

Detailed Project Report

Development of
Sri Lanka – German Railway Technical
Training Center (SLGRTTC)
to meet the challenges of
Technology shift in Sri Lanka Railways

CONTENTS

Chapters	Page Nos.
1. INTRODUCTION	4
2. SLGRTTC OBJECTIVES and FUNCTIONS	5
3 SWOT ANALYSIS OF SLGRTTC	8
4 DEVELOPMENT PLAN OF SLGRTTC	10

1. INTRODUCTION

According to Armstrong (1999, p. 507), Training is a systematic modification of behavior through learning, which occur as a result of education, instruction, and development and planned experience. the fundamental aim of training is to help the organization to achieve it's purpose by adding value to it's key resources. The key resource is the human resource or the employees of the organization.

Training is an investment on people to enable to perform better and to empower them to make the best use of their natural abilities. The objectives of training are,

1. Develop the competencies of employees and improve their performances
2. Help people to grow within the organization in order that, as for as possible, it's future needs for human resources can be met within the organization
3. Reduce the learning time of employees starting in new jobs on appointment, transfer or promotion, and ensure that they become fully competent as quickly and economically as possible.

1.1 Sri Lanka Railways

Sri Lanka Railways (SLR) is a government department functioning under the Ministry of Transport and Civil Aviation. SLR's market share for passenger transport is 6.0 % and 0.7 % for goods transport. Although the market share is much less compared to the Bus Transport, the service provided by SLR in carrying the daily commuters to and from Colombo, is inevitable. This requirement can not be catered by other transport modes.

Sri Lanka Railway operates approximately 330 trains per day and carries about 0.29 Million passengers daily. **SLR covered approximately 7600 Million passenger – kilometers in 2016 and collected Rs. 5366.31 Million as revenue.**

SLR plays a major role in land transport in Sri Lanka since its inception in 1864. To provide the rail transport service SLR operates and maintains over 180 nos. of locomotives of 21 different types, 800 nos. of passenger coaches, 1500 nos. of freight wagons and 1500km of broad gauge rail tracks.

In addition to the operation and maintenance of infrastructure and rolling stock, SLR is playing a major role as a technology transferor to the public and private sectors by providing industrial training to a large number of students following engineering courses at universities and technical colleges.

Therefore, the internal efficiency and the performance of the workforce are vital factors for SLR, in carrying out the operation, more successfully for the satisfaction of its customers (passengers and shippers).

SLR's mission in provision of passenger and freight transportation is, provision of safe, reliable and punctual rail transport service, economically and efficiently.

SLR has been divided to ten major sub departments which includes, four engineering sub department for maintaining and developing railway tracks, rolling stock and signaling. The operations and commercial departments focus on train operation, operation scheduling, safety of operation, etc. and commercial activities such as collection of revenue, ticketing, seat reservation etc. Other supporting functions of accounting, procurement, training and security are carried out by other four sub departments.

2. SRI LANA – GERMAN RAILWAY TECHNICAL TRAINING CENTER

The Training function (specially technical training) is being carried out by the Sri Lanka German Railway Technical Training Center at Rathmalana.

The training centre of SLR, Sri Lanka German Railway Technical Training Centre (SLGR TTC) was established in 1985 with the technical and financial assistance of the Federal Republic of Germany to cater the skilled requirement of SLR. Accordingly, there are 4 full time technical courses; Diesel Engine Mechanic, Machinist, Electrician and Welder. All courses are structured on technical standards and national vocational qualification standards, with theoretical and practical sessions.

Therefore, the objective of establishing the SLGR TTC was to create the technicians who have got training specially in the fields, needed by the Railway.

The role of SLGR TTC includes,

- Producing technically sound skilled workforce according to the National Competency Standards to cater the skilled worker requirement of SLR as well as the country (90~100 apprentices each year)
- Eliminate knowledge and skills gaps of existing SLR workforce by conducting short term capacity building courses (More than 300 SLR employees per year)
- Providing laboratory and workshop facilities for trade tests and skills assessments
- Providing technical training of Locomotive Operators and Guards
- Facilitating inplant training of undergraduates, technical students and other departmental employees (More than 100 undergraduates per year)

2.1 **Broader Objective of Developing the SLGRTTC**

The SGRTTC was established in 1984, mainly to cater the technical training requirements which were identified along with technology introductions linked with Diesel Traction. The Ministry of Transport and Civil Aviation along with Sri Lanka Railways has initiated the Colombo Suburban Railway Project funded by the Asian Development Bank and the objective of the project is to develop the Colombo Suburban Region (CSR) of the Sri Lanka Railway Network to meet the demand for railway by 2035 and finally electrify the entire CSR. With the implementation of the project, the hauling power of Railway will change from Diesel to Electric. Therefore, a sub project has been created to develop SLGRTTC to meet the training and development needs coupled with Railway Electrification.

2.2 **Other Objectives**

- a. Identify the training needs of all sectors of Railway through a survey
- c. Develop Training Policy for Railway and for SLGRTTC
- d. Construction of new Training wing for provision of training for Railway Tracks, Rolling Stock, Signalling, Telecommunication, Electrification, Railway Operations and other sectors identified by the survey. This includes provision of tools and equipment.
- e. Developing Curriculum and Training of Trainers

2. THE TRAINING FUNCTION OF SLR

2.1 Sri Lanka Railways

Railway, unlike other transport organizations, has to maintain its 1420 km of rail roads, while maintaining its fleets of 98 locomotives, 682 carriages and the signaling network. At present, it has a workforce of 14886, for this purpose.

2.2. The Training Function of the Sri Lanka Railways

The SLGRTTC conducts 4 full time courses specifically designed to cater the special skill requirements of SLR. There are approximately 90~100 apprentices in a batch. The theoretical and practical lessons will be conducted at the training centre and the in-plant training will be conducted at the SLR workshops. The course durations and the accreditations are as follows.

- Diesel engine mechanic – 2½ years
- Machinist – 3½ years (NVQ level 4 accredited)
- Electrician – 3½ years (NVQ level 4 accredited)
- Welder – 3 years (Manual Metal Arc NVQ level 4 accredited and Gas Welding NVQ level 3 accredited)

Reference to above, the SLGRTTC provides training for two groups of trainees.

- a. Directly recruited trainees who will undergo trainings on different fields.
- b. Department employees

2.3 Directly recruited Trainees

SLGRTTC recruits about 90 to 100 trainees annually by calling for applications and through a standard selection procedure. They will be provided with three year training and courses are provided free of charge under the government's National Vocational Qualification Program. These trainees, after getting through an evaluation process, will be issued with certificates. The trainees who complete the training successfully can join with SLR for the SLR's Junior Technological Service (at Class II , Grade I level). However, according to the recruitment schemes, only a percentage of the available vacancies can be filled using this method.

2.4 Departmental Trainees

SLGRTTC issues a prospectus annually to all the sub departments of the SLR and the SLR's employees submit applications are through the respective sub departments.

2.5 Other Training

In addition to the training provided by the SLGRTTC, short term training programs such as Tamil Language, Rules and regulations, are provided at a small training facility at the Railway Headquarters at Maradana. These programs are specially arranged for Clerical (Managerial Assistants) Service and are arranged with the direction of Additional General Manager – Administration.

3. SWOT ANALYSIS - SLGRTTC

3.1 Strengths

- a. Considered as a separate Sub Department in SLR
- b. Well experienced trainers for existing training courses
- c. Good Training equipment for the existing courses
- d. Well suited location, away from city and close to main establishment of SLR
- e. Suitable environment for trainees
- f. Sufficient lands for putting up buildings for capacity expansions
- g. Ensured funding from government
- h. The SLGRTTC trained technicians are considered as the best lot in SLR

3.2 Weaknesses

- a. Facility is located at Ratmalana, far away from the majority of the employees
- b. Lack of trainers due to no recruitment for a long time.
- c. Lagging behind in providing training for Trainers.
- d. Although it is a separate sub department, it has not been empowered to select trainees and select trainee segments etc.
- e. No set arrangement for obtaining the services from the SLR's resource persons for training programs
- f. Top management is not considering training as an essential function
- g. Poor salary scales for trainers

- h. Lack of Modern Equipment, simulators and computer aided training kits
- i. Outdated curriculum
- j. No resources (financial and human) to address all training needs of SLR
- k. Building Space is not sufficient for expanding training

3.3 Opportunities

- a. Having potential and demand for training opportunities from SLGRTTC
- b. Possibility of recruiting more internal trainees to fulfill and training needs of the SLR Employees.
- c. NVQ accreditation – Level 5
- d. Opportunity for attracting investments

3.4 Threats

- a. The location is the main hindrance for the SLGRTTC to attract railway employees.
- b. There should be continuous flow of sufficient funds for any training center to operate.
- c. There is high demand for the experienced and capable trainers in the private sector.

4. DEVELOPMENT PLAN OF SLGRTTC

The current rolling stock of SLR consists of old and moderately new locomotives, carriages, wagons and DMUs. When considering the maintenance of those, SLR is facing to a shortage of experienced skilled technical workforce in next couple of years mainly due to retirements. Apart from that, with the upcoming railway projects (Colombo Suburban Railway project etc.) and the introduction of new locomotives (both diesel and electric) which will be purchased in the near future, knowledge and skills of novel technologies (CNC, PLC, mechatronics, electro-pneumatics) will be remarkably essential. Not only in the workshops, other engineering departments

(track and bridges, signal and telecommunication and, buildings work) will also have faced this matter.

Even though the recruitment procedures of the skilled workforce to SLR have been amended, with the new salary regulations, the required skills level has been adjusted for new recruitments. (The trainees passed out from the institute with NVQ L4 qualification were previously absorbed to MT-2 category however, at present it requires NVQ L5 qualification to match the corresponding salary scale). Since NVQ L5 qualification is a supervisory level qualification, new recruitments for the skilled categories is very limited yet.

4.1.1 The Development Requirements (in brief)

4.1.1 Developing new training courses including development of curriculum

- Generalised Training (in addition to the three training programmes which have got NVQ L4 accreditation
 - Obtaining NVQ L4 accreditation for Diesel Engine Mechanic Course
 - Workshop Technology
 - Diesel Engine Technology
 - Electric Engine Technology
 - Production Technology
 - Mechatronics and Advanced Automation Technology
 - Electrical and Electronics Technology
 - Welding Technology
 - Note: The employees can be absorbed with NVQ L4 qualification and an On-the-Job training will be provided to upgrade to NVQ L5
 - A comprehensive computer training (specially to SLR employees to improve overall efficiency and the productivity of SLR)
 - Telecommunication Technology including Railway Telecommunication
 - GIS and GPS Technology
 - Electrical Technology

- Railway Specific Training Courses
 - Upgraded and standardized training programmes for special categories such as locomotive drivers, guards, SMs, IPWs ...etc: (NVQ L5 Railway Guard NCS Curriculum development is currently in process.)
 - Railway Track Engineering (NVQ L3 for Technicians and NVQ L6 to L7 for Technical Officers)
 - Railway Rolling Stock Engineering (NVQ L3 for Technicians and NVQ L6 to L7 for Technical Officers)

- Railway Electrification and Signalling Engineering (NVQ L3 for Technicians and NVQ L6 to L7 for Technical Officers)
- Railway Management
- Railway Commercial and Accounting
- Railway Ticketing and Seat Reservation System Training
- Railway Enterprise Resource Planning System Training
- Railway Machines (Specific Machines used for Track, Rolling Stock and Electrification)

4.1.2 Empowering teaching staff

- Existing teaching staff
 - Technical Officer – 01 Nos
 - Chief Instructor – 04 Nos
 - Instructor (Permanent) – 03 Nos
 - Training Instructor – 03 Nos
 - Propose amendments to regulate teaching staff recruitment procedures
 - NVQ L5 qualification to teaching staff
 - Railway Engineers as visiting lecturers (Under special requirement, external lecturers)
 - Training of Selected Officers of Sri Lanka Railways to serve as Lecturers in SLGRTTC
- Developing infrastructure
 - New materials and mechatronic laboratory facilities with hi-tech equipment
 - CNC machine centre
 - Locomotive driver simulating unit
 - Library
 - Drawing office
 - An auditorium
 - Hostel facilities
 - Construction of New Training facility (two storied building) including all equipment for conducting Railway Specific Training
 - Transport facilities including shuttle bus between Maradana and Rathmalana
 - Development of Training Policy for Sri Lanka Railways
 - Development of Business Plan (self financed) for SLGTTTC
 - Quality Assurance Policy for SLGRTTC