



Periodic Financing Request Report

Project Number: 43332
February 2014

People's Republic of China: Railway Energy
Efficiency and Safety Enhancement Investment
Program (MFF): Tranche 5

Asian Development Bank

CURRENCY EQUIVALENTS

(as of 10 January 2014)

Currency unit	–	yuan (CNY)
CNY1.00	=	\$0.16516
\$1.00	=	CNY6.0546

ABBREVIATIONS

ADB	–	Asian Development Bank
CRC	–	China Railway Corporation
EA	–	executing agency
EIRR	–	economic internal rate of return
FAM	–	facility administration manual
FFA	–	framework financing agreement
LIBOR	–	London interbank offered rate
MFF	–	multitranches financing facility
MOR	–	Ministry of Railways
PMO	–	project management office
PFR	–	periodic financing request
PRC	–	People's Republic of China
TA	–	technical assistance

NOTES

In this report, "\$" refers to US dollars.

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TRANCHE AT A GLANCE

Project Name	Railway Energy Efficiency and Safety Enhancement Investment Program – Tranche 5		PFR No.	5
			Project No	43332
Country	PRC		Department	EARD
Date of Receipt by ADB of PFR Request	28 October 2013		Division	EATC
Project Data Sheet	http://www.adb.org/projects/43332-013/main			
Tranche Summary (as requested by the Government in PFR)				
<p>Impact and Outcome</p> <p>The impact of Tranche 5 will be an improved transport system in the southwestern region of the PRC that supports sustainable socioeconomic development and the western region development strategy. The outcome of Tranche 5 will be an energy-efficient, safe, reliable, affordable, and environment-friendly railway transport system developed in the southwestern region of the PRC.</p>				
<p>Outputs</p> <p>The proposed Tranche 5 will finance the introduction of energy efficiency and safety enhancement equipment.</p>				
<p>Implementation Arrangements</p> <p>Tranche 5 will be implemented over 5 years (February 2014–December 2018) including procurement, installation, and system commissioning activities. China Railway Corporation (CRC), formerly the Ministry of Railways (MOR), will be the executing agency (EA) for project implementation. The EA will set up a steering committee to provide strategic guidance and oversight for project implementation. CRC will coordinate project management and will be responsible for procurement, withdrawals, and reporting to ADB. CRC confirmed that the staff employed will be experienced in technical, financial, and administrative matters; and in implementing projects financed by international financial institutions. An assessment of the financial management capacity of the EA was undertaken and confirmed that the EA has adequate capacity to manage the investment program and Tranche 5.</p>				
<p>Project Readiness</p> <p>The proposed investment has been approved by the steering committee and the government. The PMO was established and staffed. The design of the project has been completed. Two tendering companies were selected on a competitive basis to assist the EA in all ADB-financed procurement under Tranche 5. A design institute has been engaged to draft the bidding documents for the first procurement in accordance with ADB's Procurement Guidelines.</p>				
Tranche Sector Classification				
Tranche Sector Classification		Sector:	Transport, and information and communication technology	
		Subsectors:	Rail transport	
Tranche Thematic Classification				
Tranche Thematic Classification		Theme:	Economic growth	
		Subthemes:	Promoting economic efficiency and enabling business environment, and widening access to markets and economic opportunities	
Climate Change Impact				
Climate Change Impact		Adaptation		Mitigation

Gender Mainstreaming				
	Gender equity theme			
	Effective gender mainstreaming			
	Some gender elements			
	No gender elements			✓
Targeting Classification				
	General Intervention			✓
	Targeted Intervention			
	(i) Geographic dimensions of inclusive growth			
	(ii) Millennium Development Goals			
	(iii) Income poverty at household level			
Location Impact				
	Rural	High	National	✓ Medium
	Urban	Medium	Regional	✓ Low
Tranche Risk Categorization				
	Low Risk	✓	Complex	
Safeguard Categorization				
	Category	Required Document		Disclosure Date ²
(i) Environment	C	n/a		n/a
Weblink:				
(ii) Involuntary resettlement	C	n/a		n/a
Weblink:				
(iii) Indigenous peoples	C	n/a		n/a
Weblink:				
Financing Requested from ADB				
	Modality	Source	Amount (\$ million)	
	Tranche 5 under MFF	OCR	170.00	
	Total		170.00	
Cofinancing				
	Source		Amount (\$ million)	
	n/a			
Counterpart Financing	CRC (70.69%)		410.15	
Aid Effectiveness				
	Parallel project implementation unit			
	Program-based approach			✓
Significant Developments in the MFF and Previous Tranches				
<p>MFF 0040-PRC. On 10 July 2013, ADB approved (i) the extension of the MFF availability period by 2 years from 30 June 2017 to 30 June 2019, (ii) extension of the application date of the last tranche from 30 June 2013 to 30 June 2015, and (iii) change of name of the executing agency from Ministry of Railways to China Railway Corporation.</p> <p>Tranche 1 (Loan 2605-PRC) is to finance introduction of energy-efficient technologies, environment-friendly equipment, and safety equipment in the railway sector in southwestern PRC. It is envisaged to be implemented over 6 years from June 2010 to June 2016. As of 31 December 2013, a total of five contracts amounting to \$35.7 million under Tranche 1 have been awarded (11.9% of the total loan amount), about \$11.6 million disbursed (32.5% of the total contract value). The bidding documents for 34 packages with a total estimated cost of \$266.7 million will be submitted to ADB for review in 2014. The implementation performance of Tranche 1 is satisfactory.</p>				

Tranche 2 (Loan 2724-PRC) comprises (i) introducing railway safety equipment, (ii) conducting a safety audit of a nominated railway administration, and (iii) providing capacity building support. Tranche 2 will be implemented over 6 years. The closing date is scheduled on 30 June 2017. By 9 September 2013, the procurement under Tranche 2 had been completed. All 6 contracts have been awarded, with a total contract value of \$101.9 million. As of 31 December 2013, about \$32.9 million had been disbursed under this tranche, accounting for 32.3% of the total contract value. Disbursement is expected to reach \$90.0 million by the end of 2014, accounting for 90% of the total value of the loan, and is expected to be completed by 31 December 2015. Tranche 2 is expected to be closed by 30 June 2016, 1 year ahead of schedule. The project performance of Tranche 2 is on track.

Tranche 3 (Loan 2765-PRC) is to finance the introduction of (i) railway energy-efficient equipment, (ii) railway environmental protection equipment, and (iii) railway safety enhancement equipment. Six contracts for railway signaling equipment and fasteners amounting to a total of \$71.8 million (28.7% of the total loan amount) have been awarded under this tranche. As of 31 December 2013, \$11.4 million had been disbursed (about 15.9% of the total contract value). Bid evaluation reports (BERs) for 2 lots with a total estimated cost of \$14 million were submitted to ADB for approval on 18 November 2013, and BERs for another 7 lots estimated at \$30.2 million for the electrification system are under preparation and are expected to be submitted to ADB in February 2014. Disbursements are expected to reach \$225 million by the end of 2014. The last disbursement will be made by 30 June 2016, 1 year earlier than the original schedule of 30 June 2017.

Tranche 4 for \$180 million is to finance the introduction of (i) environmental protection equipment, and (ii) railway safety enhancement equipment. It is included in the ADB lending pipeline for the PRC as a firm loan for 2013. The government asked ADB to consider providing a larger tranche of \$350 million but since this could not be accommodated within available 2013 lending resources, it was agreed to proceed with Tranche 4 for \$180 million in 2013, to be followed by Tranche 5 for \$170 million for approval in early 2014. Tranche 4 was approved on 4 December 2013. It will be implemented over 5 years, from 1 January 2014 to 31 December 2018.

Piggybacked TA: Railway Institutional and Capacity Development. An international consulting firm was engaged to provide 14 person-months of international and 16 person-months of national consultant services. The consultants were mobilized on 12 October 2011. Safety and energy audits for Kunming Railway Administration were conducted and environmental management practices reviewed for the Nanning–Kunming rail line. Study tours in Europe and North America, and workshops, were used to obtain information on international best practices and share the findings of the TA. Safety practices in tunnel design, construction and operation of high-speed long tunnels in Europe were especially valuable. In December 2012, the policy brief summarizing the findings of the TA was submitted to ADB and CRC, together with the final report, with a view to being incorporated into relevant regulations and plans.

Activities for Tranches 1, 2, and 3 are fully compliant with the FFA and Legal Agreements of the Investment Program.

I. BACKGROUND

1. Rapid and sustained economic growth since 1978, when the open door policy and economic reforms were initiated in the People's Republic of China (PRC), was accompanied by rapid increases in the demand for transport. Railways have been playing an essential role in transportation and in promoting sustainable economic growth and social development due to their environment-friendliness, energy efficiency, reliability and affordability and lower land take. The Government of the PRC (the government) has prioritized railway development and has emphasized railway development in the less-developed western region with a view to reducing disparities in regional economic development between the coastal and western areas. In its development plan, the government is aiming to expand the railway network from 91,000 kilometers (km) in 2010 to 120,000 km by 2015; and from 36,000 km to 50,000 km in the poor western region.

2. With railway network extension, ADB has been helping the PRC railway sector create awareness of railway energy efficiency, environmental sustainability and safety enhancement and has been encouraging the use of clean energy and energy-efficient technologies, safety enhancement, and environmental improvement in railway construction, operation, and maintenance through periodic policy dialogue with the China Railway Corporation (CRC), formerly the Ministry of Railway (MOR). The government has identified these three issues as key areas of sustainable development and included them in the Eleventh and Twelfth Five-Year Plans (11FYP and 12FYP).

3. A multitranche financing facility (MFF) for the Railway Energy Efficiency and Safety Enhancement Investment Program (Investment Program) in the PRC was approved by ADB on 8 December 2009. The MFF will provide up to \$1.0 billion to the government from ADB's ordinary capital resources. It aims to support the development of a sustainable, energy-efficient, safe, reliable, affordable, and environment-friendly railway system in the PRC. The Framework Financing Agreement (FFA) was signed between the PRC and ADB on 10 November 2009. The impact of the investment program will be an improved transport system in the southwestern region of the PRC that supports sustainable socioeconomic development. The outcome will be an energy-efficient, safe, reliable, affordable, and environment-friendly railway transport system developed in the region. The outputs of the investment program comprise (i) introduction of energy-efficient technologies and environment-friendly and safety equipment; (ii) integration and institutionalization of energy efficiency and environmental issues in railway management; (iii) safety and energy audits of a nominated railway administration; and (iv) capacity building support. The proposed interventions under the Investment Program are aligned with the government's development plan.

4. The MFF is expected to extend multiple loans to finance up to six tranches. To date, ADB has approved four tranches for a total of \$830 million. CRC is the executing agency (EA) for the investment program.¹ A project management office (PMO) has been established to implement the Investment Program.

5. In early 2013, the government reaffirmed the high priority it attaches to railway development in view of its role in stabilizing economic growth, boosting domestic demand and consumption, and accelerating socioeconomic development in the western region. It aims to complete the Investment Program financed by the MFF by December 2018. Given this, the government has requested ADB to process the last tranche for the balance of \$170 million under the MFF.

¹ On 10 July 2013, ADB approved the change in name of the executing and implementing agencies from the Ministry of Railways to the China Railway Corporation.

6. On 28 October 2013, ADB received the government's Periodic Financing Request dated 24 October 2013 for Tranche 5 (PFR5) for \$170 million.² The processing of the PFR5 is consistent with the requirements of the FFA.

II. ASSESSMENT OF MFF IMPLEMENTATION

7. The first three tranches have been implemented satisfactorily despite an initial implementation delay for Tranche 1.³ The current project ratings are "on track".

8. **Tranche 1: Loan 2605-PRC (\$300 million).** Tranche 1 comprises introduction of energy-efficient technologies, environment-friendly equipment, and safety equipment in Yunnan Province and Guangxi Autonomous Region. Tranche 1 was approved on 15 December 2009. The loan agreement was signed on 8 June 2010 and became effective on 26 October 2010. The loan closing date is 30 June 2016. As of 31 December 2013, a total of five contracts amounting to \$35.7 million under Tranche 1 have been awarded (11.9% of the total loan amount), about \$11.6 million disbursed (32.5% of the total contract value). The bidding documents for 34 packages with a total estimated cost of \$266.7 million will be submitted to ADB for review in 2014. The implementation performance of Tranche 1 is satisfactory.

9. **Tranche 2: Loan 2724-PRC (\$100 million).** Tranche 2 is financing introduction of railway safety equipment in Sichuan Province and Chongqing City. It was approved on 14 December 2010. The loan agreement was signed on 11 March 2011 and declared effective on 10 June 2011. Tranche 2 is scheduled to be implemented over 6 years from 31 December 2010 to 31 December 2016. The closing date is scheduled on 30 June 2017. Procurement under Tranche 2 had been completed. By September 2013, all six contracts had been awarded, with a total contract value of \$101.9 million (101.9% of the total loan amount).⁴ As of 31 December 2013, about \$32.9 million had been disbursed under this tranche, accounting for 32.3% of the total contract value. Disbursement is expected to reach \$90.0 million by the end of 2014, accounting for 90% of the total value of the loan, and is expected to be completed by 31 December 2015. Tranche 2 is expected to be closed by 30 June 2016, 1 year ahead of schedule. The project performance of Tranche 2 is on track.

10. **Tranche 3: Loan 2765-PRC (\$250 million).** Tranche 3 comprises introduction of (i) railway energy-efficient equipment, (ii) railway environmental protection equipment, and (iii) railway safety enhancement equipment in Sichuan Province and Chongqing City. It was approved on 20 July 2011. The loan agreement was signed on 25 October 2011 and became effective on 15 February 2012. Six contracts for railway signaling equipment and fasteners amounting to a total of \$71.8 million (28.7% of the total loan amount) have been awarded under this tranche. As of 31 December 2013, \$11.4 million had been disbursed (about 15.9% of the total contract value). Bid evaluation reports (BERs) for two lots with a total estimated cost of \$14 million were submitted to ADB for approval on 18 November 2013, and BERs for another seven lots estimated at \$30.2 million for the electrification system are under preparation and are expected to be submitted to ADB in February 2014. Disbursements are expected to reach \$225 million by the end of 2014. The last disbursement will be made by 30 June 2016, 1 year earlier than the original schedule of 30 June 2017.

² Periodic Financing Request for Tranche 5 (accessible from the list of linked documents in Appendix 2).

³ The progress of Tranche 1 from August 2011 to August 2012 was slow because the government carried out a review of the safety of all railway projects and deferred financing of new railway projects, following the rail accident in Wenzhou on 23 July 2011. The safety review was completed by March 2012, and the government has increased its investment in new railway projects since August 2012. This led to improved implementation performance for the ongoing tranches under the investment program from the beginning of 2013.

⁴ The cost overrun will be financed by local funds.

11. **Tranche 4 (\$180 million).** Tranche 4 is to finance introduction of (i) environmental protection equipment, and (ii) railway safety enhancement equipment in Chongqing City and Guizhou Province. ADB received the government's PFR for Tranche 4 for \$180 million on 1 October 2013. The draft PFR report has been revised by incorporating interdepartmental comments received. Loan negotiations were held from 14–15 November 2013. Tranche 4 was approved on 4 December 2013 and is expected to become effective by 30 May 2014. It will be implemented over 5 years, from 1 January 2014 to 31 December 2018. As part of advance contracting under this tranche, the bidding documents for the first procurement with an estimated total cost of \$90 million are expected to be submitted to ADB for review in February 2014.

12. Prior to submitting the PFR for Tranche 4, the government had asked ADB to consider a larger tranche size of \$350 million. Since this amount could not be accommodated within available 2013 ADB lending resources for the PRC, it was agreed to proceed with Tranche 4 for \$180 million in 2013 to be followed by Tranche 5 for \$170 million for approval in early 2014.

13. **Piggybacked TA: Railway Institutional and Capacity Development (the TA).** This was to (i) conduct safety and energy audits of a nominated railway administration; and (ii) provide capacity building support. An international consulting firm was engaged through quality- and cost-based selection method and provided 14 person-months of international and 16 person-months of national consultant services. The consultants were mobilized on 12 October 2011. Inception and review missions were fielded after receipt of the inception report in November 2011, interim report in February 2012, and the draft final report in July 2012. Safety and energy audits were conducted and environmental management practices reviewed for the Nanning–Kunming rail line. A handbook on rail safety was included in the final report. Study tours were conducted focusing on railway safety and energy efficiency best international practices in Europe and North America. Safety practices in tunnel design, construction and operation for the high-speed long tunnels in Europe were especially valuable. Workshops enabled the results of the tours to be disseminated to a wider audience in the PRC. A policy brief summarizing the findings of the TA was prepared, together with a final report in December 2012. The TA was financially closed on 16 May 2013, and the TA completion report is scheduled to be circulated by 31 August 2014.

14. The Investment Program selection criteria require that equipment installation will not involve land acquisition, have adverse impacts on ethnic minorities, or have negative environmental impacts. CRC is required to examine compliance in this regard and report the results semiannually to ADB. Safeguard compliance assessment for the previous tranches have been closely monitored and reported periodically through the semi-annual progress and due diligence reports to ADB. The first assessment for Tranche 1 was submitted to ADB on 31 July 2011. The latest assessments for the three tranches were submitted to ADB in July 2013. CRC reported that the equipment installation did not involve land acquisition, have adverse impacts on ethnic minorities, or have negative environmental impacts. In 2010, 2011, and 2012, ADB and CRC carried out joint annual reviews of compliance with assurances in the loan agreement and confirmed that the tranches are unlikely to have negative environmental impacts. PFR5 states that all the requirements prescribed in the FFA and legal agreements have been complied with to date during the implementation of Tranches 1–4. Summary reports on the compliance status of Tranches 1–4 have been prepared and include details of the compliance with covenants in the updated facility administration manual (FAM).⁵

⁵ Updated Facility Administration Manual (accessible from the list of linked documents in Appendix 2).

III. PERIODIC FINANCING REQUEST

A. Impact and Outcome

15. The impact will be an improved transport system in the southwestern region of the PRC that supports sustainable socioeconomic development and the western region development strategy. The outcome will be an energy-efficient, safe, reliable, affordable, and environment-friendly railway transport system developed in the southwestern region.

B. Outputs

16. The outputs under Tranche 5 are (i) energy efficiency and (ii) railway safety enhancement in Chongqing City and Guizhou Province.

- (i) **Energy efficiency output.** This consists of introducing railway electrification system and electric power supply equipment.
- (ii) **Railway safety enhancement output.** This comprises introduction of track safety operation and maintenance equipment, enhanced railway fasteners, anti-seismic bridge bearings, railway telecommunication system, and railway signaling system.

17. This equipment will be safer than currently used in southwestern PRC railways and will have significant energy saving benefits.

C. Investment and Financing Plans

18. Tranche 5 is estimated to cost \$580.15 million (Table 1). Detailed cost estimates by expenditure category and by financier are included in the FAM.

Table 1: Tranche Investment Plan
(\$ million)

Item	Amount ^a
A. Tranche 5 Base Cost^b	
1. Energy efficiency Component	356.81
2. Safety enhancement Component	194.15
Subtotal (A)	550.96
B. Contingencies^c	17.56
C. Financing Charges During Implementation^d	11.63
Total (A+B+C)	580.15

^a Includes taxes and duties of \$15.20 million to be financed from China Railway Corporation resources.

^b In mid-2013 prices.

^c Price contingencies computed at 1.0% for 2011, 0.0% for 2012, 0.3% for 2013, and 0.5% thereafter on foreign exchange costs; and 1.0% for 2011, 1.5% for 2012, and 2.0% thereafter on local currency costs; includes provision for potential exchange rate fluctuation under the assumption of a purchasing power parity exchange rate.

^d Includes interest and commitment charges. Interest during construction for ADB loan(s) has been computed at the 5-year fixed swap rate plus 40 basis points and 20 basis points maturity premium. Commitment charges to the ADB loan are computed at 0.15% per year on the projected undisbursed amount.

Source: Asian Development Bank estimates.

19. The government has requested a loan of \$170 million from ADB's ordinary capital resources to help finance the project. The loan will have a term of 25 years, including a grace period of 5 years, an annual interest rate determined in accordance with ADB's London

interbank offered rate (LIBOR)-based lending facility, a commitment charge of 0.15% per year, and such other terms and conditions as agreed in the FFA and loan agreements.⁶

20. The government has provided ADB with (i) the reasons for its decision to borrow under ADB's LIBOR-based lending facility on the basis of these terms and conditions, and (ii) an undertaking that these choices were its own independent decision and not made in reliance on any communication or advice from ADB.

21. The financing plan is in Table 2. The ADB loan will finance 29.30% of the cost of Tranche 5. The remaining cost will be financed by CRC. Taxes, duties, price contingencies, and financing charges during implementation will be financed by CRC. The government and CRC have assured ADB that CRC will provide additional counterpart funding for any shortfall of funds or cost overruns to ensure the success of the Tranche 5 investment.

Table 2: Financing Plan

Source	Amount (\$ million)	Share of Total (%)
Asian Development Bank (OCR)	170.00	29.30
China Railway Corporation	410.15	70.70
Total	580.15	100.00

Source: Asian Development Bank staff estimates.

D. Implementation Arrangements

22. CRC will be the EA responsible for overall project implementation. It has set up a steering committee to provide strategic guidance and oversight for project implementation. CRC⁷ will coordinate the project management and be responsible for procurement, withdrawals, and reporting to ADB. CRC has confirmed that the staff employed will be experienced in technical, financial, and administrative matters; and in implementing projects financed by international financial institutions. An assessment of the financial management capacity of CRC was undertaken and confirmed that CRC has adequate capacity to manage the investment program.⁸ Tranche 5 will be implemented over 5 years (February 2014–December 2018). The loan closing date will be 30 June 2019.

23. The implementation arrangements are summarized in Table 3 and described in details in the updated FAM.

⁶ The interest rate includes a maturity premium of 0.2 based on Borrower's choice of loan terms and repayment options.

⁷ Since 1994, CRC is in charge of day-to-day implementation of 13 ADB-financed loan projects including Tranches 1, 2, and 3 of the Investment Program (and is proposed for Tranche 4) and nine policy and advisory and capacity development technical assistance projects. Experience from completed and ongoing projects shows that CRC has strong capacity in project implementation.

⁸ The financial management assessment is accessible from the list of linked documents in Appendix 2.

Table 3: Implementation Arrangements

Aspects	Arrangements		
Implementation period	February 2014–December 2018		
Estimated completion date	31 December 2018 (loan closing date: 30 June 2019)		
Management			
(i) Oversight body	Steering Committee in China Railway Corporation (CRC) Director General (chair) Heads of all concerned departments and agencies (members)		
(ii) Executing agency	<ul style="list-style-type: none"> • CRC will be the executing agency for the project. • CRC has the responsibility with regard to planning, implementation, financing, and operation of the Program after its completion, and will coordinate the project management office's tasks and be responsible for procurement, withdrawals, and reporting in relation to ADB. 		
(iii) Key implementing agencies	CRC		
(iv) Implementation unit	Project Management Office, staff of 18		
Procurement	International competitive bidding	26 contracts	\$ 170 million
Retroactive financing and/or advance contracting	If approved, retroactive financing will apply to the procurement of anti-seismic bridge bearings and enhanced fasteners, and up to 20% of the ADB loan amount, with respect to expenditures incurred prior to loan effectiveness but not earlier than 12 months before signing of the loan agreement.		
Disbursement	The loan proceeds will be disbursed in accordance with ADB's <i>Loan Disbursement Handbook</i> (2012, as amended from time to time) and detailed arrangements agreed upon between the Government and ADB.		

Source: Asian Development Bank.

E. Project Readiness

24. The preliminary designs of the project have been completed. The project investment was approved by the steering committee and the government in December 2012. The PMO was established and staffed. Two tendering companies, CMC International Tendering Corporation and CITIC International Tendering Co., Ltd., were selected on a competitive basis to assist CRC in all ADB-financed procurements under Tranche 5. The EA is ready to draft the bidding documents for the first procurement in accordance with ADB's Procurement Guidelines. To assist in smooth implementation, an updated FAM has been prepared.

F. Advance Contracting and Retroactive Financing

25. For each tranche, retroactive financing of eligible expenditures may be considered and allowed by ADB management when included in a PFR. The government requested approval of advance contracting and retroactive financing of up to \$34 million (20% of the loan amount of \$170 million) since anti-seismic bridge bearings and enhanced fasteners need to be procured prior to the loan effective date. The government and CRC have been informed that approval of advance contracting and retroactive financing does not commit ADB to finance the proposed tranche.

IV. DUE DILIGENCE

A. Technical

26. Technical due diligence considered the safety, energy efficiency, resistance to corrosion, fatigue resistance, and earthquake resistance properties of the project equipment, and compatibility with local systems and conditions. The equipment and materials included in Tranche 5 are based on proven and established technologies and practices. The EA has experience of installing new technologies successfully and has successfully implemented similar projects.

B. Economic and Financial Viability

27. Updated economic due diligence was carried out for the Investment Program.⁹ The methodology used for the original economic analysis prepared for Board consideration of the MFF in 2009 remains valid. An updated economic analysis was prepared incorporating updated cost information based on actual prices obtained under Tranches 1–3. This confirms that the Investment Program is economically viable. The economic internal rate of return (EIRR) for the MFF is 28.36% with a net present value of CNY33.08 billion at a 12% discount rate. This is a little higher than the original EIRR estimate of 26.81%. Some equipment prices have changed, with items such as for bridge bearings increasing by about 10% from 2009 to 2013; while others such as for optical cable have stayed virtually the same; and others such as high value electronics items have fallen by about 15%. These changes resulted in a lower total estimated investment cost of CNY19.34 billion compared to the original cost of CNY20.07 billion. The value of time savings and energy prices were also updated, and resulted in increased levels of benefits because of higher prices.

28. Due diligence on the EA's financial management capacity was conducted. The assessment confirmed that the EA has sufficient accounting professionals, acceptable accounting policies including standards of financial reporting and general accounting practices, and strong internal control of expenditures and financing commitments. The quality and punctuality of financial reporting has been satisfactory in previous ADB-financed railway projects. The key personnel of the EA are well experienced in ADB project implementation. The EA manages a large foreign-funded project portfolio and has adequate capacity to conduct financial management acceptable to ADB. The National Audit Office undertakes annual audits of railway projects financed by ADB and World Bank. Annual audited reports for Tranches 1, 2, and 3 have been submitted to ADB as required. The financial management assessment concluded that the EA's financial management skills and capacity are sufficient and can be relied on for program financial management purposes.

29. The EA has the necessary financial resources to operate and maintain the items purchased under the Investment Program and Tranche 5. It will also be able to service the debt incurred through the loan.¹⁰ The EA has previously successfully managed 13 ADB and 12 World Bank loans over the last two decades. The EA will continue to receive budgetary support from the government since railway is one of the safest, environmentally-friendly, and energy-efficient

⁹ Linked Document 4: Economic Analysis Due Diligence for the MFF Investment.

¹⁰ China Railway Corporation provided data that its total revenues were \$160 billion in 2012 and \$136 billion in 2011; and operating profits were more than \$11 billion in both years. The debt-equity ratio (62.23% in 2012) and operating ratios (typically about 75%) and profitability ratios (total profit/total costs of 7.9% and operating profit/total transport costs of 13.0% for 2012) indicate that CRC will be able to meet its financial obligations under the Investment Program and Tranche 5. 94.5% of the 2012 operating profit was invested in the Railway Construction Fund, which provides capital for railway construction and major upgrades. A similar percentage was invested in previous years. (Source: China Railway Newspaper, 12 October 2013).

modes of transport and has been prioritized. In summary, the financial indicators demonstrate that CRC has a sound basis to be able to sustain any incremental recurrent costs resulting from the Investment Program and Tranche 5.

30. A procurement capacity assessment of the EA was also conducted. The EA has personnel experienced and trained in procurement and contract management supported by well-established internal procedures and management systems consistent with ADB requirements. The EA's accountability mechanism is also deemed effective with separation of functions across procurement and contract, disbursement, and internal audit. In view of its extensive experience of implementing ADB and World Bank financed projects, the EA is familiar with conducting procurement with international financing institutions. The assessment confirmed that the EA has sufficient procurement capacity.

C. Governance

31. All procurement to be financed under Tranche 5 will be procured in accordance with ADB's Procurement Guidelines (2013, as amended from time to time), and as provided for in the Procurement Plan (Section VI of the FAM). To facilitate disbursements, the EA will set up an imprest account at a bank acceptable to ADB after the loan becomes effective. The amounts to be deposited in the imprest accounts shall not exceed the estimated expenditures to be financed from imprest accounts for the next 6 months of implementation or 10% of the loan amount, whichever is lower. The currency of the imprest account will be US dollar. To expedite funds flow and simplify documentation, the statement-of-expenditure procedure may be used in liquidating and replenishing the imprest account and reimbursing eligible expenditures of not more than \$200,000 per payment. Payments over the statement-of-expenditure ceiling will be reimbursed, liquidated, or replenished on the basis of full supporting documentation.

32. The EA has been actively involved in implementing many railway project loans and TA projects financed by ADB, including four completed projects,¹¹ six ongoing loan projects, three tranches under the Investment Program, one ongoing tranche for processing under the Investment Program, and three ongoing TAs. The EA has assigned officials who are familiar and experienced with ADB-financed projects to implement Tranche 5.

33. ADB's Anticorruption Policy (2000, as amended to date) has been discussed with the government and the EA. The specific policy requirements and supplementary measures are described in the FAM.

D. Poverty, Social and Gender Dimensions

34. The project will contribute to poverty reduction impact by promoting inclusive growth in southwestern PRC. Poverty in this area is caused by (i) adverse environmental and weather conditions and limited farmland (e.g., mountains, cold weather, water scarcity, and soil erosion); (ii) geographical remoteness and isolation and high transport costs; and (iii) lack of access to markets, and good social and health care facilities. Providing an energy efficient, environment-friendly, safe, and secure transportation system will enable the efficient flow of people and goods; conserve resources; protect the environment from pollution; and contribute to the health, quality of life, and prosperity of the population. The project, when completed, will help increase standards of living and reduce poverty in the region by enabling sustainable economic growth, creating conditions necessary for developing local resources and generating employment and income-enhancing opportunities; and will enhance railway safety and increase railway capacity, benefiting consumers and producers of goods and services through the provision of timely and

¹¹ Of the four completed projects, 2 were rated highly successful and 2 were rated successful.

efficient transport services and lower logistics costs. Details are presented in the summary poverty reduction and social strategy.¹²

35. Increased employment opportunities created indirectly for the poor, ethnic minorities, and women by railway development will provide potential new sources of income, such as: (i) the demand for unskilled labor, (ii) opportunity to sell food and local handicraft items, and (iii) economic opportunities related to tourism. This will increase net income and savings, improve overall family welfare, and help raise living standards in the project area. Expansion of secondary and tertiary industries will generate additional employment opportunities for both men and women, close to their homes.

E. Safeguards

36. Tranche 5 is classified as category C for all safeguard aspects (environment, involuntary resettlement, and indigenous peoples). The investment program selection criteria require that equipment installation should not involve land acquisition, have adverse impacts on ethnic minorities, or have negative environmental impacts. The EA's assessment indicates that Tranches 1, 2, and 3 have no land acquisition or resettlement activity associated with the procurement and installation of the selected equipment and materials. The review carried out by ADB and the EA visited the project's site periodically, and observed there was no negative environmental impact at the sites. Tranche 5 will finance procurement of energy efficiency and railway safety enhancement equipment in the southwestern region of the PRC. The EA has confirmed that none of the equipment and materials to be financed under Tranche 5 will involve land acquisition, involuntary resettlement, have adverse impacts on ethnic minorities, or have negative environmental impacts. Tranche 5 has been prepared in accordance with the safeguards framework in the FFA.

F. Risks and Mitigating Measures

37. Tranche 5 is formulated to minimize potential risk. Major risks and mitigation measures are summarized in Table 4 and described in detail in the risk assessment and risk management plan.¹³

Table 4: Summary of Risks and Mitigating Measures

Risks	Mitigating Measures
Delay in project implementation	Two qualified procurement companies have been selected to assist the EA in all ADB-financed procurement under Tranche 5. The EA will ensure that staff employed in the EA and PMO will be experienced in technical, financial, and administrative matters; and in implementing projects financed by international financial institutions. On-the-job training on ADB procedures will be provided to new staff of the EA to ensure adherence to ADB policies and procedures and minimize the risk of delay.
Financial management risk and project cost overruns	The government and EA will ensure the timely release of counterpart funds, as per loan covenants. The EA will maintain separate accounts for the project and have such accounts and related financial statements audited annually by an external auditor in accordance with auditing standards acceptable to ADB. The government and EA will ensure the cost management control with a view to minimizing initial investment on the project and will be responsible for financing all cost overruns.

ADB = Asian Development Bank, EA = executing agency, PMO = project management office.
Sources: ADB staff.

¹² Summary Poverty Reduction and Social Strategy (accessible from the list of linked documents in Appendix 2).

¹³ Risk Assessment and Risk Management Plan (accessible from the list of linked documents in Appendix 2).

G. Risk Categorization

38. The proposed tranche is categorized as “low risk” because (i) the total loan amount for Tranche 5 will be \$170 million (less than \$200 million), (ii) ADB has sound previous experience in implementation of the railway projects in the PRC, (iii) the EA has successfully implemented ADB-financed railway projects, and (iv) safeguard categorization is not A.

V. ASSURANCES AND CONDITIONS

39. The government and CRC have assured ADB that implementation of the project shall conform to all applicable ADB policies including those concerning anticorruption measures, safeguards, gender, procurement, and disbursement as described in detail in the FAM.

40. The government and CRC have agreed with ADB on certain covenants for the project, which are set forth in the loan agreement.

VI. RECOMMENDATION

41. The proposed Tranche 5 is in accordance with the FFA and would comply with the Articles of Agreement of the ADB and it is recommended that the President approve the loan of \$170,000,000 to the People’s Republic of China for Tranche 5 under the Railway Energy Efficiency and Safety Enhancement Investment Program from ADB’s ordinary capital resources, with interest to be determined in accordance with ADB’s London interbank offered rate (LIBOR)-based lending facility; for a term of 25 years, including a grace period of 5 years; and such other terms and conditions as are substantially in accordance with those set forth in the FFA.

DESIGN AND MONITORING FRAMEWORK OF TRANCHE 5

Design Summary	Performance Targets/Indicators	Data Sources/ Reporting Mechanisms	Assumptions and Risks
<p>Impact Improved transport system in the southwestern region that supports sustainable socioeconomic development and the western region development strategy</p>	<p>GDP to increase during 2015–2023 at 5% to 6% per annum for the southwestern region</p> <p>Per capita rural income in the southwestern region increased from CNY3,300 in 2007 to CNY4,400 in 2015 to CNY4,700 in 2020 and 4,880 in 2023</p>	<p>Provincial and county/city statistics offices</p> <p>Investment program performance management system at inception, completion, and 3 years after—with emphasis on socioeconomic improvement impacts</p>	<p>Assumptions Government investment programs are implemented as planned.</p> <p>Complementary activities are implemented.</p> <p>The Government is committed to reducing poverty in the western region, based on the western region development strategy.</p>
<p>Outcome An energy-efficient, safe, reliable, and environment-friendly railway transport system developed in the region</p>	<p>Transport capacity expanded in the southwestern PRC to 470 billion ton-km for freight and 150 billion passenger-km for passengers in 2020</p> <p>Energy consumption on the PRC railways per unit of revenue is reduced by 23% from 2009 to 2020</p> <p>CO₂ emissions are reduced by 22,106 tons in 2020</p> <p>A 20% reduction in rate of accidents per billion traffic by 2020 from 2008 (0.214 per billion converted t-km in 2008)</p>	<p>Progress reports</p> <p>CRC statistics and operating data before and after the investment program</p> <p>CRC statistics and facility completion report</p> <p>Post evaluation surveys and reports from CRC</p>	<p>Assumptions Assumed economic growth rates materialize.</p> <p>Traffic forecasts are realized.</p> <p>Passengers and freight operators realize the benefit of using the railways.</p> <p>Risk Capacity enhancement works are not completed in a timely manner.</p>
<p>Outputs 1. Energy efficiency</p>	<p>(i) Railway electric power supply system procurement will begin by January 2015 and installed by September 2017.</p>	<p>FAMs and PCR</p>	<p>Assumption Associated equipment procurement and installation are completed.</p>

Design Summary	Performance Targets/Indicators	Data Sources/ Reporting Mechanisms	Assumptions and Risks
2. Railway safety enhancement	<ul style="list-style-type: none"> (ii) Railway electrification system procurement will begin by January 2015 and installed by December 2017. (i) Anti-seismic bridge bearings and enhanced fasteners will start procurement by July 2014 and installed by December 2016. (ii) Telecommunication system will start procurement by January 2015 and installed by September 2017. (iii) Railway signaling system procurement will begin by January 2015 and installation completed by December 2017. (iv) Track safety operation and maintenance equipment procurement will begin by July 2015 and installation completed by December 2017. 		
Activities with Milestones <ul style="list-style-type: none"> 1. Energy efficiency <ul style="list-style-type: none"> 1.1 Procurement of equipment completed by December 2015 1.2 Installation completed by December 2017 1.3 Final acceptance completed by December 2018 2. Railway safety enhancement <ul style="list-style-type: none"> 2.1 Procurement of equipment completed by March 2016 2.2 Installation completed by December 2017 2.3 Final acceptance completed by December 2018 			Inputs <ul style="list-style-type: none"> Investment cost for Tranche 5: \$580.15 million ADB: \$170.00 million CRC: \$410.15 million

ADB = Asian Development Bank, FAM = facility administration manual, GDP = gross domestic product, km = kilometer, CNY = Chinese Yuan, CRC = China Railway Corporation, PCR = project completion report, PRC = People's Republic of China, TA = technical assistance, t-km = ton-kilometer.

* Baselines for fuel savings, CO₂ emissions and SO₂ emissions are 2009 data. Fuel savings and emission reductions are benefits in the specified year and not aggregated benefits from the base year.

LIST OF LINKED DOCUMENTS

1. Periodic Financing Request for Tranche 5
2. Updated Facility Administration Manual for Tranches 1, 2, 3, 4, and 5
3. Updated Summary of Poverty Reduction and Social Strategy
4. Economic Analysis Due Diligence for the MFF Investment Program
5. Financial Management Assessment
6. Contribution to the ADB Results Framework
7. Risk Assessment and Risk Management Plan

PERIODIC FINANCING REQUEST – Tranche 5

Date: 24 October 2013
To: Asian Development Bank
6 ADB Avenue
Mandaluyong City, Metro Manila
Attention: Mr. A. Konishi
Director General
East Asia Regional Department

Dear Mr. A. Konishi,

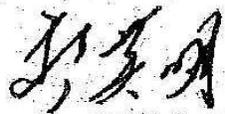
Subject: Multitranche Financing Facility for Railway Energy Efficiency and Safety Enhancement Investment Program: Periodic Financing Request – Tranche 5

Please refer to the Framework Financing Agreement (FFA) for the Railway Energy Efficiency and Safety Enhancement Investment Program dated 10 November 2009 between Asian Development Bank (ADB) and the People's Republic of China (PRC). Expressions defined in the FFA shall have the same meanings herein.

Pursuant to the provisions of the FFA, the PRC requests ADB to process this Periodic Financing Request (PFR) for a tranche, in the form of a loan from its ordinary capital resources. The proposed financing amounts, terms, conditions, and financing plan are specified in Attachment hereto.

The PRC hereby certifies that it is in full compliance with the understanding set out in the FFA.

By: The People's Republic of China



ZOU Jiayi
Director General
International Department
Ministry of Finance

Yang Yingming for

ASIAN DEVELOPMENT BANK
RECEIVED
28 OCT 2013
EARD
TRANSPORT DIVISION

ATTACHMENT A

PERIODIC FINANCING REQUEST NO. 5 FOR MFF: RAILWAY ENERGY EFFICIENCY AND SAFETY ENHANCEMENT INVESTMENT PROGRAM

Project Description The components proposed for financing under the requested PFR are (i) energy efficiency and (ii) railway safety enhancement.

- (i) Energy efficiency component: introduction of electrification system and electric power supply equipment and any other equipment agreed between PRC and ADB; and
- (ii) Railway safety enhancement component: introduction of railway safety enhancement equipment including (a) track safety operation and maintenance equipment, (b) enhanced railway fasteners and anti-seismic bridge bearings, (c) railway signaling system, and (d) telecommunications system, and any other equipment agreed between PRC and ADB.

This equipment has significant energy efficiency and safety benefits. Integrating this equipment into the southwestern PRC railway network will help optimize performance, ensure reliability, and enhance energy efficiency and safety. The expected activities for Tranche 5 are fully compliant with the Framework Financing Agreement (FFA) and the Legal Agreement of the Investment Program. The Design and Monitoring Framework for the project is in Annex 1.

Cost Estimates and Financing Plan The total cost of the components is estimated at \$580.1 million, inclusive of taxes, duties, and interest and other charges on the loan during construction. The detailed cost estimates and financing plan are in Annex 2.

	(\$ million)	
Source	Total	%
Asian Development Bank	170.0	29.3
China Railway Corporation	410.1	70.7
Total	580.1	100.0

Loan Amount and Terms The request is for a loan of \$170 million from the ordinary capital resources of the Asian Development Bank (ADB) provided under ADB's London interbank offered rate (LIBOR)-based lending facility, with a 25-year term including a grace period of 5 years, an interest rate determined in accordance with ADB's LIBOR-based lending facility, and such other terms and conditions as agreed in the FFA, and further supplemented under the Loan Agreements.

Period of Loan/Guarantee Utilization The components are expected to be completed by 31 December 2018. No disbursements from the loan account will be requested or made later than 30 June 2019.

Advance Contracting	Advance contracting is requested for procurement of anti-seismic bridge bearings and fasteners railway safety enhancement component.
Retroactive Financing	Retroactive financing is requested for the eligible expenditures, not exceeding the amount of \$34 million, incurred before loan effectiveness, but not earlier than 12 months before the signing of the legal agreement.
Implementation Arrangements	China Railway Corporation (CRC)—formerly the Ministry of Railways is the Executing Agency (EA) and responsible for overall program implementation. CRC will coordinate the project management office's tasks and be responsible for procurement, withdrawals, and reporting vis-à-vis ADB. A steering committee headed by Director General, CRC will be responsible for project implementation. CRC confirmed that the staff employed will be experienced in technical, financial, and administrative matters; and implementing projects financed by international financial institutions. An assessment of financial management of CRC was undertaken and CRC has adequate capacity to manage the investment program. An updated facility administration manual has been prepared for this tranche.
Procurement and Consulting Services	The procurement plan is attached as Annex 3. All goods and services to be financed under the Facility will be procured in accordance with the relevant procurement rules in ADB's Procurement Guidelines (2013, as amended from time to time).
Confirmation of Continuing Validity of and Adherence to Provisions of FFA, Previous Agreements, and the Design and Monitoring Framework	<p>PRC confirms that the understandings set out in the FFA and provisions of previous loan agreements have been adhered, and remain true to date.</p> <p>A full report on compliance for Tranche 1, Tranche 2, and Tranche 3 is attached as Annex 4.</p>
Readiness of the Project for Implementation	<ol style="list-style-type: none"> 1. Project Management Office was established and staffed. 2. The loan agreement will be drafted. 3. The investment of the components has been approved by the steering committee and the government. 4. Foreign Capital Utilization Plan for this tranche will be approved by the National Development and Reform Commission by 15 October 2013. 5. Two tendering companies were selected on a competitive basis to assist CRC in all ADB-financed procurements under Tranche 5.

Safeguards

None of the equipment and material financed under Tranche 5 will involve land acquisition, involuntary resettlement, have adverse impacts on ethnic communities, or have negative environmental impacts. Tranche 5 will be in accordance with the Safeguards Framework in the FFA.

ANNEX 1

DESIGN AND MONITORING FRAMEWORK OF TRANCHE 5

Design Summary	Performance Targets/Indicators	Data Sources/ Reporting Mechanisms	Assumptions and Risks
<p>Impact Improved transport system in the southwestern region that supports sustainable socioeconomic development and the western region development strategy</p>	<p>GDP to increase during 2015–2023 at 5% to 6% per annum for the southwestern region</p> <p>Per capita rural income in the southwestern region increased from CNY3,300 in 2007 to CNY4,400 in 2015 to CNY4,700 in 2020 and 4,880 in 2023</p>	<p>Provincial and county/city statistics offices</p> <p>Investment program performance management system at inception, completion, and 3 years after—with emphasis on socioeconomic improvement impacts</p>	<p>Assumptions Government investment programs are implemented as planned. Complementary activities are implemented.</p> <p>The Government is committed to reducing poverty in the western region, based on the western region development strategy.</p>
<p>Outcome An energy-efficient, safe, reliable, and environment-friendly railway transport system developed in the region</p>	<p>Transport capacity expanded in the southwestern PRC to 470 billion ton-km for freight and 150 billion passenger-km for passengers in 2020.</p> <p>Energy consumption on the PRC railways per unit of revenue is reduced by 23% from 2009 to 2020.</p> <p>CO₂ emissions are reduced by 22,106 tons in 2020.</p> <p>A 20% reduction in rate of accidents per billion traffic by 2020 from 2008 (0.214 per billion converted t-km in 2008)</p>	<p>Progress reports</p> <p>CRC statistics and operating data before and after the investment program</p> <p>CRC statistics and facility completion report</p> <p>Post evaluation surveys and reports from CRC</p>	<p>Assumptions Assumed economic growth rates materialize.</p> <p>Traffic forecasts are realized.</p> <p>Passengers and freight operators realize the benefit of using the railways.</p> <p>Risk Capacity enhancement works are not completed in a timely manner.</p>
<p>Outputs 1. Energy efficiency</p>	<p>(i) Railway electric power supply system procurement will begin by January 2015 and installed by September 2017.</p>	<p>FAMs and PCR</p>	<p>Assumption Associated equipment procurement and installation are completed.</p>

Design Summary	Performance Targets/Indicators	Data Sources/ Reporting Mechanisms	Assumptions and Risks
2. Railway safety enhancement	<ul style="list-style-type: none"> (ii) Railway electrification system procurement will begin by January 2015 and installed by December 2017. (i) Anti-seismic bridge bearings and enhanced fasteners will start procurement by July 2014 and installed by December 2016. (ii) Telecommunication system will start procurement by January 2015 and installed by September 2017. (iii) Railway signaling system procurement will begin by January 2015 and installation completed by December 2017. (iv) Track safety operation and maintenance equipment procurement will begin by July 2015 and installation completed by December 2017. 		
Activities with Milestones <ul style="list-style-type: none"> 1. Energy efficiency <ul style="list-style-type: none"> 1.1 Procurement of equipment completed by December 2015 1.2 Installation completed by December 2017 1.3 Final acceptance completed by December 2018 2. Railway safety enhancement <ul style="list-style-type: none"> 2.1 Procurement of equipment completed by March 2016 2.2 Installation completed by December 2017 2.3 Final acceptance completed by December 2018 			Inputs Investment cost for Tranche 5: \$580.15 million ADB: \$170.00 million CRC: \$410.15 million

ADB = Asian Development Bank, FAM = facility administration manual, GDP = gross domestic product, km = kilometer, CNY = Chinese Yuan, CRC = China Railway Corporation, PCR = project completion report, PRC = People's Republic of China, TA = technical assistance, t-km = ton-kilometer.

* Baselines for fuel savings, CO₂ emissions and SO₂ emissions are 2009 data. Fuel savings and emission reductions are benefits in the specified year and not aggregated benefits from the base year.

ANNEX 2

DETAILED COST ESTIMATES

Item	\$ million			CNY million		
	Foreign Exchange	Local Currency	Total Cost	Foreign Exchange	Local Currency	Total Cost
A. Fifth Tranche Base Costs^a						
1. Equipment	240.24	293.73	533.97	1,465.48	1,791.76	3,257.24
2. Taxes and Duties	0.00	16.99	16.99	0.00	103.65	103.65
Subtotal (A)	240.24	310.72	550.97	1,465.48	1,895.41	3,360.89
B. Price Contingency^b						
Subtotal (B)	3.48	14.08	17.56	21.21	85.88	107.09
C. Financing Charges during Implementation^c						
Subtotal (C)	11.63	0.00	11.63	71.10	0.00	70.93
Total Cost of Fifth Tranche	255.35	324.80	580.15	1,560.34	1,981.29	3,538.91
D. Total Cost of First Tranche	423.72	543.61	967.34	2,838.92	3,642.19	6,481.18
E. Total Cost of Second Tranche	142.47	181.26	323.73	954.55	1,214.44	2,168.99
F. Total Cost of Third Tranche	360.75	458.97	819.71	2,417.03	3,075.10	5,492.06
G. Total Cost Fourth Tranche	241.28	306.29	547.57	1,471.81	1,868.37	3,340.18
Total Project Cost (A+B+C+D+E+F)	1,423.57	1,814.93	3,238.49	9,242.65	11,781.39	21,021.32

ADB = Asian Development Bank, CNY = Chinese Yuan, PRC = People's Republic of China.

^a Investment costs are in 2013 market prices and exclude taxes of \$15.23 million for the fourth tranche, separately listed.

^b Price contingencies computed at 1.0% for 2011, 0.0% for 2012, 0.3% for 2013, and 0.5% thereafter on foreign exchange costs; and 1.0% for 2011, 1.5% for 2012, and 2.0% thereafter on local currency costs.

^c ADB's Interest during implementation is based on ADB 5-year fixed swap rate plus 40 basis points. Bank charges will be financed from the loan resources, as required by OM Section H3, otherwise it will be financed from counterpart funds or offset against interest earned on imprest account.

Source: PPTA Consultants.

DETAILED COST ESTIMATES BY FINANCIER
(\$ million)

Item	Total Cost	ADB		CRC	
		Amount	% of Cost Category	Amount	% of Cost Category
A. Fifth Tranche Base Cost^a					
3. Equipment	534.0	170.0	31.8	364.0	68.2
4. Taxes and Duties	17.0	0.0	0.0	17.0	100.0
Subtotal (A) Fifth Tranche Base Cost	551.0	170.0	30.9	381.0	69.1
B. Price Contingency^b	17.6	0.0	0.0	17.6	100.0
C. Financing Charges During Implementation^c	11.6	0.0	0.0	11.6	100.0
Total Cost of Fifth Tranche	580.1	170.0	29.3	410.1	70.7
D. Total Cost of First Tranche	967.3	300.0	31.0	667.3	69.0
E. Total Cost of Second Tranche	323.7	100.0	30.9	223.7	69.1
F. Total Cost of Third Tranche	819.7	250.0	30.5	569.7	69.5
G. Total Cost of Fourth Tranche	547.6	180.0	30.8	367.6	67.1

ADB = Asian Development Bank, CRC = China Railway Corporation, PRC = People's Republic of China.

^a Investment costs are in 2013 market prices and exclude taxes of \$14.8 million for the fourth tranche, separately listed.

^b Price contingencies computed at 1.0% for 2011, 0.0% for 2012, 0.3% for 2013, and 0.5% thereafter on foreign exchange costs; and 1.0% for 2011, 1.5% for 2012, and 2.0% thereafter on local currency costs.

^c ADB's Interest during implementation is based on ADB 5-year fixed swap rate plus 40 basis points. Bank charges will be financed from the loan resources, as required by OM Section H3, otherwise it will be financed from counterpart funds or offset against interest earned on imprest account.

Source: PPTA Consultant.

ANNEX 3

PROCUREMENT PLAN

Table 1: Investment Program Information

Investment Program Information	The Investment Program (IP) of the multitranche financing facility (MFF) is to develop an energy efficient, environmentally friendly and safe railway network in the southwestern People's Republic of China (PRC). ADB will finance the physical components of
Country	PRC
Name of Borrower	PRC
Investment Program Name	Railway Energy Efficiency and Safety Enhancement Investment Program
Loan or TA reference	To be determined (tbd)
Date of Effectiveness	Tbd
Amount \$:	\$1 billion for total IP
Of which committed	\$170 million for Tranche 5
Executing Agency	China Railway Corporation, PRC
Date of Original Procurement Plan	18 September 2013
Date of Most Recent Procurement Plan	9 December 2013
Publication for Local Advertisements	May 2014
Period Covered by this Plan	2014–2018

1. The threshold for procurement is shown in Table 2.

Table 2: Threshold for Procurement

Procurement Method	Threshold (US\$)
ICB Goods	Equal or more than 1 million
NCB Goods	Equal or more than 100,000 and less than 1 million
Shopping Goods	Less than 100,000

ICB = international competitive bidding, NCB = national competitive bidding.

Source: ADB estimates.

2. Asian Development Bank (ADB)-financed contract packages are shown in Table 3 for the IP. All international competitive bidding packages will be procured using single-stage one-envelope system and ADB will review the documents in advance.

Table 3: Contract Packages for the Investment Program (ADB Financing)

Package Description	Amount (\$million)	Mode	System	ADB Review
Energy Efficiency Component	470.39	ICB	Single-stage: one envelope	Prior
Environment Component	24.88	ICB	Single-stage: one envelope	Prior
Safety Enhancement Component	474.73	ICB	Single-stage: one envelope	Prior

ADB = Asian Development Bank, ICB = international competitive bidding.

Note: The packages in the above three components include transportation, insurance, installation, commissioning, and training.

3. The contract packages financed by ADB under Tranche 5 are shown in Table 4.

Table 4: Contract Packages for the Fifth Tranche (ADB Financing)

Package Description	Estimated Cost (\$ million)	Mode	System	ADB Review	Procurement Notice
1. Energy Efficiency Component	122.7				
1.1 Overhead Catenary System	63.02	ICB	1S1E	Prior	
1.2 Traction Substation System	22.49	ICB	1S1E	Prior	
1.3 Power Supply Equipment	37.19	ICB	1S1E	Prior	
2. Railway Safety Enhancement Component	47.3				
2.1 Bridge Bearings	10.42	ICB	1S1E	Prior	
2.2 Fastener	10.96	ICB	1S1E	Prior	
2.3 Telecommunications System	1.62	ICB	1S1E	Prior	
2.4 Signaling Equipment System	19.31	ICB	1S1E	Prior	
2.5 Operation, Maintenance and Safety Equipment	4.99	ICB	1S1E	Prior	
Total	170.00				

ADB = Asian Development Bank, ICB = international competitive bidding, 1S1E = single-stage one-envelope.
 Note: The above packages include transportation, insurance, installation, commissioning and training costs.
 Source: China Railway Corporation.

4. All procurement must be from ADB member countries.

ANNEX 4

LOAN COVENANTS – TRANCHE 1

The initial implementation of Tranche 1 has been satisfactory, including the safeguard compliances. Compliance status with major loan covenants for Tranche 1 is provided in the following table.

Nos.	Summary of Major Covenants	Reference	Remarks/Updates
SECTOR			
1	The Borrower shall cause the Project to be carried out with due diligence and efficiency and in conformity with sound administrative, financial, engineering, environmental and railway construction, maintenance and operations practices. In carrying out of the Project and operation of the Project equipment, the Borrower shall perform all obligations set forth in Schedule 5 to the Loan Agreement.	Loan Agreement, Section 4.01	The Loan was signed on 8 June 2010, and declared effective on 26 October 2010.
2	The Borrower shall make available, promptly as needed, funds, facilities, services, and other resources which are required, in addition to the proceeds of the Loan, for the carrying out of the Project and for the operation and maintenance of the Project equipment.	Loan Agreement, Section 4.02	Counterpart funds and staff were provided.
3	The Borrower shall cause the Project to be carried out in accordance with plans, design standards, specifications and installation and commissioning schedules acceptable to ADB. The Borrower shall furnish to ADB, promptly after their preparation, such plans, design standards, specifications and installation and commissioning schedules, and any material modifications subsequently made therein, in such detail as ADB shall reasonably request.	Loan Agreement, Section 4.03(b)	The detailed design of some procurement item has been provided and specifications of other items are being examined.
4	Equipment Quality. The Borrower shall cause China Railway Corporation (CRC), the executing agency (EA), to ensure that the equipment is procured and used in accordance with the Government's national technical standards, and that supervision, quality control, and contract management are carried out in a periodic and satisfactory manner.	Loan Agreement, Schedule 5	Inspection officials are sent to equipment manufacturers to check the conformity of technical and quality standards. After the installation, inspection companies which were selected by bids check the quality of equipment installation.

Nos.	Summary of Major Covenants	Reference	Remarks/Updates
5	Supply of Rolling Stock. The Borrower shall ensure that the EA provides sufficient rolling stock, at all times, for effective operation of the equipment.	Loan Agreement, Schedule 5	Not yet due.
6	Monitoring and Evaluation. The Borrower shall cause the EA to monitor and evaluate impact through a performance monitoring system, as agreed to by the Borrower and ADB, to ensure that Project equipment and materials are managed efficiently, benefits are maximized, and impacts are monitored. The Borrower shall also cause the EA to collect the necessary information and data on project completion of the Project.	Loan Agreement, Schedule 5	The EA submitted the first semiannual report and due diligence report in January 2011, July 2011, respectively. By 9 September, six semi-annual reports and diligence reports received. The latest report was submitted in July 2013.
7	Safety. The Borrower shall cause the EA to ensure the safety of the equipment in accordance with relevant Government laws and regulations.	Loan Agreement, Schedule 5	Inspection officials are sent to equipment manufacturers to check the conformity of safety standards. After the installation, external inspectors check the safety of equipment installation.
ENVIRONMENTAL			
8	Notwithstanding that the Investment Program does not have impact on environment, the Borrower shall cause the EA to ensure that all the requirements prescribed in the attached safeguard framework in Schedule 5 to FFA be complied with during the implementation of the Project.	Loan Agreement, Schedule 6	The EA reported the results of the compliance review in the second and third semiannual report and due diligence reports, which were submitted in July 2011, January 2012, July 2012, January 2013, and July 2013, respectively.
SOCIAL			
9	Notwithstanding that the Investment Program does not have impact on resettlement and ethnic minorities, the Borrower shall cause the EA to ensure that all the requirements prescribed in the attached safeguard framework in Schedule 5 to FFA be complied with during the implementation of the Project.	Loan Agreement, Schedule 5	The EA reported the results of the compliance review in the second and third semiannual report and due diligence reports, which were submitted in July 2011, January 2012, July 2012, January 2013, and July 2013, respectively.
FINANCIAL			
10	The Borrower shall (i) maintain separate accounts for the Project; (ii) have such accounts and related financial statements audited annually by independent auditors acceptable to ADB; (iii) furnish to ADB not later than 6 months after end of each fiscal year, certified copies of audited accounts and financial statements; and	Loan Agreement, Section 4.05(a)	The EA has set up separate accounts for the Project. The first annual audited project accounts and financial statements and auditor's reports were submitted by June 2012 and June 2013.

Nos.	Summary of Major Covenants	Reference	Remarks/Updates
	(iv) furnish to ADB such other information concerning such accounts.		
OTHERS			
11	Established, Staffed, and Operating PMU/PIU The Borrower shall ensure that the activities of its department and agencies with respect to the carrying out of the Project and operation of the Project equipment are conducted and coordinated in accordance with sound administrative policies and procedures.	Loan Agreement, Section 4.04	Complied. Project Management Office (PMO) was established and staffed in 2010.

LOAN COVENANTS – TRANCHE 2

The initial implementation of Tranche 2 has been satisfactory, including the safeguard compliances. Compliance status with major loan covenants for Tranche 2 is provided in the following table.

Nos.	Summary of Major Covenants	Reference	Remarks/Updates
SECTOR			
1	The Borrower shall cause the Project to be carried out with due diligence and efficiency and in conformity with sound administrative, financial, engineering, environmental and railway construction, maintenance and operations practices. In carrying out of the Project and operation of the Project equipment, the Borrower shall perform all obligations set forth in Schedule 5 to the Loan Agreement.	Loan Agreement, Section 4.01	The Loan Agreement was signed on 11 March 2011, and declared effective on 10 June 2011.
2	The Borrower shall make available, promptly as needed, funds, facilities, services, and other resources which are required, in addition to the proceeds of the Loan, for the carrying out of the Project and for the operation and maintenance of the Project equipment.	Loan Agreement, Section 4.02	Counterpart funds and staff are being provided.
3	The Borrower shall cause the Project to be carried out in accordance with plans, design standards, specifications and installation and commissioning schedules acceptable to ADB. The Borrower shall furnish to ADB, promptly after their preparation, such plans, design standards, specifications and installation and commissioning schedules, and any material modifications subsequently made therein, in such detail as ADB shall reasonably request.	Loan Agreement, Section 4.03(b)	The detailed design of some procurement items has been provided and specifications of other items are being examined.
4	Equipment Quality. The Borrower shall cause the EA to ensure that the equipment is procured and used in accordance with the Government's national technical standards, and that supervision, quality control, and contract management are carried out in a periodic and satisfactory manner.	Loan Agreement, Schedule 5	Inspection officials are sent to equipment manufacturers to check the conformity of technical and quality standards. After the installation, inspection companies which were selected by bids check the quality of equipment installation.

Nos.	Summary of Major Covenants	Reference	Remarks/Updates
5	Supply of Rolling Stock. The Borrower shall ensure that the EA provides sufficient rolling stock, at all times, for effective operation of the equipment.	Loan Agreement, Schedule 5	Not yet due.
6	Monitoring and Evaluation. The Borrower shall cause the EA to monitor and evaluate impact through a performance monitoring system, as agreed to by the Borrower and ADB, to ensure that Project equipment and materials are managed efficiently, benefits are maximized, and impacts are monitored. The Borrower shall also cause the EA to collect the necessary information and data on project completion of the Project.	Loan Agreement, Schedule 5	The EA submitted the due diligence and semi-annual progress reports periodically. The first due diligence and semi-annual progress reports was submitted to ADB in July 2011, and January 2012, respectively. The latest report was submitted in July 2013.
7	Safety. The Borrower shall cause the EA to ensure the safety of the equipment in accordance with relevant Government laws and regulations.	Loan Agreement, Schedule 5	Inspection officials are sent to equipment manufacturers to check the conformity of safety standards. After the installation, external inspectors check the safety of equipment installation.
ENVIRONMENTAL			
8	Notwithstanding that the Investment Program does not have impact on environment, the Borrower shall cause the EA to ensure that all the requirements prescribed in the attached safeguard framework in Schedule 5 to FFA be complied with during the implementation of the Project.	Loan Agreement, Schedule 6	The EA reported the results of the compliance review in the first semiannual report, which was in January 2012 and in the reports.
SOCIAL			
9	Notwithstanding that the Investment Program does not have impact on resettlement and ethnic minorities, the Borrower shall cause the EA to ensure that all the requirements prescribed in the attached safeguard framework in Schedule 5 to FFA be complied with during the implementation of the Project.	Loan Agreement, Schedule 5	The EA reported the results of the compliance review in the semiannual progress reports and due diligence reports, which was submitted periodically.
FINANCIAL			
10	The Borrower shall (i) maintain separate accounts for the Project; (ii) have such accounts and related financial statements audited annually by independent auditors acceptable to ADB; (iii) furnish to ADB not later than 6 months after end of each	Loan Agreement, Section 4.05(a)	The EA set up separate accounts for the Project in 2011. The first annual audited project accounts and financial statements and auditor's reports were submitted by June 2013.

Nos.	Summary of Major Covenants	Reference	Remarks/Updates
	fiscal year, certified copies of audited accounts and financial statements; and (iv) furnish to ADB such other information concerning such accounts.		
OTHERS			
11	Established, Staffed, and Operating PMU/PIU The Borrower shall ensure that the activities of its department and agencies with respect to the carrying out of the Project and operation of the Project equipment are conducted and coordinated in accordance with sound administrative policies and procedures.	Loan Agreement, Section 4.04	Complied. Project Management Office was established and staffed in 2011.

LOAN COVENANTS – TRANCHE 3

The initial implementation of Tranche 3 has been satisfactory, including the safeguard compliances. Compliance status with major loan covenants for Tranche 3 is provided in the following table.

Nos.	Summary of Major Covenants	Reference	Remarks/Updates
SECTOR			
1	The Borrower shall cause the Project to be carried out with due diligence and efficiency and in conformity with sound administrative, financial, engineering, environmental and railway construction, maintenance and operations practices. In carrying out of the Project and operation of the Project equipment, the Borrower shall perform all obligations set forth in Schedule 5 to the Loan Agreement.	Loan Agreement, Section 4.01	The Loan Agreement was signed on 25 October 2011, and declared effective on 15 February 2012.
2	The Borrower shall make available, promptly as needed, funds, facilities, services, and other resources which are required, in addition to the proceeds of the Loan, for the carrying out of the Project and for the operation and maintenance of the Project equipment.	Loan Agreement, Section 4.02	Counterpart funds and staff are being provided.
3	The Borrower shall cause the Project to be carried out in accordance with plans, design standards, specifications and installation and commissioning schedules acceptable to ADB. The Borrower shall furnish to ADB, promptly after their preparation, such plans, design standards, specifications and installation and commissioning schedules, and any material modifications subsequently made therein, in such detail as ADB shall reasonably request.	Loan Agreement, Section 4.03(b)	The detailed design of some procurement items has been provided and specifications of other items are being examined.
4	Equipment Quality. The Borrower shall cause the EA to ensure that the Goods is procured and used in accordance with the Government's national technical standards, and that supervision, quality control, and contract management are carried out in a periodic and satisfactory manner.	Loan Agreement, Schedule 5	Inspection officials will be sent to the manufacturers to check the conformity of technical and quality standards. After the installation, inspection companies which were selected by bids check the quality of equipment installation.
5	Supply of Rolling Stock. The Borrower shall ensure that the EA provides sufficient rolling stock, at all times, for effective operation of the Goods.	Loan Agreement, Schedule 5	Not yet due.

Nos.	Summary of Major Covenants	Reference	Remarks/Updates
6	Monitoring and Evaluation. The Borrower shall cause the EA to monitor and evaluate impact through a performance monitoring system, as agreed to by the Borrower and ADB, to ensure that Project equipment and materials are managed efficiently, benefits are maximized, and impacts are monitored. The Borrower shall also cause the EA to collect the necessary information and data on project completion of the Project.	Loan Agreement, Schedule 5	The EA submitted the due diligence and semi-annual progress reports periodically. The first due diligence and semi-annual progress reports was submitted in January 2013. The latest report was submitted in July 2013.
7	Safety. The Borrower shall cause the EA to ensure the safety of the equipment in installation and operation of the Goods accordance with relevant Government laws and regulations.	Loan Agreement, Schedule 5	Not yet due.
ENVIRONMENTAL			
8	Notwithstanding that the Investment Program does not have impact on environment, the Borrower shall cause the EA to ensure that all the requirements prescribed in the attached safeguard framework in Schedule 5 to FFA be complied with during the implementation of the Project.	Loan Agreement, Schedule 6	Installation of equipment has not started yet.
SOCIAL			
9	Notwithstanding that the Investment Program does not have impact on resettlement and ethnic minorities, the Borrower shall cause the EA to ensure that all the requirements prescribed in the attached safeguard framework in Schedule 5 to FFA be complied with during the implementation of the Project.	Loan Agreement, Schedule 6	Installation of equipment has not started yet.
FINANCIAL			
10	The Borrower shall (i) maintain separate accounts for the Project; (ii) have such accounts and related financial statements audited annually by independent auditors acceptable to ADB; (iii) furnish to ADB not later than 6 months after end of each fiscal year, certified copies of audited accounts and financial statements; and (iv) furnish to ADB such other information concerning such accounts.	Loan Agreement, Section 4.05(a)	The EA set up separate accounts for the Project in 2011. The first audit report was submitted in June 2013.

Nos.	Summary of Major Covenants	Reference	Remarks/Updates
11	<p>Established, Staffed, and Operating PMU/PIU</p> <p>The Borrower shall ensure that the activities of its department and agencies with respect to the carrying out of the Project and operation of the Project equipment are conducted and coordinated in accordance with sound administrative policies and procedures.</p>	<p>Loan Agreement, Section 4.04</p>	<p>Complied.</p> <p>Project Management Office was established and staffed in 2011.</p>

Facility Administration Manual

Project Number: 43332-054
Loan Number: L2605, L2724, L2765, L3082
January 2014

PRC: Railway Energy Efficiency and Safety
Enhancement Investment Program – Tranche I, II, III,
IV, and V

The facility administration manual is an active document, progressively updated and revised as necessary, particularly following any changes in project costs, scope, or implementation arrangements. This document, however, may not reflect the latest project changes.

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Facility Administration Manual Purpose and Process

The facility administration manual (FAM) describes the essential administrative and management requirements to implement the project on time, within budget, and in accordance with the Government and Asian Development Bank (ADB) policies and procedures. The FAM includes references to all available templates and instructions either through linkages to relevant URLs or directly incorporated in the FAM.

The China Railway Corporation (CRC), formerly Ministry of Railways (MOR) is wholly responsible for the implementation of ADB financed project, as agreed jointly between the borrower and ADB, and in accordance with the Government and ADB's policies and procedures. ADB staff is responsible to support implementation including compliance by CRC, of its obligations and responsibilities for project implementation in accordance with ADB's policies and procedures.

At Loan Negotiations, the Borrower and ADB shall agree to the FAM and ensure consistency with the Loan agreement. Such agreement shall be reflected in the minutes of the Loan Negotiations. In the event of any discrepancy or contradiction between the FAM and the Loan Agreement, the provisions of the Loan Agreement shall prevail.

After ADB Management approval of the periodic financing request report, changes in implementation arrangements are subject to agreement and approval pursuant to relevant Government and ADB administrative procedures (including the Project Administration Instructions) and upon such approval they will be subsequently incorporated in the FAM.

CURRENCY EQUIVALENTS

(as of 10 January 2014)

Currency unit	–	yuan (CNY)
CNY1.00	=	\$0.16516
\$1.00	=	CNY6.0546

ABBREVIATIONS

ADB	–	Asian Development Bank
AFS	–	audited financial statements
CRC	–	China Railway Corporation
DMF	–	design and monitoring framework
EA	–	executing agency
FAM	–	facility administration manual
FFA	–	framework financing agreement
GDP	–	gross domestic product
ICB	–	international competitive bidding
km	–	kilometer
LIBOR	–	London interbank offered rate
MFF	–	multitranche financing facility
NCB	–	national competitive bidding
PMO	–	project management office
PFR	–	periodic financing request
PFR2	–	periodic financing request for tranche 2
PFR3	–	periodic financing request for tranche 3
PFR4	–	periodic financing request for tranche 4
PFR5	–	periodic financing request for tranche 5
PRC	–	People's Republic of China
QCBS	–	quality- and cost based selection
SOE	–	statement of expenditure
TA	–	technical assistance
TOR	–	terms of reference

NOTE

In this report, "\$" refers to US dollars.

I. INVESTMENT PROGRAM DESCRIPTION

1. Since the open door policy and economic reforms were initiated, the People's Republic of China (PRC) has sustained high levels of economic growth which resulted in a rapid increase in the demand for transportation. Despite the PRC's efforts to increase the country's transport capacity, serious constraints and bottlenecks remain, especially in the railway sector. The Government of the PRC (the Government) has prioritized railway development because the rail sector has played a crucial role in transportation and in promoting sustainable economic growth and social development due to its environment-friendliness, energy efficiency, reliability and affordability and lower land take. Given its developmental role, the government has emphasized railway development in the less-developed western region with a view to reducing disparities in regional economic growth between the coastal and western areas. In its development plan, the government is aiming to expand the railway network from 91,000 kilometers (km) in 2010 to 120,000 km by 2015; and from 36,000 km to 50,000 km in the poor western region.

2. With railway network extension, energy efficiency, environmental sustainability and safety enhancement have been important elements of the ADB policy dialogue with the China Railway Corporation (CRC), formerly the Ministry of Railways (MOR). These were identified as key areas of sustainable development in the Eleventh and Twelfth Five-Year Plans (11FYP and 12FYP). ADB helped create awareness of these three issues and encouraged the use of clean energy and energy-efficient technologies, safety enhancement, and environmental improvements in railway construction, operation, and maintenance to support the development of a sustainable, green, and safe railway system with high quality and efficient services in the PRC.

3. On 8 December 2009, ADB approved a multitranche financing facility (MFF) in the amount of \$1.0 billion to the Government of the People's Republic of China (PRC) for the Railway Energy Efficiency and Safety Enhancement Investment Program from ADB's ordinary capital resources with interest determined in accordance with ADB's LIBOR-based lending facility and such other terms and conditions set forth in the related loan agreement. The Framework Financing Agreement (FFA) was signed between the PRC and ADB on 10 November 2009. The impact of the investment program will be an improved transport system in the southwestern region of the PRC that supports sustainable socioeconomic development. The outcome will be an energy-efficient, safe, reliable, affordable, and environment-friendly railway transport system developed in the region. The outputs of the investment program comprise (i) introduction of energy-efficient technologies and environment-friendly and safety equipment; (ii) integration and institutionalization of energy efficiency and environmental issues in railway management; (iii) safety and energy audits of a nominated railway administration; and (iv) capacity building support.

4. CRC is the executing agency (EA) for the investment program.¹ A project management office (PMO) has been established to implement the Investment Program. The MFF is expected to extend multiple loans to finance three to six tranches. ADB has approved three tranches for a total of \$650 million. The physical components of these tranches are:

¹ On 10 July 2013, ADB approved the change in name of the executing and implementing agencies from the Ministry of Railways to the China Railway Corporation.

- Tranche 1
- (i) energy efficiency component:
 - (a) electric power supply system, and
 - (b) railway electrification equipment
 - (ii) environmental protection component:
 - (a) noise barrier;
 - (iii) railway safety enhancement component:
 - (a) anti-seismic bridge bearing,
 - (b) enhanced railway fastener,
 - (c) railway telecommunication system,
 - (d) railway signal system, and
 - (e) operation maintenance and safety equipment.
- Tranche 2
- (i) railway safety enhancement equipment:
 - (a) anti-seismic bridge bearing,
 - (b) enhanced railway fastener, and
 - (c) heavy duty switches.
- Tranche 3
- (i) energy efficiency component:
 - (a) railway electrification equipment, and
 - (b) electric power supply system;
 - (ii) environmental protection component:
 - (a) noise barrier;
 - (iii) railway safety enhancement component:
 - (a) enhanced railway fasteners and switches,
 - (b) railway telecommunications system,
 - (c) railway signaling system,
 - (d) advanced railway inspection equipment, and
 - (e) emergency rescue equipment.
- Tranche 4
- (i) environmental protection component
 - (a) noise barriers, and
 - (b) noise reduction panels
 - (ii) railway safety enhancement component
 - (a) track safety operation and maintenance equipment;
 - (b) enhanced railway fasteners, turnouts/turnout switch system, and bridge bearings; and
 - (c) copper cable for signaling, and any other equipment agreed between PRC and ADB.
- Tranche 5
- (i) energy efficiency component:
 - (a) electrification system,
 - (b) electric power supply equipment, and
 - (c) any other equipment agreed between ADB and PRC
 - (ii) railway safety enhancement component
 - (a) track safety operation and maintenance equipment,
 - (b) enhanced railway fasteners and anti-seismic bridge bearings,
 - (c) railway signaling system,
 - (d) telecommunications system, and
 - (e) any other equipment agreed between ADB and PRC

The equipment have significant energy efficiency, environmental, and safety benefits compared to what is used currently on the PRC railways. Integrating this equipment into the southwestern PRC railway network will help optimize performance, ensure reliability, and enhance safety.

II. IMPLEMENTATION PLANS

A. Project Readiness Activities

Table 1: Project Readiness Activities for Tranche 1

Indicative activities	Months										Who responsible			
	2009 QT4		2010 QT1			2010 QT2			2011 QT3			2011 QTR4		
	11	12	1	2	3	4	5	6	7	8			9	10
Establish Project Implementation Arrangements														CRC
Approval of Foreign Capital Utilization and Feasibility Study by the Government														CRC
ADB Management approval														ADB
Loan signing														ADB, MOF, EA
Government legal opinion provided														CRC
Government budget inclusion														CRC, MOF
Loan effectiveness														ADB, CRC
Procurement actions														ADB, CNIC, CRC

Table 2: Project Readiness Activities for Tranche 2

Indicative activities	Months									Who responsible				
	2010 QT4		2011 QT1			2011 QT2			2011 QT3					
	11	12	1	2	3	4	5	6	7			8	9	
Establish Project Implementation Arrangements														CRC,
Approval of Foreign Capital Utilization and Feasibility Study by the Government														CRC
ADB Management approval														ADB
Loan signing														ADB, MOF, CRC
Government legal opinion provided														CRC
Government budget inclusion														CRC, MOF
Loan effectiveness														ADB, CRC
Procurement actions														ADB, CMC, CITIC, CRC

Table 3: Project Readiness Activities for Tranche 3

Indicative activities	Months										Who responsible	
	2011 QT2		2011 QT3		2011 QT4			2012 QT1				
	5	6	7	8	9	10	11	12	1	2		3
Establish Project Implementation Arrangements	█											CRC,
Approval of Foreign Capital Utilization and Feasibility Study by the Government	█											CRC
ADB Management approval				█								ADB
Loan signing						█						ADB, MOF, CRC
Government legal opinion provided									█			CRC
Government budget inclusion									█			CRC,
Loan effectiveness										█		ADB, CRC
Procurement actions											█	ADB, CMC, CITIC, CRC

Table 4: Project Readiness Activities for Tranche 4

Indicative activities	Months										Who responsible	
	2013 QT3		2013 QT4		2014 QT1			2014 QT2				
	8	9	10	11	12	1	2	3	4	5		6
Establish Project Implementation Arrangements	█											CRC,
Approval of Foreign Capital Utilization and Feasibility Study by the Government	█											CRC
ADB Management approval				█								ADB
Loan signing						█						ADB, MOF, CRC
Government legal opinion provided							█					CRC
Government budget inclusion								█				CRC,
Loan effectiveness									█			ADB, CRC
Procurement actions										█		ADB, CMC, CITIC, CRC

Table 4: Project Readiness Activities for Tranche 5

Indicative activities	Months										Who responsible	
	2013 QT4			2014 QT1			2014 QT2			2014 QT3		
	10	11	12	1	2	3	4	5	6	7		8
Establish Project Implementation Arrangements	█											CRC,
Approval of Foreign Capital Utilization and Feasibility Study by the Government	█											CRC
ADB Management approval				█								ADB
Loan signing						█						ADB, MOF, CRC
Government legal opinion provided							█					CRC
Government budget inclusion								█				CRC,
Loan effectiveness									█			ADB, CRC
Procurement actions										█		ADB, CMC, CITIC, CRC

C. Investment Program Implementation Plan of Tranche 1

ID	Task Name	2010				2011				2012				2013				2014				2015				2016											
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4								
1	Bid Preparation and Procurement					[Redacted]																															
2	Equipment or System Installation									[Redacted]																											
3	Training and Capacity Development									[Redacted]																											

D. Investment Program Implementation Plan of Tranche 2

ID	Task Name	2010				2011				2012				2013				2014				2015				2016				2017									
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2								
1	Bid Preparation and Procurement					[Redacted]																																	
2	Equipment or System Installation									[Redacted]																													

E. Investment Program Implementation Plan of Tranche 3

ID	Task Name	2011				2012				2013				2014				2015				2016				2017													
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2												
1	Bid Preparation and Procurement					[Redacted]																																	
2	Equipment or System Installation									[Redacted]																													
3	Final Acceptance													[Redacted]																									

F. Investment Program Implementation Plan of Tranche 4

ID	Task Name	2013				2014				2015				2016				2017				2018			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1	Bid Preparation and Procurement					[Redacted]																			
2	Equipment or System Installation									[Redacted]															
3	Final Acceptance																	[Redacted]							

G. Investment Program Implementation Plan of Tranche 5

ID	Task Name	2013				2014				2015				2016				2017				2018			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1	Bid Preparation and Procurement					[Redacted]																			
2	Equipment or System Installation									[Redacted]															
3	Final Acceptance																	[Redacted]							

III. INVESTMENT PROGRAM MANAGEMENT ARRANGEMENTS

A. Project Implementation Organizations – Roles and Responsibilities

Project Stakeholders	Management Roles and Responsibilities
<ul style="list-style-type: none"> Asian Development Bank 	Support implementation including compliance by executing and implementing agencies of their obligations and responsibilities for project implementation in accordance with ADB's policies and procedures.
<ul style="list-style-type: none"> China Railway Corporation 	Executing Agency (EA) <ul style="list-style-type: none"> ➤ Responsible for overall investment program implementation ➤ Coordinate the tasks of the project management office ➤ Procurement, withdrawals and reporting
<ul style="list-style-type: none"> China National Instruments Import & Export (Group) Corporation (CNIC) 	Procurement Agent for Tranche 1 <ul style="list-style-type: none"> ➤ Support EA and project management office in procurement of consulting service, materials and equipment.
<ul style="list-style-type: none"> China National Machinery Import and Export Corporation (CMC) 	Procurement Agent for Tranches 2 and 3 <ul style="list-style-type: none"> ➤ Support EA and project management office in procurement of bridge bearings for Tranche 2 and all equipment except rescue equipment for Tranche 3.
<ul style="list-style-type: none"> CITIC International Tendering Co. Ltd. (CITIC) 	Procurement Agent for Tranches 2, 3, 4, and 5 <ul style="list-style-type: none"> ➤ Support EA and project management office in procurement of switches and fasteners for Tranche 2, rescue equipment for Tranche 3, and other equipment for Tranche 4.
<ul style="list-style-type: none"> CMC International Tendering Corporation (CITC) 	Procurement Agent for Tranches 4 and 5 <ul style="list-style-type: none"> ➤ Support EA and project management office in procurement of materials and equipment.

B. Key Persons Involved in Implementation

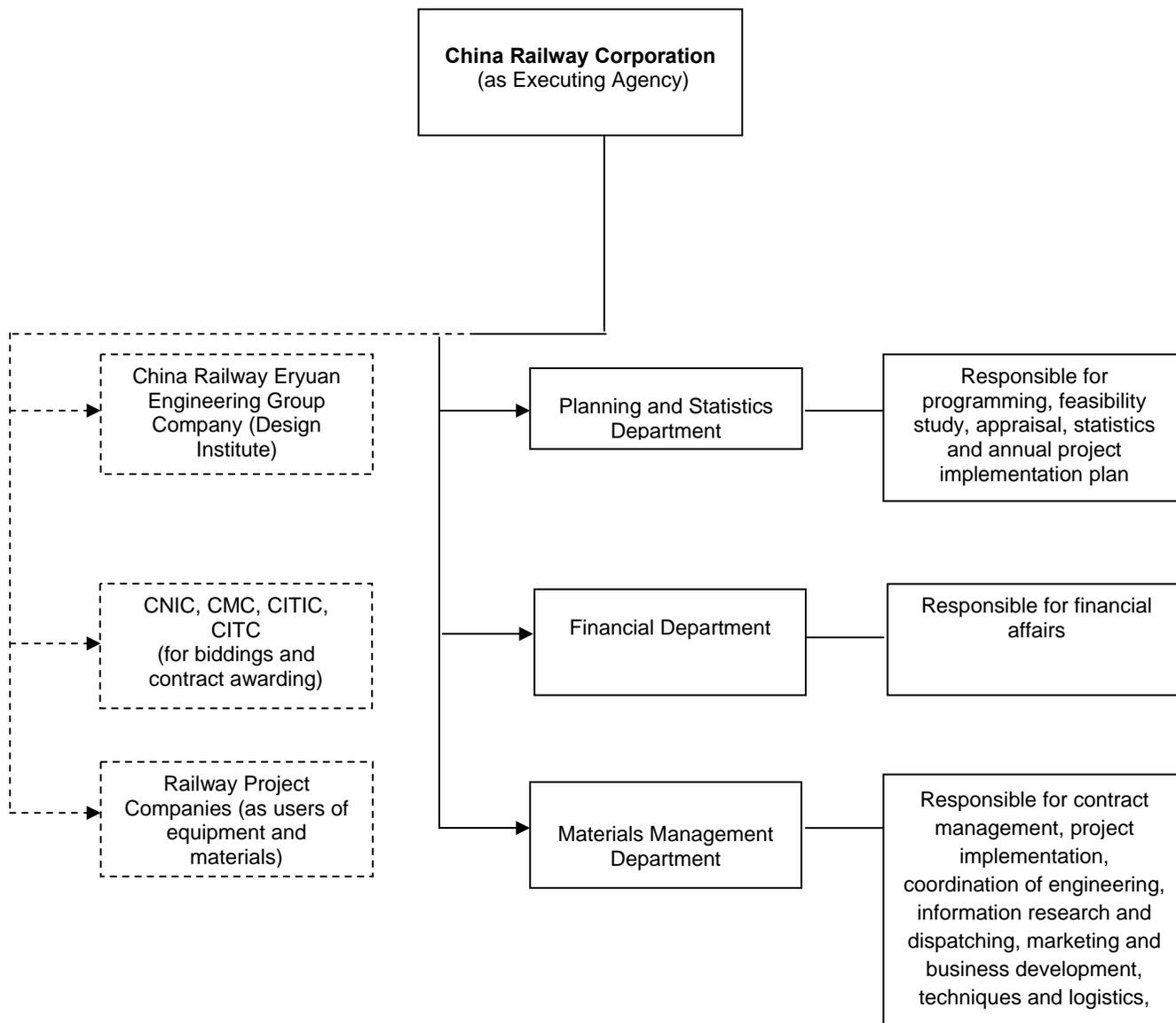
Executing Agency

China Railway Corporation	Mr. Liu Junfu Director General China Railway Corporation, Beijing, PRC Fax No.: 86 10 5184 1845
---------------------------	--

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C. Investment Program Organizational Structure



CITC = CMC International Tendering Corporation, CITIC = CITIC International Tendering Co. Ltd., CMC = China National Machinery Import and Export Corporation, CNIC = China National Instruments Import and Export (Group) Corporation

IV. COSTS AND FINANCING

5. The investment program cost is estimated at \$3.24 billion, including taxes and duties, price contingencies, interest, and other charges during implementation. Tranche 1 costs at the equivalent of \$967.34 million, Tranche 2 at \$323.73 million, Tranche 3 at \$819.70, Tranche 4 is estimated at \$547.60 million, and Tranche 5 is estimated to cost \$580.15 million. The kind of equipment to be financed for Tranche 1 includes single-phase transformers, intelligent power supply panels, infrared hot box detection system, lighting arrester, tunnel safety devices, computer interlocking equipment, wireless telecommunications equipment, and noise barriers. The equipment for Tranche 2 includes bridge bearings, switches, and fasteners. Tranche 3 equipment includes electrification equipment, noise barriers, switches, railway signaling system, and emergency rescue equipment. Tranche 4 equipment includes noise barriers/noise panels, track safety operation and maintenance equipment, enhanced railway fasteners, turnouts/turnout switch system, bridge bearings, copper cable, and any other equipment agreed between ADB and PRC. Tranche 5 equipment includes railway electrification equipment, electric power supply equipment, track safety operation and maintenance equipment, enhanced railway fasteners, anti-seismic bridge bearings, railway telecommunication system, and railway signaling system. The cost estimates are based on quantities derived from unit rates, reflecting market prices for goods and materials.

6. The Government has requested financing of up to an equivalent of \$1 billion from ADB's ordinary capital resources to help finance the investment program. Financing will be provided in accordance with ADB policy. The MFF will extend multiple loans to finance tranches under the investment program, subject to the submission of a related periodic financing request (PFR) by the Government and execution of the related loan agreements. A framework financing agreement was signed with the Government. All provisions of the loan regulations applicable to loans based on the London interbank offered rate (LIBOR) will apply to each loan, subject to any modifications that may be included under the individual loan agreement. The Government has the option to choose between eligible currencies and the interest rate regime for each loan. The specific terms for each loan will be based on the related PFR with an interest rate to be determined in accordance with ADB's LIBOR-based lending facility and the applicable commitment charge, and such other terms and conditions set forth in the loan agreement. The Government has provided ADB with (i) the reasons for its decision to borrow under ADB's LIBOR-based lending facility on the basis of these terms and conditions, and (ii) an undertaking that these choices were its own independent decision and not made in reliance on any communication or advice from ADB. The Tranche 1 of \$300 million of the investment program was approved on 8 June 2010 and became effective on 26 October 2010. Tranche 2 of \$100 million was approved on 14 December 2010 and loan agreement was signed on 11 March 2011. Tranche 3 of \$250 million was approved on 20 July 2011 and became effective on 15 February 2012. Tranches 1 and 2 have a term of 26 years, including a grace period of 6 years. Tranche 3 has a term of 25.5 years, including a grace period of 5.5 years. Tranche 4 of \$180 million has a term of 25 years, including a grace period of 5 years. Tranche 5 of \$170 million has a term of 25 years, including a grace period of 5 years.

A. Allocation and Withdrawal of Loan Proceeds

Table 5: Allocation and Withdrawal of Loan Proceeds for Tranche 1

Number	Item	Category	ADB Financing Basis
		Total Amount Allocated for ADB Financing (\$)	Percentage of ADB Financing* from the Loan Account
1	Goods	300,000,000	100% of total expenditure claimed
	Total	300,000,000	

* Exclusive of taxes and duties.

Table 6: Allocation and Withdrawal of Loan Proceeds for Tranche 2

Number	Item	Category	ADB Financing Basis
		Total Amount Allocated for ADB Financing (\$)	Percentage of ADB Financing* from the Loan Account
1	Goods	100,000,000	100% of total expenditure claimed
	Total	100,000,000	

* Exclusive of taxes and duties.

Table 7: Allocation and Withdrawal of Loan Proceeds for Tranche 3

Number	Item	Category	ADB Financing Basis
		Total Amount Allocated for ADB Financing (\$)	Percentage of ADB Financing* from the Loan Account
1	Goods	250,000,000	100% of total expenditure claimed
	Total	250,000,000	

* Exclusive of taxes and duties.

Table 8: Allocation and Withdrawal of Loan Proceeds for Tranche 4

Number	Item	Category	ADB Financing Basis
		Total Amount Allocated for ADB Financing (\$)	Percentage of ADB Financing* from the Loan Account
1	Goods	180,000,000	100% of total expenditure claimed**
	Total	180,000,000	

* Exclusive of taxes and duties.

** Including insurance and transportation cost.

Table 9: Allocation and Withdrawal of Loan Proceeds for Tranche 5

Number	Item	Category	ADB Financing Basis
		Total Amount Allocated for ADB Financing (\$)	Percentage of ADB Financing* from the Loan Account
1	Goods	170,000,000	100% of total expenditure claimed**
	Total	170,000,000	

* Exclusive of taxes and duties imposed within the territory of the Borrower.

** Including insurance and transportation cost.

B. Detailed Cost Estimates by Financier^a**Table 10: Detailed Cost Estimates by Financier for Tranche 1**
(\$ million)

Item	Total Cost	ADB		CRC	
		Amount	% of Cost Category	Amount	% of Cost Category
A. Investment Costs^a					
1. Equipment					
a. Energy Efficiency	392.62	120.80	30.8	271.82	69.2
b. Safety Enhancement	425.02	129.78	30.5	295.24	69.5
c. Environment	82.36	49.42	60.0	32.94	40.0
2. Taxes and Duties	19.91	0.00	0.0	19.91	100.0
Subtotal First Tranche Base Cost	919.91	300.00	32.6	619.91	67.4
B. Price Contingency^b	27.25	0.00	0.0	27.25	100.0
C. Financing Charges During Implementation^c	20.18	0.00	0.0	20.18	100.0
Total Cost of First Tranche	967.34	300.00	31.0	667.34	69.0

ADB = Asian Development Bank, CRC = China Railway Corporation.

Note: Numbers may not add up precisely because of rounding.

^a Investment costs are in 2009 market prices and exclude taxes of \$19.91 million for the first tranche, separately listed.^b Price contingencies computed at 1.0% for 2010, 0.0% for 2011, 0.3% for 2012, and 0.5% thereafter on foreign exchange costs; and 1.0% for 2010, 1.5% for 2011, and 2.0% thereafter on local currency costs.^c ADB's Interest during implementation is based on ADB 5-year fixed swap rate plus 20 basis points.

Source: Asian Development Bank estimates.

Table 11: Detailed Cost Estimates by Financier for Tranche 2
(\$ million)

Item	Total Cost	ADB		CRC	
		Amount	% of Cost Category	Amount	% of Cost Category
A. Investment Costs^a					
1. Equipment	299.19	100.00	33.4	199.19	66.6
2. Taxes and Duties	9.35	0.00	0.00	9.35	100.0
Subtotal (A) Second Tranche Base Cost	308.54	100.00	32.4	208.54	67.6
B. Price Contingency^b		0.00	0.0	9.14	100.0
C. Financing Charges During Implementation^c	6.05	0.00	0.0	6.05	100.0
Total Cost of Second Tranche	323.73	100.00	30.9	223.73	69.1
D. Total Cost of First Tranche	967.34	300.00	31.0	667.34	69.0
E. Total Cost of Subsequent Tranches	1,947.42	600.00	30.8	1,347.42	69.2
Total	3,238.49	1,000.00	30.9	2,238.49	69.1

ADB = Asian Development Bank; CRC = China Railway Corporation.

^a Investment costs are in 2010 market prices and exclude taxes of \$9.35 million for the second tranche, separately listed.

^b Price contingencies computed at 1.0% for 2011, 0.0% for 2012, 0.3% for 2013, and 0.5% thereafter on foreign exchange costs; and 1.0% for 2011, 1.5% for 2012, and 2.0% thereafter on local currency costs.

^c ADB's Interest during implementation is based on ADB 5-year fixed swap rate plus 30 basis points. Bank charges will be financed from the loan resources, as required by OM Section H3, otherwise it will be financed from counterpart funds or offset against interest earned on imprest account.

Source: ADB staff estimates.

Table 12: Detailed Cost Estimates by Financier for Tranche 3
(\$ million)

Item	Total Cost	ADB		CRC	
		Amount	% of Cost Category	Amount	% of Cost Category
A. Third Tranche Base Cost^a					
1. Equipment	757.60	100.00	33.0	507.60	66.6
2. Taxes and Duties	23.70	0.00	0.00	23.70	100.0
Subtotal (A) Third Tranche Base Cost	781.30	250.00	32.0	531.30	67.6
B. Price Contingency^b	23.10	0.00	0.0	23.10	100.0
C. Financing Charges During Implementation^c	15.30	0.00	0.0	15.30	100.0
Total Cost of Third Tranche	819.70	250.00	30.5	569.70	69.1
D. Total Cost of First Tranche	967.34	300.00	31.0	667.30	69.0
E. Total Cost of Second Tranche	323.70	100.00	30.9	223.70	69.1
F. Total Cost of Subsequent Tranches	1,127.70	350.00	30.8	527.70	69.2
Total	3,238.44	1,000.00	30.9	2,238.50	69.1

ADB = Asian Development Bank; CRC = China Railway Corporation.

^a Investment costs are in 2011 market prices and exclude taxes of \$23.7 million for the third tranche, separately listed.

^b Price contingencies computed at 1.0% for 2011, 0.0% for 2012, 0.3% for 2013, and 0.5% thereafter on foreign exchange costs; and 1.0% for 2011, 1.5% for 2012, and 2.0% thereafter on local currency costs.

^c ADB's Interest during implementation is based on ADB 5-year fixed swap rate plus 30 basis points. Bank charges will be financed from the loan resources, as required by OM Section H3, otherwise it will be financed from counterpart funds or offset against interest earned on imprest account.

Source: PPTA Consultant.

Table 13: Detailed Cost Estimates by Financier for Tranche 4
(\$ million)

Item	Total Cost	ADB		CRC	
		Amount	% of Cost Category	Amount	% of Cost Category
A. Third Tranche Base Cost^a					
1. Equipment	506.20	180.00	35.6	326.20	64.4
2. Taxes and Duties	15.20	0.00	0.00	15.20	100.0
Subtotal (A) Third Tranche Base Cost	521.40	180.00	34.5	341.40	65.5
B. Price Contingency^b	15.70	0.00	0.0	15.70	100.0
C. Financing Charges During Implementation^c	10.40	0.00	0.0	10.40	100.0
Total Cost of Third Tranche	547.60	180.00	32.9	367.60	67.1
D. Total Cost of First Tranche	967.30	300.00	31.0	667.30	69.0
E. Total Cost of Second Tranche	323.70	100.00	30.9	223.70	69.1
F. Total Cost of third Tranche	819.70	250.00	30.5	569.70	69.5
G. Total Cost of Subsequent Tranches	580.1	170.00	30.8	410.10	70.7
Total	3,238.50	1,000.00	30.9	2,238.50	69.1

ADB = Asian Development Bank, CRC = China Railway Corporation.

Note: Numbers may not add up precisely because of rounding.

^a Investment costs are in 2013 market prices and exclude taxes of \$14.8 million for the fourth tranche, separately listed.

^b Price contingencies computed at 1.0% for 2011, 0.0% for 2012, 0.3% for 2013, and 0.5% thereafter on foreign exchange costs; and 1.0% for 2011, 1.5% for 2012, and 2.0% thereafter on local currency costs.

^c Includes interest and commitment charges. Interest during construction for ADB loan(s) has been computed at the 5-year fixed swap rate plus 40 basis points and 20 basis points maturity premium. Commitment charges to the ADB loan are computed at 0.15% per year on the protected undisbursed amount.

Source: Asian Development Bank estimates.

Table 14: Detailed Cost Estimates by Financier for Tranche 5
(\$ million)

Item	Total Cost	ADB		CRC	
		Amount	% of Cost Category	Amount	% of Cost Category
A. Fifth Tranche Base Cost^a					
1. Equipment	534.00	170.00	31.8	364.00	68.2
a. Equipment (100% ADB-financed)		170.00	100.0		
b. Equipment (100% CRC financed)				364.00	100.0
2. Taxes and Duties	16.96	0.00	0.0	16.96	100.0
Subtotal (A) Fifth Tranche Base Cost	550.96	170.00	30.9	380.96	69.1
B. Price Contingency^b	17.56	0.00	0.0	17.56	100.0
C. Financing Charges During Implementation^c	11.63	0.00	0.0	11.63	100.0
Total Cost of Fifth Tranche	580.15	170.00	29.3	410.15	70.7
D. Total Cost of First Tranche	967.30	300.00	31.0	667.30	69.0
E. Total Cost of Second Tranche	323.70	100.00	30.9	223.70	69.1
F. Total Cost of Third Tranche	819.70	250.00	30.5	569.70	69.5
G. Total Cost of Fourth Tranche	547.60	180.00	30.8	367.60	67.1
Total	3,238.45	1,000.00	30.9	2,238.45	69.1

ADB = Asian Development Bank, CRC = China Railway Corporation.

Note: Numbers may not add up precisely because of rounding.

^a Investment costs are in 2013 market prices and exclude taxes of \$14.8 million for the fifth tranche, separately listed.

^b Price contingencies computed at 1.0% for 2011, 0.0% for 2012, 0.3% for 2013, and 0.5% thereafter on foreign exchange costs; and 1.0% for 2011, 1.5% for 2012, and 2.0% thereafter on local currency costs; includes provision for potential exchange rate fluctuation under the assumption of a purchasing power parity exchange rate.

^c ADB's Interest during implementation is based on ADB 5-year fixed swap rate plus 40 basis points and 20 basis points maturity premium. Commitment charges to the ADB loan are computed at 0.15% per year on the projected undisbursed amount.

Source: Asian Development Bank estimates.

C. Detailed Cost Estimates by Expenditure Category^a

Table 15: Detailed Cost Estimates by Expenditure Category for Tranche 1

Item	\$ million			CNY million		
	Foreign Exchange	Local Currency	Total Cost	Foreign Exchange	Local Currency	Total Cost
A. First Tranche Base Costs^a						
1. Equipment						
a. Energy Efficiency	157.45	235.17	392.62	1,074.59	1,605.06	2,679.65
b. Safety Enhancement	191.26	233.76	425.02	1,305.37	1,595.45	2,900.82
c. Environment	49.42	32.94	82.36	337.28	224.85	562.13
2. Taxes and Duties	0.00	19.91	19.91	0.00	135.86	135.86
Subtotal (A)	398.12	521.78	919.91	2,717.24	3,561.22	6,278.45
B. Price Contingency^b						
Subtotal (B)	5.41	21.83	27.25	36.95	149.00	185.96
C. Implementation^c						
Subtotal (C)	20.18	0.00	20.18	137.76	0.00	137.76
Total of First Tranche	423.72	543.61	967.34	2,891.94	3,710.22	6,602.16
	1,004.67	1,266.49	2,271.16	6,856.95	8,643.90	15,500.85
D. Total Cost of Subsequent Tranches						
Total Project Cost (A+B+C+D)	1,428.39	1,810.10	3,238.49	9,748.89	12,354.12	22,103.01

ADB = Asian Development Bank, CRC = China Railway Corporation.

Note: Numbers may not add up precisely because of rounding.

^a Investment costs are in 2009 market prices and exclude taxes of \$19.91 million for the first tranche, separately listed.

^b Price contingencies computed at 1.0% for 2010, 0.0% for 2011, 0.3% for 2012, and 0.5% thereafter on foreign exchange costs; and 1.0% for 2010, 1.5% for 2011, and 2.0% thereafter on local currency costs.

^c ADB's Interest during implementation is based on ADB 5-year fixed swap rate plus 20 basis points. Bank charges will be financed from the loan resources, as required by ADB. Cost Sharing and Eligibility of Expenditures for ADB Financing. Operations Manual. OMH3/BP. Manila, otherwise it will be financed from counterpart funds or offset against interest earned on imprest account.

Source: Asian Development Bank estimates.

Table 16: Detailed Cost Estimates by Expenditure Category for Tranche 2

Item	\$ million			CNY million		
	Foreign Exchange	Local Currency	Total Cost	Foreign Exchange	Local Currency	Total Cost
A. Second Tranche Base Costs^a						
1. Equipment	134.61	164.58	299.19	901.89	1,102.69	2,004.57
2. Taxes and Duties	0.00	9.35	9.35	0.00	62.65	65.65
Subtotal (A)	134.61	173.93	308.54	901.89	1,165.33	2,067.22
B. Price Contingency^b						
Subtotal (B)	1.81	7.33	9.14	12.13	49.11	61.24
C. Financing Charges During Implementation^c						
Subtotal (C)	6.05	0.00	6.05	40.54	0.00	40.54
Total of Second Tranche	142.47	181.26	323.43	954.56	1,214.44	2,168.99
D. Total Cost of First Tranche	423.72	543.61	967.34	2,838.92	3,642.19	6,841.18
E. Total Cost of Subsequent Tranches	862.20	1,085.23	1,947.42	5,776.74	7,271.04	13,047.71
Total Project Cost (A+B+C+D+E)	1,428.39	1,810.10	3,238.49	9,570.22	12,127.67	21,697.88

CNY = Chinese yuan.

^a Investment costs are in 2010 market prices and exclude taxes of \$9.35 million for the second tranche, separately listed.

^b Price contingencies computed at 1.0% for 2011, 0.0% for 2012, 0.3% for 2013, and 0.5% thereafter on foreign exchange costs; and 1.0% for 2011, 1.5% for 2012, and 2.0% thereafter on local currency costs.

^c ADB's Interest during implementation is based on ADB 5-year fixed swap rate plus 30 basis points. Bank charges will be financed from the loan resources, as required by OM Section H3, otherwise it will be financed from counterpart funds or offset against interest earned on imprest account.

Source: ADB staff estimates.

Table 17: Detailed Cost Estimates by Expenditure Category for Tranche 3

Item	\$ Million			CNY Million		
	Foreign Exchange	Local Currency	Total Cost	Foreign Exchange	Local Currency	Total Cost
A. Third Tranche Base Costs^a						
1. Equipment	340.84	416.73	757.58	2,283.66	2,792.10	5,075.76
2. Taxes and Duties	0.00	23.68	23.68	0.00	158.62	158.62
Subtotal (A)	340.84	440.41	781.25	2,283.66	2,950.72	5,234.38
B. Price Contingency^b						
Subtotal (B)	4.58	18.56	23.14	30.71	124.35	155.06
C. Financing Charges During Implementation^c						
Subtotal (C)	15.32	0.00	15.32	102.64	0.00	102.64
Total of Third Tranche	360.75	458.97	819.71	2,417.00	3,075.08	5,492.08
D. Total Cost of First Tranche	423.72	543.61	967.34	2,838.92	3,642.19	6,481.18
E. Total Cost of Second Tranche	142.47	181.26	323.73	954.55	1,214.44	2,168.99
F. Total Cost of Subsequent Tranches	643.92	807.52	1,127.71	4,314.29	5,410.41	7,555.63
Total Project Cost (A+B+C+D+E+F)	1,428.39	1,810.10	3,238.49	9,570.21	12,127.67	21,697.88

CNY = Chinese yuan.

^a Investment costs are in 2011 market prices and exclude taxes of \$23.68 million for the third tranche, separately listed.

^b Price contingencies computed at 1.0% for 2011, 0.0% for 2012, 0.3% for 2013, and 0.5% thereafter on foreign exchange costs; and 1.0% for 2011, 1.5% for 2012, and 2.0% thereafter on local currency costs.

^c ADB's Interest during implementation is based on ADB 5-year fixed swap rate plus 30 basis points. Bank charges will be financed from the loan resources, as required by OM Section H3, otherwise it will be financed from counterpart funds or offset against interest earned on imprest account.

Source: PPTA Consultants.

Table 18: Detailed Cost Estimates by Expenditure Category for Tranche 4

Item	\$ million			CNY million		
	Foreign Exchange	Local Currency	Total Cost	Foreign Exchange	Local Currency	Total Cost
A. Fourth Tranche Base Costs^a						
1. Equipment	227.74	278.45	506.19	1,389.23	1,698.53	3,087.76
2. Taxes and Duties	0.00	15.23	15.23	0.00	92.89	92.89
Subtotal (A)	227.74	293.67	521.42	1,389.23	1,791.42	3,180.64
B. Price Contingency^b						
Subtotal (B)	3.12	12.62	15.73	19.01	76.97	95.97
C. Financing Charges During Implementation^c						
Subtotal (C)	10.42	0.00	10.42	63.57	0.00	63.57
Total of Fourth Tranche	241.28	306.29	547.57	1,471.80	1,868.38	3,340.18
D. Total Cost of First Tranche	423.72	543.61	967.34	2,838.92	3,642.19	6,481.18
E. Total Cost of Second Tranche	142.47	181.26	323.73	954.55	1,214.44	2,168.99
F. Total Cost of Third Tranche	360.75	458.97	819.71	2,417.03	3,075.10	5,492.06
G. Total Cost of Subsequent Tranches	260.17	319.98	580.15	1,587.04	1,951.86	3,538.91
Total Project Cost (A+B+C+D+E+F+G)	1,428.39	1,810.10	3,238.49	9,269.34	11,751.98	21,021.32

CNY = Chinese yuan.

^a Investment costs are in 2013 market prices and exclude taxes of \$15.20 million for the fourth tranche, separately listed.

^b Price contingencies computed at 1.0% for 2011, 0.0% for 2012, 0.3% for 2013, and 0.5% thereafter on foreign exchange costs; and 1.0% for 2011, 1.5% for 2012, and 2.0% thereafter on local currency costs.

^c Included interest and commitment charges: Interest during construction for ADB loan(s) has been computed at the 5-year fixed swap rate plus 40 basis points and 20 basis points maturity premium. Commitment charges to the ADB loan are computed at 0.15% per year on the protected undisbursed amount.

Source: PPTA Consultants.

Table 19: Detailed Cost Estimates by Expenditure Category for Tranche 5

Item	\$ million			CNY million		
	Foreign Exchange	Local Currency	Total Cost	Foreign Exchange	Local Currency	Total Cost
A. Fifth Tranche Base Costs^a						
1. Equipment	240.24	293.73	533.97	1,465.48	1,791.76	3,257.24
2. Taxes and Duties	0.00	16.99	16.99	0.00	103.65	103.65
Subtotal (A)	240.24	310.72	550.97	1,465.48	1,895.41	3,360.89
B. Price Contingency^b						
Subtotal (B)	3.48	14.08	17.56	21.21	85.88	107.09
C. Financing Charges During Implementation^c						
Subtotal (C)	11.63	0.00	11.63	71.10	0.00	70.93
Total Cost of Fifth Tranche	255.35	324.80	580.15	1,560.34	1,981.29	3,538.91
D. Total Cost of First Tranche	423.72	543.61	967.34	2,838.92	3,642.19	6,481.18
E. Total Cost of Second Tranche	142.47	181.26	323.73	954.55	1,214.44	2,168.99
F. Total Cost of Third Tranche	360.75	458.97	819.71	2,417.03	3,075.10	5,492.06
G. Total Cost of Fourth Tranche	241.28	306.29	547.57	1,471.81	1,868.37	3,340.18
Total Project Cost (A+B+C+D+E+F+G)	1,423.57	1,814.93	3,238.49	9,242.65	11,781.39	21,021.32

CNY = Chinese yuan.

^a Investment costs are in 2013 market prices and exclude taxes of \$15.23 million for the fifth tranche, separately listed.

^b Price contingencies computed at 1.0% for 2011, 0.0% for 2012, 0.3% for 2013, and 0.5% thereafter on foreign exchange costs; and 1.0% for 2011, 1.5% for 2012, and 2.0% thereafter on local currency costs; includes provision for potential exchange rate fluctuation under the assumption of a purchasing power parity exchange rate.

^c ADB's Interest during implementation is based on ADB 5-year fixed swap rate plus 40 basis points and 20 basis points maturity premium. Commitment charges to the ADB loan are computed at 0.15% per year on the projected undisbursed amount.

Source: PPTA Consultants.

D. Contract Awards and Disbursements S-curve

7. Below are the contract awards and disbursements over the life of the project, and annually based on the contract awards and disbursement projections.

Figure 3.1: S-curve Projections for Tranche 1 (ADB financing)
(\$ million)

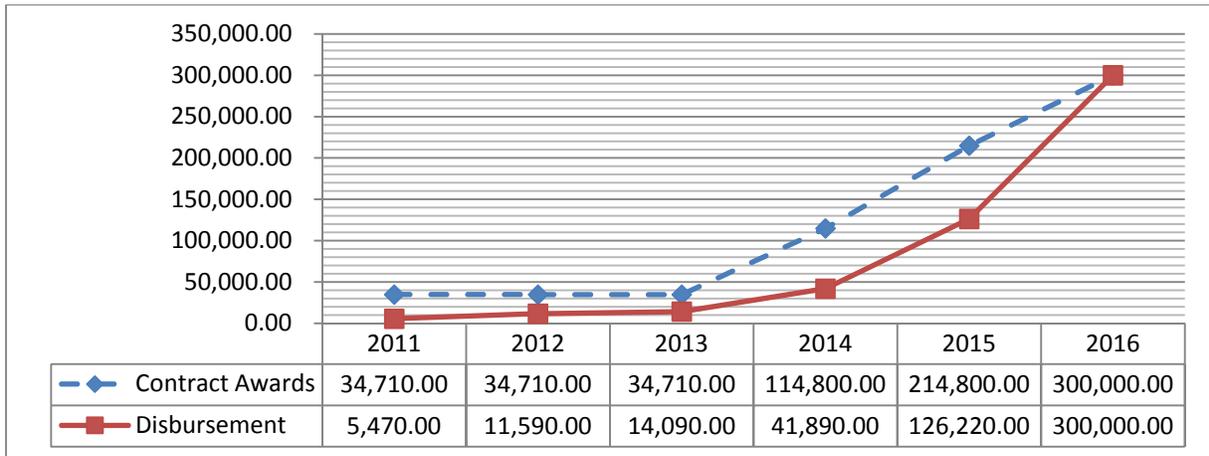


Figure 3.2: S-curve Projections for Tranche 2 (ADB financing)
(\$ million)

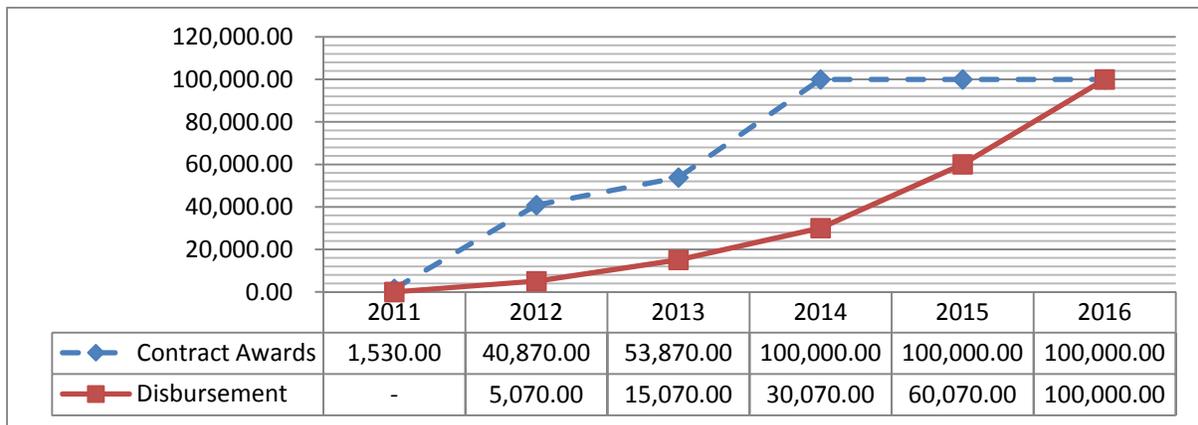


Figure 3.3: S-curve Projections for Tranche 3 (ADB financing)
(\$ million)

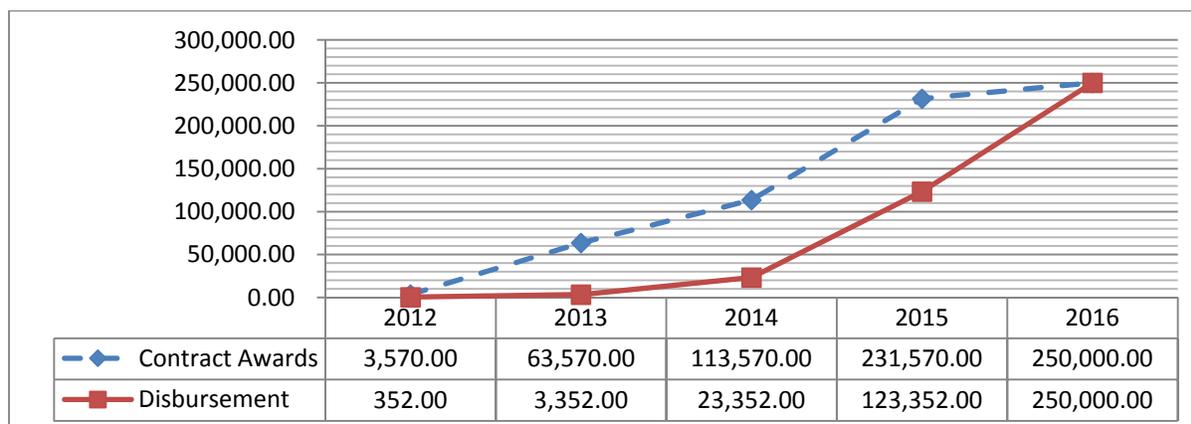


Figure 3.4: S-curve Projections for Tranche 4 (ADB financing)
(\$ million)

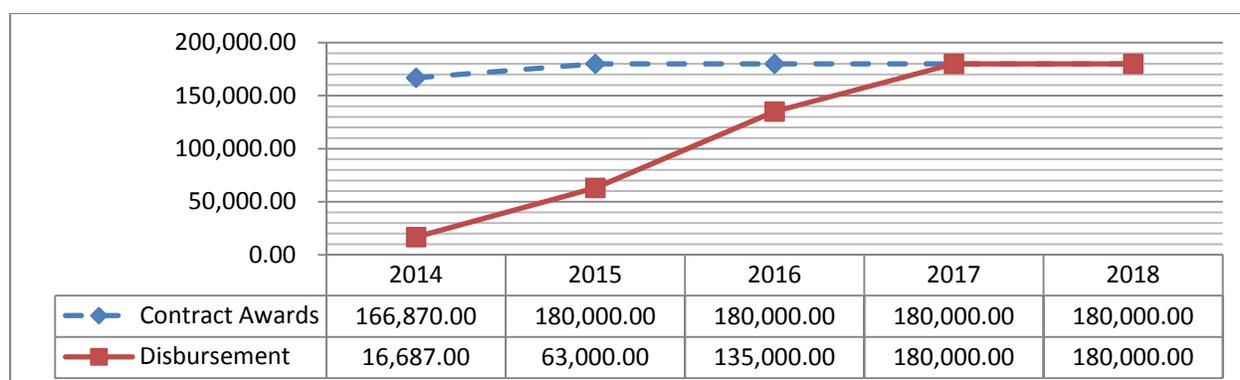
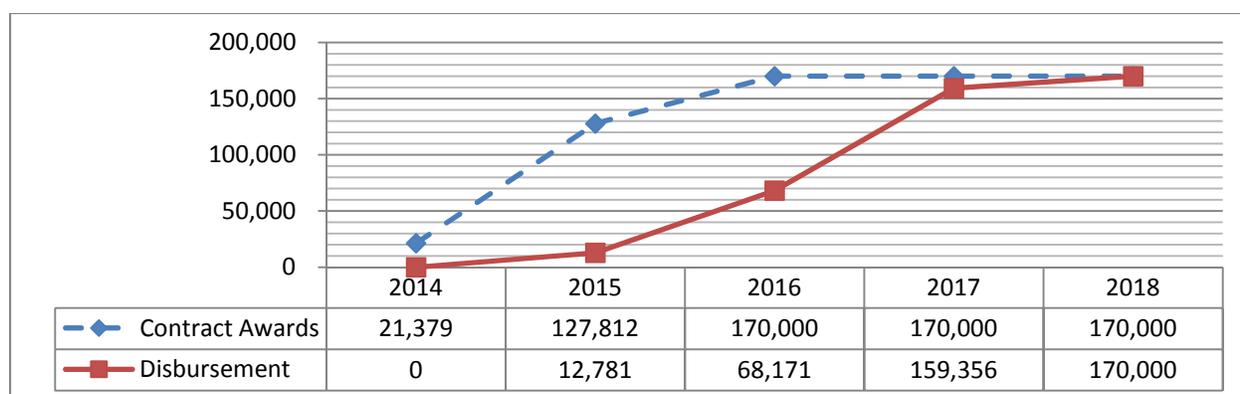
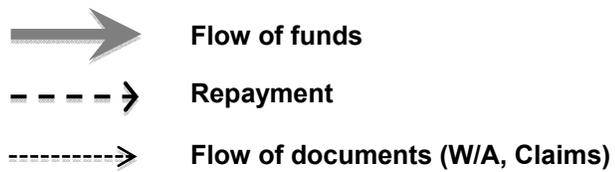
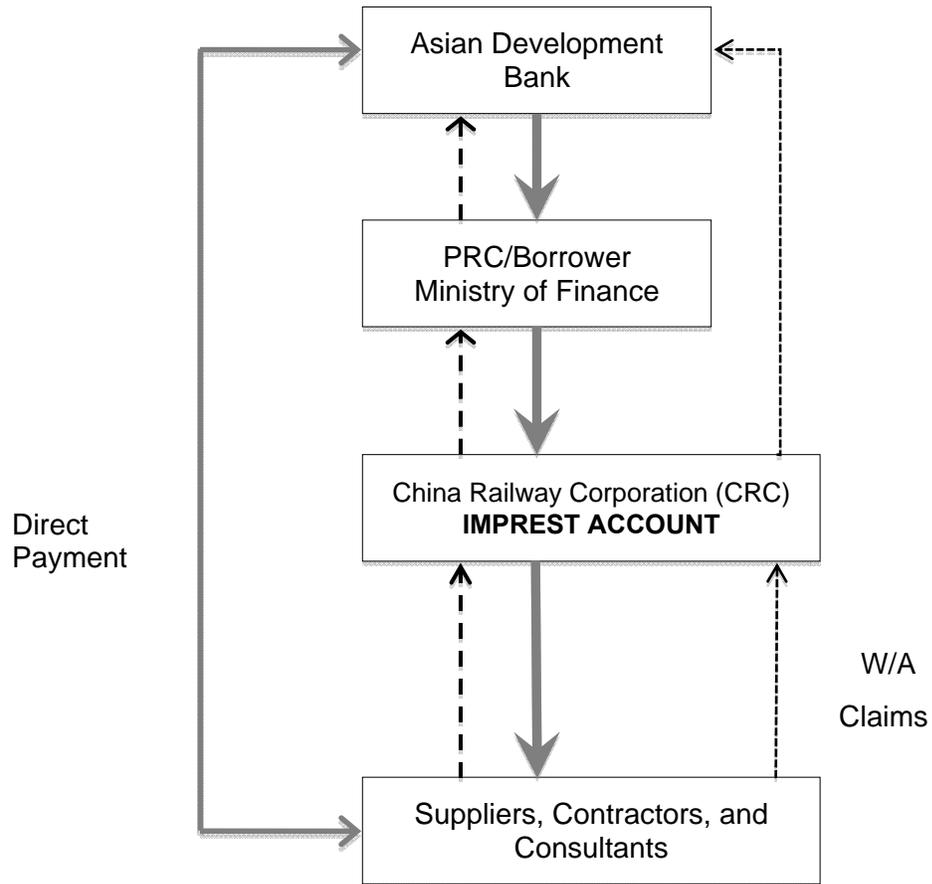


Figure 3.5: S-curve Projections for Tranche 5 (ADB financing)
(\$ million)



E. Fund Flow Diagram

Figure 4: Indicative Fund Flow of ADB Loan



V. FINANCIAL MANAGEMENT

A. Financial Management Assessment²

8. China Railway Corporation (CRC) has past experience in implementing ADB-financed projects and is currently implementing four such projects. CRC also has the experience of implementing the World Bank-financed projects.

9. CRC will be responsible for implementing the investment program and setting up the project management office. CRC has strong implementation experience and adequate capacity to manage the investment program. The innovative design of the investment program will necessitate additional training, and supplemental TA support provided by ADB would further assist CRC in strengthening its capacity. CRC agreed to provide counterpart support for TA implementation. The key CRC personnel are well experienced in ADB project implementation and will be responsible for procurement, withdrawals and reporting vis-à-vis ADB. A steering committee headed by Director General, CRC, will be responsible for the project implementation.

10. The overall financial management risk rating of the Project is “medium”. The identified risks in financial management will be closely monitored during project implementation. Besides the risks mentioned in the Risk Assessment and Risk Management Plan,³ no other significant weaknesses are identified.

B. Disbursement

11. ADB loan proceeds will be disbursed in accordance with ADB's *Loan Disbursement Handbook* (2012, as amended from time to time),⁴ and detailed arrangements agreed upon between the Government and ADB. No withdrawals shall be made from the Loan Account until the Borrower shall have certified that the Onlending Agreement shall have been duly executed and delivered, and all conditions precedent to its effectiveness (other than a condition requiring the effectiveness of this Loan Agreement) shall have been fulfilled.

12. Pursuant to ADB's Safeguard Policy Statement (2009) (SPS),⁵ ADB funds may not be applied to the activities described on the ADB Prohibited Investment Activities List set forth at Appendix 5 of the SPS. All financial institutions will ensure that their investments are in compliance with applicable national laws and regulations and will apply the prohibited investment activities list to subprojects financed by ADB.

13. To facilitate disbursements, the EA may set up and administer an imprest account at a bank acceptable to ADB after the loan becomes effective.⁶ A separate imprest account may be established for each tranche.⁷ The ceiling of the imprest account will be 10% of the total loan amount. The imprest account is to be used exclusively for ADB's share of eligible expenditures. The EA will be responsible for management, monitoring, and reconciliation of the imprest account. The request for initial and additional advance to the imprest account should be accompanied by an estimate of expenditure sheet setting out the estimated expenditures to be

² The Financial Management Assessment is accessible from the list of linked documents in Appendix 2 of the RRP.

³ The Risk Assessment and Risk Management Plan is accessible from the list of linked documents in Appendix 2 of the RRP.

⁴ Available at: http://www.adb.org/Documents/Handbooks/Loan_Disbursement/loan-disbursement-final.pdf

⁵ Available at: <http://www.adb.org/Documents/Policies/Safeguards/Safeguard-Policy-Statement-June2009.pdf>

⁶ The bank charges on the imprest account will be financed from the proceeds of the loan.

⁷ Bank charges may be financed from the loan proceeds.

financed through the imprest account for the forthcoming 6 months of project implementation. The imprest account will be established, managed, and liquidated in accordance with ADB's Loan Disbursement Handbook and detailed arrangements agreed by the Government (or the EA) and ADB. Supporting documents should be submitted to ADB or retained by the EA as appropriate, in accordance with ADB's Loan Disbursement Handbook when liquidating or replenishing the imprest account.⁸

14. To expedite flow of funds and simplify the documentation process, the ADB statement-of-expenditures (SOE) procedure may be used in liquidating and replenishing the imprest account and reimbursing eligible expenditures of not more than \$200,000 per payment. Payments over the SOE ceiling will be reimbursed, liquidated, or replenished based on full supporting documentation. Separate accounts and records should be kept for each Tranche. SOE records should be maintained and made readily available for review by ADB's disbursement and review mission or upon ADB's request for submission of supporting documents on a sampling basis, and for independent audit.⁹

15. Before the submission of the first withdrawal application under each tranche, the borrower should submit to ADB sufficient evidence of the authority of the person(s) who will sign the withdrawal applications on behalf of the borrower, together with the authenticated specimen signatures of each authorized person. The minimum value per withdrawal application is US\$200,000 equivalent, under reimbursement and imprest fund procedures, unless otherwise approved by ADB. Individual payments below this amount should generally be paid from the imprest account, or by the EA and subsequently claimed to ADB through reimbursement. ADB reserves the right not to accept withdrawal applications below the minimum amount. Withdrawal applications and supporting documents will demonstrate, among other things that the goods, and/or services were produced in or from ADB members, and are eligible for ADB financing. Any subsequent change in the list of authorized representatives must be reported immediately and authenticated specimen signatures of new representatives must also be provided.

C. Accounting

16. The CRC will maintain separate accounts and records by funding source for all expenditures incurred on the investment program, following accounting principles and practices prescribed by the PRC Accounting Law. The law requires financial statements to be prepared following internationally recognized accounting standards.

D. Auditing and Public Disclosure

17. The CRC will cause the detailed consolidated project financial statements to be audited in accordance with International Standards on Auditing and with the Government's audit regulations, by an independent auditor acceptable to ADB. The audited project financial statements will be submitted in the English language to ADB within 6 months of the end of the fiscal year by the CRC.

⁸ Follow the format provided in Appendix 30 of the *Loan Disbursement Handbook*.

⁹ Checklist for SOE procedures and formats are available at:

http://www.adb.org/documents/handbooks/loan_disbursement/chap-09.pdf

http://www.adb.org/documents/handbooks/loan_disbursement/SOE-Contracts-100-Below.xls

http://www.adb.org/documents/handbooks/loan_disbursement/SOE-Contracts-Over-100.xls

http://www.adb.org/documents/handbooks/loan_disbursement/SOE-Operating-Costs.xls

http://www.adb.org/documents/handbooks/loan_disbursement/SOE-Free-Format.xls

18. The annual audit report for the project accounts will include an audit management letter and audit opinions which cover (i) whether the project financial statements present a true and fair view or are presented fairly, in all material respects, in accordance with the applicable financial reporting framework; (ii) whether loan and grant proceeds were used only for the purposes of the project or not; (iii) the level of compliance for each financial covenant contained in the legal agreements for the project; (iv) use of the imprest fund procedure; and (v) the use of the statement of expenditure procedure certifying to the eligibility of those expenditures claimed under SOE procedures, and proper use of the SOE and imprest procedures in accordance with ADB's Loan Disbursement Handbook and the project documents.

19. Compliance with financial reporting and auditing requirements will be monitored by review missions and during normal program supervision, and followed up regularly with all concerned, including the external auditor.

20. The Government and the EA have been made aware of ADB's policy on delayed submission, and the requirements for satisfactory and acceptable quality of the audited project financial statements.¹⁰ ADB reserves the right to require a change in the auditor (in a manner consistent with the constitution of the borrower), or for additional support to be provided to the auditor, if the audits required are not conducted in a manner acceptable to ADB, or if the audits are substantially delayed. ADB reserves the right to verify the project's financial accounts to confirm that the share of ADB's financing is used in accordance with ADB's policies and procedures.

21. Public disclosure of the project financial statements, including the audit report on the project financial statements, will be guided by ADB's Public Communications Policy (2011).¹¹ After review, ADB will disclose the project financial statements for the project and the opinion of the auditors on the financial statements within 30 days of the date of their receipt by posting them on ADB's website. The Audit Management Letter will not be disclosed.

¹⁰ ADB Policy on delayed submission of audited project financial statements:

- When audited project financial statements are not received by the due date, ADB will write to the executing agency advising that (i) the audit documents are overdue; and (ii) if they are not received within the next 6 months, requests for new contract awards and disbursement such as new replenishment of imprest accounts, processing of new reimbursement, and issuance of new commitment letters will not be processed.
- When audited project financial statements have not been received within 6 months after the due date, ADB will withhold processing of requests for new contract awards and disbursement such as new replenishment of imprest accounts, processing of new reimbursement, and issuance of new commitment letters. ADB will (i) inform the executing agency of ADB's actions; and (ii) advise that the loan may be suspended if the audit documents are not received within the next 6 months.
- When audited project financial statements have not been received within 12 months after the due date, ADB may suspend the loan.

¹¹ Available from <http://www.adb.org/documents/pcp-2011?ref=site/disclosure/publications>.

VI. PROCUREMENT

A. Advance Contracting and Retroactive Financing

22. For each tranche, retroactive financing of eligible expenditures may be considered and allowed by ADB management when included in a PFR. Total retroactive financing will not exceed an amount equivalent to 20% of the loan amount and must have been incurred prior to loan effective date but not more than 12 months before the signing of the related legal agreements. Tranches 1, 2, and 3 have not requested for advance contracting, however, for Tranches 4 and 5, the government requested approval of advance contracting¹² and retroactive financing of up to 20% of the loan amount since most of the equipment¹³ for the safety enhancement component for Tranches 4 and 5 needs to be procured urgently. The government and CRC have been informed that approval of advance contracting and retroactive financing does not commit ADB to finance the proposed tranche.

B. Procurement of Goods

23. All ADB-financed procurement will be undertaken in accordance with ADB's Procurement Guidelines (2013, as amended from time to time).

24. ADB will finance the procurement of materials and equipment for Tranches 1, 2, 3, 4, and 5 as described in the procurement plan in Section C. Contracts valued at \$1 million or more will be procured through international competitive bidding. Contracts valued at less than \$1 million will be procured through international competitive bidding or national competitive bidding, according to the PRC Tendering and Bidding Law (1999), subject to clarifications agreed with ADB. Below \$100,000, procurement will follow the shopping procedure. The EA will select tendering companies on a competitive basis to handle international bidding. The relevant sections of ADB's Anticorruption Policy (2000, as amended to date) will be included in all documents and contracts during the bidding for, and implementation of, the investment program.

C. Procurement Plan

25. ADB-financed contract packages are shown in the table below. All international competitive bidding packages will be procured with the use of the single-stage, one-envelope system and ADB will review the documents in advance.

(i) MFF Procurement Plan

Table 20: Contract Packages for the Investment Program (ADB Financing)

Package Description	Estimated Cost (\$ million)	Mode	System	ADB Review
1. Energy Efficiency Component	470.39	ICB	1S1E	Prior
2. Environment Component	24.88	ICB	1S1E	Prior
3. Safety Enhancement Component	504.73	ICB	1S1E	Prior

ADB = Asian Development Bank; ICB = international competitive bidding; 1S1E = single stage: one-envelope.

Note: The above packages include transportation, insurance, installation, commissioning, and training costs.
Source: China Railway Corporation.

¹² Advertisement, evaluation of bids up to the recommendation of contract awards will require ADB's no objection.

¹³ Anti-seismic bridge bearings and enhanced fasteners.

(ii) **Tranche 1 Procurement Plan****Table 21: Contract Packages for Tranche 1 (ADB Financing)**

Package Description	Estimated Cost (\$ million)	Mode	System	ADB Review	Procurement Notice	Contract Award		
						Package	Amount	Date Approved
1. Bridge Bearings	28.84	ICB	1S1E	Prior	Oct 2010	Lot B02	8,088,362	27 Jan 2011
						Lot B03	5,450,083	27 Jan 2011
						Lot B04	5,116,470	27 Jan 2011
						Lot B01	10,151,743.04	18 Apr 2011
2. Fasteners	24.53	ICB	1S1E	Prior	Dec 2010/ June 2014	Lot F01	4,516,533	11 May 2011
3. Telecommunications System Equipment	19.26	ICB	1S1E	Prior	Feb 2015			
4. Signaling Equipment	40.53	ICB	1S1E	Prior	Feb 2015			
5. Overhead Catenary System	74.99	ICB	1S1E	Prior	Oct 2014			
6. Traction Substation System	63.34	ICB	1S1E	Prior	Oct 2014			
7. Electric Power Cable and Equipment	47.75	ICB	1S1E	Prior	Dec 2014			
8. Noise Barriers	5.68	ICB	1S1E	Prior	Dec 2014			
9. Operation, Maintenance, and Safety Equipment	4.59	ICB	1S1E	Prior	Jul 2015			

ADB = Asian Development Bank; ICB = international competitive bidding; 1S1E = single stage: one-envelope.
 Note: The above packages include transportation, insurance, installation, commissioning, and training costs.
 Source: China Railway Corporation.

(iii) **Tranche 2 Procurement Plan****Table 22: Contract Packages for Tranche 2 (ADB financing)**

Package Description	Estimated Cost (\$ million)	Mode	System	ADB Review	Procurement Notice	Lot(s)		
						Lot	Amount	Date Approved
1. Bridge Bearings	40.41	ICB	1S1E	Prior	Jul 2011	B01	1,527,864.12	3 Oct 2011
					Feb 2012	B01	4,432,348.08	24 Sep 2012
						B02	35,439,654.44	24 Sep 2012
2. Heavy Duty Switches	46.59	ICB	1S1E	Prior	Oct 2012	Turnout	42,471,391.6	18 Jun 2013
						Turnout	3,087,702.13	18 Jun 2013
3. Fasteners	13.00	ICB	1S1E	Prior	Jul 2012	F01	14,124,092.83	10 Jun 2013

ADB = Asian Development Bank; ICB = international competitive bidding; 1S1E = single stage: one-envelope.
 Note: The above packages include transportation, insurance, installation, commissioning, and training costs.
 Source: China Railway Corporation.

(iv) **Tranche 3 Procurement Plan****Table 23: Contract Packages for Tranche 3 (ADB financing)**

Package Description	Estimated Cost (\$ million)	Mode	System	ADB Review	Procurement	Contract Award		
						Package	Amount	Date Approved
1. Railway Electrification Equipment	74.58	ICB	1S1E	Prior	Dec 2012			
2. Electric Power Supply System	32.34	ICB	1S1E	Prior	Dec 2012			
3. Noise Barriers	8.25	ICB	1S1E	Prior	May 2013			
4. Fasteners and Switches	59.83	ICB	1S1E	Prior	Jul 2012	F02	34,179,008.70	10 Jun 2013
						F03	28,204,041.81	10 Jun 2013
5. Railway Telecommunications System	15.39	ICB	1S1E	Prior	Dec 2012			
6. Railway Signaling System	38.54	ICB	1S1E	Prior	Apr 2012/ Sep 2012	Lot 1	3,629,138.50	27 Jul 2012
7. Advanced Railway Inspection Equipment	8.80	ICB	1S1E	Prior	Sep 2012	Lot 1	608,835.55	30 May 2013
					Sep 2012	Lot 2	2,646,156.60	30 May 2013
					May 2013	Lot 3	3,800,000 (est)	
8. Emergency Rescue Equipment	12.27	ICB	1S1E	Prior	Sep 2013			

ADB = Asian Development Bank; ICB = international competitive bidding; 1S1E = single stage: one-envelope.

Note: The above packages include transportation, insurance, installation, commissioning, and training costs. The detailed procurement list was submitted in March 2012 although it was not clear how many lots will be submitted for each package.

Source: China Railway Corporation.

(v) **Tranche 4 Procurement Plan****Table 24: Contract Packages for Tranche 4 (ADB financing)**

Package Description	Estimated Cost (\$ million)	Mode	System	ADB Review	Procurement Notice	Lot(s)			
						Detailed Lots	Amount (\$ Million)	Remarks	
1. Environmental Protection Component	3.50	ICB	1S1E	Prior	Jun 2014	Lot 101	Noise panels	3.50	
							Sub-Total	3.50	
2. Railway Safety Enhancement Component	176.50	ICB	1S1E	Prior	Jan 2014	Lot 101	1,200 M Full Section Ballast Cleaning Machine	45.00	Under Advance Contracting
		ICB	1S1E	Prior	Jan 2014	Lot 102	Dynamic continuous action leveling, lifting, lining and tamping machine for plain track, switches and crossings with integrated stabilizing trailer	47.34	Under Advance Contracting
		ICB	1S1E	Prior	Jan 2014	Lot 103	Turnout/	49.62	Under Advance Contracting

Package Description	Estimated Cost (\$ million)	Mode	System	ADB Review	Procurement Notice	Lot(s)			
						Detailed Lots	Amount (\$ Million)	Remarks	
		ICB	1S1E	Prior	Jan 2014	Lot 104	Turnout Switch Device	5.64	Under Advance Contracting
		ICB	1S1E	Prior	Feb 2014	Lot 101	Bearings	13.26	Under Advance Contracting
		ICB	1S1E	Prior	Sep 2014	Lot 102	Fastener	13.78	
		ICB	1S1E	Prior	Dec 2014	Lot 103	Railway underground copper cable for the whole line	1.99	
		Subtotal						176.50	
		TOTAL						180.00	

ADB = Asian Development Bank; ICB = international competitive bidding; 1S1E = single stage: one-envelope.

Note: The above packages include transportation, insurance, installation, commissioning, and training costs. If after the tendering procedure, the total actual costs of the packages exceed the loan amount, the cost overrun will be financed by local funds.

(vi) **Tranche 5 Procurement Plan**

Table 25: Contract Packages for Tranche 5 (ADB financing)

Package Description	Estimated Cost (\$ million)	Mode	System	ADB Review	Procurement Notice	Lots			
						Detailed Lots	Amount	Date Approved	
Railway Safety Enhancement Component									
1 Bridge Bearings	10.42	ICB	1S1E	Prior	May-14	Lot 101		10,421,219.67	Under Advance Contracting
					Subtotal			10,421,219.67	
2 Fasteners	10.96	ICB	1S1E	Prior	May-14	Lot 101		10,957,965.76	Under Advance Contracting
					Subtotal			10,957,965.76	
3 Telecommunications System Equipment	1.62	ICB	1S1E	Prior	Jan-15	Lot 1	Radio communication equipment	938,360.66	
					Jan-15	Lot 2	Optical Fiber	682,081.97	
					Subtotal			1,620,442.63	
4 Signaling Equipment	19.31	ICB	1S1E	Prior	Jan-15	Lot 1	Intelligent Power Supply Panel (including UPS)	1,860,655.74	
					Jan-15	Lot 2	Computer Interlocking Equipment	2,885,245.90	
					Jan-15	Lot 3	Automatic train control system equipment	7,681,475.41	
					Jan-15	Lot 4	Signal cable	6,877,613.72	
					Subtotal			19,304,990.77	
5 Operation, Maintenance and Safety Equipment	4.99				Jul-15	Lot 1	Catenary maintenance vehicle	3,442,622.95	
					Jul-15	Lot 2	Flat car	173,770.49	
					Jul-15	Lot 3	Track car	1,377,049.18	
					Subtotal			4,993,442.62	

Package Description	Estimated Cost (\$ million)	Mode	System	ADB Review	Procurement Notice	Lots			Date Approved
						Detailed Lots	Amount		
6 Overhead Catenary System	63.02	ICB	1S1E	Prior	Jan-15	Lot 1	Steel Pole	13,562,707.94	
						Jan-15	Lot 2	Contact Cable	16,943,942.27
						Jan-15	Lot 3	Messenger Cable	10,089,290.23
						Jan-15	Lot 4	Additional Cables	7,049,261.58
						Jan-15	Lot 5	Inside-tunnel Cantilever Device	5,842,703.05
						Jan-15	Lot 6	Porcelain, HV Pin and Compound Insulator	3,689,793.90
						Jan-15	Lot 7	Outside-tunnel Cantilever Device	5,107,891.38
						Jan-15	Lot 8	Disconnecter, Section Insulator, and Arrester	735,770.50
					Subtotal		63,021,360.85		
7 Traction Substation System	22.49	ICB	1S1E	Prior	Feb-15	Lot 1	Traction Transformer	10,000,000.00	
						Feb-15	Lot 2	Current and Voltage Transformer and Breaker	6,203,278.69
						Feb-15	Lot 3	GIS Cabinet	3,754,098.36
						Feb-15	Lot 4	AC-DC System	2,528,688.52
					Subtotal		22,486,065.57		
8 Electric Power Cable and Equipment	37.19	ICB	1S1E	Prior	Feb-15	Lot 1	Power Cable	26,669,921.97	
						Feb-15	Lot 2	Cabinet	3,508,196.72
						Feb-15	Lot 3	Cabin-type Transformer	7,016,393.44
					Subtotal		37,194,512.13		
Total	170.00							170,000,000.00	

ADB = Asian Development Bank; ICB = international competitive bidding; 1S1E = single stage: one-envelope.

Note: The above packages include transportation, insurance, installation, commissioning, and training costs. If after the tendering procedure, the total actual costs of the packages exceed the loan amount, the cost overrun will be financed by local funds.

Source: China Railway Corporation.

(vii) **Contracts (Government-financed)****Table 26: Contract Packages for Tranche 4 (Government-financed)**

Package	General Description	Contract Value (\$ million)	Remarks
G.102	Noise Panels – Installation and Commissioning	11.73	Government procedures to apply
G.203	Full Section Ballast Cleaning Machine – Installation and Commissioning	56.00	
G.204	Dynamic continuous action leveling, lifting, lining and tamping machine for plain track, switches and crossings with integrated stabilizing trailer – Installation and Commissioning	62.00	
G.206	Bridge Bearings – Installation and Commissioning	47.10	
G.210	Switch System and Fasteners – Installation and Commissioning	153.50	
G.212	Railway underground copper cable for the whole line – Installation and Commissioning	11.09	

Table 27: Contract Packages for Tranche 5 (Government-financed)

Package	General Description	Contract Value (\$ million)	Remarks
G.104	Energy Efficiency System – Installation and Commissioning	234.11	Government procedures to apply
G.202	Bridge Bearings – Installation and Commissioning	26.05	
G.204	Fastener – Installation and Commissioning	20.80	
G.206	Telecommunications Equipment – Installation and Commissioning	15.00	
G.208	Signaling Equipment – Installation and Commissioning	64.70	
G.210	Operation, Maintenance and Safety Equipment – Installation and Commissioning	20.30	

26. The EA will provide ADB with information about likely suppliers on each procurement item on Tables 21–25 above before advertising the tender. If there are not many likely suppliers, CRC will propose the way to increase the number of bids such as by sending invitations directly to potential bidders, in addition to advertising the tender.

27. The threshold for procurement is shown in the table below.

Table 28: Threshold for Procurement

Procurement Method	Threshold
ICB Goods	Equal or more than \$1 million
NCB Goods	Equal or more than \$100,000 and less than \$1 million
Shopping Goods	Less than \$100,000

ICB = international competitive bidding, NCB = national competitive bidding.

Source: ADB estimates.

VII. SAFEGUARDS

28. Tranches 1, 2, 3, 4, and 5 of the investment program are classified category C for all safeguard aspects (environment, involuntary resettlement, and indigenous people). Since the investment program deals with the procurement of energy-efficient, environment-friendly, and safety equipment, no negative safeguard impacts are envisaged. The installation of this equipment and materials will have significant positive environmental and social benefits. After installation, environmental benefits will include reduction of oil use and emission. The equipment to be procured utilizes energy-efficient technologies, which will significantly reduce regional greenhouse gas emission and the oil consumption. It also provides the capacity to respond to more effectively to railway accidents and natural disasters, thereby limiting any potential pollution resulting from these causes.

29. Safeguard compliance assessment for the tranche will be closely monitored and reported periodically through the semi-annual progress and due diligence reports to ADB.

VIII. GENDER AND SOCIAL DIMENSIONS

30. A social and poverty analysis was carried out for the Project. This indicated the project would be very beneficial to many stakeholders. Railway development generates job opportunities (skilled and unskilled) for the poor, ethnic minorities, women, and other vulnerable groups, which helps develop their job skills. Job opportunities provide potential new sources of income for local residents. Increase in female participation in the labor and tourism market increases women's net income and savings, improves overall family welfare, and helps improve women's empowerment. Women and other vulnerable groups benefit from railway development and have equal access to employment and wages. Railway development generates demand for local labor and increases worker productivity and wages. Expansion of secondary and tertiary industries helps generate additional employment opportunities for both men and women, close to their homes.

31. Given the specific nature of activities relating to procurement and installation of equipment, the project does not provide opportunities for integration of gender design elements. However, it is expected that the enhanced railway system will directly benefit people in terms of faster, safer, and affordable transport and indirectly benefit women and girls in accessing new economic opportunities."

32. No action is required for gender and social dimensions since (i) there are no land acquisition or resettlement impacts, (ii) this is a national level project that will benefit all railway users, (iii) there is no impact on labor, and (iv) railway travel is more affordable than aviation and road transport.

IX. PERFORMANCE MONITORING, EVALUATION, REPORTING AND COMMUNICATION

A. Project Design and Monitoring Framework

Table 29: Project Design and Monitoring Framework for Multitranche Financing Facility

Design Summary	Performance Targets / Indicators	Data Sources / Reporting Mechanisms	Assumptions and Risks
<p>Impact</p> <p>Improved transport system in the region that supports sustainable socioeconomic development and the western region development strategy</p>	<p>GDP is forecast to increase during 2016–2020 at 5%–6% per annum for the southwestern region</p> <p>Per capita rural income in the southwestern region increases from CNY3,300 in 2007 to CNY4,400 in 2016 and CNY4,700 in 2020</p> <p>Energy consumption on PRC railways per unit of revenue is reduced by 20% from 2009 to 2016</p> <p>Total discharge of major pollutants by PRC railways is reduced by 10% from 2009 to 2016</p>	<p>Provincial and county/city statistics offices</p> <p>Investment program performance management system at inception, completion, and 3 years after—with emphasis on socioeconomic improvement impacts</p> <p>CRC statistics and operating data before and after the investment program</p>	<p>Assumptions</p> <ul style="list-style-type: none"> ● Government investment programs are implemented as planned. ● Complementary activities are implemented. ● The government is committed to reducing poverty in the western region, based on the western region development strategy.
<p>Outcome</p> <p>An energy-efficient, safe, reliable, affordable, and environment-friendly railway transport system is developed in the region</p>	<p>Transport capacity expanded in the southwestern PRC to 470 billion ton-km for freight and 140 billion passenger-km for passengers, in 2016</p> <p>Cost of travel reduced from 35 fen/km in 2008 to 15 fen/km in 2016</p> <p>Fuel savings increased by CNY936 million from 2009 to 2016</p> <p>CO₂ emissions reduced by 22,000 from 2009 to 2016</p> <p>SO₂ emissions reduced by 10% from 2009 to 2016</p>	<p>Progress reports</p> <p>Project administration missions and project completion report</p> <p>Postevaluation surveys and reports from CRC</p> <p>Statistics from local environmental protection bureaus, communication bureaus, and CRC</p>	<p>Assumptions</p> <ul style="list-style-type: none"> ● Assumed economic growth rates materialize. ● Traffic forecasts are realized. ● Passengers and freight operators realize the benefit of using the railways. <p>Risk</p> <ul style="list-style-type: none"> ● Capacity enhancement works are not completed timely.

Design Summary	Performance Targets / Indicators	Data Sources / Reporting Mechanisms	Assumptions and Risks									
	Recommendations of energy and safety audits adopted by 2013											
<p>Output</p> <p>Investment program implemented by installing energy-efficient technologies, environment-friendly equipment, and safety equipment</p> <p>Energy efficiency and environmental issues in railway management are integrated and institutionalized</p> <p>Safety and energy audits of a nominated railway administration</p> <p>Capacity building support is provided</p>	<p>Energy-efficient, environment-friendly, and safety equipment procured and installed by 2015</p> <p>Recommendations for integrating energy efficiency, and environmental sustainability into railway management and operations made by 2012</p> <p>Safety and energy audits completed and recommendations made by 2012</p> <p>About 80 staff trained and 3 awareness programs organized by 2015</p>	<p>Facility Administration Manuals (FAMs) and Project Completion Report (PCR)</p> <p>FAMs, progress reports, and PCR</p> <p>FAMs, progress reports, and PCR</p> <p>FAMs, progress reports, and PCR</p>	<p>Assumption</p> <ul style="list-style-type: none"> Associated equipment procurement and installation are completed <p>Assumption</p> <ul style="list-style-type: none"> CRC adopts the recommendations <p>Assumption</p> <ul style="list-style-type: none"> Sufficient data is provided in a timely manner <p>Assumption</p> <ul style="list-style-type: none"> Well-qualified staff are nominated for training 									
Activities with Milestones			Inputs									
Investment program implemented by installing energy-efficient technologies, environment-friendly equipment, and safety equipment			OCR - US\$ 1,000,000,000									
<table border="1"> <thead> <tr> <th>Activity</th> <th>Scheduled Start</th> <th>Scheduled Finish</th> </tr> </thead> <tbody> <tr> <td>Complete procurement of equipment and materials</td> <td>Oct 26, 2010</td> <td>Dec 31, 2014</td> </tr> <tr> <td>Complete equipment installation</td> <td>Apr 01, 2011</td> <td>Dec 31, 2016</td> </tr> </tbody> </table>			Activity	Scheduled Start	Scheduled Finish	Complete procurement of equipment and materials	Oct 26, 2010	Dec 31, 2014	Complete equipment installation	Apr 01, 2011	Dec 31, 2016	Govt - US\$ 2,238,500,000
Activity	Scheduled Start	Scheduled Finish										
Complete procurement of equipment and materials	Oct 26, 2010	Dec 31, 2014										
Complete equipment installation	Apr 01, 2011	Dec 31, 2016										
Energy efficiency and environmental issues in railway management are integrated and institutionalized												
<table border="1"> <thead> <tr> <th>Activity</th> <th>Scheduled Start</th> <th>Scheduled Finish</th> </tr> </thead> <tbody> <tr> <td>Provide recommendations</td> <td>Jan 31, 2010</td> <td>Dec 31, 2012</td> </tr> </tbody> </table>			Activity	Scheduled Start	Scheduled Finish	Provide recommendations	Jan 31, 2010	Dec 31, 2012				
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Safety and energy audits of a nominated railway administration												
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Activity	Scheduled Start	Scheduled Finish										
Complete safety and energy audits	Jan 31, 2011	Dec 31, 2012										
Capacity building support is provided												
<table border="1"> <thead> <tr> <th>Activity</th> <th>Scheduled Start</th> <th>Scheduled Finish</th> </tr> </thead> <tbody> <tr> <td>Complete training and capacity development</td> <td>Jan 31, 2011</td> <td>Dec 31, 2015</td> </tr> </tbody> </table>			Activity	Scheduled Start	Scheduled Finish	Complete training and capacity development	Jan 31, 2011	Dec 31, 2015				
Activity	Scheduled Start	Scheduled Finish										
Complete training and capacity development	Jan 31, 2011	Dec 31, 2015										

ADB = Asian Development Bank, CO₂ = carbon dioxide, FAM = facility administration manual, GDP = gross domestic product, km = kilometer, MFF = multitranchise financing facility, CRC = China Railway Corporation, PCR = program completion report, PRC = People's Republic of China, SO₂ = sulphur dioxide, TA = technical assistance.

Table 30: Project Design and Monitoring Framework for Tranche 1 Project

Design Summary	Performance Targets/Indicators	Data Sources / Reporting Mechanisms	Assumptions and Risks
<p>Impact</p> <p>Improved transport system in the region that supports sustainable socioeconomic development and the western region development strategy</p>	<p>GDP is forecast to increase during 2016–2020 at 5%-6% per annum for the southwestern region</p> <p>Per capita rural income in the southwestern region increases from CNY3,300 in 2007 to CNY4,400 in 2016 and CNY4,700 in 2020</p> <p>Energy consumption on PRC railways per unit of revenue is reduced by 20% from 2009 to 2016</p> <p>Total discharge of major pollutants by PRC railways is reduced by 10% from 2009 to 2016</p>	<p>Provincial and county/city statistics offices</p> <p>Investment program performance management system at inception, completion, and 3 years after—with emphasis on socioeconomic improvement impacts</p> <p>CRC statistics and operating data before and after the investment program</p> <p>CRC statistics and operating data before and after the investment program</p>	<p>Assumptions</p> <ul style="list-style-type: none"> ● Government investment programs are implemented as planned. ● Complementary activities are implemented. ● The government is committed to reducing poverty in the western region, based on the western region development strategy.
<p>Outcome</p> <p>An energy-efficient, safe, reliable, affordable, and environment-friendly railway transport system is developed in the region</p>	<p>Transport capacity expanded in the southwestern PRC to 470 billion ton-km for freight and 140 billion passenger-km for passengers, in 2016</p> <p>Cost of travel reduced from 35 fen/km in 2008 to 15 fen/km in 2016</p> <p>Fuel savings increased by CNY936 million from 2009 to 2016</p> <p>CO₂ emissions reduced by 22,000 tons from 2009 to 2016</p> <p>SO₂ emissions reduced by 10% from 2009 to 2016</p> <p>Recommendations of energy and safety audits adopted by 2013</p>	<p>Progress reports</p> <p>Project administration missions and project completion report</p> <p>Postevaluation surveys and reports from CRC</p> <p>Statistics from local environmental protection bureaus, communication bureaus, and CRC</p>	<p>Assumptions</p> <ul style="list-style-type: none"> ● Assumed economic growth rates materialize. ● Traffic forecasts are realized. ● Passengers and freight operators realize the benefit of using the railways. <p>Risk</p> <ul style="list-style-type: none"> ● Capacity enhancement works are not completed timely.

Design Summary	Performance Targets/Indicators	Data Sources / Reporting Mechanisms	Assumptions and Risks																											
<p>Output</p> <p>Investment program implemented by installing energy-efficient technologies, environment-friendly, and safety equipment</p> <p>Energy efficiency and environmental issues in railway management are integrated and institutionalized.</p> <p>Safety and energy audits of a nominated railway administration</p> <p>Capacity building support is provided.</p>	<p>Energy-efficient, environment-friendly, and safety equipment procured and installed by 2016</p> <p>Recommendations for integrating energy efficiency, and environmental sustainability into railway management and operations made by 2012</p> <p>Safety and energy audits completed and recommendations made by 2012</p> <p>About 80 staff trained and 3 awareness programs organized by 2015.</p>	<p>Facility Administration Manuals (FAMs) and Project Completion Report (PCR)</p> <p>FAMs, progress reports, and PCR</p> <p>FAMs, progress reports, and PCR</p> <p>FAMs, progress reports, and PCR</p>	<p>Assumption</p> <ul style="list-style-type: none"> Associated equipment procurement and installation are completed. <p>Assumption</p> <ul style="list-style-type: none"> CRC adopts the recommendations. <p>Assumption</p> <ul style="list-style-type: none"> Sufficient data is provided in a timely manner. <p>Assumption</p> <ul style="list-style-type: none"> Well-qualified staff are nominated for training. 																											
<p>Activities with Milestones</p> <p>Investment program implemented by installing energy-efficient technologies, environment-friendly, and safety equipment</p> <table border="1"> <thead> <tr> <th>Activity</th> <th>Scheduled Start</th> <th>Scheduled Finish</th> </tr> </thead> <tbody> <tr> <td>Complete procurement of equipment and materials</td> <td>Oct 26, 2010</td> <td>Dec 31, 2014</td> </tr> <tr> <td>Complete equipment installation</td> <td>Apr 01, 2011</td> <td>Jun 30, 2016</td> </tr> </tbody> </table> <p>Energy efficiency and environmental issues in railway management are integrated and institutionalized.</p> <table border="1"> <thead> <tr> <th>Activity</th> <th>Scheduled Start</th> <th>Scheduled Finish</th> </tr> </thead> <tbody> <tr> <td>Provide recommendations</td> <td>Jan 31, 2011</td> <td>Dec 31, 2012</td> </tr> </tbody> </table> <p>Safety and energy audits of a nominated railway administration</p> <table border="1"> <thead> <tr> <th>Activity</th> <th>Scheduled Start</th> <th>Scheduled Finish</th> </tr> </thead> <tbody> <tr> <td>Complete safety and energy audits</td> <td>Jan 31, 2010</td> <td>Dec 31, 2012</td> </tr> </tbody> </table> <p>Capacity building support is provided.</p> <table border="1"> <thead> <tr> <th>Activity</th> <th>Scheduled Start</th> <th>Scheduled Finish</th> </tr> </thead> <tbody> <tr> <td>Complete training and capacity development</td> <td>Jan 31, 2011</td> <td>Dec 31, 2015</td> </tr> </tbody> </table>			Activity	Scheduled Start	Scheduled Finish	Complete procurement of equipment and materials	Oct 26, 2010	Dec 31, 2014	Complete equipment installation	Apr 01, 2011	Jun 30, 2016	Activity	Scheduled Start	Scheduled Finish	Provide recommendations	Jan 31, 2011	Dec 31, 2012	Activity	Scheduled Start	Scheduled Finish	Complete safety and energy audits	Jan 31, 2010	Dec 31, 2012	Activity	Scheduled Start	Scheduled Finish	Complete training and capacity development	Jan 31, 2011	Dec 31, 2015	<p>Inputs</p> <p>TASF - US\$ 600,000</p> <p>OCR - US\$ 300,000,000</p> <p>Govt - US\$ 120,000</p> <p>Govt - US\$ 667,340,000</p>
Activity	Scheduled Start	Scheduled Finish																												
Complete procurement of equipment and materials	Oct 26, 2010	Dec 31, 2014																												
Complete equipment installation	Apr 01, 2011	Jun 30, 2016																												
Activity	Scheduled Start	Scheduled Finish																												
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Activity	Scheduled Start	Scheduled Finish																												
Complete training and capacity development	Jan 31, 2011	Dec 31, 2015																												

ADB = Asian Development Bank, CO₂ = carbon dioxide, FAM = facility administration manual, GDP = gross domestic product, km = kilometer, CRC = China Railway Corporation, OCR = ordinary capital resources, PCR = project completion report, PRC = People's Republic of China, SO₂ = sulphur dioxide, TASF = technical assistance special fund.

Table 31: Project Design and Monitoring Framework for Tranche 2 Project

Design Summary	Performance Targets / Indicators	Data Sources / Reporting Mechanisms	Assumptions and Risks
<p>Impact</p> <p>Improved transport system in the region that supports sustainable socioeconomic development and the western region development strategy</p>	<p>GDP grows during 2016-2020 at 5% to 6% per annum for the southwestern region</p> <p>Per capital rural income in the southwestern region increases from CNY3,300 in 2007 to CNY4,400 in 2016 and CNY4,700 in 2020</p> <p>Energy consumption on PRC railways per unit of revenue reduced by 20% from 2009 to 2016</p>	<p>Provincial and county/city statistics offices</p> <p>Investment program performance management system at inception, completion, and 3 years after-with emphasis on socio economic improvement impacts</p> <p>CRC statistics and operating data before and after the investment program</p>	<p>Assumptions</p> <ul style="list-style-type: none"> ● Government investment programs are implemented as planned. ● Complementary activities are implemented. ● The government is committed to reducing poverty in the western region, based on the western region development strategy.
<p>Outcome</p> <p>An energy-efficient, safe, reliable, affordable, and environment-friendly railway transport system is developed in the region.</p>	<p>Transport capacity expanded in the southwestern PRC to 470 billion ton-km for freight and 140 billion passenger-km for passengers in 2016</p> <p>Cost of travel reduced from 35 fen/km in 2008 to 15 fen/km in 2016</p> <p>Fuel savings increased by CNY936 million from 2009 to 2016</p> <p>CO₂ emissions reduced by 22,000 tons from 2009 to 2016</p> <p>SO₂ emissions reduced by 10% from 2009 to 2016</p> <p>Recommendations of energy and safety audits adopted by 2013</p>	<p>Progress reports</p> <p>Project administration missions and facility completion report</p> <p>Post evaluation surveys and reports from CRC</p> <p>Statistics from local environmental protection bureaus, communication bureaus, and CRC</p>	<p>Assumptions</p> <ul style="list-style-type: none"> ● Assumed economic growth rates materialize. ● Traffic forecasts are realized. ● Passengers and freight operators realize the benefit of using the railways. <p>Risk</p> <ul style="list-style-type: none"> ● Capacity enhancement works are not completed in a timely manner.
<p>Output</p> <p>Investment program implemented by installing safety equipment</p>	<p>Safety equipment procured and installed by December 2016</p> <p>Bridge bearings procured by March 2013 and installed by July 2014</p>	<p>Facility Administration Manuals (FAMs) and Project Completion Report (PCR)</p>	<p>Assumption</p> <ul style="list-style-type: none"> ● Associated equipment procurement and installation are completed.

Design Summary	Performance Targets / Indicators	Data Sources / Reporting Mechanisms	Assumptions and Risks
	Switches procured by Dec 2013 and installed by March 2015 Fasteners procured by Dec 2013 and installed by December 2016		
Activities with Milestones			Inputs
Investment program implemented by installing safety equipment			OCR - US\$ 100,000,000
Activity	Scheduled Start	Scheduled Finish	Govt - US\$ 223,730,000
Complete procurement of equipment	Jan 31, 2011	Dec 31, 2013	
Complete installation of equipment	Oct 01, 2011	Dec 31, 2016	

CNY = Chinese Yuan, CO₂ = carbon dioxide, GDP = gross domestic product, CRC = China Railway Corporation, OCR = ordinary capital resources, PRC = People's Republic of China, SO₂ = sulphur dioxide.

Table 32: Project Design and Monitoring Framework for Tranche 3 Project

Design Summary	Performance Targets / Indicators	Data Sources / Reporting Mechanisms	Assumptions and Risks
<p>Impact</p> <p>Improved transport system in the region that supports sustainable socioeconomic development and the Western Region Development Strategy.</p>	<p>GDP grows during 2016-2020 at 5% to 6% per annum for the southwestern region</p> <p>Per capital rural income in the southwestern region increases from CNY3,300 in 2007 to CNY4,400 in 2016 and CNY4,700 in 2020</p> <p>Energy consumption on PRC railways per unit of revenue is reduced by 20% from 2009 to 2016</p>	<p>Provincial and county/city statistics offices</p> <p>Investment program performance management system at inception, completion, and 3 years after-with emphasis on socio economic improvement impacts</p> <p>CRC statistics and operating data before and after the investment program</p>	<p>Assumptions</p> <ul style="list-style-type: none"> ● Government investment programs are implemented as planned. ● Complementary activities are implemented. ● The Government is committed to reducing poverty in the western region, based on the western region development strategy.
<p>Outcome</p> <p>An energy-efficient, safe, reliable, affordable, and environment-friendly railway transport system is developed in the region.</p>	<p>Transport capacity expanded in the southwestern PRC to 470 billion ton-km for freight and 140 billion passenger-km for passengers in 2016</p> <p>Cost of travel reduced from 35 fen/km in 2008 to 15 fen/km in 2016</p> <p>Fuel savings increased by CNY936 million from 2009 to 2016</p> <p>CO₂ emissions reduced by 22,000 tons from 2009 to 2016</p> <p>SO₂ emissions reduced by 10% from 2009 to 2016</p>	<p>Progress reports</p> <p>Project administration missions and facility completion report</p> <p>Post evaluation surveys and reports from CRC</p> <p>Statistics from local environmental protection bureaus, communication bureaus, and CRC</p>	<p>Assumptions</p> <ul style="list-style-type: none"> ● Traffic forecasts are realized. ● Passengers and freight operators realize the benefit of using the railways. ● Assumed economic growth rates materialize. <p>Risks</p> <ul style="list-style-type: none"> ● Capacity enhancement works are not completed in a timely manner. ● The Government changes railway investment policy.
<p>Output</p> <p>Investment program implemented by installing energy efficiency, environmental protection, and safety enhancement equipment</p>	<p>Railway electrification equipment procured by Jan 2013 and installed by July 2014</p> <p>Electric power supply system procured by Jan 2013 and installed by July 2014</p>	<p>Facility Administration Manuals (FAMs) and Project Completion Report (PCR)</p>	<p>Assumptions</p> <ul style="list-style-type: none"> ● Associated equipment procurement and installation are completed. ● Sufficient data is provided in a timely manner.

Design Summary	Performance Targets / Indicators	Data Sources / Reporting Mechanisms	Assumptions and Risks
	<p>Noise barriers procured by July 2013 and installed by July 2014</p> <p>Enhanced railway fasteners and switches procured by October 2012 and installed by July 2014</p> <p>Railway telecommunications system procured by January 2013 and installed by July 2014</p> <p>Railway signaling system procured by January 2013 and installed by July 2014</p> <p>Advanced railway inspection equipment procured by January 2013 and installed by July 2014</p> <p>Emergency rescue equipment procured by December 2015 and installed by December 2016</p>		<p>Risk</p> <ul style="list-style-type: none"> The Government changes the railway investment plan.
Activities with Milestones			Inputs
Investment program implemented by installing energy efficiency, environmental protection, and safety enhancement equipment			OCR - US\$ 250,000,000
Activity	Scheduled Start	Scheduled Finish	Govt - US\$ 569,700,000
Publish general procurement notice	Oct 01, 2011	Oct 31, 2011	
Complete procurement of equipment	Oct 01, 2011	Dec 31, 2015	
Complete equipment installation	Apr 01, 2012	Dec 31, 2016	

CNY = Chinese Yuan, CO₂ = carbon dioxide, GDP = gross domestic product, CRC = China Railway Corporation, OCR = ordinary capital resources, PRC = People's Republic of China, SO₂ = sulphur dioxide

Table 33: Design and Monitoring Framework of Tranche 4

Design Summary	Performance Targets/Indicators	Data Sources/ Reporting Mechanisms	Assumptions and Risks
<p>Impact Improved transport system in the southwestern region that supports sustainable socioeconomic development and the western region development strategy</p>	<p>GDP to increase during 2015–2023 at 5% to 6% per annum for the southwestern region</p> <p>Per capita rural income in the southwestern region increased from CNY3,300 in 2007 to CNY4,400 in 2015 to CNY4,700 in 2020 and 4,880 in 2023</p> <p>Energy consumption on the PRC railways per unit of revenue is reduced by 25% from 2009 to 2023</p>	<p>Provincial and county/city statistics offices.</p> <p>Investment program performance management system at inception, completion, and 3 years after—with emphasis on socioeconomic improvement impacts</p> <p>CRC statistics and operating data before and after the investment program</p>	<p>Assumptions Government investment programs are implemented as planned.</p> <p>Complementary activities are implemented.</p> <p>The Government is committed to reducing poverty in the western region, based on the western region development strategy.</p>
<p>Outcome An energy-efficient, safe, reliable, affordable, and environment-friendly railway transport system is developed in the region</p>	<p>Transport capacity expanded in the southwestern PRC to 470 billion ton-km for freight and 150 billion passenger-km for passengers in 2020</p> <p>Cost of travel reduced from 35 fen/km in 2008 to 15 fen/km in 2020</p> <p>Fuel savings increased by CNY936 million in 2020</p> <p>CO₂ emissions are reduced by 22,106 tons in 2020</p> <p>A 20% reduction in rate of accidents per billion traffic by 2020 from 2008</p>	<p>Progress reports</p> <p>Project administration missions and facility completion report</p> <p>Post evaluation surveys and reports from CRC</p>	<p>Assumptions Assumed economic growth rates materialize.</p> <p>Traffic forecasts are realized.</p> <p>Passengers and freight operators realize the benefit of using the railways.</p> <p>Risk Capacity enhancement works are not completed in a timely manner.</p>

Design Summary	Performance Targets/Indicators	Data Sources/ Reporting Mechanisms	Assumptions and Risks
Outputs 1. Environmental protection 2. Railway safety enhancement	Environmental protection equipment procured by June 2014 and installed by December 2017. (i) Track safety operation and maintenance equipment procured by March 2014 and installation completed by December 2016; (ii) Anti-seismic bridge bearings procured by June 2014 and installed by December 2017; (iii) Enhanced fasteners and switch system procured by October 2014 and installation completed by December 2017; and (iv) Signaling facilities procured by December 2014 and installed by June 2016	FAMs and PCR	Assumption Associated equipment procurement and installation are completed.
Activities with Milestones 1. Environment-friendly improvement 1.1 Procurement of equipment completed by December 2014 1.2 Installation completed by December 2017 1.3 Final acceptance completed by December 2018 2. Railway safety enhancement 2.1 Procurement of equipment completed by July 2015 2.2 Installation completed by December 2017 2.3 Final acceptance completed by December 2018			Inputs Investment cost for Tranche 4: \$547.60 million ADB: \$180 million CRC: \$367.60 million

ADB = Asian Development Bank, FAM = facility administration manual, GDP = gross domestic product, km = kilometer, CNY = Chinese Yuan, CRC = China Railway Corporation, PCR = project completion report, PRC = People's Republic of China, TA = technical assistance.

* Baselines for fuel savings, CO₂ emissions and SO₂ emissions are 2009 data. Fuel savings and emission reductions are benefits in the specified year and not aggregated benefits from the base year.

Table 34: Design and Monitoring Framework of Tranche 5

Design Summary	Performance Targets/Indicators	Data Sources/ Reporting Mechanisms	Assumptions and Risks
<p>Impact Improved transport system in the southwestern region that supports sustainable socioeconomic development and the western region development strategy</p>	<p>GDP to increase during 2015–2023 at 5% to 6% per annum for the southwestern region</p> <p>Per capita rural income in the southwestern region increased from CNY3,300 in 2007 to CNY4,400 in 2015 to CNY4,700 in 2020 and 4,880 in 2023</p>	<p>Provincial and county/city statistics offices.</p> <p>Investment program performance management system at inception, completion, and 3 years after—with emphasis on socioeconomic improvement impacts</p>	<p>Assumptions Government investment programs are implemented as planned.</p> <p>Complementary activities are implemented.</p> <p>The Government is committed to reducing poverty in the western region, based on the western region development strategy.</p>
<p>Outcome An energy-efficient, safe, reliable, and environment-friendly railway transport system developed in the region</p>	<p>Transport capacity expanded in the southwestern PRC to 470 billion ton-km for freight and 150 billion passenger-km for passengers in 2020</p> <p>Energy consumption on the PRC railways per unit of revenue is reduced by 23% from 2009 to 2020</p> <p>CO₂ emissions are reduced by 22,106 tons in 2020</p> <p>A 20% reduction in rate of accidents per billion traffic by 2020 from 2008 (0.214 per billion converted t-km in 2008)</p>	<p>Progress reports</p> <p>CRC statistics and operating data before and after the investment program</p> <p>CRC statistics and facility completion report</p> <p>Post evaluation surveys and reports from CRC</p>	<p>Assumptions Assumed economic growth rates materialize.</p> <p>Traffic forecasts are realized.</p> <p>Passengers and freight operators realize the benefit of using the railways.</p> <p>Risk Capacity enhancement works are not completed in a timely manner.</p>
<p>Outputs 1. Energy efficiency</p>	<p>(i) Railway electric power supply system procurement will begin by January 2015 and installed by September 2017</p>	<p>FAMs and PCR</p>	<p>Assumption Associated equipment procurement and installation are completed.</p>

Design Summary	Performance Targets/Indicators	Data Sources/ Reporting Mechanisms	Assumptions and Risks
2. Railway safety enhancement	<ul style="list-style-type: none"> (ii) Railway electrification system procurement will begin by January 2015 and installed by December 2017. (i) Anti-seismic bridge bearings and enhanced fasteners will start procurement by July 2014 and installed by December 2016 (ii) Telecommunication system will start procurement by January 2015 and installed by September 2017 (iii) Railway signaling system procurement will begin by January 2015 and installation completed by December 2017 (iv) Track safety operation and maintenance equipment procurement will begin by July 2015 and installation completed by December 2017. 		
Activities with Milestones 3. Energy efficiency 1.1 Procurement of equipment completed by December 2015 1.2 Installation completed by December 2017 1.3 Final acceptance completed by December 2018 4. Railway safety enhancement 2.1 Procurement of equipment completed by March 2016 2.2 Installation completed by December 2017 2.3 Final acceptance completed by December 2018			Inputs Investment cost for Tranche 5: \$580.10 million ADB: \$170.00 million CRC: \$410.10 million

ADB = Asian Development Bank, FAM = facility administration manual, GDP = gross domestic product, km = kilometer, CNY = Chinese Yuan, CRC = China Railway Corporation, PCR = project completion report, PRC = People's Republic of China, TA = technical assistance, t-km = ton-kilometer.

* Baselines for fuel savings, CO₂ emissions and SO₂ emissions are 2009 data. Fuel savings and emission reductions are benefits in the specified year and not aggregated benefits from the base year.

B. Monitoring

33. **Investment program performance monitoring and evaluation.** The investment program performance and monitoring system indicators and their relevance were discussed with the EA during project preparation. The EA agreed to a set of indicators for evaluating performance in relation to its impacts, outcomes, and outputs. The indicators, to be reviewed at the start of implementation, will include (i) economic development and socioeconomic indicators, (ii) railway transport volumes, (iii) transport costs for passenger and freight services, (iv) energy efficiency indicators (energy consumption per unit of revenue), (v) environmental indicators, and (vi) accident rates. At the beginning of project implementation, the EA will establish baseline and target values for the indicators. The indicators will be measured at inception, completion, and 3 years later; and compared with the baseline. The main sources of data will include secondary data from government sources. The EA will submit a report summarizing the key findings of monitoring at inception, completion, and 3 years later to ADB.¹⁴ The indicators for the inception were submitted to ADB on 28 February 2011.

34. **Investment program review.** ADB and the EA will review the investment program and the periodic financing requests annually covering all institutional, administrative, technical, economic, and other relevant aspects that may have an impact on the performance of the investment program. The review will examine implementation progress and compliance with assurances in the loan agreement.

35. **Compliance monitoring:** The compliance status of loan and project covenants will be reported and assessed through the semi-annual progress reports and verified by ADB review missions.

- (i) **Reform measures.** The Government will cause CRC to take necessary measures to continue implementation of the Railway Development Plan (2004 and updated in 2008).
- (ii) **Equipment Quality.** The Government will cause CRC to ensure that the equipment is procured and used in accordance with the government's national technical standards, and that supervision, quality control, and contract management are conducted in a periodic and satisfactory manner.
- (iii) **Capacity expansion.** The Government will cause CRC to ensure that all capacity expansion activities in southwestern PRC are completed with due consideration of their environmental and social safeguards in a timely manner.
- (iv) **Sustainability.** The Government will cause CRC to ensure that (a) adequate counterpart funding, staffing, and institutional support be provided for implementation of the Project financed under the investment program; (b) necessary measures be taken promptly to resolve any issues identified during operation of the project equipment; and (c) appropriate budgetary allocations be made for the continued operation and maintenance of the project equipment.

¹⁴ ADB's project performance reporting system is available at:
<http://www.adb.org/Documents/Slideshows/PPMS/default.asp?p=evaltool>

- (v) **Supply of rolling stock.** The Government will ensure that CRC provide sufficient rolling stock, at all times, for effective operation of the equipment.
- (vi) **Safety.** The Government will cause CRC to ensure the safety in installation and operation of the Project equipment in accordance with relevant Government laws and regulations.

36. **Safeguards Monitoring.** CRC shall ensure that the Project does not have any environmental, indigenous peoples or involuntary resettlement impacts, all within the meaning of ADB's Safeguard Policy Statement (SPS, 2009). In the event that the Project does have any such impact, CRC shall take all steps required to ensure that the Project complies with the applicable laws and regulations of the People's Republic of China and with ADB's SPS.

37. **Project Performance Monitoring and Evaluation.** The Government will cause CRC to monitor and evaluate impact through a performance monitoring system, as agreed to by the government and ADB, to ensure that project equipment and materials are managed efficiently, benefits are maximized, and impacts are monitored. The government will also cause CRC to collect the necessary information and data on project performance, as agreed to by the government and ADB, before project implementation, and at completion of the investment program.

C. Evaluation

38. ADB and the Government will jointly review implementation of the investment program once a year, covering a detailed evaluation of the scope, implementation arrangements, institutional, administrative, technical, economic, financial, achievement of scheduled targets, and other relevant aspects that may have an impact on the performance of the investment program. The review will examine implementation progress and compliance with assurances in the loan agreement. Feedback from the PPMS activities will be analyzed. Within 3 months of physical completion of the first tranche, the EA will submit a project completion report to ADB.¹⁵ A facility completion report to ADB within 6 months from physical completion of the investment program.

D. Reporting

39. The EA will provide ADB with (i) semi-annual progress reports in a format consistent with ADB's project performance reporting system; (ii) annual reporting consolidated in the progress reports including (a) progress achieved by output as measured through the indicator's performance targets, (b) key implementation issues and solutions; (c) updated procurement plan; and (d) updated implementation plan for next 12 months; and (iii) a project completion report within 3 months of physical completion of the tranches and a facility completion report to ADB within 6 months from physical completion of the investment program. To ensure projects continue to be both viable and sustainable, project accounts and the executing agency AFSs, with the associated auditor's report, should be adequately reviewed.

¹⁵ Project completion report format available at: <http://www.adb.org/Consulting/consultants-toolkits/PCR-Public-Sector-Landscape.rar>.

E. Stakeholder Communication Strategy

40. CRC will undertake consultations with key stakeholders who are related to the introduction of energy-efficient technologies, environment-friendly equipment, and safety equipment. Communication with stakeholders will be managed by the PMO public communication with the support of concerned municipal agencies. The PMO staff will ensure that the local stakeholders are consulted, that information on the project is disseminated, and that questions and complaints are addressed quickly and effectively.

X. ANTICORRUPTION POLICY

41. ADB reserves the right to investigate, directly or through its agents, any violations of the Anticorruption Policy relating to the Project.¹⁶ All contracts financed by ADB shall include provisions specifying the right of ADB to audit and examine the records and accounts of the executing agency and all Project contractors, suppliers, consultants and other service providers. Individuals/entities on ADB's anticorruption debarment list are ineligible to participate in ADB-financed activity and may not be awarded any contracts under the Project.¹⁷

42. To support these efforts, relevant provisions of ADB's Anticorruption Policy are included in the loan regulations and bidding documents for the investment program. In particular, all contracts financed by ADB in connection with the investment program shall include provisions specifying the right of ADB to audit and examine the records and accounts of the EA and all contractors, suppliers, consultants, and other service providers as they relate to the investment program. In relation to the investment program, The EA will ensure that (i) a supervisory body is established for prevention of undue interference in business practices, and adequate resources are made available for its effective operation; (ii) a leading group of officials from the supervision division of CRC is located in offices involved in bidding, installation, and other operational activities under the investment program; and (iii) periodic inspections on the contractor's activities related to fund withdrawals and settlements are carried out. The EA shall also initiate liaison meetings with the Prosecutor's Office, as needed, to discuss any warnings about, or information on, alleged corrupt, fraudulent, collusive, or coercive practices relating to the investment program.

¹⁶ Available at: <http://www.adb.org/Documents/Policies/Anticorruption-Integrity/Policies-Strategies.pdf>.

¹⁷ ADB's Integrity Office web site is available at: <http://www.adb.org/integrity/unit.asp>

XI. IMPLEMENTATION OF ACCOMPANYING TECHNICAL ASSISTANCE

43. ADB approved a grant of \$600,000 from the TA Special Fund-Others for a piggybacked TA: Railway Institutional and Capacity Development (TA). The TA was to (i) conduct safety and energy audits of a nominated railway administration; and (ii) provide capacity building support. CRC was the EA of the TA. The EA financed \$120,000, which covered office accommodation and counterpart staff required to implement the study.

44. An international consulting firm was engaged through quality- and cost-based selection method and provided 14 person-months of international and 16 person-months of national consultant services. The consultants were mobilized on 12 October 2011. Inception and review missions were fielded after receipt of the inception report in November 2011, interim report in February 2012, and the draft final report in July 2012. Safety and energy audits were conducted and environmental management practices reviewed for the Nanning–Kunming rail line. A handbook on rail safety was included in the final report. Study tours were conducted focusing on railway safety and energy efficiency best international practices in Europe and North America. Safety practices in tunnel design, construction and operation for the high-speed long tunnels in Europe were especially valuable. Workshops enabled the results of the tours to be disseminated to a wider audience in the PRC. A policy brief summarizing the findings of the TA was prepared, together with a final report in December 2012. The TA was financially closed on 16 May 2013.

XII. ACCOUNTABILITY MECHANISM

45. People who are, or may in the future be, adversely affected by the project may submit complaints to ADB's Accountability Mechanism. The Accountability Mechanism provides an independent forum and process whereby people adversely affected by ADB-assisted projects can voice, and seek a resolution of their problems, as well as report alleged violations of ADB's operational policies and procedures. Before submitting a complaint to the Accountability Mechanism, affected people should make a good faith effort to solve their problems by working with the concerned ADB operations department. Only after doing that, and if they are still dissatisfied, should they approach the Accountability Mechanism.¹⁸

¹⁸ For further information see: <http://www.adb.org/Accountability-Mechanism/default.asp>.

XIII. RECORD OF FAM CHANGES

41. All revisions/updates during course of implementation are retained in this Section to provide a chronological history of changes to implemented arrangements recorded in the FAM.

No.	FAM Changes/Updates	Date	Remarks
1	Initial draft	15 July 2010	First draft provided to EA
2	Agreed draft for Tranche 1	25 August 2010	During Inception Mission
3	Agreed draft for Tranche 2	1 December 2010	During Loan Negotiations
4	Agreed draft for Tranche 3	20 May 2011	During Loan Review Mission
5	Agreed draft for Tranches 1, 2, and 3	27 October 2011	During Loan Inception and Loan Review Missions
6	Agreed draft for Tranches 1, 2, and 3	June 2012	During Loan Review Mission for Tranche 1
7	Agreed draft for Tranches 1, 2, and 3	Jan 2013	During Handover Mission for Tranches 1, 2, and 3
8	Draft for Tranches 1, 2, 3, and 4	II Oct 2013	During Processing of Tranche 4
9	Draft for Tranches 1, 2, 3, 4, and 5	I Nov 2013	During Processing of Tranche 5

LOAN COVENANTS – TRANCHE 1

1. The initial implementation of Tranche 1 has been satisfactory, including the safeguard compliances. Compliance status with major loan covenants for Tranche 1 is provided in the following table.

Nos.	Summary of Major Covenants	Reference	Remarks/Updates
SECTOR			
1	The Borrower shall cause the Project to be carried out with due diligence and efficiency and in conformity with sound administrative, financial, engineering, environmental and railway construction, maintenance and operations practices. In carrying out of the Project and operation of the Project equipment, the Borrower shall perform all obligations set forth in Schedule 5 to the Loan Agreement.	Loan Agreement, Section 4.01	The Loan Agreement was signed on 8 June 2010 and became effective on 26 October 2010. The China Railway Corporation (CRC) submitted the semiannual and Due Diligence Reports to ADB from January 2011 to July 2013.
2	The Borrower shall make available, promptly as needed, funds, facilities, services, and other resources which are required, in addition to the proceeds of the Loan, for the carrying out of the Project and for the operation and maintenance of the Project equipment.	Loan Agreement, Section 4.02	Counterpart funds and staff were provided.
3	The Borrower shall cause the Project to be carried out in accordance with plans, design standards, specifications and installation and commissioning schedules acceptable to ADB. The Borrower shall furnish to ADB, promptly after their preparation, such plans, design standards, specifications and installation and commissioning schedules, and any material modifications subsequently made therein, in such detail as ADB shall reasonably request.	Loan Agreement, Section 4.03(b)	The detailed design of some procurement item has been provided and specifications of other items are being examined.
4	Equipment Quality. The Borrower shall cause CRC to ensure that the equipment is procured and used in accordance with the Government's national technical standards, and that supervision, quality control, and contract management are carried out in a periodic and satisfactory manner.	Loan Agreement, Schedule 5	Inspection officials are sent to equipment manufacturers to check the conformity of technical and quality standards. After the installation, inspection companies which were selected by bids check the quality of equipment installation.
5	Supply of Rolling Stock. The Borrower shall ensure that CRC provides sufficient rolling stock, at all times, for effective operation of the equipment.	Loan Agreement, Schedule 5	Not yet due.
6	Monitoring and Evaluation. The Borrower shall cause CRC to monitor and evaluate impact through a performance monitoring system, as agreed to by the Borrower and ADB, to ensure that Project equipment and materials are managed efficiently, benefits are maximized, and impacts are monitored. The Borrower shall also cause CRC to collect the necessary information and data on project completion of the Project.	Loan Agreement, Schedule 5	Semiannual and Due Diligence Reports were submitted to ADB from January 2011 to July 2013
7	Safety. The Borrower shall cause CRC to ensure the safety of the equipment in accordance with relevant Government laws and regulations.	Loan Agreement, Schedule 5	Inspection officials are sent to equipment manufacturers to check the conformity of safety standards. After the installation, external inspectors check the safety of equipment installation.

Nos.	Summary of Major Covenants	Reference	Remarks/Updates
ENVIRONMENTAL			
8	Notwithstanding that the Investment Program does not have impact on environment, the Borrower shall cause the CRC to ensure that all the requirements prescribed in the attached safeguard framework in Schedule 5 to FFA be complied with during the implementation of the Project.	Loan Agreement, Schedule 6	CRC reported the results of the compliance review in the Semiannual and Due Diligence Reports which were submitted to ADB from January 2011 to July 2013
SOCIAL			
9	Notwithstanding that the Investment Program does not have impact on resettlement and ethnic minorities, the Borrower shall cause the CRC to ensure that all the requirements prescribed in the attached safeguard framework in Schedule 5 to FFA be complied with during the implementation of the Project.	Loan Agreement, Schedule 5	CRC reported the results of the compliance review in the Semiannual and Due Diligence Reports which were submitted to ADB from Jan 2011 to Jul 2013
FINANCIAL			
10	The Borrower shall (i) maintain separate accounts for the Project; (ii) have such accounts and related financial statements audited annually by independent auditors acceptable to ADB; (iii) furnish to ADB not later than 6 months after end of each fiscal year, certified copies of audited accounts and financial statements; and (iv) furnish to ADB such other information concerning such accounts.	Loan Agreement, Section 4.05(a)	CRC is maintaining separate accounts for the Project. The latest audit report was submitted on 1 July 2013 for FY2012.
OTHERS			
11	Established, Staffed, and Operating PMU/PIU The Borrower shall ensure that the activities of its department and agencies with respect to the carrying out of the Project and operation of the Project equipment are conducted and coordinated in accordance with sound administrative policies and procedures.	Loan Agreement, Section 4.04	Complied. Project Management Office was established and staffed in 2010.

LOAN COVENANTS – TRANCHE 2

1. The initial implementation of Tranche 2 has been satisfactory, including the safeguard compliances. Compliance status with major loan covenants for Tranche 2 is provided in the following table.

Nos.	Summary of Major Covenants	Reference	Remarks/Updates
SECTOR			
1	The Borrower shall cause the Project to be carried out with due diligence and efficiency and in conformity with sound administrative, financial, engineering, environmental and railway construction, maintenance and operations practices. In carrying out of the Project and operation of the Project equipment, the Borrower shall perform all obligations set forth in Schedule 5 to the Loan Agreement.	Loan Agreement, Section 4.01	The Loan Agreement was signed on 11 March 2011 and became effective on 10 June 2011. CRC submitted semiannual and Due Diligence Reports to ADB from January 2012 to July 2013.
2	The Borrower shall make available, promptly as needed, funds, facilities, services, and other resources which are required, in addition to the proceeds of the Loan, for the carrying out of the Project and for the operation and maintenance of the Project equipment.	Loan Agreement, Section 4.02	Counterpart funds and staff are being provided.
3	The Borrower shall cause the Project to be carried out in accordance with plans, design standards, specifications and installation and commissioning schedules acceptable to ADB. The Borrower shall furnish to ADB, promptly after their preparation, such plans, design standards, specifications and installation and commissioning schedules, and any material modifications subsequently made therein, in such detail as ADB shall reasonably request.	Loan Agreement, Section 4.03(b)	The detailed design of some procurement items has been provided and specifications of other items are being examined.
4	Equipment Quality. The Borrower shall cause CRC to ensure that the equipment is procured and used in accordance with the Government's national technical standards, and that supervision, quality control, and contract management are carried out in a periodic and satisfactory manner.	Loan Agreement, Schedule 5	Inspection officials are sent to equipment manufacturers to check the conformity of technical and quality standards. After the installation, inspection companies which were selected by bids check the quality of equipment installation.
5	Supply of Rolling Stock. The Borrower shall ensure that CRC provides sufficient rolling stock, at all times, for effective operation of the equipment.	Loan Agreement, Schedule 5	Not yet due.
6	Monitoring and Evaluation. The Borrower shall cause CRC to monitor and evaluate impact through a performance monitoring system, as agreed to by the Borrower and ADB, to ensure that Project equipment and materials are managed efficiently, benefits are maximized, and impacts are monitored. The Borrower shall also cause CRC to collect the necessary information and data on project completion of the Project.	Loan Agreement, Schedule 5	Semiannual and Due Diligence Reports were submitted to ADB from January 2012 to July 2013

Nos.	Summary of Major Covenants	Reference	Remarks/Updates
7	Safety. The Borrower shall cause CRC to ensure the safety of the equipment in accordance with relevant Government laws and regulations.	Loan Agreement, Schedule 5	Inspection officials are sent to equipment manufacturers to check the conformity of safety standards. After the installation, external inspectors check the safety of equipment installation.
ENVIRONMENTAL			
8	Notwithstanding that the Investment Program does not have impact on environment, the Borrower shall cause the CRC to ensure that all the requirements prescribed in the attached safeguard framework in Schedule 5 to FFA be complied with during the implementation of the Project.	Loan Agreement, Schedule 6	CRC reported the results of the compliance review in the Semiannual and Due Diligence Reports which were submitted to ADB from January 2012 to July 2013
SOCIAL			
9	Notwithstanding that the Investment Program does not have impact on resettlement and ethnic minorities, the Borrower shall cause the CRC to ensure that all the requirements prescribed in the attached safeguard framework in Schedule 5 to FFA be complied with during the implementation of the Project.	Loan Agreement, Schedule 5	CRC reported the results of the compliance review in the Semiannual and Due Diligence Reports which were submitted to ADB from January 2012 to July 2013
FINANCIAL			
10	The Borrower shall (i) maintain separate accounts for the Project; (ii) have such accounts and related financial statements audited annually by independent auditors acceptable to ADB; (iii) furnish to ADB not later than 6 months after end of each fiscal year, certified copies of audited accounts and financial statements; and (iv) furnish to ADB such other information concerning such accounts.	Loan Agreement, Section 4.05(a)	CRC is maintaining separate accounts for the Project. The first audit report was submitted on 1 July 2013 for FY2012.
OTHERS			
11	Established, Staffed, and Operating PMU/PIU The Borrower shall ensure that the activities of its department and agencies with respect to the carrying out of the Project and operation of the Project equipment are conducted and coordinated in accordance with sound administrative policies and procedures.	Loan Agreement, Section 4.04	Complied. Project Management Office was established and staffed in 2011.

LOAN COVENANTS – TRANCHE 3

1. The initial implementation of Tranche 3 has been satisfactory, including the safeguard compliances. Compliance status with major loan covenants for Tranche 3 is provided in the following table.

Nos.	Summary of Major Covenants	Reference	Remarks/Updates
SECTOR			
1	The Borrower shall cause the Project to be carried out with due diligence and efficiency and in conformity with sound administrative, financial, engineering, environmental and railway construction, maintenance and operations practices. In carrying out of the Project and operation of the Project equipment, the Borrower shall perform all obligations set forth in Schedule 5 to the Loan Agreement.	Loan Agreement, Section 4.01	The Loan Agreement was signed on 25 October 2011 and became effective on 15 February 2012. CRC submitted semiannual and Due Diligence Reports to ADB in January 2013 and July 2013.
2	The Borrower shall make available, promptly as needed, funds, facilities, services, and other resources which are required, in addition to the proceeds of the Loan, for the carrying out of the Project and for the operation and maintenance of the Project equipment.	Loan Agreement, Section 4.02	Counterpart funds and staff are being provided.
3	The Borrower shall cause the Project to be carried out in accordance with plans, design standards, specifications and installation and commissioning schedules acceptable to ADB. The Borrower shall furnish to ADB, promptly after their preparation, such plans, design standards, specifications and installation and commissioning schedules, and any material modifications subsequently made therein, in such detail as ADB shall reasonably request.	Loan Agreement, Section 4.03(b)	The detailed design of some procurement items has been provided and specifications of other items are being examined.
4	Equipment Quality. The Borrower shall cause CRC to ensure that the Goods is procured and used in accordance with the Government's national technical standards, and that supervision, quality control, and contract management are carried out in a periodic and satisfactory manner.	Loan Agreement, Schedule 5	Inspection officials will be sent to the manufacturers to check the conformity of technical and quality standards. After the installation, inspection companies which were selected by bids check the quality of equipment installation.
5	Supply of Rolling Stock. The Borrower shall ensure that CRC provides sufficient rolling stock, at all times, for effective operation of the Goods.	Loan Agreement, Schedule 5	This will be regularly monitored during Review Missions
6	Monitoring and Evaluation. The Borrower shall cause CRC to monitor and evaluate impact through a performance monitoring system, as agreed to by the Borrower and ADB, to ensure that Project equipment and materials are managed efficiently, benefits are maximized, and impacts are monitored. The Borrower shall also cause	Loan Agreement, Schedule 5	CRC submitted semiannual and Due Diligence Reports to ADB in January 2013 and July 2013.

Nos.	Summary of Major Covenants	Reference	Remarks/Updates
	CRC to collect the necessary information and data on project completion of the Project.		
7	Safety. The Borrower shall cause CRC to ensure the safety of the equipment in installation and operation of the Goods accordance with relevant Government laws and regulations.	Loan Agreement, Schedule 5	This will be regularly monitored during Review Missions.
ENVIRONMENTAL			
8	Notwithstanding that the Investment Program does not have impact on environment, the Borrower shall cause the CRC to ensure that all the requirements prescribed in the attached safeguard framework in Schedule 5 to FFA be complied with during the implementation of the Project.	Loan Agreement, Schedule 6	CRC submitted semiannual and Due Diligence Reports to ADB in January 2013 and July 2013.
SOCIAL			
9	Notwithstanding that the Investment Program does not have impact on resettlement and ethnic minorities, the Borrower shall cause the CRC to ensure that all the requirements prescribed in the attached safeguard framework in Schedule 5 to FFA be complied with during the implementation of the Project.	Loan Agreement, Schedule 6	CRC submitted semiannual and Due Diligence Reports to ADB in January 2013 and July 2013.
FINANCIAL			
10	The Borrower shall (i) maintain separate accounts for the Project; (ii) have such accounts and related financial statements audited annually by independent auditors acceptable to ADB; (iii) furnish to ADB not later than 6 months after end of each fiscal year, certified copies of audited accounts and financial statements; and (iv) furnish to ADB such other information concerning such accounts.	Loan Agreement, Section 4.05(a)	CRC is maintaining separate accounts for the Project. The first audit report was submitted on 1 July 2013 for FY2012.

LOAN COVENANTS – TRANCHE 4

1. The initial implementation of Tranche 4 has been satisfactory, including the safeguard compliances. Compliance status with major loan covenants for Tranche 4 is provided in the following table.

Nos.	Summary of Major Covenants	Reference	Remarks/Updates
SECTOR			
1	(a) The Borrower shall cause CRC to carry out the Project with due diligence and efficiency and in conformity with sound administrative, financial, engineering, environmental and railway construction, maintenance and operations practices. (b) In the carrying out of the Project and operation of the Project facilities, the Borrower shall perform, or cause to be performed, all obligations set forth in Schedule 5 to the Loan Agreement and Project Agreement.	Loan Agreement, Section 4.01 (a) and (b)	
2	The Borrower shall make available, or cause to be made available, promptly as needed, the funds, facilities, services, and other resources, as required, in addition to the proceeds of the Loan, for the carrying out of the Project and for the operation and maintenance of the Goods.	Loan Agreement, Section 4.02	
3	The Borrower shall ensure that the activities of its departments and agencies with respect to the carrying out of the Project and operation of the Goods are conducted and coordinated in accordance with sound administrative policies and procedures.	Loan Agreement, Section 4.03	
4	<u>Implementation Arrangements.</u> The Borrower shall cause CRC to ensure that the Project is implemented in accordance with the detailed arrangements set forth in the FFA and the FAM. Any subsequent change to the FAM shall become effective only after the approval of such change by CRC and ADB. In the event of any discrepancy between the FAM and this Loan Agreement, the provision of the Loan Agreement shall prevail.	Loan and Project Agreements, Schedule 5	
5	(a) In the carrying out of the Project, CRC shall employ competent and qualified consultants and contractors, acceptable to ADB, to an extent and upon terms and conditions satisfactory to ADB. (b) Except as ADB may otherwise agree, CRC shall procure all items of expenditure to be financed out of the proceeds of the Loan in accordance with the provisions of Schedule 4 to the Loan Agreement. ADB may refuse to finance a contract where any such item has not been procured under procedures substantially in	Project Agreement, Section 2.03	

Nos.	Summary of Major Covenants	Reference	Remarks/Updates
	accordance with those agreed between the Borrower and ADB or where the terms and conditions of the contract are not acceptable to ADB.		
6	CRC shall carry out the Project in accordance with plans, design standards, specifications, work schedules and construction methods acceptable to ADB. CRC shall furnish, or cause to be furnished, to ADB, promptly after their preparation, such plans, design standards, specifications and work schedules, and any material modifications subsequently made therein, in such detail as ADB shall reasonably request.	Project Agreement, Section 2.04	
7	(a) CRC shall take out and maintain with responsible insurers, or make other arrangements satisfactory to ADB for, insurance of Project facilities to such extent and against such risks and in such amounts as shall be consistent with sound practice. (b) Without limiting the generality of the foregoing, CRC shall insure, or cause to be insured, the Goods to be imported for the Project against hazards incident to the acquisition, transportation and delivery thereof to the place of use or installation, and for such insurance any indemnity shall be payable in a currency freely usable to replace or repair such Goods.	Project Agreement, Section 2.05 (a) and (b)	
8	CRC shall maintain, or cause to be maintained, records and accounts adequate to identify the items of expenditure financed out of the proceeds of the Loan, to disclose the use thereof in the Project, to record the progress of the Project (including the cost thereof) and to reflect, in accordance with consistently maintained sound accounting principles, its operations and financial condition.	Project Agreement, Section 2.06	
9	(a) CRC shall furnish to ADB all such reports and information as ADB shall reasonably request concerning (i) the Loan and the expenditure of the proceeds thereof; (ii) the items of expenditure financed out of such proceeds; (iii) the Project; (iv) the administration, operations and financial condition of CRC; and (v) any other matters relating to the purposes of the Loan. (b) Without limiting the generality of the foregoing, CRC [and any of its subsidiaries involved in Project-related activities] shall furnish to ADB periodic reports on the execution of the Project and on the operation and management of the Project facilities. Such reports shall be	Project Agreement, Section 2.08 (a), (b), and (c)	

Nos.	Summary of Major Covenants	Reference	Remarks/Updates
	<p>submitted in such form and in such detail and within such a period as ADB shall reasonably request, and shall indicate, among other things, progress made and problems encountered during the period under review, steps taken or proposed to be taken to remedy these problems, and proposed program of activities and expected progress during the following period.</p> <p>(c) Promptly after physical completion of the Project, but in any event not later than 3 months thereafter or such later date as ADB may agree for this purpose, CRC shall prepare and furnish to ADB a report, in such form and in such detail as ADB shall reasonably request, on the execution and initial operation of the Project, including its cost, the performance by CRC of its obligations under this Project Agreement and the accomplishment of the purposes of the loan.</p>		
10	CRC shall enable ADB's representatives to inspect the Project, the Goods and Works and any records and documents relating to the Project.	Project Agreement, Section 2.10	
11	<p>(a) CRC shall, and shall cause all relevant subsidiaries to promptly as required, take all action within its respective powers to maintain its corporate existence, to carry on its operations, and to acquire, maintain and renew all rights, properties, powers, privileges and franchises which are necessary in carrying out the Project or in the conduct of its operations.</p> <p>(b) CRC shall and shall cause all relevant subsidiaries to at all times conduct its operations in accordance with sound administrative, financial, engineering, environmental and railway construction, maintenance and operations practices, and under the supervision of competent and experienced management and personnel.</p> <p>(c) CRC shall and shall cause all relevant subsidiaries to at all times operate and maintain its plants, equipment and other property, and from time to time, promptly as needed, make all necessary repairs and renewals thereof, all in accordance with sound administrative, financial, engineering, environmental and railway construction, maintenance and operations practices.</p>	Project Agreement, Section 2.11	
12	Except as ADB may otherwise agree, CRC shall not and shall cause all relevant subsidiaries not to sell, lease or otherwise dispose of any of its assets which shall be necessary for the efficient carrying on of	Project Agreement, Section 2.12	

Nos.	Summary of Major Covenants	Reference	Remarks/Updates
	its operations or the disposal of which may prejudice its ability to perform satisfactorily any of its obligations under this Project Agreement or related to the Project.		
13	CRC shall promptly notify ADB of any proposal to amend, suspend or repeal any provision of its constitutional documents, [or those of its subsidiaries] which, if implemented, could adversely affect the carrying out of the Project or the operation of the Project facilities. CRC shall afford ADB with an adequate opportunity to comment on such proposal prior to taking any affirmative action thereon [or permitting any such subsidiary to take any action on its constitutional documents.	Project Agreement, Section 2.14	
14	<u>Reform Measures.</u> CRC shall implement the Railway Development Plan.	Project Agreement, Schedule, para.2	
15	<u>Equipment Quality.</u> CRC shall ensure that the Goods are procured and used in accordance with the Government's national technical standards, and that supervision, quality control, and contract management are carried out in a periodic and satisfactory manner.	Project Agreement, Schedule, para.3	
16	<u>Capacity Expansion.</u> CRC shall ensure that all capacity expansion activities in southwestern region in the territory of the People's Republic of China are completed with due consideration for their environmental and social safeguards in a timely manner.	Project Agreement, Schedule, para.4	
17	<u>Sustainability.</u> CRC shall ensure that (a) adequate counterpart funding, staffing, and institutional support is provided for implementation of the Project and maintenance of the Goods; (b) necessary measures are taken promptly to resolve any issues identified during operation of the Goods; and (c) appropriate budgetary allocations are made for the continued operation and maintenance of the Goods.	Project Agreement, Schedule, para.5	
18	<u>Governance and Anticorruption.</u> CRC shall comply with ADB's Anticorruption Policy (1998, as amended to date). CRC acknowledges that ADB reserves the right to investigate directly, or through its agents, any alleged corrupt, fraudulent, collusive or coercive practices relating to the Project; and CRC undertakes to cooperate with any such investigation and to extend all necessary assistance for the satisfactory completion of such investigation.	Project Agreement, Schedule, para.6	

Nos.	Summary of Major Covenants	Reference	Remarks/Updates
19	<u>Governance and Anticorruption.</u> CRC shall ensure that anticorruption provisions acceptable to ADB are included in all bidding documents and contracts, including provisions specifying the right of ADB to audit and examine the records and accounts of CRC, [its subsidiaries], the project management office and all contractors, suppliers, consultants, and other service providers as they relate to the project.	Project Agreement, Schedule, para.7	
20	<u>Governance and Anticorruption.</u> CRC shall, by means of a publicly accessible website, disclose information about various project matters, including general project information, procurement information, project progress, and contact details, in the English and Chinese languages. The website will also provide a link to ADB's Integrity Unit (http://www.adb.org/site/integrity/main) for reporting to ADB any grievances or allegations of corrupt practices arising out of the Project and project activities. With regard to procurement, the website will include, at minimum, information on the list of participating bidders, name of the winning bidder, basic details on bidding procedures adopted, amount of contract awarded and the list of Good and Works procured.	Project Agreement, Schedule, para.8	
21	<u>Supply of Rolling Stock.</u> CRC shall provide sufficient rolling stock and other equipment, at all times, for effective operation of the Goods.	Project Agreement, Schedule, para.9	
22	<u>Safety.</u> CRC shall ensure the safety in installation and operation of the Goods in accordance with relevant laws and regulations of the Borrower.	Project Agreement, Schedule, para.10	
23	<u>Monitoring and Evaluation.</u> CRC shall monitor and evaluate impact through the performance monitoring system agreed to by CRC and ADB to ensure that Goods and materials are managed efficiently, benefits are maximized, and impacts are monitored. CRC shall collect the necessary information and data on Project performance, as agreed to by CRC and ADB, before project implementation, and at completion of the Project.	Project Agreement, Schedule, para.11	
24	<u>Change in Ownership.</u> In the event that the following is anticipated: (a) any change in ownership; or (b) any sale, transfer or assignment of shares or other ownership interests or other change of control in CRC or in any CRC subsidiaries involved in the Project, in each case including, without limitation, by way of any	Project Agreement, Schedule, para.13	

Nos.	Summary of Major Covenants	Reference	Remarks/Updates
	<p>corporate restructuring of CRC, CRC shall consult with ADB commencing from the later to occur of (i) at least 6 months prior to the implementation of such change, and (ii) the date that CRC first becomes aware of a proposed change; and CRC shall carry out all such changes in a lawful and transparent manner.</p>		
SAFEGUARDS			
25	<p><u>Safeguard Policy</u>. CRC shall ensure that the Project does not have any environmental, indigenous peoples or involuntary resettlement impacts, all within the meaning of ADB's Safeguard Policy Statement (2009). In the event that the Project does have any such impact, CRC shall take steps required to ensure that the Project complies with the applicable laws and regulations of the People's Republic of China and with ADB's Safeguard Policy Statement (2009).</p>	<p>Project Agreement, Schedule, para.12</p>	
FINANCIAL			
26	<p><u>Counterpart Funds</u>. The Borrower shall cause CRC to ensure that counterpart funds and domestic commercial loan proceeds are provided in a timely manner, including any additional counterpart funds, as and when required, to meet any Project shortfall or cost overruns. The Borrower shall cause CRC to maintain adequate annual funding for the operation and maintenance of the Project facilities.</p>	<p>Loan Agreement, Schedule 5</p>	
27	<p>(a) CRC shall (i) maintain separate accounts and records for the Project; (ii) prepare annual financial statements for the Project in accordance with accounting principles acceptable to ADB; (iii) have such financial statements for the Project audited annually by independent auditors whose qualifications, experience, and terms of reference are acceptable to ADB, in accordance with international standards for auditing of the national equivalent acceptable to ADB; (iv) as part each such audit, have the auditors prepare a report (which includes the auditors' opinion on the financial statements, use of the Loan proceeds and compliance with the financial covenants of the Loan Agreement as well as on the use of the procedures for imprest fund(s) and statement of expenditures) and a Management Letter; and (v) furnish to ADB, no later than 6 months after end of each related fiscal year to which they relate, copies of such audited financial statements, audit report and Management Letter, all in the English language, and such other information concerning these</p>	<p>Project Agreement, Section 2.09 (a), (b), and (c)</p>	

Nos.	Summary of Major Covenants	Reference	Remarks/Updates
	<p>documents and the audit thereof as ADB shall from time to time reasonably request.</p> <p>(b) ADB shall disclose on its website the annual audited financial statements for the Project and the opinion of the auditors on the financial statements within 30 days of the date of their receipt.</p> <p>(c) CRC shall enable ADB, upon ADB's request, to discuss the financial statements for the Project with the auditors appointed by CRC pursuant to subsections (a)(iii) hereinabove, and shall authorize and require any representative of such auditors to participate in any such discussions requested by ADB. This is provided that such discussions shall be conducted only in the presence of an authorized officer of CRC, unless CRC shall otherwise agree.</p>		
28	<p>Except as ADB may otherwise agree, CRC shall apply the proceeds of the Loan to the financing of expenditures on the Project in accordance with the provisions of the Loan Agreement and this Project Agreement, and shall ensure that all items of expenditures financed out of such proceeds are used exclusively in the carrying out of the Project.</p>		

SUMMARY POVERTY REDUCTION AND SOCIAL STRATEGY

Country:	People's Republic of China	Project Title:	Railway Energy Efficiency and Safety Enhancement Investment Program
Lending/Financing Modality:	MFF	Department/Division:	East Asia Department/Transport Division

I. POVERTY ANALYSIS AND STRATEGY

Targeting classification: GI

A. Links to the National Poverty Reduction and Inclusive Growth Strategy and Country Partnership Strategy

The proposed investment program (IP) is consistent with two of the four pillars of the Asian Development Bank (ADB) country partnership strategy for the People's Republic of China (PRC) (i) inclusive growth and balanced development, and (ii) resource efficiency and environmental sustainability. The IP reflects (i) rail network development, which will enhance capacity and reduce bottlenecks; (ii) improved energy efficiency and environmental sustainability, by providing a more efficient and environment-friendly mode of transport in the region; (iii) enhanced safety through the provision of a reliable and safe mode of transport; (iv) support for the PRC railway development plan and the western region development strategy; and (v) promotion of pro-poor economic growth in the region, thereby reducing poverty. The IP emphasizes energy conservation, environmental sustainability, and safety through the introduction of safe and reliable technology on the railway network, which will result in improved reliability, higher mobility, increased network capacity, optimal use of the network and assets, and increased staff productivity. All of these will lead to higher efficiency of the railway network. Energy-efficient, environment-friendly, and safe railway transport will benefit all passengers. The poor will benefit equally or more from the intervention. The IP under Tranche 5 comprises energy-efficient equipment and safety enhancement equipment in the region similar to previous tranches.

B. Results from the Poverty and Social Analysis during PPTA or Due Diligence

Key issues

1. **Key poverty and social issues and beneficiaries.** The links between poverty, topography, and poor transport systems are apparent in the southwestern PRC.

Poverty in this area is caused by adverse and degraded environmental conditions, extreme weather conditions and limited farmland (e.g. mountains, cold weather, water scarcity, and soil erosion); geographical remoteness and isolation and high transport costs; and lack of access to markets, good education, and health care facilities and lack of employment opportunities. Railway network development has direct and indirect impacts for poor families to (i) move away from unsustainable, mountainous farmlands; (ii) have better access to markets, and advanced educational and health facilities, especially for women; and (iii) build a sustainable future in centers of economic activity.

2. **Impact channels.** The direct contribution of safe and energy efficient railway transport to poverty alleviation will be largely due to: (i) improving people's connectivity and access to convenient transport; (ii) enhancing access to the markets and educational and health facilities; and (iii) safe and affordable transport. Indirect benefit channels relate to building a sustainable future in centers of economic activity. Indirect channels include improved and diversified employment opportunities by the development of secondary and tertiary industries; promoting investment inflow in the area; adding value to local farm products that will narrow the disparity between urban and rural areas; and reduced transportation costs resulting in reduced costs of various commodities.

3. **Other social and poverty issues.** The social and poverty issues in the project area include lack of employment and income generating opportunities.

4. **Design features.** The IP will be implemented in the southwestern PRC, a relatively poor area. The region is largely mountainous with abundant natural reserves of coal, and other nonferrous materials; and famous tourist sites. In spite of abundant natural resources, many people are poor and the economic growth necessary to reduce rural poverty has failed to develop because of inadequate transport services and high costs. The railway density is the lowest in the region and local governments and people living in the region see railways as a key investment for addressing this problem. Railway development is part of the government's program for the integrated development of transportation facilities in this poor region and the CRC plans to develop 6,500 kilometers (km) of railways in the region by 2018. The main design features of the project are measures to enhance 'energy efficiency' and 'safety' that will ensure benefits from affordable and safe mode of transportation. The other important design feature of the project is its geographical layout that will enhance regional integration. The proposed region shares borders with Viet Nam, and Yunnan and Guangxi provinces are part of the Greater Mekong Subregion. The development of railways is expected to play an important role in facilitating and integrating this poor and underdeveloped region, and stimulating regional and interprovincial trade and movement of people. The IP is a priority investment included in the government's proposed Eleventh Five-Year Plan, Twelfth Five-Year Plan, and Western Region Development Plan During 2011–2015 issued in February 2012.

C. Poverty Impact Analysis for Policy-Based Lending—NA.

II. PARTICIPATION AND EMPOWERING THE POOR

1. Summarize the participatory approaches and the proposed project activities that strengthen inclusiveness and empowerment of the poor and vulnerable in project implementation. Consultations with the government and other stakeholders indicate strong support for the IP. People living in the region see the railway development as a key investment in integrating this poor and underdeveloped region with the rest of the country. The impact of the proposed IP will be an improved transport system in the region that supports socioeconomic development and the western region development strategy. Providing economical railway transportation in less developed and poor areas will create conditions for developing local resources, employment opportunities, and higher income; and thus contribute to improved living standards for people in the southwestern PRC.
 2. If civil society has a specific role in the project, summarize the actions taken to ensure their participation. IP will mainly result in introduction of energy-efficient technologies, environment-friendly equipment, and safety equipment and no specific civil society role is envisaged.
 3. Explain how the project ensures adequate participation of civil society organizations in project implementation. The project will mainly introduce energy-efficient technologies, environment-friendly equipment and safety equipment.
 4. What forms of civil society organization participation is envisaged during project implementation? Indicate in each box the level of participation by marking high (H), medium (M), low (L), or not applicable (N) based on definitions in ADB's Guide to Participation.
 Information gathering and sharing L Consultation Collaboration Partnership
 5. Will a project level participation plan be prepared to strengthen participation of civil society as interest holders for affected persons particularly the poor and vulnerable?
 Yes. No.
- The IP will positively impact the national railway network, and all railway users will benefit. No participation strategy is prepared.

III. GENDER AND DEVELOPMENT

Gender mainstreaming category: no gender elements

- A. Key issues.** Railway development generates job opportunities (skilled and unskilled) for the poor, ethnic minorities, women, and other vulnerable groups, which helps develop their job skills. Job opportunities provide potential new sources of income for local residents. Increase in female participation in the labor and tourism market increases women's net income and savings, improves overall family welfare, and helps improve women's status. Women and other vulnerable groups benefit from railway development and have equal access to employment and wages. Railway development generates demand for local labor and increases worker productivity and wages. Expansion of secondary and tertiary industries helps generate additional employment opportunities for both men and women, close to their homes. Despite the significant social benefits of railway development, since this IP focuses on safety and energy efficiency equipment, Tranche 5 is categorized as "no gender elements" the same as earlier tranches.
- B. Key actions.** Measures included in the design to promote gender equality and women's empowerment—access to and use of relevant services, resources, assets, or opportunities and participation in decision-making process.
 Gender plan Other actions or measures No action or measure

IV. ADDRESSING SOCIAL SAFEGUARD ISSUES

- A. Involuntary Resettlement** **Safeguard Category:** A B C FI
1. Key impacts. No impacts are anticipated. There are no land acquisition or resettlement impacts.
 2. Strategy to address the impacts. Not required.
 3. Plan or other Actions.

<input type="checkbox"/> Resettlement plan <input type="checkbox"/> Resettlement framework <input type="checkbox"/> Environmental and social management system arrangement <input checked="" type="checkbox"/> No action	<input type="checkbox"/> Combined resettlement and indigenous peoples plan <input type="checkbox"/> Combined resettlement framework and indigenous peoples planning framework <input type="checkbox"/> Social impact matrix
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- B. Indigenous Peoples** **Safeguard Category:** A B C FI
1. Key impacts. No adverse impact. This is a national level project that will benefit all railway users.
 Is broad community support triggered? Yes No
 2. Strategy to address the impacts. Not required.
 3. Plan or other actions.

<input type="checkbox"/> Indigenous peoples plan <input type="checkbox"/> Indigenous peoples planning framework <input type="checkbox"/> Environmental and social management system arrangement <input type="checkbox"/> Social impact matrix <input checked="" type="checkbox"/> No action	<input type="checkbox"/> Combined resettlement plan and indigenous peoples plan <input type="checkbox"/> Combined resettlement framework and indigenous peoples planning framework <input type="checkbox"/> Indigenous peoples plan elements integrated in project with a summary
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V. ADDRESSING OTHER SOCIAL RISKS	
A. Risks in the Labor Market	
1. Relevance of the project for the country's or region's or sector's labor market. <input checked="" type="checkbox"/> unemployment <input type="checkbox"/> underemployment <input type="checkbox"/> retrenchment <input type="checkbox"/> core labor standards	
2. Labor market impact. There are no direct project related impact on labor. Any labor that is rendered surplus will be redeployed in existing activities. Overall, the project will have positive impacts on labor market in the region with improved employment opportunities.	
B. Affordability. Significant positive impact. Railway travel is more affordable than aviation and road transport.	
C. Communicable Diseases and Other Social Risks	
1. Indicate the respective risks, if any, and rate the impact as high (H), medium (M), low (L), or not applicable (NA): NA <input type="checkbox"/> Communicable diseases <input type="checkbox"/> Human trafficking <input type="checkbox"/> Others (please specify) _____	
2. Describe the related risks of the project on people in project area. No action required	
VI. MONITORING AND EVALUATION	
1. Targets and indicators. Targets and indicators in DMF will be monitored as project locations are not specific.	
2. Required human resources. No specific resources required.	
3. Information in PAM and monitoring tools. Targets and indicators in DMF will be monitored as project locations are not specific.	

ECONOMIC ANALYSIS DUE DILIGENCE FOR THE MFF INVESTMENT PROGRAM

1. The scope of the updated economic evaluation of the Multitranche Financing Facility (MFF) includes a restatement of economic values in constant 2013 CNY based on actual prices obtained for components of tranches. The analysis consists of a “with Project” scenario that includes the initial investment costs in the tranches of the Investment Program (IP); additional investment for regular maintenance and periodic overhaul and upgrading of equipment; and recurring (annual) fixed and variable operating costs. The residual value of fixed assets, a negative cost at the end of the evaluation period, is included as part of investment cost. The “without Project” scenario is implicit to the analysis¹. The “with Project” scenario is based on the analysis of the costs and benefits of the equipment included in the IP, which includes safety equipment (track maintenance equipment, signaling and communications equipment, enhanced railway fasteners, and bridge bearings) and energy efficiency equipment (catenary, traction substation, cabling). The revised MFF investment totals \$3,238.49 in financial terms and CNY 19.34 billion in economic terms.

2. **Traffic Forecast.** Because the IP will support the entire Southwest (SW) Region’s railway network, its analysis requires assessment of system-wide traffic forecasts for passengers and freight over the 20-year evaluation period (2016–2035). Rail traffic for the SW Region, which is comprised of four provinces (Sichuan, Guizhou, Yunnan, and Guangxi) and the Chongqing Municipality, was forecast for freight and passengers in two categories differentiated by their economic impact: (i) base (normal) traffic which will benefit from improved operational efficiency represented by increased average speed of freight and passenger trains as a result of the new technologies introduced by the IP; and (ii) freight traffic diverted from road and waterway, and passenger traffic diverted from road as a result of additional line capacity available in the SW rail network as a result of the new technologies introduced by the IP. The traffic forecast was based on a two-tier analysis: (i) regional transport demand based on the regional share of the total national rail network; and (ii) estimated traction power needed and its energy source components. Traffic projections considered expected economic growth, increases in new rail line development in the SW Region as part of the economic stimulus program, and market surveys and assessments. Actual traffic in the region increased by about 9% from 2010–2011 (the last year for which comprehensive statistics are available), which is in line with the forecast in 2008. This followed increases of about 7% for 2009 and 2010. Currently, 16 new railway lines with a total of 6,000 kilometers (km) in length in the region are under construction to improve the railway network in region and enhance the connectivity between the region and the coastal areas such as Beijing, Shanghai and Guangzhou. Of which, three railway lines will open in 2014, two will open in 2015, five open in 2016, and six railway lines will be opened in 2017 and 2018 as planned at MFF processing in 2008. Traffic in the region will increase significantly from 2014. The actual traffic growth rates combined with the expansion of the network and the availability of more routes, trains, and seats results in increased traffic that are consistent with the original traffic forecasts, which indicates validity for these forecasts.

3. The railway network length in the SW Region is forecast to increase from 11,344 km as of 2008 (14.6% of national railway network) to 17,939 km (18.7% of national network) by 2015. This represents an annual increase of 5.9% compared to the national rail network growth of 2.6% per year during the same 2008–2015 period. After 2015 the national and regional network lengths are expected to grow annually by 0.8% and 2.5%, respectively.

¹ The “without project” scenario implies that the situation will remain as is without the intervention of the Investment Program.

4. In terms of traction power the SW Region is unique: currently 30% of traction is by electric locomotives and 70% by diesel. Electric locomotives are preferred because of: (i) higher traction power generated by electric locomotives in the largely mountainous terrain; (ii) 70% of electricity generation in the region is through hydroelectric power, whereas the national average is only 16%; and (iii) electric locomotives are more environmentally friendly especially in the SW Region (a) where 50% of the mainline is in tunnels with diesel locomotives causing serious emission problems and ventilation challenges; (b) diesel locomotives leak fuel and lubricants causing serious environmental damage and high clean-up cost; (c) diesel fumes in tunnels cause irritation to passengers; and (d) diesel locomotives discharge air pollutants. As a result, the SW Region railways (Chengdu RA, Kunming RA, and Nanning RA) have adopted a goal of increasing electric power traction to 50% by 2020 and 90% by 2035.

5. The traffic forecasts take into account that (i) the regional railway network is an important transport corridor connecting western PRC with the east as well as serving as a gateway to the PRC–Eurasian and Greater Mekong Region rail network for intermodal and international transport; (ii) railways in the PRC have experienced high annual traffic growth with recent rates higher than the assumed growth rates for freight and passenger traffic; (iii) with the new accelerated investments in the SW railway network the line capacity constraints which have limited the growth potential of railway transport in the past will be alleviated, allowing the railway to carry more freight and passengers; and (iv) operational improvements in passenger and freight train speeds will continue to encourage more passenger and shipper demand for rail transport in the SW region.

6. The analysis is based on passenger and freight traffic that would be diverted from bus transport for passengers, and truck and waterway transport for freight. Under the without-project scenario it is assumed that the diverted traffic estimated under the with-project scenario would continue moving by road and waterway (for freight) and by road (for passengers).

7. **Costs.** The economic evaluation is based on a comparison of with- and without-project scenarios, using constant 2013 economic prices. The benefits and cost were revalued in constant 2013 economic prices by separating the cost items into tradable materials and equipment, non-tradable materials, labor, and land. The prices were expressed in CNY using the domestic price numeraire with a shadow exchange rate factor (SERF) of 1.01 for foreign exchange effects. A shadow wage rate factor of 0.67 was used to put an economic value on the wages paid to unskilled labor. Some equipment prices have changed, with items such as bridge bearings increasing by about 10% from 2009 to 2013; while others such as optical cable have stayed virtually the same; and others such as higher-priced electronics have fallen by about 15%. These changes resulted in a lower investment cost of CNY19.34 billion in constant 2013 economic prices compared to the original cost of CNY20.07 billion.

8. **Benefits.** Economic benefits include (i) user cost savings for diverted freight and passenger traffic; (ii) time savings for diverted passenger and freight traffic from buses, trucks, and waterway; (iii) time savings for base freight and passenger traffic due to operational improvements; (iv) pollution reduction benefits; and (v) energy savings. The value of time savings was updated to 2013 constant CNY. Energy prices were also updated, and resulted in increased levels of benefits because of higher prices. Avoided road infrastructure and maintenance costs and avoided road accidents were eliminated from the benefits because these represent alternatives to the project.

9. With the diversion of freight and passengers from road to rail, there will be benefits due to reduced pollution from trucks, buses, and cars as well as less energy used by the transport

sector. The savings associated with reduced total fuel consumption as a result of diverting traffic from road and base traffic due to improvements in energy efficiency as a result of the equipment included in the proposed IP have been included in the benefit stream. Unit operating costs for rail transport have been adjusted to exclude fuel costs in order to eliminate double counting of this benefit.

10. Energy and pollution benefits have also been estimated for the proposed IP. With the diversion of freight and passengers from road to rail, there will be benefits due to reduced pollution from trucks, buses, and cars as well as less energy used by the transport sector. Based on research conducted by the International Energy Agency, traction power mix in the region (traction uses 80% of the energy consumed by CRC), and the regional electricity production mix between hydro and thermal coal, the number of tons of carbon dioxide (CO₂) per traffic unit for road and rail were computed for the SW Region.

11. **Conclusion.** The investment program remains economically viable. The economic internal rate of return (EIRR) for the IP is 28.36% with net present value (NPV) using a discount rate of 12% amounting to CNY33.08 billion (Table 1). The original MFF economic analysis had an EIRR of 26.81% based on a higher investment level of CNY20.07 billion.

Table 1: Economic Internal Rate of Return for the Investment Program
(constant 2013 prices, domestic price numeraire, CNY million)

Year	Costs			Benefits			Net Benefits
	Capital	Operation and Mtce.	Total	Safety Enhancement Benefits	Energy Efficiency Benefits	Total Benefits	
2010	(583)	0	(583)	0	0	0	(583)
2011	(1,362)	0	(1,362)	0	0	0	(1,362)
2012	(3,198)	0	(3,198)	0	0	0	(3,198)
2013	(3,200)	0	(3,200)	0	0	0	(3,200)
2014	(2,278)	0	(2,278)	0	0	0	(2,278)
2015	(2,707)	0	(2,707)	0	0	0	(2,707)
2016	(2,628)	(1,900)	(4,528)	4,963	1,297	6,261	1,733
2017	(1,723)	(1,917)	(3,641)	5,410	1,588	6,998	3,357
2018	(1,245)	(1,936)	(3,181)	6,524	1,907	8,431	5,250
2019	(415)	(1,955)	(2,370)	7,064	2,253	9,317	6,947
2020	0	(1,975)	(1,975)	8,389	2,627	11,016	9,041
2021	0	(1,996)	(1,996)	9,115	2,780	11,895	9,899
2022	(14,505)	(2,019)	(16,524)	10,784	2,934	13,718	(2,806)
2023	0	(2,042)	(2,042)	11,671	3,089	14,760	12,718
2024	0	(2,067)	(2,067)	13,679	3,245	16,925	14,858
2025	0	(2,092)	(2,092)	14,765	3,404	18,169	16,077
2026	0	(2,119)	(2,119)	17,422	3,607	21,030	18,910
2027	0	(2,148)	(2,148)	19,012	3,813	22,825	20,677
2028	0	(2,178)	(2,178)	20,706	4,021	24,727	22,549
2029	(14,505)	(2,209)	(16,714)	22,515	4,230	26,745	10,031
2030	0	(2,242)	(2,242)	24,449	4,441	28,891	26,649
2031	0	(2,276)	(2,276)	26,553	4,626	31,179	28,903
2032	0	(2,313)	(2,313)	28,809	4,812	33,621	31,308
2033	0	(2,351)	(2,351)	31,234	4,998	36,233	33,882
2034	0	(2,391)	(2,391)	33,846	5,185	39,031	36,641
2035	4,144	(2,433)	1,712	36,664	5,373	42,037	43,749
Economic Internal Rate of Return							28.36%
Economic Net Present Value @ 12%							33,076.15

12. Sensitivity analysis tested eight scenarios to assess the robustness of the results of the economic analysis (Table 2). The initial capital cost would have to be more than 299% higher than estimated for the EIRR to fall below the cutoff rate of 12%. Considering the experience of ADB-financed projects in the railway sector, this switching value is unlikely to occur. The freight benefits would have to decrease about 78% to make the IP economically nonviable. A 1-year delay in completion does not affect economic viability. Combinations of adverse effects of benefits and costs were also tested. The results showed that the IP would maintain its economic robustness under plausible scenarios of variability. The MFF remains economically viable.

Table 2: Sensitivity Analysis and Switching Values

Parameter	Reference Value	Change By	Revised EIRR	Sensitivity Indicator	Switching Value (%)	NPV @ 12% (CNY million)
EIRR	28.36%					33,076.15
Initial Investment		50%	22.71%	0.33	299.38%	27,551.97
Additional Investment		100%	26.65%	0.14	717.45%	28,465.92
Annual Fixed and Variable Costs		60%	25.83%	0.34	290.09%	26,234.88
Total Costs		30%	22.88%	0.94	106.33%	23,743.78
Total Freight Benefits		-20%	25.19%	1.29	-77.73%	24,566.05
Total Passenger Benefits		-50%	27.51%	0.24	-423.36%	29,169.77
Delay Implementation by 1 Year		N/A	25.12%	NPV declines by	25.51%	24,636.93
Reduce Benefits by 20%; Increase Costs by 10%		-20%; +10%	21.78%	2.34	-42.71%	17,588.10

Notes: CNY = yuan, EIRR = economic internal rate of return, NPV = net present value at 12%.

FINANCIAL MANAGEMENT ASSESSMENT

A. Financial Management

1. The project financial management is a process which brings together planning, budgeting, accounting, financial reporting, internal control, auditing, procurement, disbursement and the physical performance of the project with the aim of managing project resources properly and achieving the project's development objectives. Financial management is a critical ingredient for the project's success. Timely and relevant financial information provides a basis for better decisions, thus speeding the physical progress of the project and the availability of funds, and reducing delays and bottlenecks.

2. The primary objective of the financial management process is to optimize financial and economic benefits of an investment. Financial management comprises multiple processes, including financial accounting, management (and cost) accounting, assets accounting, cash and money markets accounting, financial reporting, internal controls and internal audit, with external audit providing a report and opinion on the reported financial status and performance.

3. The general objective is to ensure that the EA is technically, managerially and financially capable of efficiently and effectively implementing the proposed Program. Assurance is needed by the government and lending agencies (including the ADB) that the expenditures incurred on the project will in fact be used for the agreed purposes, and as stated in the relevant loan agreement (with ADB).

B. Financial Management Assessment

4. The financial management assessment of the EA, as the operating entity, carried out in this Report covers (i) corporate planning and budgetary control, (ii) financial and management accounting, and (iii) internal control and audit system. The assessment is in Annex 1.

5. The purpose of this financial management assessment is to (i) determine what, if any, additional capacity building at the EA should be considered to strengthen its financial management environment; and (ii) determine what, if any, specific measures should be built into the Program to ensure that ADB's resources are appropriately safeguarded.

C. Executing Agency and Operating Entity

6. China Railway Corporation (CRC) is the EA for the project via the Foreign Capital and Technical Import Center (FCTIC). CRC has the responsibility with regard to planning, implementation, financing, and operation of the Program after its completion.

7. The former Ministry of Railways (MOR) was recently restructured into the corporate entity, CRC. ADB approved the change of the executing and implementing agencies from MOR to CRC on 10 July 2013. Nearly all MOR staff and all assets were directly transferred to CRC. This includes all staff under the FCTIC, and these are the people that have been responsible for implementing ADB and World Bank funded projects.

8. During the administration of this Financial Management Assessment, relevant FCTIC staff were directly queried if the governing rules and processes for CRC had been changed because it was now a State-owned Entity. The staff stated that there would be no changes with respect to rules, processes and procedures at this time, nor were there any foreseen changes.

CRC remains accountable to the government of the PRC, it will continue to receive budgetary allocations, and it is directly linked to the Ministry of Finance in regards to processing, implementing and reporting on multilateral loans.

D. Funds Flow

9. The PRC government will on-lend the entire loan to the CRC. Under CRC, FCTIC will coordinate the Project Management Office and be responsible for procurement, withdrawals, and reporting vis-à-vis ADB.

E. Disbursement Arrangements

10. All goods and services to be financed under the Facility will be procured in accordance with the relevant procurement rules in ADB's Procurement Guidelines (2013, as amended from time to time), and as provided in the Procurement Plan in Annex 3 to this PFR. Disbursements for this tranche will be made in accordance with the conditions of disbursement in the Loan Agreement and *Loan Disbursement Handbook* (2012, as amended from time to time). The loan proceeds will be used solely for the procurement of equipment and materials in the project description.

F. Corporate Planning and Budgetary Control

11. The EA's planning framework covers long term, medium term and short term planning, which comprise the primary elements in financial management. Long term planning is guided by the *Railway Network Development Plan for 2020*. Medium term planning is guided by the Five-Year Railway Development plans that are coterminous with the government's Five-Year Plans. Short term planning is based on the annual development plans that provide for budgetary appropriations and outlays.

12. The EA has successfully implemented a large number of projects financed by the ADB and other lenders. This has been done in due compliance with the government's requirements as well as those of the multilateral financing institutions. The EA is well versed in the requirements of planning and budgetary control. Indeed it has separate departments that perform these functions as the EA is a very large organization. Given the satisfactory environment for planning and budgetary control, it is reasonable to assume these functions at the program/project level.

G. Financial Management Accounting

13. The review of the financial management activities of the EA included: (i) analysis of the EA's structure and management framework with regards to financial management; (ii) assessing the EA's resources, including the number, quality and technical capabilities of its staff, the extent of financial and budgetary support it obtains, the nature of technology, equipment, software in use; (iii) assessing the EA's operating results and identifying specific performance shortfalls, if any, and specific institutional deficiencies and related institutional strengthening interventions, pertaining to both the management framework and those due to resource constraints.

14. The EA's accounting policies were reviewed, including standards of financial reporting and general accounting practices. These policies conform to accepted national standards and practices, which facilitates comparison and performance evaluation.

15. The EA will maintain separate accounts for the loan and have such accounts and related financial statements audited annually by an independent auditor and in accordance with auditing standards that are acceptable to ADB. The EA is also required to submit to ADB within 6 months after the end of each fiscal year certified copies of such audited accounts and financial statements and auditor's reports, all in English. The audit of such financial statements will include: (i) an assessment of the adequacy of accounting and internal control systems with respect to Investment Program expenditures and other financial transactions; and (ii) an assessment of compliance with loan covenants that may be agreed under the Investment Program and ADB's requirements on Project Management. FCTIC will make satisfactory arrangements for reporting the progress of project implementation to ADB by submitting quarterly progress reports.

H. Internal Control and Audit System

16. Proper internal control is an important element of good governance and an important anticorruption measure. For ensuring accountability for project implementation funds, each project should have an adequate accounting and internal control system for recording and reporting project-related financial transactions from the time that project expenditures commence.

17. CRC has a strong organization for internal control of all expenditures and financing commitments. CRC's audit offices have some 1,000 permanent auditors and 950 part-time auditors working in 157 audit units at various levels of CRC. The audit office reports directly to the General Manager (former Minister) and prepares an annual audit report for endorsement by CRC management. The mandate of the audit office is to monitor the operation and efficiency of all CRC units, report inadequacies in internal controls, and recommend areas needing improvement. The Infrastructure Construction Audit Division under the audit office conducts regular audits of all ongoing CRC construction projects to ensure proper use of project proceeds, and reports fraud, waste, or misuse of project resources. Financial reporting in terms of punctuality of submission and report quality has been satisfactory in all previous railway projects. CRC manages a large foreign-funded project portfolio and has adequate capacity and capabilities to generate the reports satisfying international lenders.

18. The National Audit Office (NAO) undertook similar work on the previous foreign-funded projects. NAO carries out auditing of project accounts and financial statements following international and Government audit standards and practices. The audited project accounts will show the static and dynamic financial position of the entire Project, covering funds inflow from each source including CRC, foreign and domestic financing agencies, and appropriations for the project components. The audited financial statements consist of income statements, balance sheet, and cash flow statements of CRC.

I. Conclusion

19. In conclusion the EA's financial management skills and capacity are sufficient and can be relied on for Program financial management purposes. Cost management and control is recommended with the objective of minimizing initial investment on the Investment Program and project. Investments on facilities should strictly conform to the needs in the immediate future. These facilities can be expanded as traffic grows. In this manner premature investment will be avoided.

RESPONSES TO THE FINANCIAL MANAGEMENT ASSESSMENT QUESTIONNAIRE

Topic	Remarks/Comments
1. Implementing Entity	
1.1 What is the legal status/registration of the entity?	CRC is a new established State-Owner Entity (SOE), former ministry of Railways.
1.2 Has the entity implemented a World Bank or ADB financed project in the past?	Yes. 13 (including 3 tranches under this MFF) financed by ADB and 12 financed by the World Bank.
1.3 What are the statutory reporting requirements for the entity?	Annual financial statements are prepared and audited by China National Audit Office.
1.4 Is the governing body for the project independent?	No. CRC will be the governing body for the project also.
1.5 Is the organizational structure appropriate for the needs of the project?	Yes. CRC through the FCTIC will be the EA.
2. Funds Flow	
2.1 Describe the funds flow arrangements, including a chart and explanation of the flow of funds from the ADB, government, and other financiers.	For counterpart fund, CRC. For ADB funds, ADB->contractors/suppliers for direct disbursement, or ADB->CRC for reimbursement arrangement.
2.2. Are the arrangements to transfer the proceeds of the loan (from the government / ministry of finance) to the entity satisfactory?	Yes.
2.3 Have there been major problems in the past in receipt of funds by the entity?	No.
2.4 In which Bank will the Imprest Account be opened?	China Everbright Bank
2.5 Does the PIU have experience in the management of disbursements from the World Bank or ADB?	Yes. FCTIC has managed 16 IFI projects, and CRC a total of 27.
2.7 Does the entity have/need a capacity to manage foreign exchange risks?	CRC has the capacity to manage foreign exchange risk. A special group that has been established within CRC is managing it.
2.9 How are payments made from the counterpart funds?	Counterpart funds are paid directly to the Project based on the contracts and the progress of the project construction.
2.10 If part of the project is implemented by communities or NGOs, does PIU have the necessary reporting and monitoring features built into its systems to track the use of project proceeds by such agencies?	N/A
2.11 Are the beneficiaries required to contribute to project costs? If beneficiaries have an option to contribute in kind (in the form of labor), are proper guidelines formulated to record and value the labor contribution?	No.
3. Staffing	
3.1 What is the organizational structure of the accounting department? Attach an organization chart.	The Director General of the FCTIC reports through the CRC hierarchy (e.g., General Manager and Deputy General Manager of CRC) and is fully accountable.
3.2 Identify the accounts staff, including job title, responsibilities, educational background and professional experience. Attach job descriptions and CVs of key accounting staff.	Financial Department of CRC supervises all financial management and activities of the project, and provides financial guidance to Financial Division of FCTIC. Financial Division of FCTIC is directly under the control by General Director of FCTIC and is responsible for financial management and control of

Topic	Remarks/Comments
	the project. Key persons in Financial Division of FCTIC are as follows: Mr. Mu Xinwei, Chief, Senior Accountant, undergraduate degree, overall Coordination; Mr. Cao Yushan, Deputy Chief, Senior Accountant Ms. Yao Guang, Deputy Chief, Senior Accountant Internal Audit, undergraduate degree, financial and accounting management and control; Ms. Zhou Ling, Senior Economist, graduate degree, financial management and withdrawal of loan; Ms. Su Lei, Economist, undergraduate degree.
3.3 Is the project finance and accounts function staffed adequately?	Yes. CRC has adequate staffing.
3.4 Is the finance and accounts staff adequately qualified and experienced?	Yes.
3.5 Is the project accounts and finance staff trained in ADB procedures?	Yes for existing EA's staff. Will train all new staff
3.6 What is the duration of the contract with the finance and accounts staff?	Permanent staff.
3.7 Indicate key positions not contracted yet, and the estimated date of appointment.	N/A
3.10 Does the project have written position descriptions that clearly define duties, responsibilities, lines of supervision, and limits of authority for all of the officers, managers, and staff?	Yes.
3.11 At what frequency is the staff transferred?	Fixed staff until retirement
3.12 What is training policy for the finance and accounting staff?	About 48-72 hours training annually
4. Accounting Policies and Procedures	
4.1 Does the entity have an accounting system that allows for the proper recording of project financial transactions, including the allocation of expenditures in accordance with the respective components, disbursement categories, and sources of funds? Will the project use the entity accounting system?	Yes.
4.2 Are controls in place concerning the preparation and approval of transactions, ensuring that all transactions are correctly made and adequately explained?	Yes
4.3 Is the chart of accounts adequate to properly account for and report on project activities and disbursement categories?	Yes
4.4 Are cost allocations to the various funding sources made accurately and in accordance with established agreements?	Yes
4.5 Are the General Ledger and subsidiary ledgers reconciled and in balance?	Yes. Monthly.
4.6 Are all accounting and supporting documents retained on a permanent basis in a defined system that allows authorized users easy access?	Yes. Per National Accounting Law of PRC.

Topic	Remarks/Comments
Segregation of Duties	
4.7 Are the following functional responsibilities performed by different units or persons: (a) authorization to execute a transaction; (b) recording of the transaction; and (c) custody of assets involved in the transaction?	Yes. Currently the EA has different units performing all of these functions.
4.8 Are the functions of ordering, receiving, accounting for, and paying for goods and services appropriately segregated?	Yes
4.9 Are bank reconciliations prepared by someone other than those who make or approve payments?	Yes
Budgeting System	
4.10 Do the budgets lay down physical and financial targets?	Yes.
4.11 Are budgets prepared for all significant activities in sufficient detail to provide a meaningful tool with which to monitor subsequent performance?	Yes
4.12 Are actual expenditures compared to the budget with reasonable frequency, and explanations required for significant variations from the budget?	Yes
4.13 Are approvals for variations from the budget required in advance or after the fact?	In advance.
4.14 Who is responsible for preparation and approval of budgets?	Prepared by the financial department and approved by Director General of FCTIC.
4.15 Are procedures in place to plan project activities, collect information from the units in charge of the different components, and prepare the budgets?	Yes
4.16 Are the project plans and budgets of project activities realistic, based on valid assumptions, and developed by knowledgeable individuals?	Yes
Payments	
4.17 Do invoice processing procedures provide for: <ul style="list-style-type: none"> • Copies of purchase orders and receiving reports to be obtained directly from issuing departments? • Comparison of invoice quantities, prices, and terms, with those indicated on the purchase order and with records of goods actually received? • Comparison of invoice quantities with those indicated on the receiving reports? • Checking the accuracy of calculations? 	<p>Yes.</p> <p>Yes</p> <p>Yes</p> <p>Yes</p>
4.18 Are all invoices stamped <i>PAID</i> , dated, reviewed and approved, and clearly marked for account code assignment?	Yes
4.19 Do controls exist for the preparation of the payroll and are changes to the payroll properly authorized?	Yes

Topic	Remarks/Comments
Policies And Procedures	
4.20 What is the basis of accounting (e.g., cash, accrual)?	Accrual
4.21 What accounting standards are followed?	National accounting standards issued by MOF
4.22 Does the project have an adequate policies and procedures manual to guide activities and ensure staff accountability?	Yes EA has adequate procedural manuals
4.23 Is the accounting policy and procedure manual updated for the project activities?	Yes, if necessary, it can be updated
4.24 Do procedures exist to ensure that only authorized persons can alter or establish a new accounting principle, policy, or procedure to be used by the entity?	Alteration of accounting principles is not allowed.
4.25 Are there written policies and procedures covering all routine financial management and related administrative activities?	Yes.
4.26 Do policies and procedures clearly define <i>conflict of interest</i> and <i>related party transactions</i> (real and apparent) and provide safeguards to protect the organization from them?	Yes
4.27 Are <i>manuals</i> distributed to appropriate personnel?	Yes.
Cash and Bank	
4.28 Are there any project bank accounts opened yet?	Not yet.
4.29 Indicate names and positions of authorized signatories in the bank accounts.	FCTIC as the EA.
4.30 Does the project maintain an adequate, up-to-date cash book, recording receipts and payments?	On-going projects maintain an up-to-date cash book.
4.31 Do controls exist for the collection, timely deposit, and recording of receipts at each collection location?	On-going projects have the necessary controls in place.
4.32 Are bank and cash reconciled on a monthly basis?	On-going projects reconcile monthly statements.
4.33 Are all unusual items on the bank reconciliation reviewed and approved by a responsible official?	On-going projects have reviews and approvals as required.
4.34 Are all receipts deposited on a timely basis?	On-going projects deposit in a timely manner.
Safeguard over Assets	
4.35 Is there a system of adequate safeguards to protect assets from fraud, waste, and abuse?	Yes for the EA.
4.36 Are subsidiary records of fixed assets and stocks kept up to date and reconciled with control accounts?	Yes
4.38 Are there periodic physical inventories of fixed assets and stocks?	Yes
4.39 Are assets sufficiently covered by insurance policies?	Yes
Other Offices and Implementing Entities	
4.40 Are there any other regional offices or executing entities participating in implementation?	Yes. Chengdu Railway Administration which is under CRC as one of 18 geographic administrative units (this is similar to being a department of CRC) that are responsible for day-to-day operations of the railway

Topic	Remarks/Comments
	network, will participate in implementation, particularly in monitoring and assessment on the status of safeguards compliance.
4.41 Has the project established controls and procedures for flow of funds, financial information, accountability, and audits in relation to the other offices or entities?	CRC has adequate experience and has established the necessary controls and procedures.
4.42 Does information among the different offices/implementing agencies flow in an accurate and timely fashion?	Yes.
4.43 Are periodic reconciliations performed among the different offices/implementing agencies?	Yes.
Other	
4.44 Has the project advised employees, beneficiaries, and other recipients to whom to report if they suspect fraud, waste, or misuse of project resources or property?	This will be done.
5. Internal Audit	
5.1 Is there an internal audit department in the entity?	Yes for the EA.
5.2 What are the qualifications and experience of audit department staff?	Forty eight staff in the Audit Department supported by 600 staff at the various RAs, and all have the necessary training and experience.
5.3 To whom does the internal auditor report?	General Manager and Deputy General Manager of CRC.
5.4 Will the internal audit department include the project in its work program?	Yes. The Audit Department briefed the fact finding mission.
5.5 Are actions taken on the internal audit findings?	Yes.
6. External Audit	
6.1 Is the entity financial statement audited regularly by an independent auditor? Who is the auditor?	China National Audit Office
6.2 Are there any delays in audit of the entity? When are the audit reports issued?	There are no delays. Audit will be performed within 6 months after the close of the fiscal year.
6.3 Is the audit of the entity conducted according to the International Standards on Auditing?	National Accounting Standards are utilized.
6.4 Were there any major accountability issues brought out in the audit report of the past three years?	No.
6.5 Will the entity auditor audit the project accounts or will a separate auditor be appointed to audit the project financial statements?	CNAO. No separate auditor is appointed.
6.6 Are there any recommendations made by the auditors in prior audit reports or management letters that have not yet been implemented?	No.
6.7 Is the project subject to any kind of audit from an independent governmental entity (e.g., the supreme audit institution) in addition to the external audit?	The China National Audit Office is the supreme audit institution.
6.8 Has the project prepared acceptable terms of reference for an annual project audit?	Yes. Under preparation.

Topic	Remarks/Comments
7. Reporting and Monitoring	
7.1 Are financial statements prepared for the entity? In accordance with which accounting standards?	Yes. It is prepared in accordance with China National Accounting Standards for government departments.
7.2 Are financial statements prepared for the implementing unit?	Yes.
7.3 What is the frequency of preparation of financial statements? Are the reports prepared in a timely fashion so as to be useful to management for decision making?	Annually. Yes. Timely.
7.4 Does the reporting system need to be adapted to report on the project components?	Yes.
7.5 Does the reporting system have the capacity to link the financial information with the project's physical progress? If separate systems are used to gather and compile physical data, what controls are in place to reduce the risk that the physical data may not synchronize with the financial data?	Physical progress is provided by field supervision teams. Financial progress is reported by the EA. The two reports will then be integrated by the EA, FITIC.
7.6 Does the project have established financial management reporting responsibilities that specify what reports are to be prepared, what they are to contain, and how they are to be used?	This will follow the system and procedures established for previous including on-going ADB-funded projects.
7.7 Are financial management reports used by management?	Yes
7.8 Do the financial reports compare actual expenditures with budgeted and programmed allocations?	Yes
7.9 Are financial reports prepared directly by the automated accounting system or are they prepared by spreadsheets or some other means?	They are prepared by computers but verified manually.
8. Information Systems	
8.1 Is the financial management system computerized?	Yes, for data storage but not fully integrated as a planning and decision-making system.
8.2 Can the system produce the necessary project financial reports?	Yes.
8.3 Is the staff adequately trained to maintain the system?	Yes.
8.4 Does the management organization and processing system safeguard the confidentiality, integrity, and availability of the data?	Yes.

CONTRIBUTION TO THE ADB RESULTS FRAMEWORK

No.	Results Framework Indicators	Targets	Methods Used/Comments
Transport			
N/A	Not applicable		Tranche 5 will finance introduction of railway energy efficiency and railway safety operation and maintenance equipment in southwestern PRC railways. This equipment will be safer than currently used in the region and will have significant energy saving benefits.

Source: Asian Development Bank.

RISK ASSESSMENT AND RISK MANAGEMENT PLAN

Risk Description	Risk Assessment	Mitigation Measures or Risk Management Plan
Public Finance and Management Risks		
Delay in providing counterpart funds	Low	<ul style="list-style-type: none"> - ADB will send annual supervision missions. - The EA will file semi-annual progress reports.
Financial management risk and project cost overruns	Medium	<ul style="list-style-type: none"> - The government and EA will ensure the timely release of counterpart funds, as per loan covenants. - The EA will maintain separate accounts for the project and have such accounts and related financial statements audited annually by an external auditor in accordance with auditing standards acceptable to ADB. - The government and EA will ensure the cost management control with a view to minimizing initial investment on the project and will be responsible for financing all cost overruns.
Depreciation of foreign currency and floating interest rate	Low	The government and EA will pursue the early completion of the project preparation, including the assessment of these risks and the implementation of measures to avoid or mitigate them.
Procurement Risks		
Ability for handle procurement limited	Low	<ul style="list-style-type: none"> - Two tendering companies had been recruited to assist the EA in all ADB-financed procurements under the Tranche 5. - On-the-job training on ADB procedures will be provided to new staff of the EA to ensure adherence to ADB policies and procedures and to minimize the risk of delay.
Contract variations occur frequently because of poor-quality design details and bidding documentation	Low	<ul style="list-style-type: none"> - Involvement of professional and experienced design institutes. - Timely consulting support and review of design and bid documents.
Nonperformance by contractors or suppliers	Low	<ul style="list-style-type: none"> - Investigation and monitoring of past performance and filing. - Use of performance monitoring system and guarantees.
Governance and Corruption Risks		
Corruption practices affect project design, procurement, and implementation, and result in poor-quality project	Low	Assurance that the EA and PMO will further undertake the following anticorruption actions: (i) maintain the effective operation of a supervisory body to prevent undue interference in business activities; (ii) involve the agencies responsible for oversight of bidding processes; and (iii) periodically inspect the contractors activities related to fund withdrawals and settlements (during implementation).
Anticorruption measures	Low	<ul style="list-style-type: none"> - PRC and CRC have introduced an integrity program, including detailed anticorruption measures, focused on prevention and punishment. - Assist the EA and PMO to ensure good governances, accountability, and transparency in project operations. - Anticorruption responsibilities, measures, and procedures have been included and emphasized in the Facility Administration Manual.

Risk Description	Risk Assessment	Mitigation Measures or Risk Management Plan
Constrained capacity to conduct effective audit of ADB-financed project	Low	Scope of project audit and audit certification to include compliance with loan conditions
Lack of transparency	Low	Loan conditions to promote greater transparency and public availability of information, including the procurement plan and contracts awards. ADB and the government will conduct periodic reviews.
Other Risks		
Delay in the project Implementation	Medium	<ul style="list-style-type: none"> - Two qualified procurement companies have been selected and engaged to assist the EA in all ADB-financed procurement under Tranche 5. - The EA will ensure that staff employed in the EA and PMO will be experienced in technical, financial, and administrative matters; and in implementing projects financed by international financial institutions. - On-the-job training on ADB procedures will be provided to new staff of the EA to ensure adherence to ADB policies and procedures and minimize the risk of delay.
Institutional arrangement. Weak project coordination and synchronization between relevant agencies delays the project implementation progress	Low	Monitor project implementation closely via periodical project site inspections, regular coordination meetings between PMO, EA, tendering companies, and other agencies.
Lack of latest knowledge on equipment to be used	Low	The equipment to be procured and installed under Tranche 5 is based on proven and established technologies, which has significant environmental and safety benefits.
Lack of knowledge on installation and efficient and effective maintenance of equipment	Low	CRC has experience of installing new technologies successfully and these can be implemented within a relatively short time. On-job training will be provided transfer knowledge of the equipment operation and maintenance.
Overall	Medium	

ADB = Asian Development Bank, CRC = China Railway Corporation, EA = executing agency, PMO = project management office.

Sources: Asian Development Bank.