PERFORMANCE AUDIT REPORT ON THE PROJECT OF PROCUREMENT OF 75 DE LOCOMOTIVES BY PAKISTAN RAILWAYS

AUDIT YEAR 2018-19

AUDITOR GENERAL OF PAKISTAN

PREFACE

The Auditor General of Pakistan conducts audit in terms of Articles 169 and 170 of the Constitution of the Islamic Republic of Pakistan 1973, read with Sections 8 and 12 of the Auditor General's (Functions, Powers and Terms and Conditions of Service) Ordinance 2001. The performance audit of the project titled "Procurement of 75 DE Locomotives" was carried out accordingly.

The Directorate General Audit Railways conducted performance audit of this project in two phases. The 1st phase was done in September to November 2018 covering audit of Procurement of 55 DE Locomotives whereas the 2nd phase of audit was executed in December 2021 covering remaining Procurement of 20 DE Locomotives. The Audit covered the period of the project from 2007-08 to 2020-21 with a view to report significant findings to stakeholders. Audit examined the economy, efficiency and effectiveness aspects of the project. In addition, Audit also assessed, whether the management complied with applicable laws, rules and regulations in managing the project affairs. The Audit Report indicates specific actions that, if taken, will help the management realize the objectives of the project of Procurement of 75 DE Locomotives. Most of the observations included in this report have been finalized in the light of DAC recommendations.

The Performance Audit Report is submitted to the President of Pakistan in pursuance of Article 171 of the Constitution of the Islamic Republic of Pakistan 1973, for causing it to be laid before both houses of Majlis-e-Shoora (Parliament).

Sd/-
(Muhammad Ajmal Gondal)
Auditor General of Pakistan

Islamabad
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Abbreviations

AC	Alternative Current
APO	Assistant Personal Officer
ATP	Automatic Train Protection
BPS	Basic Pay Scale
C&W	Carriage and Wagon
CBU	Completely Build Unit
CDWP	Central Development Working Party
CEO	Chief Executive Officer
CFI	Carriage Factory Islamabad
CKD	Completely Knocked Down
CME	Chief Mechanical Engineer
CSR	China South Locomotives and Rolling Stock Corporation Limited.
DE	Diesel Electric
DAC	Departmental Accounts Committee
DCOS	District Controller of Stores
DEC	Dalian Electric Corporation
DG	Director General
DPU	Dalian Pakistan Universal
ECNEC	Executive Committee of National Economic Council
EFI	Electronic Fuel Injection
FA&CAO	Financial Advisor and Chief Accounts Officer
GEU	General Electric Universal
GM	General Manager
GOP	Government of Pakistan
GPS	Global Positioning System
HP	Horse Power
ISSAI	International Standards of Supreme Audit Institutions
JV	Joint Venture
KC	Karachi Cantt
KW	Kilo Watt
LA	Legal Affairs
LD	Liquidated Damages
Loco	Locomotive
M&S	Manufacturing and Services
MD/CFI	Managing Director, Carriage Factory, Islamabad
MOR	Ministry of Railways
MYP	Marshalling Yard Pipri

NLC	National Logistic Cell
OEMs	Original Equipment Manufacturers
PC-I	Planning Commission Proforma-I
PD	Project Director
PHA-20	Model of Hitachi Locomotive
PLF	Pakistan Locomotive Factory
PO	Principal Officer
PPRA	Public Procurement Regulatory Authority
PR	Pakistan Railways
PRFTC	Pakistan Railway Freight Transport Company
PSDP	Public Sector Development Programme
RMP	Round per minute
TLA	Temporary Labour Application
ToT	Transfer of Technology
US$	United States Dollar
USA	United States of America
WM	Works Manager
YSW	Yousafwala (Railway Station)
ZBC	High capacity bogie covered wagon
ZBFC	High sided open truck for container
ZBKC	High capacity open top bogie wagon
ZCU	Ziyang China Universal

EXECUTIVE SUMMARY

The Directorate General Audit Railways conducted performance audit of the project “Procurement of 75 DE Locomotives” in two phases. The 1st phase was done in September to November 2018 covering audit of Procurement of 55 DE Locomotives whereas the 2nd phase of audit was executed in December 2021 covering remaining Procurement of 20 DE Locomotives. The Audit covered the period of the project from 2007-08 to 2020-21 with a view to report significant findings to stakeholders. In line with directions of Internal QCC meeting held on 11.11.2021, the Performance Audit Report has been consolidated during December 2021 to have one comprehensive performance audit report of the Project covering audit findings of phase I & II. Prime objective of the audit was to assess whether project was managed with due regard to economy, efficiency and effectiveness. The performance audit was conducted in accordance with the International Standards for Supreme Audit Institutions (ISSAI).

PC-I of the project was got approved without carrying out proper feasibility study (PC-II), which led to significant change in scope of work and twice revision of PC-I. In disregard to Guidelines for the project management, no independent Project Director for execution of the project was appointed with the approval of recruitment committee nominated for the purpose. Moreover, the management failed to follow canons of economy in true spirit as unjustified excess payment amounting to Rs 1.213 billion was paid to the supplier over and above the original bid price. The overall performance of the project was unsatisfactory because projected earnings targets as per PC-I of the project could not be achieved due to underutilization of 55 locomotives. Within warranty period of about 02 years, 1487 warranty claims were lodged which included failure of long-life parts and assemblies, of which 108 warranty claims were unsettled. This indicates that the quality of material/workmanship used in manufacturing of locomotives was substandard. Execution period of the project was 36 months (end date 30.06.2018). Expected completion date of the project as per 4th extension is 30.06.2022. Thus, time overrun of 48 months was occurred in execution of the project.

Key Audit Findings

i. Project expenditure was overstated by Rs 609.408 million due to irregular booking of labour payment/establishment charges, which were chargeable to Revenue allocation during the years 2007-08 to 2015-16.[1]

ii. PR incurred wasteful expenditure amounting to Rs 105.439 on procurement of defective plant and machinery which was not put into service sine long.[2]

iii. Loss due to acceptance of tender at modified higher price in absence of corresponding modification in technical specification – Rs 1.213 billion.[3]

iv. PR suffered financial loss Rs 950.328 million due to premature failure of traction motors/compressors of locomotives.[4]

v. Loss of Rs 6.206 billion by buying CBU locomotives at higher cost due to non-expansion of production activities in PLF, Risalpur.[5]

vi. Loss of potential earning amounting to Rs 3.122 billion per annum due to underutilization of locomotives.[6]

vii. Loss of potential earning Rs 990.924 million per annum due to transportation of lesser trailing load through locomotives.[7]

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1 Para 4.1.3
2 Para 4.3.6 & 4.3.20
3 Para 4.3.1
4 Para 4.3.12 & 4.3.21
5 Para 4.4.2
6 Para 4.5.3
7 Para 4.5.5

Recommendations

i. Expenses should be charged to the correct head of account to avoid untrue presentation of accounts.

ii. Pre-shipment inspection process should be strengthened to avoid shipment of defective plant and machinery.

iii. Evaluation of tenders and reasonability of rates should be ensured during procurements to realize best value for the money spent.

iv. Quality assurance mechanism should be modernized. Besides, penalty clause for supply of defective machinery should be incorporated in contracts.

v. Production capacity of PLF, Risalpur should be enhanced to get domestic production of Locos instead of reliance on imports.

vi. Demands should be placed on the basis of actual needs. Excess purchases cause heavy loss to the entity. The matter be investigated at an appropriate level for underutilization of locomotives.

vii. Assets should be utilized at their full capacity to obtain maximum benefits.

1. INTRODUCTION

The Ministry of Railways envisaged procurement of 25 locomotives CBU and manufacturing of 50 locomotives in CKD condition through original PC-I of project titled “Procurement/Manufacture of 75 Diesel Electric Locomotives”. The scheme was approved by ECNEC on 14.12.2005 at a cost of Rs 12,700.000 million with 48 months completion period. Accordingly, Administrative Approval for execution of the work was issued in May 2006. Subsequently, as a consequence of international competitive bidding process, a “Letter of Intent” was issued in 2008 in favour of M/s Dong Fang Electric Corporation, China. The case was filed during 2014 and the competent authority ordered to re-float tender in international press besides revision of the PC-I as there was an increase in cost due to escalation in FOB price of Diesel Electric Locomotives and devaluation of Pak Rupee v/s US$ over the years and corresponding increase in custom duty and sales tax.

In August 2014, the MOR submitted revised PC-I for procurement of 57 locomotives in CBU form and manufacturing of 18 locomotives in CKD condition. The revised scheme was approved by ECNEC on 13.05.2015 at a total cost of Rs 46,810.000 million with 36 month completion period. However, in January 2016, the MOR again submitted 2nd revised PC-I wherein all the 75 locomotives were proposed to be procured in CBU form. The 2nd revised plan was approved by ECNEC on 22.08.2016 at a total cost of Rs 45,496.000 million. According to the 2nd revised PC-I the project was scheduled to be completed by 30th June, 2018.

By June 2019, all the 75 locomotives were procured and put into service. Physical progress as on 30th June, 2021 was 91%. An expenditure of Rs 39,417.549 million was incurred against the provision of Rs 45,496.000 million, hence financial progress was 87%. Expected completion date of the project as per 4th extension granted by the DDWP is 30.06.2022.

The object of the project was to procure 75 DE locomotives. The new locomotives would provide reliable and cost-effective services. The desirable parameters for the locomotives comprised durability, reliability, robust design and latest fuel-efficient systems (like EFI) for providing economical services and ease of maintenance. These diesel electric locomotives were to be procured from Locomotives manufacturers of good repute through International Competitive Bidding, in line with Public Procurement Rules 2004.

2. AUDIT OBJECTIVES

The project regarding "Procurement of 75 DE Locomotives" is still in progress. Performance audit was conducted to achieve the following objectives subject to scope limitations:

i) To review implementation of standards / regulations covering safety and quality issues in procurement of locomotives and plant & machinery.

ii) To review economy in terms of:

   a) Procurement of locomotives, plant & machinery, spares and material

   b) Utilization of labour and material

iii) To evaluate efficiency issues with regard to the following:

   a) Composition of technical, non-technical and administrative staff

   b) Quality of locomotives and plant & machinery

   c) Turn out and delivery of work done for operational purpose

   d) Any complaint issues

iv) To evaluate effectiveness with regards to following:

   a) Optimal utilization of resources

   b) Client satisfaction

   c) Safety and quality issues

v) To evaluate overall performance of the project with special reference to the following:

a) Achievement of stated objectives

b) Internal control mechanism

c) Incidence of theft, fraud etc.

d) Physical verification of assets

3. AUDIT SCOPE AND METHODOLOGY

3.1 Audit Scope

Performance audit of the project was conducted from September 2018 to November 2018 covering period from 2007-08 to 2017-18. Audit covered the procurement process and operation of the procured locomotives. Major locations which were visited for this audit included Project Director Offices at Lahore and Karachi, CME/Loco, Director Procurement / Islamabad, Works Manager/Diesel/KC and DCOS (Shipping) Karachi Cantt.

3.2 Audit Methodology

All the relevant documents provided by management were scrutinized to assess transparency in the procurement process and proper operation of procured locomotives. Site visits were conducted, actual results were compared with PC-I of the project and discussions were also made with different tiers of management.

4. AUDIT FINDINGS AND RECOMMENDATIONS

4.1 Organization and Management

While conducting the performance audit of the Project, Audit found that the management did not adhere to the Guidelines of the Planning Commission. Significant observations are discussed in the following paras:

4.1.1 Non-preparation of proper Feasibility Study (PC-II) of the Project

As per clause 3.3 of Guidelines for Project Management issued by the Planning Commission of Pakistan, proper feasibility study (PC-II) is mandatory in case of projects of infrastructure and production sectors costing Rs 300.000 million and above, before the submission of PC-I.

Contrary to above, it was observed that PC-I of the project was got approved without conducting proper feasibility study. This led to significant changes in scope of work during execution consequently approved PC-I was revised twice and the scope of work was changed altogether from assembly of CKD units to CBU form without proper justification as detailed below:

Scheme	Procurement of CBU locomotives	Manufacturing/assembly of locomotives in CKD condition
Original PC-I	25	50
Revised PC-I	57	18
2^{nd} revised PC-I	75	0

Besides, demand of freight traffic was not properly assessed. Resultantly the locomotives remained underutilized. This constitutes violation of guidelines of the Planning Commission by Railway management.

The issue was pointed out to project management in December 2018. The management replied in November 2019 that detailed feasibility study report was carried out and furnished to MOR, therefore, PC-I of the project was got approved. The reply was not tenable because in-house feasibility study which was applicable for low cost projects (i.e less than Rs 300.000 million).

DAC in its meeting held on 31.01.2020 was informed that detailed in-house Feasibility Study Report (PC-II) for induction of new Locomotives in Pakistan Railways was carried out. The same was furnished to DG/Planning, Ministry of Railways. Later on, PC-I for induction of new locomotives was prepared. After considering the feasibility study report, ECNEC approved the project on 13.05.2015.

The Chair considered the reply satisfactory, settled the para and directed the CEO/Senior General Manager to issue instructions to all concerned to follow guidelines of Project Management in true spirit. A copy of these instructions and reasons for non-preparation of proper feasibility study be provided to Audit. Compliance of directive issued by the Chairman was not made till finalization of the report.

Audit recommends that reasons for non-preparation of proper feasibility study may be explained and instructions be issued to all concerned to follow guidelines of Project Management in true spirit as directed by the DAC.

4.1.2 Irregular appointment/frequent transfer of Project Directors

As per ECNEC decision in its meeting held on 18.02.2004, notified by Planning Commission of Pakistan on 3rd November 2006, the appointment of Project Director (PD) should be made through advertisement in the press in a transparent manner by a recruitment committee constituted for appointment of the Project Director.

During performance audit of project titled "Procurement/ manufacture of 75 DE Locomotives" it was observed that original PC-I of the project was approved by ECNEC on 14.12.2005. Administrative approval for execution of work was issued on 2nd May, 2006. Instead of making appointment of the PD through the aforementioned recruitment process, the Secretary/Chairman Ministry of Railways unlawfully appointed different in-house Railway Officers as Project Directors of the project, which rendered the appointments irregular. The project commenced in May 2006 and is still in progress. During execution of the project, 07 Project Directors were changed **(Annex-1).** The above position indicated that the Ministry of Railways was not complying with the guidelines and policy decisions of the Government of Pakistan.

The issue was pointed out to project management in December 2018. The management replied in July 2019 that the issue pertained to Ministry of Railways, therefore, the matter was referred to the Director Administration/MOR to furnish reply, but no response received.

DAC in its meeting held on 31.01.2020 pended the para due to non-availability of Director/Administration and directed Secretary/

Railway Board to give reply within one week highlighting as to why instructions of project management were not followed appropriately. No further reply was received till finalization of the report.

Audit recommends that responsibility for non-compliance to instructions of the ECNEC be fixed.

4.1.3 Irregular booking of Project Allocation to Revenue Budget – Rs 609.408 million

Para 1029 of Pakistan Government Railway Code for the Mechanical Department states that all work orders should be treated as individual items by foreman, and all transactions appertaining to the job should be booked either by debit or credit to the work order concerned.

During performance audit, it was observed that project for procurement/manufacturing of 75 DE locomotives was approved by ECNEC on 14.12.2005 at a total cost of Rs 12,700.000 million. Manufacturing/assembling of CKD locomotives was scheduled to be carried out in Pakistan Locomotive Factory (PLF), Risalpur. A contract agreement was signed with M/s Dong Fang Electric Corporation China in 2008 at a cost of US$ 105.143 million. However, the contract could not be materialized and was cancelled in June 2013. No physical activity for manufacturing of locomotives was undertaken in PLF. Scrutiny of record revealed that MD/PLF (in his capacity as PD of project) irregularly booked an expenditure of Rs 609.408 million **(Annex-2)** on account of payment of factory wages, establishment charges and factory overheads to the project allocation, which was actually chargeable to Revenue Budget as it was incurred on doing different revenue works from 2007-08 to 2015-16**.** This resulted in booking of irregular and unjustified expenditure to the project due to negligence of the Project Director.

The issue was pointed out to project management in December 2018. The management replied in November 2019 that the project was likely to start in scheduled time but unfortunately could not be started. Meanwhile, PLF administration charged the expenditure to budget of 75 D.E Loco project without any progress and the workforce was actually engaged/utilized in manufacturing of various parts for major repair of locomotive of Pakistan Railways related to other divisions/ operational departments. The reply was not tenable because the expenditure was required to be charged to the relevant work orders of operational Divisions instead of the 75 DE locomotives Project.

DAC in its meeting held on 31.01.2020 was informed that PLF had not only used the budget of 75 D.E Loco project but also helped the Pakistan Railways operational department through timely manufacturing/ supply of parts/components to them for smooth running of trains throughout the system.

The DAC directed the CEO to ensure that such an irregularity should not occur in future and nominate a committee to probe the following aspects:

1. Whether payment to idle labor was made due to bad planning and how expenditure was incurred when no project was in operation.
2. Whether labor was required or it was kept waiting in anticipation of initiation of project. Result of probe be shared with Audit.

Inquiry Committee comprising CME/Loco, CME/C&W and FA & CAO/M&S, constituted by the CEO/Senior GM in compliance to the DAC directive, concluded that the PLF administration was fully prepared for the execution of project and detailed production plan prepared according to the timeline of contract and PC-I. As PLF already successfully completed several locomotive projects which mainly are 05 DE Locos, 18 DE Locos, 30 DE Locos and 69 DE Locos and rehabilitation of 26 locomotives, therefore, the cancellation of 1st contract due to unavoidable circumstances was major impediment in the work of project which led to arising the said situation. Hence, the question of expenditure because of payment of idle labor and establishment did not arise. The conclusion drawn by the inquiry committee is not in line with the Generally Accepted Accounting Principles as the expenditures incurred on revenue works should invariably be charged to the revenue allocation instead of capital.

Audit recommends that the matter be got inquired from an independent accounting firm to substantiate the issue.

4.1.4 Wasteful expenditure due to nomination of not-relevant officials for foreign training – Rs 30.013 million

Para-807(i) of State Railway General Code provides that every public officer should exercise the same vigilance in respect of expenditure incurred from the Government revenues as a person of ordinary prudence would exercise in respect of expenditure of his own money.

During performance audit, it was observed that Ministry of Railways nominated 56 officials (involving cost of Rs 60.026 million) for maintenance training of 55 GEU-40 locomotives at the supplier's factory in USA for a period from 15 to 19 days during 2016-17 **(Annex-3).** Nomination of more or less 50% officials was unjustified because they were not involved in maintenance of locomotives before and after the training. This indicates that the amount spent on the training did not produce fruitful results due to nomination of more or less 50% irrelevant (not actually involved in maintenance of locomotives) officials for training.

The issue was pointed out to project management in December 2018. The management replied in November 2019 that the nominees were directly involved for the operation and maintenance of locomotives and could be transferred anywhere as per requirement of the system. After training, whole fleet was being maintained independently and required schedules were being carried out by the trained staff. The reply is not satisfactory because in order to realize the best "value for money" spent, it is very much essential that employees got trained in specific jobs should be instantly deployed thereon and must not be transferred at least within warranty period without cogent reasons.

DAC in its meeting held on 31.01.2020 directed the management to furnish complete detail of nominated persons for training highlighting the following aspects:

1. Complete one year's working/posting profile of officers/ officials nominated for training before procurement of locomotives.
2. Profile of the officers/officials with work done by them in two years after training.

Compliance of the DAC directive was not made till finalization of the report.

Audit recommends that profile of the officers/officials with work done by them in two years after training may be provided to Audit as directed by the DAC.

4.1.5 Irregular appointment of staff on TLA – Rs 11.505 million

As per General Manager/Operations letter No. GM. Misc.07/2014 dated 07.07.2014 essential staff against work charged posts of projects should be engaged on contract basis. Moreover, according to policy circulated by Railway administration vide letter No. 803-E/7/4-X (APO-IV) dated 15.07.2014 the TLA employees should be engaged only in grade 1 & 2 strictly in accordance with eligibility criteria for direct recruitment.

Contrary to the above, during performance audit, it was observed that 37 project employees of BPS-01 to BPS-16 were irregularly engaged on TLA (Temporary Labor Application) basis instead of making appointments on contract basis in a transparent manner. This resulted in irregular appointment of staff and thereby incurrence of irregular expenditure of Rs 11.505 million (**Annex-4**) due to violation of instructions issued by the Railway management.

The issue was pointed out to project management in December 2018. The management replied in November 2019 that most of the staff engaged on TLA were retired Railway Employees and well experienced. Such experienced persons were not available in the local market as maintenance of locomotives was typical nature of job. Those posts were advertised for engagement on contract basis, but very limited applications were received at that time and all the advertised posts could not be filled up. Therefore, in order to meet with the inevitable requirement, engagement of the staff in question was made on TLA basis as stop gap arrangement. The reply was not tenable because no effort was made to engage project staff on contract.

DAC in its meeting held on 31.01.2020 was informed that the services of 32 TLA employees had been terminated. However, MOR had been requested to allow engagement of staff on contract basis to meet with the inevitable requirement of staff.

The DAC did not find the stance of project management satisfactory and directed the PO that all such TLA engagements be terminated immediately and procedure for contract appointments be adopted as per approved procedure. The whole expenditure incurred so far be got regularized from the Finance Division under intimation to Audit. Compliance to the DAC directive was not made till finalization of the report.

Audit recommends that responsibility for making irregular appointments of staff be fixed and disciplinary action be taken against the person(s) held responsible.

4.1.6 Irregular/Excess expenditure due to re-employment of 02 retired Railway officers on last pay drawn in violation to provision of PC-I – Rs 8.585 million

There was a provision of lump sum salary of Rs 45,000 per month for 02 posts of Junior Mechanical Engineer (BPS-17) in approved PC-I of the project titled “Procurement of 75 DE Locomotives”.

During performance audit of the project, it was observed that in contravention to the provision of PC-I, 02 retired Railway officers were re-employed as Junior Mechanical Engineer (BPS-17) on last pay drawn with approval of Secretary/Chairman, Railways on contract basis. Against provision of lump sum salary of Rs 45,000 per month for the post, they were appointed on last pay drawn (average salary drawn @ Rs 127,572 per month). This resulted in excess expenditure of Rs 8.585 million over and above the allocated amount in PC-I (**Annex-5**). Audit also observed that PC-I of the project was deficient because job description, qualification, experience, age and salary of each post were not correctly indicated in the PC-I as required vide Clause-13. Moreover, exact provision of salary package as per PC-I was deliberately omitted by the PD while processing the case for recruitment to competent authority. Thus, both the officers' e.g CME/Loco and PD are equally responsible for the irregularity.

The issue was pointed out to project management in December 2021. The management replied that after getting approval from the competent authority, selection committee selected the two Railway Retired Junior Mechanical Engineers in 2017 and pay of the retired officers has been fixed at the stage of the time scale of the post at which they were drawing pay before retirement as per Establishment Division O.M 10/52/95-R.2(Pt), dated 21.08.2001. The reply is not tenable because appointment of officers was to be made in line with provision of PC-I, therefore, salary package provided in the PC-I would prevail while making appointments against the project posts.

Audit recommends that responsibility for the incurrence of excess expenditure over and above the allocation be fixed and remedial measures be adopted to avoid such recurrence in future.

4.1.7 Infructuous expenditure from PSDP due to utilization of services of a project employee elsewhere – Rs 5.997 million

As per justification report submitted to Secretary/Chairperson by Project Director/75 DE loco Project, in connection with recruitment of a Junior Mechanical Engineer on contract basis in October 2017, it was stated that posting of experienced Junior Mechanical Engineer at Marshaling Yard Pipri (MYP), Karachi was extremely necessary for proper/efficient maintenance of newly inducted GEU-40 locomotives.

During performance audit of project, it was observed that Mr. Muhammad Afzal (retired as JME/DM Mechanical Branch HQ Lahore) was appointed as Junior Mechanical Engineer (BPS-17) MYP, Karachi on contract basis w.e.f 01.11.2017 after approval of Secretary/Chairperson. A sum of Rs 5.997 million from Dec-17 to Jul-21 was paid to the contract employee on account of pay and allowances for the period from November 2017 to July 2021. However, Audit observed that instead of utilizing his services at his actual place of posting i.e MYP, Karachi, the officer was engaged on the post of JME/DM, Mechanical Branch, HQ Lahore, from where he was retired on 07.05.2017. No job description of Mr. Muhammad Afzal, JME/MYP, was prepared by the Project Director. Infect, he was specifically got appointed by the CME/Loco for Mechanical Branch by misstating the facts to the competent authority. Although his services have been terminated from the project but he is still put on his previous job by arranging his salary from another project. Thus, the project money spent on recruitment of JME/MYP, Karachi did not achieve any benefit for the project.

The issue was pointed out to project management in December 2021. The management replied that Mr. Muhammad Afzal, JME/Project, was hired on contract bases and posted at MYP Shed with the approval of competent authority. He was responsible for monitoring of teething troubles in newly inducted GEU-40 locomotives and appraised the position to Chief Mechanical Engineer/Loco directly. However, in year 2020, the Railway administration posted him in Railways Headquarters Office to resolve the all pending issues with the Supplier. The reply is not tenable because since date of appointment as JME/MYP, the officer did not resume duty at MYP, whereas, as per justification submitted to the Secretary/Chairperson for appointment at the JME/MYP, the officer should have been posted at his actual place of posting instead of posting in Mechanical Branch.

Audit recommends that the matter be probed to fix responsibility for incurring infructuous expenditure from PSDP due to utilization of services of a project employee elsewhere.

4.1.8 Irregular/unauthorized expenditure – Rs 39.957 million

(a) In terms of SL No. 14.6 (4) (i) printed on page 174 of Esta Code 2015, extension of contract appointment beyond 02 years to posts in BPS-17 to 19 shall be subject to approval of Establishment Secretary.

During performance audit of project, it was observed that 02 retired Railway officers were re-employed as Junior Mechanical Engineer (BPS-17) on last pay drawn with approval of Secretary/Chairman, Railways through advertisement of the post in press media on contract basis w.e.f. 01.12.2016 and 01.12.2017 respectively. Their services were extended for 2nd year with the approval of Secretary/Chairman, Railways. However, for extension of contract appointments beyond 02 years, approval of the Secretary Establishment was mandatory, which was not obtained and the services of the contract employees were irregularly utilized from 01.12.2018 to 30.11.2021 and 22.08.2019 to 31.07.2021 respectively. This resulted in irregular/unauthorized payment of Rs 8.168 million (**Annex-6A**) due to negligence of the Project Director.

The issue was pointed out to project management in December 2021. The management replied that the matter was referred to Establishment Division, Islamabad. Reminders were issued to MOR, Islamabad for communication of the approval of Establishment Division but no response was received. The project activities at that time were at its peak and the services of JMEs were inevitable for the project. Therefore, the administration consider it appropriate to wait for the approval of Establishment and allow the JMEs to continue just in the best interest of work and administration. The reply is not tenable because for extension of contract appointments beyond 02 years, prior approval of the Secretary/ Establishment was mandatory.

Audit recommends that the matter be probed to fix responsibility for irregular/unauthorized payment to the contract employees. The amount involved may either be got regularized with the sanction of the competent authority or recovered from the persons held responsible.

(b) As per Annexure-XIII of approved PC-I, 10 individual shall be needed for execution of the project and monitoring performance of locomotives to be procured under the project. However, operational and maintenance staff is required on permanent basis, therefore, no provision for operational and maintenance expenditure existed in the PC-I.

During performance audit of project, it was observed that Project Director appointed 39 individuals for operational and maintenance at MYP and Yousafwala at the cost of Rs 31.789 million (**Annex-6B)** from January 2017 to May 2019 against project allocation, whereas, the operational and maintenance staff was required to be deployed on permanent basis against Revenue allocation as there was no allocation in PC-I for permanent staff. This resulted in irregular expenditure due to negligence of the Project Director.

The issue was pointed out to project management in December 2021. The management replied that those posts were sanctioned in the approved PC-I to maintain newly inducted fleet of GEU-40 and GEU-20 just as a stop gap arrangement. However, creation of permanent posts was dealt with by CME/Loco & Chief Personnel Officer and those were never mentioned in PC-I. The reply is not tenable because there was no provision of funds for permanent staff in the approved PC-I, therefore, the same should have been charged to Revenue account instead of project.

Audit recommends that the matter be probed to fix responsibility for incurring irregular expenditure without provision in PC-I. Remedial measures be adopted to avoid such recurrence in future.

4.2 Financial Management

During the course of performance audit, it was noticed that expenditure was not incurred in accordance with budget allocation. Funds were neither utilized nor surrendered due to negligence of management. Significant observations are discussed in the following paras:

4.2.1 Non-regularization of loss occurred due to cancellation of agreement – Rs 99.485 million

As per para 8.2.4.1 of Accounting Policies and Procedures Manual subject to the limits and conditions specified in the Delegation of Financial Powers, a delegated officer may approve the write-off or waiver of irrecoverable public money.

During performance audit, it was observed that Railway management signed an agreement for procurement/manufacturing of 75

DE locomotives with M/s Dong Fang Electric Corporation China in 2008 at a cost of US$ 105.143 million. However, the contract could not be materialized and was cancelled in June 2013. Meanwhile, in pursuance of the contract agreement an amount of US$ 10,801,020.19 was disbursed. Out of which a sum of US$ 9,619,273.41 was reimbursed by the supplier/ insurance company leaving a balance of US$ 1,181,747.78 unrecovered as detailed in **Annex-7**. This resulted in loss of capital amounting to Rs 99.485 million which was required to be regularized.

The issue was pointed out to project management in December 2018. The management replied in November 2019 that upfront fee and commitment fee amounting to US$ 714,972.66 & US$ 119,161.21 respectively were not refunded by Exim Bank of China. However, the management fee of US$ 446,857.91 was adjusted in the 08th installment of loan agreement No. BLA-0928 for the Project of procurement of 202 Passenger Carriages.

The reply was not satisfactory because the amount of management fee, adjusted in Project of 202 Passenger Carriages, was not credited to the 75 DE Locomotive Project.

DAC in its meeting held on 31.01.2020 was informed that the issue regarding non-refund of Commitment Fee and Up Front Fee pertained to Ministry of Railways. However, an amount of Rs. 2,187.103 million was paid by Pakistan Railways as down payment and insurance premium etc., whereas an amount of Rs. 2,559.850 million had been received back to Pakistan Railways.

The Chair considered the reply satisfactory and settled the para subject to verification of the adjusted amount by Audit. However, the irrecoverable amount already charged to the project be got written off. Besides, the amount of management fee stated to have been adjusted against another project be credited to this project under intimation to Audit. Compliance to the DAC directive was not made till finalization of the report.

Audit recommends that the loss occurred be regularized under the sanction of competent authority. Besides, management fee adjusted in 202 Passenger Carriages Project, be credited to the 75 DE Locomotive Project.

4.2.2 Mismanagement of funds amounting to Rs 5.849 billion

Para 436 of State Railway General Code provides that it shall also be the duty of the administration to see that the allotments made to them are fully expended, in so far as is consistent with economy. They shall be responsible for ensuring that money which is not likely to be needed during the year is promptly surrendered to allow of its appropriation for other purposes. However, no explanation will be required for saving up to 5%, and excesses up to Rs 5,000 in case of non-development expenditure and up to Rs 10,000 in case of development expenditure.

During performance audit, it was noticed that funds released to the tune of Rs 3,986.420 million during 2007-08, 2011-12, 2012-13, 2014-15 and 2015-16 were neither utilized nor surrendered. On the other hand, a sum of Rs 394.919 million was utilized more than the cash releases made during 2008-09. Moreover, minus expenditure of Rs 1,468.080 was shown in final accounts for the year 2013-14. Thus, due to negligence of the project management, funds amounting to Rs 5,849.419 million **(Annex-8)** were either blocked or used more than the cash releases which indicated poor financial management.

The issue was pointed out to project management in December 2018. The management replied in November 2019 that the funds were demanded as per contract agreement but it could not be fully utilized due to unclear directives about the fate of project from the MOR. Regarding excess expenditure of Rs 394.919 million during the year 2008-09, it was stated that actually there was saving of Rs 44.920 million (e.g. 3.55%) which was under 5% limit. Minus figures of Rs 1,468.080 million during 2013-14 were due to adjustment of credit of advance payment US$ 15.771 million on account of cancellation of contract signed between GOP and M/s DEC, China.

The reply was not satisfactory because no action was initiated to surrender the unnecessary funds. Moreover, prior to the adjustment of expected credit during 2013-14, the management should have got allocated necessary funds. However, no documentary evidence regarding the savings during 2008-09 instead of excess expenditure as pointed out by Audit was provided.

DAC in its meeting held on 31.01.2020 was informed that due to late decision from higher authorities and the cancellation of the 1st contract, the arrangement of budget was disturbed and that was not on the part of PLF, as was evident from the record provided to Audit.

DAC directed the CEO/Senior General Manager to nominate a committee at appropriate level to review the irregularity, assess the loss and fix responsibility within 15 days under intimation to Audit.

Inquiry Committee comprising CME/Loco, CME/C&W and FA & CAO/M&S, constituted by the CEO/Sr. GM in compliance to the DAC directive, did not make proper conclusion about this para and endorsed the management reply which has already been refuted by Audit.

Audit recommends that the management may first reconcile year wise budget allocation of the project with Central Books Section Headquarters Office Lahore. Thereafter the figures be matched with audit observation because all figures of allocation and expenditure have been obtained by Audit from Central Books Section.

4.2.3 Loss due to getting unnecessary vetting of draft contract agreement from a consultant – Rs 0.900 million

As per rules of business, the Director General, Legal Affairs is responsible for vetting all the draft agreements to be executed by different Railway authorities. Rule-4 of PPRA provides that the procuring agencies, while engaging in procurements, shall ensure that the procurements are conducted in a fair and transparent manner, the object of procurement brings value for money to the agency and the procurement process is efficient and economical.

During performance audit, it was observed that draft agreement for procurement of 55 DE locomotives (4000~4500 HP) was sent to DG/LA for vetting. The DG/LA sent the agreement to Mr. Ashtar Ausaf Ali (a Member of Railway Board) for vetting. The contract agreement was signed on 20.06.2015 after vetting by the associates of Mr. Ashtar Ausaf Ali. A fee bill amounting to Rs 900,000 received from M/s Ahmad Aslam & Co, Lahore was paid with the approval of Secretary/Chairperson MOR. This resulted in irregular excess payment of Rs 0.900 million because the contract was required to be vetted by the DG/LA. Prima facie, the contract agreement was sent to a member of Railway Board to extend undue favour which was tantamount to loss of public money. This caused because of non-observance of canons of financial propriety by the concerned authorities.

The issue was pointed out to project management in December 2018. The management replied in November 2019 that the contract agreement was got vetted from the independent legal experts to safeguard the interests of Pakistan Railways and payment was made with the approval of competent authority.

The reply was not tenable because as per practice in vogue the contract was required to be vetted from the DG/LA. Moreover, the legal expert was hired in violation to PPRA Rules.

DAC in its meeting held on 31.01.2020 was informed that the contract agreement was got vetted from the independent legal experts to safeguard the interests of Pakistan Railways and payment was made with the approval of competent authority.

DAC deferred the para and directed D.G / Legal Affairs to furnish revised reply highlighting that Mr. Ashtar Ausaf Ali (a Member of Railway Board) had no concern with the issue and administrative approval was obtained for getting the draft/agreement vetted from consultant. Reply to Audit must be supported by documentary evidence. No further reply was received till finalization of the report.

Audit recommends that responsibility for the loss be fixed and action be taken against the person(s) held responsible.

4.3 Procurement and Contract Management

During Performance Audit, it was observed that the procurement process in the Project was neither economical nor efficient. Instances of mis-procurement, violation of contractual obligations etc. were noticed. Significant observations are discussed in the following paras:

4.3.1 Loss due to unjustified increase in price of locomotives without corresponding revision in technical specification – Rs 1.213 billion

Rule-36(d)(viii) of PPRA-2004 provides that bidders who are willing to conform to the revised technical specifications shall submit a revised technical proposal and supplementary financial proposal.

During performance audit, it was observed that for procurement of 55 DE locomotives, the Ministry of Railways floated an international tender in September 2014 under two-stage two envelope bidding procedure in terms of Rule 36(d) of PPRA-2004. Technical offers of first stage were opened on 20.01.2015. Two firms participated in the bid and both were declared technically responsive. Despite the fact that no revision in technical specification of CBU locomotives occurred during technical evaluation, the 1st lowest bidder (M/s General Electric) unjustifiably increased per unit cost of CBU locomotives from US$ 3,430,000 to US$ 3,640,000 (US$ 210,000 per loco) through supplementary financial proposal. Audit considered that in absence of any revision in the technical specification, increase of Rs 1.213 billion (US$ 210,000 x 55 = US$ 11,555,000 x 105 = Rs 1,212,750,000) in the price of CBU locomotives was totally unjustified. This resulted in loss to PR due to negligence of tender committee.

The issue was pointed out to project management in December 2018. The management replied in November 2019 that the technical committee comprising Chief Mechanical Engineer/Loco, Project Director/150 DE Locos and Project Director/ Rehabilitation was nominated for evaluation of the offers. The technical committee while evaluating the offers made back-references to both the firms for certain clarifications/confirmations. After technical evaluation, both the firms were requested to submit their revised technical proposals on the issues agreed with the technical committee and supplementary financial offers in accordance with Rule 36-d of PPRA. Accordingly, both the firms submitted their revised technical offers and supplementary offers. The reply was not tenable because in absence of any revision in the technical specification, the increase in price of the locomotives was totally unjustified. Audit perspective was further strengthened as the 2nd lowest bidders did not increase his offered rate of the locomotives in the supplementary offer.

DAC in its meeting held on 31.01.2020 was informed that the revised technical offers and supplementary offers were received from both the bidders in accordance with the provision of Rule 36-d of PPRA.

The Chair considered the reply satisfactory and settled the para subject to verification by Audit. However, Audit argued that Rule 36-d was not applicable in this case as no alternative proposal for procurement of 55 (4000 HP) locomotives or change in their specifications was suggested by the technical committee. Thus, increase in price of locomotives by one bidder was unjustified, while the 2nd bidder did not increase his quoted rate of locomotives. It was therefore, directed that the matter be got investigated at an appropriate level to fix responsibility for the loss due to undue increase in price of locomotives under intimation to Audit. Compliance to the DAC directive was not made till finalization of the report.

Audit recommends that the matter be got investigated through an independent investigation agency for unjustified payment of Rs 1.213 billion. The amount involved be recovered from the persons held responsible.

4.3.2 Loss due to delayed action for provision of slow speed control in locomotives – Rs 46.200 million

The CME/Loco is responsible to frame technical specification of locomotives keeping in view the actual operational requirement. Rule-4 of PPRA provides that the procuring agencies, while engaging in procurements, shall ensure that the procurements are conducted in a fair and transparent manner, the object of procurement brings value for money to the agency and the procurement process is efficient and economical.

During performance audit, it was observed that CME/Loco framed technical specification for procurement of 55 DE locomotives (4000~4500 HP) in September 2014 and submitted to Director Procurement Ministry of Railways for floating a tender. The locomotives were intended to be utilized for transportation of coal for power plants. International tenders were floated and opened on 20.01.2015. Contract agreement dated 20.06.2015 was executed with the successful bidder. In December 2015, the contractor was requested to provide slow speed control in the locomotives to be supplied under the contact agreement. The firm agreed to provide that facility at an additional cost of US$ 24,000 per unit. Later on, the cost was reduced to US$ 8,000 per unit (US$ 440,000 for 55 units). Payment was made to the supplier through amendment in the contract agreement. Audit is of the view that had the provision of slow speed control been incorporated in the technical specification, the additional payment equivalent to Rs, 46.200 million (US$ 440,000 x Rs 105 = Rs 46.200 million) could have been avoided. This resulted due to negligence of Railway management.

The issue was pointed out to project management in December 2018. The management replied in November 2019 that the proposal for slow speed control was initiated as per requirement of the Port Qasim Authorities during March 2016 because it would help to evenly handle the loading/unloading of coal. Since the requirement was not in the knowledge of Railway Authorities, so it was not included in the tendered specifications. The reply was not tenable because before initiating the proposal for provision of slow speed control in all the locomotives, its cost benefit analysis was not carried out by the end user. Moreover, Audit party during physical visit observed that the said control system was not being utilized because the locomotive was de-tached from the rack during the loading operation.

DAC in its meeting held on 30.08.2021 was informed that proposal for provision of slow speed gadget was initiated as per requirement of Port Qasim Authorities, intimated to PR in March 2016. Whereas, Audit pointed out that the supplier was requested by PR to provide slow speed control in December 2015.

The DAC was not satisfied with the management reply and showed displeasure to management team who formulated PC-I and further directed CME/Loco to improve planning with due diligence focusing proper project appraisal, techniques & logistic support. No further reply was received till finalization of the report.

Audit, therefore, desired that responsibility for the loss to Government exchequer be fixed and the amount involved be recovered from the persons held responsible.

4.3.3 Unauthorized expenditure on purchase of plant and machinery and Civil Works not included in PC-I – Rs 498.936 million

Para 903 of Railway Code for the Engineering Department provides that on receipt of administrative approval to a project or scheme conveyed through the sanction to the abstract estimate relating thereto, detailed estimates for the various works included in the abstract estimate should be prepared and submitted for the technical sanction of the competent authority. No work included in an abstract estimate should be commenced till a detailed estimate for the same is prepared and sanctioned and adequate funds are allotted by the competent authority.

During performance audit of project titled “Procurement of 75 DE Locomotives”, it was observed that there was a provision of Rs 500.000 million & Rs 750.000 million in approved PC-I of the project for “Civil Works” and “Line Maintenance Facilities” respectively. PC-I of the project was approved on 22.08.2016 but detailed estimates for both the above abstract estimates were not prepared and approved from the competent authority before commencement of the works. Scrutiny of record revealed that Plant and machinery Rs 498.936 million **(Annex-9)** purchased under the project was differed from that provided in PC-I. Moreover, civil works in Quetta Division were initiated on the plea that GEU-20 locomotives would be bases in Quetta Shed, but the locomotives were not yet based in Quetta shed. An expenditure of Rs 38.056 million has been incurred on civil works in Quetta Division against estimated/agreement value of Rs 96.875 million. This resulted in unauthorized expenditure due to deviation from the approved scope and specification because of negligence of the Railway management.

The issue was pointed out to project management in December 2018. The management replied in November 2019 that the Plant & Machinery were procured under different contract agreements by observing all codal formalities to meet with the requirement. The reply was not satisfactory because detail/breakup of machinery and equipment was not available in the revised PC-I.

DAC in its meeting held on 30.08.2021 directed the PO to provide up to date list of plant & machinery procured from the lump sum allocation of Rs 750.000 million to Audit within two weeks for verification. A list of plant and machinery was provided to Audit on 29.12.2021 which was incomplete because plant and machinery purchased from M/s GE/USA under 02 contract agreements of locomotives were not included in the list.

Audit recommends that the matter be probed to fix responsibility for purchasing plant and machinery without approval of detailed estimate and by deviating from approved scope and specifications provided in original PC-I of the project.

4.3.4 Loss due to supply of lights of incorrect specifications in GEU-40 locomotives

As per clause 33.7 of tender specification for procurement of 55 DE locomotives, suitable “Fog Light” to work the locomotives in zero visibility was required to be provided by the Supplier as optional. In response thereto, the supplier agreed to the proposed optional specification.

During performance audit of the project, it was noticed that instead of the Fog Light the supplier provided Ditch Lights in the locomotives. This resulted in deviation of terms and conditions of the tender.

The issue was pointed out to project management in December 2018. The management replied in November 2019 that as per Clause 33.7 of the Tendered Specifications, the provision of "Fog Light" was optional, therefore, it was not binding upon the supplier to provide the same on GEU-40 Fleet. The reply was not satisfactory because in his point to point compliance statement, the supplier had agreed to comply with the optional specification.

DAC in its meeting held on 30.08.2021 was informed that provision of fog lights to work the locomotives in zero visibility was optional, therefore, it was not binding upon the supplier to provide fog lights on the locomotives. Audit pointed out that the supplier in his bidding data has categorically noted the provision of fog light on all GEU-40 locomotives without any clarification, therefore, provision of fog lights on all locomotives was obligatory.

The DAC directed the PO to provide comprehensive revised reply with necessary documentary evidence to Audit within two weeks for verification. No further reply was received till finalization of the report.

Audit recommends that the authority under which Ditch Lights instead of Fog Light were accepted may be provided immediately to settle the issue.

4.3.5 Loss on account of provision of below standard Traction Alternators of GEU-40 locos

As per clarification dated 10th March, 2015 issued by the Technical Committee constituted for technical evaluation of tender for procurement of 55 DE locomotives (4000~4500 HP), the capacity of the main alternator was at least 3850 KW.

During performance audit, scrutiny of stationary performance test reports prepared by WM/Diesel KC while de-processing of the GEU-40 locomotives revealed that maximum output of alternators was near about 3402 KW, which was far below the minimum benchmark. This indicates that the performance of traction alternators provided in 55 GEU-40 locomotives was unsatisfactory. This happened due to negligence of Railway management.

The issue was pointed out to project management in December 2018. The management replied in November 2019 that actually output of the main alternator was 3850 KW whereas 20% margin of alternator over the rated power of diesel engine was the safety margin. To check the said margin, it was required to rotate the alternator with 20% more speed (RPM) which was not possible with the diesel engine fitted in GEU-40 DE Locomotives, as the maximum RPM of the said diesel engine were 1050 at 8^{th} notch on which the required output power 3402 KW of the alternator had achieved during load test and power drawn from the main alternator was 4560 HP which was satisfactory. The reply was not satisfactory because the technical committee had categorically stated that capacity of the main alternator must not be less than 3850 KW whereas in reply the management has admitted that the maximum output of the alternator at 8^{th} notch was 3402 KW. Thus, the Audit stance held correct.

DAC in its meeting held on 30.08.2021 was informed that 20% margin of alternator over the rated power of diesel engine was a safety margin. To check the said margin, it was required to rotate the alternator with 20% more speed (RPM) which was not possible with the diesel engine fitted in GEU-40 DE Locomotives, as the maximum RPM of the said diesel engine were 1050 at 8^{th} notch on which the required output power 3402 KW of the alternator had been achieved during load test. Moreover, 3402 KW when converted to HP becomes 4560 HP whereas the requirement was 4000 HP.

DAC directed the PO to provide detail of design and capacity of alternators to Audit within two weeks for verification. Compliance of the DAC directive was not made till finalization of the report.

Audit recommends that matter be got probed through an independent investigating agency to fix responsibility for procurement of less productive locomotives and action be taken against the persons held responsible.

4.3.6 Loss due to procurement of defective/substandard Hydraulic Press – Rs 75.839 million

Para 402 (i) of Pakistan Government Railway Code for the Stores Department provides that the terms of a contract must be precise and definite and there must be no room for ambiguity or misconstruction therein.

During performance audit, it was observed that Ministry of Railways signed an agreement with M/s General Electric Inc. USA dated 20.06.2015 for procurement of 55 DE locomotives. According to Annex-BA 10 of the agreement, five items of plant and machinery at a cost of US$ 4,702,943.99 were ordered but in foot note it was mentioned that the clarifications about 4 out of 5 items have been requested from the supplier and that on receipt of clarification the status of those items would be decided within 60 days after signing the contract. However, in violation to Rule 30(1) of PPRA which states that no bidder shall be allowed to alter or modify his bid after the bids have been opened, the supplier submitted revised proposal to supply Hydraulic Press 800 tons capacity manufactured by M/s Commerce Marmech Inc. Canada, in lieu of his original offer of German origin at a cost of US$ 571,355.71 because that was not meeting the requirement of PR. The revised offer was declared technically suitable by CME/Loco instead of referring the proposal to technical committee. However, the revised offer was got approved from the Secretary/Chairperson on 08.12.2016 on the recommendation of the tender committee. The Hydraulic Press was shipped in August 2017 and was installed in CDL/Shops during April 2018 without any demand from the WM/CDL Workshop. Since installation, the machine was not functional. Performance Audit Team physically visited CDL Workshop Rawalpindi during September 2018 and observed that apparently the Hydraulic Press appeared like a secondhand/old machine. No operational and maintenance manuals were supplied with the machine. On further investigation through internet, Audit also observed that M/s Commerce Marmech Inc. Canada had actually been dissolved since 24.10.2008.The total cost of nonfunctional machine worked out to be Rs 75.839 million. Audit considers that despite incurring expenditure of Rs 75.839 million, no benefit could be achieved by PR which resulted loss of public money.

The issue was pointed out to project management in December 2018. The management replied in November 2019 that it had been decided between Pakistan Railways and M/s GE during the meeting held in June

2019 that the press would be replaced with proper suitable press. The reply was not tenable because since the bidder has failed to comply with the contractual obligations, therefore, the amount paid to the supplier may be recovered along with interest from his bank guarantee.

DAC in its meeting held on 30.08.2021 was informed that specifications were framed by the end user. Country of origin carries less importance while specifications carry significant importance. Since the offered Hydraulic Press 800 Tons Capacity of Canada Origin was in accordance with PR, specifications, therefore, it was accepted with the approval of competent authority.

The DAC taking serious view of the issue directed the PO that a notice be served to supplier/contractor and confirm its delivery within 90 (ninety) days. DAC further directed that installation/ commissioning of machinery be made within 30 (thirty) days. No further reply was received till finalization of the report.

Audit recommends that the matter be probed to fix responsibility for awarding the contract with indefinite terms and conditions besides, accepting the revised offer of Hydraulic Press in violation to PPRA Rules and action be taken against the persons held responsible.

4.3.7 Infructuous expenditure due to ineffective pre-shipment inspection by PR inspectors – Rs 24.653 million

In order to ensure the quality of material/parts and workmanship during manufacturing of locomotives, the Ministry of Railways decided in February 2016 that inspection teams comprising Mechanical officers, subordinates and technicians would be deputed at site for stage inspection right from commencement of the project till completion in various stages.

During performance audit, it was observed that Railway inspectors were not deputed at the time of manufacturing of locomotives to watch the quality of material and parts used in manufacturing of locomotives. Compositions of inspection teams were made against the policy decision as 22 inspectors (including 17 Mechanical officer and 05 subordinates) in 14 groups containing 2 members in 9 groups and one member in 5 groups were deployed for pre-shipment inspection at the supplier's factory in USA **(Annex-10A)**. No Loco inspector/instructor or member of Loco crew was made part of inspection teams despite the fact that they play a vital role in maintenance/operation of locomotives. The first group of inspectors visited USA from 25.05.2016 to 13.06.2016 whereas the inspection report was issued on 24.10.2016. Most of the points raised in the inspection report were based on visual inspection of CBU locomotive. First shipment under this contract was made on 17.09.2016. Scrutiny of record revealed that out of 30 shipments made up to August 2018, the PR inspectors signed inspection certificates only in case of 03 shipments valuing US$ 105.720 million while 04 shipments valuing US$ 51.208 million were made without inspection certificates and the remaining 23 shipments costing US$ 56.112 million **(Annex-10B)** were made with inspection certificates issued by the supplier himself. This indicates that amount of Rs 24.653 million (US$ 20,416.880*11.5 = 234,794.120* Rs 105 = Rs 24,653,383.000) spent on inspection of locomotives did not produce fruitful results because neither the PR inspectors were deputed at site for stage inspection right from commencement of the project till completion in various stages nor majority of the shipments were checked by them before shipment.

The issue was pointed out to project management in December 2018. The management replied in November 2019 that each batch of inspectors inspected the locomotives and major assemblies during their manufacturing /assembling process and shared the discrepancies with GE authorities as well as PR and most of the discrepancies were rectified before shipment of the locomotives to Pakistan.

The reply was not satisfactory because the management did not provide evidence that stage inspections during the manufacturing process were carried out by the inspectors. In absence of stage inspection, the quality of manufacturing of locomotives could not be ensured. The visual inspection of CBU locomotives did not serve any purpose.

DAC in its meeting held on 30.08.2021 was informed that each batch of inspectors inspected the locomotives and major assemblies during their manufacturing /assembling process and shared the discrepancies with GE authorities as well as PR. Most of the discrepancies were rectified before shipment of the locomotives to Pakistan.

DAC directed the PO to provide copies of all stage/pre-shipment inspection reports to Audit for verification within two weeks. No further reply was received till finalization of the report.

Audit recommends that copies of all stage/pre-shipment inspection reports may be provided for verification as directed by the DAC.

4.3.8 Loss due to modification of Glow rods of GEU-40 locomotives – Rs 26.195 million

As per clause 7(1) of contract agreement dated 20.06.2015, any part or component of the locomotives found by the Inspectors not conforming to the technical specifications shall be replaced by the Seller within reasonable period starting from the Purchaser’s written notice.

During performance audit of the project, it was observed that PR Inspectors noticed during pre-shipment inspection of first two units in May 2016 that Glow rods fitted on fuel tanks of GEU-40 locomotives did not conform to technical specification. Accordingly, the Inspectors desired certain modification therein but the supplier refused to modify the glo-rods on the grounds that the locomotives were in advanced stage of manufacturing. However, as per orders of CME/Loco, the task for modification of glow-rods of the whole fleet has been entrusted to Project Director/Rehabilitation shops Mughalpura. The material has been supplied by the Supplier while cost of labour/overhead charges (Rs 476,280 per unit) was being charged to Revenue allocation. This resulted in loss of Rs 26.195 million because it was the contractual obligation of supplier to modify the Glow rods as pointed out by PR Inspectors. Thus, the amount involved may be recovered from the supplier.

The issue was pointed out to project management in December 2018. The management replied in November 2019 that PR Inspectors during their inspection at USA pointed out that the Glow rods should be of full length on each side of the fuel tank which was accepted by M/s GE with the clarification that they would supply the material of Glow rods for all the 55 locos, however the fitment of the same would be made by PR. Accordingly. The fitment of the said Glow rods was being carried out by PR at Rehabilitation Shop, MGPR. The reply was not satisfactory because it was obligatory on the contractor to modify the Glow rods at its own expense before shipment.

DAC in its meeting held on 30.08.2021 was informed that during inspection at USA, it was pointed out that the Glow rods should be of full length on each side of the fuel tank which was accepted by M/s GE with the clarification that they would supply the material i.e. full length of Glow rods for all the 55 locos. However, the fitment of the same will be made by PR accordingly.

The DAC directed the PO to refer the case to Railway Board for regularization of the expenditure. No further reply was received till finalization of the report.

Audit recommends that action be taken against the supplier for non-compliance to the terms and conditions of the tender and the amount of Rs 26.195 million may be recovered from the contractor.

4.3.9 Non-carrying out road test and trials of GEU-40 locomotives

As per clause 18 of the contract agreement dated 20.06.2015 for procurement of 55 DE locomotives, the first ten locomotives would be monitored by the purchaser for six months after delivery. Any non-confirmation with the technical specification would be corrected and applied on all locomotives at Seller’s expenses. Meaning thereby that the delivery schedule would be chalked out in such a way that first batch of 10 locomotives of each class may be manufactured and shipped to Pakistan to carry out necessary performance test for a period of six months. Thereafter, remaining quantity of locomotives be manufactured with necessary modification/improvement, if any, based on the performance test. Furthermore, clause 18.2 of the aforesaid agreements also states that a first three locomotives delivered should be subjected to road test to check hauling power, maximum speed continuous tractive effort, acceleration, balance speed under actual operating conditions, mentioned in the Technical Specifications.

In disregard to above, during performance audit, scrutiny of the delivery schedule of the above contract agreement revealed that the entire quantity of 55 locomotives were shipped within a period of less than six months (1st shipment made on 18.12.2016 while last shipment was made on 29.05.2017). Consequently, performance test of the locomotives was not carried out as per contract obligation. Moreover, the supplier had claimed in bidding documents that maximum safe speed of offered locomotives would be 120 km/hr. The road tests of maximum speed were not carried out due to non-availability of testing facility in PR which resulted in non-compliance of the contract obligations. Audit is of the view that in absence of testing facility, the provision of such condition in the contract agreement was illogical and misleading. That happened due to negligence of Railway management and reflected poor management skills. Irregularity of the nature was already pointed out by Audit in case of DPU and ZCU locomotives but the management did not take any action.

The issue was pointed out to project management in December 2018. The management replied in November 2019 that the locomotives were urgently required for transportation of coal. However, on receipt of 1st batch of locomotives, all the requisite tests/trials of the locomotives were carried. The reply was not tenable because there was contradiction in contract clauses and delivery schedule which resulted in procurement of untested locomotives due to negligence of Railway management. Irregularity of this nature had already been pointed out by Audit in case of DPU and ZCU locomotives but the management did not take any remedial action.

DAC in its meeting held on 30.08.2021 was informed that on receipt of 1st batch of locomotives, all the requisite tests/trials of these locomotives were carried out. During these tests and trials, the performance of these locomotives was observed satisfactory.

The DAC directed the PO that a detailed revised reply be submitted to Audit for verification within two weeks. No further reply was received till finalization of the report.

Audit recommends that responsibility for mismanagement of contract thereby procurement of untested and untried up locomotives may be fixed and strict disciplinary action be taken against person(s) found responsible.

4.3.10 Non-provision of space for ATP in GEU-40 locomotives

As per clause 31.7 of tender specification for procurement of 55 DE locomotives, provision of sufficient space for ATP was the responsibility of the bidder. As per clause 7(1) of contract agreement dated 20.06.2015, any part or component of the locomotives found by the Inspectors not conforming to the technical specifications shall be replaced by the Seller within reasonable period starting from the Purchaser's written notice.

During performance audit of the project, it was observed that the supplier did not provide sufficient space for the provision of ATP in the locomotives. The discrepancy was pointed out by PR Inspectors during pre-shipment inspection conducted in May 2016, but the supplier refused to redesign the ATP space on the grounds that the manufacturing of locomotives was at an advanced stage. It appeared that the manufacturing of locomotives was started without approval of design from PR. This resulted in breach of terms and conditions of the tender.

The issue was pointed out to project management in December 2018. The management replied in December 2019 that the supplier proposed space for ATP in front of the driver seat which was not agreed by PR. As the ATP was to be installed by PD/Signal, therefore, detailed deliberations with PD/Signal and Chinese firm were held regarding fitment of ATP. However, the matter regarding fitment of the ATP was almost resolved. The reply was not tenable because it was obligatory upon the supplier to start manufacturing process of locomotives after approval of design from the purchaser and to rectify any defect pointed out by PR Inspectors before delivery of the locomotives.

DAC in its meeting held on 30.08.2021 was informed that ATP was to be installed by PD/Signal, Headquarters Office, Lahore. Detailed deliberations with PD/Signal and Chinese firm were held regarding fitment of ATP Space in driver cab.

The DAC directed the P.O that the matter be finalized and report be submitted to Audit within 90 days. No further reply was received till finalization of the report.

Audit recommends that the matter be probed to fix responsibility for manufacturing of locomotives without approval of design from PR and non-provision of sufficient space for ATP as per instructions of PR Inspectors and action be taken against the persons found at fault.

4.3.11 Wrong supply of spare parts from unapproved vendors – Rs 537.859 million

As per letter dated 26th May, 2016, the M/s General Electric USA submitted updated list of sub-contractors with vendor locations.

During performance audit, it was observed that the supplier delivered parts amounting to Rs 537.859 million to Pakistan Railways for maintenance of GEU-40 locomotives from other than the approved vendors as detailed in **Annex-11**. This resulted in deviation from contractual obligations for which no action was taken against the supplier.

The issue was pointed out to project management in December 2018. The management replied in November 2019 that as per Clause-54 of technical specifications, only list of vendors and sub-contractors of major parts/assemblies like, Engine Unit/Crankshaft, Turbo, Air Compressor, Alternator, Traction Motor, Auxiliary and control system was required which was provided by the firm. However, the locomotives had thousands of parts hence the audit observation was not justified. The reply was not tenable because in terms of Clause 8(5) of contract agreements dated 20.06.2015 for procurement of 55 DE locomotives, the seller was required to certify that the locomotives/parts shipped were manufactured and assembled in the United State of America. When the locomotives including parts were made in USA. As to how and why PR accepted parts for use in the said locomotives which were made in India, South Africa, and Indonesia.

DAC in its meeting held on 30.08.2021 was informed that as per Clause-54, only list of vendors and sub-contractor of major parts/assemblies like, Engine Unit / Crankshaft, Turbo, Air Compressor, Alternator, Traction Motor, Auxiliary and control system was required which was provided by the firm. Since, thousands of parts are used in the manufacturing of locomotive, so it was difficult rather impossible to ascertain their manufacturer/vendor. The warranty clause in the contract agreement safeguard the interest of PR and it was the responsibility of M/S. GE to provide replacement of failed part under warranty.

The DAC directed the PO that the amendment of relevant clause whereby supply of spare parts from other than approved vendor list was allowed, be shown to Audit for verification. No further reply was received till finalization of the report.

Audit recommends that the matter be probed to fix responsibility for accepting parts from vendors not included in the approved list and action be taken against the persons held responsible.

4.3.12 Financial loss to PR due to premature failure of 23 traction motors valuing Rs 303.370 million

As per clause 20.5 of technical specifications for procurement of 75 DE locomotives, traction motors of locomotives should be capable of giving satisfactory service life of more than 1,200,000 km without overhaul. Moreover, as per clause 44 of tender documents, the construction of locomotive as well as the material used in the construction would be subject to inspection by the Inspection Authority designated by PR.

During performance audit in December 2021, it was observed that 23 traction motors (09 GEU-40 and 14 GEU-20) valuing Rs 303.370 million had failed within warranty period. Audit apprehended that it was due to provision of inferior quality of material and workmanship used in the construction of traction motors which resulted in non-achievement of value for money spent for the purpose. The inspection authority who carried out the stage inspection also failed to ensure the quality/design of material and workmanship used in the construction of traction motors. Audit also observed that all the traction motors fitted on 75 locomotives were under modification in Railway workshops, for which necessary parts were being provided by the supplier, but labour and other overheads were being charged to the revenue expenditure of PR. Thus, to cover up the manufacturing faults of the supplier and inefficiency on the part of Railway inspectors, the revenue expenditure of PR was unnecessarily overburdened.

The issue was pointed out to project management in December 2018 and discussed in DAC meeting held on 30.08.2020. The DAC directed the PO that a comprehensive revised reply showing latest failure position of traction motors be provided to Audit for verification within two weeks. In the light of latest position furnished by the management the audit observation has been revised.

Management replied on 29.12.2021 that recurring failure of Traction Motor Shaft was experienced and it was discussed with supplier who decided to replace all the armature shafts of all the traction motors installed on GEU-20 fleet .whenever new class of Locomotives are inducted in the system, some defects and troubles like above one are experienced and rectified during the warranty period. The reply is not satisfactory because failure of traction motors within short span of time indicates that the quality of material used in traction motors is substandard.

Audit recommends that the matter be probed to fix responsibility for supply of substandard material and action be taken against the persons held responsible.

4.3.13 Poor quality of principal assemblies and long-life parts and non-placement of warranty claims – Rs 57.755 million

(a) Clause 12.2 of contract agreements dated 20.06.2015 and 07.06.2017 for procurement of 55 and 20 DE locomotives provides that the locomotives and all individual components, material/equipment supplied by the seller shall be free from all defects in design, quality and workmanship and shall arrange for replacing free of cost DDP Karachi (Incoterm 2010) any part of the locomotive which under normal use and maintenance proves defective in design, quality or workmanship or fails to comply with the performance laid down in the technical specifications for a period of 24 months from the date of putting in to service or 30 months from the date of delivery or 400000 Km whichever occurs first. Moreover, clause 7(1) also states that the construction of the locomotives as well as the material used in the construction would be subject to inspection by an inspection authority to be designated by Pakistan Railways.

During performance audit in December 2021, it was observed that 1487 warranty claims (including premature failure of principal assemblies and long-life parts) were lodged during warranty period, of which 108 warranty claims are unsettled (**Annex-12A**). Moreover, about 50 types of defects/troubles **(Annex-12B)** have occurred in the newly inducted fleet of locomotives. This indicates that the quality of material and workmanship used in the manufacturing of locomotives was substandard. The stage inspection team of PR inspectors failed to ensure the quality of material and workmanship.

The issue was pointed out to project management in December 2018 and discussed in DAC meeting held on 30.08.2020 The DAC directed the PO that relevant documents of all settled warranty claims be got verified from Audit and strenuous efforts be made for settlement of outstanding warranty claims. In the light of latest position furnished by management, the audit observation has been revised.

Management replied on 29.12.2021 that warranty clause in the contract agreements has been incorporated, just to safeguard the interest of Pakistan Railways. Material against 63 warranty claims was still awaited.

Audit recommends that matter be investigated at an appropriate level to find out reasons for premature failure of long-life assemblies and disciplinary action be taken against those held responsible for this defective procurement.

(b) During performance audit, it was observed that parts/assemblies valuing Rs 57.755 million (**Annex-12C)** have been issued for the newly inducted locomotives but no warranty claims were lodged. This resulted in loss due to negligence of Railway management.

The issue was pointed out to project management in December 2018. The management replied in November 2019 that serial number-1&7 (Flexible brake & Service brake) did not fall in the purview of warranty claim being consumable items. The reply was not tenable because both the items were long-life parts as evident from record. Against serial number-2 (Gear case top-mech) it was replied that two "gutter seals" and a "gasket" perished during service, which were provided by the supplier against warranty claim, hence the whole item was wrongly mentioned in the audit observation. The reply was not tenable because the whole item was issued as evident from the ledger. Regarding serial number-3 to 6 (Truck List sta-3) the management stated that failure of only a "kit of traction motor" occurred which was very minor. The reply was not acceptable because the whole item was issued as evident from record.

DAC in its meeting held on 30.08.2021 was informed that there was nothing wrong with metallic part but its sub-accessory viz. two gutter seals and a gasket perished during service. In order to avoid hold up of the locomotive, two gutter seals and a gasket were provided to maintenance staff of GE on loan basis. Warranty claim of the same was lodged, which was accepted. However, Audit pointed out that all long-life assemblies referred in the para have been issued within short span of time after induction of the locomotives, which fall in purview of warranty clause.

The DAC directed the PO to furnish detailed reply duly supported with documentary evidence to Audit for verification within two weeks. Compliance of the DAC directive was not made till finalization of the report.

Audit, recommends that responsibility for non-placement of warranty claims be fixed and action be taken against the person(s) held responsible.

4.3.14 Non recovery of Liquidated Damages – Rs 16.970 million

As per clause 13 of contract agreements executed by Pakistan Railways with M/s GE/USA for procurement of 55 (4000 HP) and 20 (2000 HP) Locomotives, in the event of seller's failure to ship the Locomotives and parts in accordance with the delivery schedule, the purchaser may collect from the seller, as liquated damages, the sum of one half of 1% (1/2%) of the FOB price of the Locomotive and parts so delayed for each and every week are part thereof of such delay except for the first month. Liquidated Damages shall not exceed 5% of the FOB price of the Locomotives and parts so delayed.

During performance audit of the project in December 2021, it was observed that the delivery period in case of 55 and 20 Locomotives was extended with LD charges with effect from 01.12.2018 and 01.05.2019 respectively. The last date of shipments in both the agreements have been expired. Railway management worked out an amount of US$ 11,200 recoverable from the supplier on account of LD charges in respect of 55 Locomotives, while recovery of LD charges in case of 20 Locomotives has not yet been worked out. As per rough estimate an amount of US$ 84,109 is recoverable from the supplier in case of 20 Locomotives. Thus, an amount of Rs. 16.970 million (US$ 95,309 x 178.05 = Rs 16.970 million) is lying outstanding against the supplier.

The issue was pointed out to project management in December 2021. The management replied that the LD charges against contract agreements have been calculated which were being recovered by Director Procurement.

Audit recommends that actual amount of LD charges may be worked out and recovered from the supplier without further loss of time.

4.3.15 Loss of potential earning due to unnecessary detention of a locomotive – Rs 48.280 million

As per clause 48(4) of technical specifications for procurement of 2000 HP locomotives, if DE locomotives stop beyond 30 days on account of design, material and bad workmanship of DE locomotives or non-supply of warranty spares, the consequential damages equal to earning of

DE locomotives per day which shall remain out of service as a result, thereof, shall be levied to the supplier during currency of warranty period.

During performance audit, it was observed that locomotive No. 4566 (GEU 20) remained held up from 12.02.2021 to 12.12.2021 (8 months) on account of non-availability of traction motors. No action has been taken against the supplier for unnecessary detention of locomotive for want of traction motors on the part of the supplier. Thus, PR sustained loss of expected earning amounting to Rs 48.280 million (Rs 6.035 * 08 months) for the period from February 2021 to December 2021, which needs to be recovered from the supplier.

The issue was pointed out to project management in December 2021. The management replied that the matter pertained to CME/Loco office and it has been referred to the concerned corners for necessary comments but no further progress has been intimated till finalization of report.

Audit recommends that the matter be probed to fix responsibility for unnecessary detention of Locomotives causing loss of revenue.

4.3.16 Financial loss to PR due to defective workmanship of GEU-40 locomotives – Rs 10. 335 million

Clause 12.2 of contract agreement dated 20.06.2015 for procurement of 55 DE locomotives provides that the locomotives and all individual components, material/equipment supplied by the seller shall be free from all defects in design, quality and workmanship and shall arrange for replacing free of cost DDP Karachi (Incoterm 2010) any part of the locomotive which under normal use and maintenance proves defective in design, quality or workmanship or fails to comply with the performance laid down in the technical specifications for a period of 24 months from the date of putting in to service or 30 months from the date of delivery or 400000 Km whichever occurs first.

During performance audit in December 2021, it was observed that 04 GEU-40 locomotives were detained in Rehabilitation shops Mughalpura for 17 months (**Annex-13A**) for replacement of damaged bolts of engine blocks of locomotives No, 9031, 9033, 9038 and replacement of defective/damaged diesel engine of locomotive No. 9002. In addition to detention of the locomotives, PR also incurred an expenditure of Rs 10.335 million from Railway revenue as detailed in **Annex-13B**. This caused due to use of defective/substandard material or workmanship in manufacturing or assembling of locomotives by the supplier. No punitive clause to cover the consequential losses caused due to negligence of the supplier has been incorporated in the contract. In terms of warranty clause 12(2), the responsibility of the supplier is limited only to replacement of defective parts free of cost. Hence, this clause does not fully safeguard the interest of Railways.

The issue was pointed out to project management in December 2021. The management replied that the audit recommendation regarding insertion of punitive clause has been referred to Director Procurement for future contract. No further progress in the case has been intimated to Audit.

Audit recommends that the matter be taken up with the supplier to carry out root-cause analysis of the damages occurred in locomotives and a punitive clause may be included in future contracts to safeguard the PR interest.

4.3.17 Splitting of works/supplies to avoid sanction of higher authority resulted in mis-procurement of Rs 258.316 million

Rule-9 of PPRA provides that the procuring agencies shall announce in an appropriate manner all proposed procurements for each financial year and shall proceed accordingly without any splitting or regrouping of the procurements so planned.

During performance audit of project titled “Procurement of 75 DE Locomotives” in December 2021, it was observed that 03 tenders aggregate valuing Rs 147.916 million (**Annex-14A**) relating to supply, installation and commissioning of turntables at Lahore, Karachi Cantt. and Marshalling Yard Pipri (Karachi) were opened on 12.12.2016. Single bidder M/s Spirit Industries (Pvt.) Ltd. Lahore participated in all the 03 bids. On recommendations of tender committee in all the 03 tenders were approved by CEO/Sr. General Manager on 25.01.2017. The value of the whole procurement was beyond financial powers of the CEO/Sr. General Manager, therefore, the procurement was made by splitting it into 03 tenders. Likewise, project management purchased 03 Overhead Electric Cranes 30/5 ton capacity along with spare parts aggregate valuing Rs 110.400 million (**Annex-14B**) during 2020-21 by splitting of demand through 02 different tenders to avoid sanction of the higher authority. Both the tenders were finalized during 2020-21. This resulted in misprocurement of works/supplies, which caused due to malafide intension of the procuring authorities.

The issue was pointed out to project management in December 2021. The management replied that matter regarding procurement and installation of 03 Nos. Turntables pertained to Dy. CEN/Bridge. Therefore, the matter has been referred to the concerned corners for reply. Regarding Overhead Electric Cranes for CDLW Rawalpindi, it was replied that purchase order was placed on a firm on 22.05.2017, but the firm failed to provide the said cranes. Later on, the tender for procurement of 02 Nos. cranes was floated but it could not finalized due to one reason or the other. However, demand for procurement of Overhead Electric Crane, capacity 30/5 ton for MYP Shed was received in the year 2020 and finalized in the same year. The reply is not tenable because tenders in both the cases were finalized in the same year, therefore, Audit is of the opinion that if both the procurements were clubbed in single tender in line with provision of PPRA Rule-09, then more economical rates could have been obtained.

Audit recommends that the matter be probed to fix responsibility for splitting of works/supplies to avoid the sanction of the Secretary/Chairman, Ministry of Railways and remedial measures be adopted to avoid such incidents in future.

4.3.18 Fraudulent award of tenders due to injudicious evaluation of bids by technical committee – Rs 147.916 million

As per clause-5 of technical specifications, in connection with procurement of 03 turntables for Lahore, Karachi Cantt. and Marshalling

Yard Pipri (Karachi) un project titled “Procurement of 75 DE Locomotives”, the manufacturer must provide along with the bids minimum (03) three satisfactory performance certificates from users of turn table for locomotive (Railways or end user) of the countries other than the home country. Moreover, Rule-4 of PPRA provides that procuring agencies, while engaging in procurements, shall ensure that the procurements are conducted in a fair and transparent manner, the object of procurement brings value for money to the agency and the procurement process is efficient and economical.

During performance audit of project in December 2021, it was observed that 03 tenders aggregate valuing Rs 147.916 million **(Annex-15)** relating to supply, installation and commissioning of turntables at Lahore, Karach Cantt. and Marshalling Yard Pipri (Karachi) were opened on 12.12.2016. Single bidder M/s Spirit Industries (Pvt.) Ltd. Lahore participated in all the 03 bids on behalf of the manufacturer M/s Doosung Engineering, Republic of Korea. Technical committee comprising Dy. CEN/Bridges and Dy. CEN/Track was nominated by the CEN/Open line to evaluate the bids. The technical committee declared the single bidder technically qualified and the contracts were awarded with approval of CEO/Sr. General Manager on 25.01.2017 in all the 03 tenders. Scrutiny of biding documents revealed that all the 03 certificates appended with each bid were from Korea Railroad Corporation (KORAIL), the National Rail Operator for Republic of Korea, which was the home country of the manufacturer. Thus, the bidder was not technically eligible to qualify for the contract. This resulted in fraudulent award of contracts to the ineligible bidder which caused due to injudicious evaluation of tenders by the technical committee.

The issue was pointed out to project management in December 2021. The management replied that the matter pertained to Dy. CEN/Bridges, therefore, the audit observation has been referred to the concerned quarters for comments, but no reply was received.

Audit recommends that the matter be probed to fix responsibility for fraudulent award of contracts to the non-responsive bidder and remedial measures be adopted to avoid such incidents in future.

4.3.19 Excess expenditure Rs 10.394 million due to acceptance of tender at higher rate.

Rule-4 PPRA provides that **p**rocuring agencies, while engaging in procurements, shall ensure that the procurements are conducted in a fair and transparent manner, the object of procurement brings value for money to the agency and the procurement process is efficient and economical.

During performance audit of project in December 2021, it was observed that project management purchased 03 Overhead Electric Cranes 30/5 ton capacity during 2020-21 by splitting of demand as detailed in **Annex-16**. Both the tenders were called for during financial year 2019-20 and cases thereof were finalized during 2020-21. This resulted in excess expenditure of Rs 10.394 million in case of 02 cranes purchased for CDL workshop, Rawalpindi due to per unit variation of Rs 5.197 million as compared with crane purchased for MYP shed.

The issue was pointed out to project management in December 2021. The management replied that the increase in cost of the both cranes is due to escalation in exchange rate of Dollar with Pak Rupee. Moreover, the crane installed at MYP Shed Karachi had span measuring 53 feet while the crane to be installed at CDLW Rawalpindi Shops has span measuring 84.10 feet. The reply is not tenable because tenders in both the cases were finalized in the same year, therefore, Audit is of the opinion that if both the procurements were clubbed in single tender in line with provision of PPRA Rule-09, then more economical rates could have been obtained.

Audit recommends that the matter be probed to fix responsibility for acceptance of tender at higher rate and internal controls be strengthened to avoid such recurrence in future.

4.3.20 Fraudulent payment due to acceptance of Spectrometer of Chinese origin instead of USA – Rs 29.600 million

Rule-4 of PPRA provides that procuring agencies, while engaging in procurements, shall ensure that the procurements are conducted in a fair and transparent manner, the object of procurement brings value for money to the agency and the procurement process is efficient and economical. Moreover, PPRA Rule-31(1) stipulates that no bidder shall be allowed to alter or modify his bid after the bids have been opened. However the procuring agency may seek and accept clarifications to the bid that do not change the substance of the bid.

During performance audit of project titled “Procurement of 75 DE Locomotives” in December 2021, it was observed that against item-5, Annexure BA 10 of contract agreement No. DP/55 DEL/2015 dated 20.06.2015, executed between PR and M/s GE Transportation, USA, a Spectrometer Model No. OES1000VM-1, country of origin USA (M/s Skyray Instruments, USA), was offered by the supplier in his original offer. Later on, the supplier changed his quoted specification and offered Spectrometer Model No. OES8000 (Optical Emission Spectrometer) country of origin, USA (Skyray China would ship the parts to USA and it would be assembled and tested in USA). Revised offer was approved by PR on 02.04.2018 on recommendation of CME/Loco. The Spectrometer was shipped in August 2019 and installed in PR Central Laboratories, Mughalpura. Audit team during physical inspection on 27.12.2021 observed that the Spectrometer OES8000 was actually manufactured, assembled and tested by M/s Jiangsu Skyray Instrument Co. LTD., China and warrantee card, thereof, was also issued by the said Chinese manufacturer. As per definition, “country of origin” refers to place where something is made or created. Therefore, the Spectrometer manufactures, assembled and tested in China cannot be considered as USA origin. Moreover, it was also observed that despite lapse of more than 02 years of making full payment of Rs 29.600 million (US$ 199,476.19) of the Spectrometer, it was not yet fully functional, because 09 aluminum bases out of were not installed till date of inspection. This resulted in fraudulent payment to the supplier who not only misstated the country of origin of the instrument, but also irregularly changed the specification of the instrument after opening of the bid, which was not pointed out by the management due to malafide intention. Thus, both the parties (e.g. supplier and purchaser) were equally responsible for the fraudulent activity and the money spent by PR on procurement of the Spectrometer did not produce any benefit.to PR.

The issue was pointed out to project management in December 2021. The management replied that the matter was under investigation and come out thereof would be communicated soon, but no further response was received till finalization of the report.

Audit recommends that the matter be got investigated for fixing responsibility for the fraudulent practice followed in connection with procurement of the Spectrometer and internal controls be strengthened to avoid such recurrence in future.

4.3.21 Financial loss to PR due to premature failure of 38 air compressors valuing Rs 646.958 million

As per clause 25.9 of technical specifications for procurement of 75 DE locomotives, Air Compressor 1st overhaul should not be due before 1,200,000 km of service. Moreover, as per clause 44 of tender documents, the construction of locomotive as well as the material used in the construction would be subject to inspection by the Inspection Authority designated by PR.

During performance audit in December 2021, it was observed that 38 air compressors of GEU-20 locomotives valuing Rs 646.958 million had failed within warranty period. Audit apprehended that it was due to provision of inferior quality of material and workmanship used in the construction of air compressors which resulted in non-achievement of value for money spent for the purpose. The inspection authority who carried out the stage inspection also failed to ensure the quality/design of material and workmanship used in the construction of air compressors. Audit also observed that all the air compressors fitted on GEU-20 locomotives were under modification in Railway workshops, for which necessary parts were being provided by the supplier, but labour and other overheads were being charged to the revenue expenditure of PR. Thus, to cover up the manufacturing faults of the supplier and inefficiency on the part of Railway inspectors, the revenue expenditure of PR was unnecessarily overburdened.

The issue was pointed out to project management in December 2021. The management replied that the matter has been referred to CME/Loco for comments but no reply was received till finalization of the report.

Audit recommends that the matter be probed to fix responsibility for premature failure of air compressors which is a long life part.

4.3.22 Supply of traction motors from other than USA origin to PR in violation to the contract agreement

In terms of Clause 8(5) of contract agreements dated 20.06.2015 for procurement of 55 DE locomotives, the seller was required to certify that the locomotives/parts shipped were manufactured and assembled in the United State of America.

During performance audit in December 2021, it was observed that PR purchased 75 locomotives from M/s GE/USA, under contract agreements dated 20.06.2015 and 07.06.2017. As per clarification given by the supplier in reference to a back reference by the technical committee against clause 20.1 of technical specifications of GEU-40 locomotives, it was invariably mentioned that country of manufacturing of traction motors would be Mexico or South Africa based on capacity availability at time of delivery. Scrutiny of record revealed that all traction motors of 75 locomotives, were under modification owing to different technical/ workmanship issues. It appears that the traction motors fitted in 75 locomotives were not manufactures in USA. This resulted in violation of the contractual obligation but also PR suffered financial loss due to payment of labour/factory overhead on modification of traction motors.

The issue was pointed out to project management in December 2021. The management replied that the matter has been referred to CME/Loco for comments, but no reply was received till finalization of the report.

Audit recommends that the matter be got investigated at appropriate level to fix responsibility for violation to the contractual obligation besides loss to PR due to modification of traction in Railway workshops.

4.4 Asset management

During performance audit of the Project, it was observed that asset management in the Project was not done in an efficient manner. Significant observations are discussed in the following paras:

4.4.1 Wasteful expenditure due to suspension of local manufacturing process of locomotives in PLF Risalpur – Rs 52.684 million

The Ministry of Railways initiated a pilot project for manufacturing of 05 (3000 HP) Diesel Electric locomotives in Pakistan Locomotive Factory Risalpur. Core objective of the project was to increase domestic production of locomotives by 40 %. The scheme was approved by ECNEC on 19.07.2007 at a cost of Rs 955.000 million. Accordingly, PR entered into an agreement No. DP/5 Locomotives/2013 dated 03.06.2013 with M/s CSR Ziyang Company Limited China for supply of complete material, components and assemblies for local manufacturing of 5 DE locomotives. There was a provision of US$ 501,755 for foreign training and transfer of technology (TOT) which was intended to be utilized for manufacturing of locomotives in future.

In disregard to above, it was observed that instead of continuing local manufacturing of locomotives in PLF, the Ministry of Railways procured 75 completely built locomotives by excluding existing provision for local manufacturing of locomotives in PLF in the original approved PC-I of the project. This resulted in non-utilization of technical skill and TOT acquired at a cost of Rs 52.684 million, due to injudicious decision on the part of Ministry of Railways.

The issue was pointed out to project management in December 2018. The management replied in November 2019 that PLF was an assembling unit wherein various types of locomotives like PHA-20, AGE-30, DPU-20/30 were assembled under the supervision of OEM. However, PLF had never taken the job of manufacturing of new locomotives as no expertise existed there. Energy crisis in the country was at its peak and in order to overcome energy crisis, Railway Administration decided to purchase the locomotives in CBU condition to meet with the emergent requirement. The reply was not tenable because due to change in specification of locomotives from CKD to CBU the existing ToT and technical skills which was intended to be utilized for manufacturing of locomotives in future was wasted.

DAC in its meeting held on 30.08.2021 was informed that PLF/Risalpur is an assembling unit and no expertise regarding manufacturing of new locomotives exists there. Energy crisis in the country was at its peak and in order to overcome energy crisis, Railway Administration decided to purchase the locomotives in CBU condition to meet with the emergent requirement.

The DAC directed the PO that detailed report regarding purpose of the establishment of Pakistan Railways Locomotive Factory Risalpur, be shared with Audit and DAC. No further reply was received till finalization of the report.

Audit recommends that responsibility for the loss of TOT/technical skill due to suspension of local manufacturing in PLF be fixed and action be taken against the person(s) held responsible.

4.4.2 Non-expansion of production activities in PLF, Risalpur and resulting in to loss due to purchase of 75 CBU locomotives at higher cost – Rs 6.206 billion

In a meeting held on 20.05.2015, the General Manager/M&S informed that Pakistan Railway would require 500 to 700 locomotives in next 05 to 10 years to meet its future requirement of freight and passenger as per GOP’s Vision 2025. It was apprised that Pakistan Railways was working on feasibility of manufacturing of locomotives at PLF Risalpur through Joint Venture with world renowned Locomotive manufacturers. The envisaged JV would not only create jobs but also help to upgrade the existing capacity and facilities of Pakistan. Accordingly, a Working Group was set up to workout modalities for use of existing capacity through JV.

During performance audit, it was observed that Ministry of Railways did not take effective steps to use the existing capacity of PLF through JV. Rather, 75 CBU locomotives of 2500~4500 HP were procured in 2015 to 2017. On the other hand, it was observed that in 2015, Government of India had signed a JV agreement with M/S General Electric at a cost of US$ 2.6 billion to develop a factory to supply 1000 DE Locomotives 4500~6000 HP (100 locomotives per year for 10 years) along-with free maintenance of 13 years. Under the agreement, the supplier would also invest US$ 200.000 million to build the factory as well as maintenance facilities. Thus, average unit cost of 4500~6000 HP locomotives procured by Government of India from M/s General Electric USA worked out to be US$ 2.600 million whereas the average unit cost of 2500~4500 HP locomotives procured by Pakistan Railways from M/s General Electric USA comes to US$ 3.388 million (23.26% extra as compared to Indian locomotives). Thereby Pakistan Railways not only sustained loss due to purchase of 75 CBU locomotives at higher cost of Rs 6.206 billion (US$ 59.100 million x Rs 105 = Rs 6,205.500 million) but also negated GOP's Vision 2025 by not focusing on developing social and human capital, achieving sustained indigenous and inclusive growth through public private partnership. This resulted due to lack of vision towards indigenization by Ministry of Railways.

The issue was pointed out to management in December 2018. The Director Procurement replied in November 2019 that the Procurement Directorate initiated procurement of 75 Diesel Electric Locomotives in CBU condition as per demand received from Chief Mechanical Engineer/Loco. Comparison of the prices of locomotives procured by Pakistan Railways and Indian Railways was not justified because the scope of both the deals were not same. Regarding non-utilization of PLF for manufacturing of locomotives through Joint Venture with world renowned Locomotive manufacturers he stated that being a policy decision it was beyond the mandate of Procurement Directorate. The reply was not acceptable because it appears that the proceedings of the Working Group were deliberately stopped to procure CBU locomotives with malafide intention.

DAC in its meeting held on 30.08.2021 was informed that the procurement action for the procurement of 55 DE locomotives in CBU condition was initiated as per demand received from Chief Mechanical Engineer/Loco. After technical and financial evaluation, contract agreement was signed with the lowest evaluated bidder M/s General Electric, USA on 20.06.2015.Hence the procurement was made as per codal provisions and PPRA Rules.

The DAC directed the PO that detailed report regarding feasibility of manufacturing of locomotives in PLF through Joint Venture be shared with Audit. No further reply was received till finalization of the report.

Audit, recommends that matter be got probed through an independent investigation agency to fix responsibility for procurement of CBU locomotives at exorbitant rate by departing from the GOP’s Vision 2025.

4.4.3 Loss of potential earning due to detention of an accidental locomotive as a result of non-provision of manufacturing diagrams in contract – Rs 819.072 million

Para 101 of Railway Code for the Mechanical Department provides that the CME/Loco is responsible for repair and maintenance of locomotives. Accordingly, it was the basic responsibility of CME/Loco to frame technical specification for procurement and manufacturing of locomotives keeping in view the actual operational requirement.

During performance audit of the project, it was observed that Pakistan Railways procured 55 CBU DE locomotives (4500 HP) during 2017. Scrutiny of the record revealed that no provision was made in the tender documents/contract for transfer of technology for reconstruction of damaged locomotives in accidents. Consequently, Loco No. 9021, which met with accident in May 2017, was held up at PLF Risalpur due to non-availability of manufacturing diagrams. Thus, PR sustained loss of potential earnings amounting to Rs 819.072 million (Rs 15.168*54 months) from June 2017 to November 2021 due to negligence of Railway administration.

The issue was pointed out to project management in December 2018. The management replied in November 2019 that manufacturing drawings was sole proprietary item of the manufacturer and that was not provided just to safeguard their interest. In case the drawings were made available, even then the locomotive could not be taken in hand due to non-availability of requisite parts/ material and expertise/ skill. The reply was not satisfactory because keeping in view the possibility of accidental damages to CBU locomotives it was the primary responsibility of the CME/Loco to incorporate provision for the supply of manufacturing drawings in tender specifications.

DAC in its meeting held on 30.08.2021 was informed that manufacturing drawings were sole proprietary item of the manufacturer and those were not provided just to safeguard their interest. In case the drawings were made available, even then the locomotive could not have been taken in hand due to non-availability of requisite parts/ material and expertise / skill.

DAC directed the P.O to furnish revised reply along with documentary evidence within 30 days. No further reply was received till finalization of the report.

Audit recommends that the matter be got probed through any independent investigation agency to fix responsibility for non-safeguarding the Railway interest while preparing tender specifications for procurement of CBU locomotives and action be taken against the person held responsible for the negligence.

4.5 Monitoring and Evaluation

During the course of performance audit, it was found that there was no effective mechanism to monitor timely completion of each phase of the project. The management also did not get approval of extension in time line for delayed execution from the CDWP. Significant observations are discussed in the following paragraphs:

4.5.1 Less productivity of GEU-40 locomotives due to underutilization by fifty percent

As per clause 12(2) of the contract agreement dated 20.06.2015 for procurement of 55 DE locomotives, the supplier is liable to replace any part of locomotive which under normal use and maintenance proves defective or fails to comply with the performance for a period of 24 months from the date of putting in service or 30 months from date of delivery or running 400,000 Kms. whichever occurs first.

During performance audit of the project, it was observed that since putting into operation effectiveness of locomotives was not up to the mark. During first 24 months of operation, each locomotive should complete its running of 400,000 Kms. (16667 Kms. per month). Whereas, scrutiny of performance record up to August 2018 revealed that average productivity per locomotive per month was 8315.48 Kms. (49.89%) as detailed in **Annex-17**. Thus, during first two years of warranty period, the locomotive fleet may not be able to work more than 200,000 Kms. per loco. Under these circumstances, there must be 50% downfall in planned earning as per PC-I of the project besides performance of these locomotives would not be gauged in true sense during the warranty period due to underutilization of locomotives.

The issue was pointed out to project management in December 2018. The management replied in November 2019 that the newly inducted GEU-40 locomotives were extensively utilized for freight services of YSW Coal wherein normal turn round was 4 to 5 days but due to some technical and administrative issues at YSW Coal plant, that turn round increased from 5 to 7 days due to which these locomotives earned less kilometer per month.

The reply was not satisfactory because 5-7 days turn round from Port Qasim to Yousafwala was very low as compared to PC-I of the project wherein 05 days turn round was worked out from Kiamari to Lahore/Faisalabad on freight traffic.

DAC in its meeting held on 30.08.2021 was informed that GEU-40 class of locomotives were extensively utilized for freight services of YSW

Coal, the normal turn round for freight locomotive is 4 to 5 days but due to some technical and administrative issues at YSW coal plant, the turn round increased from 5 to 7 days due to which those locomotives earned less kilometers per month.

DAC directed the PO that year-wise statement showing detail of actual revenue earned and expenditure incurred on maintenance and operation of the GEU-40 locomotives be provided to Audit for verification within two weeks. No further reply was received till finalization of the report.

Audit recommends that the matter be probed to fix responsibility for underutilization of locomotives and disciplinary action be initiated against the person held responsible.

4.5.2 Non-achievement of envisioned benefits due to occurrence of substantial time overrun

As per 2nd revised PC-I of project titled "Procurement of 75 DE locomotives", completion period of the project was 36 months from the date of commencement. The project was commenced from 01.06.2015 and scheduled to be completed up to June 2018.

During performance audit, it was observed that the project was not completed within the target date. As per 4th extension granted by the DDWP, the project is scheduled to be completed by 30th June, 2022. This resulted in 48 months' time overrun in execution of the project. The main reason for time overrun was unnecessary delay in need assessment of line maintenance facilities for which there was a provision of Rs 750.000 million (including FEC Rs 550.000 million) and unnecessary induction of civil works relating to Quetta Division at belated stage , which were not covered in the scope of approved PC-I. Physical/financial progress of the civil works and line maintenance facilities at the end of financial year 2017-18, was 61% and 10.72% respectively (**Annex-18**). By the end of financial year 2020-21, the progress of the said works increased to 81% and 36% respectively. Thus, despite occurring 36 months' time overrun, average 36.5% scope of both works was outstanding. This speaks inefficiency and mismanagement on the part of PD in particular and Railway management (CME/Loco, AGM/M) in general.

The issue was pointed out to project management in December 2018. The management replied in November 2019 that 2nd revised PC-I was approved by ECNEC on 22.08.2016, with completion period of 36 months (3 years) which would expire on 21.08.2019. Since the project was expected to be completed within stipulated time period, therefore, there was no time overrun. The reply was not tenable because the currency of PC-I for 36 months was to be reckoned as per completion period mentioned in first revised PC-I approved by ECNEC on 13.05.2015, according to which the project was started, rather than from the date of second revision of the PC-I.

DAC in its meeting held on 30.08.2021 directed the PO that an updated revised reply along with documentary evidence be furnished to Audit for verification within two weeks.

Management replied on 29.12.2021 that Covid-19 epidemic worldwide affected the production of industrial manufacturer, late decision for basing the Locomotive at Loco Shed, Quetta and less allocation by MOR lead to time overrun of the project activities. The reply is not satisfactory because the date of completion of the project was 30.06.2018, whereas, Covid-19 emerged in December 2019.

Audit recommends that responsibility for time overrun be fixed and action be taken against the persons held responsible.

4.5.3 Loss of potential earning due to underutilization of locomotives – Rs 3.122 billion per annum

As per PC-I of project titled procurement of 75 DE locomotives the Railway management indicated that procurement of 55 CBU locomotives (4500 HP) was urgently required to cope with available freight traffic demand. Accordingly, 55 DE locomotives were procured and put into service from March to September 2017.

During performance audit of the project, it was observed that since putting into operation, about 35% to 53% fit locomotives on daily basis remained idle in MYP/KC due to no demand from traffic and commercial department. However, based on figures for the last three months i.e. July-September 2018, average 17.24 locomotives remained idle daily resulting in loss of potential earnings of Rs 3.122 billion per annum (**Annex-19**). This indicates that the locomotives are being underutilized. Thus, due to underutilization of locomotives, the projected earnings targets of locomotives as per PC-I of the project could not be achieved. This occurred due to inaccurate assessment of traffic demand in the PC-I.

The issue was pointed out to project management in December 2018. The management replied that locomotives were exclusively utilized for transportation of YSW Coal and other freight trains. But due to certain administrative and technical issues from PRFTC and at YSW Coal plant, few locomotives remained idle, however all efforts were made to ensure maximum utilization of locomotive for freight. The reply was not satisfactory because idleness of 35% to 53% fit locomotives speaks inefficient management of locomotives which apparently occurred due to bad planning.

DAC in its meeting held on 30.08.2021 was informed that all efforts were made to ensure maximum utilization of GUE-40 class of locomotives for freight services and there was no loss in earning of newly inducted Locos rather the fleet earned 56% more revenue than the target.

The DAC directed the PO that year-wise statement showing detail of actual revenue earned and expenditure incurred on maintenance and operation of the GEU-40 locomotives be provided to Audit for verification within two weeks. No further reply was received till finalization of the report.

Audit recommends that the issue be investigated at an appropriate level for underutilization of locomotives and corrective measures be adopted for future.

4.5.4 Loss due to unjustified payment to NLC for hiring of 10 locomotives – Rs 177.524 million for the year 2017-18

As per PC-I of project titled procurement of 75 DE locomotives the Railway management indicated that procurement of 55 CBU locomotives (4500 HP) was urgently required to cope with available freight traffic demand. Accordingly, 55 DE locomotives were procured and put into service from March to September 2017.

During performance audit of the project, it was observed that since putting into operation, about 35% to 53% fit locomotives on daily basis remained idle in MYP/KC due to no demand from traffic and commercial departments. On the other hand, PR had executed an agreement with NLC in November, 2014 for hiring of 10 locomotives on lease of 12 years. During the financial year 2017-18 Pakistan Railway paid a sum of Rs 177.524 million for hiring of 10 locomotives while its own 17 freight locomotives remained idle during 2017-18. It appears that NLC locomotives were not taken in to account while making justification for procurement of 75 locomotives. This caused due to negligence of CME/Loco in particular and top management in general.

The issue was pointed out to project management in June 2019 and also discussed in DAC meeting held on 30.08.2021. The DAC was informed that the GEU-40 locomotives were exclusively procured for hauling heavy train loads approximately up to 3400 tons. On the other hand NLC locomotives can haul 2250 tons. Hence NLC locomotives could not be used in lieu of GEU-40. At present, all the GEU locomotives were being 100% utilized in operations. GEU-40 were basically purchased to haul heavier payloads to various coal fired power plants.

The DAC directed the PO that Railways should improve its earning capability through its own infrastructure. No further reply was received till finalization of the report.

Audit recommends that the matter be probed at appropriate level to fix responsibility for generating unjustified demand of locomotives which could not be used for the purpose they were acquired.

4.5.5 Loss of potential earning due to transportation of lesser trailing load through GEU-40 locomotives – Rs 990.924 million per annum

According to In-house feasibility study carried out in connection with procurement of 55 DE locomotives (4500 HP), the proposed locomotives were to be utilized on freight trains with 3400 ton trailing load. Accordingly, the productivity of the locomotives was worked out in PC-I of project on the basis of 3400 ton trailing load.

During performance audit of the project, scrutiny of transportation record of GEU-40 locomotives for the period from January to September 2018 revealed that about 55% of the locomotives were deployed in transportation of coal with 3300 ton trailing load. Whereas remaining locomotives were operated for transportation of other freight traffic with trailing load per freight from 1000 to 3300 ton at an average 2234.85 ton. Consequently, PR suffered loss of potential earning of Rs 990.924 million per annum (**Annex-20**) due to utilization of locomotives with lesser trailing load.

The issue was pointed out to project management in December 2018. The management replied in November 2019 that the reason for hauling less trailing load was attributed to the fact that the maximum looping capacity available between Karachi and Lahore section is 41=82 (54 feet) while the freight trains like ZBFC Container, 501/502 (ZBCs) and DKL/Coal (ZBKC) were although having lesser loads but further addition of load was not possible to these trains keeping in view the operational hindrance i.e. looping capacity.

The reply was not satisfactory because operation of locomotives with lesser trailing load was unjustified because GEU-40 locomotives were specifically purchased for transportation of coal with 3400 ton trailing load.

DAC in its meeting held on 30.08.2021 was informed that the maximum looping capacity available between Karachi and Lahore section is 41=82 (54 feet) while the freight trains like ZBFC Container, 501/502 (ZBCs) and DKL/Coal (ZBKC) were although having lesser loads but further addition of load was not possible to these trains keeping in view the operational hindrance.

The DAC directed the PO that year-wise statement showing detail of actual revenue earned and expenditure incurred on maintenance and operation of the GEU-40 locomotives be provided to Audit for verification within two weeks. No further reply was received till finalization of the report.

Audit recommends that responsibility for inefficient utilization of locomotives with lesser trailing load may be fixed and action be taken against the person(s) held responsible for ineffective utilization of locomotives.

4.5.6 Wastage of resources due to utilization of freight oriented locomotives in passenger operation in violation to provision of PC-I

According to PC-I of project titled "Procurement of 75 DE Locomotives", it was anticipated that 55 locomotives (4000 HP) and 20 locomotives (2000 HP) would be used in freight services on main line to haul heavy freight traffic. Hence, 7,470.000 million ton kilometer per annum more freight would be moved by the locomotives after completion of the project.

During performance audit of the project, it was observed that in violation to provision of PC-I of the project, 11 locomotives (GEU-40) and 16 locomotives (GEU-20) were deployed on passenger trains w,e,f 15.04.2019 and 15.10.2019 respectively. This resulted in utilization of 36% locomotives on other than the intended purpose. This indicates that the Railway administration was wasting its resources.

DAC in its meeting held on 30.08.2021 was informed that utilization of GEU-40 on passenger services was made due to the versatility operation (Goods + passenger) so that in case of failures of locomotives, the available goods locomotives could be utilized on passenger services. The utilization of passenger services was gradually reduced to number 7, which would be gradually reduced to zero in due course of time. However, Audit pointed out that feasibility of the locomotives was made with 3400 tons freight trailing load, whereas, the locomotives were deployed on passenger trains operation with 862 tons load. Thus, utilization of locomotives on 25% capacity was illogical.

The DAC directed the PO that year-wise statement showing detail of actual revenue earned and expenditure incurred on maintenance and operation of the GEU-40 locomotives be provided to Audit for verification within two weeks.

Management replied on 29.12.2021 that as per PC-I there was no restriction for use of locomotives on passenger trains. The reply is not tenable because financial viability of the locomotives was made on freight traffic, therefore, utilization of locomotives on passenger operation was uneconomical.

Audit recommends that compliance of DAC directives be made without further loss of time and the issue be investigated at an appropriate level for ineffective utilization of locomotives.

4.5.7 Unsatisfactory performance of 75 locomotives

As per clause 9.5 of technical specifications in connection with procurement of 55 (GEU-40) and 20 (GEU-20) DE locomotives, average **reliability** (average kilometers worked each locomotive per failure) of offered locomotives be minimum 100,000 kilometers per failure or maximum 02 failure per loco per year and average **availability** percentage (average period for which the locomotive remained available for service) of offered locomotives should not be less than 95% during first 03 years of service.

During performance audit of the project, it was observed that up till November 2021, cumulative average reliability of 54 (GEU-40) locomotives and 20 (GEU-20) locomotives was 135,313 and 159,127 kilometer/failure respectively, which seem to be satisfactory. However, cumulative reliability of individual 13 (GEU-40) locomotives and 04 (GEU-20) locomotives respectively remained below the benchmark of 100,000 kilometer per failure **(Annex-21A)**. Whereas, monthly average availability of 61% GEU-40 (**Annex 21B)** and 90% GEU-20 (**Annex 21C)** locomotives remained below the benchmark of 95%. In view of above, Audit concludes that overall reliability of the locomotives is satisfactory. Whereas, overall availability of 54 (GEU-40) and 20 (GEU-20) locomotives during first 36 & 30 months of their operation respectively is unsatisfactory.

DAC in its meeting held on 30.08.2021directed the PO to submit a revised updated reply along with documentary evidence to Audit for verification within two weeks. In the light of updated position provided by the management up to November 2021, the audit observation has been revised.

Management replied on 29.12.2021 that the matter has been referred to CME/Loco for comments, but no progress was intimated till finalization of the report.

Audit recommends that the issue be investigated at an appropriate level to fix responsibility for unsatisfactory performance of locomotives and action be taken against the supplier for extension of warranty period in terms of clause 12(9) of contract agreements.

4.6 Sustainability

According to guidelines by Planning Commission of Pakistan for project management, sustainability of the project after its completion was another important aspect, which needed consideration. During performance audit, it was observed that the sustainability aspect was not properly addressed at the planning stage. Significant observation is discussed in the succeeding paragraph:

4.6.1 Defective estimation due to variation between the figures of In-house feasibility study and PC-I – Rs 3,855.005 million

As per instructions issued by the Planning Commission of Pakistan, the sponsoring agency should certify that the information/data provided in the PC-I is correct and authentic. The cost estimates have been correctly assessed and have neither been under estimated nor over estimated.

During performance audit, it was noticed that an In-house feasibility study was carried out by Dy. CME/Development in March 2014, in connection with procurement of 55 DE Locomotives (4000~4500

HP) which clearly identified the factual operational, repair and maintenance cost along with potential earning per unit. But while formulating second revised PC-I in January 2016 the costs and potential earning were inordinately reduced which rendered the viability of the project as doubtful. This resulted in variation in operational and R&M costs of Rs 404.360 million (20.84% understatement) and Rs 3,450.645 million (34.65% understatement) in potential freight earnings as detailed in **Annex-22**.

Moreover, productivity of each 4000 HP and 2000 HP locomotives was worked out 200 and 80 MTKM per annum respectively, but detailed calculation in case of 200 HP locomotive was missing in the PC-I, hence productivity of 200 HP locomotive was baseless/unrealistic being 60% less than 4000 HP locomotive. Furthermore, basis/source of 419.241 MTKM (Baseline Indicator) and 7,470 MTKM (Target after completion of project) under Result Based Monitoring Indicators has not been mentioned, therefore, authenticity of both the figures is doubtful. Similarly, Gross freight earning per loco per annum of 4000 HP locomotive was worked out Rs 364.036 million, of which 50% net freight earning per loco per annum worked out to be Rs 182.018 million, whereas, it was incorrectly mentioned as Rs 118.311 million. In view of the above, it is concluded that most of the facts and figures quoted in the PC-I were incorrect and baseless. In addition, provision of one motor car 1000 CC in PMU and 02 staff cars 1299/1000 CC in Line maintenance facilities were available, but there was no provision of any post of Driver in the PC-I.

The issue was pointed out to project management in December 2018. The management replied in November 2019 that the figures of operating cost, repair & maintenance cost and freight earning mentioned in feasibility study prepared in April 2014 were higher than figures of 2nd revised PC-I January 2016. This indicated that the project was feasible even with the less operating cost, repair & maintenance cost and freight earning. The reply was not tenable because figures provided in feasibility study of April 2014 and PC-I of January 2016 were both presumptive as the same did not match with the accounts. Thus, the justification was incorrect and hypothetical.

DAC in its meeting held on 30.08.2021 directed the PO to submit a revised updated reply along with documentary evidence to Audit for verification within two weeks. No further reply was received till finalization of the report.

Audit recommends that responsibility for misstatement of facts and figures in PC-I be fixed and action be taken against the person(s) held responsible.

4.7 Overall Assessment

The overall performance of the project was unsatisfactory because envisioned benefits of the scheme could not be achieved within stipulated time line due to occurrence of 48 months' time overrun. Average availability of locomotives is below the benchmark. Productivity of 55 GEU-40 locomotives remained 50% lesser due to underutilization. The locomotives were intended to be used for freight operation, but 27 locomotives have been deployed on passenger operation in violation to provision of PC-I. During warranty period, 1487 warranty claims have been lodged which included failure of long-life parts and assemblies. This indicates that the quality of material/workmanship used in manufacturing of locomotives was substandard. Thus, the locomotives are not cost effective as their availability failed to meet the criteria set by the Supplier.

i. Relevance:

The project audited was included in five year MTDF (2014-18) funded through PSDP.

ii. Efficacy:

Financial mismanagement of Rs 5.849 billion was done in the project as is evident from abnormal saving as well as excess expenditure.

iii. Efficiency:

Time overrun of 48 months was observed in the project, so the intended benefits could not be attained within given time frame.

iv. Economy:

The management failed to follow canons of economy in true spirit because in absence of any change in technical specification, 6.22% higher price of locomotives over and above the original bid price, was paid to the Supplier. Due to non-invoking Public Private Partnership through Joint Venture, PR has purchased CBU locomotives of even lower capacity at much higher cost as compared to India.

v. Effectiveness:

The locomotives were being underutilized by operating them with lesser training load, besides, 35% to 53% fit locomotives, on daily basis, remained idle due to no demand from traffic and commercial department. Productivity of locomotives was based on freight traffic, but 27 locomotives were being utilized in passenger operation. A Hydraulic Press, shipped in August 2017 was not functional. Similarly, a Spectrometer shipped in September 2019 was still not fully functional, so the benefit for the money spent, could not be reaped.

vi. Compliance with Rules:

The management did not adhere to Planning Commission's Guidelines. The project was started without any feasibility study and the PC-I was revised twice. No independent Project Director was appointed in the project rather the project was managed by different Project Directors. The scope of work was changed altogether from assembly of CKD units to CBU form without proper justification.

Performance rating of the project:	Unsatisfactory
Risk rating of the project:	High

5. CONCLUSION

The main focus of this performance audit was to review economy, efficiency and effectiveness of project titled "Procurement of 75 Diesel Electric Locomotives".

The project was planned in haste without any deliberations and without carrying out proper feasibility study so its PC-I was revised twice. While reviewing implementation of standards/regulations covering safety and quality issues, it was observed that in disregard to provision of contract necessary tests and trial of first batch of ten locomotives were not carried out for six months. Consequently, several modifications of locomotives were done in Railway workshops at PR expense which resulted in financial loss (Para 4.3.9, 4.3.12 & 4.3.16). Moreover, 1487 warranty claims (including premature failure of principal assemblies and long-life parts) were lodged during warranty period, which indicated that the quality of material and workmanship used in manufacturing of locomotives was substandard (Para 4.3.13).

While evaluating economy, it was observed that PR incurred loss due to acceptance of tender at modified higher price in absence of corresponding modification in technical specification (Para 4.3.1). Furthermore, PR incurred extra expenditure due to purchase of CBU locomotives at higher cost as compared with India (Para 4.4.2) due to non-expansion of production activities in PLF, Risalpur through joint venture.

While assessing efficiency, effectiveness and overall achievement of objectives of project, it was observed that the overall performance of the project was unsatisfactory because envisioned benefits of the scheme have not fully been achieved as productivity of 55 (GEU-40) locomotives remained 50% lesser due to underutilization (Para 4.5.3). Moreover, in violation to provision of PC-I of the project, 11 locomotives (GEU-40) and 16 locomotives (GEU-20) were deployed on passenger trains, .instead of freight operation (Para 4.5.6) resulting in utilization of 36% locomotives on other than the intended purpose. Furthermore, monthly average availability of 61% (GEU-40) and 90% (GEU-20) locomotives remained below the benchmark, which indicates that the performance of the locomotives was unsatisfactory (Para 4.5.2).

5.1 Key issues for the future

Project should start after proper feasibility study/PC-II, so that preparation of PC-I is based on correct data, keeping in view the ground realities so that the project may be completed within stipulated time and estimated cost. There should be a single, dedicated Project Director. For assessment of design as well as quality of material/workmanship used in the manufacturing of locomotives, third party validation needs to be considered. Procurement should be made in accordance with PPRA Rules in order to get maximum value for money. The objectives may be laid down in quantifiable terms so that their achievement could be ensured. Canons of financial propriety be observed in true spirit. Pakistan Locomotive Factory, Risalpur has the capacity to manufacture 25 locomotives per year. PLF should be revived by invoking public Private partnership through joint venture as India did through a JV agreement with M/s General Electric Inc., USA in 2015 for procurement/manufacturing 1000 DE locomotives and altogether maintenance thereof for 13 years and practice of procurement of CBU locomotives should be discontinued.

5.2 Lessons identified

Project should start with proper planning after ascertaining the ground realities. There should be single dedicated Project Director as required by the "Guidelines of Project Management" circulated by Planning Commission. In order to avoid blockage of capital, the money which is not likely to be needed during the year is promptly surrendered to allow of its appropriation for other purposes. Management should also avoid modifications after approval of PC-I. Preparation of PC-I on vague facts and figures may lead to substantial change in the scope of work which may also hamper achieving the progress and expected benefits of the project.

ACKNOWLEDGEMENT

Audit acknowledged the support of the Project Director 75 DE Locomotives Project, Lahore, Director Procurement, Islamabad CME/Loco, Lahore, Works Manager/Diesel KC and DCOS (Shipping) KC, for their cooperation and assistance in providing necessary information and record.

Annex-1

Statement showing detail of posting of Project Directors
(Para 4.1.2)

S #	Project Director Name	Charge resumed on	Charge relinquished on
1	Mr. Habib-ur-Rehman Khattak MD/PLF, Risalpur	20.04.2010	12.10.2012
2	Mr. Firdous Khan, MD/PLF, Risalpur	12.10.2012	05.06.2015
3	Mr. Muhammad Tariq Khan	05.06.2015	19.07.2016
4	Mr. Ansar Billah	19.07.2016	22.03.2017
5	Mr. Wasif Ali Mughal	22.03.2017	03.11.2017
6	Mr. Muhammad Yusuf	03.11.2017	09.04.2018
7	Mr. Mahfooz Ali Khan	09.04.2018	08.10.2019
8	Mr. Muhammad Jahangir Hussain	08.10.2019	Active

Annex-2

Statement showing detail of irregular / unjustified expenditure in PLF against procurement/ manufacture of 75 DE locomotives (Para 4.1.3)

Year	Expenditure			
	Cash	Store	CD/ST	Total Local
2007-08	0.110	0.000	0.000	0.110
2008-09	29.924	0.000	0.000	29.924
2009-10	82.205	-2.016	0.000	80.189
2010-11	95.557	-57.491	0.000	38.066
2011-12	128.378	-10.338	0.000	118.040
2012-13	172.020	-10.575	0.000	161.445
2013-14	116.701	-13.109	0.000	103.592
2014-15	63.542	8.902	0.000	72.444
	0.000	0.000	0.000	0.000
2015-16	2.660	-8.892	0.000	5.598
	11.830	0.000	0.000	0.000
Total	**702.927**	**-93.519**	**0.000**	**609.408**

Annex-3

List of trainers of 55 GEU-40 locos (Para 4.1.4)

Group #	No. of peoples	Man Month	Check in	Check out	Name & designation of inspectors M/s
Mechanical group					
1	8	4	06.11.16	21.11.16	Abdul Haseeb, Abu Baker, Muhammad Ismail, Muhammad Rajput, Muhammad Zahid, Khawaja Ahmed, Rashid Khan and Jawed Qureshi
2	8	4	28.11.16	12.12.16	Muhammad Khan, Muhammad Idrees, Fakhar Iqbal, Abdul Khaliq, Irfan Khan, Zafar Iqbal, Muhammad Akhtar, Muhammad Ahmad Khan
3	8	4	04.12.16	19.12.16	Asim Khokhar, Ahsan Zamir, Muhammad Hussain, Muhammad Malik, Shahid Khan, Muhammad Horani, Muhammad Alam and Ali Zulfiqar

4	8	3.5	10.01.16	25.01.16	Samin Khan Gandapur, Muhammad Rauf Ahmed, Masood Hussain, Muhammad Hanif, Muhammd Asif, Khalid Raza, Noor Ali Jan and Muhammad Shafique

Electrical group

1	8	4	06.11.16	21.11.16	Muhammad Tahir, Sarmad Ibrahim, Najm ul Hassan, Jamshaid Haider, Muhammad Shahid Ghafoor, Gul Shan, Zahid Yasin Syed and Zameer Kazmi
2	8	4	27.11.16	12.12.16	Kashif Ejaz, Shaiq Sheikh, Ghulam Muhammad, Abdul Ghaffar, Muhammad Kashif, Muhammad Sarfraz, Muhamad Nasrullah Khan and Muhammad Imran

3	6	3	10.01.16	26.01.16	Ansar Billah Khan, Zafar Ahmad Majoka, Muhammad Irshad, Bilal Ijaz Khan, Muhammad Sajjad and Tilla Muhammad
4	2	1	16.04.17	01.05.17	Sohail Iqbal Siddique and Riaz Zardari
	56	**28**			

Cost of training

US$ 20,416.88x28=US$571,672.64xRs 105=Rs 60,025,627

or say Rs 60.026 million

Annex-4

Statement showing detail of irregular appointment of TLA staff engaged in the project regarding procurement of 75 DE Locomotives (Para 4.1.5)

S #	Name	Designation	Period		Total amount involved Rs
			From	To	
1	Ubaid ullah	FOM Gr-I	24-Jul-18	19-Jan-19	163,875
2	Khalid Yaqoob	AFO	11-Jan-18	6-Oct-18	206,753
3	Gulshan	Mistry Electrical	4-Jan-18	29-Sep-18	331,418
4	Ahmed Zaman	Wireman	1-Mar-17	23-Nov-18	768,933
5	Ghulam Nabi	Wireman	1-Mar-17	23-Nov-17	329,612
6	Maqbool Ahmed	SS Wireman	1-Mar-17	23-Nov-18	943,091
7	Moiz Khan	SS Wireman Now Sk. Wireman on 16.07.18	16-Oct-17	11-Jan-19	277,181
8	M. Hamza Rafique	SS fitter	15-Aug-17	9-Nov-18	295,210
9	Faizan Shafi	Muawan	1-Mar-17	23-Nov-17	149,111
10	Rashid Ali	Muawan	1-Mar-17	23-Nov-18	352,951
11	Muhammad Raheel	Muawan	1-Mar-17	23-Nov-18	352,951
12	Iftikhar Ahmed	Muawan	1-Aug-17	25-Jan-19	302,689
13	Muaviya Khan	Muawan against the post of Sk. Wireman now SS Wireman	24-Nov-17	17-Nov-18	205,373
14	Danish Shehzad	Muawan	4-May-18	29-Oct-18	96,963
15	Faraghat Ali	APS	1-Aug-16	31-Dec-18	916,864
16	Arshad Mehmood	Head clerk	1-Jul-17	31-Dec-18	464,184
17	Nadeem Ahmed	Sr. Computer operator	6-Aug-18	31-Dec-18	135,825
18	Muhammad Yaqoob	Naib Qasid	1-Aug-16	31-Dec-18	460,491
19	Salman Akbar	Naib Qasid	23-Jul-18	31-Dec-18	87,305
20	Muhammad Aslam	Asstt / chargeman Elect.	1-Aug-17	27-Jul-18	253,032

21	Khalil Shahzad	Asstt / chargeman Elect.	1-Aug-17	27-Jul-18	253,032
22	Abdul Wahab	Mistry Mech.	20-Jul-17	20-Jan-19	350,352
23	Muhammad Waqas	Mistry Mech.	1-Aug-17	27-Jul-18	229,008
24	Muhammad Ashraf	Wireman	1-Mar-17	23-Nov-18	376,719
25	Muhammad Shafique	Wireman	8-May-17	28-Aug-18	287,024
26	Muhammad Shafique	Wireman	15-Oct-18	11-Jan-19	49,383
27	Farooq Ahmed	Diesel Fitter	1-Mar-17	23-Nov-18	376,719
28	Muhammad Umair Majeed	Diesel Fitter	5-Jul-17	29-Aug-18	259,350
29	Muhammad Uuneer	SS Fitter	1-Mar-17	23-Nov-18	344,232
30	Gulraiz Ahmad	Sk Fitter	14-Oct-17	5-Jan-19	272,460
31	Khalil Shahzad	SS Fitter	1-Aug-18	28-Oct-18	45,006
32	Muhammad Umair Majeed	SS Fitter	15-Oct-18	11-Jan-19	59,289
33	Muhammad Irfan	Muawan	2-Jan-17	28-Dec-18	377,400
34	Muhammad Umar Latif	Muawan	2-Jan-17	28-Dec-18	377,400
35	Muhammad Sunny Noor	Muawan	1-Mar-17	23-Nov-18	319,725
36	Muhammd Jameel	Muawan	1-Jul-17	22-Dec-18	283,050
37	Muhammad Awais	Muawan	6-Apr-18	29-Dec-18	150,768
				Total	**11,504,729**
					Rs 11.505 million

Annex-5

Statement showing detail of irregular/excess payment over and above the provision of PC-I (Para 4.1.6)

Sr. No.	Name of Employees	Period	Total Salary	Total Salary as per PC-I	Excess Payment
1	Mr. Javed Iqbal Tahir	Dec-2016 to Nov-2021	7,312,226	2,700,000	4,612,226
2	Mr. Muhammad Afzal	Dec-2017 to Jul-2021	5,997,285	2,025,000	3,972,285
				Total Rs	**8,584,511**

Annex-6A

Statement showing detail of Irregular payment without approval of the Competent Authority (Para 4.1.8)

Sr. No.	Name of Employees	Period	Total Irregular Payment
1	Mr. Javed Iqbal Tahir	01.12.2018 to 30.11.2021	3,326,016
2	Mr. Muhammad Afzal	22.08.2019 to 31.07.2021	4,842,339
	Total		**8,168,355**

Annex-6B

Statement showing detail of irregular/unauthorised expenditure without provision in PC-I (Para 4.1.8)

Sr. No.	No. of Employees	Station	Period	Total Salary
1	29	Yousafwala	01/17 to 05/19	16,832,286
2	25	MYP Shed	31.07.2017 to 31.05.2019	14,956,836
		Total		**31,789,122**

Annex-7

Statement showing detail of loss due to non-recovery of Rs 99.485 million (Para 4.2.1)

S #	Description	Amount paid (US$)	Exchange Rate in PKR	Amount refunded (US$)	Difference (US$)
1	Management fee	446,857.91	84.10	-	446,857.91
2	Up-front fee	714,972.66	84.10	-	714,972.66
3	Commitment fee	11,916.21	84.10	-	11,916.21
3	Insurance	9,627,273.41	84.10	9,619,273.41	8,000.00
	Total	10,801,020.19	84.10	9,619,273.41	1,181,746.78 x Rs 84.10= Rs 99,484,904 or say **Rs 99.485 million**

Annex-8

Statement showing detail of year wise allocation and actual expenditure of the project (Para 4.2.2)

S #	Year	Original allocation	Revised allocation	Expenditure	Variation	Variation %age
1	2007-08	200.000	35.000	0.110	34.890	99.69
2	2008-09	600.000	915.000	1,309.919	-394.919	-43.16
3	2009-10	700.000	990.000	987.296	2.704	0.27
4	2010-11	2,159.000	39.000	38.068	0.932	2.39
5	2011-12	1,750.000	200.000	118.041	81.959	40.98
6	2012-13	200.000	200.000	116.447	83.553	41.78
7	2013-14	750.000	191.223	-1,468.080	-1,276.857	-667.73
8	2014-15	4,600.000	4,600.000	2,350.382	2,249.618	48.9
9	2015-16	1,000.000	1,542.000	5.600	1,536.400	99.64
10	2016-17	14,000.000	25,200.000	25,165.292	34.708	0.14
11	2017-18	825.000	825.000	824.489	0.511	0.06

Saving		Excess		Minus expenditure	
Year	**Amount**	**Year**	**Amount**	**Year**	**Amount**
2007-08	34.890	2008-09	394.919	2013-14	1,468.080
2011-12	81.959				
2012-13	83.553				
2014-15	2,249.618				
2015-16	1,536.400				
Total	**3,986.420**	**Total**	**394.919**	**Total**	**1,468.080**

Saving	3986.420
Excess	394.919
Minus Exp.	1,468.080
Total	**5,849.419**

Annex-9

Statement showing detail of procurement of plant and machinery not included in the PC-I (Para 4.3.3)

S #	Description	Quantity	FOB Cost (Rs)	Agreement # and date
1	Simulator	1	185,220,000	DP/55 Del/2015 20.06.2015
2	Balancing machine	1	8,410,920	-do-
3	Hydraulic Press 800 Ton capacity	1	59,992,380	-do-
4	Floor type dynamic balancing machine	2	25,554,480	DP/20 Del/2017 07.06.2017
5	Cylinder head valve insert seat grinding machine	4	73,024,980	-do-
6	Cylinder head valve grinding machine	4	29,521,800	-do-
7	Diesel electric loco load testing plant	1	37,970,625	-do-
8	Lifting jacks	10	49,949,100	15/0002/01-0/1-2016 04.03.2017
9	Welding plant	3	789,600	15/0075-DEL-3/1-2016 22.06.2017
10	Oxygen and DA gas cylinder	4	225,200	-do-
11	Gas cutter set complete	4	130,400	-do-
12	Lifting jacks for MYP	5	24,750,000	NP-15/5-A-Pro-75 Del/2017 22.09.2017
13	Air compressor portable	1	320,000	15/0007/75-DEL/1-2017 20.11.2017
14	Lathe machine	2	1,785,000	15/0008/75-DEL/1-2017 22.11.2017
15	Drill machine	1	154,000	-do-
16	Pedestal tool grinder machine	1	54,000	-do-
17	Hand drill machine	2	36,000	-do-
18	Water chiller	2	880,000	-do-
19	Motor cycle Honda	1	68,200	75 DEL/2017-18(LP-1)
20	Purchase of LED 55" Samsung	1	98,900	75 DEL/2017-18(LP-6)
Total			**498,935,585 Rs 498.936 million**	

Annex-10A

List of inspectors of 55 GEU-40 locos (Para 4.3.7)

S#	Group #	No. of peoples	Man Month	Check in	Check out	Name & designation of inspectors M/s
1	1	2	1	29.05.16	13.06.16	Majid Baig/CME/Loco, Ghulam Qasim/Dy. CME/Diesel
2	2	2	1	25.09.16	10.10.16	Rahat Mirza/PD/58 Locos, Syed Abid Hussain/ EFO/LHR Shed
3	3	1	0.5	11.10.16	18.10.16	Hussain
4	4	2	1	30.10.16	14.11.16	Abdul Malik/DS/RWP, Imtiaz Ahmed/AWM/CDLW
5	5	2	1	04.12.16	19.12.16	Saqib Anjum/EFO/LHR, Aijaz Ahmad Buriro/DS/SUK
6	6	1	0.5	02.01.17	16.01.17	Yousaf Loghari/Dy. CCP/ Tech.
7	7	1	0.5	16.01.17	30.01.17	Sajeeb
8	8	2	1	29.01.17	13.02.17	Farhan Awan/WM/Diesel/KC, Said Mir Jan/EFO/CDLW
9	9	1	0.5	12.02.17	27.02.17	Kashif Farooq/Dy. CME/DSM

10	10	2	1	26.02.17	13.03.17	Muhammad Yousaf/MD/CFI, Muhammad Afzal/JME/DM, HQ
11	1	2	1	12.03.17	27.03.17	Mazhar Iqbal/JME/TM HQ, Muhammad Ashraf/FO/D/RWP
12	12	2	1	26.03.17	10.04.17	Zulfiqar Ali Shaikh/WM/Diesel/KC, Muhammad Yasin/WM/Rehab.
13	13	2	1	09.04.17	24.04.17	Shahid Aziz/CME/Loco, Salman Sadiq/DS/Workships
14	14	1	0.5	16.04.17	01.05.17	Syed Mir Badshah/CCP
		23	**11.5**			

Officers	**17**
Subordinates	**6**
Inspectors	**0**
Total	**23**

Cost of training

US$ 20,416.88x11.5=US$234,794.12xRs 105=Rs 24,653,383

or say Rs 24.653 million

Annex-10B

Statement showing detail of shipments in case of 55 locomotives (Para 4.3.7)

S#	B/E #	B/L # and date	Invoice value (in US$)	Remarks
1	92-PR 20.03.17	NORKAR01 04.03.17	32,760,000.00	Inspection certificate signed by PR inspector
2	97-PR 28.03.17	NORKAR01 17.03.17	32,832,000.00	-do-
3	173-PR 17.05.17	NORKAR001 08.05.17	40,128,000.00	-do-
4	272-PR 17.10.16	PNSCNORKAR5777 17.09.17	1,050,608.47	Inspection certificate signed by supplier
5	320-PR 28.11.16	PNSCNYKKAR5811 28.10.16	272,872.00	-do-
6	26-PR 11.01.17	PNSCNYKKAR-5862 17.12.16	715,987.70	-do-
7	27-PR 11.01.17	PNSCNYKKAR5845(A) 17.12.16	241,384.30	-do-
8	22-PR 05.01.17	PNSCNYKKAR5845 09.12.16	434,259.20	-do-
9	47-PR 18.01.17	PNSCNYKKAR5837 22.12.16	120,282.00	-do-
10	24-PR 10.01.17	PNSCNYKKAR5853 08.12.16	990,094.93	-do-
11	40-PR 16.01.17	PNSCNYKKAR5847 17.12.16	794,112.00	-do-
12	25-PR 10.01.17	PNSCNYKKAR5852 15.12.16	34,947.20	-do-
13	67-PR 08.02.17	ORD0123665 02.02.17	202,807.29	-do-
14	114-PR 14.04.17	PNSCNYKKAR5895 18.03.17	1,687,552.91	-do-
15	144-PR 18.04.17	PNSCNYKKAR5911 01.04.17	535,119.94	-do-
16	191-PR 07.06.17	NORKAR01 29.05.17	43,776,000.00	-do-
17	227-PR 15.07.17	C-24 01.07.17	2,097,008.57	-do-
18	291-PR 24.08.17	TSA2122MTLKHI8 12.08.17	571,355.71	-do-

19	354-PR 13.10.17	PNSCNYKKAR6032 21.09.17	59,465.86	-do-
20	52-PR 09.02.18	MSCUJF565806 19.01.18	1,764,000.00	-do-
21	46-PR 01.02.18	PNSCNYKKAR6110 19.01.18	80,103.52	-do-
22	126-PR 21.04.18	PNSCNYKKAR6101 07.04.18	32,495.72	-do-
23	213-PR 29.06.18	PNSCNYKKAR6166B 7.06.18	214,225.32	-do-
24	214-PR 28.06.18	PNSCNYKKR6166A 07.06.18	270,179.77	-do-
25	239-PR 31.07.18	PNSCNYKKAR6214(E) 07.07.18	139,527.73	-do-
26	245-PR 07.08.18	PNSCNYKKR6221 19.07.18	26,906.90	-do-
27	20-PR 04.01.17	NORKAR01 18.12.16	25,480,000.00	Inspection not available
28	84-PR 06.03.17	PNSCNYKKAR5876 01.02.17	37,463.40	-do-
29	91-PR 20.03.17	NORKAR01 28.02.17	25,480,000.00	-do-
30	292-PR 24.08.17	PNSCNYKKAR5976 02.08.17	210,057.10	-do-
Total US$			**213,038,817.54**	

03 shipments for which inspection certificate were issued by PR inspectors	105,720,000.00
23 shipments for which inspection certificates were signed by the supplier	56,111,297.04
04 shipments for which inspection certificates were not available.	51,207,520.50
Total US$	**213,038,817.54**

Annex-11

Statement showing detail of supplies made from the countries not included in approved vendors list (Para 4.3.11)

Summary

S #	Country	Amount US$
1	Austria	602,834.12
2	Canada	83,672.60
3	France	1,879,163.37
4	Germany	2,140,045.61
5	India	52,738.68
6	Indonesia	26,630.00
7	Poland	4,564.00
8	South Africa	292,044.40
9	Sweden	40,734.40
10	Taiwan	35.00
	Total	**5,122,462.18**

US$ 5,122,462.18 x 105 = Rs 537,858,528.90

Rs 537.859 million

Annex-12A

Statement showing detail of warranty claims logged and unsettled (Para 4.3.13)

Sr. No.	Locomotives	Total Warranty Claims	Warranty Claims settled	Warranty Claims unsettled
1	GEU-40	1,152	1,118	34
2	GEU-20	335	261	74
Total		**1,487**	**1,379**	**108**

Annex-12B

Statement showing detail of defects/troubles noticed in GEU-40 locomotives within one & half year of service. (Para 4.3.13)

1) Inverter phase module "IGBT" Positive and Negative (Traction Motor) defective, 43 cases occurred so far.*
2) Fire Suppression System is giving false alarms as 15 cases of fire alarm continuously appeared on locomotives abnormally.
3) Head light toggle switches failure (21 cases).
4) Hot bearing detector panel defective occurred on 14 locos.
5) Refrigerator of 18 locomotives are not working.
6) Engine control unit (ECU) defective (3 cases).
7) Traction alternator controller (TAC) defective (4 cases).
8) Aux alternator controller (AAC) defective (6 cases).
9) Traction motor ground (2 cases).
10) Grid blower armature ground trouble (3 cases)
11) Consolidated input output (CIO) panel's cards defective (4 cases)
12) Radiator fan controller (RFC) failure (5 cases).
13) Audio alarm panel defective (5 cases).
14) Water pressure sensor failure (5 cases).
15) Speed sensor failure (2 cases).
16) Coolant level sensor failure (16 cases).
17) Compressor drive contractor (CDC1) defective (3 cases).
18) Batteries cell dead (2 cases).
19) Fuel sensor faulty (6 cases).
20) FTM panel faulty (2 cases).
21) GPS defective (5 cases).
22) Air condition blower motor abnormal noise (54 cases).
23) Air condition inverter failed (2 cases).
24) Horn magnet valve defective (2 cases).
25) Traction motor air boot cracked (3 cases).
26) Event recorder power supply defective (1 case).
27) Communication fault of software of traction motor blower (1 case).
28) Water pump seal leakage (all fleet).
29) Buffer bolt (breakage and lose) (all fleet).
30) Shock absorber oil leakage/oil dampers (all fleet).
31) Exhaust leakage from cylinder head (3 cases).
32) Gear case oil leakage (7 cases).
33) Coil spring broker (55 cases).
34) Alpha filter (lube oil filter) failure (2 cases).
35) Alpha filter niddle rotation problem (4 cases)

36) Power assembly strong back cracked (4 cases).
37) Lube oil pump defective (2 cases).
38) Retention pin (axle box locking) defective (3 cases).
39) Oil pan - crank case bolt breakage (3 cases).
40) Diesel engine foundation bolts loosening (4 cases).
41) HP cylinder to intercooler discharge pipe defective (15 cases).
42) Air compressor water cooler manifold cracked (13 cases).
43) Brake pipe control portion (BPCP) failed (7 cases).
44) Air compressor LP cylinder seized (1 case).
45) Air compressor air intake filter housing (all fleet).
46) Breather valve tip broken (1 case).
47) Relief valve (adjustment disturbed (1 case).
48) Air compressor hose pipe for water (burst) (1 case).
49) Brake unit damaged (3 cases).
50) Brake controller display off (1 case).

*Source: Minutes of Performance Evaluation Meeting held in July 2018.

Annex-12C

Statement showing detail of spares/assemblies issued to the locomotives but no warranty claims were lodged (Para 4.3.13)

S #	Date of issue	Description	Stock Code	Loco #	Quantity issued	Amount US$
1	05.09.2018	Flexible brake	84A222777ACP5	9040	1	4,936.31
2	12.04.2018	Gear case top-mech	84D730343P1	9018	2	5,540.00
3	07.02.2018	Truck list Sta-3	84X275770TLG3	9038	1	132,352.00
4	04.04.2018	-do-	-do-	9053	1	132,352.00
5	22.09.2018	-do-	-do-	9009	1	132,352.00
6	29.09.2018	-do-	-do-	9048	1	132,352.00
7	28.03.2018	Service brake	84A222777ACP4	9040	1	10,162.98
					Total US$	**550,047.29**

Amount (US$ 550,047.29x Rs 105) = 57,754,965.45

Rs 57.755 million

Annex-13A

Statement showing detail of detainment period of Locomotives in workshops/shed (Para 4.3.16)

Sr. No.	Locomotives	Period	No. of months detained
1	9031/GEU-40	05/2018 to 08/2018	4
2	9033/GEU-40	07/2018 to 08/2018	2
3	9038/GEU-40	07/2017 to 09/2017 and 06/2018 to 08/2018	6
4	9002/GEU-40	10/2017 to 12/2017 and 01/2018 to 02/2018	5
Total			**17**

Annex-13B

Statement showing detail of financial loss to PR due to defective workmanship of 04 Locomotives (Para 4.3.16)

Sr. No.	Locomotives	Work Order No.	Date	Cost (Rs)
1	9031/GEU-40	98,095,402	27.08.2016	3,068,037
2	9033/GEU-40	98,095,404	14.09.2018	1,031,940
3	9038/GEU-40	98,095,403	14.09.2018	3,115,665
4	9002/GEU-40	99,095,402	31.08.2019	3,119,634
			Total Rs	**10,335,276**

Annex-14A

Statement showing detail of splitting of works/supplies to avoid sanction of higher authority resulted in mis-procurement of Rs 258.316 million (Para 4.3.17)

Sr. #	Description	Location	Agreement/PO #	Date	Amount (Rs)
Turntables					
1	Supply, installation and commissioning of Turntables	Lahore	47/2016-17	03/17	48,738,786
2	Supply, installation and commissioning of Turntables	Karachi Cantt	48/2016-17	03/2017	49,588,786
3	Supply, installation and commissioning of Turntables	Marshalling Yard Pipri (Karachi)	02/2016-17	12/2017	49,588,786
Sub Total					147,916,358

Annex-14B

Cranes

1	01 Overhead Electric Crane(30/5 tone capacity) along with spare parts	MYP Shed Karachi	15/0047/75-DE/1-2020	24.10.2020	35,200,000
2	02 Overhead Electric Crane(30/5 tone capacity) along with spare parts	CDL Workshop Rawalpindi	15/0061/75-DEL/1-2020	09.04.2021	75,199,925
Sub Total					110,399,925
Grand Total					**258,316,283**

Annex-15

Statement showing detail of award of tenders due to injudicious evaluation of bids by technical committee (Para 4.3.18)

Sr. #	Description	Location	Tender/ Agreement #	Date	Amount (Rs)
1	Supply, installation and commissioning of Turntables	Lahore	47/2016-17	Mar-17	48,738,786
2	Supply, installation and commissioning of Turntables	Karachi Cantt	48/2016-17	Mar-17	49,588,786
3	Supply, installation and commissioning of Turntables	Marshalling Yard Pipri (Karachi)	02/2016-17	Dec-17	49,588,786
Total					**147,916,358**

Annex-16

Statement showing excess expenditure Rs 10.394 million due to acceptance of tender at higher rate (Para 4.3.19)

Sr. #	Description	PO #	Date	Amount Per Crane (Rs)	Quantity	Loss
1	Overhead Electric Crane (30/5 ton capacity) for Loco shed MYP Karachi.	15/0047/75-DE/1-2020	24.10.2020	31,000,000	01	-
2	Overhead Electric Cranes (30/5 ton capacity) for CDL Workshop, Rawalpindi.	15/0061/75-DEL/1-2020	09.04.2021	36,197,212	02	(36,197,212-31,000,000) X02= 10,394,424
Total Rs						**10,394,424**

Annex-17

Statement showing detail of average utilization of locomotives (Para 4.5.1)

S #	Loco #	Date put in service	Months served up to Aug. 2018	Total kilometer earned	Kilometer earned per month	Monthly bench mark as per tender specification 16667 Km	Percentage utilization
1	9001	25-Mar-17	17.47	151,764	8687.12	16666.67	52.12
2	9002	8-Apr-17	17.00	104,101	6123.59	16666.67	36.74
3	9003	26-Mar-17	17.43	153,025	8779.40	16666.67	52.68
4	9004	26-Mar-17	17.43	160,802	9225.59	16666.67	55.35
5	9005	28-Mar-17	17.37	165,704	9539.67	16666.67	57.24
6	9006	28-Mar-17	17.37	161,363	9289.75	16666.67	55.74
7	9007	27-Mar-17	17.40	158,643	9117.41	16666.67	54.70
8	9008	23-Apr-17	16.50	140,527	8516.79	16666.67	51.10
9	9009	21-Apr-17	16.57	145,212	8763.55	16666.67	52.58
10	9010	16-Apr-17	16.73	170,296	10179.08	16666.67	61.07
11	9011	14-Apr-17	16.80	143,568	8545.71	16666.67	51.27
12	9012	26-Apr-17	16.40	132,204	8061.22	16666.67	48.37
13	9013	25-Apr-17	16.43	121,951	7422.46	16666.67	44.53
14	9014	18-Apr-17	16.67	122,810	7367.13	16666.67	44.20
15	9015	2-May-17	16.20	142,174	8776.17	16666.67	52.66
16	9016	28-Apr-17	16.33	133,185	8155.85	16666.67	48.94
17	9017	28-Apr-17	16.33	155,757	9538.09	16666.67	57.23
18	9018	1-May-17	16.23	135,169	8328.34	16666.67	49.97
19	9019	29-Apr-17	16.30	138,933	8523.50	16666.67	51.14
20	9020	26-Apr-17	16.40	145,152	8850.73	16666.67	53.10
21	9022	28-Apr-17	16.33	127,942	7834.78	16666.67	47.01

22	9023	6-May-17	16.07	135,587	8437.27	16666.67	50.62
23	9024	27-May-17	15.37	124,610	8107.35	16666.67	48.64
24	9025	26-May-17	15.40	119,221	7741.62	16666.67	46.45
25	9026	13-Jul-17	13.80	115,473	8367.61	16666.67	50.21
26	9027	27-May-17	15.37	127,460	8292.78	16666.67	49.76
27	9028	2-Jul-17	14.17	122,869	8671.07	16666.67	52.03
28	9029	27-May-17	15.37	126,654	8240.34	16666.67	49.44
29	9030	27-May-17	15.37	120,020	7808.72	16666.67	46.85
30	9031	23-May-17	15.50	93,555	6035.81	16666.67	36.21
31	9032	26-May-17	15.40	134,734	8748.96	16666.67	52.49
32	9033	24-Jul-17	13.43	95,488	7110.05	16666.67	42.66
33	9034	22-Jul-17	13.50	117,418	8697.63	16666.67	52.19
34	9035	9-Jul-17	13.93	119,749	8596.48	16666.67	51.58
35	9036	24-Jul-17	13.43	103,452	7703.05	16666.67	46.22
36	9037	20-Jul-17	13.57	107,382	7913.19	16666.67	47.48
37	9038	22-Oct-17	10.43	50,254	4818.22	16666.67	28.91
38	9039	25-Jul-17	13.40	114,550	8548.51	16666.67	51.29
39	9040	9-Jul-17	13.93	118,498	8506.68	16666.67	51.04
40	9041	9-Jul-17	13.93	122,831	8817.73	16666.67	52.91
41	9042	19-Jul-17	13.60	123,982	9116.32	16666.67	54.70
42	9043	19-Jul-17	13.60	110,559	8129.34	16666.67	48.78
43	9044	14-Sep-17	11.70	101,170	8647.01	16666.67	51.88
44	9045	7-Sep-17	11.93	93,913	7872.00	16666.67	47.23
45	9046	18-Sep-17	11.57	106,522	9206.74	16666.67	55.24
46	9047	19-Sep-17	11.53	97,062	8418.21	16666.67	50.51
47	9048	17-Sep-17	11.60	105,295	9077.16	16666.67	54.46
48	9049	12-Sep-17	11.77	111,141	9442.74	16666.67	56.66

49	9050	13-Sep-17	11.73	79,578	6784.14	16666.67	40.70
50	9051	17-Sep-17	11.60	106,741	9201.81	16666.67	55.21
51	9052	23-Sep-17	11.40	96,541	8468.51	16666.67	50.81
52	9053	15-Sep-17	11.67	99,638	8537.96	16666.67	51.23
53	9054	15-Sep-17	11.67	84,865	7272.07	16666.67	43.63
54	9055	6-Sep-17	11.97	96,635	8073.10	16666.67	48.44
					449036.11		2694.20

Average utilization of locomotives = **49.89%**

Average monthly working of locomotives = **8315.48 Km**

Annex-18

Statement showing detail of Physical/financial progress of the civil works and line maintenance facilities at the end of financial year 2017-18 (Para 4.5.2)

Financial Year	Provision for Civil Works Rs 500.000 million		Provision for Line Maintenance Facilities Rs 750.000million	
	Up to date expenditure	% utilization	Up to date expenditure	% utilization
2015-16	-	-	-	-
2016-17	176.94	35.00	1.25	0.13
2017-18	306.88	61.38	80.37	10.72
2018-19	405.24	81.05	128.91	17.19
2019-20	434.10	86.82	176.84	23.58
2020-21	403.93		344.07	45.88

Annex-19

Statement showing Loss of potential earning due to inefficient utilization of locomotives – Rs 3.122 billion per annum (Para 4.5.3)

Rs in million

S. No.	Month	No. of idle locos average daily	Estimated earning per loco per month as per PC-I (Rs)	Loss of potential earning per annum (Rs)
1	Jul. 2018	11.32	--	--
2	Aug. 2018	20.87	--	--
3	Sep. 2018	19.53	--	--
Total		**51.72**	--	--
Average		**17.24**	**15.09**	**3,121.82 or say Rs 3.122 billion**

Total Locomotives in operation=54
Average locomotives remained idle=17.24
Percentage of idle locos= 17.24/54*100=31.93%

Annex-20

Statement showing detail of lesser trailing load carried out through GEU-40 locomotives (Para 4.5.5)

S. #	Month	Total trains	YSW Coal	Other than coal	Trailing load other than coal (tons)	Average trailing load (tons)
1	Jan-18	204	107	97	1500-2800	2111.34
2	Feb-18	190	90	100	1200-3300	2209.70
3	Mar-18	241	128	113	1200-3300	2111.06
4	Apr-18	231	134	97	1600-3300	2144.79
5	May-18	248	113	135	1250-3300	2096.74
6	Jun-18	226	118	108	1000-3300	2020.37
7	Jul-18	225	155	70	1800-3300	2700.29
8	Aug-18	161	94	67	1650-3300	2375.22
9	Sep-18	179	104	75	1500-3300	2344.13
Total		**1905**	**1043**	**862**		**20113.64**

Actual trailing load as per PC-I=3400 ton

Average trailing load other than coal = 20113.64/9=2234.85 ton

Capacity utilized = (2234.85/3400*100) = 65.73%

Lesser capacity utilized = (100 - 65.73) = 34.27%

Percentage of locos utilized in other traffic=45.25% (24.44 locos)

Per annum earning of 01 loco as per PC-I= Rs 118.311 million

Per annum earning of (24.44 locos @ Rs 118.311 million per loco) = Rs 2891.520 million

Less earning per annum due to lutilization of 24.44 locos with 34.27% less capacity **= Rs 990.924 million**

Annex-21A

Statement showing reliability of locomotives below benchmark up to November 2021 (Para 4.5.7)

S #	Loco #	Date Put in Service	Total kilometer earned up to Nov. 2021	Total failures	Reliability (Kilometer per failure)
1	9001 (GEU40)	25.03.2017	667,324	7	95,332
2	9003	26.03.2017	531,681	6	88,614
3	9004	26.03.2017	643,572	7	91,939
4	9014	18.04.2017	565,485	6	94,248
5	9015	02.05.2017	633,348	7	90,478
6	9016	28.04.2017	683,724	10	68,372
7	9019	29.04.2017	578,307	7	82,615
8	9024	27.05.2017	623,026	7	89,004
9	9026	13.07.2017	602,825	9	66,981
10	9030	27.05.2017	582,559	6	97,093
11	9034	22.07.2017	682,882	7	97,555
12	9052	23.09.2017	397,409	4	99,352
13	9053	15.09.2017	539,267	6	89,878
14	4551 (GEU20)	27.06.2019	425,722	5	85,144
15	4556	13.06.2019	389,516	4	97,379
16	4566	18.06.2019	187,479	2	93,740
18	4568	12.06.2019	346,723	6	57,787

Annex-21B

Statement showing detail of availability of GEU-40 locomotives for the period from March 2017 to November 2021 (Para 4.5.7)

S No.	Month/ Year	Availability percentage
1	Mar-17	100.00
2	Apr-17	99.50
3	May-17	93.12
4	Jun-17	90.97
5	Jul-17	90.25
6	Aug-17	91.24
7	Sep-17	90.13
8	Oct-17	96.18
9	Nov-17	97.35
10	Dec-17	97.91
11	Jan-18	97.79
12	Feb-18	94.38
13	Mar-18	96.00
14	Apr-18	95.88
15	May-18	92.47
16	Jun-18	92.53
17	Jul-18	91.76
18	Aug-18	92.89
19	Sep-18	91.05
20	Oct-18	92.00
21	Nov-18	94.75
22	Dec-18	96.48
23	Jan-19	98.39
24	Feb-19	99.34
25	Mar-19	98.98
26	Apr-19	94.44
27	May-19	89.84
28	Jun-19	85.62
29	Jul-19	83.81

S No.	Month/ Year	Availability percentage
30	Aug-19	87.87
31	Sep-19	86.42
32	Oct-19	92.53
33	Nov-19	90.93
34	Dec-19	92.89
35	Jan-20	93.61
36	Feb-20	95.15
37	Mar-20	93.19
38	Apr-20	91.05
39	May-20	94.03
40	Jun-20	94.63
41	Jul-20	93.79
42	Aug-20	91.46
43	Sep-20	90.37
44	Oct-20	90.96
45	Nov-20	86.60
46	Dec-20	95.67
47	Jan-21	97.57
48	Feb-21	98.65
49	Mar-21	97.08
50	Apr-21	96.92
51	May-21	97.38
52	Jun-21	96.86
53	Jul-21	98.17
54	Aug-21	96.65
55	Sep-21	96.35
56	Oct-21	97.26
57	Nov-21	95.97

Annex-21C

Statement showing detail of availability of GEU-20 locomotives for the period from June 2019 to November 2021 (Para 4.5.7)

S No.	Month/ Year	Availability percentage
1	Jun-19	90.0
2	Jul-19	86.5
3	Aug-19	90.0
4	Sep-19	94.2
5	Oct-19	95.8
6	Nov-19	97.2
7	Dec-19	91.3
8	Jan-20	84.4
9	Feb-20	76.2
10	Mar-20	75.0
11	Apr-20	88.6
12	May-20	91.1
13	Jun-20	74.0
14	Jul-20	87.6
15	Aug-20	86.8

S No.	Month/ Year	Availability percentage
16	Sep-20	84.7
17	Oct-20	90.3
18	Nov-20	97.7
19	Dec-20	94.0
20	Jan-21	93.9
21	Feb-21	91.4
22	Mar-21	94.4
23	Apr-21	93.0
24	May-21	94.0
25	Jun-21	90.8
26	Jul-21	88.6
27	Aug-21	90.0
28	Sep-21	90.0
29	Oct-21	90.0
30	Nov-21	94.5

Annex-22

Statement showing detail of variation in between the in-house feasibility study and PC-I (Para 4.6.1)

	Feasibility study April/2014	**Second revised PC-I January/2016**	**Variation**	**Percentage**
Operating cost	Rs 31.813 million per unit	Rs 26.510 million per unit	Rs 5.303x55= Rs 291.665 million	16.67% less
Repair & maintenance cost	Rs 8.196 million per unit	Rs 6.147 million per unit	Rs 2.049x55= Rs 112.695 million	25% less
Freight earning	Rs 181.050 million per unit	Rs 118.311 million per unit	Rs 62.739x55= Rs 3,450.645 million	34.65% less
Total Rs			**3,855.005 million**	