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**Performance Audit on Railway Communication System Improvement Project** 



## ජාතික විගණන කාර්යාලය

தேசிய கணக்காய்வு அலுவலகம் NATIONAL AUDIT OFFICE

## Performance Audit on Railway Communication System Improvement Project



Report No. : COT/C/CSREIP/PR/2022



## National Audit Office



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## **Executive Summary**

Infrastructure development is an essential factor for the economic growth of a country and improving the transportation sector is a special task within the infrastructure development. Railway service can be identified as a highly demanded mode of transport in Sri Lanka. There is a high demand for railway service in Sri Lanka due to the transportation of passengers and goods at the lowest cost and attracting local and foreign tourists. A well-planned, continuous railway communication service enables railway passengers to meet efficient service facilities with modern technology.

The Railway Efficiency Improvement Project was initiated in the year 2018 with the aim of streamlining the passenger and goods transportation and contributing to sustainable economic development. Through this project, it was planned to improve railway operational efficiency, strengthen the maintenance capacity and to improve railway safety / passenger safety, improve facilities in the railway services training center and obtain necessary resources and consultancy services for railway transportation. Out of these, the task of improving the island-wide railway communication system was identified with the objective of improving railway operational efficiency. Its primary objective was to improve the efficiency of railway services Island wide by implementing an internal communication system specific to the Department of Railways. Accordingly, the work on the project for the modernization of the railway communication system had been completed in November 2020.

The main objective of this performance audit is to evaluate the efficiency and effectiveness of the tasks performed to achieve the objectives of the project. This audit examined the establishment of the modern communication system, current usage, common issues and future actions to be taken to achieve the desired objectives. The main operating offices of Nawalapitiya, Maradana and Anuradhapura, and Kandy, Maradana and Mahawa depots and 48 railway stations and their associated signal compartments and railway gate crossings were examined for the performance audit.

it was observed during the audit that the project is not being implemented efficiently and effectively at present due to major weaknesses such as not accessing the system individually and collectively by all the relevant officers during the implementation of this system, not taking action by the Department of Railways to obtain services/maintenance from the relevant communication agency as per the agreement, and non-availability of a monitoring methodology in relation to the activities of the entire system.

It was observed that the Department of Railways should take necessary measures to obtain the expected benefits from the project. For this, it is recommended to issue internal circulars regarding the implementation of the system and assign responsibility to the relevant officers, install high-efficiency and quality devices, provide necessary training to officers, add new technical facilities to communication devices to enable carrying out of the work of the Railway Department efficiently (e.g. GPS facility, video calls), take necessary measures to restore and use communication devices if they are faulty or out of order, take steps to obtain maintenance and services in accordance with agreements with the relevant communication agency, and maintain an internal control system to ensure that the system is operated successfully and continuously.

## 01. Introduction

## **1.1 Background and Nature of the Report**

Communication between railway stations had been carried out through copper wires with signing of the Colombo-Kandy Line Construction Agreement on 03 February 1863 until the year 1985, and transmission had been carried out through VHF/UHF radio waves from 1985 to 2014. The transmission process established by BBCI (Brown Bovary Communication Institute) was used in the transmission work carried out through radio waves. Since 2014, the communication process had been maintained in association with a private company in Sri Lanka, and the need to modernize the communication process of Sri Lanka Railway Service had been identified due to the weaknesses in the system prevailed during this period and outdated communication system and owing to not covering the entire railway system by the communication process. Accordingly, steps had been taken to establish a communication system covering the entire railway system. Details of the railway zones covered by the railway communication system in Sri Lanka are given in Annexure 01.

## **1.2** Authority for Audit

This audit was conducted under my direction in accordance with the provisions of Article 154 (1) of the Constitution of the Democratic Socialist Republic of Sri Lanka and the provisions of the National Audit Act, No. 19 of 2018.

## 1.3 Objectives of the Audit, Sources and Criteria

## **1.3.1** Objective of the Audit

The main objective of this performance audit is to examine whether the Railway Communication System Improvement Project has been implemented in economically efficient and effective way to achieve the relevant objectives.

Sub-Audit Objectives	Source	Criteria		
01. Project Planning Stage the necessary institutional and financial background for the implementation of the project and assessing user needs.	<ul> <li>Feasibility Study Report.</li> <li>Project Agreement.</li> <li>Project Administrative Manual.</li> <li>Procurement Guidelines.</li> <li>Documents related to procurement activities, including documents on specifications.</li> </ul>	<ul> <li>1.1 Proper identification of the needs of the users of the communication system and the basic elements required for the operation of the communication system.</li> <li>1.2 Adequate financial facilities should have been fulfilled for the establishment of the communication system.</li> <li>1.3 Proper identification of the staff that should be involved in the communication system.</li> <li>1.4 Proper identification of the training needs of the staff.</li> <li>1.5 Proper specifications have been prepared and steps have been taken to select contractors.</li> </ul>		
02. Implementation stage	<ul> <li>Contract agreement.</li> <li>Work reports and performance reports.</li> </ul>	<ul> <li>2.1 Should have carried out construction and installation and handing over of the number of items of equipment as per the contract.</li> <li>2.2. Completion of the contract on the due date as per the contract.</li> </ul>		

## 1.3.2 Sub-Audit Objectives, Sources and Criteria

	<ul> <li>2.3. Should have established an interconnection between the control and operation centers using the equipment installed in the locomotives (MT01) and the wide screen computer screens (FT01) for the control/operation centers and their use.</li> <li>2.4. Number of mobile telephones (MT02, MT 03) and fixed line telephones (FT01, FT02, FT 03) and other equipment provided to the staff working in connection with the communication system and the number and locations of the officers, who were provided with the equipment.</li> <li>2.5. Establishing the interconnection among the staffs in the control and operation centers and the staff of the railway stations and the locomotive staff through the use of all the relevant communication devices.</li> </ul>
• Operational reports.	Provision of 03 Voice Recording Devices (VRD) and 03 System Monitoring Devices (SMD) for 03 control rooms with the aim of improving railway safety and productivity and efficient use of these devices.
<ul> <li>Contract agreement.</li> <li>Training plans and related performance reports.</li> </ul>	2.6. Necessary training has been provided to the staff.

03. Follow-up on the	• Follow-up	3.1 Active operation of the relevant
operation of the	reports on	fixtures and constructions of the
communication system.	maintenance	relevant accessories in order to enable
	and operation.	voice, data and video images
		transmitted in real time.
	• System operation	3.2. Evaluating the successful use of
	reports.	the system by the relevant parties.
	• System maintenance	3.3. Checking whether the old
	reports.	communication devices or other
	• Physical observation	alternative (personal telephone)
	and user statements.	methods are being used instead of the
		new communication system introduced
		and evaluating the reasons for that.

## 1.4 Scope of Audit and Limitation of the Scope

## 1.4.1 Scope of Audit

The scope of this audit was to examine the extent of performing the role, for which the Ministry of Transport and Private Telephone Company had entered into an agreement dated 16 November 2020 for the Railway Communication System Modernization Project that had been identified as a sub project belonging to Colombo Suburban Railway Efficiency Improvement Project and accordingly, the extent of achieving the objectives of the project. During the audit, the attention had been basically paid on the performance of the targeted functions of this project. Moreover, further attention had been paid in the audit on the achievement of the expected benefits by this project, future measures to be taken to improve the efficiency of the project and the measures taken / to be taken as solutions by the relevant parties for the basic issues arisen in the practical usage of the communication system.

At that audit, the attention had been also paid on quality of the communication devices provided under the project, whether the communication devices had been given to all relevant parties, whether the communication devices are fully and efficiently utilized, functions of communication agency in relation to maintenance and services, practical issues arisen in the usage of new system, methodologies prevailed in Sri Lanka Railways Department for continuous implementation of the system and how modern system had contributed to enhance the efficiency of Sri Lanka Railways Department compared with the previous system.

## **1.4.2 Limitation of Scope**

- (a) The scope of the performance audit had been affected due to the occurrence of time delays in obtaining the information from Sri Lanka Railways Department for audit inspections, less assistance given by the officers of Sri Lanka Railways Department for audit activities as well as possibility of providing bias statements to the audit by the officers owing to the unwillingness of certain officers in Railways Department about this project.
- (b) As it is difficult to obtain direct data about the reluctance of the officers to use the communication devices, the function of the system cannot be fully evaluated.

## 1.5 Sources of Evidence and Audit Methods

- (a) Inspection of the project evaluation reports prepared for the improvement of the efficiency of suburban railways
- (b) Study of acts, circulars, cabinet decisions and session papers and other documents in relation to implementation of the communication project for improvement of the efficiency of suburban railways
- (c) Obtaining required clarifications and statements from the officers and institutions with regard to the programme followed pertaining to the communication process
- (d) Inspection of books, reports and documents of the Department of Railways for obtaining the data on Project expenses, staff training and receipt and issuance of goods
- (e) Evaluation of the benefits comparatively before commencement of the new communication project and after commencement of new project
- (f) Observation of the physical position by the field inspections and obtaining the views of the officers and the public.

## 1.6 Audit Approach

## 1.6.1 Matters based for new communication system

- (a) An amount of Rs. 78,837,202 had been paid for implementation of railway communication system prevailed within preceding 05 years and the various defects had been identified in said system as follows.
  - I. It was observed that the average of persons died after meeting accidents at the railway crossings is 15 per year due to non-establishment of the security systems properly for the railway crossings by Department of Railways. The department had no method in relation to the action to be taken on behalf of the victims and payment of the compensations and no scientific plan had been established for construction of the road safety systems enabling to totally cover the railway crossings also.
  - II. There are approximately 750 railway crossings which had not been secured by making gates since 1987 to date and the crossing gates had not been built as per the provisions of the Railways Ordinance for the safety of the minor crossings. Furthermore, necessary provisions had not been made to identify the unsafe places for access to the private lands and safety of those places.
  - III. Many bells and electric systems established by the department up to now do not operate properly and the Engine Driver or Signal Department has no possibility of making aware whether such system operates properly and in instances, where the signal system is not functioning due to a fault in the electric signal system or disconnection in the electric supply.
- (b) Continuous train delays

In accordance with the summary report on running of trains in 2022 submitted to the audit, overall number of turns of trains operated within the year is 110,916 and number of train delays is 78,071. Furthermore, it was observed that 70 percent of overall turns of trains had not reached its destination on due time. As per the time periods of delays of trains, the details of train delays are as follows.

Code of			Number of train delays				Total delay	
Train Details	Train Details	Total number of turns of trains	6-10 Minutes	11-30 Minutes	31 - 60 Minutes	More than 60 minutes	Total number of train delays	as a percentage of total number of train turns (%)
А	Express/Mai l/Intercity	18,188	1,363	5,503	4,937	3,971	15,774	87
В	Mixed/ Slow	24,084	3,035	7,163	3,214	2,021	15,433	64
С	Colombo commuter	63,002	10,772	23,484	6,390	1,399	42,045	67
D	Rail buses	333	36	128	57	19	240	72
Е	Freight Trains	5,309	96	325	579	3,580	4,580	86
	Total	110,916	15,302	36,603	15,177	10,990	78,072	70





A Express/Mail /Intercity

- B Mixed/ slow
- C Colombo commuter
- D Rail buses
- E Freight

## (c) Other factors affected to the efficiency of the transportation of trains

It had been further observed in the audit that the efficiency of the transportation of trains may be affected due to the facts such as the block devices faults, signal faults and minor technical faults, break binding, vacuum faults, lighting faults, temporary speed limits, train detachments, train strikes, administrative faults such as delay of arrival of engine drivers and guards, different time ranges for loading and unloading of goods, no dual railway lines in island wide which directly affect to the railway delays in addition to the weaknesses in railway communication system.

## 1.6.2 Colombo Suburban Railway Efficiency Improvement Project

## The objectives and functions of Colombo Suburban Railway Efficiency Improvement Project

The objective of Colombo Suburban Railway Efficiency Improvement Project is to enhance the efficiency, safety and sustainability of the railway operations for achievement of efficient, safe and sustainable transport of passengers and goods promoted for the assistance of the sustainable economic development. The activities of the project had been planned by targeting the under-mentioned key outputs and it had been planned to implement 31 key activities under said targets. The details are mentioned in Annexure 02.

- (a)Development of railway operation efficiency
- (b) Strengthening the railway maintenance capacity
- (c) Improvement of safety of railway running and passenger/public security
- (d)Enhancement of facilities in Railway Technical Training Centre
- (e) Strengthening the readiness for implementation of future railway project

## 1.6.3 Legal framework and financing of Colombo Suburban Railway Efficiency Improvement Project

A loan agreement had been entered into between the Secretary of Ministry of Finance on behalf of Government of Sri Lanka and OIC Sri Lanka Resident Mission of Asian Development Bank on 20 August 2019to obtain US \$ 160 million under agreement No. 3806-SRI for improvement of Colombo suburban railway efficiency in Sri Lanka.

- (a) As per above-mentioned loan agreement, the full amount of loan should be utilized by 30 June 2025 and the commitment fee had to be paid on loan instalment which is allocated annually and not utilized. The charge of this commitment fee will be commenced within 60 days since the date of granting the loan and it is charged by 0.15 percent from unutilized loan amount from loan amount allocated timely.
- (b) The interest charged on the loan released and the commitment fees charged for the loan released but not utilized had to be paid biannually on 01 February and 01 August in every month respectively.
- (c) The payment of first instalment of loan amount will be started on 01 February 2028 and the payment should be completed in 42 instalments by 2.380952 percent half yearly from the loan amount obtained. A grace period for loan repayment has been provided up to 01 February 2028, the date of commencement of paying loan instalments. However, loan interest and commitment fees for the loan disbursed should be paid during the grace period.

## 1.6.4 Island-wide Railway Communication System Improvement Project

# (a) Parties involved in the project to improve the island-wide railway communication system and related tasks thereof

The Ministry of Transport had acted as the implementing agency for this subproject and the Sri Lanka Railways acted as the project establishment agent and the Colombo Suburban Railway Project also acted as the project management unit. Details of the above institutions/parties that were to participate in the project initiation and implementation stages are shown below

Serial	<b>Related party</b>	Role
No.		
1	Ministry of Transport	• Establishment of an environmentally-friendly as well as people-friendly transport system based on highways and railways, which fulfil passenger and goods transportation, tourist passenger facilities, related infrastructure, service standards, prevention of road congestion and accidents, operation of all transport services on a common schedule, maintaining a transport service that ensures public trust, and strengthening of the institutional structure.
2	Department of Railways	<ul> <li>Sri Lanka Railways is a public department operating under the purview of the Ministry of Transport.</li> <li>It functions as a major provider of transport facilities and the only railway transport organization in the country.</li> <li>Sri Lanka Railways provides services such as passenger and freight services.</li> <li>The market share of Sri Lanka Railways for passenger transport is about 6 percent and it is about 7 percent for freight transport.</li> </ul>
3	Project Office	The object had been to manage project activities to facilitate and implement the work of the Ministry of Transport with the purpose of improving the efficiency, sustainability and safety of the railway network.
4	Asian Development Bank	The agency providing funding for the railway communication system improvement project.

5	Dialog	Axiata	The contracting agency that will carry out the work of	
	PLC		the Railway Communication System Improvement	
			Project	

## (b) Preparedness for the implementation of the Railway Communication System Improvement Project

A feasibility study had been conducted during the period of 2017/2018 to identify the need for an island-wide railway telecommunications system for the Sri Lanka Railway service, which was proposed to be implemented under the Colombo Suburban Railway Efficiency Improvement Project and to identify the essential components to be provided for it. The services of expert consultants consisting of foreign and local representatives had been obtained for this initial feasibility study and the needs of the staff using the railway telecommunications systems and the needs of other support staff were identified through interviews and experiments and the selection of a telecommunication technology system, preparation of specifications and preparation of necessary documents for procurement activities had been carried out. This has focused on making the existing telecommunication system more efficient by comparing it with modern communication technology. Accordingly, the following proposals had been submitted to the Sri Lanka Railways regarding the services available through telecommunication service providers.

- Implementation of high capacity SDH transmission with 72 fibers and (Optical Fiber as back bone with 72 fibers) to meet the requirements of the voice and data communication of Sri Lanka Railways.
- Establishment of a telephone switching network with facilities for external interfaces and installation of an interface system for the railway dispatcher.
- Establishment of a digital radio system with appropriate capacity to meet the mobile needs of Sri Lanka Railways and to ensure continuous communication for railway operations in the event of a malfunction of the cable system.
- Provision of necessary information to railway stations and railway passengers with high quality.
- Establishment of data transmission facilities and a network management system to improve operations.

• Expansion and improvement of the station monitoring and surveillance system for other railway stations.

## (c) Implementation of the railway communication system improvement project

The Railway Communication System Improvement Project, which was established as an initial achieving target of the Colombo Suburban Railway Efficiency Improvement Project and identified as a prioritized need for improving railway operational efficiency, had been implemented as per the above proposals. This performance audit focused on the implementation of the proposed tasks and use of equipment under the Improvement Project on Railway Communication System as per the recommendations of the feasibility study conducted to identify the need for an island-wide telecommunications system for the Sri Lanka Railways under the said communication project and to identify the essential components to be provided.

## 2. Detailed audit findings

# 2.1 Establishing the necessary institutional and financial background for implementing the project and assessing user needs

## Cost estimation of the railway communication system improvement project

Out of the total approved loan amount of the Colombo Suburban Railway Efficiency Improvement Project, US\$ 11.16 million, that is, 6 percent of the total project cost, had been allocated for this communication project. Out of the estimated project cost, US\$ 9.70 million had been planned to be financed by the Asian Development Bank and US\$ 1.46 million by the funds of the Republic of Sri Lanka and a Project Administration Manual had been prepared to facilitate the administration of the project based on those provisions.

An executive estimate of Rs.3,340,034,548 equivalents to US\$ 9.70 million (Rs. 1,753,740,760 for equipment and services, Rs.468, 562,715 for system services, and Rs. 1,117,731,073 for maintenance and management) had been prepared on the advice of the Asian Development Bank to implement the Railway Communication System Improvement Project. Accordingly, it was estimated that US\$ 1.12 million, US\$ 2.24 million, US\$ 2.24 million and US\$ 2.24 million would be provided

annually from 2020 to 2024 respectively and US\$ 7.35 million had been spent on the project as of 31 December 2023.

## 2.2 Efficient and effective use of communication equipment.

- 2.2.1 275 MT 01 devices worth Rs. 274,154,278 had been provided to the Railway Department at a unit price of Rs. 996,924 each to provide telephone facilities (Connoles) to locomotive engines using MT 01 devices and to establish an interconnection between the control and operation centers and the trains using these devices and FT 01 (wide computer screens for control/operation centers). Out of these, 233 had been installed in locomotives, while the remaining 42 had been stored in the custody of the Railway Department under a security. Train drivers should get access to the communication system using passwords through these devices and thereby information about train operations at railway control centers and railway stations will be updated. The following points were observed during the sample audit conducted regarding the operation of the information system using MT 01 phones provided under the project.
  - (a) It was observed during the audit field inspection that train drivers were not accessing the communication system using MT 01 devices, acting at their own discretion, deviating from the instructions and guidelines of the corporate circulars. According to the monthly maintenance reports of selected communication service supplying institution regarding the active use of communication devices, the monthly average usage of the said devices by train drivers during the period from January to May 2023 had been 21 devices (8 percent). The details are shown in Annex 03.
  - (b) Owing to not putting into use and other reasons, these devices in some locomotives had been broken and necessary steps had not been taken to restore them. The details are depicted in Annex 04.



Image 01- Broken MT 01 components inside the locomotive

- (c) It was observed during the sample inspection that all train drivers had not been provided with the required passwords to access this device installed in the locomotives at the Kandy and Maradana railway depots. Details are shown in Annex 05.
- (d) Even though entering the password and entering the correct train number into the devices installed in certain locomotives were made, it was shown as invalid password and it was not possible to operate those devices henceforth. Details are depicted in Annex 06.



Image 02- Device not working due to incorrect train number



Image 03- Device not working due to incorrect train number

(e) It was also observed that the device indicated a different location than the actual location of the train at some occasions. Only a portion of some devices had been installed on the locomotive.



Image 04- Showing a different location instead of the train's destination

It was observed that the MT 01 device provided to the Department at a cost of Rs. 274 million was not being used efficiently and effectively by the relevant parties to keep the Railway Communication Information System up to date due to the above weaknesses.

- 2.2.2 1951 mobile phones worth Rs. 131,795,189 at a price of Rs.67,552 per unit, had been provided under the project to Railway operations staff, maintenance staff, shunting staff, Railway security service staff and the staff employed at Railway cross roads for giving continuous communication by using MT 02 (mobile phones) and FT 02,FT 03 (Fixed line connection).It was expected by providing these phones to update the information on the railway travelling by exchanging messages between officers, railway stations and with the Train Control Centre. The following facts were observed at the sample audit test check carried out regarding the operation of information system using MT 02 phones and also as per the monthly reports of the Dialog Axiata PLC regarding the active use of the communication equipment.
  - (a) At the audit test check carried out and as per the said reports, it was observed that the use of MT 02 phones for duty purpose had been at a minimum 3 per cent, and due to this situation, it had been observed that the technical failures existing regarding the MT 02 phones and further innovations/improvements/ to be made to them could not be identified.

- (b) It was observed at the field test that out of the 27 mobile phones provided to the Chief Mechanical Engineer's Sub Department of Ratmalana, none thereof had been used for duty purpose by 20 September 2023. (Annexure 05)
- (c) Due to the minimum communication maintained with the Departmental staff by the Train Control Centers, train drivers, and Railway stations, and also due to the updating of trainrelated information currently through the system is not done properly by means of these equipment by this Department, it was observed that these communication equipment were not utilized efficiently.
- 2.2.3 1239 fixed line phones (451 FT 2 and 788 FT 3) worth Rs. 71,909,303 at a price of Rs. 58,038 per unit had been fixed at railway stations, sub railway stations, signal rooms and railway Gates Island wide for creating an interconnection through the use of FT 01 equipment amongst operational control centers, railway stations and running staff. Communication and exchange of massages happens through these phones between railway stations and officers on railway duty and control centers. The following facts were observed at the sample audit test check.
  - (a) Break down of communication owing to the non-existence of sufficient battery power due to switching off of telephones as a result of a power failure.
  - (b) Break down of communication made through fixed line telephones due to signal failures and technical faults in equipment.
  - (c) Difficulty in getting touch with a railway station to make a call in an emergency situation due to non-use of an easy code for identification of railway stations in the communication process.
  - (d) No required measures had been taken to restore the broken-down fixed line telephones and equipment and reuse them.
  - (e) Although action was taken to make group calls and messages by the Railway Control Centers, it was not possible to verify if the relevant call/massage was received by every railway station and the time of receipt of such call/message and certain times, the said call/message had to be made again through general telephones line.

- (f) Chief Mechanical Engineer's Sub Department of Rathmalana had been provided with 05 fixed line telephones and none of those telephones had been used for duty purpose.(Annexure 05)
- (g) Further, as per the monthly reports of the selected communication service supplying institution on the active use of communication equipment, it was observed that the items of equipment are not used efficiently due to non-use of 40 per cent of the fixed line telephones provided under this project.
- 2.2.4 03 System Monitoring Devices (SMD) worth Rs. 7,989,203 and 03 Voice Recording Devices (VRD) worth Rs. 53,468,713 had been provided for Maradana, Nawalapitiya and Anuradhapura main railway operational centers with the objective of ensuring the safety and productivity of the train service through the use of System monitoring Devices and Voice Recording Devices to record the telephone conversations made through the system and to contemporarily transmit voice data and videos. Due to non-approaching the system by railway drivers through the MT 01 equipment fixed to the engines, VRD and SMD devices that had been purchased had not been utilized owing to non-operationalization of dispatcher device.
- 2.2.5 20 FT 01 dispatcher devices had been provided under the project as 13 devices to the Maradana railway operational center, 04 to the Nawalapitiya railway operational center and 03 to the Anuradhapura railway operational center and the total cost thereof amounted to Rs. 8,161,559 with each unit costed at Rs. 3,408,076. Updating of information in railway operational centers including the railway transportation information upon the information provided through MT 01, MT 02, FT 2 and FT 3 telephones, is performed through these dispatcher devices. The use of this device in all railway operational centers had become idle by the time of the audit due to non-use of MT 01 by railway drivers.
- 2.2.6 Benefits mentioned herein were expected to be achieved i.e. using of the Optical Fiber Network whenever possible by the operation of the communication system as above in accordance with the prepared system specifications requirements, and using of wireless transmission or alternative fiber in the event of non-existence of the Optical fiber network, compliance with the requirements prescribed by the Sri Lanka Telecom Regulatory Commission (TRC) as per the international standards, the possibility to communicate with the closest devices in the event of absence/reduction of infrastructure. However, these facilities and regulatory requirements had not been fulfilled due to non-activation of the railway communication system.

## 2.3 Selection of the Contractor for the Project

As per the decision given at the Cabinet meeting held on 09 May 2018 regarding the Cabinet paper No CP.18/0815/709/028, powers were vested to the Line Ministry to implement the project by taking into consideration the observations of the Minister of Finance and Mass Media.

International biding had been called under two envelop method and two institutions as a domestic communication institution and a joint venture formed by combining another two domestic companies related to communication, had submitted bids. The following are the quotations submitted by the Institutions that had submitted bids in accordance with the Executive Estimate and the specifications of the Ministry of Transport prepared for island wide telecommunication service on the concurrence of the Project office and the Asian Development bank, the following are the quotations submitted bids.

Description	Executive Estimate	Joint Venture	Domestic Communication Company
	Rs.	Rs.	Rs.
Devices and services	1,753,740,760	820,470,317	1,066,326,277
Services for systems	468,562,715	475,375,795	699,777,217
Maintenance and	1,117,731,073	376,384,000	1,244,774,843
Management			
	3,340,034,548	1,672,230,112	3,010,878,337

Accordingly, action had been taken in the following manner in selecting the contractor for the project.

- (a) Although the value of the executive estimate stood at Rs.1, 753,740,760, quotations amounting to Rs. 820,470,317 of the Joint Venture Company and the quotation amounting to Rs. 1,066,325,227 of the Domestic Communication Company had been sent and the quotations had been understated by 53 per cent and 39 per cent respectively as compared with the value of the Executive Estimate.
- (b) As compared with the Executive Estimate for systems and services that stood at Rs.468, 562,715, the Joint Venture Company and the Domestic Communication Company had submitted bids overstating thereof by 1.45 per cent and 49 per cent over the estimated value respectively and as compared with the Executive Estimate for maintenance and management that stood at Rs. 1,117,731,073, the joint venture had submitted bids with 66 per cent less than the estimated value and the domestic

communication company had submitted bids with 11 per cent beyond the estimated value.

- (c) The Joint Venture had submitted a total bid value for servicing for devices and service systems including maintenance and management by 50 per cent less than the Executive Estimate, and although it was observed the said bid showed a drastic fluctuation as against the estimated value, the said company had stated that they submitted a lower bid since their communication network is expanded island wide through this project. The Cabinet Appointed Procurement Committee on the recommendations of the Technical Evaluation Committee had accepted the bid submitted to the joint venture for a lesser value amounting to Rs. 1,667,804,436 (less than 50 per cent) than the value in the Executive Estimate.
- (d) The Procurement Appeal Board hearing the appeal presented by the domestic communication company against the awarding of the contract, had approved the awarding of the said procurement activities to the joint venture.
- (e) The said Appeal Board decision had been referred on 13 January 2020 by the Presidential Secretariat to the Cabinet of Ministers and the Cabinet of ministers had referred it to the Attorney General's Department for its observations. Since it had been informed through the letter No CT/35/2020 dated 29 May 2020 that the Attorney General's Department had no objection therefor, approval had been given by the Cabinet meeting held on 18 March 2020 for the implementation of the said decision of the Appeal Board. According to the evaluation carried out regarding the foreign resources fluctuations taken place during the period from 2020 to 2025, although all projects using foreign resources had been temporarily suspended by the Ministry of Finance, Economic and Policy Development through its letter No ERD/IRCPRS/GEN/10 dated 08 July 2020, it had been decided to start this project following carrying out of a re-evaluation.

## 2.4 Project Cost and Completion

(a) As per the contract agreement reached on 16 November 2020 between the Joint Venture and the Ministry of Transport, the contract valued at USD7,490,874 for renovating the railway communication system, had been awarded to the said company.

- (b) As per this contract agreement, USD 7,348,345 equivalent to Rs.1, 951,162 had been incurred for the project from the day entered into the contract agreement to 31 December 2024 including the advance paid on 01 December 2020 to the said company amounting to USD749, 087.44 equivalent to Rs.1, 951,230,162 which is equal to 10 per cent of the contract value, had been incurred for the project. Details are contained in the annexure 06.
- (c) As per the primary contract agreement, although the equipment should be handed over to the Railway Department by October 2021 after completing the project, date extensions had been given on 02 occasions; that is, on 30 April 2022 and 31 July 2022 respectively.

## 2.5 Communication Coverage

The following facts were observed with regard to the establishment of total communication coverage under the project.

- (a) As per the agreement entered into with the contracting company, it had been planned to install more than 400 new communication towers in order to implement the communication network covering the entire island. However, the joint venture had not submitted any quotations for the new communication coverage when submitting the bids. It had later been identified that the zone within 12 km from Ohiya Railway Station to Pattipola Railway Station on the Upcountry Railway Line, which belongs to the Department of Forest Conservation, and the zones nearby the tunnels belonging to the railway system, were not covered by the existing communication system. Consequently, as an agreement had to be made by paying a fee to the Department of Railways and the Department of Forest Conservation to construct the communication coverage network covering those areas, and the relevant contractor had not been able to complete the communication coverage in those areas.
- (b) Accordingly, as the company submitted bids without paying attention to the aforesaid issues that may arise during the establishment of the island-wide communication network, the work of this project could not be completed by October 2021 as per the initial agreement, and the system belonging to the above-mentioned zones had been handed over to the Department of Railways on 27 September 2021 without being accomplished.

## 2.6 Planning and giving trainings for Staff.

The requirement of training the railway staff for the use of equipment under the system had been identified and planned in line with the system specifications. Accordingly, the local and foreign training courses for staff had been planned by the contractor company and a sum of Rs. 106,072,859 had been allocated for this task. An amount of Rs. 34,367,606, that is, only 32.4 percent of the total allocation had been utilized as at 31 December 2023. The details of the staff training opportunities planned by the said company according to the agreement and the participants in the training conducted were as follows.

Type of Training	No. of persons recommended to be trained as per the agreement	No. of persons participated for the training	No. of persons not participated / excessive	
Dispatcher	20	20	-	
Railway Station Master	500	453	47	
Railway Guard	500	201	299	
Maintenance Staff	100	302	(202)	
Driver	450	209	241	
Other	-	<u>411</u>	(411)	
	<u>1570</u>	<u>1596</u>		

Following particulars were observed in this regard.

- (a) Out of 1450 train drivers, station masters and railway guards who should essentially be trained to implement this system, 587 persons had not participated in the training. Even if it had been identified that only 100 maintenance staff members are required to be trained, 302 officers had participated in the training. Further, 411 other staff members whose training needs were not identified in accordance with the agreement had been sent for training. Consequently, it was further observed during the audit that the trainings for staff had not been provided as planned.
- (b) Although it had been recommended to provide foreign training for 10 railway management and non-operational staff members, 80 railway operation staff members, 64 maintenance staff members, and 20 technical staff members, the said foreign training opportunities had not been provided.

## 2.7 The problems related to the placement of telephone devices

In the inquiry made regarding the telephone devices that had been fixed in the locomotives, the railway staff (drivers) explained to the audit that the forward vision during night train operations is obstructed as the LED screen of the phone was directed towards the driver's face due to the way these devices have been placed, the location where the phones have been installed was obstructing the duties causing problems about its existence, only the name of the next and rear railway stations were displayed and however the distance between the train and the railway stations was not recorded (between the station and the place where the train is), and rainwater was leaking since the antenna wires installed on the roof of the train engine for the installation of these devices, and consequently the use of devices practically has been problematic. The possible occurrence of those problematic situations was also observed during the physical inspection conducted by the audit.

# 2.8 Follow-up on Development of System Activities as per the Service and Maintenance Agreement.

It was observed that there was a risk of missing the beneficial circumstance that could have been obtained regarding the defects occurred during the warranty period of the devices in accordance with the Service and Maintenance Agreement as the contarctor company was not informed by the Department of Railways about the technical errors and other troubles occurred during the use of communication devices.

Further, the MT 01 devices installed in some locomotives and the fixed-line telephones installed in some railway stations and some MT 02 mobile phones that had been given to the officers had been inactive at the time of the audit and the required measures had not been taken to restore those and utilize those effectively.

# 2.9 Institutional contribution to the achievement of the objectives expected from the communication system

(a) Even if all the relevant users are required to access the system through devices to implement this communication system successfully, it was observed during the audit that the train drivers do not use the MT 01 device and the officers to whom the MT 02 phones have been given do not utilize them properly. Accordingly, the officers had not proceeded in accordance with the agreed circular provisions. (b) In order to perform the maintenance and operation activities of this system without obstacles when those activities were taken over by the Sri Lanka Railway Service, it had been planned according to the system specification requirements to carry out the supervision activities of the system during the period of executing maintenance activities by the respective company and to assign an appropriate approved staff by the railway service to get an understanding of those activities, and to deploy a staff to investigate the system from the 3 Railway Control Centers, the actions had not been taken so far to assign a suitable approved staff for that purpose through the railway service. Consequently, the weaknesses such as non-establishment of an appropriate internal controls in order to ensure the efficient and continuous operation of this communication system, not following the basic monitoring methods and not identifying and assigning a suitable staff at the departmental level were observed.

It is observed during the audit that the desired objectives are not achieved by the modern railway communication system established at a cost of Rs. 1,951,230,162 equivalent to USD 7,348,345 due to the above circumstances, and that the targeted output of improving the railway operational efficiency using this communication system has not been realized as the practical use has been failed at present. Further, the expenditure incurred to date under this project for the maintenance and operation of this system, which is not actively used, was Rs. 73,185,778.

## 03. Audit Recommendations

- (a) To make it obligatory for the officers to proceed in accordance with the Circular No. 09 dated 02 May 2023 of the General Manager of Railways; which was issued to make it mandatory to use the communication devices that have been provided under the new communication system for official duties, and to take necessary disciplinary actions for negligence of duties against the officers who do not use such devices.
- (b) To fulfill the maintenance and service activities as per the agreement with the Communication Agency, make improvements/ innovations to the communication devices as suitable to the Department and to take necessary actions to restore and utilize the devices not being used due to technical faults.
- (c) To keep on proceeding to identify a method for the Railway Controller to specifically verify whether the calls and messages sent by the Chief Railway Controller to the railway stations about train transportation, road obstructions and other important information related to train transportation have been received by all relevant parties.
- (d) One of the main objectives of this project is to minimize the railway accidents. The steps should be taken to minimize the accidents by upgrading the facilities of telephones given to the railway gate sections and using them more efficiently.
- (e) To take actions to provide communication devices according to the nature and the capacity of the institutions and the officers under the Department. Specifically, it was observed during the audit that communication devices remain idle as the said devices had been provided to the institutions /officers not practically requiring the use of devices for the official duties, and the arrangements should be made to provide such devices to the institutions/officers capable of using those devices effectively.
- (f) To draw attention on the changes that should be made as per the opinions and suggestions of train drivers for effectively utilization of the devices installed in the locomotives to address the troubles encountered by the train drivers in the practical use of those devices.

- (g) To take actions to establish / improve the communication towers to establish an island-wide signal coverage for the successful and continuous implementation of this system, and to get further towers constructed as planned from the relevant communication agency, as well as to rectify the existing deficiencies in the signal rooms.
- (h) To Identify and establish a systematic and strong method to perform the relevant services at departmental levels by assigning an appropriate staff as the responsibilities of maintenance and operation activities are entrusted with the Signal Department of the Department of Railways after the end of the agreement period related to the Contractor Company as per the agreement.
- (i) To provide training to the officers of the department on this communication system enabling them to use the communication devices more effectively. Preparing a training plan for this purpose and taking steps to provide the necessary training with the participation of the communication agency and parties knowledgeable about the system.
- (j) To establish a strong internal control system in the department by evaluating the performance of this communication system to ensure the successful and continuous implementation of the system. To appoint a suitable staff as planned to carry out supervision activities and assign them with relevant tasks.

Sgd./W.P.C. Wickramaratne Auditor General

W.P.C. Wickramaratne

Auditor General

## Annexure 01



<b>Colombo Suburban</b>	<b>Railway</b> Ef	ficiency Impr	ovement Project	- Major Functions
Colombo Subul ban	Kanway Ei	menency impr	ovement i roject	- Major Functions

Serial	Description	<b>Procurement Cost</b>
No.		(US \$ )
1	Consultancy for Feasibility Study and Detailed Design of	5,215,631.50
	Kandy Suburban Railway Project	
2	Project Implementation Consultancy	3,893,497.96
3	Procurement of Island wide Railway Telecommunication System	9,395,112.67
4	Procurement of Smart Ticketing and Seat Reservation System for Sri Lanka Railways	19,305,930.00
5	Supply of Universal Armature Machine	1,172,565.00
6	Procurement of Sleeper Tamping Machine	4,961,500.00
7	Design and Construction of Operation Headquarters and Colombo Train Control Center	15,043,364.43
8	Design and Construction of Condominium at Malapalla for Relocation of Families in Railway Corridor - KV Line	6,589,681.8
9	Supply of 05 Nos of Rail Road Loaders	2,612,837.70
10	Procurement of 2 No. Track motor cars & 12 No. Mini Wagons	2,081,000.00
11	50T Hydraulic Crane	3,060,000.00
12	MIS for Finance	12,290.05
13	Train Simulator	2,583,980.08
14	5000Nos. EN 45 E1 Rails of R 260-EN 1364 and 5000 Nos.R 350-HT Type	6,702,580.00
15	Ballast Profiling Machine	2,207,681.00

16	Computer Numerical Control Underfloor Wheel Lathe	2,375,321.46
	Machine	_,_ ,_ ,
17	Delivery of Rails	56,237.61
18	P-13 - Fish Plates	394,145.00
19	P-15- GRN Insulators	184,030.00
20	P-16-Elassstic Rail Clips	215,500.00
21	P-17 Switches and Crossings	283,650.00
22	P-18 Track Jacks	84,784.18
23	Design and construction of DMU workshop at         Rathmalana	8,670,000.00
24	P-14-Base Plates and shim Rails	76,000.00
25	P-19 Spare parts- Overhaul Repairs (i,iii & iv)	401,105.71
26	P-20 Spare parts- Overhaul Repairs (ii)	884,973.60
27	Passenger Seating Facility for railway stations	125,000.00
28	Tools for DMU workshop	332,000.00
29	Deisel Generator for SLRGTTC	51,000.00
30	Power Backups (Renewable Energy)	2,000,000.00
31	Individual consultants	
	i.SLR operational gaps and improvement	114,000.00
	ii. New business and commercial models	114,000.00
	iii. Capacity building of SLRGTTC	114,000.00

Daily Active Device Count according to the reports of the maintenance and operation of Dialog Axiata,

From January to May 2024

Device Type		Total	%				
	January	February	March	April	May	Average	
Train Cab Radio (MT 1)	25	23	21	17	19	21	8
Stations/Sub Stations/Office (FT							
2/FT3)	754	740	744	728	727	739	60
Handheld Devices (MT							
2)	65	67	52	50	51	57	3
Total	844	830	817	795	797	817	24



#### Annexure 04



#### BY HAND/E-MAIL

Our Ref: DAP/GEN/CGR/2023/380

#### 9th October 2023

Mr. Chinthaka Jayasekara Chief Engineer Signalling and Telecommunication Sri Lanka Railways

#### Dear Sir,

## Joint Inspection Report on Train Cab Radio Units (MT1) for the Mission Critical Push to Talk System (MCPTT)

This is to bring your urgent attention to the current status of the Train cab radio equipment that has been observed during the joint inspection. This joint inspection was coordinated and confirmed from the SLR end by Mr. Saman Gunawardena who was the appointed person by Mr. Bandara – Chief Engineer Motive power.

Out of 275 installed devices we have jointly inspected 199 Train cab radios from 21 July 2023 to 1<sup>st</sup> of October 2023 & below is the summary table.

focation	Total Inspected	Condition OK	Willful Damaged Devices	Need to Repair by Dialog	Unable to inspect (in SUR Repair Center)	Unreachable/ Unknown
RSD	53	44	5	4	19	5
HLS	41	27	12	2	12	0
ELS	36	30	5	• 1	21	2
EPCS	46	40	5	1	14	0
PCS	23	21	1	1	2	1
Total	199	162	28	9 275	-68	8

Note: Please find the attached detailed inspection sheets available with signatures as an annexure.

In total 275 train cab radio units were installed as per the contract and the team was not able to inspect 76 units as the relevant engines were under repair and/or not available for inspection. 9 devices were identified as requiring repair and replacement by Dialog.



Out of the inspected devices, 28 devices have been wilfully damaged and therefore we request you to make an official request to carry out a formal inquiry on this matter and to take necessary action to prevent the recurrence of incidents of this nature in the future.

DIALOG AXIATA PLC (PQ 38) No. 475, Union Place, Colombo - 02, Sri Lanka.

0 @ OCT 2023

Thank you, Yours faithfully,

**Dialog Axiata PLC** 

Navin Peiris

Group Chief Officer - Dialog Enterprise

CC:

h

Mr. W.A.D.S Gunasinghe-General Manager Railways
 Mr. Upali Mallikarachchi – Project Director – PMU

Annexures,

1. Detailed inspection sheets available with signatures

## Sample checking of procured communication devices and use of devices and use of devices under the project

Annexure 05

Seria	Railway Station	Provid	led telecor	nmunica	tion dev	vice	Common de	fects		Other Issues
l No		FT1	FT2	FT3	MT1	MT2/ MT3	charging time	signal failures	not using of devices	
							time	Tanures		
1	Maradana control center	13	3	3		207			MT 2	
2	Anuradhapura control center/railway station	3	2	2		2	V		MT2	
3	Nawalapitia control center	4	2	1		33	V	V	MT2	It has been mentioned that there is a requirement of a telephone directory. MT2 telephones of railway guards were not functioning. It shows as No service .There are problems in connecting with the control center with Idalgashinna/Ohiya/Ambewela /Pattipola and Watawala stations.
4	RatmalanaTechnicalEngineering Sub Office		5	-		27				Any type of telephone has not been used as there is no need for these telephones for official purposes.
5	Kandy		3	2		51			MT 2/FT3	The MT1 device fixed in the railway engines were out of order, FT type telephones were

								not supplied to the Guards' office.
6	Thambiligala		-	-	-			No any communication devices are provided.
7	Ulapane		1	1	1	 	MT2	
8	Peradeniya		1	-		 V	MT2	
9	Kadugannawa		2	2	1	 -	MT2	
10	Pilimathalawa		1	1	1	 $\checkmark$	MT2	
11	Gampola		1	1	1	 $\checkmark$	MT2	
12	Poduhara		-	2	1	 $\checkmark$	MT2	
13	Polgahawela		3	3	2		MT2	
14	Rambukkana		2	5	2		MT2	The requirement of using the MT2 type telephone was in a very poor level.
15	Anuradhapuraya		1	1	1		MT2	
16	Thambuththegama		1	1	1			
17	Galgamuwa		1	1	1	 	MT2	
18	Ambanpola		1	1	1	 		
19	Nagollagama		1	1	1	 		
20	Mihinthalawa		1	1				A MT2 type telephone has not been provided.
21	Mahawa	1	1	1	2			
22	Kurunegala	3	1	1	2		MT2	Problems in connecting with Colombo

							control center.
23	Nailiya	1	1				No any communication devices were provided.
24	D		1				provided.
24	Ragama	1	1	2	V		
25	Kollupitiya	1	1				There are technical faults in devices. The
							group calls given by the railway controller
							are problematic. A MT2 type telephone has
							not been provided.
26	Dehiwala	1	1				The group calls given by the railway
							controller are problematic and the telephone
							screen switched off/ stuck.
27	Weyangoda	1	1	1		MT2	There are technical faults in the devices
28	Gampaha	1	1	1			
29	Dematagoda	1	1				No power supply at the time of audit.
30	Maradana	1	1	1			
31	Wellawatta	1	1	1		MT2	The group calls given by the railway
							controller are problematic.
32	Bambalapitiya	1	1		$\checkmark$		The telephone screen switched off/ stuck.
33	Wadduwa	1	1	1			The calls given by the railway controller are
							problematic.
34	Ja-Ela	1	1	1		MT2	
35	Kaluthara South	1	1	1		MT2	
36	Panadura	1	1	1			There are technical faults in the devices. The
				1			telephone screen switched off/ stuck.

37	Moratuwa	1	1	1			The calls given by the railway controller are
							problematic.
38	Chilaw	1	1	1			
39	Negambo	3	3	1		 MT2	
40	Nawalapitiya	1	1	1			
41	Matale	1	1	1		MT2	
42	Ukuwela	1	1	1			One of the FT02 telephones is out of order.
43	Waththegama	1	1	1	$\checkmark$		
44	Udathalawinna	1	1				
45	Hatton	1	1	1			
46	Thalawakale	2	2	1			There are technical faults.
47	Ohiya	1	1	1			
48	Idalgashinna	1	1	1			Used only one fixed line telephone
49	Watawala	1	1	1			At present, this telephone is not in use.
50	Inguruoya	1	1				
51	Kahatapitiya	1	1				
52	Suduhumpola	1	1				

Annexure -02 (Railway Efficiency Improvement Project Functioned under the Colombo Suburban Railway Project)

Activity	Project Component/	Actual Cost as	at 31.12.2024	Progress as	at 31.12.2024	
Number	Activity	USD	Rs.	Financial (%)	Physical (%)	
	Island-wide Radio		<b>N</b> 5.	(70)	(70)	
1	Telecommunication System	7,348,345.23	1,951,230,161.59	83.76	99	
2	TicketandSeatReservation System	2,181,736.00	488,940,708.00	11.30	50	
3	Operation Headquarter and Train Control Center for Sri Lanka Railways	13,093,536.16	3,893,359,157.46	76.01	74	
4	Management Information System	12,147.34	4,275,000.00	94.08	100	
5	Single Sleeper Multiple Tie Tamping Machine	3,521,377.00	970,660,980.30	77.01	100	
6	Ballast Profiling Machine	308,802.80	100,241,125.39	13.99	70	
7	ComputerNumericalControl Underfloor WheelLathe	998,805.53	297,038,434.68	50.30	55	
8	Universal Armature Machine	810,072.89	231,331,384.73	95.05	100	
9	Track Motor Cars, 12 Nos. Mini Wagons	416,200.00	150,214,904.00	21.7	100	
10	05 Nos. Rail Road Loaders	363,983.53	110,647,571.67	17.24	86	
11	50T Hydraulic Railway Crane	2,433,500.00	771,389,059.45	95.02	100	

12	Procurement of 10,000 rails for SLR	6,702,580.00	2,173,778,533.75	100.00	100
13	Fish plates, Bolts & Nuts, Coach screws, Dog Spikes and Washers	78,829.00	23,876,397.57	20.00	85
14	Base Plates and Shim Rails	-	-	-	0
15	GRN Insulators	174,728.50	51,314,005.74	94.95	92
16	Elastic Rail Clips	43,100.00	12,944,119.56	20.00	80
17	Switches and Crossings	56,730.00	17,124,035.60	20.00	70
18	Track Jacks and Machines	-	-	-	50
19	Spare parts required for Schedule Maintenance of DMUs	161,352.77	47,697,638.00	95.00	80
17	Spare parts required for Schedule Maintenance of DMUs	-	-	-	-
20	Delivery of Rails to Colombo Fort	55,839.18	17,996,036.00	100.00	100
21	Tools for DMU Workshop	-	-	-	-
22	Railway DMU Workshop at Rathmalane	1,508,911.43	448,002,512.41	15.56	20
23	Power Backups (Renewable Energy)	-	-	-	-
24	Passenger Seating Facility in Railway Stations	-	-	-	-
25	Improvement of Passenger	41,556.48	12,200,213.50	44.33	80

	Facilities for EWCD in Stations				
26	Housing Units for future Relocation-KV line- Malapalla	6,547,578.40	1,956,543,228.24	89.80	99
27	Railway Training Center Equipment Package 9: Diesel Generators	-	-	-	-
28	Train Simulator	227,942.00	82,856,917.00	19.55	80
29	Detail Design Kandy Suburban Railway Line	2,198,766.13	694,352,490.41	45.01	55
30	Project Implementation Consultant	3,930,539.92	1,107,013,989.57	74.10	80
31	Individual Consultants for Advisory Services	179,066.59	42,795,685.81	65.57	97

G.D.Roshan Dhammika Deputy Project Director Finance (Acting)

Colombo Suburban Railway Project