STEEL

- The Prime Ministers trophy for „Best Integrated Steel Plant‟ in India has been conferred on Tata steel five times.
- World Steel Dynamics has twice ranked the company as the „World‟s Best Steel Maker‟ (2005&2006) and once as India‟s only World class steel maker.
- „Golden Peacock Award‟ in 2009 for its corporate social responsibility initiatives.
- In 2012, Tata Steel became the first integrated steel company in the world to win the „Deeming Grand Prize‟.

BOKARO STEEL PLANT

- Gold Award in metal sector for outstanding achievement in environmental management for 2003-04 by Greentech Foundation, New Delhi.
- Indira Gandhi Memorial National Award, 2004 for excellent pollution control implementation.
- The country‟s most prestigious „Golden Peacock HR Excellence Award‟ in 2012.
- The „Times Impact Award‟ in 2013 and was praised for being the most admired central PSU in a function „Emerging Jharkhand‟ organized by The Times of India.
- The „Rajiv Gandhi National Quality Award‟ for the year 2007.It also became the first recipient of the cash reward of rupees five lakh which was introduced as a part of the Rajiv Gandhi National Award.

CONCLUSION:

Iron and Steel, the backbone of the modern industrial economy has paved the way for nation‟s development. In the private sector the Tata Steel stands alone with remarkable development with the present capacity of crude steel being around 10mtpa.In the public sector there are five integrated steel plants, Bokaro Steel is being one of them. SAIL is contemplating to raise the crude steel production of the Bokaro steel plant from the present level of 5.36mtpa annum to 13.4mtpa in a phased manner by 2025.

The Tata Steel occupies the leading position in the nation while the Bokaro steel suffers from old and obsolete coke oven batteries and blast furnace. Hence the government needs to work on modernization of this plantand raise the production of this plant so that it can face the challenges in the coming years.

RELATED REFERENCES:-

1. AhsanQamar& Mukherjee S(1998), Indian Industry-A Geographical Perspective,Transworld Media and Communication.
2. Brush John E(1952):The Iron and Steel Industry,The Geographical Review,Vol XIII,No.1

3. Bokaro Steel City (various Issues)Annual Report
4. Govt of India(2011,12,13,14)A Reference Annual
5. Govt Of India(various Issues),Economic Survey,
6. The Hindu(2008,09,10,11,12) Survey of Indian Industry
7. Khullar D R(2014),India A Comprehensive Geography,KalyaniPublications,Ludhianapp 914-924
8. Prasad K N (1983):Problems of Indian Economic Development,Sterling,New Delhi.
9. Tata Steel (various Issues)Annual Report
10. Tiwari R C (2013),Geography of India,Pravalika Publications,Allahabad.pp505-513