



Role of Greenfield Project on Growth and Prosperity: Case Study of Rourkela Steel Plant

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ABSTRACT

Green field projects are the present requirement of the economy and are sustainable in the long run. Thus the project commissioned with present requirements not only feasible for the economy but also brings growth and prosperity in the economy of a country. An increment to manufacturing production creates more economic activity both within and outside the sector than does a similar increment in any other major sector because of manufacturing's high multiplier effect and its extensive linkages to other parts of the economy. Incremental growth in the sector is likely to increase R&D activity which leads to increase the intensity of innovation in manufacturing, boosts overall productivity growth and improve standard-of-living. Rourkela Steel Plant is the perfect example in the management of green field project for prosperity and growth. It's continuous up gradation, innovation and modernization brings the sustainable development and growth. Greenfield in many disciplines is a project that is lacking the constraints imposed by previous work. The construction on Greenfield land does not need to remodel or demolish any pre-existing structure. This Project can be undertaken in a cellular network, computer networking or Greenfield investment opportunity in a marketplace that is completely untapped. In the present study of Rourkela Steel Plant, which is the first integrated steel plant in the public sector in India which was set up with German collaboration is the result of Greenfield Project .The purpose of our study is to find the problems faced by the Steel industry, the steps taken for by Greenfield Project and the contribution it has made to Orissa by its growth and prosperity. The methodology of study is purely qualitative and the results points out the problems, its implications, steps taken to revive the industry and its further contribution to Greenfield Project recently to the region, society and the nation as a whole.

Keywords: Greenfield project, Growth and prosperity, Rourkela steel plant.

BACKGROUND OF STUDY

Greenfield land is undeveloped land in a city or rural area either used for agriculture, landscape design, or left to naturally evolve. These areas of land are usually agricultural or amenity properties being considered for urban development. It can be unfenced open fields, urban lots or restricted closed properties kept off limits to the general public by a private or government entity. Rather than build upon Greenfield land a developer may choose to re develop Brownfield or Greenfield, areas that have been developed but left abandoned or underused.

Steel is the key to the development of any country as well as in India. It is considered to be the mainstay of the human civilization. In the pre-liberalization era, besides TISCO (Tata Iron and Steel Company presently known as TATA steel) and secondary steel producers, SAIL was then the only major steel producer in India. But after post liberalization and globalization, the private players like Essar, Jindal, Ispat etc. set up steel plants in India.

Since 1947, India became independent as the biggest, but not the only, successor state to the British raj, there were three major iron and steel companies had a total capacity of only 2.5 million tons. A great deal of their plant was already more than three decades old, and badly in need of repair and replacement, while demand for iron and steel was growing.

In 1948 new government's Industrial Policy Statement, confirmed in the Industries Development and Regulation Act three years later, new ventures in the iron and steel industry were to be undertaken only by the federal government, but existing ventures would be allowed to stay in the private sector for the first ten years. As for new projects, in 1953 the government signed an agreement with the German steelmakers Krupp and Demag on creating a

publicly owned integrated steel plant, which was sited at Rourkela, in the state of Orissa, to make use of iron ore mined at Barsua and Kalta. Greenfield Project venture was undertaken by the Republic of Germany which used this Greenfield land of Rourkela by provided technical knowhow for the construction of the steel plant. German metallurgical firms Mannesmann, Krupp, Demag, Siemens and Voestalpine provided machinery and consultancy to the plant. Further after facing many hurdles during its modernization it faced many obstacles and is now well equipped to start its own Greenfield Project venture afresh.

Objective of the study

1. To study the initiative of RSP towards Greenfield Project
2. To find the requirements of Greenfield Projects for Steel Industry.
3. To study the impact of Greenfield Project of RSP for growth and prosperity.

Statement of the problem

Rourkela Steel Plant is thus an integrated steel plant located at Rourkela in the state of Orissa was a Greenfield Project venture by the German collaboration. Since 12 years RSP has been facing a lot of problems. In 2001 there was stagnation in steel consumption with overcapacity fierce competition and export restrictions, 20-25% drop in Net Sales, net loss of around Rs. 3 Crores per day, heavy interest and depreciation burden of the order of Rs.800 Crores against a turnover of Rs. 2400 Crores, unsold finished inventories of almost one and half month's production, Substantial pay out for wage revision and voluntary retirement scheme, rise in costs of vital inputs and freight.

Research methodology

For this case study I took Rourkela Steel Plant as my Sample and my research methodology is purely qualitative. I collected my data from newspapers, articles, journals, publications, opinions of RSP employees and internet.

Literature review

According to definition a Greenfield Project is “A form of foreign direct investment where a parent company starts a new venture in a foreign country by constructing new operational facilities from the ground up. In addition to building new facilities, most parent companies also create new long-term jobs in the foreign country by hiring new employees. This is opposite to a brown field investment.

In the present scenario a host of steel companies have lined up major investment proposals. We see that with an expanding consumer market, the Indian steel industry has probability of receiving huge domestic and foreign investments. The development of Greenfield steel projects in India has virtually come to a standstill now. The reason for this stagnation is due to issues like land acquisition, rehabilitation and political interference. India’s plan is to have an annual steel production capacity of 124 million tonnes (MT) by end of 2011-2012. But other than the already planned steel plant projects, most of the proposed steel plant projects in the country continue to remain in standstill. These Greenfield projects are unable to gain momentum due to political, local, and rehabilitation issues. Some of these projects like the Archelor Mittal’s Steel Project at Khumti, JSW’s Steel Ltd at Khumti at Jharkhand and POSCO Steel Plant, Odisha.

Limitations of the study

1. Due to time constraints it was difficult to probe deeper.

2. Some of the employees were reluctant to disclose confidential data about their company.

RSP: An overview

Rourkela Steel Plant (RSP)-SAIL is located in Rourkela, Odisha. RSP is the first integrated steel plant in the public sector in India. It was set up with German collaboration with an installed capacity of 1 million tons in 60s. Then its capacity was enhanced to 2 million tons. The RSP is the first plant in Asia to adopt the energy-efficient LD process of steel making and the first integrated steel plant of SAIL which adopted the cost effective and quality centered continuous casting route to process 100% of steel produced. It is for the first time in India, SAIL had adopted external desulphurization of hot metal by calcium carbide injection process. RSP is one of the unique steel units under the SAIL umbrella with a wide variety of special purpose steels.

Rourkela Steel Plant also possesses a Fertilizer Plant that produces nitrogenous fertilizers using ammonia feedstock (from its coke oven plant). On February 3, 1959, then President Rajendra Prasad had inaugurated RSP's first blast furnace named 'Parvati' when the company was known as Hindustan Steel Limited (HSL). The RSP became a unit of the Steel Authority of India Ltd (SAIL).

RSP ‘s present capacity to produce 2 million tons of hot metal, 1.9 million tons of crude steel and 1.67 million tons of saleable steel. It is SAIL’s only plant that produces silicon steels for the power sector, high quality pipes for the oil & gas sector and tin plates for the packaging industry. Its wide and sophisticated product range includes various flat, tubular and coated products. Rourkela Steel Plant is all set to double its annual capacity to 4.5 million tons expansion work, according to a top company official. It completed 50 years in 3 February 2009.

RSP is in the final stage of implementing a massive modernization and expansion project with capital investment of around of Rs 12,000 crores that will more than double its present capacity.

Post expansion production plan (In Million Tons per annum).

Item	Existing capacity	Post Expansion
Hot Metal	2.00	4.5
Crude Steel	1.90	4.2
Saleable Steel	1.67	3.9

Product mix

SAIL's Rourkela Steel Plant under the SAIL umbrella produces a with a wide variety of products .To name a few are the products mentioned below are-

- Plate Mill Plates
- HR Plates
- HR Coils
- ERW Pipes
- SW Pipes
- CR Sheets & Coils
- Galvanized Sheets
- Electrolytic Tin-Plates Silicon Steel Sheets
- Heavy & Chequered Plates
- Electrical Steel (CRNO/CRGO) GP Coils & Sheets/GC Sheets
- The Fertilizer Plant produces calcium ammonia nitrate (CAN) fertilizer marketed under the brand name "Sona" (gold).

Propositions

1. Studying the initiative of RSP towards Greenfield Project.
2. Finding out the requirements of Greenfield Projects for Steel Industry.
3. Impact of Greenfield Project of RSP for growth and prosperity.

Initiative of RSP towards Greenfield project

RSP was a Greenfield Project which was set up with the help of German collaboration.

It was in the year 1950s, in the jungles of Orissa which was about 270 miles west of Calcutta, a small village of Rourkela was selected to become one of the new large steel plants of modern India. From the year 1957 to1962 in this rural area of northern Orissa, among the wooded hills and a prevalent tribal population, a large numbers of Indian and German engineers and technicians engaged together for the erection of the 1-milliontons steel plant of Rourkela.

The years from 1957 to 1961 were the main years of construction of the Rourkela plant. The majority of personnel held 18-months contracts; some stayed for a longer span of time even in the present. some (usually specialists in a narrow technical field who were needed only for particular tasks) came out for a few months stay only .During this period of their stay they faced severe cultural difference with the Indians .This intersections of societies came up to be a new development known as ONE WORLD and this complex pattern is the "third culture"-defined "as the behaviour patterns created, shared, and learned by men of different societies who are in the process of relating their societies, or sections thereof, to each other." This cultural pattern where Indians are regularly interacting with Germans is known as "the first culture" and for the Germans in the "Rourkela Germans" as "the second culture."

Requirements of Greenfield project in steel industry

The major requirements for Greenfield projects for RSP were-

1. Land acquisitions
2. Environmental Clearances,

3. Resettlement & Rehabilitation Policy of displaced persons for Greenfield projects.

Thus after going through all these stages, Rourkela came to be known as Industrial capital of Odisha and became the first PSU Integrated Steel Plant in the country was set as Rourkela Steel Plant. This provided nucleus for establishment of many ancillary and downstream Industries in this area.

Impact of Greenfield project of RSP for growth and prosperity

Though Rourkela has become the hub of Foundry and Engineering Industry of the State along with many downstream Industries of Rourkela Steel Plant. However, during the years 1995-1998 economic downturn in Rourkela area began, and people started calling Rourkela as a dying city.

Reasons for degradation of RSP in 2001

- Stagnation in steel consumption with overcapacity fierce competition and export restrictions.
- 20-25% drop in Net Sales,
- Net loss of around Rs. 3 Crores per day,
- Heavy interest and depreciation burden of the order of Rs.800 Crores against a turnover of Rs.2400 Crores.
- Unsold finished inventories of almost one and half month's production,
- Substantial pay out for wage revision and voluntary retirement scheme.
- Rise in costs of vital inputs and freight.

Gradually after coming up of various Sponge Iron Plants, the economy of this area was again revived. We can compare the above findings about the low performance by plant in 2001 by the table given below-

Low performance of the RSP in 2001

Item	Capacity utilization (%)
Raw material Handling Plant	60
Hot Metal	70
Crude Steel	66

The other realities for “ground zero” state of RSP in June 2001

- Lack of conviction about the future
- Militant unionism
- Fear among employees
- Low morale of the employees
- Absence of leadership
- Respect for Rourkela Steel Plant missing completely.

Steps for restructuring RSP

With change in leadership in June 2001 ten priorities were identified and reforms were initiated afresh like never before. There was a massive campaign to regain equipment health with direct communication at all levels of Organization.

The ten golden rules by the managing director

1. Employee Motivation and Employee Pride.
2. Leadership Practice.
3. Environment relations and Organizational Image.
4. Plant Maintenance and Equipment Health.
5. Small Investment Schemes for maintaining current operations.
6. Sustained operation and consistent production.
7. Strengthening secondary streams of Cash generation.
8. Operational and Purchase cost Reduction.
9. Sustaining the Benefits of the Project on Operational Improvement in certain areas.
10. Enhancing Gross Margin and Net Sales Realization.

The steps taken to reach these goals were by reaching out to people in the lower level in the shop floor, trying to create bonding between the employees, promoting revenue and cash awareness, having good relation with customers, training the employees in workshops, updating the issue to employees, allotting work to each employee. So the Managing Director put forth

his Leadership Practice Programme for regenerating strength with people. These programmes were mass contact exercise, performance improvement programmes, MD's interaction with young managers and General Manager (GM) Communication Meetings (GMCM). Thus there was a Mass Contact Exercise which is a unique sustained exercise in corporate history running till date. This is interaction of MD and ED (Works) with a group of 500 employees every week, focus of sessions on 'Survival and Future of RSP' in the first year and 'Profitability and Prosperity of RSP' in later years and engages all the employees by turns (about 30,000, to begin with, now around 20,000).

The five Modules of Leadership are-

1. SAMSKAR
2. Empowerment
3. Safety
4. Preventive Maintenance
5. Family atmosphere in workplace.

New initiative by the Managing Director to pick the young minds to bring freshness to the reform process and address old and long pending issues with fresh ideas and Reinforcement changes were observed like closeness among people, involvement of people leads to growth of production, enhancement of capacity utilization, improved techno economics, increase in sales revenue and cost reduction, bleeding issues eliminated and emphasis on every day to be a "good day", shackles of apprehension broken, employees are ready and eager to speak, suggest, innovate and create, changes felt in themselves and they realized their future to be linked with the plant performance with improvement in the net profit as shown in the **figure 1**.

Contribution of RSP to the society, state and nation

During the process of restructuring of the Plant some of the major Projects were

taken for the development of the plant and the region like Project Bramhani, Project Prakriti, Project Sanskrit, Project Saraswati, Project Viswakarma. Major steps were taken for the renovation of the city- like rebuilding/major repair of roads, repair of houses and buildings, cleaning and major repair of Township drainage system, repair of schools, renovation and bringing back greenery of parks thus making the environment friendlier. In addition to the above progress there was also growth in city architecture, encouraging sports and games by making Synthetic Astro turf, Biju Pattnaik Hockey Stadium, fostering team spirit and innovativeness in schools by organizing, open school sports tournaments every year, revival of Childrens' Day program on Nov 14 organising Science Exhibition for school children by exploring and promoting culture in the society by staging of mega events Megha Malhar Vedvyas Sangeet Nrutyotsav Odissi Sangeet Samaroh, Kumar Utsav, Makar Utsav, Baisakhi Kavya Sandhya.

Rourkela steel plant: Modernization & expansion plan

- The Fertilizer Plant was set up in the year 1964 with a view to utilizing the residue of the steel plant and the re-utilization of the chemicals.
- A Pipe Plant and Special Plate Plant were set up during the 1970s for production of ERW pipes.
- Steel plates were made for defense requirements.
- NSPCL started as a joint venture company of NTPC Limited and SAIL by set up of a captive power plant of 120 MW capacity.
- RSP's modernization program in 1988 with an outlay of INR 4500 crores. This revamped the process of supply of raw materials, new oxygen plant, improved techniques in blast furnaces, selling of dolomite plant, cast house, slag

granulation plant, supply of raw materials sintering plants and coal handling plants among others. Following the modernization RSP became the first SAIL plant to have adopted continuous casting route for all its hot metal production. It is also the first Indian steel plant to have adopted external desulfurization of hot metal by the calcium carbide injection process.

- In 1988 the modernization of RSP was begun for producing qualitative materials and establishing its importance in the world market.
- In 1998 the modernization program with an outlay of INR 4500 crores.
- In 2010 RSP-SAIL plans for its capacity expansion in its existing 2.2 MT to 4.5 MT of production.
- In 2013 Rourkela Steel Plant on modernization and expansion project process. Expected to be 4.5 MT steel plants by the year 2013, on existing 2.2 MT.
- SAIL projected to take SAIL's hot metal production capacity to a level of 23.5 million tons by 2012-13.
- August 10, 2013, Rourkela Steel Plant unveiled the country's largest blast furnace having a useful volume of 4060 cubic meters with a production capacity of 8000 tons hot metal per day, thus increasing its production capacity from existing 2.2 MT to 4.5 MT.

Environment management

As a responsible corporate citizen,

- RSP has taken effective measures in the area of pollution control in By-Product Coke Oven Batteries, Battery No: 4 and 7m tall Battery No: 6.
- RSP has taken adequate steps to check emissions from Coke Ovens and has installed air-cooled self-sealing doors resulting in significant reduction in door emissions; doors designed, manufactured

and supplied by Simplex Castings Ltd, Bhilai India.

- All major units of the plant, including its Personnel Department and Steel Township, are certified to ISO: 9001 standards.
- RSP's Silicon Steel Mill, Sintering Plant II, Environment Engineering Department, Plate Mill, Hot Strip Mill, ERW and SW Pipe Plants, Special Plate Plant as well as Steel Township have been awarded ISO: 14001 certification for Environment Management.

Awards received: RSP

- Genentech Environment Gold Award.
- Srishti Good Green Governance Award for 2010.
- National Energy Conservation Award (2nd Prize).
- Best corporate stall.
- Global CSR Leadership & Excellence Awards in 2013.

Greenfield project venture by RSP

SAIL plans 1.2 MTPA cold rolling mill at Rourkela Steel Plant in Orissa 39 km stretch connecting Thandalam to Arukilpadi in Tamil Nadu to be four laned Steel Authority of India (SAIL) has proposed to establish a 1.2 million tonnes per annum (MTPA) cold rolling mill for the auto sector at its Rourkela Steel Plant (RSP) in Sundargarh, Orissa. The proposal has been approved by the company's Board Sub-Committee on strategic alliance and joint venture.

Danieli corus commissions India's largest blast furnace

Recently Danieli Corus (August 8, 2013) has commissioned the greenfield Blast Furnace No. 5 built for SAIL (Steel Authority of India Limited) at their Rourkela (Odisha, India) steel plant. This blast furnace was built by a consortium consisting of

Danieli Corus and Tata Projects Limited and is currently India's largest Blast Furnace. The first hot metal was tapped after 27 hours.

With the collaboration with Danieli Corus (its fourth Greenfield Project in India) the largest operating Blast Furnace was built, according to the "Hoogovens" philosophy, in this important market. This Furnace is named after the Hindu goddess Durga and was designed according to European standards and technology. It was built to produce around 8,000 tonnes of hot metal per day for a twenty year campaign. It is part of a 1.75 Million Euro expansion program at the Rourkela Steel Plant.

Suggestions for Greenfield project in steel sector

The solution to the above problems is not easy and needs a well planned approach. This requires having an overall view of the impact Greenfield has on the economic and social conditions of all the stakeholders. The other major step to reduce the tension is related to the land acquisition, communicating with local people in local languages. There needs to be a change in the mind-set of the people. There should be an awareness of the long term as well short term benefits of the new Greenfield projects. Fighting talent flight and managing talent is yet another challenge before the company." Out of the foreign leaders in steelmaking.

POSCO of South Korea signed a MoU with the Government of Orissa quite some time ago but the project has been bogged down due to various reasons. There are issues of land acquisition & rehabilitation of displaced persons, apart from long-term lease of iron-ore, among others. ArcelorMittal signed a MoU with the government of Jharkhand followed by another one with the government of Orissa but the progress here too has been tardy. Among the Indian players, almost all-Tatas, Jindal South West, Jindal Steel & Power, Essar Steel, Bhushan Steel &

even some newer entrants have signed MoU's with concerned State Governments in the states of Jharkhand, Orissa, Chhattisgarh & West Bengal.

CONCLUSION

India should be an initiation in Greenfield Project instead of delaying the approvals for granting access to foreign investors for investing in Greenfield Project. Environment is the big issue and so is the land acquisition. The land acquisition laws is still too primitive and any new land acquisition law needs Parliament's approval which is too time consuming. We can see that the resettlement and rehabilitation policies of Orissa, Jharkhand and Chhattisgarh states, rich in mineral resources are still in a developing stage. The leasing of iron-ore & coal mines as well as site related issues (land acquisition and rehabilitation of displaced persons) have appeared as serious bottlenecks in almost all the Greenfield projects. Thus in spite of the global economic slowdown, we can assume that capacity expansion at the locations of the existing steel plants may have a better scope.

The government should come with new and improved legislation especially for Greenfield project, else it would be difficult for companies to grow thus lead to the slowdown of the mining sector with all other investments. The Government should take note that Greenfield Project is providing maximum design flexibility to meet project requirements with reduced required maintenance. Hence the Industry is thus designed to meet current and future needs and is an opportunity to improve corporate image by its success and prosperity which is beneficial for the mankind.

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