

# CONTRIBUTION OF IRON AND STEEL INDUSTRIES:

## A CASE OF INDIAN RAILWAYS

**Dr. Esha Jain<sup>1</sup>, Abhinav Nagaraj<sup>2</sup>**

*Assistant professor, School of Management, GD Goenka University, Gurgaon (India)*

*Student, BBA 1<sup>st</sup> Year, GD Goenka University, Gurgaon (India)*

### ABSTRACT

*The iron and steel industries are the two major industries of the economy of a country as it's a very core material used and applied almost everywhere right from kitchenware to railway tracks. This case highlights the contribution of iron and steel industries especially for Indian Railways. These industries collectively provide raw materials for the railway segment and Indian railways contributes as the major buyer of these raw materials. The case further described the locomotives and gauge system of Indian Railways and at last discussed various issues faced by Indian Railways.*

**Keywords :** *Gauge system, Iron and Steel Industries, Indian Railway, Locomotives.*

### I. BACKGROUND

India has been a country where there is a scope of lot of economic activities and in a place with such diversified demography and vast outstretch of lands which embarks this country on the world map as the seventh largest nation lodging about a billion people in it. The ever growing population of this country has led to development in various fields such as real estate, agriculture and transport. The transportation system has been the most growth effective field in the economy of India ever since its independence. The British had laid the foundation of the transportation in India which later got improved and updated with time and changes in the country.

One of the major mode of transport found in India is the use of railways and railroads as means of travelling for the common people. With growing population and urbanization the railway network established in India became the fourth largest railway network in the world in the present generation. It holds the record of being the seventh largest commercial or utility employer in the world, holding about 1.307 million employees as per its published figures.

Likewise the growth of the railways in India, the major reason behind bringing such an organization was the blooming iron and steel industries of India. The reason why railways exist is the major contribution of the iron and steel industries to manufacture railways tracks and locomotive wagons, which is the main crux of the Indian Railways.

The iron and steel industries provided the raw materials for the government based organization to help establish a network of railroads across India. These industries were highly into demand during the late 20<sup>th</sup> century and also likely to contribute upto 7-8% to the GDP of the country. Many suppliers and exporters indulge in manufacturing and selling of track lines to the Indian Railways which generally belong to the Indian iron and steel industry.

## **II. INDIAN RAILWAYS**

The Indian Railways comes across a public limited company solely controlled by the Indian Government and functioned and operated by the ministry of railways. As the slogan mentions “Lifeline of the nation”, the Indian railways is the lifeline of the country because without railways there wouldn't be a scope of freight and passenger travelling across states.

The large network spreads almost across the entire country splitting the locomotives into two main category and the railway network into three categories. The network is classified into broad, meter and narrow gauges while the locomotive consist of passenger carriers and freight carriers. These classification of tracks are used and applied widely across the country and spanning the overall railway network to be around 9000 miles.

These classification of tracks are usually for the type of locomotive production which runs on these tracks. The production of the tracks are coordinated with the steel industry which provides steel alloy especially for railway tracks and fittings.

## **III. ROLE OF IRON AND STEEL INDUSTRY WITH INDIAN RAILWAYS**

The iron and steel industries are the two major industries of the economy of a country as it's a very core material used and applied almost everywhere right from kitchenware to railway tracks. The iron and steel industry of India came into consideration when the Bengal iron works established in Kulti in West Bengal. This was followed by the establishment of the major Indian iron and steel company (IISCO) and Tata iron and steel industry (TISCO) in 1936 which overcame the British steel industry.

The steel industry of India is controlled by the Ministry of Steel working under the government of India which is a conglomerate of other industries working collectively. The iron and steel industries collective provide raw materials for the railway segment among which the Indian railways contributes as the major buyer of these raw materials. Major steel industries like the Jindal steel and Tata steel are the major producers of iron and steel products.

Since the railway tracks are made of alloy steel and high quality steel, many specialized steel industries also dedicate itself in making only high performance alloy steel which can be used in making railway tracks. The materials of the tracks are further divided into classes which describes the durability and performance and weight limit of the tracks.

Companies like Jindal Steel Power Limited come with various track classes which define the purpose of each track made by them for the railway network. According to the company, track types like IRS, UIC and EN which has class A type and class B type of tracks which lays down the performance levels of these tracks. Other companies include SAIL (Steel Authority of India Ltd) and Essar Steel which provide various track equipment like cortan, stainless steel structures and mild steel structures costing over crores.

The Indian railways being a government controlled organization deals with private steel firms for the manufacturing of railway accessories and buys them at cheaper rates providing governmental grants and funds in the railway sector.

#### **IV. LOCOMOTIVES AND THE GAUGE SYSTEM**

The Indian railways broadly uses two types of locomotives and three types of gauges as mentioned earlier. In addition to this, the fourth type of gauge which is the standard gauge is less preferred over the broad gauge which is slightly bigger than the former one. The manufacturing of these gauges is contributed by these private steel firms operating under the ministry of steel in India. Large government organizations such as SAIL and IISCO are responsible for the supply of alloy steel and iron for the respective gauges.

The primary locomotive which is the passenger carrier has the steel and iron fittings and its skeleton is comprised of these materials which is again supplied by the iron and steel industries supervised by the ministry of steel. The broad gauge is the most common gauge visible in India as most of the rail networks comprise of the broad gauge tracks. The broad gauge track generally comprises of alloy steel and iron and various other varieties of steel



**Fig. 1: A Broad Gauge Railway Track**

Over the years, the quality of alloy steel and the change from iron to steel made improvements and the qualities of the railway tracks. The heavier the track gets, the heavier train can run over it. Apart from that broad gauge railways are again divided into further different types including size, thickness, and quality and welding.

Indian railways primarily depends on these core industries to provide them the required products, it was further elaborated by the intervention of private firms which provided even better quality and standards.

Other gauges like the meter and narrow gauges are not manufactured as extensively as the broad gauge since its foundation is laid in very few places across India. These tracks have the similar composition of alloy steel and metals but is comparatively smaller in size (width).

The narrow gauges tracks are mainly used in the hilly regions where there isn't ample space for a proper train to run.

Another key factor in producing the railway track is the sleeper or timber ties placed in between the steel lines. These sleepers are useful in keeping the lines parallel and hence involves the timber industry as well.

#### **V. THE ISSUES**

Being a government organization, Indian railways encounters problems on a daily basis which can be further categorized under the level of its effects. However, since the company also deals with other government organizations and established private firms in a specific industry in an economy, it has some of main problems every public limited company would face.

The Indian railways is a huge organization providing railway transport service to the people of India. Since there are millions of people travelling by train annually, the organization has to deal with the issue of quality of its service (stations), quality of its products (locomotives and tracks, maintenance of the former and the price at which the organization should invest for future plans.

## **VI. THE ISSUE OF QUALITY**

Indian railways always has the issue of its quality in terms of railway tracks, since it is investing a huge amount of money for the foundation of the tracks all over India. Before the independence there was only TISCO and IISCO which could provide steel and iron for the railway tracks, however after independence the country got exposed to globalization and liberalization which brought in many new firms in the Indian market.

Private firms these days ensure of providing the highest quality of product desired by the customer. Therefore, the quality of alloy steel and iron for the railway tracks provided by the private firms is one of the major issues as the lack of quality of the product will result in huge losses of the organization. If the quality of the iron and steel is not good the tracks made out of it would not be good either which will lead to higher risk of railway accidents which in turn affects the Indian railways.

## **VII. THE ISSUE OF MAINTENANCE**

Once the products and services are delivered to the customers, the next major step into consideration is the maintenance of the service and the product itself. Since, the case study leans majorly on the products of the Indian railways with respect to iron and steel industry of India, we can say that maintaining railway tracks and the conditions of the locomotives becomes another barrier in the company.

Contrary to this, iron and steel require very less maintenance but when these are molded into railway tracks, even they need regular maintenance. General maintenance include changing sleepers, lubricating and adjusting switches, tightening loose track components and surfacing and lining the track in order to maintain its position. Having a large network requires a huge maintenance unit which needs to regulate very often.