

Report and Recommendation of the President to the Board of Directors

Project Number: 40573 March 2008

Proposed Technical Assistance Loan Islamic Republic of Pakistan: Preparing the Lahore Rapid Mass Transit System Project

Asian Development Bank

CURRENCY EQUIVALENTS

(as of 9 January 2008)

Currency Unit	—	Pakistan rupee/s (PRe/PRs)
PRe1.00	=	\$0.01630
\$1.00	=	PRs61.30

ABBREVIATIONS

ADB	_	Asian Development Bank
BOT	_	build-operate-transfer
TD	—	Transport Department
JICA	_	Japan International Cooperation Agency
P&D Board	—	Planning and Development Board
PDD	—	Planning and Development Department
PPG		Punjab provincial government
PPP	_	public-private partnership
PSC	_	project steering committee
RMTS	_	rapid mass transit system
ТА	_	technical assistance

NOTES

- (i) The fiscal year (FY) of the Government ends on 30 June. FY before a calendar year denotes the year in which the fiscal year ends, e.g., FY2007 ends on 30 June 2007.
- (ii) In this report, "\$" refers to US dollars.

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LOAN AND TECHNICAL ASSISTANCE SUMMARY

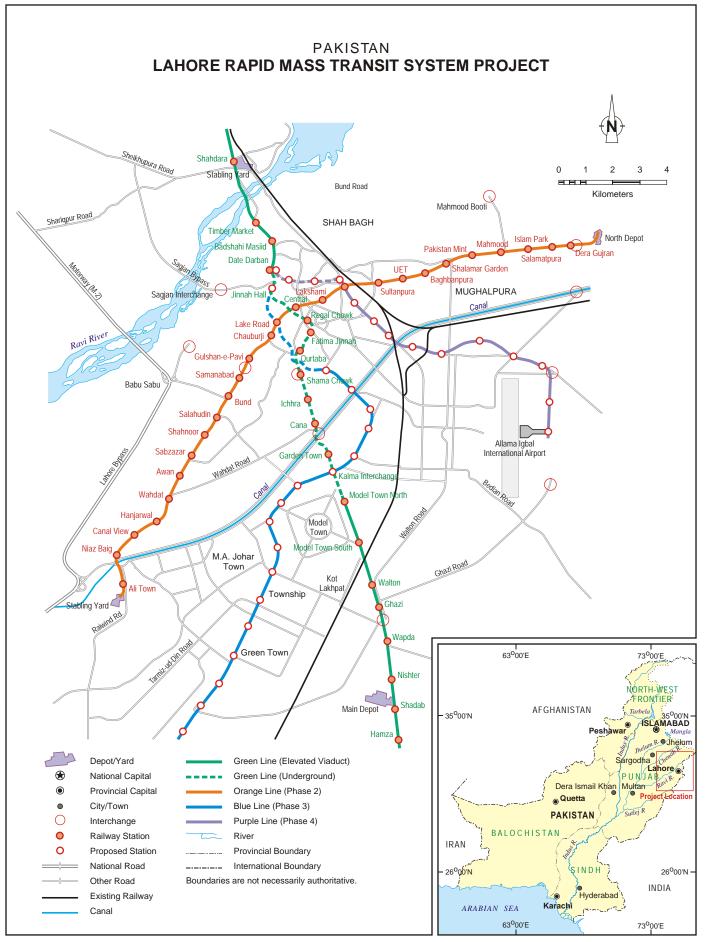
Borrower	Islamic Republic of Pakistan
Classification	Targeting classification: General intervention Sector: Transport and communications Subsector: Railways Themes: Sustainable economic growth, capacity development, private sector development Subthemes: Developing urban areas, organizational development
Environment Assessment	Category C The technical assistance (TA) will not by itself have any environmental impact. An environmental assessment will be an integral component of project preparation being undertaken in parallel for a proposed ensuing project. The Government of Pakistan (the Government) will provide an assurance that any ensuing project will be prepared in accordance with the <i>Environment Policy</i> (2002) of the Asian Development Bank (ADB).
Project Description	The TA project provides a key intervention for the long-term partnership between ADB and Pakistan to develop Lahore's transport sector. It supports recruitment of a transaction advisor to help formulate, structure, and take to the market a public-private partnership for the first priority line of a proposed rapid mass transit system (RMTS) in Lahore.
Rationale	Lahore is the capital of Punjab province and the second largest city in Pakistan. Its population, just under 9 million, is growing at a rate of about 3.0% per year. Despite a number of initiatives over the years, such as introducing and improving fleets of buses, traffic gridlock and congestion are now constraining growth, curtailing investment, and reducing the city's competitiveness. Based on feasibility studies and other analysis, the Lahore RMTS has strong potential to provide an attractive and efficient option for public transportation, an alternative to private vehicles, and a cleaner technology than existing bus and other transport technologies. In sum, the proposed RMTS will help reduce constraints on growth, investment, and city competitiveness currently imposed by the state of Lahore's transport system.
Impact and Outcome	The TA will improve the urban rapid mass transportation network in Lahore. The outcome of the TA is a structured design for the Lahore RMTS Project feasible for ADB financing.
Project Investment Plan	The investment cost of the TA project, to finance the recruitment of transaction advisor, is estimated at \$7.5 million equivalent, including foreign exchange costs of \$6.0 million and local currency costs of \$1.5 million equivalent.

Financing Plan		(\$ million)			
•	Source	Foreign	Local	Total Cost	0/
	Source Asian Development Bank	Exchange 6.00	Currency 0.00	Cost 6.00	<u>%</u> 80
	Government	0.00	1.50	1.50	20
	Total	6.00	1.50	7.50	100
	Source: Asian Development B	Bank estimates.			
	A loan of SDR 3,794, drawing rights and vario resources will be provid including a grace period 1.0% per annum during thereafter.	bus currencie ded. The loa d of 8 years	es from ADE an will have , and with a	s's Specia a 32-ye n interest	I Funds ar term rate of
Period of Utilization	Until 31 December 2009				
Estimated Project Completion Date	30 June 2009				
Executing Agency	The Planning & Develor government will be the E			Punjab pr	ovincial
Implementation Arrangements	The Planning & Develo advisor and oversee the time staff to assist in imp	TA. It has a	greed to assi		
	A project steering comm chairman, Planning government, was form support, oversees projec contracts, facilitates agencies concerned, implementation of the tra	& Develo ed in April ct progress a coordination and super	pment, Pu 2005, and and letting a and coop vises the	njab pr provides nd superv peration formulatic	ovincial policy vision of among
	The Transport Departme for the advisory services the utilities agencies w necessary.	s, and the T	D staff and	executive	staff of
Consulting Services	Under the TA, a packag a consultant firm with structuring, and raising mass transit systems in	expertise ai finance on	nd experiend the capital r	ce in ass	sessing,
	International and nation will be recruited as f method, using full techn <i>Guidelines on the Use</i> time to time).	irms under lical proposa	the quality- ls, in accord	-based s lance with	election n ADB's
Project Benefits and Beneficiaries	An urban rapid mass tr and its large population				

ways. It would allow the city to function effectively even when congestion is severe, and enable people to commute more easily to work. The additional capacity provided would allow the dynamic city center to thrive economically, and over time help to fundamentally shift the structure of the city, and guide and support future development in a more balanced, sustainable manner. Other road users would benefit from reduced congestion and pollution. The Government would benefit from policy options not previously available that accelerate an understanding of the need to manage the urban transport system as an integrated whole.

Risks and Assumptions Major risks include capacity issues related to the ability of the Government to lead and implement the TA in a timely manner, and the maintenance of political stability and security. Due diligence will assess safeguards. Land acquisition and resettlement could be substantial under an ensuing investment project. Intensive consultation will be required to ensure cooperation from civil society and nongovernment organizations.

The transaction structure, led by a credible international investment bank, is expected to effectively attract sufficient private sector interest. Best international practice for concession structures is assumed to be appropriate and applicable to the Pakistan context.



I. THE PROPOSAL

1. I submit for your approval the following report and recommendation on a proposed technical assistance (TA) loan to the Islamic Republic of Pakistan for preparing the Lahore Rapid Mass Transit System Project. The design and monitoring framework is in Appendix 1.

II. RATIONALE: SECTOR PERFORMANCE, PROBLEMS, AND OPPORTUNITIES

2. In its medium-term development framework, the Government of Pakistan (the Government) committed to enhancing the competitiveness of, and quality of life in, its large cities. A high-level committee led by the Planning Commission is coordinating urban development, with Lahore as one of the core components of a long-term economic development strategy. Vision 2020 for Pakistan highlights the vital role to be played by the urban sector in realizing national development goals. Urban centers such as Lahore are to be developed within the framework of strategic master plans, incorporating economic parameters for efficiency gains to make cities competitive in the global and regional context. Lahore is seen as one of the great cities of the world, a major entertainment, intellectual, and commercial hub imbued with rich cultural heritage.

3. The Government asked the Asian Development Bank (ADB) for assistance to develop a rapid mass transit system (RMTS) for the city of Lahore, as part of ADB's growing engagement in the country's urban infrastructure and services sector. The Punjab provincial government (PPG) has undertaken extensive preparatory work to assess the feasibility of the proposed system, utilizing a public-private partnership (PPP) approach, which envisages a long-term plan to finance, construct, and operate four mass rail lines interconnected to multimodal transport. The Government has requested ADB support to recruit a highly qualified international advisory team to design the transaction and take it to the market for private sector financing. Engagement of a transaction advisor will ensure that the proposed PPP structure is sound, based on best international practice, and attracts the best possible partners from the private sector.

A. Performance Indicators and Analysis

4. **Economy**. Lahore, the capital of populous Punjab province, and second largest city of Pakistan, is the cultural, political, and educational center of Pakistan. Lahore's economic base is broad and varied. A major industrial agglomeration with about 9,000 industrial units, it has shifted in recent decades from manufacturing to service industries. Some 42% of its work force is employed in finance, banking, real estate, community, cultural, and social services. The city is the country's largest software producing center, and hosts a growing computer-assembly industry. Lahore has the second largest stock exchange in the country.

5. **Demography**. Punjab is Pakistan's most urbanized province, with roughly 36% of its population living in urban areas. According to the 1998 census, Lahore had a population of 4.5 million in 1998, up from 2.7 million in 1981. Based upon the intercensal (1981–1998) annual growth rate, the current population of Lahore is estimated at 7 million. The population in the project area covered by the Lahore RMTS was estimated to be around 8.7 million in 2006, and is forecast to increase to about 16.2 million by 2025 at an annual average growth rate of around 3%.

6. **Megacity Development Trends**. The geographic location and economic potential of Lahore have drawn both labor and capital for many decades, but the city has never been in a position to maximize this potential for its own benefit. Little investment has been made in the city's infrastructure over the past two decades; traffic congestion is now unmanageable and constrains economic growth. New investments and new additions to the labor force are not optimally located in the city, resulting in haphazard development, a polluted urban environment, and, for many households, poor quality of life.

7. **Poverty**. Based on the 2001 poverty line¹ and personal incomes for fiscal year 2002^2 for Lahore, 30% of the city's total population is poor. The incidence of poverty varies in the nine towns in the city. The highest incidence is in the more than 300 *katchi abadis*, which are informally developed and poor settlements and houses and home to about 35%–50% of the city's total population. The vast majority of the population in katchi abadis live below the poverty line.

8. **Urban Environment**. Lahore faces and causes significant environmental issues and pressures. All of Lahore's domestic and industrial wastewater is untreated, and finds its way directly or indirectly to the Ravi River. Many of Lahore's industries generate a mixture of chemicals and toxic substances, the bulk of which is discharged into the river or creeks. Vehicle-generated air pollution is severe, with high concentrations of suspended particulate matter causing respiratory problems for a large number of Lahore's residents.

B. Analysis of Key Problems and Opportunities

1. Urban Transport: A Constraint to Growth

9. With a current population of about 9 million, Lahore is growing at 3.32% per annum. The number of vehicles has phenomenally increased in recent years, resulting in heavy congestion, slower traffic, increasing road accidents, waste of fuel and person-hours, and environmental degradation. Despite a number of initiatives, such as introducing fleets of buses, the growing problems of gridlock and congestion now constrain growth, curtail investment, and reduce the city's competitiveness.

10. The transport network has been inadequately developed and maintained. This is exacerbated by the diversity of the traffic mix and lack of traffic and pedestrian discipline. In the past, 18-seater minivans dominated public transport services; however, rising incomes of the growing population have generated an increase in travel demand and the desire for higher quality transport. Properly organized routes and new services have been introduced, increasing willingness to pay premium fares and a desire for better services.

11. One potential solution, a proposed light rail transit system, was first studied as part of the Japan International Cooperation Agency's Comprehensive Study of the Transportation System in Lahore in 1991. This was reviewed and updated under the 1993 World Bank-funded Lahore Traffic and Transport Studies. In 2005, the concept was revisited, and the Government financed a feasibility study, which was completed in July 2006. The next phase is a reference design study, now under way, which will take the RMTS design to 30%–35% completion, sufficient for the scheme to attract funding.

12. On 19 October 2006, the Government approved concept clearance for the Project, and early implementation of an efficient and effective RMTS for Lahore. The system is expected to

- (i) increase commercial and residential development;
- (ii) minimize duplication and overlapping on public transport routes;
- (iii) maximize ridership through an integrated multimodal system;
- (iv) offer better service in terms of speed, frequency, and easy accessibility to reduce car and motorcycle dependency;
- (v) provide safe, secure, environmentally sustainable, reliable, and dependable transport that meets needs and aspirations of this growing city; and

¹ The poverty line adopted by the Government is based on a caloric norm of 2,350 calories per adult per day and minimum nonfood requirements. This poverty line approximates PRs748.6 per month per adult in FY2001 (Government of Pakistan. 2003. *Poverty Reduction Strategy Paper*. Islamabad.)

² The income calculations are based on (i) figures for monthly income range and percentage of households in the Household Income and Expenditure Survey, 2001–2002; and (ii) Poverty Reduction Strategy Paper.

(vi) link the center of Lahore and its rapidly developing suburbs with fast and convenient access.

13. The feasibility study, covering 5% of the required design work, outlines an integrated strategic network of four lines of about 82 kilometers (km) long with 60 stations. The first phase will address a 27 km priority line (the green line), which includes 11.6 km underground passing through environmentally sensitive and heritage areas. The line is estimated to carry about 250,000–300,000 passengers per day in the first year, 2013, providing direct walk-in access for passengers through 22 planned stations (12 underground and 10 elevated). The green line would provide seamless connectivity to the city center for commuters from outside Lahore through two planned multimodal terminals, one at each end. Additionally, the line is planned to have five interchange stations with future lines.

14. The ultimate capacity of the green line is estimated to be 30,000 passengers per peak hour per direction. Initially, each train would comprise four cars, 48 meters long, doubling to a set of eight-car trains in later years. The feasibility study estimates the cost of the green line at \$2.4 billion; this estimate is being confirmed through the follow-on reference design study, and will be further refined. A description of the proposed green line project is in Appendix 2.

15. The Government is aware that passenger fares will not cover the full cost of building, financing, operating, and maintaining the system; and that subsidies will be required to cover the difference between project costs and revenues from passenger fares. The PPG, building on its positive experience with privately operated bus services, is keen to use PPP arrangement to develop the Lahore RMTS.

16. In support of project development, ADB retained a team of consultants to independently analyze the economic and financial feasibility of the Lahore RMTS, and to identify and analyze various PPP arrangements to develop this system.³ The results from the options analysis study confirm that the Lahore RMTS is economically viable according to ADB standards, at an economic internal rate of return of 11.40%, with a number of unquantified benefits. The economic internal rate of return is estimated to increase to 12.34% if the green line is developed with an alternative tunneling technique, and with a few other less significant changes. The study also found that the green line would require a subsidy with a present value of \$1.6 billion in order to be financially viable, with a total cost of \$2.4 billion (since revised downward to \$2.1 billion).

17. The options analysis study team recommended a PPP structure in which the Government and a private concessionaire enter into two related contracts: (i) a design-build contract for civil works, and (ii) a build-operate-transfer contract for the remainder of the system. Both contracts would be with the same private firm. In this structure, Government would raise the capital needed to pay for the civil works and the subsidy needed to cover the difference between the non-civilwork cost of the RMTS and the revenue from passenger fares. The civil work payments would be made up-front, but the subsidy would be paid over time. The recommended PPP option (Appendix 3) optimizes the risks shared between the public and private sector.

2. External Assistance and Lessons from ADB Assistance

18. The TA acknowledges lessons from previous ADB and other development partner interventions in the urban sector in Pakistan, and aims to incorporate these into the transaction design, as well as any proposed follow-on investment. Since 1976, ADB has provided eight loans to the urban sector, totaling about \$450 million. Urban loans in Pakistan have generally been rated as unsatisfactory.

³ Castalia. 2007. Lahore Rapid Mass Transit System–Financial and Economic Analysis, and Analysis of Public-Private Partnership Options.

19. ADB's experience in Pakistan shows that successful implementation of inherently complex urban sector projects demands (i) simple project design and execution arrangements, (ii) close coordination between the multiple agencies involved, (iii) development of institutional capacities, and (iv) generation of public support for program interventions through the involvement of stakeholders. Urban programs also need to address (i) delays in project implementation, especially at start-up; (ii) delays in land acquisition; (iii) the slow pace of government approvals; (iv) lack of timeliness and adequacy in the release of counterpart funds; (v) delays in selection of consultants; and (vi) problems in achieving sustainability of project assets.

20. The TA design addresses these issues by (i) structuring the subsequent public investment program as a multitranche financing facility; (ii) adopting a simple program design in one urban subsector; (iii) linking physical projects to clear and well-focused sector reforms; and (iv) keeping execution and implementation arrangements simple and embedded in existing institutions.

21. Other development partners have been active in the urban sector, primarily the World Bank. Bilateral assistance has been provided by the governments of Germany, Kuwait, Netherlands, Switzerland, and United Kingdom. The United Nations Development Programme, United Nations Children's Fund, and World Health Organization have also provided assistance, mostly in community water supply and sanitation projects. Details on external assistance in the sector are provided in Appendix 4.

3. Summary of the Rationale

22. The quality, coverage, and reliability of infrastructure and services, particularly in urban transport, have not kept pace with the rapid growth of Lahore's economy and population in recent years. Insufficient and unreliable infrastructure and services are (i) adding to business and household costs, (ii) compromising Lahore's urban and natural environments, (iii) decreasing the city's global competitiveness when compared with other South Asian cities, and (iv) diminishing the quality of life of all of Lahore's citizens.

23. Traditional government sources, including local government revenues, subsidies, and transfers, cannot meet the growing gap between urban infrastructure and service demand, and current supply. This holds particularly true for development of a major mass rail transit system. Alternative sources of financing and new ways of providing infrastructure and services, such as PPP, are required. The proposed Lahore RMTS, to be developed through the services of a transaction advisor, would move the city squarely in this direction.

24. The TA and follow-on project processing will build on the work already undertaken by the PPG. PPG's urban unit has developed an urban sector road map, with the Lahore RMTS serving as a focus for investment. The road map (supplementary appendixes) provides a strategic framework for sector development, including a reform agenda and sector investment plan, from which an ADB-supported investment program is being derived.

25. A segregated rapid transit system, providing fast and convenient access between the center of Lahore and its rapidly developing suburbs, would offer numerous benefits. By providing an alternative to road-based transport, passengers will trade off the greater reliability and faster journey times offered against the premium fare charged. System benefits include

- (i) reduced road traffic and congestion,
- (ii) decreased pollution (by using electricity, which is cleaner and quieter),
- (iii) time savings to travelers, and
- (iv) reduced bus and wagon flow at key points by 50% for certain segments.

26. The Government understands that developing the Lahore RMTS with a PPP would provide an opportunity to improve the overall efficiency of the system. A PPP provides the Government with an opportunity to efficiently allocate risks between the Government and specialized private firms. This means that risks will be controlled and influenced by the party that is best placed to control and influence these risks.

27. A PPP, however, would not make sense for the Government or private sector if either party were bearing risks that are better handled by the other. This means that a well-structured PPP is essential to achieve the objectives expected from a PPP. Examples of key issues that need to be resolved as part of structuring a PPP transaction include the following:

- (i) Public versus private funding. The passenger fares that the Government plans to charge for the green line will not cover the full cost of building, operating, and maintaining the line. The Government will need to subsidize a portion of the capital costs. What portion would be funded by the Government, where would these funds come from, and how would these funds be paid are key issues to be resolved.
- (ii) **Ridership risk.** While the Government should bear part of the ridership risk, the private operator should also have incentives to maximize ridership. Thus the private operator should bear a portion of the ridership risk. What portion and under what terms are key issues to be resolved.

28. To address these and other issues that will emerge during implementation of the green line, the Government will need support from a team of dedicated and specialized consultants. Most of the consultants that the Government has recruited or plans to recruit are engineering or ridership forecasting experts who will provide valuable support on the technical aspects of the Project. To structure a successful PPP transaction, however, the Government will need the support of a transaction advisor experienced with large-scale and complex urban transport programs and international best practice in mass transit system financing and design.

III. THE PROPOSED PROJECT

A. Impact and Outcome

29. The TA project will improve the urban rapid mass transportation network in Lahore. The outcome of the TA is a structured design for the Lahore RMTS Project feasible for ADB financing.

30. The expected impact of the TA is the initiation of a long-term transport system investment program that will enable Lahore to make a greater contribution to national development, while improving the quality of life for city residents, including the poor. The RMTS is expected to

- (i) increase commercial and residential development;
- (ii) minimize duplication and overlap on public transport routes;
- (iii) maximize ridership through an integrated multimodal system;
- (iv) offer high service in terms of speed, frequency, and easy accessibility;
- (v) reduce car and motorcycle dependency;
- (vi) provide safe, secure, environmentally sustainable, reliable, and dependable transport that meets the needs and aspirations of this growing city; and
- (vii) link the center of Lahore and its rapidly developing suburbs with fast, convenient access.

31. Prior to consideration of ADB project financing, engagement of a transaction advisor is required to formulate financial structuring, undertake detailed due diligence, and package the Lahore RMTS to attract private capital and management. The transaction advisor, in close

consultation with ADB and the Government, will help prepare and launch a PPP transaction for the green line. ADB is willing, in principle, to partly finance the public-sector-financed portion of the Project under the multitranche financing facility modality. The outline terms of reference for the transaction advisor are in Appendix 5.

B. Outputs

1. Sequence of Major Tasks

32. The transaction advisory work will be carried out in three phases: preparation, implementation, and negotiation. During the preparation phase, the transaction advisor will carry out technical and legal due diligence, design the detailed structure and terms of the transaction, market the transaction with potential investors, and develop prequalification and bidding documents as well as the necessary contracts. During implementation, the transaction advisor will assist the Government in obtaining any approvals and permits required, prequalifying potential investors, carrying out the bidding process, evaluating proposals, awarding the contract, and holding negotiations with lenders. During the negotiation, the transaction advisor will support the Government and winning bidder reach financial closure.

a. Phase I, Transaction Preparation

33. The transaction preparatory work will include technical, legal, regulatory, financial, and safeguards due diligence in support of the proposed transaction. The transaction advisor will lead efforts to market the transaction, including tasks such as (i) preparation of initial marketing document, an information memorandum, and presentations; (ii) preparation of a list of investors that have the qualifications and experience to be the project counterpart; and (iii) consultations with potential investors and lenders to share information about the Lahore RMTS. The transaction advisor will also advise on progress made in preparing the transaction; and review feedback on the design of the transaction. International road shows may be required.

b. Phase II, Transaction Implementation

34. The transaction advisor will assist the Government in obtaining or issuing the necessary permits or approvals needed for implementing the transaction for the Project. These might include approval to (i) create and fund a subsidy account, (ii) issue a government guarantee, and (iii) launch prequalification and bidding process. The transaction advisor will assist the Government in (i) issuing the request for prequalification, responding to questions from interested parties, evaluating the expressions of interest, and selecting a short list of firms; (ii) issuing the request for proposals and responding to questions from bidders; and (iii) assessing the legal compliance of the proposals, evaluating the quality of the technical proposals and competitiveness of the financial proposals, and making an award decision.

c. Phase III, Negotiations

35. Following the award of the contract to a bidder, financial closure for the transaction will require several months. During this period, the transaction advisor will assist the prospective lenders of the winning bidder in carrying out their credit analysis and, to the extent needed, assist the Government in negotiating with these lenders.

C. Project Investment Plan

36. The TA investment cost is estimated at \$7.5 million equivalent, comprising foreign exchange costs of \$6.0 million and local currency costs of \$1.5 million equivalent (Table 1). Detailed costs estimates are in Appendix 6.

Item	Foreign Exchange	Local Currency	Total Cost
A. Base Costs			
A. Consultant Services	5.50		5.50
B. Program Support		1.30	1.30
Subtotal (A)			6.80
B. Contingencies	0.50	0.20	0.70
Total (A+B)	6.00	1.50	7.50

Table 1: Investment Plan

Source: Asian Development Bank estimates.

D. Financing Plan

37. The Government has requested a loan of SDR 3,794,000 (\$6,000,000 equivalent) from ADB's Special Funds resources to finance 80% of the total TA costs. The loan will have a term of 32 years including a grace period of 8 years, an interest rate of 1.0% per annum during the grace period and 1.5% per annum thereafter, and such terms and conditions as set forth in the draft loan document. The Government will provide the remaining \$1,500,000 equivalent, or 20% of the total TA cost, to cover local currency costs. As most of these funds will be provided in kind for program support in the form of workshops, surveys, office space, and related local support, the availability of counterpart financing should not be an issue. The Government has been advised that approval of the TA loan does not commit ADB to financing any ensuing project. The Government will relend the loan proceeds to the PPG on terms and conditions satisfactory to ADB. The financing plan is in Table 2.

Table 2: Financing Plan

(\$ million)

Source	Total	Percent
Asian Development Bank	6.0	80.0
Punjab Provincial Government	1.5	20.0
Total	7.5	100.0

Source: Asian Development Bank estimates.

E. Implementation Arrangements

1. Management

38. The Planning & Development Board (P&D Board) of the PPG will be the Executing Agency for the TA. With its capacity, mandate, and cadre of professional staff to provide strategic and policy guidance, the P&D Board will be a powerful champion for the Lahore RMTS. It will engage and oversee the transaction advice, and has agreed to assign a team of full-time staff to assist in implementing the TA.

39. A project steering committee (PSC) for the Lahore RMTS, chaired by the PPG's chair of planning and development, was formed in April 2005. It includes the secretaries of transport, finance, communication and works, and housing and urban development; nazim (Lahore city mayor); and district coordination officer of the city district government of Lahore. The secretary of transport acts as the PSC secretary. The PSC provides policy support, oversees project progress, oversees letting and supervision of contracts, facilitates coordination and cooperation among agencies concerned, and supervises the formulation and implementation of the integration strategy.

40. The Transport Department (TD) will be the Implementing Agency (IA) for the advisory services, and the TD staff and executive staff of the utilities agencies will provide additional help as and when necessary.

41. During the course of the TA, the Government will work on the institutional and regulatory arrangements required to implement the Lahore RMTS, including integration of other transport systems. Other departments will have key roles; effective coordination is essential. A technical coordinating committee will coordinate the project works, traffic and access arrangements, and land requirements. A TA organization chart is in Appendix 7.

2. Implementation Period

42. The TA is expected to be implemented over 1 year and 4 months, from April 2008 to July 2009. The implementation schedule is in Appendix 8.

3. Consulting Services

43. A package of advisory services will be provided from a consulting firm with expertise and experience in assessing, structuring, and raising finance on the capital markets for RMTSs in the Asia region. International and national consultants financed from ADB funds will be recruited as firms under the quality-based selection method, using full technical proposals, in accordance with ADB's *Guidelines on the Use of Consultants* (2007, as amended from time to time). The PSC will be fully involved in the selection process. Consulting services will include experts in the field of technical mass transit system engineering, design, and transport mode integration; commercial aspects; financial and economic analysis; legal and regulatory aspects; safeguards related to the environment, resettlement, and social development; private sector participation and concession structures; and institutional development and public finance.

44. The Government will take advance actions to expedite project implementation, particularly by short listing firms to provide consultancy services for transaction advice. The advance actions will apply only until evaluation of bids. Contract award and signing of an agreement will take place only after loan effectiveness. The Government acknowledges that ADB's concurrence with advance actions does not commit ADB to finance the Project.

4. Advance Contracting

45. To meet its accelerated time frame for implementing the Lahore Rapid Mass Transit System Project, the Government is keen to commence recruitment of the transaction advisor as soon as practicable. The Government has asked ADB to approve, in principle, advance contracting for the recruitment of consultant advisory services in accordance with ADB's *Guidelines on the Use of Consultants*.

46. Advance contracting allows the Government to undertake procurement or consultant selection procedures at its own risk prior to the loan becoming effective. The Government has opted for advance contracting without retroactive financing, in which case the consultant selection procedures completed under advance contracting do not conclude with the award of contract until after the loan becomes effective. The Government and PPG acknowledge that they undertake such advance contracting at their own risk, and that any concurrence by ADB with the procedures, documentation, or proposal for award of contract does not commit ADB to approve the TA loan or to finance recruitment costs.

5. Anticorruption Policy

47. ADB's Anticorruption Policy (1998, as amended to date) was explained to and discussed with the Government and PPG. Consistent with its commitment to good governance, accountability, and transparency, ADB reserves the right to investigate, directly or through its agents, any alleged corrupt, fraudulent, collusive, or coercive practices relating to the Project. To support these efforts, relevant provisions of ADB's Anticorruption Policy are included in the loan regulations and the bidding documents for the TA. In particular, all contracts financed by ADB in connection with the TA shall include provisions specifying the right of ADB to audit and examine the records and accounts of the PPG and all contractors, suppliers, consultants, and other service providers as they relate to the TA.

6. Disbursement Arrangements

48. Disbursements under the TA loan will be made in the form of direct payments from ADB to the international investment bank, based upon the payment schedule outlined in the final contract for consultant services.

7. Accounting, Auditing, and Reporting

49. TD will monitor TA progress to provide a basis for reporting to the Government and ADB, and prepare monthly progress reports on implementation. The reports will contain sufficient information to enable the PSC to monitor progress, identify issues, and ensure compliance with the TA objectives. The PSC will consolidate the monthly progress reports into quarterly reports for submission to ADB. These quarterly reports will include (i) progress made against established targets, (ii) problems and issues encountered and remedial actions taken or proposed to resolve the issues, and (iii) proposed project activities to be undertaken as well as progress expected during the subsequent implementation period. Each report will also contain an executive summary with content and format that allows ADB to readily capture key information for use in TA performance reports. The PSC will provide a TA completion report to ADB within 3 months of the completed disbursement, providing details about project implementation, accomplishments, costs, benefits, impacts, and other information requested by ADB.

8. Performance Monitoring and Evaluation

50. The PSC and TD will monitor and evaluate TA project performance in accordance with the terms of reference and the design and monitoring framework. Primary monitoring targets for each component will be agreed between the PSC and ADB;. The PSC and ADB will use these targets in accordance with the established reporting schedule.

9. Project Review

51. ADB and the Government will jointly undertake inception, midterm, and final reviews of the TA project. The reviews will assess progress for each component, identify issues and constraints, and determine necessary remedial action and adjustments. The midterm review will (i) review the scope, design, and implementation arrangements and identify adjustments required; (ii) assess progress of project implementation against performance indicators; and (iii) recommend changes in the design or implementation arrangements, if necessary.

IV. PROJECT BENEFITS, IMPACTS, ASSUMPTIONS, AND RISKS

52. **Beneficiaries**. The Lahore RMTS, once implemented, would benefit large numbers of people day-in and day-out in Lahore. Other road users will benefit from somewhat reduced congestion and pollution; and the Government will benefit from policy options not previously

available that will accelerate an understanding of the need to manage public transport and the urban transport system as a whole.

53. **Poverty Reduction and Social Development Impact**. An urban rail system will impact Lahore and its large population of poor residents in several positive ways. It will allow the city to function effectively even when congestion is severe, and allow people to commute to work. The additional capacity provided will allow the dynamic city center to thrive economically, and over time help to fundamentally shift the structure of the city, and guide and support future development in a more balanced, sustainable manner. A summary poverty reduction and social strategy is in Appendix 9.

54. **Financial Benefits and Sustainability.** The Lahore RMTS should be viewed in terms of its overall impacts—on efficiency, city development, the environment (micro and macro), energy savings, and cost to the Government.

55. **Assumptions.** The transaction structure, led by a credible international investment bank, is assumed to effectively attract sufficient private sector interest. Best international practice for concession structures is assumed to be appropriate and applicable to the Pakistan context.

56. **Risks.** Major risks include capacity issues related to the ability of the Government to lead and implement the TA in a timely manner. Due diligence will assess safeguards, and both land acquisition and resettlement could be substantial under the larger transaction. Intensive consultation will be required to ensure cooperation from civil society and nongovernment organizations. The maintenance of political stability and security is assumed.

57. **Environmental and Social Safeguard Issues.** The TA is not expected to have any adverse environmental or social impacts. It will ensure development of an environmentally and socially viable investment program through an intensive due diligence process. Any follow-on investment loan will be prepared in compliance with ADB's environmental assessment requirements, social safeguards policies (on involuntary resettlement and indigenous peoples), and applicable government environment laws and regulations. The establishment of the overall RMTS will be compliant with the same requirements.

V. ASSURANCES

58. In addition to the standard assurances, the Government has given the following assurances, which are incorporated in the legal documents:

- (i) The Government will ensure that adequate environmental measures in accordance with *ADB Environment Policy* (2002) and applicable government environment laws and regulations are incorporated into the design of the ensuing project.
- (ii) The Government will avoid and minimize land acquisition and resettlement occurring under any follow-on loans and the establishment of the RMTS. If avoidance is not feasible, resettlement plans will be prepared and implemented in accordance with (a) the Government's applicable laws and policies, and (b) ADB's *Involuntary Resettlement Policy* (1995). The overall operation will be prepared in accordance with (a) the Government's applicable laws and policies related to indigenous peoples, and (b) ADB's *Policy on Indigenous Peoples* (1998). These policies will be incorporated in the project design.
- (iii) The Government will ensure that the follow-on project will incorporate gender strategies to promote equal treatment of women and men.
- (iv) The Government will provide adequate resources and facilities to implement the TA and all its components effectively through the P&D Board and TD.

- (v) The Government will ensure that all draft final reports of feasibility and advisory studies under the TA will be submitted to ADB for review.
- (vi) The Government will ensure that detailed terms of reference approved by ADB will be incorporated in each consultant's contract.

VI. RECOMMENDATION

59. I am satisfied that the proposed loan would comply with the Articles of Agreement of the Asian Development Bank (ADB) and recommend that the Board approve the loan in various currencies equivalent to three million seven hundred ninety four thousand Special Drawing Rights 3,794,000 to the Islamic Republic of Pakistan for preparing the Lahore Rapid Mass Transit System Project from ADB's Special Funds resources with an interest charge at the rate of 1.0% per annum during the grace period and 1.5% per annum thereafter; a term of 32 years, including a grace period of 8 years; and such other terms and conditions as are substantially in accordance with those set forth in the draft Loan and Project Agreements presented to the Board.

Haruhiko Kuroda President

26 March 2008

Design	Performance	Data Sources/	Assumptions
Summary	Targets/Indicators	Reporting Mechanisms	and Risks
Impact Lahore RMTS green line operational	Completed and commissioned by 2013	ADB review monitoring	Assumption The Government is committed to sustainable urban transport development in Lahore.
Outcome Funding by private sector and ADB/other development partners secured	Completed PPP transaction for private sector concession by Oct 2009 ADB multitranche financing facility loan approved for public sector investment by Dec 2008	Monitoring against benchmarks on performance of city district government and other city agencies TA progress reports ADB review missions TA completion report	 Assumption PPG remain committed to PPP and related reforms Risk TA implementation and the reform agenda are delayed.
Outputs 1. Transaction documents	Technical, legal, and safeguards due diligence completed by June 2008 Transaction design completed by July 2008 Prequalification and bidding documents prepared by July 2008	ADB review missions TA progress reports TA completion report Activity reports, plans, and programs of the PPG	 Assumptions Enough private sector interest Government remains committed to the Project Project meets ADB safeguard and other requirements
 a mass transit authorit 2. Transaction advisor to consultants recruited a 3. Phase I (Transaction p Transaction desig Prequalification a 4. Phase II (Transaction f Permits and appr Prequalification a 5. Phase III (Negotiations) 	es utional/legal study to propose y or equivalent completed by be recruited by loan manage and fielded by April 2008 preparation) completed by July gn completed and bidding documents, and c implementation) completed by	31 March 2008 ment support y 2008 ontract prepared y December 2008	 Inputs ADB: \$6.0 million equivalent of Special Funds resources. Government: \$1.5 million equivalent. Approximately 30 person- months of international experts; 8 person-months of national experts (to be determined by bidder)

DESIGN AND MONITORING FRAMEWORK

ADB = Asian Development Bank, PPG = Punjab provincial government, PPP = public-private partnership, RMTS = rapid mass transit system, TA = technical assistance.

DESCRIPTION OF THE PRIORITY LINE (GREEN LINE)

1. The proposed design for the green line provides for 10 elevated and 12 underground stations. The total length of the line will be 27 kilometers, 15.4 of which are elevated and 11.6 underground. The green line will have an underground section in the city center because of tight curves and narrow streets, and restrictions and preservation considerations. This will also reduce the environmental impact of the Project.

2. The green line follows the Ferozepur Road corridor. In the south, it begins just north of the Hudiara drain road bridge. The southern-most station is Hamza Town. The alignment reference point (Chainage 0+000) is taken from the end of the lead track about 300 meters south of Hamza Town. The northern-most station is across Ravi River in Shahdara Town.

3. From the Hamza Town station, the alignment follows Ferozepur Road on an elevated viaduct structure (single track U girder) in the road's central median, up to the Pakistan Railway flyover. Here the green line is diverted on one side. It returns to the central median north of the railway flyover up to the model town north, where it descends into a tunnel via a ramp and follows the middle of Ferozepur Road; it is then diverted to the west. The bored tunnel alignment follows the central median of Ferozepur Road, crossing the interchange with Gulberg Main Boulevard and the canal. North of the canal, the alignment returns to the centerline of Ferozepur Road up to the Qurtaba junction, where a sharp right turn is required to follow Fatima Jinnah Road. As it approaches the assembly building, the tunnel alignment turns sharply to the left toward Mall Road. The tunnel alignment then proceeds along Mall Road to the junction close to Nasir Bagh. Here, the alignment turns sharply right onto the Lower Mall and proceeds to Circular Road (west section). It then ascends back to the viaduct in the middle of Ravi Road after Data Darbar Station. From Ravi Road, the route crosses Bund Road and Ravi River to the northern end at Chainage 26+721 about 500 meters north of the northern terminal station in Shahdara Town.

4. Stations will be spaced approximately 1 kilometer apart throughout the central section of the line. Stations are designed for compliance with National Fire Protection Association Code 130: Standard for Fixed Guideway Transit and Passenger Rail Systems (2007), with the forecast peak numbers of passengers boarding and alighting at each location. Station platforms are provided with platform screen doors. Underground stations are air-conditioned. Escalators are provided to improve vertical circulation and user accessibility. The station entrances will be integrated with the bus stops located on the roads nearby. Also, a link (tunnel or footbridge) will be provided for pedestrians to cross the road.

5. A medium capacity mass transit train is proposed. Ultimately, the train will comprise six cars articulated and connected. For the early stage, the trains will comprise only three to four cars. As demand grows, the length of the trains will be doubled. At 102 meters long, station platforms are designed to accommodate the six-car train that will be used in later years. The ultimate capacity of the train will be 1,040 passengers.

6. Round-trip time is estimated at about 86 minutes, and a minimum headway of 2 minutes is assumed for ultimate peak hour provision. This is calculated to require 46 trains to provide peak hour service, and assumes a requirement of one spare train for operation reserve and seven spare trains for maintenance reserve, giving a total ultimate requirement of 54 trains (324 cars).

7. The earliest that the green line can be open to the public is late 2012, providing that initial construction begins during the first quarter of 2008. Ultimately, demand for the proposed green line is estimated to be 30,000 passengers per peak hour per direction.

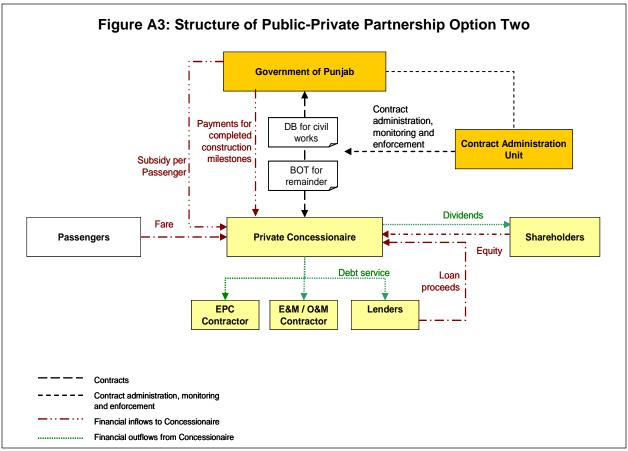
RECOMMENDED PRIVATE-PUBLIC PARTNERSHIP OPTION

1. The options analysis study team reviewed international best practice, and developed the following public-private partnership (PPP) options for consideration. The PPP option will be adopted following assessment and validation by the transaction advisor.

- (i) **Option one.** A build-operate-transfer (BOT) contract with a private firm.
- (ii) **Option two.** A design-build contract for civil works and a BOT contract for the remainder of the Project with one private firm. In this option, the Punjab provincial government (PPG) finances the cost of the civil works.
- (iii) **Option three.** A design-build contract for civil works, a contract to supply and commission electrical and mechanical equipment, and an operation and maintenance contract, with one private firm. In this option, the PPG finances all capital costs.
- (iv) **Option four.** An engineering and construction contract for civil works with one firm, and a contract for the supply and commissioning of electrical and mechanical equipment and an operation and maintenance contract with a second firm. In this option, the PPG finances all capital costs.
- (v) **Option five.** An engineering and construction contract for civil works with one firm, and a concession contract for the remainder of the Project with a second firm. In this option, the PPG finances the cost of the civil works.

2. Based on current understandings as described in this report of the PPG's objectives and their relative importance, the PPG may be better off adopting a PPP structure similar to option two. In this option, the PPG and a private concessionaire enter into a design-build contract for civil works and a BOT for the remainder of the Project. The PPG raises the capital needed to pay for the civil works, as well as to pay for the subsidy needed to cover the difference between the non-civil-work costs of the Project and the revenues from fares paid by passengers. The civil work payments will be made up-front, but the subsidy will be paid over time. If the PPG wishes to, this option could be altered to have the subsidy paid upfront.

3. Figure A3 presents the structure of PPP option two. This structure is similar to that used for the Manila Light Rail Transit 1 extension.



BOT = build-operate-transfer, DB = design-build, E&M = electrical and maintenance, O&M = operation and maintenance. Source: Castalia.

4. Under the design-build contract, the concessionaire designs and builds the civil works and transfers ownership to the PPG at the end of the contract, which, as in option one, is typically 20–30 years. The PPG secures financing for the civil works portion of the Project. During construction of civil works, the PPG pays the concessionaire based on construction milestones reached, as under a conventional construction contract.

5. The concessionaire may subcontract this work to a specialized firm through an engineering, procurement, and construction contract. The subcontract would contain the same types of provisions described in option one, i.e., deadlines with corresponding penalties and specifications to ensure quality. The concessionaire mitigates construction risk through this subcontracting arrangement by transferring it to a firm with specialized knowledge of how to best manage it.

6. A BOT contract would cover all aspects of the Project: civil works, supply and commissioning of electrical and mechanical equipment (including rolling stock), and operation and maintenance of the system. The contract scope is essentially the same as the BOT contract in option one, without the civil works component. The concessionaire will secure private financing for the electrical and mechanical (E&M) and rolling stock capital costs. Its shareholders will provide equity for approximately 20%–30% of the costs. To mitigate operating risk and risks related to finishing construction of the system, the concessionaire may enter into a subcontract with a firm to supply and commission electrical and mechanical equipment, and operate and maintain the system.

16 Appendix 3

7. Passenger fares are not sufficient to cover the full cost of service. As discussed in the description of option one in the study, several mechanisms will be needed to make the Project attractive to the private sector and bankable:

- (i) a subsidy per passenger (for options one, two, and five);
- (ii) a minimum revenue or minimum ridership guarantee; and
- (iii) a guarantee of the PPG's obligations from a third party, or a fiduciary fund to cover the cost of its obligations.

The net present value of the PPG's subsidy in this case, including financing the capital costs of the civil works, is approximately \$1.6 billion.

8. The allocation of risks in this option is similar to their allocation in option one, with the difference that the PPG bears risks related to financing of civil works. The PPG also bears risks related to obtaining right-of-way. The concessionaire bears risks related to construction, financing of electrical and mechanical equipment, and operation and maintenance. The parties share ridership risk through the guarantee mechanism.

9. The PPG will retain the services of a transaction advisor to help the PPG move forward with selecting an appropriate PPP option, and with preparing the documentation for procuring this PPP option. The terms of reference of the transaction advisor include a set of tasks that will help the PPG to reach a decision on an appropriate PPP option. These tasks include

- (i) reviewing and prioritizing with the PPG the importance of the objectives and design considerations set out in the Castalia report;¹
- (ii) carrying out the technical and legal due diligence for the Project;
- (iii) reviewing the PPP options presented in this report, and suggesting any changes that are necessary as a result of the due diligence findings; and
- (iv) developing a financial model that can be used to quantify the subsidy required from the PPG, as well as the value of the contingent liabilities associated with various forms of guarantees.

¹ Castalia. 2007. Lahore Rapid Mass Transit System – Financial and Economic Analysis, and Analysis of Public-Private Partnership Options.

Des	scription	Amount (\$ million)	Approved	
A.	Loans			
۱.	Asian Development Bank			
	Loan 263-PAK(SF): Hyderabad Water Supply and Sewerage	22.00	1976	
	Loan 331-PAK(SF): Faisalabad Water Supply, Sewerage and Drainage	39.50	1977	
	Loan 793-PAK(SF): Karachi Urban Development	55.20	1986	
	Loan 1001-PAK(SF)/1002-PAK: Karachi Sewerage	85.00	1989	
	Loan 1004-PAK(SF): Second Urban Development	66.00	1989	
	Loan 1260-PAK(SF): Urban Water Supply and Sanitation	72.00	1993	
	Loan 1854-PAK (SF): NWFP Urban Development Sector Project	21.00	2001	
	Loan 1950-PAK (SF): Punjab Community Water Supply and Sanitation Project	50.00	2002	
	Loan 2060/2061-PAK(SF): Southern Punjab Basic Urban Services Project	90.00	2003	
2.	World Bank			
	Lahore Water Supply, Sewerage, and Drainage	1.80	1967	
	Second Lahore Water Supply, Sewerage, and Drainage	26.60	1976	
	Lahore Urban Development	16.00	1982	
	Karachi Water Supply	25.00	1983	
	Karachi Special Development	70.00	1987	
	Punjab Urban Development	90.00	1988	
	Second Karachi Water Supply and Sanitation	125.00	1991	
	Rural Water Supply and Sanitation	136.70	1991	
3.	Japan			
	Rehabilitation of Water Treatment Systems, Karachi, Phase I	10.78	1989	
	Metropolitan Water Supply Project in Kharpur, Phase I	115.95	1989	
	Metropolitan Islamabad Water Supply Project, Phase I	92.04	1990	
	Rehabilitation of Water Treatment Systems, Islamabad, Phase II	10.62	1990	
	Metropolitan Islamabad Water Supply Project, Phase II	42.28	1991	
	Rehabilitation of the Water Treatment Plant in Islamabad, Phase I	8.60	1991	
	Rehabilitation of the Water Treatment Plant in Islamabad, Phase II	9.20	1992	
	Karachi Water Supply Improvement Project	95.41	1995	
	Metropolitan Water Supply Project	53.26	1996	
.	Kuwait			
	Quetta-Gwadar Potable Water Supply	16.00	1983	
5.	United Kingdom			
	Second Karachi Water Supply and Sanitation	187.50	1990	
	Subtotal (A)	1,472.44		
3.	Grants			
۱.	UNDP/UNICEF/WHO			
	Rural Water Supply and Sanitation (UNICEF)	34.20	1992	

EXTERNAL ASSISTANCE TO THE URBAN SECTOR

18 Appendix 4

Des	scription	Amount (\$ million)	Approved	
2.	European Economic Community			
	Balochistan Water Supply, Phase II	9.11	1987	
3.	Germany			
	Water Supply and Sanitation for Refugee Camps	3.47	1984	
	Supply of Dirking Water/Sanitation. Refugee Camps and Villages Affected by Refugee Influx	18.71	1989	
4.	The Netherlands			
	Quetta Sewerage and Sanitation	12.04	1987	
	Social Action Program	10.00	1994	
5.	United Kingdom			
	Lahore Water and Sewerage Project ^b	28.59	1989	
	Second Karachi Water Supply and Sanitation	9.90	1990	
	Subtotal (B)	126.02		
C.	Technical Assistance (TA)			
1.	Asian Development Bank			
	TA 119-PAK: Lyallipur Water Supply. Sewerage and Drainage Development	0.150	1974	
	TA 120-PAK: Hyderabad Water Supply, Sewerage and Drainage Development	0.200	1979	
	TA 297.PAK: Rawalpindi Water Supply and Sewerage	0.350	1988	
	TA 943-PAK: Second Urban Development	0.350	1988	
	TA 963.PAK: Urban Water Supply and Sanitation Sector Study	0.280	1989	
	TA 1245-PAK: Marine Outfall Study	0.180	1989	
	TA 1245-PAK: Strengthening of Billing and Collection Operations of KWSB	0.540	1990	
	TA 1349-PAK: Urban Water Supply and Sanitation	0.490	1992	
	TA 1735-PAK: Punjab Rural Water Supply Sector Study	0.100	1992	
	TA 1744-PAK: Water Supply and Sanitation Authority for Rawalpindi	0.500	1992	
	TA 1752-PAK: Third Urban Development	0.500	1993	
	TA 2006-PAK: Second Urban Water Supply and Sanitation	0.520	1994	
	TA 2106-PAK: Institutional Strengthening of PH ED in the Provinces of Punjab and Northwest Frontier	0.500	1994	
	TA 2107-PAK: Assistance to the Multi-Donor Support Unit	0.220	1994	
	TA 2125-PAK: Balochistan Groundwater Reassessment	0.100	1995	
	TA 2475-PAK: Second Social Action Program	0.100	1996	
	TA 2539-PAK: Urban Institutional Strengthening			
	TA 32024-01-PAK: Sindh Rural Development	0.800	1998	
	TA 37003-01-PAK: Rawalpindi Environmental Improvement	0.350	2003	
	TA 32264-01-PAK: Punjab Devolved Social Services Sector Development Program	0.300	2003	
	TA 4534-PAK: Sindh Basic Urban Services	0.795	2004	

Description		Amount (\$ million)	Approved
2.	The Islamic Development Bank	4.80	1992
	Greater Hyderabad Sewerage		
3.	UNDP/UNICEF/WHO	0.84	1983
	Community Water Supply and Sanitation (WHO)	0.70	1989
	Karachi Sewage Recycling Study (UNDP)	0.34	1989
	Pilot Study for Drinking Water and Sanitation in Rural Primary Schools (UNDP, WHO)	0.55	1991
	Community Handpumps and Sanitation (UNDP)	0.72	1991
	Assistance for Establishment of Federal Water Supply and Sanitation Sector Support Unit and Policy Implementation (UNDP, UNICEF)		
4.	Japan		
	Exploitation of Groundwater Resources in Balochistan	3.47	1990
	Subtotal (C)	16.95	
	Total	1,615.41	

UNDP = United Nations Development Programme, UNICEF = United Nations Children's Fund, WHO = World Health Organization. Source: Asian Development Bank.

TERMS OF REFERENCE FOR THE TRANSACTION ADVISOR

1. Lahore, the second largest urban center in Pakistan, is the provincial capital of Punjab. With a current population of about 9 million, the megacity is growing at around 3.0% per annum. The number of vehicles has also phenomenally increased in recent years, resulting in heavy congestion, slower traffic, increasing road accidents, waste of fuel and person-hours, and environmental degradation. Despite a number of initiatives, such as introducing fleets of buses, the problems of gridlock and congestion have grown to the point of constraining growth, curtailing investment, and reducing the city's competitiveness.

2. To resolve this serious transport issue, during the early 1990s the Japanese International Cooperation Agency (JICA) sponsored a comprehensive study of the transportation system in Lahore. The study identified and analyzed several mass rapid transit solutions, and concluded that a light rail train system along the Ferozepur Road would be a feasible solution. Subsequently, in 1993 the World Bank funded the Lahore Traffic and Transport Studies, which essentially reviewed and updated the earlier JICA-funded work. In 2005, the Punjab provincial government (PPG) retained MVA Asia Limited to analyze in more detail the feasibility of the light rail train system along the priority corridor proposed by the JICA study (green line). This work was concluded in August 2006 and included¹

- (i) a review of available data and conduct of citywide travel demand surveys, geotechnical investigations, and a topographic survey of the priority corridor; and
- (ii) a design for the alignments, stations, systems, and operations for the green line to a 5% level of detail.

3. In 2006, the PPG again retained MVA Asia Limited to analyze the feasibility of the second priority line (orange line). This report is complete. The green and orange lines will overlap at one station, therefore the future development of the orange line will likely have a material impact on ridership of the green line.

4. In 2007, the PPG decided to take the green line feasibility study to a higher level of detail be retaining Systra, the parent company of MVA Asia Limited, to carry out the reference design of the green line. The key output of this work is the design of alignments, stations, systems, and operations for the green line to a 35% level of detail.²

5. In 2007, the Asian Development Bank (ADB), as part of its due diligence for the green line and anticipating a possible lending operation, commissioned a group of individual experts (the ADB consultants) to review the MVA Asia Limited ridership forecasts and cost estimates and analyze the economic and financial viability of the line. This work included identifying various public-private partnership (PPP) options that the PPG could consider for developing the green line.³

5. The development of the green line is a priority project for the PPG. The Government is well aware that passenger fares will pay will not be sufficient to cover the cost of developing the Project, and in particular, the capital costs. Despite being financially unviable, the Government is committed to implementing the Project because the Government expects it to revolutionize the city and eventually add value to the local economy. Evidence of this commitment is the

¹ The final report prepared by MVA Asia Limited is available for consultation.

² The terms of reference for Systra's work are available for consultation.

³ The results of this work are available for consultation.

allocation in the province's development budget of around \$500 million per year for the next 5 years to cover the funds needed to make the Project financially viable.

6. The Government has had positive experiences with PPPs in other provincial projects, and in particular, with intra- and intercity bus services. As a result, the Government wants to develop the green line under a PPP arrangement. The Government agrees in principle with the PPP structure recommendations made by the ADB consultants.

7. To prepare and implement the PPP transaction for developing the green line, the Government wishes to engage the services of a transaction advisor. This document outlines the terms of reference for this advisor.

8. The work of the transaction advisor will be facilitated by the significant work already completed on the feasibility and engineering aspects of the green line, as well as by the Government's strong commitment to implementing the green line.

A. Scope of Work

9. The transaction advisory work will be carried out in three phases: preparation, implementation, and negotiation. During the preparation phase, the transaction advisor will (i) carry out technical and legal due diligence, (ii) design the detailed structure and terms of the transaction, (iii) market the transaction with potential investors, and (iv) develop prequalification and bidding documents as well as the necessary contracts. During implementation, the transaction advisor will assist the PPG in obtaining any approvals and permits required, prequalifying potential investors, carrying out the bidding process, evaluating proposals, awarding the contract, and holding negotiations with lenders. During negotiation phase, the transaction advisor will support the PPG to reach financial closure.

1. Phase I, Transaction Preparation

10. The preparatory work will include technical, legal, regulatory, and financial inputs.

a. Technical

- (i) Carry out technical due diligence. This consists of reviewing previous studies, including the feasibility study and reference design reports, to understand and package:
 - (a) operating design parameters (cruising speed, commercial speedway, minimum headway, etc.), selected infrastructure (alignment, utilities, civil works, etc.), and technology (vehicle design, car body, signaling system, communication system, fare collection system, power supply, etc.);
 - (b) ridership forecasts, and key assumptions underlying these forecasts, as well as changes in ridership associated with these assumptions;
 - (c) transport system integration, particularly public transport and passenger access/egress arrangements;
 - (d) environmental impact of the Project with respect to domestic and international standards, and cost associated with mitigating that impact;

- (e) right-of-way requirements, and plans for obtaining these rights as well as an estimate of their associated costs, and documentary requirements for land acquisition and involuntary resettlement of participating international financing institutions; and
- (f) capital (civil works, land, electrical and mechanical equipment, etc.), operation, maintenance, and rehabilitation costs; and contingencies.
- (ii) Forecast expected nonfare revenue from commercial activities, that is, revenue other than from passenger fares. This involves reviewing experience of other mass rapid transit systems with specific commercial services or activities that have generated revenue, assessing the extent to which commercial services and revenue-generating activities can be replicated in Lahore, and forecasting the revenue that could be expected from those that can be replicated in Lahore. This work will include field research and surveys to be carried out by a commercial real estate expert.
- (iii) Review and update the project implementation schedule, including expected time for obtaining rights-of-way, obtaining permits, completing other preconstruction work, construction, testing, and commissioning.
- (iv) Review and update technical inputs needed for the financial model, such as breakdown of capital costs, operation and maintenance costs, passenger and nonpassenger revenue, and other related items.
- (v) Write the technical sections of the information memorandum. Most of this content is readily available in the feasibility study and reference design reports.
- (vi) Provide technical inputs for the contractual documents and agreements. This will include inputs used in defining each party's obligations with respect to the implementation, construction, commissioning, operation, and maintenance of the system; as well as detailed specifications and procedures for the design, testing, and commissioning of the Project.
- (vii) Define the information that bidders should include in their technical proposal, and develop the templates that bidders should use to submit this information.
- (viii) Develop the methodology for comparing or evaluating the technical proposals received from bidders.

b. Legal

- Carry out legal due diligence. This comprises reviewing relevant legislation related to the development, procurement, construction, financing (public/private), operation, and regulation of mass rapid transit systems to understand and present the following:
 - (a) legal viability of the proposed transaction structure, including legal authority to contract the design, financing, construction, and operation of the system;
 - (b) process and approvals needed to procure the contract with the private firm that will develop the Project, including estimating the time to implement this process;
 - (c) process and approvals needed to secure the funds that the PPG will contribute to the Project, including funds sourced from multilateral

development banks and including an estimate of the time required to implement this process;

- (d) process and approvals needed to obtain a guarantee from the federal Government (if any), and for accessing the viability gap funds that the federal Government will make available for PPP projects, including an estimate of the time required to implement this process;
- (e) process and approvals needed for obtaining rights-of-way or acquiring land, including an estimate of the time required to implement this process, and documentary requirements for land acquisition and involuntary resettlement of participating international financing institutions;
- (f) approvals and permits needed to build the system, including construction permits and environmental permits; and
- (g) existing incentives, like tax exemptions and others, to promote foreign investment in the Project.
- (ii) Write the legal sections of the information memorandum.
- (iii) Support the PPG in drafting the contractual documents and agreements, and in the prebid negotiation of these documents with potential investors during consultation meetings with investors.
- (iv) Assist in designing the prequalification and bidding process and in drafting the prequalification documents, request for proposal, and instructions to bidders; as well as the prebid negotiations of the latter two.

c. Regulation

13. The services to be provided by the consultants will cover, but not be limited to, the following areas.

- (i) Based on the legal team's review and the proposed transaction structure, propose options for economic regulation of the services to be provided by the green line. In principle all the rules, procedures, and formulas with respect to setting, adjusting, monitoring and enforcing service standards should be included in the contract between the PPG and the investors.
- (ii) Discuss these options with the PPG and potential investors and lenders.
- (iii) Design and draft the detailed provisions needed to implement the preferred economic regulatory option, including (a) regulatory guidelines; (b) job descriptions, internal procedures and policies, as well as their corresponding cost estimates; and (c) legal documentation to establish agency and secure funding.

d. Financial/Commercial

- (i) Develop a detailed financial model for the Project. The model should forecast the financial statements of the private special purpose company that will be the main counterpart to the PPG; calculate the amount, timing, and present value of the subsidy required from the PPG, and determine the present value of the expected payments from guarantees offered by the Government.
- (ii) Identify the risks associated with the transaction and propose options for an efficient allocation of these risks between the Government and private

counterpart, as well as mechanisms for mitigating these risks (including guarantees). The allocation of risks should aim to strike a balance between two objectives: (a) minimizing the cost of the Project to the Government, including contingent costs associated with guarantees; and (b) enhancing the attractiveness of the transaction to private investors, and therefore attract offers from a number of bidders. The allocation of risks will be discussed and agreed upon with the PPG. Potential investors' and lenders' comments should be taken into account when designing the allocation of risks.

- (iii) Prepare the drafting instructions for the legal team that will develop the necessary contracts and agreements.
- (iv) Define the information that bidders should include in their financial proposal, and develop the templates that bidders should use to submit this information.
- (v) Develop the methodology for comparing or evaluating the financial proposals received from bidders. In principle, this methodology should give incentives to bidders to minimize the subsidy they require from the Government.
- (vi) Lead efforts to market the Project, including
 - (a) prepare marketing documents including at least initial marketing documents information memorandum and Power Point presentations;
 - (b) prepare and regularly update a list of investors that have the qualifications and experience to be the counterpart to the PPG for this project; include private lenders that would likely be interested in lending to the counterpart; and
 - (c) hold regular consultation meetings with potential investors and lenders to inform them about the Project, to inform them about progress made in preparing the transaction, and to receive their feedback on the design of the transaction. This might include international road shows.

2. Phase II, Transaction Implementation

- (i) **Permits and approvals.** Assist the PPG in obtaining or issuing the necessary permits or approvals needed for implementing transactions for the Project. These might include approvals to (a) create and fund a subsidy account, (b) issue a government guarantee, and (c) launch prequalification and bidding processes.
- (ii) **Prequalify investors.** Assist the Government in issuing the request for prequalification, respond to questions from interested parties, evaluate the expressions of interest, and select a short list of firms.⁴
- (iii) **Issue request for proposals**. Assist the Government in issuing the request for proposals, and responding to questions from bidders.
- (iv) **Evaluation and award recommendations**. Assist the PPG in assessing the legal compliance of the proposals, evaluating the quality of the technical proposals and competitiveness of the financial proposals, and making an award decision.

⁴ This assumes that the process for selecting the private investor will involve an initial stage for prequalifying firms. The Government might however, decide to use a different procurement process that does not involve a prequalification stage.

3. Phase III, Negotiations

16. **Postbid Negotiations.** Following the award of the contract to a bidder, financial closure for the Project will require several months. During this period, the transaction advisor will assist the prospective lenders of the winning bidder in carrying out their credit analysis, and to the extent needed, assist the PPG in negotiating with these lenders.

B. Timeline

17. The work in phase I will be carried out over 4 months from the date the contract with the transaction advisor becomes effective. The work in phase II will be completed within 8 months from the date the contract with the transaction advisor becomes effective. The duration of the work in phase III will depend on the duration of the negotiations.

C. Remuneration

18. The remuneration of the transaction advisor will comprise a fixed fee and a success fee. The fixed fee will have two components: a monthly retainer fee and a total milestone-based payment.

19. In their financial proposals, bidders must indicate the fixed fee they intend to charge. This fee will be calculated as

Fixed fee = Monthly retainer x 12 + Total milestone-based payment

20. The total milestone-based payment will be equal or greater than two thirds of the fixed fee. The value of the total milestone-based payment will be disbursed according to the following schedule:

15%
15%
30%
30%
10%

21. The success fee will paid and calculated as follows.

Upon award by the PPG of the contract	
If proposals submitted and qualified >= 3	\$3,000,000
If proposals submitted and qualified < 3	\$1,500,000
Upon financial closure	\$1,000,000

D. Qualifications of the Transaction Advisory Team

22. The transaction advisory team will be led by an international advisory services firm that has a track record in

(i) acting as lead advisor on mandates from government clients to prepare and launch transactions for greenfield or brownfield infrastructure projects of a

comparable scale and complexity, and in particular infrastructure projects that involve mass rapid transit systems;

- (ii) acting as financial advisor to private sponsors on the development, financing, construction, or expansion of mass rapid transit systems;
- (iii) being within the top 20 financial advisors on merger and acquisition deals in Asia-Pacific league tables, as published by Thomson Financial; and
- (iv) advising governments or private clients in Pakistan or India.

23. The international advisory services firm should include in its team international and/or national firms with legal, technical, and regulatory expertise related to the Project. These firms should demonstrate their corporate experience, as well as that of their proposed experts, in developing, building, or financing comparable mass rapid transit systems or comparable transport projects.

Item	Foreign Exchange	Local Currency	Total Cost
A. Investment Costs			
1. Consulting Services	5.50		5.50
2. Program Support ^a		1.30	1.30
Subtotal A			6.80
B. Contingencies	0.50	0.20	0.70
Total (A+B)	6.00	1.50	7.50

COST ESTIMATES (\$ million)

^a In-kind program support provided by the Punjab provincial government (workshops, surveys, office space, and related local support).
 Source: Asian Development Bank estimates.

TECHNICAL ASSISTANCE ORGANIZATION CHART



P&D = Planning & Development, PPG = Punjab provincial government. Source: Punjab provincial government.

			2008			2009				
Te	chni	ical Assistance Component	1 2 3 4 1 2 3		3	4				
Α.	Tra	ansaction Advisor								
	1.	Recruitment								
	2.	Phase I: Transaction Preparation								
3. Phase II: Transaction Implementation										
	4.	Phase III: Negotiations								

IMPLEMENTATION SCHEDULE

Source: Asian Development Bank estimates.

SUMMARY POVERTY REDUCTION AND SOCIAL STRATEGY

Country/Project Title: Pakistan/Preparing the Lahore Rapid Mass Transit System Project							
Lending/Financing Modality:	TA Loan	Department/ Division:	Central and West Asia Department, Social Sectors Division				
	I. POVERTY ANAL	SIS AND STRAT	TEGY				
A. Linkages to the N	lational Poverty Reduction Strategy a	nd Country Partn	nership Strategy				
	Based on the country poverty assessment, the country partnership strategy, and the sector analysis, describe how the project would directly or indirectly contribute to poverty reduction and how it is linked to the poverty reduction strategy of the partner country.						
institutional reform of approach of the Gover stresses, among others development needs an inadequate community poverty reduction strat service reforms, as w participation are view beneficiary communitie private partnerships (P of environmental issue Government and ADB. In its medium-term dev	public service provision are consistent nment of Pakistan and the Asian Develo s, access to public services, improved go nd priorities of the poor. Insufficient ed empowerment are observed to be amoved tegy include the development of suppo- vell as improved governance and pub- red as essential for improved governa- es. Sustainable pro-poor growth, devolut PP) in infrastructure provision including s are among the investment priorities of velopment framework, the Government con-	t with the goals opment Bank (ADI overnance, job cre- conomic growth a ong the main cau rtive infrastructure lic service delive ance and owners ion of power to lo the development the Poverty Redu	e rapid mass transit system (RMTS) and and strategies of the poverty reduction B). The Povery Reduction Strategy Paper pation, and community participation as key and employment, gender disparities, and uses of poverty. In response, aims of the e for accelerating economic growth, civil ery. Social mobilization and community ship of poverty reduction programs by boal communities, development of public- of transport systems, and mainstreaming ction Partnership Agreement between the nce the competitiveness of, and quality of				
life in, its large cities. The Government constituted a high-level committee led by the Planning Commission to coordinate development of its megacities, including Lahore. Vision 2020 for Pakistan highlights the vital role to be played by the urban sector in realizing national development goals. Improved transport through the Lahore rapid mass transit system will enhance public safety and the quality of the urban environment, and specifically provide opportunities for women to travel for health, education, and employment. Women are socially discouraged from traveling on the existing public transport system given its dilapidated and gender insensitive state. The Project supports the poverty reduction strategy by promoting institutional reform and organizational development to encourage pro-poor development and fiscal responsibility among providers of public infrastructure services. It will improve governance and the participation of the poor by consulting stakeholders, including low income communities, on the Project through public awareness and outreach.							
B. Poverty Analysis		Targeting Class	ification: General intervention				
Poverty in Pakistan de pro-poor government s wealthier, especially th poverty in the long tel including electricity, wa the employment group unskilled wage labore	spending. However, at the same time, the re urban rich, have widened considerably rm. The poor tend to have larger house ater supply and sanitation, cooking gas, a s of wage laborers, sharecroppers, and ers, and skilled and craft workers. It is . Poverty is clearly associated with land	e income and exp y. Seventy percer eholds and less a and telephones. T the self-employed s highest in the	of overall economic growth and increased penditure gaps between the poor and the nt of the population remains vulnerable to access to essential assets and services, The incidence of poverty is highest among d; and among the occupational groups of agriculture, construction, transport, and allness of landholdings; as well as lack of				
total population of 7 m katchi abadis (informa inferior public services irregular income, limit	illion lives below or at the poverty line. A lly developed and poor settlements and . Generally, poverty in the city is chara	And about 30% of homes. The maj cterized by a lack	strict of Lahore. Approximately 30% of the f the population live in the more than 300 jority of katchi abadis inhabitants receive k of reliable employment, insufficient and care, deficient basic infrastructure and				

Support of a new rapid mass transit system that links a network of feeder busses, serving all of the city's townships and

inner city, will facilitate safer, faster, and more comfortable transport for all sectors of the city population, including the residents of the katchi abadis, and reduce severe traffic jams and air pollution.				
II. SOCIAL ANALYSIS AND STRATEGY				
A. Findings of Social Analysis				
A stakeholder analysis is being carried out by the reference design team and will run in parallel to the proposed technical assistance (TA) loan. This effort is complemented by two stakeholder engagements carried out as part of the ongoing communications strategy of the Punjab provincial government (PPG). Other workshops are planned over the near-term under the reference design team. These workshops target beneficiaries, the private sector, the executing agency, implementing agencies, concerned government departments, civil society representatives, and nongovernment organizations. Following these activities, ADB project processing for the subsequent loan program will undertake further stakeholder analysis and outreach.				
B. Consultation and Participation				
1. Provide a summary of the consultation and participation process during the project preparation.				
Stakeholder consultations are being conducted by the reference design team, and a participation strategy is being designed as part of its outreach component. Key stakeholders include government and civil society organizations, user groups, nongovernment organizations, media, academia, and representatives of program beneficiaries and affected people. The outcomes of these meetings are providing feedback to the project designers, and will be incorporated in the final project design. The meetings and outreach program are also facilitating public support for the Project through active involvement of stakeholders. The participation strategy will be elaborated as project processing for the follow-on loan program is undertaken				
 What level of consultation and participation (C&P) is envisaged during the project implementation and monitoring? Information sharing				
3. Was a C&P plan prepared? ☐ Yes ⊠ No If a C&P plan was prepared, describe key features and resources provided to implement the plan (including budget, consultant input, etc.). If no, explain why. The process is ongoing and will be addressed during project preparation of the ensuing multitranche financing facility loan.				
C. Gender and Development				
1. Strategy to maximize impacts on women:				
The ensuing investment loan will directly and indirectly benefit women through better access to reliable, safe, and accessible urban transport. The primary concerns of women need to be addressed in the program design (road map) and will be part of the consultative process, which should specifically target women's participation in design and monitoring of implementation of the Project. The severe shortage of adequate transport and harassment of women in public and private buses will be addressed in the design and implementation of the RMTS and feeder bus system, with special attention to affordable rates, seats for women, and preventive measures to deal with physical harassment. ADB's investment to address these service delivery and infrastructure needs is critical to reducing women's time spent on such issues and thus freeing time for engagement in income generating activities or leisure and family time. In the provision of project-generated employment to the poor, women will be targeted and equal pay will be provided for work of equal value. 2. 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 the decision-making process: Gender plan Other actions/measures No action/measure				

The process is ongoing and will be addressed during project preparation of the ensuing multitranche financing facility loan.

III.	III. SOCIAL SAFEGUARD ISSUES AND OTHER SOCIAL RISKS						
Issue	Significant/ Limited/ No Impact	Strategy to Address Issue	Plan or Other Measures Included in Design				
Involuntary Resettlement		The transaction advice provided under this TA will not result in any land acquisition and resettlement. Subsequent land acquisition and resettlement issues under the investment Project are being addressed separately, through the reference design and the project processing for a subsequent proposed multitranche financing facility loan program.	 ☐ Full Plan ☐ Short Plan ☐ Resettlement Framework ☑ No Action 				
		The Government will avoid and minimize land acquisition and resettlement occurring under any follow-on loans and the establishment of the RMTS, If avoidance proves to be unfeasible, resettlement plans will be prepared and implemented in accordance with (i) the Government's applicable laws and policies, and (ii) ADB's <i>Involuntary Resettlement Policy</i> (1995).					
Indigenous Peoples		ADB's <i>Policy on Indigenous Peoples</i> (1998) will not be triggered by the conduct of the transaction advice under the TA. The overall RMTS operation will be prepared in accordance with (i) the Government's applicable laws and policies related to indigenous peoples, and (ii) ADB's <i>Policy on Indigenous</i> <i>Peoples</i> . These policies will be incorporated in the project design.	 Plan Other Action Indigenous Peoples Framework No Action 				
Labor Employment opportunities Labor retrenchment Core labor standards		Not applicable.	 □ Plan □ Other Action ⊠ No Action 				
Affordability		Not applicable.	☐ Action ⊠ No Action				
Other Risks and/or Vulnerabilities HIV/AIDS Human trafficking Others(conflict, political instability, etc), please specify		Civil unrest in Lahore may hinder the timeliness of TA implementation. Concerned government departments will ensure adequate engagement and dialogue with informal sector service providers of urban transport to ensure continued broad support for the Project. Ongoing stakeholder involvement and community mobilization will be undertaken to ensure the realization of maximum benefits especially for the poor and women under the follow-on	☐ Plan ☐ Other Action ⊠ No Action				

IV. MONITORING AND EVALUATION

Are social indicators included in the design and monitoring framework to facilitate monitoring of social development activities and/or social impacts during project implementation? \Box Yes \boxtimes No

Not applicable. Monitoring and evaluation of social indicators will be addressed under the ensuing multitranche financing facility loan.