



**PERFORMANCE AUDIT REPORT
ON THE PROJECT REHABILITATION
AND STRENGTHENING OF 159
BRIDGES OVER PAKISTAN
RAILWAYS
AUDIT YEAR 2016-17**

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 Rehabilitation and Strengthening of 159 Bridges over Pakistan Railways was carried out accordingly.

The Directorate General Audit Railways conducted Performance Audit of the project of Rehabilitation and Strengthening of 159 Bridges during audit year 2016-17 for the period 2008-09 to 2015-16 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 realise the objectives of the project of Rehabilitation and Strengthening of 159 Bridges. All observations included in this report have been finalised in the light of discussion with the management. However, DAC meeting was not convened by the PAO despite reminders.

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).

Islamabad
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(Javaid Jehangir)
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Abbreviations and Acronyms

3Es	Economy, Efficiency & Effectiveness
INTOSAI	International Organization of Supreme Audit Institutions
AGM/I	Additional General Manager Infrastructure
AO	Accounts Officer
AWM	Assistant Works Manager
MD/CSF	Managing Director/Concrete Sleeper Factories
CDWP	Central Development Working Party
PD/RR & T	Project Director/Rehabilitation of Rolling Stock & Track
FY	Financial Year
PAO	Principal Accounting Officer
DAC	Departmental Accounts Committee
PPRA	Public Procurement Regulatory Authority
FGIR	Federal Government Inspector Railways
DO	Demi Official
LPR	Last Purchase Rate
PC-I	Planning Commission Proforma-I
PC-II	Planning Commission Proforma-II
PC-IV	Planning Commission Proforma-IV
PD	Project Director
PD/TR	Project Director/Track Rehabilitation
RCC	Reinforced Cement Concrete

EXECUTIVE SUMMARY

The Directorate General Audit Railways conducted Performance Audit of the project titled Rehabilitation and Strengthening of 159 Bridges over Pakistan Railways from May to June 2017. The main objective of the audit was to review the performance of the project against 3 Es (Economy, Efficiency and Effectiveness). The audit was conducted in accordance with the INTOSAI Auditing Standards.

Pakistan Railways had 13,841 bridges on its network, out of which 159 bridges were identified in acute distress requiring prompt action for rehabilitation. Therefore, those bridges were included in PC-I of the project. The scheme was approved by Central Development Working Party (CDWP) on 03.11.2007 at the cost of Rs 412 million with completion period of 36 months. However, the project was physically started in April 2008 and closed on 30th June, 2016. Out of 159 bridges, only 88 bridges were rehabilitated at the cost of Rs 471.378 million.

Key audit findings

- i. Sixty six (66) bridges provided in PC-I at the cost of Rs 156.507 million were dropped, while another 3 bridges not included in the scheme were executed at the cost of Rs 8.586 million without authorisation.¹
- ii. Funds released by the Ministry of Railways for the period 2007-08 to 2015-16 were blocked – Rs 115.797 million.²
- iii. PR suffered loss due to payment of substandard concrete works - Rs 83.600 million,³
- iv. Face value of different works was enhanced in violation of PPRA Rules - Rs 70.302 million.⁴

¹ Para 4.4.4

² Para 4.2.1

³ Para 4.4.2

⁴ Para 4.3.1

- v. Financial irregularities were committed while preparing completion report of the project - Rs 54.427 million.⁵
- vi. Excess expenditure was incurred on account of establishment charges - Rs 39.52 million.⁶
- vii. Bridge works were executed without technical sanction of the FGIR – Rs 16.776 million.⁷
- viii. Project was started without any feasibility study. This led to significant change in scope of work.⁸
- ix. In disregard to Guidelines of the project Management, Project Directors were frequently changed without cogent reasons.⁹
- x. Project management reduced scope of work by 46% without authorisation.¹⁰

Recommendations

- i. For achievement of desired objectives/outcomes timelines/scope laid down in the PC-I should be followed.
- ii. Funds released by Ministry of Railways on demand of Project Directors may either be fully utilised or surrendered in time to avoid lapse of funds.
- iii. Execution of works according to standard specification may be ensured.
- iv. PPRA Rules may be observed in true spirit to ensure fair and transparent competition.

⁵ Para 4.2.3

⁶ Para 4.1.3

⁷ Para 4.4.1

⁸ Para 4.1.1

⁹ Para 4.1.2

¹⁰ Para 4.4.3

- v. Provision of credit for released material may be ensured during verification of estimates in case of renewal, replacement and dismantlement works.
- vi. All works be executed after sanction/approval of the competent authorities.
- vii. Proper feasibility study of projects costing Rs 300 million and above may be got carried out as required under Guidelines of project management formulated by the Planning Commission.
- viii. A dedicated and qualified Project Director should be appointed in case of each project and he should not be transferred during currency of the execution of project.

1. INTRODUCTION

Most of the bridges on Pakistan Railways network are more than 100 years old. The life of masonry sub-structure bridges is supposed to be 100 years, while for other types, it is 60 years. Accordingly, 86% of bridges had completed their designed life. There were 13,841 bridges over Pakistan Railway network, out of which 159 bridges were identified in acute distress, requiring immediate action for rehabilitation. Therefore, a PC-I for Rehabilitation and Strengthening of 159 Bridges over Pakistan Railways was prepared at the cost Rs 412 million. One hundred nine (109) bridges were selected from main line, whereas, remaining 50 bridges were located on important branch lines.

Objectives

The objectives of the project were:

- i. To ensure prescribed safety standards.
- ii. To remove speed restrictions over the bridges to restore sectional speed.
- iii. To minimise maintenance cost resulting in saving of operational cost.

Scope of work

The scope work was as under:

- i. Replacement of Steel Struss Spans
- ii. Strengthening of steel girders
- iii. Replacement of 1x6' to 1x10' spans girders/rail clusters by RCC Slabs bridges
- iv. Replacement of bed stones and masonry
- v. Raising of bridges
- vi. Replacement of RCC Slab bridges
- vii. Conversion of bridges into Box Culverts

viii. Closing of bridges

The scheme was approved by CDWP on 3rd November, 2007 at the cost of Rs 412.000 million. The project was scheduled to be completed within 36 months (Target date of completion was 31st March, 2011). However, the project physically commenced w.e.f 1st April, 2008 and it was closed on 30th June, 2016, with reduced scope of work, after incurring expenditure of Rs 471.378 million.

2. AUDIT OBJECTIVES

- i. To review project's performance against intended objectives to ascertain whether the objectives laid down in the PC-I have been fully achieved with due regard to 3E's (Economy, Efficiency and Effectiveness).
- ii. To verify the efficiency of internal controls and ascertain control failure.
- iii. To review compliance with applicable rules, regulations and procedures.

3. AUDIT SCOPE AND METHODOLOGY

3.1 Audit Scope

The project was started in April 2008 and completed in June 2016. Performance audit of the project was conducted from May to June 2017 covering period from April 2008 to June 2016. Major locations which were visited for the purpose of this audit included the office of the Project Director Railway Headquarters, Lahore, Bridge Workshop Jhelum and Divisional Offices, Karachi, Sukkur, Multan, Lahore, Rawalpindi and Peshawar.

3.2 Audit Methodology

All the relevant documents were properly scrutinized as provided by the entity in order to assess the working and functioning of the entity. Site visits were conducted, actual results were compared with PC-I of the

project and discussions were also made with different tiers of the management of the project.

4. AUDIT FINDINGS AND RECOMMENDATIONS

4.1 Organization and Management

It was provided in Project Management Guidelines that proper feasibility studies, before submission of PC-I, should be prepared for all projects of infrastructure sector costing Rs 300 million and above. There should be a dedicated Project Director responsible for effective and efficient management.

During performance audit some issues regarding non-observance of Project Management Guidelines were identified which are discussed in the following paras:

4.1.1 Non-preparation of feasibility study /PC-II

As per clause 3.3 of Guidelines for Project Management, it is mandatory that in case of projects of infrastructure sector and production sector costing Rs 300 million and above, proper feasibility studies should be got carried out before the submission of PC-I.

In disregard to the above, during performance audit, it was observed that PC-I of the project was got approved without conducting feasibility study/PC-II. This led to significant change in scope of work. Just after execution of the project started, the Additional General Manager/Infrastructure (AGM/I) pointed out that certain bridges included in the project did not need any rehabilitation, while some bridges, which were not included therein, were in dire need of rehabilitation. Thus, significant changes took place in the scope of project due to non-compliance with Guidelines.

The issue was taken up with management on 31.08.2017. The management replied on 10.11.2017 that undertaking of feasibility study was made mandatory vide DO letter of 14th January, 2011 issued by the Secretary P&D Division. The project under reference was approved by the CDWP on 3rd November, 2007 hence the directive was not applicable in

that case. The reply was not tenable because copy of DO letter dated 14.01.2011 was not provided in support of reply. Besides, the preparation of feasibility study was made mandatory as per Guidelines of Project Management published in 2000.

DAC meeting was not convened by the PAO despite reminders.

Audit recommends that responsibility for not conducting feasibility study before submission of PC-I of the project be fixed. Disciplinary action be taken against the person(s) held responsible.

4.1.2 Frequent transfer of Project Directors

As per clause 2.2 of Guidelines for Project Management, Project Director is responsible for project execution according to its objectives, scope of work and implementation schedule. For effective, efficient and economical project management, a dedicated and qualified Project Director should be appointed in case of each project and he should not be transferred during currency of the execution of project.

During performance audit, it was observed that the Project Directors were frequently transferred as detailed below. Audit is of the view that with the transfer of a PD, a tremendous amount of skills and knowledge is transferred as well, which badly affects the project. Moreover, in the absence of one permanent PD (till completion of the project), the responsibility for timely completion of tasks for management and reporting cannot be fixed.

Table-1

S. No.	Name of Project Director	Tenure	
		From	To
1	Syed Ghazanfar Abbas	25.08.2008	25.01.2012
2	Mr. Muhammad Haroon Ghauri	26.01.2012	29.02.2012
3	Syed Ghazanfar Abbas (PD/TR)	01.03.2012	07.03.2012 (Look after)
4	Mr. Muhammad Aslam Gondal	08.03.2012	22.02.2014
5	Mr. Dost Ali Laghari	22.02.2014	09.03.2014
6	Mr. Zafar ullah Kalwar, (CEN/OL)	10.03.2014	21.03.2014 (Look after)
7	Mr. Muhammad Haroon Ghauri	22.03.2014	05.08.2014
8	Mr. Dost Ali Laghari	05.08.2014	16.02.2015
9	Mr. Akhtar Mehmood Khattak	16.02.2015	30.06.2016

The issue was taken up with management on 31.08.2017. The management replied on 10.11.2017 that change of Project Directors was done due to certain administrative reasons. However, replacement of suitable and proper qualified person was always ensured on such occasions. The reply was not tenable because the Project Directors were changed without cogent reasons.

DAC meeting was not convened by the PAO despite reminders.

Audit recommends that reasons for frequent posting/transfer of project directors be explained. In future one full time dedicated Project Director should be appointed in all projects, to supervise all activities till completion of the project.

4.1.3 Un-justified expenditure on account of Establishment Charges - Rs 39.52 million

As per PC-I of Bridge Rehabilitation Project, an amount of Rs 28 million was provided on account of Establishment Charges for rehabilitation of 159 bridges within a period of 3 years. Thus, average Establishment charges worked out to Rs 0.176 million per bridge.

During performance audit, it was observed that execution period of the project was procrastinated over a period of 9 years. The deployment of establishment was not made proportionally during the period from 2008-09 to 2015-16 as 95 bridges were rehabilitated with establishment charges of Rs 56.249 million. Thus, cost of rehabilitation per bridge increased to Rs 0.592 million, which worked out to be 236.36% over and above the scale prescribed in the sanctioned PC-I viz. Rs 0.176 million. This resulted in un-justified expenditure of Rs 39.52 million (i.e. $0.416 \times 95 = 39.52$ million) as detailed in Annexure-12 because, due to slow pace of work, the output was extremely reduced but, establishment both permanent as well as temporary, was not proportionally curtailed thereby per unit cost increased.

The issue was taken up with management on 31.08.2017. The management replied on 10.11.2017 that the project could not be completed within the scheduled period due to scarcity of funds, therefore,

expenditure on account of establishment charges automatically increased from the amount approved in PC-I. The reply was not satisfactory because output was not according to PC-I, hence staff should have been reduced keeping in view the reduced quantum of work.

DAC meeting was not convened by the PAO despite reminders.

Audit recommends that the matter be investigated for incurring excess expenditure on account of establishment charges. Responsibility for non-observance of the provisions of sanctioned PC-I be fixed and the person(s) held responsible be taken up under the rules. Internal controls be strengthened to avoid recurrence.

4.2 Financial Management

During the course of performance audit, it was noticed that the expenditure was not incurred in accordance with budget allocation. Funds were blocked due to negligence of management. The significant observations are discussed in the following Paras:

4.2.1 Blockage of funds- Rs 115.797 million

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 and the prevention of large expenditure in the last months of the year for the sole purpose of avoiding lapses. They shall be responsible for ensuring that money which is not likely to be needed during the year is promptly surrendered so as 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 out of total funds released during 2007-08, 2008-09 and 2011-12 to 2014-15, on annual basis, funds amounting to Rs 104.587 million were neither utilised nor surrendered. On the other hand, a sum of Rs 11.210 million was utilised in excess of the cash releases during 2009-10, 2010-11 and 2015-16. Thus, due to negligence of the project management, funds amounting to

Rs 115.797 million (Annexure-1) were either blocked or used in excess of the cash releases which indicated poor financial management.

The issue was taken up with management on 31.08.2017. The management replied on 10.11.2017 that the savings were either due to delay in cash releases or stoppage of payment by Ministry of Railways while excesses were as a result of acceleration in progress. The reply was not satisfactory because the funds released by the Ministry of Railways may either be utilized or surrendered in time. The variations in all the years were beyond permissible limit, which need to be brought to the notice of the Public Accounts Committee.

DAC meeting was not convened by the PAO despite reminders.

Audit recommends that responsibility for non-surrendering of funds as well as utilization of funds in excess of cash releases be fixed and necessary action be taken against the person(s) held responsible.

4.2.2 Non-provision of expected credit for released material – Rs 50 million

Rule-951(iv) of Pakistan Government Railway Code for the Engineering Department provides that while verifying the estimates for works it should be seen that credit for released material has been provided for.

Contrary to above, during performance audit, it was observed that no provision of expected credit of Rs 50 million for released material was made in the project estimates. The omission not only overstated the project cost during planning stage but also provided opportunity for mass scale misappropriation of released valuable steel girders. It was not only a failure of executive department but also speaks of gross negligence on the part of accounts department as well, which tantamount to a system failure.

The issue was taken up with management on 31.08.2017. The management replied on 10.11.2017 that cost of the released material was not included in the PC-I erroneously. However, the same was taken in to account at the time of preparing the completion report. The reply was not satisfactory because the omission not only overstated the project cost but

also provided opportunity for misappropriation of valuable released material.

DAC meeting was not convened by the PAO despite reminders.

Audit recommends that the matter be investigated for inaccurate estimation of project cost. Responsibility for non-observance of rules be fixed and the person(s) held responsible be taken up under the rules. Internal controls be strengthened to avoid recurrence in future.

4.2.3 Irregularities in Completion Report of the project – Rs 54.427 million

In terms of Para 1803 of Pakistan Railway Code for the Engineering Department, Project Director should ensure that all charges and credits relating to the project have been booked in the accounts of the project and Completion Report of the project should be prepared. Rules further provide that released material should initially be accounted for in Material-at-Site account of respective work and subsequently, it should be returned to Stores Department. Besides, as per rules, all entries in subsidiary record should be posted from paid vouchers periodically reconciled with General Books maintained by the Accounts Office concerned.

During performance audit, it was observed that a credit (minus debit) of Rs 48.266 million on account of released material was accounted for in Completion Report of the project. The details of Material Return Notes through which released material was returned to Stores Department were not provided. In the absence of which, the credit of Rs 48.266 million shown in the Completion Report was irregular.

Moreover, it was also observed that expenditure recorded in Expenditure Register maintained by the Project Directorate was not matching with expenditure booked in Completion Report. Excess expenditure of Rs 6.866 million was noticed in case of 08 bridges while less expenditure of Rs 0.705 million was shown in case of 02 bridges. The detail of variation was shown in Annexure-2. This resulted in of irregular expenditure of Rs 54.427 million.

The matter was taken up with management on 31.08.2017. Management replied on 10.11.2017 that although credit of released material was not erroneously mentioned in the approved PC-I but has been taken in Completion Report and enclosures containing detail of variation had not been received. The reply was not satisfactory because accounting of released material in Completion Report was not in order as it was made without receipt of advice of Material Return Notes from Stores Department. Further, enclosures were attached with the report, if not found, the same should have been collected from Audit Office in PR Headquarters Office.

DAC meeting could not be held despite reminders.

Audit recommends that responsibility may be fixed for irregular account of released material in the accounts and matter be investigated regarding variation in figures of Expenditure Register and Completion Report. Factual position along with documentary evidence may also be provided to Audit for verification.

4.2.4 Non-preparation of Completion Reports of unfinished works - Rs 10.060 million

Para 1811 of Pakistan Government Railway Code for the Engineering Department states that if, for any reasons, a work on which expenditure has been incurred is stopped, and if there is no reasonable prospect of completing it in near future the account of the work should, as in case of completed work, be closed and a Completion Report drawn and submitted to the authority, competent to sanction the expenditure incurred.

During performance audit, it was observed that in case of 7 bridges (Annexure-3), expenditure of Rs 10.060 million was incurred but works remained unfinished till 30th June, 2016. Financial progress of the said works was 2.38% to 287% (overall 93%). Being part of the same project, their individual Completion Reports were also to be prepared and submitted to the competent forum. Consequently, true and fair position of those works was not reflected in the Completion Report of the project.

The issue was taken up with management on 31.08.2017. The management replied on 10.11.2017 that work of four bridges could not be carried out due to technical reasons. One bridge work was held up due to initiation of an inquiry, the same would be completed as and when inquiry is finalized. The remaining two bridges were completed during 2016-17 under other projects. The reply was not satisfactory because diversion of works approved in one scheme to another without approval of the competent authority who approved the PC-I, was against the rules.

DAC meeting was not convened by the PAO despite reminders.

Audit recommends that responsibility for non-preparation of completion report of unfinished works and assignment of works approved in Rehabilitation Project to another scheme be fixed. Disciplinary action be taken against the person(s) held responsible.

4.2.5 Non-supply of record/information - Rs 19.553 million

As per Section 14 (2) of the Auditor General's (Functions, Powers, and Terms and Conditions of Service) Ordinance, 2001, any officer in charge of any office or department shall afford all facilities and provide record for audit inspection and comply with requests for information in as complete a form as possible and with all reasonable expedition. Furthermore, Section 14 (3) stipulates that any person or authority hindering the audit functions of the Auditor-General regarding inspection of accounts shall be subjected to disciplinary action under relevant Efficiency and Discipline Rules, applicable to such person.

During performance audit, it was observed that material/ tools valuing Rs 4.553 million were supplied on demand of the AWM/Bridge Workshop, Jhelum for fabrication of bridges under the Rehabilitation Project, in May 2009. The details of bridges fabricated by utilizing the said material were not provided to Audit. Moreover, it was also observed that a sum of Rs 15 million (see table below) was transferred to MD/CSF and Track Supply Officer during 2008-09 for supply of fittings/sleepers. The detail of fittings/sleepers supplied by the above offices was not provided to Audit. This resulted in scope limitation:

Table-2

Serial number	Description	TC No. Date	Amount (Rs) in million
1	Cost of fittings	C/1/CSF/25.06.2009	5.000
2	Cost of sleepers	C/1/TSO/26.06.2009	10.000
Total			15.000

The issue was taken up with management on 31.08.2017. The management replied on 10.11.2017 that the AWM, Jhelum vide letter No. 196-S/103 dated 09.02.2009, placed his demand of material, upon which the payment of Rs. 4.553 million was correctly made in October 2009. The reply was not satisfactory because the detail of bridges fabricated by utilizing the said material was not provided to Audit for scrutiny.

DAC meeting was not convened by the PAO despite reminders.

Audit recommends that responsibility for non-supply of record/information may be fixed and disciplinary action be taken against those held responsible.

4.2.6 Un-authorized transfer of funds - Rs 10 million

As per Ministry of Railways notification No. 4(1)PL-2013 dated 12.07.2013, in case a Project Director envisages a saving or excess expenditure as compared to the quarterly released amount, he shall immediately report the matter to Planning Directorate Ministry of Railways for re-appropriation.

During performance audit, it was observed that as per orders of Additional General Manager/Infrastructure (AGM/I), during March 2015, funds of Rs 10 million for the year 2014-15, were transferred from Bridge Rehabilitation Project to the project of Rehabilitation of Rolling Stock and Track (RR&T). The AGM/I was not authorized to transfer/re-appropriate funds from one project to another. This resulted in un-authorized diversion of funds in violation of rules.

The issue was taken up with management on 31.08.2017. The management replied on 10.11.2017 that no doubt, the orders for transfer of funds Rs 10 million were issued by the then AGM/I which were complied

with by the Project Director, but those funds were not utilized by the PD/RR&T and were surrendered. The reply was not tenable because the amount placed at the disposal of PD/RR&T on 10.03.2015 was reverted to Bridge Rehabilitation Project on 11.06.2015, which resulted in saving of 14% during the year 2014-15.

DAC meeting was not convened by the PAO despite reminders.

Audit recommends that responsibility for un-authorized diversion of funds be fixed and internal controls be strengthened to avoid recurrence.

4.2.7 Doubtful entry in Completion Report of the Project – Rs 2.609 million

As per para 1810 of Railway Code for the Engineering Department, completion reports should be checked in the Accounts Office to see that they have been prepared in the proper form and that the entries therein correspond with the particulars of the sanction and booked outlay.

In disregard to above, during performance audit, it was observed that an expenditure of Rs 2.609 million was booked by the project management in Expenditure Register as well as in Completion Report against bridge No. 26 at Km 28/10-11 on Shahdara-Sangla Hill Section. Probe into the matter revealed that the said amount was not actually disbursed to the contractor. The issue was discussed with the Accounts Officer/Project, who was also of the opinion that the said amount had not been paid to the contractor. The state of affairs indicated that the figures of expenditure were not being reconciled between executive and Accounts. It speaks of negligence of the project management.

The issue was taken up with management on 31.08.2017. The management replied on 10.11.2017 that entry of expenditure of Rs 2.609 million was correct. The entry was not doubtful because it has been endorsed by A.O. Project while signing PC-IV. The reply was not tenable because neither any reference (i.e. cheque number and date) was given in support of reply, nor copy thereof provided to Audit for verification.

DAC meeting was not convened by the PAO despite reminders.

Audit recommends that the matter be investigated for making doubtful entry of expenditure in Completion Report and non-reconciliation of accounts. Responsibility be fixed and action be taken against those held responsible. Internal controls be strengthened to avoid such recurrence.

4.3 Procurement and Contract Management

Procurement and contract management are essential components of infrastructure sector projects. Value for money should be the main consideration for the procurement and contract management. The management should have proper procurement policy and procurements should be made after proper need assessment. The Guidelines for Project Management state that all the contracts are to be processed and awarded by following procedures contained in the Public Procurement Rules 2004. Significant observations are discussed in the following paras.

4.3.1 Expenditure beyond permissible limit -Rs 70.302 million

As per Clause-42(C) IV of Public Procurement Rules repeat order shall not exceed 15% of the original procurement. Repeat order means procurement of the same commodity from the same source without competition and includes enhancement of contracts.

During performance audit, it was observed that after awarding the contracts or execution of the agreements, the face value of various contracts was enhanced by 25% to 400%. This resulted in irregular expenditure of Rs 70.302 million (Annexure-4) due to violation to the rules by the project management.

The issue was taken up with management on 31.08.2017. The management replied on 10.11.2017 that Clause-42(C) IV of PPRA Rules was not applicable to Civil Engineering Works as it was contradictory to clause 52.3 of General Conditions of contract. The reply was not tenable because PPRA had clarified vide letter 16th February, 2010 that Rule-42(C)IV was equally applicable to all procurements/works.

DAC meeting was not convened by the PAO despite reminders.

Audit recommends that the matter be investigated for irregular enhancement of face value of contracts beyond permissible limit. Disciplinary action be taken against person(s) held responsible.

4.3.2 Non-collection of performance guarantee from the contractors - Rs 8.845 million

As per clause 21.1 of the tender documents prepared by the Project Director, Bridge Rehabilitation the successful bidder was required to furnish to the Employer a performance security in the form and amount stipulated in the conditions of contract with in a period of 14 days after the receipt of Letter of Acceptance.

During performance audit, it was noticed that instead of collecting 10% performance guarantee of the contract amount before executing agreements, as per terms and conditions of tender documents, the project management used to be deducting 10% performance guarantee from running bills of the contractors. This resulted in deviation from tender conditions and speaks of inefficiency of the project management. Instances of the nature are given in Annexure-4 wherein a sum of Rs 8.845 million was not collected from contractors in case of 25 agreements.

The issue was taken up with management on 31.08.2017. The management replied on 10.11.2017 that project management proceeded with execution of civil works against which 10% security money as performance guarantee was retained/deducted from contractor bills. The reply was not satisfactory because security money was required to be collected from the successful bidder before executing agreements.

DAC meeting was not convened by the PAO despite reminders.

Audit recommends that responsibility for non-observance of tender conditions be fixed and the person(s) held responsible be taken up under the rules. Internal controls be strengthened to avoid such recurrence.

4.3.3 Loss due to award of tenders at higher rates - Rs 5.117 million

As per clause-5 of the Public Procurement Rules, 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. Furthermore, Rule-926 of Pakistan Government Railway Code for Engineering Department states that the rates of various descriptions of work should generally agree with the schedule rates (Para 929) but where from any cause these are not considered sufficient, or are in excess, a detailed statement should be given in the report showing the manner in which the rates provided in the estimate are arrived at.

During performance audit, it was observed that no system was in place to prepare, maintain, and update the rates of each item of work being incorporated in estimates/agreements. Consequently, tenders of the works (See table below) were awarded at higher rates ranging from 20% to 136% for same items of work during same period as detailed in Annexure-5. This resulted in loss of Rs 5.117 million due to negligence of project management. The Last Purchase Rate (LPR) mentioned in the tenders was not the lowest ones rather those were the much higher rates of earlier period. For example, in case of work at serial # 01 of table below, the LPR shown in the tender awarded in June 2016 was of September 2010 (six years earlier, 62% higher), whereas the actual LPR of May 2016 (only one month earlier) was 36% lower. This state of affairs indicated that the procurements were not conducted in a fair and transparent manner.

Table-3 *(Rs in million)*

Serial number	Description of work	Extra expenditure involved
1	Rehabilitation of Bridge No. 169 at KM 142/8-9 on Landhi – Kotri Section.	0.746
2	Rehabilitation of Bridge No. 224 at KM 164/10-11 on Kashmore–Kot Adu Section	0.901
3	Rehabilitation of Bridge No. 159 at KM 840/2-3 on Khanpur – Lodhran Section.	1.357
4	Rehabilitation of Bridge No. 165 at KM 484/11-12 on Kundian – Attock City Section.	2.113
	Total:	5.117

The issue was taken up with management on 31.08.2017. The management replied on 10.11.2017 that the accepted rates were reasonable and competitive and approved by the competent authority. The reply was

not tenable because it was the responsibility of project management to conduct rate analysis after carrying out market survey of each item of work to be incorporated in the estimates. Rather the estimates were prepared after awarding of contracts in majority of bridge works.

DAC meeting was not convened by the PAO despite reminders.

Audit recommends that the inquiry be conducted for fixing responsibility for the loss due to acceptance of tenders at higher rates. Responsibility for non-observance of rules be fixed.

4.4 Construction and Works

The construction and works should be done in an efficient and economic manner in accordance with the requirements of PC-I. Significant observations in this regard are discussed below:

4.4.1 Wasteful expenditure due to abandoning execution of works - Rs 16.776 million

As per para 5.2(a) of Bridge Manual to be read with Ministry of Railway Notification No. 1/2/98 Estt dated 26.06.1998, sanction of the FGIR was required to be obtained for bridge rehabilitation to be undertaken by Project Director/Bridge Rehabilitation.

During performance audit, it was observed that following works were initiated by the Project Director, Bridge Rehabilitation and were subsequently abandoned due to intervention of the FGIR because they were started without obtaining his approval which was mandatory. Thus, the objective for which the money was spent was not achieved. This resulted due to negligence of the project management.

Table-4 *(Rs in million)*

Sr. No.	Description of work	Expenditure (Rs)
1	Rehabilitation of bridge No.689 at km299/6-7 on Kasur-Pakpattan Section	9.221
2	Rehabilitation of bridge No.26 at km28/10-11 on Shahdara-Sangla Hill Section	2.609
3	Rehabilitation of bridge No.43 at km 1277/14 to 1278/1 on Lahore-Lalamusa Section	4.946
Total:		16.776

The issue was taken up with management on 31.08.2017. The management replied on 10.11.2017 that the AGM/I had constituted Inquiry Committee to ascertain the reasons for execution of work without sanction of FGIR. Findings of the committee would be shared with Audit on finalization.

DAC meeting was not convened by the PAO despite reminders.

Audit recommends that inquiry findings be shared with Audit and action be taken against those held responsible.

4.4.2 Loss due to payment of substandard cement concrete works – Rs 83.600 million

According to specification No. 20.1(12) for the execution of work duly approved to the Standard Rates Committee, concrete mixes shall conform to the strength requirement given in the following table:

Table-5

Nominal Mix	Minimum cube strength required (in lbs/sq.in.)				General use
	Laboratory tests		Work tests		
	at 7 days	at 28 days	at 7 days	at 28 days	
1:1:2	4000	6000	3000	4500	In paving.
1:1½:3	3350	5000	2500	3750	For reinforced concrete other than in paving.
1:2:4	2700	4000	2000	3000	-do-
1:3:6	--	2500	--	2000	For mass concrete.

During performance audit, it was noticed that in majority of cases, test reports of concrete works were not available in the files. Out of 52 cases (Annexure-6) costing Rs 83.600 million, test reports of only 07 works (Annexure-7) costing Rs 22.673 million were provided. All the reports were either below specified standard or irrelevant having different combination (nominal mix) or without any combination. This resulted in loss of Rs 83.600 million on account of payment of substandard cement concrete works due to negligence of project management.

The issue was taken up with management on 31.08.2017. The management replied on 10.11.2017 that concrete works were executed as per individually approved Railways designed plans, showing the required

compressive strength on the Plans, and concrete tests were carried out through the Divisional executing authorities. In no case, the lab compressive strength was below the required designed compressive strength. The reply was not satisfactory because the compressive strength of test reports provided to Audit was either below the specified standard or the reports were deficient having irrelevant nominal mix or without any combination.

DAC meeting was not convened by the PAO despite reminders.

Audit therefore recommends that responsibility for accepting the sub-standard work and for making payment of the same be fixed. Action may be taken against person(s) held responsible.

4.4.3 Un-authorized change in the scope of work

In terms of Para 9.2 of Project Management Guidelines, of the Planning Commission if it is felt during the implementation of project that there will be major change in the scope of work or increase in the approved cost by more than 15%, then the project has to be revised and submitted for approval by the competent authority.

Scrutiny of the record revealed that the project management rehabilitated only 85 bridges against the target of 159, at a cost of Rs 355.124 million (Annexure-8) by unauthorisedly reducing the scope of work by 46%. For change in scope of work beyond 15%, approval of revised PC-I from the CDWP was obligatory, which was not obtained.

The issue was taken up with management on 31.08.2017. The management replied on 10.11.2017 that 98 bridges out of 159 had been rehabilitated. PC-IV has been submitted to Planning Commission, on its approval, change in scope of work beyond 15% would be regularized. The reply was not satisfactory because as per completion report (PC-IV) of the project only 88 bridges were shown to have been rehabilitated. Moreover, approval for change in scope was required to be obtained during execution of the project.

DAC meeting was not convened by the PAO despite reminders.

Audit recommends that responsibility for un-authorised change in scope of work be fixed and disciplinary action be initiated against the person(s) held responsible. The post facto approval of competent forum be obtained. Internal control be strengthened to avoid such recurrence.

4.4.4 Un-authorised material modifications in the project – Rs 165.093 million

In terms of Para 1014 of Pakistan Government Railway Code for the Engineering Department, no liability should be incurred on the modification, nor if a saving is likely to be affected by its introduction, should be utilized for any other purpose, until the proposed modification has received the approval of the authority who approved the original scheme.

During performance audit, it was noticed that 66 bridges (Annexure-9) included in PC-I of the project for rehabilitation at an estimated cost of Rs 156.507 million, were dropped from the project on the plea that very minor repair works were involved in those bridges as such the same would be got repaired by respective divisions. On the other hand, another 3 bridges (Annexure-10), not included in the PC-I of the project, were repaired at a cost of Rs 8.586 million. These modifications were carried out without approval from the CDWP. This resulted in incurrence of unauthorized expenditure of Rs 165.093 million due to negligence and inefficiency of the project management.

The issue was taken up with management on 31.08.2017. The management replied on 10.11.2017 that due to acute shortage of funds during the year 2008-09, it was decided to drop those bridges, which could be attended departmentally. The same was approved by the Project Director upon recommendations of the divisions. After its approval, modification would be regularized. The reply was not satisfactory because the Project Director was not competent to introduce any material modification in a scheme approved by the higher forum without its prior approval.

DAC meeting was not convened by the PAO despite reminders.

Audit recommends that responsibility for unauthorized modification in the project be fixed. Action be taken against the person(s) held responsible.

4.4.5 Loss on account of futile soil investigation of bridges - Rs 2.075 million

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

During performance audit, it was noticed that an expenditure of Rs 2.075 million (Annexure-11), was incurred on account of soil investigation of 26 bridges. Scrutiny of the record revealed that rehabilitation work of those bridges was not done. Consequently, expenditure incurred on soil investigation of the bridges had gone wasted due to poor planning of the project management and ineffective monitoring.

The issue was taken up with management on 31.08.2017. The management replied on 10.11.2017 that soil investigation of the bridges was carried out as per site requirement during the years 2008 to 2012 and 2015-16. All the bridges were included in the approved PC-I, therefore, soil investigation of those bridges was the primary requirement of the Design Office. The reply was not satisfactory because it was decided during 2008-09 to drop certain bridges due to paucity of funds. Thus, it was imprudent to get done soil investigation of those bridges from 2010 to 2016 that had already been decided to be dropped earlier.

DAC meeting was not convened by the PAO despite reminders.

Audit recommends that responsibility for non-observance of cannons financial propriety be fixed and action be taken against the person(s) held responsible. Internal controls be strengthened to avoid recurrence in future.

4.4.6 Non-Compliance of safety standards in connection with opening of bridges for Public traffic

As per para 5.12(a) of Bridge Manual, the Executive Engineer Bridges or the Assistant Bridge Engineer In-charge of the work, and the Divisional Executive Engineer concerned, shall inspect the work and satisfy themselves that it has been completed in accordance with the approved drawings and specifications. The work shall then be opened at restricted speed on the issue of a joint safety certificate signed by these officers. The concerned officials, when finally removing the restriction, will inform the FGIR and other concerned by wire.

In violation to above provisions, it was observed that 88 bridges, were rehabilitated from 2008 to 2016, but no opening message and safety certificate with regard to completion of works of those bridges was submitted to the FGIR. This resulted in non-compliance to safety standards/instructions which tantamount to compromising public safety.

The issue was taken up with management on 31.08.2017. The management replied on 10.11.2017 that opening message and safety certificate were being collected from Divisions and would be submitted to Audit for verification shortly. The reply was not satisfactory because no such record was available in operating Divisions as no response was received from any Division when the issue was pointed out to them during the course of performance audit.

DAC meeting was not convened by the PAO despite reminders.

Audit recommends that the matter be investigated for non-issuance of safety certificates/opening messages at the time of opening of bridges for traffic. Responsibility for non-observance to rules be fixed.

4.5 Asset Management

The asset management in a project should be done in an effective and efficient manner in order to secure the sophisticated machinery from any kind of misuse. It is the responsibility of the PD to implement the rules and regulations with respect to asset management and to ensure that

the assets are managed in efficient and economic manner. The significant observation is discussed in the following Paragraph:

4.5.1 Non-erection of steel trough plates - Rs 0.813 million

Para 1801 of Railway General Code states that means should be devised to ensure that every Railway servant realizes fully and clearly that he will be held personally responsible for any loss sustained by Government through fraud or negligence.

During performance audit, it was observed that steel trough plates, which were got manufactured by the PD/Bridge Rehabilitation from Bridge Workshop Jhelum, at a cost of Rs 0.813 million for erecting at bridge No. 44 at km 72/8-9 on Shorkot-Wazirabad Section, were still lying un-utilised in the books of Assistant Engineer Bridges, Lahore. Thus, the purpose for which money was spent was not fulfilled due to negligence of the project management.

The issue was taken up with management on 31.08.2017. The management replied on 10.11.2017 that as per record of the project, the figures Rs 812,884 shown by Audit have not been found. The reply was not tenable because the figures of expenditure were taken from the record of Bridge Workshop Jhelum.

DAC meeting was not convened by the PAO despite reminders.

Audit recommends that the matter be investigated for non-utilization of material for the purpose it was acquired. Responsibility for blockage of capital be fixed and the person(s) held responsible be taken up under the rules. Internal controls be strengthened to avoid such recurrence.

4.6 Monitoring and Evaluation

For ensuring completion of the project within approved cost and time, the Planning Commission advises to monitor project activities on monthly basis. The Guidelines also envisage proper internal and external monitoring for effective and efficient project management. During the course of Performance Audit, audit found out that the management did not

adhere to the directions of Planning Commission. The significant observation is discussed in the following paragraph:

4.6.1 Unjustified/excess expenditure against the provision of escalation –Rs 7.360 million

There was a provision of Rs 34 million in the approved PC-I for escalation in 2nd and subsequent year.

During performance audit, it was observed that against the provision of Rs 34.000 million for escalation, an expenditure of Rs 41.360 million had been booked to the project showing an excess expenditure of Rs 7.360 million, which represents 21.65% over and above the provision made in the sanctioned PC-I. This resulted in unjustified/excess expenditure because neither any escalation was worked out nor payment thereof made against any work. Thus, an unjustified/excess expenditure of Rs. 7.360 million was booked against the provision of escalation due to negligence of project management.

The issue was taken up with management on 31.08.2017. The management replied on 10.11.2017 that the figures shown in PC-I were for 3 years, whereas the project prolonged from 2007-08 to 2015-16, due to one or the other reasons. Therefore, the schedule of year-wise estimation of physical activities could not meet with the provision in sanctioned PC-I. Escalation was not paid to contractors directly but payment was made as per rates accepted in open competitive bidding. The reply was not tenable because in absence of any detail, booking of expenditure over and above the provision made in PC-I, was unjustified.

DAC meeting was not convened by the PAO despite reminders.

Audit recommends that responsibility be fixed for booking of unjustified expenditure over and above the provision and action be taken against the person(s) held responsible.

4.7 Sustainability

According to Guidelines, sustainability after completion is another important aspect which needs to be considered; how it would yield the

required output/outcome. Therefore, due attention has to be given to the sustainability aspect of the project at the preparation stage. Sustainability aspect of the project should be discussed in the PC-I. The significant audit findings are discussed in the following paras:

4.7.1 Time overrun by five years due to non-consultation with the operational authorities while preparing PC-I

As per best practices all beneficiaries are taken on board while preparing PC-I. In this case the Operating Divisions were the major beneficiaries who should have been consulted to ensure need based repair.

During performance audit, it was noticed that after approval of scheme by CDWP, divisional offices submitted revised lists of bridges needing rehabilitation. This indicated that PC-I was prepared without consultation of the concerned divisional officers. Corollary to this cost of 42 bridges out of 88 increased from 109% to 1668% whereas cost of 11 bridges decreased from 61% to 95%. Moreover, in 08 years only 88 bridges (Annexure-13) were rehabilitated instead of 159 bridges. Thus, due to bad planning and lack of interest at all levels of management, the project delayed by more than 5 years and intended benefits could not be attained.

The issue was taken up with management on 31.08.2017. It was replied on 10.11.2017 that PC-I was prepared on the basis on annual inspection reports recorded in Bridge Registers and Technical Bridge Inspection Reports carried out by Technical Staff at P.R. Headquarters Office, Lahore. Time over run took place due to paucity of funds and due to late cash releases besides operational difficulties in imposition of speed restrictions of stop dead at more than one operational section. Since all these factors were beyond the controls of project authorities hence no one can be held responsible. The reply was not tenable because PC-I was prepared on untrue facts and figures which were the basic reason for frequent changes in the scope of work and undue delay in execution of project.

DAC meeting was not convened by the PAO despite reminders.

Audit recommends that matter may be investigated to fix responsibility for preparing PC-I on the basis of untrue facts & figures and take disciplinary action against the person(s) held responsible.

4.7.2 Non-achievement of objectives

As per Project Management Guidelines, the objectives of the project be clearly (not in an ambiguous form) indicated preferably in quantitative terms.

Comparative position of objectives laid down in PC-I of project and achievement thereof reflected in completion report is shown below:

Table-6

S. No.	Objective (As per PC-I)	Achievement (As per completion report)
1	To ensure prescribed safety standards	Maximum safety measures adopted
2	To remove speed restrictions over the bridges to restore sectional speed	Speed Restrictions over weak Bridges as per PC-I, removed and normal sectional speed restored after rehabilitation of the concerned bridges.
3	To minimize maintenance cost resulting in saving of operational cost	Yes

Above comparison is quite vague as no list/detail of “Safety Standards” were mentioned in the PC-I. In absence of standards comparison cannot be made for effectiveness and achievement of the objectives at serial number 01, 02 and 03.

During the course of performance audit, it was also observed that:

- i. Almost all the bridges were opened for public traffic after rehabilitation without issuing safety certificates, which was mandatory.
- ii. There was no speed restriction on most of the bridges rehabilitated under the project.
- iii. The maintenance cost of bridges continued to increase. During the FY 2008-09 it was Rs 49.504 million and increased to Rs 230.188 million in the year 2016-17 (Annexure-14).

In view of the position explained above, Audit was of the view that the objectives laid down for the project were ambiguous/un-quantitative and could not be measured at the time of completion.

The issue was taken up with management on 31.08.2017. The management replied on 10.11.2017 that PC-I was prepared after proper planning, which also included objectives to be achieved. 98 bridges (out of 159 Nos.), were rehabilitated up till 30.06.2016. The reply was not satisfactory because neither the quantifiable objectives were laid down nor achieved. The project was planned to be completed within three years but it could not be completed even after lapse of more than eight years.

DAC meeting was not convened by the PAO despite reminders.

Audit recommends that responsibility for preparing vague/unquantifiable objectives of the project be fixed and disciplinary action be initiated against the person(s) held responsible.

4.8 Overall Assessment

The overall performance of the project was not satisfactory because out of 159 bridges only 88 bridges rehabilitated by curtailing the scope of work by 45%. Thus, the amount allocated for rehabilitation of 159 bridges was spent on 88 bridges. It indicates that the intended value for money spent on the project was not achieved. Moreover, the work proposed to be completed within 36 months, was not completed even after undergoing time overrun by 72 months.

a)	Performance rating of the project.	Unsatisfactory
b)	Risk rating of the project.	High

5 CONCLUSION

The project Rehabilitation and Strengthening of 159 Bridges was started without proper planning as operational authorities were not associated at planning stage and feasibility study was not prepared before submission of PC-I. Objectives/goals set out for the project were ambiguous. Due to improper planning, the project suffered from time overrun by 6 years. Moreover, due to control override by project

management, scope of work was substantially changed and major modifications were also made without approval of the competent authority. Similarly, certain works were started without approval of plans from Chief Engineer Design as well as without technical sanction of the FGIR. The relevant instructions as contained in the Planning Commission's "Guidelines for Project Management" were completely neglected.

5.1 Key issues for the future

The project should be started 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 who should not be transferred during the currency of project. Procurement should be made in accordance with PPRA Rules in order to get maximum value for the money spent. The objectives may be laid down in quantifiable terms and in an unambiguous manner. Canons of financial propriety be observed in true spirit.

5.2 Lessons Identified

The project was started without proper planning and ascertaining the ground realities. Frequent transfer of Project Director resulted in transfer of knowledge and led to lack of ownership and eventually time overrun. Procurement and contract management need to be done carefully in such huge project to avoid losses to organization. Due to preparation of PC-I on untrue facts and figures the scope of work was substantially changed, which hampered the progress and expected benefits could not be attained.

ACKNOWLEDGEMENT

Audit acknowledges the support of the Project Director/Bridge Rehabilitation Project, Deputy Chief Engineer/Bridges, and Accounts Officer/Projects for their cooperation and assistance in providing the necessary information and record.

Annexure-1

STATEMENT SHOWING DETAIL OF BLOCKAGE OF FUNDS AMOUNTING TO RS. 115.797 MILLION DUE TO NEGLIGENCE OF THE PROJECT MANAGEMENT (Para 4.2.1)

(Rupees in million)

Year	Budget allocation	Releases	Expenditure	Saving/ Excess	Variation percentage
2007-08	25.000	25.000	6.885	18.115	72%(Saving)
2008-09	50.000	40.000	31.688	8.312	21%(Saving)
2009-10	20.000	20.000	20.887	0.887	4% (Excess)
2010-11	12.000	12.000	12.701	0.701	6%(Excess)
2011-12	22.000	22.000	16.082	5.918	27%(Saving)
2012-13	150.000	150.500	102.773	47.727	32%(Saving)
2013-14	150.000	65.000	47.730	17.27	27%(Saving)
2014-15	73.000	70.000	62.755	7.245	10%(Saving)
2015-16	160.255	160.255	169.877	9.622	6%(Excess)

Saving=Rs 104.587 million

Excess=Rs 11.210 million

Total= Rs 115.797 million

Annexure-2

EXPENDITURE REGISTER BRIDGES REHABILITATION PROJECT
EXCESS/LESS BOOKING OF EXPENDITURE (Para No.4.2.3)

(Rs in million)

Section	Bridge No.	Kilometers	Estimated cost as per PC-I	Actual cost as per completion report prepared by PD	Expenditure as per Register	Excess/Less booking of expenditure
<u>Karachi Division</u>	23	188/2-3	1.875	9.902	9.029	0.873
Kotri – Tando Adam						
	32	192/6-7	3.15	10.509	9.609	0.900
	43	198/8-9	2.026	6.656	5.956	0.700
	49	200/7-8	2.026	9.143	8.143	1.000
Kotri – Dadu (Branch Line)	660	174/1-2	3.222	15.905	15.158	0.747
<u>Sukkur Division</u>	275	557/7-8	1.474	9.769	7.669	2.100
Rohri – Khanpur (Main Line)						
<u>Multan Division</u>	25	--	1.061	3.554	3.355	0.199
Khanpur – Lodhran						
	31	--	1.061	2.054	1.707	0.346
<u>Lahore Division</u>	64-A	1181/19-21	1.03	1.890	2.295	-0.405
Sahiwal – Lahore (Main Line)						

<u>Peshawar Division</u>	101	1554/9-10	0.689	7.864	8.164	-0.300
Taxila Cantt –						
Attock City –						
Peshawar (Main Line)						

Total Excess booking	Total less booking	Net excess booking
6.866	0.705	6.161

Annexure-3**STATEMENT SHOWING THE DETAIL OF EXPENDITURE INCURRED ON ONGOING WORKS NOT INCLUDED IN THE COMPLETION REPORT.****(Para 4.2.4)****(Rs.in million)**

S. No.	Bridge No.	Section	Estimated Cost (Rs)	Expenditure booked as per expenditure register (Rs)	Completion%
1	170-R	Tando Adam – Rhoi (Main Line) (SUK Div.)	3.15	0.075	2.38
2	234	Rohri – Khanpur (Main Line) (SUK Div.)	1.556	0.834	54
3	257	-do-	1.787	0.871	49
4	309	-do-	0.849	0.676	80
5	43	Lahore – Lalamusa (Main Line)(LHR Div)	1.954	4.946	253
6	208-A	Shorkot-Wazirabad (Br.Line) (Via Sangla Hill) (LHR Div)	0.66	0.049	7.42
7	26	Shahdara-Sangla Hill (Br.Line) (LHR Div.)	0.910	2.609	287
TOTAL			10.866	10.06	93

Annexure-4**STATEMENT SHOWING DETAIL OF IRREGULAR EXPENDITURE OF
RS 70.302 MILLION DUE TO ENHANCEMENT OF FACE VALUE OF
CONTRACTS BEYOND PERMISSIBLE LIMIT AND NON COLLECTION
OF PERFORMANCE GUARANTEE OF RS 8.845 MILLION.****(Para 4.3.1 & 4.3.2)**

S. No.	Description of work	Face value at the time of executing agreement or revision of the existing agreement	Face value at the time of award of contract or execution of agreement	Increase	Percentage
1	Replacement of girder and protection work of bridge No. 1 at KM 5/1-2 Old Keamari Line at Karachi	2,641,724	1,988,097	653,627	33%
2	Replacement of girder and protection work of bridge No. 2 at KM 5/2-3 Old Keamari Line at Karachi	2,470,514	1,816,887	653,627	36%
3	Rehabilitation of bridge No. 23 at KM 188/2-3 by conversion into RCC box culvert on HDR-Tando Adam Sec.	13,734,220	5,507,000	8,227,220	149%
4	Conversion of RS joist bridge No. 32 at KM 192/6-7 into RCC box culvert on Kotri – Tando Adam Sec.	9,544,729	7,227,886	2,316,843	32%

5	Grouting the cracks of arch bridge No. 169 at KM 142/8-9 on Landhi – Kotri Sec.	2,492,100	1,433,250	1,058,850	74%
6	Conversion of RS joist girder bridge No. 49 at KM 200/7-8 into RCC box culvert on Kotri – Tando Adam Sec.	8,254,495	4,278,500	3,975,995	93%
7	Conversion of girder bridge No. 396 at KM 63/8-9 into RCC box culvert on Kotri – Dadu Sec.	12,236,507	4,361,050	7,875,457	181%
8	Conversion of girder bridge No. 438 at KM 103/13-14 into RCC box culvert on Kotri – Dadu Sec.	22,088,644	15,044,588	7,044,056	47%
9	Rehabilitation of bridge No. 28 at KM 716/7-8 on Khanpur-Lodhran Section by conversion into RCC box culvert	2,683,896	1,427,300	1,256,596	88%
10	Replacement of RCC slabs of bridge No. 4-B at KM 10/9-10 on Shershah-Kundian Section	3,811,625	2,016,000	1,795,625	89%

11	Replacement of damaged RCC slabs and strengthening of sub-structure of bridge No. 224 at KM 164/10-11 on KZL-DGK Section	3,143,894	1,675,000	1,468,894	88%
12	Closing of bridge No. 275 at KM 557/7-8 on Rohri – Khanpur Section	7,474,701	5,970,304	1,504,397	25%
13	Rehabilitation of bridge No. 399 at KM 652/12-13 on Rohri – Khanpur Section	8,491,946	2,716,000	5,775,946	213%
14	Rehabilitation of bridge No. 358 at KM 624/7-8 on Rohri – Khanpur Section	4,394,867	2,240,740	2,154,127	96%
15	Rehabilitation of bridge No. 367 at KM 634/9-10 on Rohri – Khanpur Section	9,002,796	2,985,000	6,017,796	202%
16	Conversion of bridge No. 24-R at KM 372/11-12 into RCC box culverts on Tando Adam Rohri Section	8,079,302	4,564,280	3,515,022	77%
17	Conversion of bridge No. 19-R at KM 369/8-9 into RCC slab	3,708,568	2,099,000	1,609,568	77%

	on Tando Adam Rohri Section				
18	Conversion of bridge No. 30-R at KM 379/3-4 into RCC box culverts on Tando Adam Rohri Section	9,215,812	5,046,500	4,169,312	83%
19	Rehabilitation of bridge No. 311 by providing additional arches at KM 585/1-3 on Rohri – Khanpur Section	3,351,055	2,447,225	903,830	37%
20	Rehabilitation of bridge No. 165 at KM 484/11-12 between Jhalar and Kanjur Stations on Kundia – Attock City Section	4,147,500	3,331,000	816,500	25%
21	Rehabilitation of bridge No. 92 at KM 1545/5-6 between Wah Cantt and Budhu stations on Taxila-Peshawar Section	4,575,296	917,000	3,658,296	399%
22	Rehabilitation of bridge No. 43 at KM 1156/14-17 at Bhoie Asal (closed station) on Sahiwal-Lahore Section	2,973,178	2,191,204	781,974	35%

23	Rehabilitation of bridge No. 22 at KM 1255/11-12 at Sadhoke Station) on Lahore – Lalamusa Section	1,853,226	1,475,120	378,106	26%
24	Rehabilitation of bridge No. 43 at KM 1277/14 to 1278/1 between Eminabad-Gujranwala Stations on Lahore – Lalamusa Section	5,237,818	3,554,920	1,682,890	47%
25	Rehabilitation of bridge No. 208-A at KM 256/5-6 between Kalake& Hafizabad Stations on Shorkot – Wazirabad Section	3,164,358	2,156,765	1,007,593	47%
Total		158,772,771	88,470,616	70,302,147	

Face value of 25 contracts = 88,447,616

Performance guarantee @ 10% of 88,447,616 = 8.845 million

Annexure-5

STATEMENT SHOWING DETAIL OF EXTRA EXPENDITURE-RS 5.118 MILLION ON ACCOUNT OF ACCEPTANCE OF TENDERS AT HIGHER RATES. (Para 4.3.3)

1.

Description	Rehabilitation of bridge No. 169 at KM 142/8-9 on Landhi – Kotri Section. (Agreement No.56-W/29/Kyc/159/BR/2015-16 dated 10.06.2016)		Rehabilitation of bridge No. 418 at KM 89/6-7 on Kotri – Dadu Section.(Agreement No.56-W/23/Kyc/ 159/BR/2015-16 dated 14.05.2016)		Difference
	Quantity	Rate	Quantity	Rate	
1	2	3	4	5	6 (3-5)
Supplying and applying epoxy sikadur-31 or equalant	198 Kg	Rs 2950 per Kg	300 Kg	Rs 1900 per Kg	1050x198 =207,900
Supplying and applying epoxy sikadur-52 or equalant	380 Kg	Rs 4800 per Kg	350 Kg	Rs 3490 per Kg	1310x380 =497,800
Providing and applying SBR Latex for floating coat of cement	112 liter	Rs 750 per liter	160 liter	Rs 390 per liter	360x112 =40320
Total Rs.					746,020

2.

Description	Rehabilitation of bridge No. 224 at KM 164/10-11 on Kashmore – Kot Adu Section. (Agreement No.56-W/10/MUL/159/BR/2015-16 dated 11.06.2016)				Difference
	Quantity	Rate	Quantity	Rate	
1	2	3	4	5	6 (3-5)
Supplying and applying epoxy	48 Kg	Rs 2500 per Kg	300 Kg	Rs 1900 per	600x48=28,800

sikadur-31 or equalant				Kg	
Supplying and applying epoxy sikadur-52 or equalant	88 Kg	Rs 4750 per Kg	350 Kg	Rs 3490 per Kg	1260x88=110,880
Providing and applying SBR Latex for floating coat of cement	70 liter	Rs 700 per liter	160 liter	Rs 390 per liter	310x70=21,700
Supply and applying wrap of CFPR 20" wide	232 RFT	Rs 5,450	--	Rs 2260	3190x232=740,080
Total Rs.					901,460

3.

Description	Rehabilitation of bridge No. 159 at KM 840/2-3 on Khanpur – Lodhran Section.(Agreement No.20-MUL/2015-16 dated 13.04.2016).				Difference
	Quantity	Rate	Quantity	Rate	
1	2	3	4	5	6 (3-5)
Supplying and applying epoxy sikadur-31 or equalant	96 Kg	Rs 2750 per Kg	300 Kg	Rs 1900 per Kg	850x96=81,600
Supplying and applying epoxy sikadur-52 or equalant	220 Kg	Rs 4200 per Kg	350 Kg	Rs 3490 per Kg	710x220=156,200
Providing and applying SBR Latex for floating coat of cement	100 liter	Rs 700 per liter	160 liter	Rs 390 per liter	310x100=31,000
Supply and applying wrap of CFPR 20" wide	423.30 Sft	Rs 4,450	Rs 1880/sft (Agreement No. 18-B/LON/2016-17 dated 20.12.2016, executed by the CEN/Open Line in connection		2570x423.30=1,087,881

			with repair of bridge No.18 on Khanpur-Lodhran Section)	
Total Rs.				1,356,681

4.

Description	Rehabilitation of bridge No. 165 at KM 484/11-12 on Kundian – Attock City Section. (Contract Agreement No.07-PSC/2015-16 dated 05.11.2015)				Difference
	Quantity	Rate	Quantity	Rate	
1	2	3	4	5	6 (3-5)
Supplying and applying epoxy sikadur-31 or equalant	193 Kg	Rs 4700 per Kg	300 Kg	Rs 1900 per Kg	2800x193 =540,400
Supplying and applying epoxy sikadur-52 or equalant	300 Kg	Rs 5600 per Kg	350 Kg	Rs 3490 per Kg	2110x300 =633,000
Supply and applying wrap of CFPR 20” wide	269.33 RFT	Rs 5,750	--	Rs 2260	3490x232 =939,962
Total Rs.					2,113,362

Summary

S. No.	Bridge No.	Extra expenditure involved
1	Bridge No. 169 at KM 142/8-9 on Landhi – Kotri Section.	746,020
2	Bridge No. 224 at KM 164/10-11 on Kashmore – Kot Adu Section	901,460
3	Bridge No. 159 at KM 840/2-3 on Khanpur – Lodhran Section.	1,356,681
4	Bridge No. 165 at KM 484/11-12 on Kundian – Attock City Section.	2,113,362
	TOTAL	5,117,523

Annexure-6

**STATEMENT SHOWING DETAIL OF CEMENT CONCRETE WORKS -
RS 83.600 MILLION EXECUTED IN DIFFERENT WORKS IN
CONNECTION WITH BRIDGE REHABILITATION PROJECT.
(Para 4.4.2)**

S. No.	Name of work	Item of work	Quantity	Rate	Premium	Total amount
1	Rehabilitation of Bridge No. 101 & 107 on TXLC-PSC Section. Agreement No. 09-PSC/2014-15 dt. 21.01.2015 (M/s Ch. Muhammad Rasheed Arain)	Cement concrete plain (1:3:6) 28/6(d)	2006.98	6448.10 %Cft	382% above CSR 2003	623,766
		RCC (1:1:2) 28/7(a)(i)	2472.67 5	143.25 per Cft		1,707,292
		RCC (1:1½:3) 28/7(a)(i)	1870.19	120.90 per Cft		1,089,831
2	Rehabilitation of Bridge No. 49 on Kotri-Tando Adam Section. Agreement No. 07-KYC/2013-14 dt. 31.03.2014 (M/s Farhan Enterprises)	Cement concrete plain (1:3:6) 28/6(d)	3367.42	6448.10 %Cft	299% above CSR 2003	866,367
		RCC (1:1½:3) 28/7(a)(i)	4911.34	120.90 per Cft		2,369,186
		CC plain (1:2:4) 35/38(b)	729.00	7585.50 per %Cft		220,640
3	Rehabilitation of Bridge No. 31 on Lodhran-KPR Section. Agreement No. 36-MUL/2012-13 dt. 13.06.2013 (M/s Millat Construction Co.)	CC plain (1:3:6) 28/6(d)	225.00	6448.10 %Cft	215% above CSR 2003	45,701
		RCC (1:1:2) 28/7(a)(i)	807	143.25 per Cft		344,149
4	Rehabilitation of Bridge No. 470 on Rohri-Khanpur Section. Agreement No.	CC plain (1:3:6) 28/6(d)	385	6448.10 %Cft	298% above CSR 2003	98,804
		RCC	1350	120.90		649,596

	2-SUK/2012-13(BR) dt. 10.01.2014 (M/s Ch. Muhammad Rasheed Arain)	(1:1½:3) 28/7(a)(i)		per Cft	above CSR 2003	
5	Rehabilitation of Bridge No. 4-B on Sher Shah Kundian Section. Agreement No. 19-MUL/2012-13(BR) dt. 17.12.2012 (M/s Zulifqar & Co.)	RCC (1:1:2)	1157	136.60 per Cft	219% above CSR 2003	504,167
		CC plain (1:3:6)	935.25	6448.10 per %Cft		192,376
		CC plain (1:2:4)	837.87	7585.50 per %Cft		202,746
6	Rehabilitation of Bridge No. 29 on KPR – LON Section. Work Order No. 3-B/AFX/08 dt. 24.11.2008 (M/s Zulifqar & Co.)	Cement concrete plain (1:2:4)	52	7585.50 per %Cft	147% above CSR 2003	9,743
7	Rehabilitation of Bridge No. 25 on KPR – LON Section. Agreement No. 04-MUL/2012-13 dt. 14.09.2012 (M/s Zulifqar & Co.)	Cement concrete plain (1:3:6)	257	6448.10 per %Cft	195% above CSR 2003	48,886
		RCC (1:1:2)	1086	143.25 P.Cft		458,930
8	Rehabilitation of Bridge No. 22 on KPR – LON Section. Agreement No. 34-MUL/2012-13 dt. 10.06.2013 (M/s Millat Construction Co.)	Cement concrete plain (1:3:6)	183.64	6448.10 per %Cft	221% above CSR 2003	38,011
		RCC (1:1:2)	848.10	143.25 P.Cft		389,984
		RCC (1:1½:3)	968.90	120.90 P.Cft		376,019

9	Rehabilitation of Bridge No. 23 on KPR-LON Sec. Agreement No. 35-MUL/2012-13 dt. 10.06.2013 (M/s Millat Construction Co.)	Cement concrete plain (1:3:6)	204.21	6448.10 per %Cft	221% above CSR 2003	42,268
		RCC (1:1:2)	1016.55	143.25 P.Cft		46,744
		RCC (1:1½:3)	1211.89	120.90 P.Cft		470,321
10	Rehabilitation of Bridge No. 112 on KPR – LON Section. Agreement No. 4-MUL/2012-13(BR) dt. 05.03.2014 (M/s Aslam Construction Co.)	Cement concrete plain (1:3:6)	1001	6448.10 per %Cft	243% above CSR 2003	221,170
		RCC (1:1:2)	2097.70	143.25 P.Cft		1,030,700
		RCC (1:1½:3)	1215.57	120.90 P.Cft		504,081
11	Rehabilitation of Bridge No. 409 on KWL – SWAL Section. Agreement No. 11-B/KWL/2008-09 dt. 07.02.2008 (M/s Al-Sharif Construction Co.)	Cement concrete plain (2:3:6)	299	6448.10 per %Cft	238% above CSR 2003	65,166
12	Rehabilitation of Bridge No. 32 on KPR – LON Section. Work Order No. 4-B/ AFX/ 2008 dt. 24.11.2008 (M/s Zulfiqar & Co.)	Cement concrete plain (1:2:4)	51	7585.50 per %Cft	147% above CSR 2003	9,555
13	Rehabilitation of Bridge No. 33 on KPR – LON Section. Work Order No.	Cement concrete plain (1:2:4)	51	7585.50 per %Cft	147% above CSR 2003	9,555

	5-B/AFX/ 2009 dt. 27.2.2009 (M/s Zulfiqar & Co.)					
14	Rehabilitation of Bridge No. 39 on RWP – WAH Section. Agreement No. 56-W/39 dt. 15.05.2009 (M/s Ayub Umer Construction Co.)	Cement concrete plain (1:3:6)	1205.33	6448.10 per %Cft	99% above CSR 2003	154,665
		Cement concrete plain (1:2:4)	1500.72	7585.50 per %Cft		226,536
15	Rehabilitation of Bridge No. 1 on Old Kemari Line at Karachi. Agreement No. 39 dt. 4.6.2009 (M/s Muhammad Sarwar Khan)	RCC (1:2:4)	2390	108.90 per Cft.	270% above CSR 2003	963,003
16	Rehabilitation of Bridge No. 211 on SHO-WZD Section. Agreement No. 30 dt. 3.2.2009 (M/s Nisar Siddique Construction Co.)	Cement concrete plain (1:2:4)	916.75	7585.50 per %Cft	128% above CSR 2003	158,551
17	Rehabilitation of Bridge No. 406 on KWL – SWAL Section. Agreement No. 12- B/KWL/2008-09 dt. 07.02.2008 (M/s Al-Sharif Construction Co.)	Cement concrete plain (1:3:6)	260	6448.10 per %Cft	238% above CSR 2003	56,666

18	Rehabilitation of Bridge No. 201` on SKO-WZD Section. Agreement No. 6/2012-13 dt. 8.10.2012 (M/s Millat Construction Co.)	RCC (1:1½:3)	1678.42	120.90 per Cft.	225% above CSR 2003	659,493
19	Rehabilitation of Bridge No. 53` on SWAL-LHR Section. Agreement No. 20-LHR/B-12(2012-13) dt. 4.12.2012 (M/s Millat Construction Co.)	Cement concrete plain (1:2:4)	84.48	7585.50 per %Cft	190% above CSR 2003	18,584
20	Rehabilitation of Bridge No. 203 on LON-KWL Section. Agreement No. 3/MUL/2014-15(BR) dt. 29.11.2014 (M/s Al-Sharif Construction Co.)	Cement concrete plain (1:3:6)	897	6448.10 per %Cft	280% above CSR 2003	219,790
		RCC (1:1:2)	2823	143.25 P.Cft		1,536,700
		RCC (1:1½:3)	1418	120.90 P.Cft		651,458
21	Rehabilitation of Bridge No. 99 on DDU-HBKJ Section. Work Order No. 2/AN/B-99/SUK dt. 7.11.2014 (M/s Ali Nawaz Rajper &Co.)	Cement concrete plain (1:2:4)	108	7585.50 per %Cft	358% above CSR 2003	37,521
22	Rehabilitation of Bridge No. 240-A on WZD-SKO Section. Agreement No. 5-LHR/BR(2014-	Cement concrete plain (1:2:4)	75	7585.50 per %Cft	336% above CSR 2003	24,805

	15) dt. 24.12.2014 (M/s Pakistan Engg. Construction Services)					
23	Rehabilitation of Bridge No. 23 on HDR-Tando Adam Section. Agreement No. 12-Kyc/2014- 15(BR) dt. 30.4.2015 (M/s Al-Waheed & Bros.)	RCC (1:1:2)	7081.81	143.25 P.Cft	309% above CSR 2003	4,149,179
		RCC (1:1½:3)	897.96	120.90 P.Cft		444,024
24	Rehabilitation of Bridge No. 370 on Rohri-Khan pur Section. Agreement No. 24-SUK/2012- 13 dt. 30.01.2013 (M/s Ghulam Sarwar & Co.)	Cement concrete plain (1:2:4)	819	7585.50 per %Cft	298% above CSR 2003	247,258
25	Rehabilitation of Bridge No. 145 on SKO-WZD Section. Agreement No. 3-LHR/2013- 14(BR) dt. 29.01.2014 (M/s Ch. Muhammad Rasheed Arain)	Cement concrete plain (1:3:6)	1460	6448.10 per %Cft	299% above CSR 2003	375,628
		RCC (1:1½:3)	2873	120.90 P.Cft		1,385,909
		RCC (1:1:2)	2719	143.25 P.Cft		1,554,092
		Cement concrete plain (1:2:4)	1950	7585.50 per %Cft		590,190
26	Rehabilitation of Bridge No. 367 on Rohri – Khanpur Section. Agreement No. 23-SUK/2012- 13	Cement concrete plain (1:2:4)	5444	7585.50 per %Cft	298% above CSR 2003	1,643,559
		Cement concrete plain (1:3:6)	2043	6448.10 per %Cft		524,304

	dt. 30.01.2013 (M/s Al-Sharif Construction Co.)					
27	Rehabilitation of Bridge No. 29 on Dadu – Habib Kot Section. Agreement No. 1-SUK/2012- 13/BR dt. 2.8.2012 (M/s Al-Sharif Construction Co.)	RCC	1308.63	400 P.Cft (Through rate)	300% above CSR 2003	523,452
		RCC	906.50	470 P.Cft (Through rate)		426,055
		Cement concrete plain (1:3:6)	270	6448.10 per %Cft		69,639
28	Rehabilitation of Bridge No. 24/R on Tando Adam – Rohri Section. Agreement No. 5-SUK/2012-13 dt. 18.9.2012 (M/s Al-Sharif Construction Co.)	Cement concrete plain (1:3:6)	1652	6448.10 per %Cft	278% above CSR 2003	402,655
		RCC (1:1:2)	4485	143.25 P.Cft		2,428,560
		RCC (1:1½:3)	2573	120.90 P.Cft		117,587
29	Rehabilitation of Bridge No. 18 on LHR – LLM Section. Agreement No. 27- LHR/BR(2012- 13) dt. 7.2.2013 (M/s M. Amin & Co.)	Cement concrete plain (1:3:6)	577.49	6448.10 per %Cft	199% above CSR 2003	111,339
		Cement concrete plain (1:2:4)	465	7585.50 per %Cft		105,465
		RCC	2778	120.90 P.Cft		1,004,222
30	Rehabilitation of Bridge No. 40 on RWP – TXL Section. Agreement No. 56-N/40 dt. 15.05.2009 (M/s Ayub Umer Construction Co.)	Cement concrete plain (1:3:6)	967.81	6448.10 per %Cft	99% above CSR 2003	124,187
		Cement concrete plain (1:2:4)	1436.18	7585.50 per %Cft		216,793

31	Rehabilitation of Bridge No. 45 on Dadu – Habib Kot Section. Agreement No. 6-SUK/2014-15(BR) dt. 20.01.2015 (M/s Abdul Majeed Khan Rly. Contractor)	Cement concrete plain (1:3:6)	650	6448.10 per %Cft	320% above CSR 2003	176,033
		RCC	885	400 P.Cft		1,486,800
32	Rehabilitation of Bridge No. 410-A on KWL – SWAL Section. Agreement No. 13-B/KWL/2008-09 dt. 07.02.2008-09 (M/s Ghulam Sarwar & Co.)	Cement concrete plain (1:3:6)	299	6448.10 per %Cft	240% above CSR 2003	65,551
		RCC	1377	370 P.Cft (Through rate)		509,490
		RCC	761	340 P.Cft (Through rate)		258,740
33	Rehabilitation of Bridge No. 22 on LHR – LLM Section. Agreement No. 17-LHR/BR (2012-2013) dt. 07.12.2012 (M/s Decent Builders)	RCC (1:1½:3)	1579	120.90 Per Cft	222% above CSR 2003	614,702
34	Rehabilitation of Bridge No. 2 on Old Kemari Line at Karachi. Agreement No. 40 dt. 4.6.2009 (M/s Muhammad Sarwar Khan)	Cement concrete plain (1:2:4)	283.50	7585.50 per %Cft	270% above CSR 2003	79,568
		RCC	2390	108.90 Per Cft		96,300
35	Rehabilitation of Bridge No. 358 on Rohri –	Cement concrete plain	1304	7585.50 per %Cft	298% above CSR	393,681

	Khanpur Section. Agreement No. 22-SUK/2012-13(BR) dt. 30.01.2013 (M/s Ghulam Sarwar & Co.)	(1:2:4)			2003	
36	Rehabilitation of Bridge No. 19-R on Tando Adam-Rhori Section. Agreement No. 1-SUK/2013-14 dt. 20.08.2013 (M/s Ch. Muhammad Rasheed Arain)	Cement concrete plain (1:3:6)	1631.19	6448.10 per %Cft	350% above CSR 2003	473,313
		Cement concrete plain (1:2:4)	118.20	7585.50 per %Cft		40,347
		RCC (1:1:2)	265.92	136.60 Per Cft		163,461
37	Rehabilitation of Bridge No. 302 on Shorkot-WZD Section. Agreement No. 2-LHR/2015-16 dt. 14.09.2015 (M/s Millat Construction Co.)	Cement concrete plain (1:3:6)	3864.40	6448.10 per %Cft	278% above CSR 2003	941,902
		RCC (1:1:2)	2968.34	143.25 Per Cft		1,607,312
		RCC (1:1½:3)	1126.55	120.90 Per Cft		514,836
		RCC (1:2:4)	1188.50	108.90 Per Cft		489,237
38	Rehabilitation of Bridge No. 30-R on TDM-ROH Section. Agreement No. 8-SUK/2014-15(BR) dt. 21.01.2015 (M/s Ch. Muhammad Rasheed Arain)	Cement concrete plain (1:3:6)	1427.10	6448.10 per %Cft	335% above CSR 2003	400,291
		RCC (1:1:2)	6677.10	143.25 Per Cft		4,160,751
39	Rehabilitation of Bridge No. 438 on Kotri-Dadu Section. Agreement No. 11-KYC/2014-15(BR)	RCC (1:1:2)	16861.45	143.25 Per Cft	342% above CSR 2003	10,676,080
		Cement concrete plain (1:4:8)	2705.70	5627.50 per %Cft		673,004

	dt. 14.02.2015 (M/s Farhan Enterprises)					
40	Rehabilitation of Bridge No. 151 on LHR – LLM Section. Agreement No. 4- LHR/BR(2014-2015 dt. 12.12.2014 (M/s Decent Builders)	Cement concrete plain (1:3:6)	4090	6448.10 per %Cft	235% above CSR 2003	883,486
		RCC (1:1:2)	3281.87	143.25 Per Cft		1,574,928
41	Rehabilitation of Bridge No. 396 on Kotri-Dadu Section. Agreement No. 32-KYC/2012-13(BR) dt. 21.03.2013 (M/s National Builder.)	Cement concrete plain (1:3:6)	1343.42	6448.10 per %Cft	335% above CSR 2003	376,819
		RCC (1:1:2)	6905.62	143.25 Per Cft		4,303,151
		RCC (1:1½:3)	1105	120.90 Per Cft		581,136
42	Rehabilitation of Bridge No. 248 on LON-KWL Section. Agreement No. 03/MUL/2012-13/B.R dt. 07.08.2012 (M/s Ch. Muhammad Rasheed Arain)	Cement concrete plain (1:3:6)	392	6448.10 per %Cft	268% above CSR 2003	93,018
		RCC (1:1:2)	3455	143.25 Per Cft		1,821,338
		RCC (1:1½:3)	1439	120.90 Per Cft		640,228
43	Rehabilitation of Bridge No. 28 on KPR – LON Section. Agreement No. 28-MUL/2012-13(BR) dt. 27.2.2009 (M/s Zulfiqar & Co.)	Cement concrete plain (1:3:6)	179.86	6448.10 per %Cft	210% above CSR 2003	35,952

44	Rehabilitation of Bridge No. 65 on SSH-KDA Section. Agreement No. 29-MUL/2012-13/B.R dt. 28.02.2013 (M/s Ch. Muhammad Rasheed Arain)	Cement concrete plain (1:2:4)	515.65	7585.50 per %Cft	249% above CSR 2003	136,510
		RCC (1:1:2)	1577.74	143.25 Per Cft		788,779
		RCC (1:1½:3)	3046.78	120.90 Per Cft		1,285,561
45	Rehabilitation of Bridge No. 399 on Rohri-Khanpur Section. Agreement No. 25-SUK/2012-13(BR) dt. 30.01.2013 (M/s Al-Sharif Construction Co.)	Cement concrete plain (1:2:4)	2886	7585.50 per %Cft	288% above CSR 2003	849,400
		Cement concrete plain (1:3:6)	3098	6448.10 per %Cft		775,077
46	Rehabilitation of Bridge No. 24 on KPR – LON Section. Agreement No. 7-MUL/2012-13(BR) dt. 03.12.2012 (M/s Zulfiqar & Co.)	Cement concrete plain (1:3:6)	300	6448.10 per %Cft	195% above CSR 2003	57,066
		RCC (1:1:2)	915	143.25 Per Cft		386,668
		RCC (1:1½:3)	943	120.90 Per Cft		336,326
47	Rehabilitation of Bridge No. 689 on Pakpatan-Kasur Section. Agreement No. 18-LHR/BR/2012-13 dt. 14.12.2012 (M/s Ch. Muhammad Sharif & Co.)	RCC (1:2:4)	3578.75	108.90 Per Cft	240% above CSR 2003	1,325,068
		RCC (1:1:2)	6517.81	143.25 Per Cft		3,174,499
48	Rehabilitation of Bridge No. 43 on LHR – LLM	Cement concrete plain	1067	6448.10 per %Cft	224% above	222,916

	Section. Agreement No. 26-LHR/BR (2012-2013 dt. 31.01.2013 (M/s Decent Builders)	(1:3:6)			CSR 2003	
		RCC (1:2:4)	2740	108.90 Per Cft		996,771
		RCC (1:1:2)	2200.10	143.25 Per Cft		102,113
49	Rehabilitation of Bridge No. 88 on KPR – LON Section. Agreement No. 6-MUL/2013- 14(BR) dt. 05.03.2014 (M/s Zulfiqar & Co.)	Cement concrete plain (1:3:6)	1028	6448.10 per %Cft	243% above CSR 2003	227,363
		RCC (1:1:2)	1527	143.25 Per Cft		750,288
		RCC (1:1½:3)	1148	120.90 Per Cft		476,061
50	Rehabilitation of Bridge No. 43 on Sahiwal-LHR Section. Agreement No. 20(2011-2012 dt. 07.06.2011 (M/s Decent Builders)	Cement concrete plain (1:3:6)	1552	6448.10 per %Cft	250% above CSR 2003	350,261
		RCC	1769.94	360 Per Cft		2,230,124
51	Rehabilitation of Bridge No. 34 on SSH-KDA Section. Agreement No. 21-MUL/2012- 2013(B.R) dt. 30.06.2013 (M/s SALEEM Raza Construction Co.)	RCC (1:1:2)	1180	143.25 Per Cft	247% above CSR 2003	586,551
52	Rehabilitation of Bridge No. 264 on TXLC- PSCSection. Agreement No. 08-PSC/2012-13 dt. 11.02.2013 (M/s Al-Sharif Construction Co.)	RCC (1:2:4)	1157	108.90 Per Cft	395% above CSR 2003	623,687
						83,600,167

Annexure-7

Statement showing detail of deficient test reports of concrete works valuing Rs 22.673 million (Para 4.4.2)

S. No.	Name of work	Item of work	Required compressive strength	Actual compressive strength	Remarks
1	Rehabilitation of Bridge No. 49 on Kotri-Tando Adam Section. Agreement No. 07-KYC/2013-14 dt. 31.03.2014 (M/s Farhan Enterprises). S.NO-2	Cement concrete plain (1:3:6) 28/6(d)	2500	-	Report not provided
		RCC (1:1½:3) 28/7(a)(i)	5000	3808/25.6.14 4721/25.8.14	Below standard
		CC plain (1:2:4) 35/38(b)	4000	-	Report not provided
2	Rehabilitation of Bridge No. 1 on Old Kemari Line at Karachi. Agreement No. 39 dt. 4.6.2009 (M/s Muhammad Sarwar Khan). S.NO-15	RCC (1:2:4)	4000	3325	Below standard
3	Rehabilitation of Bridge No. 24/R on Tando Adam – Rohri Section. Agreement No. 5-SUK/2012-13 dt. 18.9.2012 (M/s Al-Sharif Construction Co.). S.NO-28	Cement concrete plain (1:3:6)	2500	-	Report not provided
		RCC (1:1:2)	6000	4036	Below standard
		RCC (1:1½:3)	5000	-	Report not provided
4	Rehabilitation of Bridge No. 2 on Old Kemari Line at Karachi. Agreement No. 40 dt. 4.6.2009 (M/s Muhammad	Cement concrete plain (1:2:4)	4000	3367	Below standard
		RCC		-	Report not provided

	Sarwar Khan). S.NO-34				
5	Rehabilitation of Bridge No. 438 on Kotri-Dadu Section. Agreement No. 11-KYC/2014-715(BR) dt. 14.02.2015 (M/s Farhan Enterprises). S.NO-39	RCC (1:1:2)	6000	-	Report provided with 1:2:4
		Cement concrete plain (1:4:8)		-	Report provided with 1:2:4
6	Rehabilitation of Bridge No. 151 on LHR – LLM Section. Agreement No. 4- LHR/BR(2014-2015 dt. 12.12.2014 (M/s Decent Builders). S.NO-40	Cement concrete plain (1:3:6)	2500	-	Report provided without any combination
		RCC (1:1:2)	6000	-	Report provided without any combination
7	Rehabilitation of Bridge No. 43 on LHR – LLM Section. Agreement No. 26-LHR/BR (2012-2013 dt. 31.01.2013 (M/s Decent Builders). S.NO-48	Cement concrete plain (1:3:6)	2500	-	Report provided without any combination
		RCC (1:2:4)	4000	-	Report provided without any combination
		RCC (1:1:2)	6000	-	Report provided without any combination
Total amount involved					Rs 22.673 million

Annexure-8

STATEMENT SHOWING THE DETAIL OF ESTIMATED/ACTUAL COST OF REHABILITATION OF BRIDGES UNDER THE PROJECT “REHABILITATION AND STRENGTHENING OF 159 BRIDGES ON PAKISTAN RAILWAYS” (Para 4.4.3)

S. No.	Section	Bridge No.	Estimated cost as per PC-I	Actual cost as per completion report prepared by PD
1.	<u>Karachi Division</u>	1	19.75	13.740
2.	Kiamari – Karachi (Main Line)	2	14.779	8.637
3.		169	1.062	2.492
4.	Kotri – Tando Adam	23	1.875	9.902
5.		32	3.15	10.509
6.		43	2.026	6.656
7.		49	2.026	9.143
8.	Kotri – Dadu (Branch Line)	396	3.222	12.227
9.		418	3.87	2.689
10.		438	1.954	22.024
11.		660	3.222	15.905
12.	<u>Sukkur Division</u>	132	1.036	0.571
13.	Tando Adam – Rho (Main Line)	24-R	2.10	9.743
14.		30	4.742	10.331
15.		150	3.970	1.170
16.	Rohri – Khanpur (Main Line)	275	1.474	9.769
17.		311	0.849	3.062
18.		358	1.34	4.834
19.		367	1.531	9.985
20.		370	1.531	10.281
21.		399	1.389	9.449
22.	Dadu – Larkana – Babib Kot (Branch Line)	29	0.689	2.309
23.		45	0.689	2.340
24.		74	5.022	9.857
25.		99	1.954	0.314
26.	<u>Multan Division</u> Khanpur – Samasatta (Main Line)	88	1.061	3.753
27.	Lodhran – Khanewal	203	1.921	4.771
28.		248	6.021	7.351
29.	Kashmor Colony – D.G. Khan (Branch Line)	112	0.60	1.190
30.		223	0.92	0.534
31.		224	2.66	4.037
32.		245	2.61	1.839

33.		450	1.091	2.464
34.	Shershah – Bhakar –	4-B	1.52	5.741
35.	Kundian	22	1.954	1.473
36.	(Branch Line)	34	1.09	1.649
37.		65	0.375	6.631
38.	KPR – LON	112	1.06	4.745
39.		20	0.911	0.381
40.		159	1.405	3.554
41.	Khanpur - Lodhran	38	1.10	0.409
42.		21	1.061	0.253
43.		22	1.061	2.733
44.	Khanpur – Lodhran	23	1.061	2.641
45.		24	1.061	2.993
46.		25	1.061	3.554
47.		28	1.061	2.702
48.		29	1.061	0.255
49.		30	1.061	0.247
50.		31	1.061	2.054
51.		32	1.061	0.251
52.		33	1.061	0.267
53.		39	2.026	3.007
54.	Khanewal – Sahiwal	406	1.921	2.160
55.	(Main Line)	409-A	1.921	2.172
56.		410-A	1.921	2.106
57.	Lahore Division	6	1.875	0.092
58.	Sahiwal – Lahore	64-A	1.036	1.890
59.	(Main Line)	43	1.036	3.159
60.		53	0.689	1.721
61.	Lahore – Lalamusa	18	1.484	4.326
62.	(Main Line)	151	1.954	7.869
63.		22	3.91	2.154
64.	Shorkot – Wazirabad	44	0.524	0.355
65.	(Branch Line)	57	0.58	0.065
66.	(Via Sangla Hill)	134	0.52	2.038
67.		145	1.09	8.340
68.		186	0.60	0.632
69.		201	1.09	2.275
70.		211	0.60	1.104
71.		212	0.49	0.029
72.		227	1.954	0.151
73.		236	0.60	0.368
74.		238	0.60	
75.		240-A	1.954	0.756
76.		302	1.628	6.399
77.	Kasur – Pak Pattan	689	9.287	9.221

	(Branch Line)			
78.	Lahore – Wagah (Branch Line)	210	1.901	2.987
79.	<u>Peshawar Division</u>	101	0.689	7.864
80.	Taxila Cantt – Attock	107	0.689	
81.	City – Peshawar	264	1.954	2.452
82.	(Main Line)	165	4.866	4.136
83.	<u>Rawalpindi Division</u>	39	0.974	2.031
84.	Rawalpindi – Taxila (Main Line)	40	0.974	2.279
85.	Taxila Cantt – Attock City	92	0.689	4.575
Total			177.248	355.124

Annexure-9**NON EXECUTION OF BRIDGE WORKS PROVIDED IN THE PC-I****(Para 4.4.4)****Karachi Division**

S. No.	Bridge No.	Section	Estimated cost
1	32	Landhi – Kotri	2.95
2	51	-do-	14.93
3	58	-do-	3.87
4	63	-do-	2.556
5	152	-do-	3.124
6	170	-do-	1.159
7	36	Kotri – Tando Adam	2.026
8	67	-do-	1.875
9	69	-do-	1.875
10	83	-do-	1.036
11	91	-do-	2.251
12	358	Kotri – Dadu (Branch Line)	3.222
13	359	-do-	1.09
		TOTAL	41.964

Sukkur Division

S. No.	Bridge No.	Section	Estimated cost
1	170-B	Tando Adam – Rohri (Main Line)	1.875
2	61	-do-	1.10
3	84	-do-	1.10
4	258	Rohri – Khan Pur (Main Line)	1.012
5	266	-do-	2.92
6	276	-do-	3.64
7	313	-do-	0.757
8	380	-do-	0.485
9	472	-do-	0.736
10	44	Dadu – Larkana – Habib Kot (Branch Line)	0.689
11	66	-do-	1.954
12	76	-do-	5.022
13	80	-do-	0.689
14	81	-do-	5.022

15	85	-do-	1.954
16	86	-do-	2.066
17	93	-do-	1.954
18	109	-do-	3.91
19	206	-do-	1.954
TOTAL			38.839

Multan Division

S. No.	Bridge No.	Section	Estimated cost
1	4	Khanpur – Samasatta (Main Line)	5.326
2	13	-do-	2.869
3	304	Kashmor Colony – D.G. Khan (Branch Line)	0.60
4	368	-do-	0.974
5	873	-do-	0.974
6	131	Khan Pur – Lodhran	2.227
7	131-A	-do-	1.864
8	26	-do-	1.061
9	401	Khanewal – Sahiwal (Main Line)	5.022
10	435	-do-	2.148
TOTAL			23.065

Lahore Division

S. No.	Bridge No.	Section	Estimated cost
1	10	Sahiwal – Lahore (Main Line)	3.15
2	64	-do-	2.026
3	100	-do-	3.188
4	79	-do-	1.677
5	22-E	-do-	0.689
6	10	Lahore – Lalamusa (Main Line)	4.866
7	117	-do-	1.057
8	128	-do-	2.914
9	37	-do-	1.954
TOTAL			21.521

Peshawar Division

S. No.	Bridge No.	Section	Estimated cost
1	110	Taxila Cantt- Attock City – Peshawar (Main Line)	0.974

2	143	-do-	1.253
3	175	-do-	1.47
4	181	-do-	1.47
5	219	-do-	3.91
6	232	-do-	0.974
7	251	-do-	1.954
8	254	-do-	0.974
9	259	-do-	0.974
10	262	-do-	0.974
11	286	-do-	1.47
12	291	-do-	2.906
TOTAL			19.303

Quetta Division

S. No.	Bridge No.	Section	Estimated cost
1	573-Q	Sibi – Chaman (Branch Line)	1.901
2	150-Q	-do-	7.96
3	57-Q	-do-	1.954
TOTAL			11.815

Name of Division	No. of bridges	Estimated cost.
Karachi Division	13	41.964
Sukkur Division	19	38.839
Multan Division	10	23.065
Lahore Division	9	21.521
Peshawar Division	12	19.303
Quetta Division	3	11.815
TOTAL	66	156.507

**STATEMENT SHOWING DETAIL OF EXPENDITURE RS 8.586
MILLION INCURRED ON BRIDGES NOT INCLUDED IN THE
PC-I. (Para 4.4.4)**

S. No.	Bridge No.	Section	Expenditure incurred
1	27	Khanpur - Lodhran (MUL Div.)	281,637
2	19-R	Tando Adam - Rohri (SUK Div.)	3,665,934
3	470	Rohri Khanpur (SUK Div.)	4,638,434
		TOTAL	8,586,005

Annexure-11

STATEMENT SHOWING THE DETAIL OF EXPENDITURE RS 2.075 MILLION INCURRED IN CONNECTION WITH SOIL INVESTIGATION OF BRIDGES NOT EXECUTED IN THE PROJECT. (Para 4.4.5)

Sr. No.	Division	Section	Bridge No	K.M.	Amount paid	
1	Karachi	LND-KOT	32	36/4-5	152,500	
2			51	55/10-11	50,000	
3		HDR-TDM	83	218/12-13	50,000	
4			91	221/12-13	50,000	
5	Sukkur	ROH – KPR	258	543/9-10	152,500	
6			266	550/13-14	152,500	
7			276	559/2-3	152,500	
8			380	642/5-6	152,500	
9			472	685/10-11	50,000	
10		DDU-HBKJ	44	200/4-5	50,000	
11			66	214/9-10	50,000	
12			80	223/12-13	60,000	
13			81	224/4-5	60,000	
14			86	228/12-13	60,000	
15			109	263/7-8	50,000	
16		Multan	KPR-LON	13	700/15-701/1	75,000
17				26	714/8-9	45,000
18		Lahore	SWAL-LHR	64	1180/7-9	53,000
19				79	1205/25-27	53,000
20	LHR-LLM		117	1318/1-2	232,200	
21			37	1273/6-7	45,000	
22			43	1277/14-1278/1	53,000	
23	SDR-SSL		26	28/10-11	53,000	
24	Shorkot - Wazirabad		208-A	256/5-6	53,000	
25	Peshawar	ATCY- PSC	143	1585/2-3	75,000	
26			291	1646/12-13	45,000	
				TOTAL	2,074,700	

Annexure-12**STATEMENT SHOWING DETAIL OF EXTRA EXPENDITURE AGAINST
ESTABLISHMENT CHARGES RS 39.52 MILLION.****(Para 4.5.1)****(Rupees in million)**

Year	No. of bridges Rehabili- tated	Expenditure on account of Establishment Charges	Unit cost per bridge	Unit cost per bridge as per PC-I	Excess unit cost per bridge	Excess %
2007-08	-	0.037				
2008-09	24	4.462	0.186	0.176	0.01	5.68
2009-10	02	6.888	3.444	0.176	3.268	1856.82
2010-11	02	6.365	3.183	0.176	3.007	1708.52
2011-12	04	5.013	1.253	0.176	1.077	611.93
2012-13	19	7.063	0.372	0.176	0.196	111.36
2013-14	09	8.224	0.914	0.176	0.738	419.32
2014-15	13	7.070	0.544	0.176	0.368	209.09
2015-16	22	11.127	0.506	0.176	0.330	187.50
Total	95	56.249	0.592	0.176	0.416	236.36

Extra expenditure Rs. 39.52 million ($0.416 \times 95 = 39.52$)

Annexure-13

**STATEMENT SHOWING THE DETAIL OF CHANGE IN SCOPE OF WORKS CONTEMPLATED IN THE
PROJECT OF REHABILITATION AND STRENGTHENING OF 159 BRIDGES (Para 4.7.1)**

S. No.	Category	Scope of work	Work planned			Work executed			Difference
			No. of bridges	Unit cost	Total cost	No. of bridges	Unit cost	Total cost	
1	A	Replacement/renewal of super structure	3	12.667	38.000	2	11.189	22.377	01 bridge dropped 02 Rehabilitated as per PC-I
2	B	Strengthening of steel girder & standard bed plates	2	2.000	4.000	1	2.987	2.987	01 bridge dropped 01 Rehabilitated as per PC-I
3	C	Replacement of trough plates, rail cluster and rail decking in to hume pipe or RCC slab	9	0.556	5.000	8	0	8.356	01 bridge dropped 06 Rehabilitated as per PC-I 02 category exchanged
4	D	Replacement of old bed stones rebuild of masonry	40	2.100	84.000	20	1.292	25.841	26 bridges dropped 11 Rehabilitated as per PC-I 08 category exchanged 01 New bridges inducted not included in PC-I
5	E	Raising of bridges	2	1.000	2.000	0	0	0	02 bridges dropped
6	F	Replacement of RCC slabs spans including repair work	12	1.417	17.000	11	3.313	36.438	04 bridges dropped 06 Rehabilitated as

									per PC-I 05 category exchanged
7	G	Conversion into RCC box culvert	77	2.327	179.190	37	5.692	210.588	33 bridges dropped 32 Rehabilitated as per PC-I 03 category exchanged 02 New bridges inducted not included in PC-I
8	H	Partially closing of bridges	14	1.500	21.000	9	7.465	67.182	08 bridges dropped 08 Rehabilitated as per PC-I 01 category exchanged
			159	23.567	350.190	88	31.938	373.769	

Summary

Total Bridges	159
Dropped	66
Ongoing (incomplete) bridge works	07
New bridges inducted	03
Executed as per PC-I	66
Category Exchanged	19
Total bridges rehabilitated	88

Annexure-14

**STATEMENT SHOWING THE DETAIL OF ACTUAL EXPENDITURE
INCURRED ON THE REPAIR AND MAINTENANCE OF BRIDGES FOR
THE PERIOD FROM 2008-09 TO 2016-17.
(Para 4.7.2)**

(Rs in million)

YEAR	ACTUAL EXPENDITURE
2008-09	49.504
2009-10	35.099
2010-11	89.077
2011-12	70.147
2012-13	36.762
2013-14	32.285
2014-15	48.097
2015-16	225.380
2016-17 {(Upto 6/2017 (P))}	230.188