People’s Republic of China:
Hubei-Yichang Sustainable Urban Transport Project
ABBREVIATIONS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tr>
<td>ADB</td>
<td>Asian Development Bank</td>
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<tr>
<td>BRT</td>
<td>bus rapid transit</td>
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<td>CO₂</td>
<td>carbon dioxide</td>
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<td>COVID-19</td>
<td>coronavirus disease 2019</td>
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<td>DMF</td>
<td>design and monitoring framework</td>
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<tr>
<td>EIRR</td>
<td>economic internal rate of return</td>
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<td>FIRR</td>
<td>financial internal rate of return</td>
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<td>GAP</td>
<td>gender action plan</td>
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<td>km</td>
<td>kilometer</td>
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<td>kph</td>
<td>kilometer per hour</td>
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<td>PCR</td>
<td>project completion report</td>
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<td>PLG</td>
<td>Project Leading Group</td>
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<td>PPMS</td>
<td>project performance management system</td>
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<td>RRP</td>
<td>report and recommendation of the President</td>
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<td>YMG</td>
<td>Yichang municipal government</td>
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NOTES

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

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<th>Role</th>
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<tr>
<td>Director General</td>
<td>Marvin Taylor-Dormond, Independent Evaluation Department (IED)</td>
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<td>Director</td>
<td>Nathan Subramaniam, Sector and Project Division (IESP)</td>
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I. PROJECT DESCRIPTION

A. Rationale

1. The central region of the People’s Republic of China, where Hubei province is located, was becoming a major center for energy production, agricultural processing, and high-technology manufacturing. Yichang is the second largest city in Hubei province, after Wuhan, with population forecasted to increase to 2.8 million by 2030 from 1.4 million in 2011 due to rapid economic growth and migration. Most travel in Yichang was through private transport, mainly in the central business district. While there was a bus priority system, it was ineffective because of illegal parking and hawker activities, among other things. Non-enforcement of traffic regulations, rapid growth of car ownership, and limited roadway capacity caused congestion, increasing road accidents, and vehicle emission-related air quality problems. Three Gorges Dam was a major part of the Yichang economy but due to limitations in ship lock capacity, freight traffic requiring pass-dam transhipment through Yichang, it was expected to add to the congestion and traffic safety problems in the city center. To reinforce the logistics hub function of Yichang, improvements were needed to access logistics parks and manufacturing facilities. Thus, the Hubei-Yichang...
Sustainable Urban Transport Project (the project) was approved by the Asian Development Bank (ADB) to help address these issues, with a loan of $150 million.

2. According to the report and recommendation of the President (RRP), major investments were needed in urban infrastructure, transport, and related services to accommodate the growing population and support sustainable urbanization and inclusive growth.¹ Yichang’s public transport system was not able to cope with future travel demand and the city’s nonmotorized transport facilities were unable to provide a safe environment for pedestrians and bicycle users. Yichang’s linear form was suited for a bus rapid transport (BRT) corridor, linking the new railway station and the provincial bus terminal.

B. Expected Impact, Outcome, and Outputs

3. According to the design and monitoring framework (DMF), the project’s expected impact was an efficient, inclusive, and sustainable transport system in Yichang. Its envisaged outcome was provision of efficient passenger and freight transport. The project comprised four outputs: the BRT corridor system, nonmotorized transport measures, road network improvement, and capacity building and quality assurance. The project was approved in August 2013 and became effective in January 2014, about 3 weeks earlier than expected. It was closed in December 2018, as originally planned in the loan agreement, and was financially closed in January 2020.

C. Provision of Inputs

4. The project was estimated to cost $515.1 million, where 29% was to be shared by the ADB through ordinary capital resources. The Yichang municipal government (YMG) was to finance 30% from the municipal budget and 41% from a domestic bank. According to the project completion report (PCR), the total project cost was 30% lower than estimated due to a well-managed procurement process resulting in competitive prices and effective project management.² The ADB financed 41.5% of the actual cost, while the YMG and the China Development Bank (now Industrial and Commercial Bank of China) financed the remaining balance.

5. The 11.2-kilometer (km) Bolinhe Road to Xianfeng Road (phase 2) was financed with domestic funds, instead of ADB’s loan, because of cost escalations and contract changes caused by underground pipelines not foreseen at appraisal. Originally, ADB was to finance 24% of Dongshan 4th Road civil works and 76% of BRT system and nonmotorized transport civil works. In July 2014, ADB approved a loan reallocation and increased ADB’s financing percentage for Dongshan 4th Road to 45%, and the BRT system and nonmotorized transport civil works to 99%. In November 2018, ADB approved a reallocation to raise ADB’s financing for the category 1A Civil Works—Dongshan 4th Road from 45% to 71% to fully utilize the loan savings.

6. The project included funding for international consultations for project management, capacity building, and quality assurance. According to the RRP, $1.8 million was to be provided for 136 person-months of consulting services for the main supervision and $0.2 million for the BRT system. Two international consulting firms were engaged for $1.17 million (main supervision) and $137,000 (BRT system). Both firms began work in July 2014. In December 2011, ADB approved $900,000 equivalent for project preparatory technical assistance to help the government

assess the project’s technical, environmental, financial, economic, social, and institutional feasibility under the Hubei-Yichang Sustainable Urban Transport Project.

7. The project was classified category A for environment and an environmental impact assessment and environmental management plan were prepared and were disclosed on the ADB website. The environmental impact assessment concluded that anticipated environmental impacts and risks were modest and could be limited to an acceptable level through the implementation of the environmental management plan and compliance with loan covenants.

8. The project was classified category A for involuntary resettlement. Potential project impacts included land acquisition in rural areas and demolition of rural and urban houses and urban commercial structures. Nine villages and one urban neighborhood in Yichang city were to be affected. The total permanent land acquisition was to be 1,797.5 mu and 56,107 square meters of residential structures were to be demolished. Together, land acquisition and demolition were to affect 1,453 persons in 370 households. It was to also involve demolition of 325 square meters of shops along the BRT corridor affecting 25 persons in nine shops. The project was to temporarily occupy 528.59 mu of land. At appraisal, a resettlement plan was prepared according to the country’s regulations and ADB’s Safeguard Policy Statement (2009), which was disclosed on ADB website. The project was classified category C for indigenous peoples as there were no ethnic minority communities adversely affected by the project.

9. The project was designed with gender-sensitive features to boost women’s inclusion and participation. All four project outputs included features meeting gender-specific transport and economic development needs of the project beneficiaries. The poverty and social assessment indicated that 51% of women used public transport as the main mode of transportation and 31% relied on walking. Women had particular transport needs arising from their social roles and patterns of mobility. They also had personal safety concerns when using public transport. These gender-related concerns were dealt with in the project design to ensure that women benefited from an urban transport system that was safe and convenient. A gender action plan (GAP) was prepared, and its implementation was to be monitored through sex-disaggregated data.

D. Implementation Arrangements

10. According to the RRP, the executing agency was the YMG, and the implementing agency was the Yichang Municipal Urban Construction Investment and Development Co. Ltd. The project administration manual indicated that a project management office was established within the implementing agency’s Finance Bureau to coordinate and resolve interdepartmental issues. Some of the responsibilities were supervising and coordinating project implementation; liaising with stakeholders; reviewing and ensuring compliance with laws and regulations and ADB requirements; retaining consultants for the resettlement and environmental management plans, implementing external monitoring, and supporting individual consultants and design institutes; and coordinating counterpart funding. Additional responsibilities were supervising project implementation and other consultants; retaining a qualified tendering agency; and serving as the office for the Yichang Project Leading Group (PLG). Implementation arrangements were

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3 A mu is a Chinese unit of measurement for area (1 mu = 666.67 m²).
4 A gender action plan was prepared to (i) ensure women’s equitable participation in public consultation, (ii) implement the gender-responsive features of the project, (iii) promote employment opportunities for women, and (iv) build institutional capacity for gender mainstreaming.
5 The Project Leading Group headed by Yichang’s vice mayor comprised members from the Yichang municipal government departments. They met regularly to ensure effective implementation and gave municipal level policy guidance.
adequate and followed, as designed at appraisal. The government and executing agency complied with all loan covenants. Of the 90 covenants, 88 were complied with, and two were not applicable because there was no change in ownership or amendments to the implementing agency’s constitutional document.

II. EVALUATION OF PERFORMANCE AND RATINGS

A. Relevance of Design and Formulation

11. The PCR rated the project highly relevant at appraisal and completion. The project was aligned and consistent with ADB’s Strategy 2020; the country partnership strategy for 2011–2015; the government’s development strategy; and the Thirteenth Five-Year Plan for green, low carbon, and livable cities. The focus on public transport and multimodal integration directly supported ADB’s Sustainable Transport Initiative. The project was aligned with the development plan of the Three Gorges Modern Logistics Center, a key priority of the National Development and Reform Commission under the Twelfth Five-Year Plan. The project design was also aligned with the requirements of the Yichang City Urban Master Plan for 2011–2030.

12. The project design was relevant to Yichang’s urban transport needs. There were no changes made as it supported inclusive growth and balanced development by promoting sustainable urbanization. It also contributed to resource efficiency and environmental sustainability by promoting efficient and sustainable urban transport. The project’s design introduced innovative technologies and incorporated nonmotorized transport facilities into the road network and BRT system designs. The bypass road design reinforced Yichang’s logistics hub function and contributed to ADB’s support for more environment-friendly modes. The project design at appraisal was adequately formulated and the financing modality was appropriate.

13. The project had substantial demonstration value for other ADB-funded and non-ADB-funded BRT projects. The project also included several examples of innovative features adopting new technologies. It demonstrated success in changing people’s transportation habits and behaviors. An impact assessment survey in November 2018 showed a 38% change in transport mode from private vehicles and taxis to the BRT system.

14. The PCR noted that the project featured several innovations. First, 90% of the base course used recycled concrete to construct the Dongshan 4th Road. Second, new pavement technology, using black steel reinforcement at start/stop points for buses at stations and traffic lights, was implemented to ensure durability. Third, intelligent information systems for boarding and alighting buses were installed in Pinghu Square station. Also, BRT riders were able to pay the bus fare or use integrated circuit transport cards to get into the station through pedestrian crossings, pedestrian overpasses, or tunnels. The BRT system was also equipped with an advanced information system whereby the real-time bus operation status was displayed on buses, as well as at bus stations. Fourth, plants and artificial soil were used for slope protection. Fifth, split station design was used at the BRT stations which allowed the buses to stop simultaneously from both directions while still maintaining an exclusive bus lane. Sixth, two-meter nonmotorized transport bicycle lanes along the BRT corridor was to improve accessibility and reduce carbon emission. Lastly, traffic management along the BRT corridor intersections was established using a two-way traffic signaling system and banning left turns. These innovative features led to traffic efficiency.

reduced congestion, and improved the city’s image as clean, efficient, and accessible. Emergency response times also improved because ambulances and firefighters could use the BRT lane.

15. Although some of the project’s design features with BRT systems were also found in other parts of the world, the Yichang BRT system was unique in design with several innovative features. The project design also adequately addressed the urban traffic issues. It was consistent with ADB’s and government priorities, was innovative, and had transformative and demonstration value for other projects. This validation therefore assesses the project highly relevant.

B. Effectiveness in Achieving Project Outcomes and Outputs

16. The PCR rated the project highly effective and indicated that all outcome and output targets were met. With the successful implementation of the BRT system and road network improvements, an efficient passenger and freight transport system was established in Yichang.

17. The PCR reported four outcome indicators and targets. Outcome 1 was for the bus traffic speed on Dongshan Avenue to increase to 25 kilometers per hour (kph) by 2018 from 15 kph in 2011, which the PCR reported as achieved. However, this validation notes from the PCR (para. 53) that while the BRT speed on Dongshan Avenue for nonpeak hours increased from baseline 15 kph in 2011 to 25 kph by 2018, the average peak hour BRT speed reached 19.46 kph in 2016 and averaged 18.30 kph in 2019 during the peak hour condition resulting in the target not being achieved. It would also have been beneficial if the travel speed along the regular lane was measured to assess the trade-off of implementing BRT lane and its effect to the other modes of travel. For outcome 2, passenger travel time to bus stops was targeted to be reduced to 10 minutes on average by 2018, from 20 minutes in 2011. While it decreased to 10.7 minutes in 2018, the target was not fully achieved. It was also not clear how the passenger travel time to the bus stops was measured since it varied by mode of arrival, and there were multiple bus stops located along the BRT corridor. For outcome 3, freight travel time between inland ports and logistics centers was to be reduced by 20% by 2018, and the PCR reported it was reduced by 76.7%. However, it was not clear which inland ports and logistic centers served as the reference points, and whether the BRT corridor or the Dongshan 4th Road directly had attribution to the travel time savings, especially considering that the World Bank-supported Three Gorges Modern Logistics Center were not completed at the time the PCR was developed. For outcome 4, pass–dam transshipment freight travel time to logistics centers was reduced to 0.47 hours in 2017 while target was 1 hour in 2018 from 2 hours in 2011. However, the PCR did not indicate which logistics centers it was referring to.

18. There were four outputs and most of the defined output indicators achieved the targets. For output 1 on the BRT corridor, the four indicators were all achieved. The target to have a 23.9 km BRT system operating by 2017 was achieved. Priority seating for people with special needs (pregnant women, children, elders, and disabled) was allocated in all rapid transport buses with five seats in orange red color, and three seats and three backrests in each BRT platform. Parking management measures for the BRT corridor was to be provided by 2017 which was achieved by having parking facilities for bicycles and vehicles and banning parking along major thoroughfares in the BRT corridor. Also, 20% of 609 BRT drivers and 69% (target 50%) of 227 ticketing, fare collection, and administrative workers and 52% of 29 for administrative, technical, and management staff were women, thereby achieving women employment targets.

19. Output 2 on nonmotorized transport measures with two indicators were all completed. Pedestrian and bicycle facilities were to be provided with dedicated, safe rights-of-way with 40 km pedestrian lane and 30 km bicycle lane along the BRT corridor; 14.2 km of green roads or
bicycle lanes in Canal Park along the Yangtze River and under the Xiling 2nd Road viaduct; pedestrian crossings at 81 locations; 28 public bicycle stations with about 700 bicycles; private bicycle parking places at 24 locations with over 400 parking racks; and wind and rain corridors of 476 meters at three BRT stations. Bicycle sharing stations were operating along the BRT corridor since March 2017. Besides information on the nonmotorized transport facility, it would have also been beneficial if the usage/ridership of the facilities and the bike sharing stations were reported as part of the performance indicator with quantifiable targets.

20. Of the output 3 on the two road network improvement indicators, a total of 23.4 km of new urban road was to be constructed by 2017—12.2 km of the Fazhan Avenue–Bolinhe Road Section (phase 1), a road width of 44–70 meters; and 11.2 km Bolinhe Road–Xianfeng Road (phase 2) to be Class 1 highway, with a 24.5-meter road width. It also included construction of 11 bridges and two tunnels, but the PCR did not provide information on this output. The section defined as phase 1 was completed but the section defined as phase 2 was cancelled from the ADB loan and funded from domestic sources. Also, the target for women in 20% of the unskilled construction jobs was achieved. Including in the DMF as output indicators, the volume and travel time reduction on the new road network could have provided better understanding of the achieved benefits.

21. Output 4 was on capacity building and quality assurance with four indicators where trainings were conducted. In 2015, 96 participants, 24% female from the executing and implementing agencies were trained in project management and implementation. In 2016, 147 participants, 31% women from the concerned agencies in Yichang were trained in traffic management, road safety, and BRT operation and management. Of the 3,500 BRT drivers and conductors trained in 2015 on safety needs, 50% were women. Also, 17% of participants from key executing and implementing staff trained in GAP implementation were women.

22. The PCR noted that implementation of the environmental management plan was satisfactory. No unexpected adverse environmental issues occurred, and apart from some occupational health and safety and community safety issues during construction, there were no pending safeguards-related noncompliance issues at completion. However, one station (B28 Pinghu station), was not operational due to the delayed land acquisition issue along the narrowest corridor of the B9 route, which the municipal government had to finance once the land acquisition was finished. The Environment Protection Bureau received numerous complaints during the construction of the BRT system, particularly about dust. The ADB medium-term review noted some issues regarding safety that required action, including concerns about workers’ and community health and safety, poor site management, absence of personal protection equipment, and unfenced construction areas. At one site, traffic control was not observed which caused inconvenience to nearby communities and disturbance in local traffic.

23. At the time of the project completion review mission, all affected persons were compensated according to the resettlement plan. Although the main structure of Heihushan resettlement community was completed, the natural gas, pipe water, greening, and parking lots were not completed as required before building acceptance. The resettlement community was expected to be completed before July 2021. A grievance redress mechanism was set up and no complaints, grievances, or other concerns were noted. GAP was implemented successfully, and women’s employment met or exceeded the targets set in the DMF (para. 20).

24. This validation finds that two of the four outcome targets were partially achieved, while the assumptions in determining the two achieved outcome targets were not clear. However, considering that majority of the outcome and output targets were either partially or fully achieved, this validation assesses the project effective.
C. Efficiency of Resource Use

25. The PCR rated the project highly efficient because the project outcome was achieved with an efficient use of resources, at a cost lower than estimated, and the project was economically viable at completion. The project’s economic internal rate of return (EIRR) was 21.7%, higher than the 17.8% at appraisal. Sensitivity analysis showed that the project was economically robust under various scenarios. The PCR reported that the organizational setup, management, and approval processes of YMG, Yichang PLG, and project management office were adequate and met the project’s requirements. The process was efficient, and no significant delays occurred during project implementation.

26. However, this validation notes an overestimation of the economic benefits in the EIRR calculation. First, the PCR estimated residual values of the BRT system at 30% of the investment cost at the end of the 25-year evaluation period and the Dongshan 4th Road at 50% of the investment cost. Considering the lifespan of these investments, the residual values were overestimated unless there was a strong justification. Second, economic benefits were entirely attributed to buses. Appendix 15 of the PCR stated that some of the bus traffic was diverted from private cars. The economic benefit of the diverted traffic is, therefore, the difference between vehicle operating costs of private cars and buses. Also, economic benefits from the Dongshan 4th Road investment were attributed to buses only, without considering private cars. Third, since the actual data was not available during the project completion review mission when the Dongshan 4th Road was not fully operational, the EIRR assumed that traffic will increase by 15% per annum from 2019 to 2024 and 5% thereafter until the end of the analysis period. However, considering that the project roads have a finite roadway capacity, it was not reasonable to assume a steady growth over the project’s life. Project roads will quickly reach their congestion point, after which there will be no more traffic growth. Fourth, it is unlikely to have significant savings in passenger time with an increase in bus speed from 15 kph to 18.3 kph over a distance of 23.9 km during the peak hour condition. Given that traffic congestion will occur in the not-distant future, whatever time savings are currently experienced from the project should quickly dissipate. On the basis that the economic benefits of the project were overestimated, this validation assesses the project efficient. The PCR provided little discussion on process efficiency, but no major issues clearly occurred.

D. Preliminary Assessment of Sustainability

27. The PCR rated the project likely sustainable. The financial reevaluation found that the project was sustainable with a financial internal rate of return (FIRR) of 2.5%, exceeding the weighted average cost of capital of 0.7%. The YMG’s fiscal budget could finance the debt repayment and subsidies to the Yichang Public Transport Group to sustain its operations and maintenance budget. The FIRR at appraisal was 4.8%, higher than that at completion mainly due to overly optimistic passenger traffic forecast at appraisal. The PCR noted that the project had no unexpected adverse environmental impacts. Air quality in Yichang improved after project completion. Training and consulting services provided by the project strengthened financial management, project management, and performance management capabilities of municipal institutions. Training programs enhanced the staff technical, operational, and managerial capabilities, as well as gender and environmental consciousness.

28. This validation notes several shortcomings in the FIRR calculation. First, government subsidies should not be considered because subsidies were common to “with project” and “without project” scenarios. Second, for the origin of incremental revenue from the project which was related to diverted traffic from private cars to buses, existing passenger traffic was common
to both the “with project” and “without project” scenarios and should not be considered. Third, the bus fare increase should not be considered because the FIRR was calculated in real terms and bus fares will likely increase at the rate of inflation.

29. The state subsidy that the city of YMG receives is also likely limited considering its bus volume category and due to the state policy to keep the public bus fare low, with the bus operating company constrained in raising the tariff on its own. Without the provision of adequate budgetary support from the state government, especially considering the coronavirus disease 2019 (COVID-19) pandemic effect to the public transport operations, the sustainable operation of the BRT system is not ensured. Also, according to the City Transport Master Plan conducted in 2014, there is a plan for Metrorail Transit system to run parallel to the BRT corridor. If the Metrorail Transit is approved, it would most likely reduce the ridership along BRT. Therefore, this validation rates the project less than likely sustainable.

III. OTHER PERFORMANCE ASSESSMENTS

A. Preliminary Assessment of Development Impact

30. The PCR rated the project’s impact highly satisfactory and noted that improved connectivity provided better access to markets, employment opportunities, schools, hospitals, and social services. There were 2.4 million beneficiaries, of which 1.1 million were women. The introduction of the BRT system and nonmotorized transport measures, such as dedicated bicycle and pedestrian lanes and parking management along Dongshan Avenue, also contributed to a sharp decrease in traffic accidents and fatalities. Fatalities due to accidents declined by 85% from 2011 to 2019 but the reduction may not all be attributable to this project.

31. There were three performance indicators associated with the project impact. For indicator 1, the PCR noted that the bus passenger ridership in the citywide bus system decreased by 15% from 2015 to 2019. Similar to many Chinese cities, Yichang experienced a decrease in bus ridership over recent years. However, there was a sharp increase in bus ridership on the BRT system, from 38.6 million passengers in 2015 to 96.2 million passengers in 2019 but the PCR did not mention about the whole transit system being recalibrated with the introduction of the BRT system. The PCR’s DMF assessed this target as partly achieved. For indicator 2, the PCR’s DMF noted that pass-dam transshipment freight also grew by 30% in 2016 compared to 2011, exceeding the 25% target. However, this data was classified from 2017 and could no longer be obtained, and updated data was unavailable. For indicator 3, the target for average concentration of carbon dioxide (CO₂) in the air quality of Yichang to be maintained at 2011 levels of around 5,300 tons in 2020 was achieved, with CO₂ emission reduced by 42,480 tCO₂e⁹ in 2019. However, the PCR provided limited evidence that these changes were directly attributable to the project especially considering that the Dongshan 4th Road was not completed and did not fully account the increase in traffic volume due to the road network improvement.

32. There was limited evidence that the project had positive development impacts beyond the expectations indicated in the RRP without any negative impacts. This validation assesses the project’s impact satisfactory.

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⁹ tCO₂e means metric tons of carbon dioxide equivalent.
B. Performance of the Borrower and Executing Agency

33. The PCR rated the performance of the Ministry of Finance, as borrower, satisfactory. The ministry gave timely guidance and approvals on implementation issues. YMG’s performance as the executing agency was also rated satisfactory. The municipal government lent its full support throughout the project implementation. Loan and project agreements were signed and became effective as scheduled. Implementation was as planned and the Yichang Municipal Urban Construction Investment and Development Co. Ltd.’s performance as implementing agency was satisfactory. Project progress, quality, and cost were effectively managed. Counterpart funds were sufficient and timely. For these reasons, this validation assesses the performance of the borrower and executing agency satisfactory.

C. Performance of the Asian Development Bank and Cofinanciers

34. The PCR rated ADB’s performance satisfactory. ADB regularly inspected the project sites and closely coordinated with the borrower and executing agency, facilitating timely resolution of issues. It approved all procurement packages and processed withdrawal applications for timely disbursements and re-allocation of loan proceeds.

35. Key environmental and social safeguard requirements were outlined in the project documents and adequately described the expected environmental and social risks, as well as potential positive impacts, such as expected improvements to air quality and road safety. The quality of the documents was satisfactory. Public consultation meetings were extensive and were ongoing during construction and operation.

36. ADB fielded six loan review missions, together with a social safeguard review in July 2016 and a midterm review mission in November 2016. The midterm review noted several environmental safeguard issues at a construction area requiring action and made detailed recommendations for follow-up including the need for personal protection equipment, improvements to poor construction site and traffic management, as well as site fencing. Adequate monitoring was done, and actions taken when deficiencies were discovered. This validation assesses ADB’s performance satisfactory.

IV. OVERALL ASSESSMENT, LESSONS, AND RECOMMENDATIONS

A. Overall Assessment and Ratings

37. The PCR rated the project highly successful. It was rated highly relevant, highly effective, highly efficient, and likely sustainable. This validation assesses the project highly relevant, effective, efficient, and less than likely sustainable. The project design adequately addressed the urban traffic issues in Yichang, and the project was consistent with ADB and government priorities. The design was also innovative and had transformative and significant demonstration value for other projects. Most of the project outcome and output targets were achieved. The project was efficient, but its economic benefits were overestimated. Related to the project sustainability, YMG needs to ensure the sustainable operation of the bus system and provide adequate resources from its budget. Overall, this validation assesses the project successful.
### Overall Ratings

<table>
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<th>Validation criteria</th>
<th>PCR</th>
<th>IED review</th>
<th>Reason for disagreement and/or comments</th>
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<tbody>
<tr>
<td>Relevance</td>
<td>Highly relevant</td>
<td>Highly relevant</td>
<td>The outcome targets were not fully achieved, and assumptions were not clear.</td>
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<tr>
<td>Effectiveness</td>
<td>Highly effective</td>
<td>Effective</td>
<td>The economic benefits in the EIRR calculation were overestimated.</td>
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<tr>
<td>Efficiency</td>
<td>Highly efficient</td>
<td>Efficient</td>
<td>The FIRR calculation had several shortcomings. Assurance of adequate budgetary support from the State was not given.</td>
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<tr>
<td>Sustainability</td>
<td>Likely sustainable</td>
<td>Less than likely sustainable</td>
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| Overall Assessment | Highly successful | Successful | |
| Preliminary assessment of impact | Highly satisfactory | Satisfactory | There was insufficient evidence of highly satisfactory development impacts. |
| Borrower and executing agency | Satisfactory | Satisfactory | |
| Performance of ADB | Satisfactory | Satisfactory | |
| Quality of PCR | Satisfactory | Satisfactory | |

*ADB = Asian Development Bank, EIRR = economic internal rate of return, FIRR = financial internal rate of return, IED = Independent Evaluation Department, PCR = project completion report.

Source: ADB (IED).

### B. Lessons

38. The PCR identified three lessons. First, full commitment and support from city government and ADB throughout planning and implementation is critical for project’s successful performance and results. Although there was initial resistance to the BRT concept, these challenges were overcome by showcasing other successful examples of BRT solutions from around the world and a firm commitment to the project by its advocates. Second, a full-scale public involvement program during project construction is a key element to ensure successful implementation of the project, which will help gain public support and encourage its use. Third, close coordination between the city government and the PLG and project management capabilities of the stakeholders can possibly fast-track BRT completion systems which took less than 1 year from the start of construction until opening to the public for trial operation.

39. This validation offers two additional lessons. First, a systematic benefit analysis appropriately captures and values the diverse benefits from the project investment. Identification, quantification, and valuation of economic and financial benefits are a complex process for urban development projects, and EIRRs and FIRRrs are crucially dependent on sound measurement of these benefits. Also, performing mode share trend survey, including assessing the usage of various modes of travel including BRT, nonmotorized transport, and changes to private auto vehicle usage effected by the project will help assess the benefits from the project investment holistically. Second, requiring project performance management system (PPMS) for all urban development-type projects would help enhance the valuation of economic and financial benefits.

### C. Recommendations and Follow-Up Actions

40. The PCR recommended that to minimize project costs and contract changes during the project implementation phase, geological exploration, urban underground pipeline exploration, detailed design, drawing review, bidding document review, and bid evaluation should be carried out carefully during project preparation. The PCR also suggested three follow-up action items.
First, accelerate completion of the Heihushan resettlement community’s construction so that the resettlement housing can be handed over to the 14 affected households by July 2021. Second, strengthen information disclosure of resettlement community construction progress to the affected households. Third, monitor the progress of transition subsidy payments to affected households, pay close attention to the living conditions of affected households, and provide support to the affected households, if necessary. The PCR also noted that while nonmotorized transport benefits of the project were significant and contributed to a greener, livable Yichang, and an efficient urban transport system in the city, parking management along the BRT corridor needs to be strengthened to maintain initial gains. Cars were being parked along the dedicated pedestrian walkways and better enforcement is needed to reverse this.

V. OTHER CONSIDERATIONS AND FOLLOW-UP

A. Monitoring and Reporting

41. Annual progress reports were submitted on time, but audited project financial statements for the loan were delayed. All audited project financial statements for fiscal years 2014–2018 had unqualified auditor’s opinions. Safeguard monitoring reports on environment and resettlement were submitted on time and uploaded to ADB’s website. Although there was mention of a PPMS in the DMF and loan covenants, there was no requirement to establish it.

B. Comments on Project Completion Report Quality

42. The PCR was succinct and assessed all the evaluation criteria, especially relevance and effectiveness were thoroughly assessed. However, it omitted a discussion of the 11 bridges and two tunnels that were part of the project. The valuation of economic benefits should have been thoroughly prepared (para. 26). The PCR could have also discussed the COVID-19 implication on project sustainability since it directly affects public transit capacity, safety associated with the ridership, and also how the executing and implementing agencies will be implementing the specific safety and management measures being considered under the COVID-19 situation. Nevertheless, the PCR was coherently written and there was enough basis to substantiate the PCR ratings. Therefore, this validation assesses the quality of the PCR satisfactory.

C. Data Sources for Validation

43. The data sources were the RRP, back-to-office reports, Independent Evaluation Department’s project safeguard assessment, and ADB’s country partnership strategies.

D. Recommendation for Independent Evaluation Department Follow-Up

44. The PCR recommended that the project performance evaluation report be prepared in 2021. However, this schedule needs to be determined at a point when the situation normalizes post-COVID-19 pandemic.