

Validation Report
June 2022

People's Republic of China: Jiangxi Fuzhou Urban Integrated Infrastructure Improvement Project

Reference Number: PVR-874
Project Number: 44007-013
Loan Number: 2915
Grant Number: 0388

Independent
Evaluation  ADB

Raising development impact through evaluation

ABBREVIATIONS

ADB	–	Asian Development Bank
BRT	–	bus rapid transit
EARD	–	East Asia Department
EIRR	–	economic internal rate of return
FIDC	–	Fuzhou Investment and Development Company
FIRR	–	financial internal rate of return
FMG	–	Fuzhou Municipal Government
GAP	–	gender action plan
GEF	–	Global Environment Facility
IED	–	Independent Evaluation Department
km	–	kilometer
mg/m ³	–	milligram per cubic meter
PCR	–	project completion report
PPMS	-	project performance monitoring system
PRC	–	People’s Republic of China
WACC	–	weighted average cost of capital

NOTE

In this report, “\$” refers to United States dollars.

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PROJECT BASIC DATA

Project number	44007-013	PCR circulation date	9 December 2021	
Loan and grant numbers	Loan 2915 Grant 0388	PCR validation date	Jun 2022	
Project name	Jiangxi Fuzhou Urban Integrated Infrastructure Improvement Project			
Sector and subsector	Agriculture, natural resources, and rural development Transport Water and other urban infrastructure and services	Water-based natural resources management Urban public transport - Urban roads and traffic management Urban policy, institutional and capacity development		
Strategic agenda	Environmentally sustainable growth Inclusive economic growth			
Safeguard categories	Environment		A	
	Involuntary resettlement		A	
	Indigenous peoples		C	
Country	People's Republic of China		Approved (\$ million)	Actual (\$ million)
ADB financing (\$ million)		Total project costs	229.01	199.59
	OCR: 100.00	Loan L2915	100.00	90.72
	ADF:	Borrower Government of the PRC	126.46	106.38
		Beneficiaries	0.00	0.00
		Others	0.00	0.00
Cofinanciers		Total cofinancing Global Environment Facility	2.55	2.49
Approval dates		Effectiveness dates		
L2915	12 Oct 2012	L2915	17 Jun 2013	24 Jun 2013
G0388	14 May 2014	G0388	2 Sep 2015	9 July 2015
Signing dates		Closing dates		
L2915	19 Mar 2013	L2915	30 Jun 2018	31 Dec 2019
G0388	4 Jun 2015	G0388	30 Jun 2018	31 Dec 2019
		Financial closing date		
		L2915	—	28 Dec 2020
		G0388	—	28 Dec 2020

Project officers		Location	From	To
	Steven Lewis-Workman	ADB headquarters	8 Feb 2011 27 Sep 2013 2 Dec 2013 27 Apr 2014	23 Jul 2013 22 Oct 2013 27 Mar 2014 19 Sep 2014
	Cai Li	ADB headquarters	22 July 2013 23 Oct 2013 28 Mar 2014 28 Oct 2014 26 Jan 2015	26 Sep 2013 25 Oct 2013 25 Apr 2014 16 Nov 2014 24 Mar 2015
	Ki-Joon Kim	ADB headquarters	20 Sep 2014 17 Nov 2014 26 Mar 2015	27 Oct 2014 25 Jan 2015 26 Apr 2015
	Masahiro Nishimura	ADB headquarters	29 Apr 2015 11 Sep 2015	26 Jul 2015 15 Dec 2017
	Zhang Wen	PRC Resident Mission	18 Dec 2017	17 Jun 2019
	Shen Xin	PRC Resident Mission	18 Jun 2019	27 Sep 2019
	Xia Heng	PRC Resident Mission	29 Sep 2019	Present
IED review				
Director	N. Subramaniam, IESP			
Team leader	M. Legal, Senior Evaluation Officer, IESP*			

ADB = Asian Development Bank, ADF = Asian Development Fund, IED = Independent Evaluation Department, IESP = Sector and Project Division, OCR = ordinary capital resources, PCR = project completion report, PRC = People's Republic of China.

* Team members: G. Kilroy (quality reviewer), F. De Guzman (Senior Evaluation Officer), and P. Choynowski and C. Mason (consultants).

I. PROJECT DESCRIPTION

A. Rationale

1. At the time of appraisal, Fuzhou was relatively poor compared to the nearby provinces. It is a prefectural city in the Jiangxi Province of the People's Republic of China (PRC), with an urban population of 1 million in 2011, of which half are in its urban district. This number was expected to grow by 50% in 2020 as the PRC experienced rapid urbanization. Fuzhou's expansion, along with other second-tier cities, was to relieve pressure on existing urban centers and provide economic opportunities for vast numbers of low-income people.

2. In 2013, Xiangpu High-Speed Railway began operations from the provincial capital of Nanchang to the central Fujian Province, passing through Fuzhou. This provided better connection and offered economic opportunities in the eastern region of the PRC. Part of this railway was the construction of a new station in Fuzhou. However, the site of the new station was 6 kilometers (km) south of the existing city center and 2 km from the developed city area. To better integrate this with the existing and planned residential and employment areas in the city, a well-designed multimodal transport infrastructure and integrated public transport services was needed. This integration was to (i) reduce transport costs; (ii) increase efficiency and attractiveness of the public transport system; (iii) expand travel opportunities and regional accessibility to jobs and services; (iv) promote sustainable urbanization and poverty reduction; and (v) encourage a shift to modes of travel with lower carbon emissions.

B. Expected Impacts, Outcomes, and Outputs

3. The project's impact was an efficient, inclusive, and sustainable urban transport system in Fuzhou.¹ The envisaged outcome was efficient multimodal access to the new main railway station. The project's outputs were (i) a 12.2 km bus rapid transit (BRT) system; (ii) an urban transport hub at the new Fuzhou railway station; (iii) river rehabilitation and "greenway" development; (iv) 10 km of station access roads; and (v) institutional strengthening and capacity building for the executing and implementing agencies and BRT operators, drivers, and conductors. Under the Global Environment Facility (GEF) grant, the expected outputs were (i) reduced greenhouse gas (GHG) intensity of bus operations; (ii) upgraded BRT buses using compressed natural gas (CNG); and (iii) CNG buses for BRT feeder services. In 2017, due to the government policy requiring all buses to be electric powered by 2020, GEF grant outputs (ii) and (iii) were dropped and was changed to electric BRT and feeder buses.²

C. Provision of Inputs

4. The \$100 million ADB loan was approved in October 2012 and became effective in June 2013, as scheduled. The \$2.55 million GEF grant was approved in May 2014 and became effective in July 2015, 2 months earlier than the date on the grant agreement.³ The project was completed in December 2019, a delay of 1.5 years from the original completion date of June 2018. It was delayed because of a prolonged rainy season, delayed resettlement activities, and the redesign of the BRT component.

5. At appraisal, the total project loan cost was estimated at \$226.46 million, of which \$100 million was to be from the ADB loan and the remainder from the Fuzhou Municipal Government (FMG).⁴ ADB's loan was to cover civil works, equipment, institutional strengthening and capacity building, financing charges during implementation, and taxes and duties. The FMG fund was to cover other civil works, resettlement, detailed design, supervision, and contingencies. The grant amount for the environmental improvement component was only to be added to the project financing plan after the GEF board's approval. The actual total project was \$199.59 million, about 12% lower than the appraisal amount because of lower costs for land acquisition and resettlement and reduced work under the Fenggang River greenway development.⁵ The ADB loan was reduced to \$90.72 million and GEF grant to \$2.49 million, while the government covered the balance of \$106.38 million.

6. The project was to finance 102 person-months of consulting services under the ADB loan, including the wetland monitoring expert. However, the expert was recruited separately as an individual consultant and financed by the government. Under the ADB loan, three individual

¹ ADB. 2012. *Report and Recommendation of the President to the Board of Directors: Proposed Loan to the People's Republic of China for the Jiangxi Fuzhou Urban Integrated Infrastructure Improvement Project*. Manila.

² ADB (East Asia Department [EARD]). 2017. *Loan Review to the PRC: Jiangxi Fuzhou Urban Integrated Infrastructure Improvement Project – Review Mission*. Back-to-office report. 14 Nov (internal). Under the grant's output 1, the following indicators were also dropped: (i) maintenance training that the bus supplier would provide, and (ii) feasibility study for production in Fuzhou of CNG from biomethane. There was no memo approved indicating the minor changes in scope of the grant.

³ ADB. 2021. *Completion Report: Jiangxi Fuzhou Urban Integrated Infrastructure Improvement Project in the People's Republic of China*. Manila.

⁴ Both the ADB loan proceeds and FMG counterpart funding were to be transferred to the Fuzhou Investment and Development Company (FIDC), the project's implementing agency.

⁵ Landscaping in the Huaya Mengyuan Park area was excluded because it was already completed in 2016 under a separate government project. See ADB (EARD). 2016. *Loan Review to the PRC: Jiangxi Fuzhou Urban Integrated Infrastructure Improvement Project – Midterm Review Mission*. Back-to-office report. 10 June (internal).

consultants were recruited for safeguards monitoring (environment, resettlement, and gender); while two grant-financed consulting firms were engaged for BRT development (supervision) and capacity building, and training of BRT operating and managerial staff. The PCR provided no breakdown of international and domestic consulting services.

7. The project was classified category A for environment and involuntary resettlement because environment, land acquisition, and resettlement impacts were expected. The project was category C for indigenous peoples. Fenggang River improvement was expected to have short-term, localized adverse impacts on hydrology, water quality, and biodiversity. The project was to acquire 216.57 hectares of land, including 153.10 hectares of farmland. Land acquisition and resettlement was to affect 7,461 people in 1,843 households. The Han Chinese, the PRC's majority ethnic group, comprised 99% of Jiangxi Province's population and no indigenous peoples were identified. A gender action plan (GAP) was prepared since the project was designed to meet ADB's effective gender mainstreaming categorization.

D. Implementation Arrangements

8. The Fuzhou Municipal Government (FMG) was the executing agency. Fuzhou Investment and Development Company (FIDC) was the implementing agency to carry out day-to-day project implementation and provide coordination support for project management. Established in 2009, the Fuzhou Municipal Project Leading Group, which the FMG vice mayor chaired with heads of all municipal agencies as members, was to provide overall leadership, policy guidance, and institutional coordination. A project management office was established to assist the Fuzhou Municipal Project Leading Group with policy guidance, institutional coordination and monitoring of project progress and implementation, and to manage the project.

9. All covenants were complied with except the covenant for the borrower's project completion report (PCR) and minor delays in submission of 2013 and 2015 audit reports. An initial draft of the borrower's PCR was prepared in July 2020. However, it lacked essential data and information. Although a project implementation consultant assisted with providing the required data and information, no final PCR was submitted.

II. EVALUATION OF PERFORMANCE AND RATINGS

A. Relevance of Design and Formulation

10. The PCR rated the project relevant, both at appraisal and completion. The project was an integral part of the government's 13th Five-Year Plan (2016–2020) that aimed to identify, delineate, and balance the roles of the government, the market, and society. Improving transport connectivity, facilitating inclusive urbanization, and promoting ecological civilization on aspects of green, low-carbon, and livable cities were prioritized.⁶ It was consistent with ADB's 2011–2015 and 2016–2020 country partnership strategies for the PRC that supported the government's reform agenda on climate change and the environment, inclusive economic growth, knowledge cooperation, and institutional and governance reform.⁷

⁶ Government of the PRC. 2016. *The Thirteenth Five-Year Economic and Social Development Plan (2016–2020)*. Beijing.

⁷ ADB. 2012. *Country Partnership Strategy: People's Republic of China, 2011–2015*. Manila; and ADB. 2016. *Country Partnership Strategy: Transforming Partnership: People's Republic of China and Asian Development Bank, 2016–2020*. Manila.

11. This validation views that the project was designed to benefit from the opening of the high-speed railway and seize an early opportunity to establish a model for urban transport and development integration that could be replicated in other cities. The project design and financial modality were adequate and appropriate to achieve the intended project outcome and impact. Although no formal changes in scopes were approved, the changes in project design and scope during implementation were timely and appropriate to the government's demands. The changes were related to the significant change in the BRT route, which required recalculations of the project's economic and financial viabilities, revisions on the safeguard plans, and change from CNG buses to electric buses to remain relevant to the 2017 government policy.⁸ Clear output targets and baselines under the GEF grant were also missing. On the whole, this validation assesses the project relevant.

B. Effectiveness in Achieving Project Outcomes and Outputs

12. The PCR rated the project effective in achieving its intended outcome and output targets. The outcome of efficient multimodal access to the new main railway station was achieved. In 2019, average bus speeds on the BRT corridor increased to 23–28 km/hour against the 26 km/hour target in 2018. Right on target, the average age of the bus fleet was reduced to 6 years in 2019 from 8 years in 2018. The transfer time between the BRT bus terminal and the railway station platform was reduced to less than 5 minutes against the target of less than 10 minutes. Flood frequency was reduced from annual to once in 20 years. This validation views that the last outcome target is not a reasonable expectation, as it is unlikely for data to be available in any such flood intervention, unless a 1 in 20-year flood occurred before project completion and the embarkment performed well.

13. The PCR noted that of the 14 output targets, 13 were achieved and 1 partly achieved. The output target that was partly achieved was the inability to conduct project performance monitoring system (PPMS) training to the executing and implementing agencies. At completion, a BRT system of 12.5 km was constructed and opened to traffic in March 2019, with BRT stations and buses equipped with lighting, security, and help facilities including priority seating for people with special needs. Additionally, four sections of station access roads, totaling to 10.2 km were constructed and opened. A 4.5 km greenway and embankment were constructed with green areas, parking roads with lighting facilities and rest areas, and bike lane with link to the railway station. Exceeding the target, women filled up more than 50% of the construction and greenery maintenance-related jobs. Under the institutional strengthening and capacity building, except for the PPMS training, the target training modules on project management, safeguards and gender requirements, traffic management, road safety, and BRT operation and management were conducted.

14. Under the GEF grant, while the PCR provided no self-assessment on the target of reducing GHG intensity of bus operations, this validation assesses this as achieved because (i) sulfur dioxide levels declined from 0.024 milligrams per cubic meter (mg/m³) to 0.013 mg/m³; (ii) nitrogen dioxide levels declined from 0.022 mg/m³ to 0.016 mg/m³; and (iii) particulate matter (particle size below 10 microns) declined from 0.064 mg/m³ to 0.057 mg/m³. In addition, two

⁸ ADB asked the government why the original BRT route was not questioned and the Yuming road option was not proposed during fact finding mission. FMG explained that BRT is a new concept to them, and they had difficulties in communicating due to differences in language. See ADB (EARD). 2014. Loan Review to the PRC: Jiangxi Fuzhou Urban Integrated Infrastructure Improvement Project – Special Loan Consultation Mission. Back-to-office report. 17 March (internal).

international consultants and one national consultant provided training to 1,018 drivers, conductors, and maintenance staff.

15. This validation assesses the safeguard categorizations at appraisal to be correct. Detailed and site-specific plans to mitigate potential impacts on water, soil, air quality, and the acoustic environment; and conservation plans were developed and implemented effectively. No unexpected adverse environmental impact was identified other than those predicted at appraisal, and no environmental safeguard-related complaints were received during implementation. A resettlement plan was prepared during project preparation and was updated based on the detailed design and revised detailed design of the BRT system, consistent with domestic laws and regulations. Project construction affected 461 households due to house demolition, of which 50 received cash compensation and 411 were relocated.

16. A GAP was prepared to focus on (i) ensuring women's equitable participation in public consultation regarding the project; (ii) incorporating gender-responsive features in the design of urban transport infrastructure; and (iii) promoting increased employment opportunities for women and building institutional capacity for gender mainstreaming. The GAP had 19 activities and 6 quantitative targets, of which 12 activities and 4 quantitative targets were achieved. FIDC and the project management office were responsible for the GAP implementation. During project implementation, an individual consultant was engaged to assist in implementation and delivering training to staff and local officials.

17. As most outcome and output targets of the project were achieved, including positive results from the implementation of safeguard plans and substantial achievements of gender-related targets, this validation assesses the project effective.

C. Efficiency of Resource Use

18. The PCR rated the project efficient as the project outcome was achieved with an efficient use of resources. The economic internal rate of return (EIRR) of the project (station access road, urban transport hub, and BRT) was recalculated at 16.9%, higher than the threshold level of 12% and that at appraisal (14%). This was mainly due to a lower capital cost and higher BRT traffic levels than assumed at appraisal. This validation notes that the claim for higher BRT traffic levels at completion is inconsistent with PCR's justification of lower financial internal rate of return (FIRR). This validation notes that with the significant change in the BRT route, EIRR at appraisal and completion are not comparable.⁹ The sensitivity analysis indicated that the project continued to be economically viable for all tested scenarios. The PCR also stated that the 1.5 years delay had a limited negative impact on project efficiency.

19. This validation notes that the PCR used a conversion factor of 0.891 to adjust the capital cost, which suggests that the numeraire was world price. However, there seems to have been no shadow pricing of economic benefits and other costs that suggests domestic price was the numeraire. The PCR should have been explicitly clear on the numeraire used and how project

⁹ At appraisal, BRT system along the Gandong corridor had an EIRR of 18.1%. The government conducted a feasibility study for the revised BRT route (Gong-shape corridor, such that first 2.5 km pass along the Gandong Corridor, the next 3 km pass along Yunming corridor, and the remaining 4.5 km move back to Gandong corridor) and based on the data presented, ADB conducted an economic reevaluation resulting to EIRR of 14.3%. ADB (EARD). 2014. Loan Review to the PRC: Jiangxi Fuzhou Urban Integrated Infrastructure Improvement Project – Loan Review and Special Review (Safeguards) Missions. Back-to-office report. 22 August (internal).

benefits and costs were classified as tradables and non-tradables.¹⁰ A 30% residual value in 2039 seems unjustified given major periodic expenditures on the BRT stations, the transport hub, access roads, electric buses, and “greenway” every 3, 5, and 10 years. This suggests that the items in the original capital cost will have been completely replaced by 2039 and thus, no residual of the original capital cost would remain. The economic cost of the 40-mu (2.7-hectare) section of land for the transport hub does not seem to have been included in the capital cost, while it seems included in the estimation of benefits (development).¹¹

20. The major shortcoming of the EIRR recalculation was the assumption that half of the 2020 land price for 800 mu (53.3 hectares) that the project impacted was a direct result of the project. Since this comprised more than 50% of the benefits calculated at completion, a strong justification for this assumption, which this validation views as excessive, is needed. Such assumption does not consider the price for the land without project.¹² This validation views that there is little justification to directly attribute land price to the project without first considering that the BRT project and the normal economic growth had impacted the land price. If these factors had been considered, then the economic benefit from land development due to the project would have been much less than the 50% assumed. The sensitivity analysis should have included a scenario where a smaller or no benefit on land prices was derived from the project to determine the robustness of the 50% assumption.

21. Given the shortcomings in the EIRR calculation highlighted above, it is likely the EIRR is less than the 12% threshold level. Therefore, this validation assesses the project less than efficient.¹³

D. Preliminary Assessment of Sustainability

22. The PCR rated the project likely sustainable. The FIRR of the BRT system was recalculated at 3.4%, marginally higher than the weighted average cost of capital (WACC) of 2.9%. The FIRR at appraisal was 5.2% because the passenger traffic forecast at appraisal was more optimistic than actual bus ridership. Moreover, revenue from BRT ridership and bus commercial advertising declined in 2020 because of the COVID-19 pandemic. The sensitivity analysis indicated that the project was not financially viable when adverse effects on revenue and operating and maintenance costs were incorporated.

¹⁰ EIRR calculation should have adjusted all non-tradables with the standard conversion factor in the case of the world price numeraire or all tradables with the shadow exchange rate factor in the domestic price case.

¹¹ 1 mu = 0.067 hectare.

¹² This validation notes that impact on land price can be attributed more to high-end residential buildings in Yuming, where the BRT system will pass. See ADB (EARD). 2014. Loan Review to the PRC: Jiangxi Fuzhou Urban Integrated Infrastructure Improvement Project – Special Loan Consultation Mission. Back-to-office report. 17 March (internal).

¹³ EARD and IED have differing views on assessing efficiency, particularly on shadowing pricing and valuing economic costs and benefits. EARD views that there was no evidence of a real exchange rate misalignment, 30% residual was a conservative result of comprehensive consideration, purchase of lease price as proxy for economic value of land was appropriate, and 50% of the economic benefit directly attributed to urban development was reasonable and conservative. IED clarifies that the issue was not about real exchange rate between renminbi and US dollar. IED reiterates that based on ADB guidelines for the economic analysis of projects, traded and non-traded outputs and inputs are to be considered in the economic valuation of project benefits and costs—regardless of the currency or where the project is located. Given that the currency of analysis is in domestic currency (domestic price numeraire), all tradable goods must be adjusted by shadow exchange rate factor, which is greater than 1. Hence, economic capital cost would be higher than the financial capital cost. Land valuation should also be based on the economic prices or land values to measure opportunity cost. On treating land development as part of the economic benefits, IED reiterates that without clear methodology to quantify benefits from land development, assigning more than 50% of the economic benefit from land development will mean more than half of the calculated benefits are purely arbitrary.

23. The Fuzhou Public Transport Company operates the BRT system and employs 614 staff to manage, operate, and maintain the system. The PCR stated that without the pandemic, public transport system in Fuzhou would have a daily ridership of more than 60,000 person-rides. The access roads still have low traffic; however, higher levels of traffic are expected. The “greenway” is environmentally stable, and no unexpected adverse environmental impacts have been identified. Air quality in Fuzhou has improved after project implementation. The capacity building program has enhanced the technical, operational, and managerial capabilities of staff, as well as improving gender sensitization and environmental consciousness.

24. At completion, the project operations and maintenance have been transferred to several government agencies with sufficient budget allocations, indicating a strong institutional capacity and support toward project sustainability.¹⁴ However, this validation notes that a residual value in 2039 in the FIRR calculation is not justified for the same reason given for the EIRR calculation, and the subsidy of almost \$76 million in 2039 has no offsetting capital cost as found in 2024, 2029, and 2034. If the FIRR calculation were corrected for the factors identified above, the FIRR would be less than the WACC.¹⁵ Therefore, this validation assesses the project less than likely sustainable.¹⁶

III. OTHER PERFORMANCE ASSESSMENTS

A. Preliminary Assessment of Development Impact

25. The PCR rated the project’s development impact satisfactory. In 2020, the public transport’s share of person-trips increased to 25% against the 18% target, while on target, the share of railway passengers using the BRT reached 30%. Fuzhou’s average carbon monoxide and nitrogen dioxide concentrations were substantially reduced, against the target of no increase in concentrations. The project also significantly contributed to living conditions, environmental quality, and sustainable economic growth. Improved connectivity provided better access to markets, employment opportunities, and schools, hospitals, and social services. The project had about 1.1 million beneficiaries, of which 48% were women.

26. The socioeconomic impact indicators showed that (i) Fuzhou’s economic growth accelerated, with an average growth rate in gross domestic product of 8.2% over the 2017–2019 period; (ii) gross domestic product per capita reached CNY37,2727 in 2019; (iii) urban disposable income increased by 7.9% in 2019; and (iv) the share of public transport in total transport was about 25% in 2019. This validation assesses the project’s development impact satisfactory.

¹⁴ Appendix 12 of the PCR.

¹⁵ At appraisal, the FIRR calculation did not consider subsidy as part of the revenue, with a resulting FIRR of 5.2%, higher than the 2.2% WACC (Linked Document: Financial Analysis, Table 2). At completion, the subsidy was considered as revenue. If the subsidy was not considered, FIRR would be negative. If capital cost was offset in 2039, FIRR would also be negative.

¹⁶ EARD and IED have differing views on assessing sustainability. EARD opined that the project should be likely sustainable. EARD viewed that a projection of the annual operation and maintenance costs and debt services of FMG and relevant agencies could be done based on their respective historical growth rates from the actual revenues, although, it would be only symbolic, which was similar to FMG’s commitment. IED reiterated that there was a need to address the issue on the subsidy calculations in the FIRR estimates to clearly demonstrate its financial sustainability. In addition, the PCR noted that after project completion, the project operations and maintenance had been transferred to several government agencies with sufficient budget allocation. It is, however, a very general statement and no sufficient evidence to validate that the “several government agencies” were financially and institutionally sound to support project sustainability.

B. Performance of the Borrower and Executing Agency

27. The PCR rated the performance of FMG and FIDC satisfactory. The Ministry of Finance and the Jiangxi Provincial Financial Department actively participated in coordinating and supervising the project implementation. FMG made adequate institutional arrangements for project implementation and operation and provided timely counterpart funds. The project management office was fully staffed with the required expertise and was delegated adequate technical and administrative authority to make field-level decisions. This validation notes that except on not being able to conduct a PPMS training and non-submission of the borrower's final PCR, most loan and grant covenants were complied with, and anticorruption measures were implemented as required. The project delay was also not substantial despite significant changes in the detailed technical designs and considering that it was FMG's first BRT project. This validation assesses the performance of the borrower and the executing agency satisfactory.

C. Performance of the Asian Development Bank

28. The PCR rated ADB's performance satisfactory. ADB headquarters initially administered the project and then transferred to ADB's PRC Resident Mission in December 2017. During implementation, ADB fielded 15 project review missions, including an inception mission in 2013, a midterm review mission in 2016, and a completion review mission in 2021. ADB missions analyzed implementation issues affecting project progress and provided inputs in preparing action plans to expedite project implementation. The ADB project team and experts provided regular training and support to agencies involved in the project, and to consultants and contractors on project management and safeguard policy compliance. Document approval during processing and implementation was timely and all payment claims were processed promptly. This validation notes that ADB provided sufficient guidance to the local government, especially that the BRT system project is a new urban transport system for them.

29. This validation also assesses ADB's safeguard work quality at project screening, preparation, and appraisal, and at supervision satisfactory. A full environmental impact assessment was reasonably prepared and adequately identified the potential environmental risks, although the sections on ecology and environmental management plan were weak and may not be considered sufficient according to today's standards. Back-to-office reports were prepared and were detailed with commentary on safeguards performance and recommendations for improvements. This validation assesses ADB performance satisfactory.

IV. OVERALL ASSESSMENT, LESSONS, AND RECOMMENDATIONS

A. Overall Assessment and Ratings

30. The PCR rated the project successful. The project was relevant to both ADB and the government's development objectives and strategies. The project was rated effective in achieving its outcomes. It was also efficient because of the robust EIRR at completion, and likely sustainable, considering the project's financial viability.

31. This validation assesses the project less than successful. Ratings were relevant; effective; less than efficient because of the shortcomings in the valuation of economic costs and benefits; and less than likely sustainable because with a marginally higher FIRR than the WACC, correcting the methodological issues is likely to result in a FIRR lower than the WACC.

Overall Ratings

Validation Criteria	PCR	IED Review	Reason for Disagreement and/or Comments
Relevance	Relevant	Relevant	
Effectiveness	Effective	Effective	
Efficiency	Efficient	Less than efficient	Shortcomings on valuing the economic costs and benefits, particularly the large benefits from land development promotion, accounting for more than 50%, are likely to result in an EIRR below the 12% threshold.
Sustainability	Likely sustainable	Less than likely sustainable	Residual is not substantiated and with no provision for the government to offset project losses with subsidies, the project is likely to operate below the WACC.
Overall Assessment	Successful	Less than successful	
Preliminary assessment of impact	Satisfactory	Satisfactory	
Borrower and executing agency	Satisfactory	Satisfactory	
Performance of ADB	Satisfactory	Satisfactory	
Quality of PCR		Less than satisfactory	Para. 38.

ADB = Asian Development Bank, EIRR = economic internal rate of return, IED = Independent Evaluation Department, PCR = project completion report, WACC = weighted average cost of capital.

Source: ADB (IED).

B. Lessons

32. The PCR identified two lessons. First, project implementation delays would be avoided if BRT system alignments were properly selected at appraisal with consideration given to avoiding traffic congestion. Second, project implementation delays would also be avoided if frequent changes in consulting personnel were avoided. Therefore, careful evaluation of qualifications of consulting personnel are needed.

33. This validation adds two lessons, both at the project level. First, project benefit identification, quantification, and valuation depend on the establishment and effective use of PPMS. The project was not successful in training FMG staff in the use of PPMS and, therefore, the project benefits in the EIRR calculation in the PCR were put into question.

34. The second relates to the PCR's first lesson. For project areas where differences in language is considered a significant challenge, setting aside resources for translation and communication with the local government officials can mitigate misunderstanding during project preparation. The significant changes on the approved route on the BRT component at appraisal could have been avoided if significant resources to explain the BRT concept, issues, and challenges at the local context were provided during project preparation.

C. Recommendations for Follow-Up

35. The PCR suggested two recommendations. First, the planning of BRT systems should avoid sensitive areas that could lead to congestion and the type of BRT design and traffic management and signaling system should be selected with consideration to road space availability, safety requirements, and traffic behavior. Second, given that there were three completed BRT projects and another under implementation, a study on design, implementation, operation, and maintenance, as well as the development impacts of BRT systems, could benefit future similar projects and the development of the urban transport sector. This validation has no other recommendation to offer.

V. OTHER CONSIDERATIONS AND FOLLOW-UP

A. Monitoring and Reporting

36. The national audit office of the People's Republic of China audited annually the project accounts in accordance with auditing standards acceptable to ADB and eight good-quality audit reports were submitted. The audited project financial statements for 2020 was the project's final audit report and all outstanding issues that the management letter mentioned to the audited project financial statements were settled. Regular project progress and monitoring reports were prepared as required and submitted to ADB. A project website was established to disclose project related information.

37. The PCR indicated that a comprehensive PPMS was established and used as a monitoring and reporting mechanism to track the project progress and performance. However, the PCR did not discuss the design, implementation, and the quality of the system. Moreover, this is inconsistent with the PCR discussion that there was no PPMS training conducted and that a borrower's final PCR was not submitted.

B. Comments on Project Completion Report Quality

38. This validation assesses the PCR less than satisfactory. While the PCR provided an adequate description of project implementation, there were major shortcomings in the methodology for the economic and financial recalculation, which put into question the ratings for efficiency and sustainability.

C. Data Sources for Validation

39. Data sources used for this validation included the report and recommendation of the President, back-to-office reports, government and ADB strategies and policies, and ADB guidelines.

D. Recommendation for Independent Evaluation Department Follow-Up

40. The PCR viewed that a project performance evaluation report could be prepared in 2023 when the BRT system and all facilities under the project will be fully operational for 3 years. This validation has similar view as that of the PCR and suggests giving focus on the environmental and social benefits of ADB's investment resulting from improved urban transport system and use of electric buses.