



# Draft Design and Monitoring Framework

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Project Number: 43332  
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## PRC: Railway Energy Efficiency and Safety Enhancement Investment Program

A design and monitoring framework is an active document, progressively updated and revised as necessary, particularly following any changes in project design and implementation. In accordance with ADB's public communications policy (2005), it is disclosed before appraisal of the project or program. This draft framework may change during processing of the project or program, and the revised version will be disclosed as an appendix to the report and recommendation of the President.

**Asian Development Bank**

## DESIGN AND MONITORING FRAMEWORK

Design Summary	Performance Targets/Indicators	Data Sources/Reporting Mechanisms	Assumptions and Risks
<p><b>Impact</b> Improved transport system in the region that supports sustainable socioeconomic development and the western development strategy</p>	<p>GDP is forecast to increase during 2015–2020 at 5–6% 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 and CNY4,700 in 2020</p> <p>Energy consumption on PRC railways per unit of revenue is reduced by 20% from 2009 to 2015</p> <p>Total discharge of major pollutants by PRC railways is reduced by 10% from 2010 to 2015</p>	<p>Provincial and county/city statistics offices</p> <p>IP performance management system at inception, completion, and 3 years after with emphasis on socioeconomic improvement impacts</p> <p>MOR statistics and operating data before and after the IP</p>	<p><b>Assumptions</b></p> <ul style="list-style-type: none"> <li>• Government investment programs are implemented as planned</li> <li>• Complementary activities are implemented</li> <li>• The Government is committed to reducing poverty in the western region, based on the Western Development Strategy.</li> </ul>
<p><b>Outcome</b> 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 2015</p> <p>Cost of travel reduced from 35 fen/km in 2008 to 15 fen/km in 2015</p> <p>Fuel savings increased from CNY936 million in 2016 to CNY3.2 billion in 2035</p> <p>CO<sub>2</sub> emissions are reduced by 22,106 tons in 2016 and 1.82 million tons in 2035</p> <p>SO<sub>2</sub> emissions are reduced by 10% from 2009 to 2015</p>	<p>Progress reports</p> <p>Project administration missions and project completion report</p> <p>Post-evaluation surveys and reports from MOR</p> <p>Statistics from local environmental protection bureaus, communication bureaus, and MOR</p>	<p><b>Assumptions</b></p> <ul style="list-style-type: none"> <li>• Assumed economic growth rates materialize</li> <li>• Traffic forecasts are realized</li> <li>• Passengers and freight operators realize the benefit of using the railways</li> </ul> <p><b>Risk</b></p> <ul style="list-style-type: none"> <li>• Capacity enhancement works are not completed timely</li> </ul>

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	Recommendation of energy and safety audits are adopted by 2012		
<b>Outputs</b> 1. Investment program implemented by installing energy-efficient technologies, environment-friendly equipment, and safety equipment  2. Energy efficiency and environmental issues in railway management are integrated and institutionalized  3. Safety and energy audits of a nominated railway administration  4. Capacity building support is provided	Energy-efficient, environment-friendly, and safety equipment are procured and installed by 2015  Recommendations for integrating energy efficiency, environmental, and safety into railway management and operations are made by 2011  Safety and energy audits are completed and recommendations are made by 2011  About 200 staff are trained and 10 awareness programs are organized by 2015	PAMs and PCR  PAMs, progress reports, and PCR  PAMs, progress reports, and PCR	<b>Assumption</b> <ul style="list-style-type: none"> <li>Associated equipment procurement and installation are completed</li> </ul> <b>Assumption</b> <ul style="list-style-type: none"> <li>MOR adopts the recommendations</li> </ul> <b>Assumption</b> <ul style="list-style-type: none"> <li>Sufficient data is provided in a timely manner</li> </ul> <b>Assumption</b> <ul style="list-style-type: none"> <li>Well qualified staff are nominated for training</li> </ul>
<b>Activities with Milestones</b> <b>Implementation of Railway Energy Efficiency and Safety Enhancement IP</b> 1.1 Tranche 1 approved by ADB and PRC Government by end of 2009. 1.2 Tranche 2 approved by ADB and PRC Government by end of 3rd quarter of 2010. 1.3 Other tranches <sup>1</sup> approved by ADB and PRC Government upon submission.			<b>Inputs</b> <b>MFF: \$3.24 billion</b> <ul style="list-style-type: none"> <li>ADB: \$1 billion</li> <li>MOR: \$2.24 billion</li> </ul> <b>TA: \$720,000</b> <ul style="list-style-type: none"> <li>ADB: \$600,000</li> <li>MOR: \$120,000</li> </ul>

ADB = Asian Development Bank, CO<sub>2</sub> = carbon dioxide, GDP = gross domestic product, IP = investment program, km = kilometer, MFF = multitranche financing facility, MOR = Ministry of Railways, PAM = project administration memorandum, PCR = project completion report, PRC = People's Republic of China.

<sup>1</sup> The number of tranches is expected to be between three and six depending on the readiness of the tranches.