

Chapter 5 Engineering

The Engineering Department of Indian Railways is headed by Member Engineering at Railway Board and is responsible for maintenance of all fixed assets of Indian Railways such as Tracks, Bridges, Buildings, Roads, water supply, in addition to construction of new assets such as new lines, gauge conversion, doubling and other expansion and developmental works. Member Engineering is assisted by Additional Member (Civil Engineering), Additional Member (Works) and Advisor (Land & Amenities). He is also overall in-charge of Signal and Telecom departments at Railway Board level.

At Zonal level, the Engineering Department is headed by Principal Chief Engineer (PCE). The PCE is assisted by various chief engineers for track, bridge, planning, track machines, general matters etc. In addition, each Zonal Railway has a construction organization headed by a Chief Administrative Officer, Construction who is responsible for major construction works including survey works within the Zonal Railway and is assisted by various Chief Engineers (construction). As regard signal and telecom (S&T) department of Zonal Railway, Chief Signal and Telecommunication Engineer is the overall in-charge.

The total expenditure of the Civil Engineering Department and S&T department during the year 2015-16 was ₹ 35033.56 crore and ₹ 3500.14 crore respectively. During the year, apart from regular audit of vouchers and tenders, 1145 offices of Engineering department including Construction Organization of the Railways and 224 offices of S&T department were inspected by Audit.

This Chapter includes nine individual paragraphs relating to poor planning in land management, acquisition etc. leading to extra expenditure; avoidable expenditure due to delay in payment of spectrum charges; non-recovery of lease charges; delay in rebuilding of bridges; non-utilisation of pit-line facilities; award of contract without availability of clear site etc.

5.1 South Eastern Railway (SER): Unfruitful expenditure of ₹ 93.89 crore on the Bagnan-Amta and Deshpran-Nandigram New Railway line projects

Railway Board introduced a policy of recruitment of land losers as a compensation for acquisition of their land even though land could have been acquired using enabling provisions through notification of 'Special Projects' for expeditious land acquisition without making commitment of recruitment. When SER sought clarification on this issue, the Railway Board failed to take a clear stand on the policy. This created a situation of confusion and led to agitation by land losers. The work of the projects Bagnan-Amta and Deshpran-Nandigram New Railway Line projects in Kharagpur Division of South Eastern Railway had to be stopped and expenditure of ₹93.89 crore was rendered unfruitful.

Ministry of Railways (Railway Board) issued instructions²¹⁴ in October 2006 to all Chief Administrative Officers (Construction) of Indian Railways for due diligence to ensure that contracts should not be awarded without completion of the pre-requisites or in case action was warranted for expeditious completion of the work, the requisite works such as clearance of site and preparation of plans and drawings should be completed in time so that progress of work was not hampered.

In order to expedite the acquisition of land for railway projects, the Railways (Amendment) Act, 2008 was enacted by Parliament which empowered the Central Government to acquire land in a time bound manner by notifying the projects as Special Railway Projects. Accordingly, all Zonal Railways were advised (April 2010) to take action for notification of the projects involving land acquisition as Special Railway Projects with the approval of the respective Board Member through the concerned Directorates in the Board. Railway Board circulated (July 2010) policy for recruitment of land losers affected by land acquisition.

Railway Board approved (October 2009) new Broad Gauge lines from Amta to Bagnan and Deshpran to Nandigram as Material Modification projects of Howrah-Amta-Champadanga and Tamluk-Digha projects respectively. The requirement of land for Amta-Bagnan project and Deshpran-Nandigram projects was 168.30 acres and 194.34 acres respectively. In these two projects contracts for civil works were awarded during November 2009 to March 2011 at a total cost of ₹ 127.60 crore as detailed below:

Table 5.1			
Name of the Project	Number of contracts awarded	Cost of the projects	Civil Works undertaken under the contract
Amta-Bagnan (16 kms)	Two (January 2010 and October 2010)	₹ 2.52 crore ₹ 30.71 crore	Earth work, major and minor bridges, blanketing, sand filling etc.
Deshpran-	Four	₹ 5.25 crore,	Earth work, major (including sub-structure and

²¹⁴ The instructions were issued in response to Audit Para No.3.3.12 on 'Non-completion of preliminary works before awarding of contracts' of C&AG's Report No.8 of 2005 (Railways)

Table 5.1			
Name of the Project	Number of contracts awarded	Cost of the projects	Civil Works undertaken under the contract
Nandigram (17 kms)	(November 2009, August 2010, December 2010 and March 2011)	₹ 14.67 crore ₹ 37.32 crore ₹ 37.13 crore	super-structure) and minor bridges, blanketing, sand filling, construction of sub-ways, supply of ballast, cement and steel, transportation of Path Way materials, construction of staff quarters and service buildings etc.
Total		₹ 127.60 crore	

Audit observed that

- The Deshpran-Nandigram and Amta-Bagnan projects were notified as 'Special projects' vide Gazette Notifications dated March 2010 and June 2010 respectively. Though the 'Special Project' status of these projects enabled fast track acquisition of land by the Central Government by determining compensation based on market value of the land and setting up a time frame for payment of compensation to land owners, Railway Board introduced a policy (July 2010) regarding recruitment of land losers as a compensation to land owners.
- As per policy of Ministry of Railways, 413 recruitments were made for the Deshpran-Nandigram project. Against the required area, 163 acres was acquired.
- In February 2013, in view of the changed viewpoint of the Ministry of Railways (as expressed through various newspaper reports, but not communicated to the Zonal Railways formally) SER Administration expressed their inability to make further appointments and requested the Railway Board to communicate their decision on the issue. However, no response was given to SER by the Railway Board clarifying the stand of the Ministry on the issue.
- As no further recruitments were done, the land losers started agitation and stalled the works started by the Railways. No recruitments were made under the Amta-Bagnan project and no land could be acquired. The two contracts were foreclosed (March 2014 and April 2016) after payment of ₹ 25.54 crore.
- Despite acquiring land in the Deshpran-Nandigram project, all the four contracts were foreclosed due to agitation by land losers after incurring an expenditure of ₹ 32.58 crore.
- While the Railways incurred an expenditure of ₹ 58.11 crore (including price variation clause payments ₹ 4.74 crore) on these two Railway projects, an amount of ₹ 35.78 crore was also incurred towards other items such as stores, cost of land, establishment cost, telephones, vehicles etc.
- As all the works have now been foreclosed, the civil works done so far, would also not remain in workable condition for long.

Thus, Railway Board introduced a policy of recruitment of land losers as a compensation for acquisition of their land even though land could have been acquired using enabling provisions through notification of 'Special Projects' for expeditious land acquisition without making commitment of recruitment. When SER sought clarification on this issue, the Railway Board failed to take a clear stand on the policy. This created a situation of confusion and led to agitation by land losers. The work of the projects Bagnan-Amta and Deshpran-Nandigram New Railway Line projects in Kharagpur Division of SER had to be stopped and expenditure of ₹ 93.89 crore was rendered unfruitful.

The matter was referred to Railway Board in December 2016; their reply has not been received (February 2017).

5.2 Northeast Frontier, Eastern, North Central, Northern and East Central Railways:

Avoidable expenditure due to delay in payment of spectrum charges to Department of Telecommunication

Delay in payment of spectrum charges by NR and ECR led to payment of late fee/surcharge of ₹ 19.47 crore. In NFR, ER and NCR spectrum charges surcharges/late fee to the tune of ₹ 89.77 crore (including surcharge/late fee of ₹ 26.75 crore) were outstanding. Unless the spectrum charges are paid on time, late fee/surcharge would be imposed by Department of Telecommunication, which would have to be paid by the Zonal Railways, as there is no provision of waiver of late fee on spectrum charges.

Ministry of Railways (Railway Board) decided (September 1999)²¹⁵ to provide Mobile Train Radio Communication (MTRC) system on 'A', B' & 'C' routes and instructed General Managers (GMs)/Officers on Special Duties (OSDs) of all Zonal Railways to propose the works in Works Programme 2000-2001. Railway Board further instructed (September 2000)²¹⁶ GM (S&T) of NR, ER and NFR to submit application for allotment of frequency for various works related to MTRC to Wireless Planning and Co-ordination (WPC) wing of Department of Telecommunication (DoT). The application was required to be prepared taking into account Global System for Mobile Communications – Railway (GSM-R)²¹⁷ based technology.

The levy of spectrum charges in the shape of License fee and Royalty was effective from 1st June 2004²¹⁸ at the rates prevailing then. For delayed renewal of various licenses, surcharge/late fee was also chargeable at the rate of two *per cent* of the total spectrum charges payable²¹⁹ per month or part thereof. In case of delay of more than one year, the late fee was to be compounded annually.²²⁰

²¹⁵ Railway Board letter No.95/Tele/MW/5/Pt dated 10 September 1999

²¹⁶ Railway Board letter No. 2000/Tele/WCM/1/NFAP/Misc dated 08 September 2000

²¹⁷ GSM-R is an international wireless communications standard for railway communication and applications and is a secure platform for voice and data communication between railway operational staff including drivers, dispatchers, shunting team members, train engineers and station controllers.

²¹⁸ Department of Telecommunications letter No.R-11014/01/2004-LR/5676 dated 5 April 2004

²¹⁹ License fee and Royalty

²²⁰ Department of Telecommunications letter No.R-11014/28/2004-LR/2447 dated 23 March 2005

Audit reviewed the matter regarding payment of spectrum charges in NR, ER, NFR and also other Zonal Railways. Frequency spectrums were taken by five Zonal Railways viz. NR, ER, NFR, NCR and ECR since February 2002. It was observed that NFR, ER and NCR had not paid spectrum charges to DoT on time and surcharge/late fee of significant amounts were payable by them as discussed below:

Northeast Frontier Railway

Northeast Frontier Railway Administration took 64 GSM-R frequency spectrums between April 2003 and February 2008. Telecommunication Department levied spectrum charges since June 2004 and Railway Administration paid a sum of ₹ 3.29 crore till July 2016. A check of records²²¹ further revealed that at the end of December 2013, total outstanding amount against NFR Administration was ₹ 28.76 crore that included a sum of ₹ 3.77 crore as late fee. Neither any late fee has been paid by NFR nor any demand note received from DoT for the period after 1 January 2014. Thus, NFR Administration would have to pay surcharge/late fee at the rate of two *per cent* per month on license fee and Royalty charges to be compounded annually from 1 August 2013²²².

Eastern Railway

Eastern Railway Administration took 59 GSM-R frequency spectrums on Mugalsarai-Howrah route between February 2002 and October 2006. The total amount outstanding (September 2016) for payment to DoT towards license fee, royalty charges, spectrum charges and late fee for the period, April 2012 to September 2016 was ₹ 6.69 crore that included late fee of ₹ 1.29 crore. Eastern Railway Administration was yet (November 2016) to pay ₹ 6.69 crore to DoT.

North Central Railway

North Central Railway took GSM-R frequency spectrum on 90 stations on Ghaziabad-Kanpur-Mughalsarai route. The license for spectrum frequency was granted on 27 July 2007 and the agreement was signed on 13 October 2011. Total amount outstanding (September 2016) for payment to DoT towards licence fee, Royalty charges, spectrum charges and late fee for nine years from July 2007 to September 2016 was ₹ 54.32 crore that included surcharge/late fee of ₹ 21.69 crore. North Central Railway Administration was yet (November 2016) to pay ₹ 54.32 crore to DoT.

It was further observed that NR and ECR Administrations also delayed payment of spectrum charges to DoT and have already paid huge amounts towards surcharge/late fee.

Northern Railway Administration took four GSM-R frequency spectrums on 1182 stations on four²²³ routes between April 2003 and October 2011. Despite clear

²²¹ DoT letter No. L-14022/05/2005-LR dated 1 July 2013

²²² As the spectrum charges up to 31 December 2013 were due to be paid by 31 December 2013 and thus late fee has been worked out w.e.f. 1 August 2013

²²³ Delhi-Ludhiana-Jammu Tawi and Jalandhar-Amritsar-Pathankot, New Delhi-Palwal, Delhi-Jammu Tawi. Additional two BTS sites (Alawapur and Sujapur stations) and Delhi-Sonepat-Jammu Tawi

terms and conditions, NR Administration was not clear until December 2009 as to how the payment of spectrum charges would be made to DoT. Adequate funds for payment under Revenue Head were not provided by the Railway Board and delay was on administrative account. When NR Administration approached WPC to grant exemption from paying any late fee, DoT intimated (November 2013) that there was no provision of waiver of late fee on spectrum charges. As on 31 March 2016, NR Administration paid an amount of ₹ 11.52 crore towards late fee/surcharge on delayed payment of spectrum charges.

East Central Railway Administration took 35 and 11 GSM-R frequency spectrums between April 2003 and December 2011. Total amount due (September 2016) for payment to DoT towards licence fee, royalty charges, spectrum charges, and late fee from April 2009 to September 2016 was ₹ 27.50 crore that included late fee of ₹ 7.95 crore. The amount due was paid to DoT upto September 2016.

Thus, delay in payment of spectrum charges by NR and ECR led to payment of late fee/surcharge of ₹ 19.47²²⁴ crore. In NFR, ER and NCR, spectrum charges, surcharges/late fee was outstanding to the tune of ₹ 89.77²²⁵ crore (including surcharge/late fee of ₹ 26.75²²⁶ crore). Unless the spectrum charges are paid on time, late fee/surcharge would be imposed by DoT, which would have to be paid by the Zonal Railways, as there is no provision of waiver of late fee on spectrum charges.

The matter was taken up with NR, NFR, ER, NCR and ECR Administration between March 2016 and December 2016. Reply from all the railways except NFR was awaited (December 2016). Northeast Frontier Railway Administration in their reply (September 2016) stated that the provision of payment of spectrum charges for the period 1 June 2004 to 31 December 2012 was not included in the revised estimate by the Construction Organisation as it required revision of the estimate and approval by the Board. As there is no provision for waiver of late fee, NFR administration would have to pay full charges including surcharge/late fee.

The matter was referred to Railway Board in December 2016; their reply has not been received (February 2017).

5.3 Southern Railway (SR): Failure to settle the land acquisition matter on time led to avoidable expenditure liability of ₹ 50.68 crore

Southern Railway created infrastructure on land which actually did not belong to them and continued to occupy the same for a long time in violation of the codal provisions. They also did not use the opportunity to settle the matter timely by paying compensation as assessed by the State Government. This resulted in an avoidable expenditure liability of ₹ 50.68 crore towards compensation to the land owner.

²²⁴ NR ₹ 11.52 crore and ECR ₹ 7.95 crore

²²⁵ NFR ₹ 28.76 crore, ER ₹ 6.69 crore and NCR ₹ 54.32 crore

²²⁶ NFR ₹ 3.77 crore, ER ₹ 1.29 crore and NCR ₹ 21.69 crore

Para 915 of Indian Railway Engineering Code states that 'When the award has been announced by the State Government, the Railway Administration may enter unto possession of the land but before doing so, the authority of the Land Acquisition office to its occupation should be obtained. When possession is taken, the land acquisition is completed and the land then vests absolutely in Government'.

For construction of new Broad Gauge line for section Karur-Dindigul-Madurai, Southern Railway (SR) Administration sent (January 1990) a requisition and schedule for acquisition of land²²⁷ in Adiyanathu village near Dindigul station to State Government of Tamil Nadu. Audit observed that without waiting for acquisition, SR occupied (June 1990) the land and created structure on the land in contravention of above mentioned codal provisions.

State Government issued a notification for acquisition of land belonging to two parties (May 1991). One of the land owners²²⁸ was given (March 1993) a compensation award of ₹ 16 lakh by the Railways. Meanwhile, the other land owner (East India Corporation Limited²²⁹) filed a writ petition (September 1992) in High Court of Madras requesting to quash the entire land acquisition proceedings, which was dismissed (January 1999) with direction to hold negotiation with the land owner and pay compensation for the land occupied by SR within a period of three months. State Government advised (May 2000) SR Administration to deposit ₹ 92 lakh for the land in possession by SR. Southern Railway Administration, without verifying the land records, informed (August 2000) that the said land was not required by the Railways as the construction of new line had already been completed even though permanent structure had been created on the said land. In pursuance of SR Administration's request, State Government declared the land acquisition proceeding lapsed and informed (March 2004) the same to the land owner.

Audit observed that in June 2004, the land owner served a notice on the State Government and Railways to pay damages (₹ one crore) for unauthorized occupation and use of the said land by the Railways and to relinquish the said land. Subsequently, a joint inspection by the representatives of Railways, State Government and land owners was done (May 2005) and it was found that the land was in occupation of Railways. Thereafter, SR Administration reversed its stand and requested (July 2005) the State Government to initiate land acquisition proceedings of the land for the purpose of constructing Rail Consumer Depot²³⁰ and other buildings. Accordingly, State Government informed (July/August 2006) SR Administration to deposit ₹ 11.90 crore towards compensation for the land.

It was noticed that on the plea that the compensation was on high side, Construction unit/ Madurai of SR proposed to acquire the said land through

²²⁷ Survey Nos. 1638/1D, 1644. 1645/1 and 1645/2

²²⁸ Survey No. 1638/1D

²²⁹ Survey No. 1644. 1645/1 and 1645/2

²³⁰ for storing diesel for Railways locos and construction of building in connection with train operations

private negotiation in August 2006. State Government was approached (January 2008) after a delay of 17 months seeking clearance. This was however, not agreed to by them as the land was already occupied by the Railways.

No further action was taken by SR Administration for another five and a half years till the land owner (East India Corporation Limited) made a representation (January 2014) to SR Administration to re-convey the possession of land and pay damages towards unauthorized possession. The land owner also approached (January 2014) the Hon'ble High Court seeking action on their representation. The Court directed (June 2014) the State Government and SR Administration to take appropriate action within a period of six weeks. Southern Railway Administration, however, claimed that the land belonged to Railways and asked the land owner to settle the issue with State Government.

Subsequently, the land owner filed (April 2015) a contempt of court petition against SR Administration and sought ₹ 80 crore as compensation. As a result, SR Administration made fresh proposal (June 2015) for acquiring land which was already in possession of Railways for the past 25 years and deposited (July 2015) ₹ 10 crore with the State Government for acquiring the land. State Government examined the proposal and estimated (December 2015) the value of compensation to be paid to the company as ₹ 51.60 crore which included ₹ 31.88 crore being interest for 26 years. For the balance payment of ₹ 41.60 crore, SR proposed to make payment after receipt of formal requisition from State Government, which was still awaited.

As such, SR Administration did not address the issue in right earnest and went on changing their stand about requirement of the land, all the while occupying the land. Southern Railway Administration violated codal provisions by creating infrastructure on land which actually did not belong to them. They further did not utilize the opportunity to settle the matter by paying compensation of ₹ 92 lakh in May 2000 and again in July 2006 for settling the compensation of ₹ 11.90 crore as assessed by the State Government. Delay in settling the matter led to avoidable expenditure liability of ₹ 50.68 crore²³¹.

When the matter was taken up (September 2015), SR Administration stated that the delay in resolving the dispute was not on part of Railways but was due to non-cooperation by the land owners. However, the fact remains that while SR Administration continued to occupy the land and created permanent structure on the land, it did not pay legitimate compensation and also failed to settle the matter when the opportunity arose.

The matter was referred to Railway Board in November 2016; their reply has not been received (February 2017).

²³¹ ₹ 51.60 – ₹ 0.92 (initial cost)

5.4 South Eastern Railway (SER): Non-recovery of lease charges from NHAI

National Highway Authority of India (NHAI) executed the work of construction of bridge at Kolaghat on railway land. Railway Administration delayed raising of demand for lease charges and failed to sign an agreement with NHAI which resulted in non-recovery of lease charges of ₹19.94 crore.

As per Para 1003 of the Indian Railway Code for the Engineering Department, in case of transfer of land or buildings from Railways to another department of the Government, full market value of the land or buildings shall be charged. Railway Board (October 2001) intimated to the Zonal Railways that in all fresh cases, instead of transfer/relinquishment, the land shall be leased to the Government Departments (or undertakings) on long term lease basis for a period of 35 years against lumpsum payment of lease charges equivalent to 99 per cent of current market value of land and a nominal licence fee of ₹ 1000 per annum. The lease agreement shall be further renewable for another period of 35 years at a nominal licence fee per annum to be decided at that time.

The National Highway Authority of India (NHAI) in August 2011 approached the South Eastern Railway (SER) Administration for transfer of railway land measuring 26657.25 sqm (6.587 acres) for construction of new bridge at Kolaghat (West Bengal) over the river Roopnarayan for six laning of NH-6 under the National Highway Development Project (NHDP) Phase V. National Highway Authority of India also agreed to pay the requisite price/fees for the land. In this connection, a meeting was held between officials of SER and NHAI and SER was requested to provide the drawings, NOC, land value and draft lease agreement (September 2011). Kharagpur Division also certified that they had no future planning for the land required by NHAI (October 2011) and certified the plan showing the detail measurements of the railway land required by NHAI (January 2012).

In June 2012, almost after nine months from certifying the plan for land required by NHAI (January 2012), SER Administration forwarded the proposal for leasing of land measuring 26657.25 sqm at a total sum of ₹ 15.04 crore for a period of 35 years to NHAI for approval of Railway Board. It was observed that Railway Administration took unwarranted time in fixation of proposed lease charges and finally preferred a claim of ₹ 19.94 crore to NHAI in April 2014, after Railway Board approved the lease in March 2014. It was, however, observed that no agreement was signed by SER with NHAI for leasing the land for construction of new bridge. Meanwhile, NHAI executed the work of construction of bridge without execution of land lease agreement with the Railway and also without payment of the lease charges.

National Highway Authority of India (June 2014 and October 2014) requested the Zonal Railway to condone the lease charges stating that the NHDP was for the economic development of the Nation and therefore, as per the Government of India policy, no payment was being made for the Government land. However, after raising the demand for payment of lease charges to NHAI in April 2014, SER

Administration did not take any action to sign the lease agreement for land and to recover lease charges from NHAI. Request of NHAI for condonation of lease rent was also not forwarded to Railway Board for further decision on the matter.

When Railway Board further sought status of recovery of lease charges from NHAI by SER Administration (February 2016), it was informed that the construction work of bridge started in railway land without any authority by NHAI in March 2011 and bridge was completed in November 2012. SER Administration further quoted Para 813(B) of Indian Railways Works Manual, as per which Section Engineer (Works) is responsible for maintaining Railway land without any encroachment and stated that they had fixed responsibility of Section Engineer (Works), Kolaghat who failed to prevent the NHAI from construction of bridge in Railway land.

However, since the Divisional and Zonal Headquarters authorities were aware of the matter and correspondence was going on between SER and NHAI, it is unfathomable to expect that a Section Engineer should prevent NHAI from construction of bridge and stall an important project of six laning of NHDP Phase V. Fact remains that the SER administration instead of facilitating the project of NHAI did not take expeditious steps to resolve the matter, sign the agreement with NHAI and recover the lease charges, which also led to non-recovery of lease rent charges of ₹ 19.94 crore from NHAI (September 2016).

The matter was referred to Railway Board in November 2016. In reply, they stated (February 2017) that the process of obtaining approval of Railway Board involved State Government Revenue authority, Officials at Division and Headquarters levels, which took time and resulted in delay in demanding the license fee and other charges from NHAI. They further stated that being a Central Government body, NHAI should have been conversant with necessary formalities to be observed and it was expected that they would start their work only after making necessary payments, signing and executing proper agreements with Railways and only thereafter taking possession of land.

However, being the owner of the land, it was the responsibility of the Railways to execute license agreement, raise bills for lease and other charges on time to facilitate an important infrastructure project.

5.5 East Central Railway (ECR) : Delay in re-building of bridge resulted in compromising safety of passengers by running of train on existing bridge.

Delays on part of ECR Administration to provide necessary facilities/material/site to the contractor led to delay in building of the new bridge. On the other hand, works taken up for strengthening of the existing bridge were also not completed on time due to lapses on part of the ECR administration. This resulted in continuation of Permanent Speed Restriction on the bridge and running of trains on this bridge, which is a safety hazard.

Kiul Bridge²³² is situated between Kiul and Luckeesarai stations on main line under ECR. The bridge was built in the year 1862.

In the year 1998-99, ECR proposed the repair work of the floor system of the bridge, when wide spread corrosion in the floor system was noticed. In 2002, ECR again proposed the work of regirdering of bridge due to heavy corrosion in the girders for long term safety of bridge. After sanctioning of regirdering work by Railway Board in 2003-04, General Manager, ECR inspected (December 2003) the bridge and pointed out that Kiul Bridge is a distressed bridge having serious corrosion problem and as a permanent measure it needs to be rebuilt.

Accordingly, ECR submitted (April 2006) estimates of the work for rebuilding of bridge (building a new bridge at nearby location) instead of regirdering and repair work of floor system of the existing bridge. Railway Board sanctioned (May 2007) rebuilding of the bridge at a cost of ₹ 42.01 crore. In the meantime, ECR imposed (July 2003) Permanent Speed Restriction (PSR) of 30/10 kmph²³³ on the existing bridge due to corroded and weak girder of the bridge.

Audit noticed that ECR took more than two years to award (November 2009) the contract for construction of sub-structure of bridge at a cost of ₹ 15.79 crore. The work of rebuilding of bridge was scheduled for completion by May 2011. It was observed that the completion schedule was extended 12 times up by the railways up to February 2016. The extension were granted mainly due to reasons such as delay in sanction of variations, modification in drawing, rainy season, non-availability of clear site, delayed permission for diversion of road by State Government etc. Majority of these reasons were on account of lapses/delays on part of the ECR Administration. The work of sub-structure of bridge was completed in April 2016 after a delay of about five years. As of March 2016, the contractor was paid ₹ 19.83 crore including ₹ 3.69 crore as escalation payment for the work of substructure of the bridge.

Another contract for superstructure of the new bridge was awarded at the cost of ₹ 9.47 crore in August 2015 with schedule date of completion of August 2016. First extension for the work had already been given up to March 2017 due to delay in supply of girders and delay in availability for approach for start of assembly work, both of which were the responsibility of the railways. The present physical progress of super structure work was only 14 *per cent* for which an amount of ₹ 87 lakh was incurred (up to June 2016).

Due to delay in completion of work, the cost of work has increased from ₹ 42.01 crore to ₹ 71.42 crore for which revised estimate was yet to be submitted for sanction of Railway Board. As such, even after lapse of nine years of sanction of work (May 2007), the rebuilding work has not been completed.

Meanwhile, as the work of building of new bridge was getting delayed, a need was felt for repair of the existing old bridge for safe operations of trains. East

²³² Bridge no.136

²³³ In up and down directions respectively

Central Railway took sanction of Railway Board, in works programme 2013-14, for the work of strengthening and metalizing of floor members of existing bridge at a cost of ₹ 3.25 crore. Though, the target date of completion of this work was September 2015, the work was yet to be completed after incurring an expenditure of ₹ 2.63 crore (October 2016). The reasons for delays were not found in the records of the ECR administration.

Another work for strengthening of the existing bridge by changing perforated girders was sanctioned by Railway Board in the Works Programme 2015-16 at a cost of ₹ 3.91 crore. This work was initially taken up in 1998-99 at a cost of ₹ 2.72 crore, but was not completed. The work was targeted for completion in December 2015. The same is also not completed (October 2016) though an expenditure of ₹ 5.79 crore, which is 48 *per cent* more than the sanctioned estimate, has been incurred so far.

Thus, delays on part of ECR Administration to provide necessary facilities/material/site to the contractors led to delay in rebuilding of the bridge. This led to extra expenditure of ₹ 3.69 crore on account of price escalation. As the new bridge could not be constructed as per laid down time schedule, ECR Administration had to take up works for strengthening of the existing bridge, which were also not completed due to lapses/delays on part of the ECR administration and have crossed their due date of completion 10 to 13 months back. Though Permanent Speed Restriction has been imposed, trains continue to run on the old distressed Kiul Bridge for the past 12 years, which is a safety hazard as repair works on the bridge have also not been completed as planned. Permanent Speed Restriction also led to incurring extra expenditure on detention to passenger trains, goods trains and train engines running on the section, additional fuel consumption and section capacity cost. The impact of speed restriction and slow running of the train on the bridge has been quantified to ₹ 17.58 crore²³⁴ on account of the above parameters.

The matter was referred to Railway Board in November 2016; their reply has not been received (February 2017).

5.6 Northern Railway (NR): Opening of an additional leg of a Road Over Bridge for traffic without adequate safety measures

An additional single lane 3rd leg of ROB towards RDSO was constructed despite adverse opinion of Bridge Authority of State Government and Associate Finance at a cost ₹ 7.75 crore. This bridge has been opened for traffic in March 2015 without proper signages and tyre deflator and without conducting safety audit and taking measures for ensuring movement of traffic in only one way.

²³⁴ The amount has been calculated based on the Cost Study Report conducted by RDSO in August 1991, which was updated in 2003-04 by SCR. As per this, savings of ₹ 3.46 crore per annum have been assessed if a speed restriction is removed.

The main objective of construction of a Road Over Bridge (ROB) or Road Under Bridge (RUB) is elimination of level crossings (LCs) which in turn serves to improve the efficiency of Railway operations and ensure safety of the public travelling by road and railways. The works for the construction of ROB, RUB in lieu of existing LCs are normally undertaken by Railways on cost sharing basis with the State Government.

Lucknow is a densely populated big city of Uttar Pradesh having a large road and rail traffic. To travel from Lucknow to Delhi, there are two rail routes, one via Kanpur and Aligarh and another via Hardoi and Moradabad. In Lucknow city, both the tracks pass near Alambagh where a road emerging from Talkatora to Chowk crosses tracks of both the routes, via Kanpur route at Kanpur crossing (LC 1B Tejikhara) and via Hardoi route at Hardoi crossing (LC 218A).

Research Designs and Standards Organization (RDSO) is a premier Institution of Indian Railways which advises the railways on critical technical issues related to designs and standards. Its offices, other allied buildings and residential houses are located adjacent to Kanpur crossing and on the left hand side of Talkatora Road. To avoid problems from frequent traffic at LC 1B Tejikhara, Railway Board sanctioned (April 2008) a work for construction of a RUB at cost of ₹ 2.39 crore for free passage between Administrative block, RDSO colony and Annexe I, II & other offices in RDSO (Lucknow).

Audit noticed that:

- With a view to eliminate both the level crossings under reference, a work for construction of two lane ROB in lieu of these level crossings was sanctioned in 2004-05 at a total anticipated cost of ₹ 31.46 crore on the basis of Travelled Vehicle Units (TVU). The cost of construction was to be shared by Railway and the State Government. The cost was revised to ₹ 36.84 crore in August 2008. The cost was revised again (January 2010) to ₹ 44.59 crore on account of Material Modification sanctioned (January 2010) by Railway Board for providing a 3rd leg (401 meter length and 5.50 meter width) to the ROB. The enhanced cost (₹ 7.75 crore) was exclusively on account of provision of 3rd leg and it was to be borne by Railways only as its inclusion in ROB over LC no. 1B was exclusively towards RDSO, the material modification was to solve traffic problems and inconvenience to users related to RDSO and the approval to material modification was as per the recommendation of Director General, RDSO.
- Bridge Authorities of State Government²³⁵ ruled out (May 2008) the provision of T-junction towards RDSO from the main ROB as that would have been impractical on safety grounds; being accident prone. Also, the Associate Finance questioned the necessity for this Material Modification for providing 3rd leg towards RDSO when a separate RUB to connect RDSO colony was already sanctioned in 2008-09. However, despite adverse

²³⁵ General Manager, Uttar Pradesh State Bridge Corporation Limited (UPSBC)

opinion of Bridge Authority of State Government as well as Associate Finance, a combined revised estimate was sanctioned (January 2010) by Railway Board with an additional burden of ₹ 7.75 crore for construction of 3rd leg exclusively on Railways.

- On technical side, the width of 3rd leg ROB was further reduced from 5.5 meter to 4.85 meter due to its loading pattern and problems of conflict in traffic flow. Both the structures i.e. RUB and ROB were constructed simultaneously and opened for traffic in December 2014 and March 2015 respectively with capital cost of ₹ 5.15 crore (7 meter wide two way RUB) and ₹ 7.75 crore (4.85 meter one way ROB).

The provision of additional 3rd leg of ROB²³⁶ was specifically to cater to smooth and uninterrupted flow of one way small traffic to RDSO from Alambagh direction. It was designed to permit only one way traffic in view of its reduced carriage way width of 4.85 meter and existence of sharp curves leading to reduced visibility. The ROB was opened for traffic in March 2015 without proper safety arrangements viz. signages and tyre deflator. No safety audit was conducted by Railways Administration to discourage both way movement of traffic. Thus, the narrow additional 3rd leg below the normal standard width of carriage way remained unsafe and accident prone.

Thus, an additional single lane 3rd leg of ROB towards RDSO was constructed despite adverse opinion of Bridge Authority of State Government and Associate Finance at an expenditure of ₹ 7.75 crore. Further 3rd leg of ROB was opened without proper signages and tyre deflator and without conducting safety audit and measures for ensuring movement of traffic only in one way.

The matter was referred to Railway Board in December 2016; their reply has not been received (February 2017).

5.7 Southern Railway (SR): Non-utilization of pit line facilities

A pitline (4th) in Madurai Coaching Depot was created at a cost of ₹ 6.08 crore and handed over to Mechanical Branch (March 2011). However, the assets created are yet to be put to gainful use due to various deficiencies.

In Madurai-Rameswaram section, a pit line was constructed (March 2011) in addition to the existing three pit lines at Madurai coaching complex. The work of construction of 4th pit line was sanctioned (March 2006) by Railway Board as a part of Gauge Conversion work of MDU-RMM section. As per the detailed estimate, the cost of creation of the 4th pit line including catwalk arrangements (₹ 78 lakh), water hydrants (₹ 30 lakh) and watering and drainage arrangements (₹ 8 lakh) was ₹ 1.16 crore. The 4th pit line was constructed in MDU coaching complex at a total cost of ₹ 6.08 crore and handed over (March 2011) by the Construction Organisation to the Mechanical Branch for maintenance of trains. Review of records of Madurai coaching complex revealed that

²³⁶ towards RDSO from the main ROB

- Though constructed in March 2011, the 4th pit line could not be put to use till April 2016.
- The joint inspection carried out (September 2012) by Mechanical, Electrical and Open Line Engineering Department, pointed out various deficiencies in the 4th pit line. These deficiencies included non-connectivity of water pipelines to the existing pipe line, improper drainage system, incomplete civil and electrical works etc. Though some of these were rectified, the problems of blockage of drain, water logging of pathways and non-provision of steps and trolley pathways at the entrance of pit line were yet to be addressed (April 2016).

As such, the 4th pit line constructed at a cost of ₹ 6.08 crore could not be put to use and remained unutilized (April 2016). The matter was initially raised by Audit in May 2013. In response, SR Administration contended (October 2013) that the 4th pit line was being used as stabling line and essentially required for future needs. With regard to using the 4th pit line for coach maintenance, SR Administration stated (March 2016) that a full scale trial was conducted using the 4th pit line for one week. Blockages in the drain pipeline have been found and open line organization has been requested to get the blockages cleared as the pit line could not be put to use due to the blockages. The reply indicates that the 4th pit line has remained unutilized so far. Hence, the assets created at a cost of ₹ 6.08 crore have not been utilized at all (May 2016) due to non-completion of pending works.

The matter was referred to Railway Board in August 2016; their reply has not been received (February 2017).

5.8 Northern Railway (NR): Unfruitful expenditure due to award of contract without availability of clear site and drawings for execution of work

Railway's decision to award a contract for replacement of FOB without ensuring clear site and drawings resulted in unfruitful expenditure of ₹ 5.75 crore on fabrication of steel material for the FOB that would remain blocked till further decision for taking up the work. The existing foot over bridges are very old and not replaced/changed since installation. Till the time they are replaced, their use poses a threat to the safety of the passengers.

As per Railway Board's instructions (August 1980), contracts for works should not be awarded unless preliminary works such as site investigation, approval of plans, drawings and estimates of works are completed and there is no hitch in handing over the site to the contractor for executing the work.

Ministry of Railways (Railway Board) sanctioned (2006-07) two works for replacement of FOBs at Charbagh Railway station in Lucknow. The description of works was 'Replacement of first class FOB' and 'Replacement of second entry FOB', the anticipated costs being ₹ 2.42 crore and ₹ 2.71 crore respectively. Divisional Authority, Lucknow sanctioned (May 2009) the estimates for both the

works and awarded (November 2009) a consolidated contract²³⁷ with target date of completion as August 2010.

The work progressed very slowly as Railway could not make available the approved designs in respect of work for replacement of both FOBs to the contractor in time. In regard to replacement of first class FOB, Railway Administration handed over to the contractor the design prior to October 2011, but the contractor did not start (February 2012) the work for replacement of first class FOB. The design in respect of replacement of second entry FOB needed revision and was made available by the Railway to the contractor in June 2012 only. However, the contractor while seeking extension for the validity of contract (May 2013) claimed that the design had not been handed over to them till 30 May 2013.

Further, when the contractor started the work for replacement of second entry FOB, the operating authorities of Charbagh, Lucknow (NR) station objected (Nov 2013) and got the work stopped on the grounds that no work within station premises could be undertaken without modification in Station Operations Rules. They were under the impression that line at Platform No.2 were required to be shifted for construction of foundation of the FOB and therefore they wanted revision in Station Working Rules prior to start of work. However, it was later found that, no line was required to be disturbed and modification in Station Operating Rules was not required. Lack of coordination between various departments delayed the execution of work.

Divisional Authorities extended the target date of completion (nine times), last in April 2014 that was up to 31 May 2014. Progress of work in April 2014 was insignificant (three *per cent*). Finally, in May 2014, the contractor expressed his inability to continue the execution of work in view of delays involved and escalation in cost of labour and construction material. The work is continued to be showed in the Works Programme of NR and Railway Administration took no action thereafter to carry out the work.

In the meantime, Divisional authorities had placed (April and September 2007), work orders on Bridge Workshop-Charbagh, Lucknow for fabrication of steel material for both the FOBs against which material worth ₹ 5.75 crore had been received during September 2008 to January 2014. The material was lying in open since then in Engineering Stores depot without being utilized.

In this connection, it was observed that

- Although both the works were sanctioned by Railway Board in 2006-07, their detailed estimates were sanctioned by Divisional Authorities in May 2009. Reasons for delay in sanction were not found recorded. Further, the work orders on Bridge Workshop-Charbagh, Lucknow for fabrication of steel material for steel FOBs were placed (April & September 2007) in 2007-08 i.e. before the sanction of detailed estimate. Consequently, NR Administration proposed to close (August 2016) the contract on administrative ground and

²³⁷ including some other renovation and replacement works at Charbagh Lucknow Station and Yard

to revise the estimates for drawings. This will further delay the replacement works of FOBs.

- Although the approved drawings and clear site were not available with Railway to hand over to the contractor to initiate execution of works for replacement of FOBs, they awarded the contract (November 2009) with date of completion August 2010. The target date had to be extended up to 31 May 2014 when the progress of work was around three *per cent*. Since the contract is more than five years old and the contractor has expressed unwillingness to execute the work, chances of replacement of both the FOBs are remote.
- Delay in non-replacement of both the FOBs was directly related to passenger safety as both the FOBs are very old and required immediate replacement. While giving justification for placement of the first class FOBs in 2009, it was stated that 'all bottom channels, lateral bracings have been badly corroded'. The second entry FOB was installed in 1925 and its condition was worse when the proposal for replacement was given.

Thus, Railway's decision to award a contract without ensuring clear site and drawings and lack of coordination between departments resulted in unfruitful expenditure to the extent of ₹ 5.75 crore on fabricated steel material for the FOBs that would remain blocked till further decision for taking up work for replacement of FOBs. The existing FOBs are very old and not replaced/changed since installation. Till the time they are replaced, their use poses a threat to the safety of the passengers.

The matter was referred to Railway Board in September 2016; their reply has not been received (February 2017).

5.9 Southern Railway (SR): Uneconomic operation of Reinforced Cement Concrete (RCC) Depot

The output of RCC depot at Ponmalai is reducing over the years. The expenditure per unit of output has increased by almost 150 per cent in the last six years. The depot incurred additional expenditure of ₹ 5.68 crore on manufacturing items at a much higher cost as compared to market rates during this period. As operating the depot is proving to be an uneconomical proposition, there is a need for exploring alternative ways and means for gainfully utilizing the staff as well as usable assets of the depot.

The Reinforced Cement Concrete (RCC) depot started at Ponmalai (GOC) in 1952. The depot is located in an area of 33,184 sqm and have infrastructural facilities including massive curing pits and heavy cranes. The depot used to manufacture meter gauge (MG) pre-stressed concrete (PSC) sleepers and heavy RCC products. Production of MG sleepers was stopped in 1992 due to uni-gauge policy of IR and that of RCC products in 2003 due to switching over to pre-stressed concrete bridge slabs. Thereafter, this depot is manufacturing light weight RCC items like slabs, kilometer posts, speed breakers, dust bins, curve board and cement concrete items like slabs, paver blocks, bench sets etc.

Review of records of RCC depot revealed that there was no production plan or programme for manufacture of RCC/PCC²³⁸ products since the year 2006. Moreover, no yardstick for production was fixed either by the Zonal Railway or by the Railway Board.

Audit observed that since the year 2007, no indents were being placed on the depot for manufacturing/production of various RCC items. As and when requisitions were received from open line and construction, these items/products were manufactured in the depot. The details in respect of staff, expenditure on labour component, expenditure on other components such as stores, payment to contractor and total output of the depot in cum for the past six years are given below:

Year	Output (in cub. M)	No. of staff	Total expenditure (₹ in lakh)	Labour component (%)	Other expenditure component (%)	Expenditure per unit of output (₹ in lakh)
1	2	3	4	5	6	7=4/2
2010-11	792	46	177.23	67.41	32.59	0.22
2011-12	754	43	208.04	58.46	41.54	0.28
2012-13	655	40	176.96	79.31	20.69	0.27
2013-14	321	35	166.80	86.83	13.17	0.52
2014-15	426	25	219.01	66.87	33.13	0.51
2015-16	252	21	138.29	82.88	17.12	0.55

As can be seen, the quantum of output of manufactured items decreased from 792 cum in 2010-11 to 252 cum in 2015-16. On the other hand, the labour component increased from 67.41 *per cent* of total expenditure in 2010-11 to 82.88 *per cent* in 2015-16 despite decrease in number of staff from 46 in 2011 to 21 in 2016. The expenditure per unit of output increased by more than 150 *per cent*.

Audit further observed that a work study was conducted by SR Administration during February 2013, which pointed out that the labour charges, overhead charges establishment charges etc. were 500 *per cent* of the material cost and that the RCC products were costly at least by three times to that of the market price. The study report also mentioned that there had been very few addition of new items during the past years and products were also not specific to the railways and easily available in market. The work study opined that with the present level of production, outsourcing was more advantageous.

Audit worked out the difference in cost of production of items in the depot and cost of manufacturing these items as per the then prevailing market rates²³⁹. It was observed that the items produced by the depot costed ₹ 5.68 crore more than the market cost during 2010-11 to 2015-16. Audit also noticed that heavy RCC products worth around ₹ 70 lakh which were indented before 2003 were lying idle since then.

²³⁸ Pre-stressed cement concrete

²³⁹ SR provided the market rates for 2015-16 for RCC items and PCC items as ₹ 16,404 and ₹ 7,382 respectively. Audit calculated the market rates for previous years by reducing the same by 10 *per cent* every year.

The issue of uneconomic operation of the RCC depot was taken up with the SR Administration in November 2014. Southern Railway Administration agreed (September 2015) that the cost of RCC depot products were on the higher side due to high cost of labour and stated that steps would be taken to reduce the product cost by increasing lower category posts/ outsourcing the activities like sleeper plant.

From the trend of output and number of staff, it is evident that the SR Administration has been gradually scaling down the operations of the depot. However, considering that operating the depot is proving to be an uneconomical proposition, there is a need for exploring alternative ways and means for gainfully utilizing the staff as well as usable assets of the depot

The matter was referred to Railway Board in October 2016; their reply has not been received (February 2017).