CHAPTER - III

Profile of the Organisation
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INTRODUCTION

Indian Railways had inherited a fairly systematic and superior training system from the British, which is distinct from what the other modes of transport have. The amount spent on training in Railways is comparatively higher than other transport systems because Railways consider it as an investment for the future. 2% of the total budget outlay is earmarked for training related activities. Whatever may be the qualifications of a new recruit, his capabilities are to be harnessed and synchronized to meet the peculiar needs of the Railway system. An attitude of endurance, sagacity, perseverance and presence of mind even during abnormal and crisis conditions have to be inculcated in them through an effective system of training. Making a Railwayman with good character, professional pride, discipline, dedication, sense of belonging, and feeling of national integration can be achieved only through an effective training system. Cooperation and understanding amongst co-workers, innovativeness and adaptability, mental toughness to work amidst inconveniences and nature's fury is some of the special qualities required of Railway personnel.

The training in Railways has two important elements. One is the training for normal working and other training to work during abnormal conditions. The famous dictum "The more we sweat in peace, the less we bleed in war" is applicable to the training in Railways and it is the training that helps Railways to be always in a state of readiness to ensure safety. Even when disasters strike, the
preparation and knowledge of Railwaymen help them to deal with critical situations and to face any problem with confidence.

THE EARLIEST DAYS

A Railway consists essentially of wheeled vehicles drawn by some source of power along a track so constructed that the wheels are retained on it. Each of these constituents has been developed over a period going back thousands of years.

THE WHEEL

The development of the wheel was one of the biggest landmarks in the progress of man. Its origin goes back into the hoary past. The earliest discoveries of wheels made by archaeologists relate to the Indus Valley and Egyptian civilisations which existed more than 6,000 years ago. These were made of wood, roughly hewn out of dry tree trunks and later of copper. One of the treasures yielded by the Harappa (3500 B.C.) excavations is a miniature two-wheeled cart made of copper, complete with roof and driver's V seat. With the discovery of iron in the sixteenth century, wooden wheels with flat iron tyres made their appearance. These gave way to cast iron wheels in the seventeenth century. Steel wheels with flanges came into use in the second decade of the nineteenth century.

THE TRACK

Roads and tracks are as old as civilisation. Highways mahapatha - in different parts of India, are repeatedly referred to in the Rig Veda. In Chandragupta Maurya's time (322 - 298 B.C.), roads were classified in detail as
royal roads, chariot roads, military roads, village roads, etc. and their specifications and rules for their use laid down. The Grand Trunk Road, 1,126 kilometre long, connecting Pataliputra (modern Patna); the capital, to his far-flung dominions in the north-west, and also a network of other roads, were constructed by him. His illustrious successor, the Emperor Ashoka, built many more. An Ashokan edict (circa 250 B.C.), refers to roads where banyan trees were planted and at each half kos (1.6 kilometres), wells were dug and rest-houses built for the convenience of men and cattle. In the West, the earliest tracks were built by the Romans and consisted of two parallel strips of brickwork embedded in the ground along which wheels of vehicles drawn by men or animals could move more freely than on virgin soil. Cast iron rails made their appearance as late as the middle of the eighteenth century, followed, in turn, by wrought iron and steel.

SOURCE OF POWER

The earliest source of power was man himself and woman, his mate, followed by animals, such as the bull, the buffalo, the horse the camel, the ass, the dog and others, whom man domesticated and pressed into his service. These held sway for thousands of years, right up to the seventeenth century, when the steam engine was developed.

RAILWAYS COME TO INDIA

'THE RAILWAY MANIA soon overflowed the shores of Britain and turned to India, where British capital was already yielding rich returns. But British commercial instinct counseled caution. Conditions in India were quite
different from those in Britain. Many Britishers who knew India and, indeed, many distinguished Indians, opposed the construction of railways in this country as a 'premature and expensive undertaking' and a 'hazardous and dangerous venture'. Ramesh Chandra Dutt considered railways to be 'a wasteful expenditure' and wrote that "Englishmen in their own country were more familiar with railroads than with canals, and they made the mistake of judging the needs of Indians accordingly.

There was a strong lobby which doubted whether the poverty stricken Indian would be able to afford a train fare, even if his sentiments did not stand in the way of a train journey. Others were skeptical of the successful construction and operation of the railways in a country having such an extreme climate, with torrential rains, violent storms, high mountains, sandy torrid deserts and dense forests. They held that, even if these obstacles could be somehow overcome, qualified staff, artisans and workmen for constructing and operating railways in India would not be forthcoming.

THE FIRST LINE

The first railway line in India, extending over a length of 34 km, from Bombay to Thana, was opened for public traffic on Saturday, 16 April 1853, a red letter day in the history of India.

RAPID DEVELOPMENT

After 1870, the railways developed rapidly. The Bombay, Baroda and Central India Railway Company, which had opened the entire section from Bombay to Ahmedabad by 1865, built its new terminus at Colaba in 1870,
providing Bombay with a second independent approach from the north. A large number of feeder lines had also been constructed in Saurashtra from funds provided by the Indian States.

In the extreme north, a total of 3,200 km of branch and feeder lines had been opened by 1892, to serve the granary of the Punjab, by the North-Western Railway, besides the extension of the main line up to Peshawar (now in Pakistan), in the North-West Frontier Province. In the Deccan, more than 1,600 km of railway lines were being operated by the Southern Maratha Railway, and the Nizam's State Railway, started in 1870 and succeeded by the Nizam's Guaranteed State Railway Company in 1883, had, by 1890, 515 route km of railway under operation. At the turn of the century, the network of the Indian Railways consisted of a total of 39,834 route km opened for traffic, with a capital outlay of Rs.330 crores. By 31 March 1940, the route kilometreage opened to traffic had reached 66,234 excluding the Burma Railways, and the total capital cost was Rs.853 crores.

ROLE, PERFORMANCE AND AREAS OF CONCERN:

Overview

Indian Railways is a vast network - second largest in the world under a single management with 95 % of its freight traffic contributed by seven major commodities, viz. coal, food grains, fertilizer, petroleum products, finished steel and raw material to steel plants, etc. all of them being essential commodities for servicing the core sectors of the economy.
95% of the reserved accommodation is being made through the nationwide computerised passenger reservation system at 352 locations. 95% of the freight tonnage & 89 % passenger revenue is earned on the BG which accounts for only 63.3% of the total network.

Indian Railways has been consistently generating operating surpluses. But these have not been adequate to fully meet the requirements of timely renewals and replacements of overaged assets, and at the same time for strengthening / upgrading the system to arrest the trend of its declining market share.

Role

Since their inception the Indian Railways have successfully played the role of prime mover to the economy and society of the Indian sub-continent. As the principal constituent of the nation's transport infrastructure, the Railways have served to

- integrate fragmented markets and thereby stimulate the emergence of a modern market economy
- Connect industrial production centers with markets and with sources of raw materials and thereby facilitate industrial development.
- Link agricultural production centers with distant markets and with sources of essential inputs thereby promoting rapid agricultural growth
- provide rapid, reliable and cost effective bulk transportation to the energy sector, to move coal from the coal fields to power plants and petroleum products from refineries to consumption centers, and
• Most importantly, link places to people - enabling large scale, rapid and low cost movement of people across the length and breadth of the country.

• In the process, Indian Railways have become a symbol of national integration and a strategic instrument for enhancing our Defence preparedness.

Some of the significant physical achievements include the following:

• Development of indigenous capacity for rolling stock manufacture

• Introduction of High-speed Rajadhani / Shatabdi Express trains

• Introduction of Mass Rapid Transit Systems in Metropolitan areas

• Commissioning of the Konkan Railway

• Extension of Electric traction to cover 21 per cent of the network

• Gauge conversion of about 8000 kms and provision of about 15000 kms of double/multiple lines

• Extension of computerized passenger reservation facility to cover 95 per cent of the workload

• Construction of bridges which are engineering marvels across major rivers like the Ganges, Godavari and Brahmaputra

• Linking North Eastern Region with the rest of the country.

Areas of concern

While the achievements have been significant, we are conscious of serious inadequacies in certain important areas because of crippling resource constraints.
**Duality of objectives**

The change in economic policies and the consequent rapid acceleration in the pace of growth have confronted Indian Railways with the sternest challenge in their history. The railways are required to respond to the changed environment by making necessary competitive adjustments to deal with the pressures of market forces in a liberalized economic environment, not only in order to remain financially viable but also to be able to satisfy the growth in demand for rail transport as a result of a vibrant economy. At the same time, the railways, as a public utility, have to continue to be responsive to their service obligations under Government tutelage.

**HISTORY OF ZONAL RAILWAY TRAINING INSTITUTE**

Prior to independence and upto 1951 three major Railway companies operated the lines in South India. They were Madras and Southern Maratta Railway Company (M&SMR), the South Indian Railway Company (SIR), and the Mysore State Railway Company (MSR). Some lines operated by them were actually owned by Government, various District Boards and tiny princely states and Government of French settlements in India. These companies had their own training centers at Madras, Nagapattinam, Podanur and Mysore. But they were not much developed to be called true training centers. The fresh recruits learnt most of their work in the open line under the senior hands and the top brass had their training abroad. The Southern Railway was the first zonal railway to be formed on 14.4.1951 amalgamating the three companies mentioned above.
Shri. N. Gopalasamy Iyengar, the then Minister of Railways had considered the question of an independent and sustainable training center for each zone, while deciding the size of the zones. Thus a “Centralized Training School” was opened in 1952 at Tiruchchirappalli closing down the schools at Madras, Mysore etc. Subsequently the name was changed as “Zonal Training School” according to the recommendations of a technical committee in 1962. The Railway board instructed to change the name again in 1992 as “Zonal Training Center” and subsequently renamed as ‘Zonal Railway Training Institute’ in the year 2004.

**INFRASTRUCTURAL FACILITIES**

Zonal Railway Training Institute which occupies an area of 16 acres is situated in the Rock city called “Tiruchchirappalli”. It is in the heart of Tamil Nadu state and linked to all major cities and towns by all means of transport like Air, Rail and road. The Cauvery flowing through its heart land renders its landscape green and gorgeous. Its many ancient temples and churches are architectural marvels as they are havens of spiritual solace. Little wonder this is a popular spot for thousands of tourists and pilgrims.

**Class Room Accommodation**

Prior to 1982 classes were conducted in an old asbestos roofed building. In the new building apart from 17 class rooms there is an auditorium a rail museum, a good library, a safety model room, computer cell, an audio-visual room and 10 other rooms utilized as administrative block. Even though the class rooms can hold 600 trainees, the institution hosts around 550 trainees any given time based on the capacity of the hostels.
MODEL ROOM

(i) Operating Section:

To execute the objectives of the training center from paper to the field and to make the trainees job oriented. The model room of all disciplines is necessary. This is equipped with various types of Block instruments like Neales ball token, Neales tablet, F.M. type. Push button type token less and modified SGE lock and block instruments which are used in Southern Railway. There are 12 model block stations provided with the above types of block instruments under different standards of interlocking. Six model stations with the recent developments like Twin-single line working under Automatic block system, Route relay interlocking etc., are to be added in the current year. Working model of the Air brake system and models of Hot axle, etc., installed in November 1993 are the latest additions.

(ii) Rolling Stock Section

To impart basic knowledge and improve the skills of Station Masters, Guards, Loco Pilots and other staff in Air Brake working, a twin-pipe working model was developed during November 1993 with an air compressor. Using this life size model, hands – on training is given to the trainees. To encourage the train passing staff to detect the hot axle symptoms, a model with a Wheel, Axle & Bearings are kept. To train the station staff, a model was developed to explain the clamping of broken spring in BOX type wagons. Different type of couplers like MG - ABC coupler, BG – Screw type and Center Buffer coupler are kept to explain its working on the train. Guards and TTEs are trained in functioning and
resetting of Inter Communication Chain system of Passenger alarm apparatus of vacuum & Air Brake coaches. Some of the other vital components like different types of Vacuum cylinders, Guard’s Van valves, Empty – Load lever, different types of springs, etc., are displayed to explain their functions to the trainees like Guards, Loco pilots, Station Masters, etc.

**Simulator Rooms**

There are two simulator rooms in which the real conditions of stations are built with the provisions of block instruments ticket counters, books and forms and necessary safety equipments used in train passing. The trainee SMs are put under stress and their responsiveness is tested. This method is used to build up confidence and preparedness among trainees and also for evaluating their skill and attitude. There is a miniature working model of Automatic block system on double line with an interlocked level crossing gate equipped with an approach warning system and track circuit as seen in the field.

The Station Masters are given practical training in hand cranking of motor operated points and clamping and pad locking of points which are required to be done during signal and point failures. Thus safety consciousness is inculcated and confidence is built in the minds of the trainees to encounter any abnormal situations in the open line.

An isolator switch was installed recently to impart hands-on training to Station Masters working in OHE area to operate isolator switch in case of emergencies. Guards and Loco Pilots are given intensive training for effective usage of Portable telephone in RE and Non-RE models and emergency lighting
for which facilities are provided in the model room. Some live models like colour light signals, shunt signals, Signal post telephone are erected inside the model room and connected to the panel of a model station and the trainees are freely allowed to operate these in order to enable them to enrich their knowledge and to exploit the facilities available to the optimum level. This makes them fully confident and competent to make use of such equipment in the field.

There is a safety Model Room with different types of safety posters stressing the importance of safety in every field of railway operations. A number of books and forms and other safety related equipment are also kept on exhibition. There is a Commercial Model Room in which dating machines, various books, registers and forms in use and other commercial items are provided to help the trainees learn how to use such things before they are exposed to open line working.

Hostel Facilities

Trainees are given free hostel accommodation during their stay in the center. With a view to improve the hostel facilities a new hostel was constructed with 120 double bedrooms and commissioned in the year 1983. Subsequently in 1992, 22 additional rooms were added as “Supervisors Block.” As a result of this at present there are two hostels for men trainees which includes hostel for supervisory officials also. The old hostel (Hostel – II) is provided with dormitory type of accommodation for approximately 100 trainees and the hostel - III is provided with 142 double bed rooms with common bath facilities to accommodate 284 trainees. A colour T.V. set is provided in Hostel - III in
recreation room. The inmates of all the hostels are supplied with cot, mattress, table, chair, pillow, bucket, mug, etc.

The new ladies hostel was commissioned in the year 1996 having 10 double bedded fully furnished (Bath attached) rooms to accommodate 20 lady trainees. A washing machine is made available for trainees. In the year 1992, an Officers Hostel was commissioned with 16 self contained double bed rooms to provide accommodation for 32 trainee officers who are attending special courses like Accident Management Course, DAR course, etc. The latest addition is a grand new block of hosted (Hostel IV) consist of 52 double bed rooms with bath attached to each.

**Open Air Theatre:**

An open air theatre is provided to organize functions like Annual day and Safety week celebrations.

**TREND OF TRAINING**

**Training Courses**

The complex nature of staffing in Railways demands varieties of training inputs at all levels to achieve the organizational goals. Though the training need analysis and designing of courses in general are done at Railway Board level, this institution plays a key role in redesigning the courses as well as imparting training to the target group of personnel to meet the requirements of Railways in trained manpower.

Up to mid 80’s training courses were organized for Staff of Operating, Commercial and Engineering departments. Consequent on the establishment of a
separate training center the Engineering training facility was shifted to the new center at Tambaram, Chennai in the year 1988. At present, training programmes consisting of initial, promotional, special and miscellaneous courses are organized at this training center. The course duration varies from 3 days to 118 days.

i) **Initial Training Courses:**

These courses are organized to mould the fresh recruits with a view to fit them in the complex machinery of a vast transport undertaking. In every stage of training organized for safety categories like Station Masters, Loco Pilots, Guards, etc., the importance of giving priority to the safety of traveling public is infused into the blood of the freshers. Training for non-safety categories like Commercial Clerks, Enquiry cum Reservations Clerks and Ticket Checking Staffs are given suitable training to make them fit to handle their job with confidence either individually or in a team under different circumstances. The spirit of public service, courtesy and importance of human elements in day-to-day work are kept as objectives of these training courses. Developing character, personality and "esprit de corps" are the other aspects of training to freshers.

ii) **Promotional Courses:**

Promotional training courses are organized to the departmental staff with prior knowledge on Railway's objectives and working. These courses are planned to upgrade the knowledge and skill and to make them competent to shoulder higher responsibilities.
iii) Refresher Courses

This inservice training is aimed at updating knowledge of rules and procedures. The refresher training courses for Operating and Commercial staff are organized since the efficiency of the organisation depends on the continuous ability of the staff at all levels to keep abreast with modern developments.

In 80’s the refresher courses were organized for 2 days for safety categories at the periodicity of 5 years. As it was felt that 5 years is a long gap the periodicity of refresher courses was reduced to 3 years and at present a 15 days course is conducted. Refresher courses for safety categories like Station Masters, Loco Pilots and Guards are made statutory and the importance of attending RC course is insisted and monitored by the Safety organisation and other branches. Refresher courses for commercial staff like ECRC, Commercial Clerks and TTEs are also organized periodically.

iv) Special / Miscellaneous Courses:

A field environment that is continuously changing necessitates upgradation of knowledge and skill and development of a positive attitude at all levels. So conducting special courses to supplement the normal training inputs are planned and executed successfully by this institution.

One such course is organized with a view to mitigate the sufferings of passengers in case of accidents and is titled ‘Disaster Management.’ This course was started from March 1991. The lectures are arranged based on Railway Board’s guidelines on ‘Disaster Management’. Subjects like Motivation, Leadership, Communication and Confidence building, Rescue and relief
operations, First Aid, Fire fighting and field demonstrations are taught to equip
the supervisors of all departments to deal with a disaster situation.

To improve the quality of service and to maintain a friendly approach
towards the customers, a special course on courtesy was started in 1989 and
subsequently it was renamed as ‘We Care’ course and at present it is run for 5
days called as “Customer Service Course.”

OTHER SPECIAL COURSES

To meet the rising need for trained man power owing to the rapid
developments in Electrification, Modern Signalling and Gauge Conversion, this
institution has planned and organized special courses on ‘Modern Signaling’ and
‘Working of Trains in Electrified Section’. These courses are mostly handled by
experts from the concerned departments.

Short duration miscellaneous courses like block instrument training,
Orientation Course for Guards and Loco Pilots working in Automatic Block
System are also organized.

Training Module

This center follows the training modules prescribed by the Railway Board
which is being revised from time to time. The module which is now being
followed was issued in March, 1998.

Training Methods

Choice of the Training method is a decisive factor in effective learning.
Choosing the right training method is thus an important task of the trainer. The
appropriate training method is decided scientifically by identifying the areas of
learning which have to be modified in an individual according to his job needs which are knowledge, skill and attitude.

Accordingly in this training institute various methods like Lecture, discussion, Question and Answer sessions, Practical exercises, Demonstration, Case study, Role play and Seminar are widely used.

Of the above mentioned methods, lecture is the most widely used in all training programmes especially for initial and promotional courses. This method helps in improving the comprehension of the trainees in learning the rules and procedures. To make the class room sessions more lively the lecture method is appropriately interpolated with Question and Answer and Discussion methods and also by the use of Audio visual aids.

In refresher courses the time spent on lecturing is minimal and more of the time is allotted for participative methods such as Discussion and Question and Answer. To develop an attitudinal change, case studies are discussed and safety seminars are also organized in which Station Master, Guards, Loco Pilots and Section Controllers attending refresher courses participate. To make the refresher courses attractive and interesting, Quiz programmes are organized periodically in which Station Masters, Loco Pilots, Guards and Section Controllers participate and prizes are awarded. This has received wide appreciation from the trainees.

For Station Masters, Loco Pilots and Guards attending initial and refresher courses sufficient sessions are allotted to give them practical hands – on training in model room in the required areas of working which helps them to develop their skill and make them confident to face field situations both normal and
abnormal. To check the reflexes and mental balance Station Masters attending initial course are made to role play as Duty Station Master in the specially designed Simulator Rooms, where the field conditions are exactly simulated. Demonstration with intensive coaching and exercises make the staff competent to operate Block instruments, Signals, Panels, Isolator switches, Air brake, etc. Practical examinations are conducted for Station Masters to check their skill and knowledge. As part of training all trainees of initial and promotional courses are taken for filed visits to observe the real working conditions under the guidance of Instructors.

Additionally for Station Masters, Guards, Commercial clerks, Ticket Collectors, Enquiry-cum- Reservation Clerks, etc, a few days of field observation is given in the open line, on completion of examination. In Safety Camps, discussions and case studies are the main method adopted. For staff attending initial courses, their level of understanding is checked periodically by conduct of class tests. By this method, the weaker trainees are identified and are given special coaching. Refresher course trainees are checked for their level of knowledge on the first day by an ‘Entry Behaviour test’. Trainees who are deficient in their knowledge of rules are given special coaching after working hours and this has proved to be very effective.

Training Aids

Use of training aids play a vital role in making the training more effective. Therefore overhead projector, slide projector, 16mm film projector, VCR, flip charts, computer, video projector, LCD projector etc. are used at this institute for
impacting training. Till 1980, the Zonal Training School (now called Zonal Railway Training Institute) was provided only with black boards and one 16 mm projector. In keeping pace with the improvements in Audio visual technology the Institute has procured a number of latest Audio Visual aids. Black boards are replaced by ground glass boards in class rooms. A white board is already available which enables the trainer to use marker pens of different colours. All class rooms are provided with Over head projectors. A portable OHP is also available.

The center is having a slide projector and about 100 slides through which real signals, panels and stations, wagons, etc. and other field conditions are shown to the trainees on the class room which gives a very good understanding to the trainees and also makes training interesting. A colour television set and a VCR are also available for the trainees to enable them to see the video recording of various accidents the lectures on Management topics, films on Railways, etc.

**TRAINING OF OFFICERS:**

This institute imparts training for Officers also. Courses on DAR and Accident Management, are being conducted at regular intervals. To deliver lecture for these courses, eminent speakers from Railways and from reputed institutions like Bharathidasan University are invited. At times, Probationary Officers are also nominated by Railway Staff College, Vadodara to undergo their initial training at this training center for specific periods.
CONCLUSION

Zonal Railway Training Institute, Tiruchirappalli being one of the premier training institutions in the country contributes its mite towards the quest for “Safety”. “Reducing the incidence of train accidents” is one of the corporative objectives of the Railways and the Railways’ thirst for safety is unending. A very disturbing factor is increasing contribution of human element in train accidents. To arrest this trend, this training center is inculcating a culture of safety consciousness in the minds of Railway men. This Status Report presents a bird’s-eye-view of the diversified activities undertaken by this training institute in fulfilling the organization’s objectives and more emphatically the aspirations of the Railway user. This institute will continue its endeavor to develop organizationally effective personnel with pride in their work and faith in the management.

The Zonal Railway Training Institute, Tiruchirappalli, has a long way to go and march forward towards perfection in the field of training. This is amply explained by Robert Frost, who sang these ever reverberating lines -

“The woods are lovely dark and deep
But I have promises to keep
And miles to go before I sleep
And miles to go before I sleep”