



Completion Report

Project Number: 27358
Loan Number: 1587
September 2008

Indonesia: Metropolitan Medan Urban Development Project

Asian Development Bank

CURRENCY EQUIVALENTS

Currency Unit – rupiah (Rp)

		At Appraisal	At Project Completion
		1 November 1997	31 December 2006
Rp1.00	=	\$0.000304	\$0.00011
\$1.00	=	Rp3,285	Rp9,173

ABBREVIATIONS

ADB	–	Asian Development Bank
BAPPEDA	–	Badan Perencanaan Pembangunan Daerah (Regional Development Planning Agency)
BAPPENAS	–	Badan Perencanaan Pembangunan Nasional (National Development Planning Agency)
BME	–	benefit monitoring and evaluation
BOT	–	build-operate-transfer
DGHS	–	Directorate General of Human Settlements
EIRR	–	economic internal rate of return
FIRR	–	financial internal rate of return
IDC	–	interest during construction
LARP	–	land acquisition and resettlement action plan
LIDAP	–	local government institutional development action plan
MOHA	–	Ministry of Home Affairs
MPW	–	Ministry of Public Works
MSRI	–	Ministry of Settlements and Regional Infrastructure
O&M	–	operation and maintenance
PCR	–	project completion report
PCRM	–	project completion review mission
PDAM	–	perusahaan daerah air minum (local water enterprise)
PIU	–	project implementation unit
PMU	–	project management unit
PPI	–	project performance indicator
PPMU	–	provincial project management unit
REPELITA	–	Rencana Pembangunan Lima Tahun (5-year development plan)
RIAP	–	revenue improvement action plan
RRP	–	report and recommendation of the President
SLA	–	subsidiary loan agreement
SOE	–	statement of expenditures
SPAR	–	subproject appraisal report
UFW	–	unaccounted-for water
WTP	–	water treatment plant

WEIGHTS AND MEASURES

km	–	kilometer
l/s	–	liter per second
m	–	meter
m ³	–	cubic meter

GLOSSARY

kabupaten	–	The third level of government in Indonesia, a subdivision or district of a province
kampong	–	A residential area, usually for low-income classes, in a town or a city

NOTES

- (i) Before 2000, the fiscal year (FY) of the Government and its agencies ended on 31 March. Since 2000, the fiscal year has ended on 31 December. FY before a calendar year denotes the year in which the fiscal year ends, e.g., FY1998 ends on 31 March 1999 and FY2008 ends on 31 December 2008.
- (ii) In this report, "\$" refers to US dollars.

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BASIC DATA

A. Loan Identification

1.	Country	Indonesia
2.	Loan Number	1587
3.	Project Title	Metropolitan Medan Urban Development Project
4.	Borrower	Indonesia
5.	Executing Agency	Directorate General of Human Settlements in the Ministry of Public Works ^a
6.	Amount of Loan	\$116.00 million (original) \$97.40 million (revised on 16 July 1998) \$87.40 million (revised on 24 September 1999) \$82.80 million (revised on 6 October 2000) \$76.98 million (revised on 20 December 2006) \$74.54 million (at completion)
7.	Project Completion Report Number	PCR:INO 1053

B. Loan Data

1.	Appraisal	
	– Date Started	21 July 1997
	– Date Completed	1 August 1997
2.	Loan Negotiations	
	– Date Started	20 November 1997
	– Date Completed	22 November 1997
3.	Date of Board Approval	8 December 1997
4.	Date of Loan Agreement	3 February 1998
5.	Date of Loan Effectiveness	
	– In Loan Agreement	30 March 1998
	– Actual	30 March 1998
	– Number of Extensions	0
6.	Closing Date	
	– In Loan Agreement	30 September 2003
	– Actual	31 December 2006
	– Number of Extensions	2
7.	Terms of Loan	
	– Interest Rate	Floating (London interbank offered rate-based)
	– Maturity (number of years)	25
	– Grace Period (number of years)	5
8.	Terms of Relending (if any)	
	– Interest Rate	11.5% per annum ^b
	– Maturity (number of years)	20
	– Grace Period (number of years)	5
	– Second-Step Borrower	Regional Water Enterprise of North Sumatra

^a In the 23 August 2000 Cabinet reshuffle, the Directorate General of Human Settlements in the Ministry of Public Works became the Directorate General of Urban and Rural Development in the Ministry of Settlements and Regional Infrastructure (MSRI). In October 2004, MSRI was renamed the Ministry of Public Works.

^b Excluding 0.75% per annum commitment charge and 0.25% per annum service charge.

9. Disbursements

a. Dates

	Initial Disbursement	Final Disbursement	Time Interval
	01 May 1998	13 March 2007	94.5 months
	Effective Date	Original Closing Date	Time Interval
	30 March 1998	31 December 2006	93 months

b. Amount (\$ million)

Category or Subloan	Original Allocation	Last Revised Allocation	Amount Canceled	Net Amount Available	Amount Disbursed	Undisbursed Balance
Civil Works	58.00	43.17	14.83	43.17	42.69	0.48
Materials and Equipment	16.50	9.95	6.55	9.95	9.81	0.14
Design and Supervision	6.50	7.36	0	7.36	7.22	0.14
Consulting Services	4.40	4.69	0	4.69	4.37	0.32
Interest During Construction	15.80	11.80	4.00	11.80	10.44	1.36
Unallocated	14.80	0	13.65	0	0	0
Total	116.00	76.97	39.03	76.97	74.54	2.43

10. Local Costs (Financed)

- Amount (\$)	24.87
- Percent of Local Costs	70.70
- Percent of Total Cost	33.40

C. Project Data

1. Project Cost (\$ million)

Cost	Appraisal Estimate	Actual
Foreign Exchange Cost	80.80	49.67
Local Currency Cost	117.40	91.99
Total	198.20	141.66

2. Financing Plan (\$ million)

Cost	Appraisal Estimate	Actual
Implementation Costs		
Borrower Financed	82.20	67.12
ADB Financed	100.20	64.10
Other External Financing	0.00	0.00
Total	182.40	131.22
IDC Costs		
Borrower Financed	0.00	0.00
ADB Financed	15.80	10.44
Other External Financing	0.00	0.00
Total	15.80	10.44

ADB = Asian Development Bank, IDC = interest during construction.

3. Cost Breakdown by Project Component (million)

Component	Appraisal Estimate	Actual
Component A (Infrastructure)		
Land Acquisition	18.80	28.40
Resettlement	1.80	0.00
Civil Works	96.00	76.47
Materials and Equipment	20.70	9.81
Design and Supervision	7.20	8.48
Incremental O&M and Administration	2.90	1.90
Component B (Institutional Development)		
Project Implementation Assistance	4.20	5.49
Action Plans	0.30	0.00
Benefit Monitoring and Evaluation	0.40	0.67
Contingencies	30.20	0.00
Interest During Construction	15.80	10.44
Total	198.20	141.66

O&M = operation and maintenance.

4. Project Schedule

Item	Appraisal Estimate	Actual
Date of Contract with Consultants	April 1998	21 November 1998
Completion of Engineering Designs	October 1999	June 2006
Civil Works Contract		
Date of Award	July 1998	October 1998
Completion of Work	31 March 2003	31 December 2006
Equipment and Supplies		
Dates		
First Procurement	1 October 1998	October 1998
Last Procurement	June 2002	January 2006
Completion of Equipment Installation	31 March 2003	31 December 2006
Start of Operations		
Completion of Tests and Commissioning	March 2003	December 2006
Beginning of Start-Up	April 2003	December 2006

5. Project Performance Report Ratings

Implementation Period	Ratings	
	Development Objectives	Implementation Progress
From 30 March 1998 to 31 December 1998	Satisfactory	Satisfactory
From 1 January 1999 to 31 December 1999	Satisfactory	Partly Satisfactory
From 1 January 2000 to 31 December 2000	Partly Satisfactory	Unsatisfactory
From 1 January 2001 to 30 June 2001	Satisfactory	Partly Satisfactory
From 1 July 2001 to 30 June 2002	Satisfactory	Satisfactory
From 1 July 2002 to 31 March 2003	Partly Satisfactory	Satisfactory
From 1 April 2003 to 31 December 2006	Satisfactory	Satisfactory

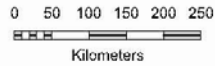
D. Data on Asian Development Bank Missions

Name of Mission	Date	No. of Persons	No. of Person-Days	Specialization of Members ^a
Fact-Finding Mission	6–27 May 1996	4	88	a, b, c, d, e
Consultation Mission 1	12–21 November 1996	1	10	a

Consultation Mission 2	9–17 December 1996	3	27	a, d, e
Consultation Mission 3	20–31 January 1997	3	36	a, d, e
Follow-up Fact-Finding	17–25 March 1997	5	45	a, c, e, f, g
Appraisal	21 July–1 August 1997	5	55	a, b, c, d, e
Special Project Administration 1	27 November– 8 December 1998	1	12	h
Project Inception	13–20 May 1998	2	16	h, i
Review 1	19–20 July 1998	2	4	i, j
Review 2	6–9 November 2000	1	4	i
Midterm Review	18 February–1 March 2002	4	30	j, k, l, m
Special Project Administration 2	21–25 January 2003	1	4	k, l
Review 3	5–7 May 2003	2	6	j, k
Review 4	6–10 October 2003	2	10	j, k
Review 5	23–27 February 2004	3	15	j, k, n
Special Project Administration 3	14–15 June 2004	2	4	k, o
Review 6	24–28 January 2005	2	10	j, k
Special Project Administration 4	26–27 May 2005	2	4	j, n
Review 7	22–31 August 2005	2	18	j, k
Review 8	15–23 May 2006	2	18	j, k
Special Project Administration 5	13 September 2006	2	2	j, k
Special Project Administration 6	25 September 2006	2	2	j, k
Review 9	19–28 December 2006	2	20	j, k
Project Completion Review	28 September–13 October 2007	3	16	k, l, p

^a a - senior urban development specialist, b - counsel, c - programs officer, d - staff consultant (urban finance specialist), e - staff consultant (municipal planning specialist), f - project implementation specialist, g - social development specialist, h - urban development specialist, i - senior project officer, j - project implementation officer, k - project officer, l - head portfolio management, m - staff consultant (engineer), n - resettlement specialist, o - staff consultant (resettlement specialist), p - staff consultant (urban finance specialist).

INDONESIA METROPOLITAN MEDAN URBAN DEVELOPMENT PROJECT (as completed)



98°30'E



I. PROJECT DESCRIPTION

1. On 8 December 1997, the Asian Development Bank (ADB) approved a loan of \$116.0 million for the Metropolitan Medan Urban Development Project (the Project). The loan, from ADB's ordinary capital resources, was declared effective on 30 March 1998. The Project was expected to be implemented over 5 years commencing in April 1998, completed in March 2003, and closed on 30 September 2003. The Project's objective was to improve living conditions and access to basic services and to generate public health and hygiene, environmental, and economic benefits to a growing urban population including urban poor, women and children in the Metropolitan Medan area, covering the municipalities of Binjai and Medan and part of the district of Deli Serdang.

2. The Project's objective was to be achieved through an integrated approach encompassing improvements in urban infrastructure and municipal services such as water supply, sanitation, flood control, drainage, solid waste management, and roads. The Project aimed to improve, through consulting services, the capacity of local governments and water supply enterprises for financial and operational management and for planning, including local resource mobilization. A participatory approach to project design was adopted. The Project introduced a regional approach to planning and the provision of infrastructure and development, and it emphasized the expansion of public-private partnerships in development work. The Project was estimated to cost \$198.2 million, with ADB providing a loan of \$116 million (58%) and the balance of \$82.2 million (42%) contributed by the central, provincial and local governments and the local water supply enterprises (*perusahaan daerah air minum*, or PDAMs). ADB classified the Project as human development.

3. The Project had two parts:

- (i) **Part A: Infrastructure.** This part comprised water supply, sanitation, flood control, drainage, solid waste management, and roads.
- (ii) **Part B: Institutional development.** This part covered project implementation assistance, the preparation of action plans, and the preparation of a benefit monitoring and evaluation (BME) methodology for use by development-oriented institutions.

4. The water-supply component under part A involved three local water enterprises: PDAM Tirtanadi in Medan, PDAM Tirtanadi Deli Serdang Branch,¹ and PDAM Tirtasari in Binjai. Investments under this component included constructing new treatment plants and distribution systems to extend service areas, rehabilitating existing distribution systems, and reducing unaccounted-for water (UFW) losses. The sanitation component investments covered supplying equipment and vehicles; the drainage component covered the improvement and construction of primary and secondary drains; the flood control component covered extending and improving river systems to protect urban land from floods; the solid waste management component covered upgrading existing waste disposal and supplying heavy equipment, vehicles, and facilities; the road component covered improving, widening, and constructing roads and bridges.

¹ At appraisal, PDAM Tirtadeli was in charge. However, upon the signing of cooperation program between PDAM Tirtadeli and PDAM Tirtanadi in 2000, the latter took over water management in Lubuk Pakam, the capital of Deli Serdang.

5. Under part B, the Project provided project implementation assistance to the Directorate General of Human Settlements (DGHS), which was the Executing Agency, the provincial project management unit (PPMU), and the local government project management units (PMUs) and project implementation units (PIUs) in respect to (i) developing and implementing participatory approaches to ensure community consultation and participation during detailed design and the subsequent operation and maintenance (O&M) of facilities; (ii) technical, economic, financial, and management advice; (iii) programming and budgeting; (iv) reviewing detailed engineering designs; (v) procurement procedures; (vi) disbursement procedures; and (vii) contract management procedures. The Project also provided assistance to the Government to undertake the development of a BME methodology and project performance indicators (PPIs) and to undertake PPI activities.

II. EVALUATION OF DESIGN AND IMPLEMENTATION

A. Relevance of Design and Formulation

6. The Project was designed in accordance with the urban sector and development priorities of the Government's Sixth Five-Year Development Plan (1994/95–1998/99) (REPELITA VI) and ADB's sector strategy for Indonesia.² REPELITA VI gave high priority to developing urban sector policies, institutions, and programs. It established targets for increasing the coverage of urban infrastructure services (i) for piped water supply from 40% to 59%, (ii) for sanitation from 44% to 51%, and (iii) for solid waste management from 40% to 46%. REPELITA VI also included provisions for the *Kampung* Improvement Program, Market Infrastructure Improvement Program, and roads and drainage programs. The Project supported the Government's objectives by providing additional resources to move toward these targets in the Metropolitan Medan area.

7. The Project conformed with ADB's sector strategy for Indonesia (1997), which focused on (i) improving infrastructure service levels; (ii) increasing community participation in project preparation, implementation, and maintenance; (iii) promoting balanced regional development; (iv) protecting the urban environment; (v) improving access to basic infrastructure for the urban poor; (vi) increasing the productivity and efficiency of service delivery agencies; (vii) enhancing the capacities of local governments and utility companies to mobilize resources and to plan, design, and implement projects; and (viii) improving the ability of agencies to operate, manage, and maintain infrastructure efficiently. ADB supported the Government's efforts to promote public-private partnerships in urban areas and provided assistance for institutional capacity building through decentralized, bottom-up approaches for investment planning and project implementation, improved project monitoring systems, training, efficient O&M systems for water supply utilities, and stronger finance mechanisms for urban infrastructure.

8. Medan was selected for the Project as it was an important regional growth center in Indonesia that was rapidly expanding and becoming metropolitan in character. Metropolitan Medan occupied a strategic position in the Indonesia-Malaysia-Thailand growth triangle. The area had a major seaport at Belawan and a regional airport hub at Polonia. It was an important center for trade, commerce, and industry. The project concept was to position the local governments and other service delivery agencies to enable them to meet the complex development issues of the emerging metropolitan region and to meet the evolving infrastructure needs of a rapidly expanding urban area. The Project built upon and further developed the

² ADB. 1997. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to the Republic of Indonesia for the Metropolitan Medan Urban Development Project*. Manila (Loan 1587-INO).

integrated urban infrastructure investments for the Medan area that were started under the ADB-financed Medan Urban Development Project³ and Second Medan Urban Development Project.⁴ Project design incorporated the lessons from these predecessor projects.

9. The Project was formulated first by the medium-term investment programs of local governments and feasibility studies prepared by local governments and PDAMs with assistance from consultants funded under the Second Medan Urban Development Project. As its scope appeared to be too ambitious, it was reformulated after ADB review and ADB-funded small-scale technical assistance.⁵ The outcome of the small-scale technical assistance was the Government's identification of a package of integrated high-priority infrastructure investments and institutional capacity-building measures for the Metropolitan Medan area. The Government formally approached ADB for financing them as reflected in the Project. The project performance against the project framework is in Appendix 1.

10. ADB conducted policy dialogue with the Government continuously during its long association with the development of urban and water-supply infrastructure and services. The dialogue addressed such issues as a regional approach to urban development; the devolution of authority and responsibility to local governments; the operational and service efficiency of PDAMs; local revenue mobilization through property taxation and improved pricing policies for services; financing mechanisms for projects with more reliance on loan financing and private sector participation, rather than on grant financing; and environmental management through more effective pollution control standards and enforcement. The dialogue on these issues continued during the design and formulation of the Project.

B. Project Outputs

11. The Asian financial crisis that hit Indonesia in 1997 caused the rupiah to depreciate as low as Rp17,000 per \$1 from Rp3,285 per \$1 at appraisal. Although prices for construction materials increased significantly with crisis-induced inflation, currency depreciation substantially reduced the project cost in US dollar terms. In response to the crisis and the difficulty of acquiring land required for roads and flood-control works, the Government requested ADB to reduce the loan amount to \$76.98 million, changing the project scope during implementation. The project outputs under this report are measured in terms of what was accomplished vis-à-vis the revised component list especially under part A.

1. Part A: Infrastructure

a. Water Supply

12. The water supply component for Medan city was implemented by PDAM Tirtanadi of Medan. The outputs, as revised and included in the final subproject appraisal report, covered the construction of two water treatment plants (WTPs) with a total capacity of 1,000 liters per second (l/s) (500 l/s under the private sector build-operate-transfer [BOT] scheme and another

³ ADB. 1981. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to the Republic of Indonesia for the Medan Urban Development Project*. Manila (Loan 550-INO, for \$39.3 million, approved on 26 November).

⁴ ADB. 1988. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to the Republic of Indonesia for the Second Medan Urban Development Project*. Manila (Loan 919-INO, for \$175 million, approved on 10 November).

⁵ ADB. 1995. *Technical Assistance to Indonesia for the Metropolitan Medan Urban Development Project*. Manila (TA 2515-INO, for \$100,000, approved on 27 December).

500 l/s under loan financing), a primary distribution system of 36 kilometers (km), a secondary distribution system of 300 km, and 29,000 service connections (with another 42,000 to be constructed with the PDAM's own funds). A new 4,000-square meter reservoir, not included at appraisal, was constructed and financed through the loan proceeds. The BOT investors financed only 500 l/s against the appraisal estimate of 2,000 l/s. The partial cancellation of water capacity was due to the financial crisis, which caused the cancellation of several investments such as housing complexes at Dainang in Medan and the proposed Kuala Namu airport at Deli Serdang. Most of the planned 2,000 l/s water capacity was projected to serve these housing complexes and the proposed airport. Uncertainty during the crisis and the cancellation of these investments discouraged investors' financing of the planned 2,000 l/s WTP. However, a 500 l/s WTP was constructed and financed by an investor.

13. Since implementing the BOT scheme was a condition for approving the PDAM's subsidiary loan agreement (SLA), the delay in resolving the BOT issue delayed the implementation of investments financed under the SLA. PDAM Tirtanadi Medan's SLA for \$13.02 million was approved only in September 2001, after a delay of about 3 years. In addition, the reduction of the BOT scheme's water capacity forced a restructuring in the scope and amount of the PDAM's SLA. The SLA was originally planned to finance transmission, distribution and connections only. However, with only the 500 l/s WTP financed under the BOT scheme, the PDAM decided to extend its service coverage by including the construction of a 500 l/s WTP. With only 1,000 l/s additional water capacity added, the scope of the planned transmission and distribution lines needed to be reduced as well. In the end, this reduced the SLA amount from the estimated \$19.80 million to only \$13.02 million.

14. With regard to the Binjai water-supply component implemented by PDAM Tirtasari Binjai, the Project provided an additional distribution network of 7.60 km. The system is now providing improved water supply services to 1,400 existing house connections as targeted. In Deli Serdang, about 2,500 new service connections were installed against the target of 3,500. Insufficient water production has been one of the reasons for not achieving the new connection target. During several project review missions, the PDAM reported that it was seeking cooperation with a private investor to increase water production. However, up to the project completion review mission (PCRM) the cooperation had not materialized. A comparison of actual outputs against the appraisal estimates is in Appendix 2.

15. Field investigations done by the PCRM showed that the quality of work is generally satisfactory and that people benefit from project outputs in terms of receiving a regular supply of cleaner water that improved their health and living standards. The PDAMs benefited from an enlarged customer base and efficiency and viability improvements. The PDAMs showed satisfactory performance in reducing UFW. In PDAM Tirtanadi, Medan, in 2002⁶, UFW was 27.2%; in 2006 it was 25.0%. Similarly for PDAM Tirtasari Binjai, UFW was reduced from 25.0% to 24.0%. For PDAM Tirtanadi's Deli Serdang Branch, UFW was reduced from 31.5% to 30.1%.

b. Sanitation

16. Appraisal envisioned the provision under the sanitation component of six units of septic tank maintenance vehicles and equipment for Medan and three units for Binjai. However, the scope of the sanitation component changed during implementation with the cancellation of

⁶ At appraisal, initial data on UFW and targets after project completion for the three PDAMs were not provided. Works under PDAM Tirtanadi started in 2002, after the approval of its SLA in 2001.

Binjai's and Deli Serdang's SLAs⁷. Therefore, the final output was the purchase of a high-pressure sewer-flushing truck for Medan. A comparison of actual outputs against appraisal estimates is in Appendix 2. The PCRМ noted that the purchased equipment was properly maintained and operated.

c. Flood Control

17. The flood-control component aimed to prevent flood damage in affected areas in Medan city and Deli Serdang. The original scope of work focused on channel improvements to the Deli River (6.70 km), Badera River (20 km), Serdang River (9.3 km), and Kuala Namu/Gingging River (12.20 km). However, land acquisition issues prompted a project restructuring mission in 1999 to cancel the Deli River upstream and Kuala Namu/Gingging improvements, scaling down targets from 48,203 meters (m) to only 33,000 m. An additional improvement to protect the downstream stretch of the Deli River was approved in 2000.

18. The five original locations were reduced to two, and total flood-control improvements under the component ultimately came to only 25,655 m (47%). A comparison of actual outputs against appraisal estimates is given in Appendix 2. The PCRМ noted that the revised physical targets had been met and the quality of work was generally satisfactory. Although the completed works fell short of the original targets, they nevertheless improved the capacity of the river channels and their associated hydraulic structures. The works also brought about the rehabilitation and upgrading of existing flood-containment levees, riverbeds, and bank-protection structures, which reduced the incidence of flooding in the improved areas, to the convenience of people and traffic.

d. Drainage

19. The drainage component was reformulated to properly address the specific needs at the time of project implementation and to conform to the specifications laid down. Appraisal provided for total drainage improvement of about 268 km (about 11 km of primary drains and 125 km of secondary drains in Medan, 52 km of primary drains and 29 km of secondary drains in Binjai, and 28 km of primary drains and 23 km of secondary drains in Deli Serdang). The reformulated program came to only 243.92 km of primary and secondary drains (81.71 km in Medan, 64.61 km in Binjai, and 97.60 in Deli Serdang). A comparison of actual outputs against the appraisal estimates is given in Appendix 2 (the data in some cases were available only for primary and secondary drains combined, not disaggregated).

20. The PCRМ noted that the revised physical targets had been largely met and the quality of work was generally satisfactory. The improvements had reduced flooding and inundation in the three cities, to the convenience of the general public and traffic. It appeared that an integrated master plan and a program of drainage and river maintenance needed to be formulated and implemented to bring about a more effective and sustainable solution to the problems of storm water drainage in the long term in Medan and surrounding areas.

e. Solid Waste Management

21. As planned, this component was carried out in Binjai and Deli Serdang. At appraisal it was targeted that waste-disposal sites; new transfer depots; and a combination of collection vehicles, containers, trucks, frontloader with backhoe, and inspection vehicles would be

⁷ This component was planned to be financed through the SLA mechanism.

provided. The financing of the solid waste and sanitation components was planned to be through the onlending mechanism, or SLAs. However, the Ministry of Finance did not approve Binjai's and Deli Serdang's SLAs, as the two local governments had unpaid debts. Consequently, some items were deleted from the scope of works. Binjai and Deli Serdang partly financed the component from their own budgets. A comparison of actual outputs against the appraisal estimates is given in Appendix 2.

22. The PCRMM noted that the revised physical targets had been generally met and the quality of work was generally satisfactory. Waste disposal in both cities was conducted satisfactorily, with the final disposal sites operating as sanitary landfills. These sites and the transfer depots have sufficient road access; drainage; workshop and maintenance facilities; schedules for collection, disposal and inspection; organization; and operational budgets.

f. Urban Roads

23. Appraisal provided for an urban road improvement program of (i) 51 km and a flyover in Medan, (ii) 7 km in Deli Serdang, and (iii) 25 km (including 13 km of secondary road rehabilitation and a bridge) in Binjai, for a total of 83 km. That program was scaled down by the "spring cleaning" mission in 1999 following problems of land acquisition and further adjusted during detailed design. The revised program came to a road network of 35.73 km in Medan, 7.00 km in Deli Serdang, and 29.78 km in Binjai, for a total of 72.51 km, or a shortfall of 10.49 km (12.6%) below the appraisal estimate. The improvements included traffic-management facilities at all major intersections. As against the revised program of 72.51 km, the realized program came to 71.59 km (29.04 km in Medan, 12.77 km in Deli Serdang, and 29.78 km in Binjai), for a shortfall of 0.92 km (1.3%). A comparison of actual outputs against the appraisal estimates is given in Appendix 2.

24. The urban roads component was the largest in the project, representing 23.49% of the total project costs. Field investigations done by the PCRMM showed that the revised physical targets had been largely met. However, as mentioned earlier, the objective of building wide roads to facilitate traffic flow was not met on some roads because of land acquisition problems, such that what had been planned as four lanes became two lanes in some sections, hindering the flow of traffic. The quality of work was generally satisfactory. The inner and outer ring roads, Yos Sudarso flyover, Lingkar bypass, and rehabilitated roads and bridges in Binjai have reduced traffic congestion and facilitated its smooth flow, to the convenience of the public.

2. Part B: Institutional Development

a. Project Implementation Assistance

25. A consortium of international and domestic consultants was selected to undertake the work, and it began fieldwork in November 1999, or about 20 months after the loan became effective. It provided the required assistance for implementing the three institutional development components under part B. The outputs achieved are outlined below. Assistance was provided to DGHS and the PPMU, PMUs, and PIUs to properly implement the six components under part A. That included services for reformulating and planning the Project under the changed circumstances; evaluating potential projects from technical, economic, financial, and management standpoints; reviewing the detailed designs and altering them where necessary, taking stakeholder interest into consideration; programming to get the work done quickly; budgeting to keep costs under control and within the financial plan; preparing tenders

for procurement following ADB and Government procedures; monitoring and reporting to ADB and government agencies; and preparing BME guidelines.

26. Assistance was given to resolve other issues that came up, such as the quality of work, which had deteriorated in the first year of project implementation (1998/99) due to poor quality, environmental considerations, the promotion of public-private partnerships,⁸ and conducting workshops and awareness campaigns to win support from the public for the projects to be undertaken. The consultant also monitored disbursements of funds and contract progress. All this work was done in close association with the various PIUs, which appeared to have learned from experience and are now capable of handling such projects more independently.

27. A project memorandum was prepared for each subproject describing the work proposed, cost, justification, programming and budget needs, and method of implementation. In addition, budgets were prepared for all counterpart funds from all sources. A revised loan allocation and BME were also addressed. Two workshops were conducted for local government officials dealing with budgeting, justification for subprojects, and their prioritization. The consultant also assisted in reformulating and redesigning the project components.

b. Action Plan Preparation Assistance

28. The assistance to prepare the local government institutional development action plans (LIDAPs), revenue improvement action plans (RIAPs), and corporate plans envisaged 8 person-months of international consultancy and 21 person-months of local. However, following the recommendations of the 2002 midterm review mission, these activities were cancelled.⁹ The reasons for canceling the activities were (i) the delay in recruiting consultants as, by the 4th year of project implementation, the recruiting process had not started; (ii) experience from similar previous projects, which indicated that recommendations from the LIDAPs and RIAPs were not implemented by government agencies; and (iii) the PDAMs having already allocated their own budgets to prepare their corporate plans. The midterm review mission recommended that the budget originally allocated for these activities be allocated instead to improve project management through the PPMU-strengthening subcomponent. With the approval of the Government and ADB of the PPMU-strengthening subcomponent, budgets were provided for PPMU operation such as for office space and support staff. Project management improved with the implementation of this subcomponent.

c. BME Assistance

29. The consultants prepared a BME methodology with appropriate PPIs for use by government agencies to evaluate the impact of the Project. It was prepared using baseline surveys and data collection on socioeconomic, environmental and physical impacts. Government officials were trained at two workshops in transferring understanding of how to execute baseline surveys and the theory and execution of the data processing and reporting.

C. Project Costs

30. As a result of three project-restructuring exercises (also known as “the spring cleaning”) conducted by ADB at the Government request, project costs and scope changed during

⁸ PDAM Tirtanadi was assisted in formulating the BOT project with foreign partner, Lyonnaise des Eaux.

⁹ The change was considered minor, as it did not substantially affect the Project’s purpose, components, costs, benefits, procurement, or other implementation arrangements.

implementation. Project restructuring was carried out in 1998, 1999, and 2000. Partial loan cancellation took place in December 2006, shortly before project completion. These reformulations reduced the loan amount to \$76.98 million: \$63.92 million for part A, \$4.90 million for part B, and \$11.80 million for interest during construction. At project completion,¹⁰ the actual loan amount was \$74.54 million, comprising \$59.73 million for part A, \$4.37 million for part B, and \$10.44 million for interest during construction. Appendix 3 compares the appraisal and actual loan amounts.

31. At appraisal, project costs were estimated at \$198.20 million, comprising \$143.70 million (74%) for part A, \$4.90 million (3%) for part B, \$30.20 million (15%) for contingencies, and \$15.80 million (8%) for interest during construction. Foreign exchange costs accounted for \$80.80 million, or 41% of the total project cost. In 2000, after project reformulation in three exercises, project costs were reduced by 28% to \$149.42 million. After the partial cancellation in 2006, project costs were further reduced to \$143.70 million.

32. At project completion, actual total project costs came to \$141.66 million, or only 71% of the appraisal estimate: \$125.06 million (88%) for part A, \$6.16 million (4%) for part B, and \$10.44 million (8%) for interest during construction. The actual project cost comprised \$49.67 million in foreign currency (35%) and \$91.99 million in local currency (65%). The actual ADB contribution was \$74.54 million (53%), covering \$49.67 million of the foreign exchange cost and \$24.87 million of the local currency cost.

33. The actual government contribution was 47%, higher than the appraisal estimate of 41%. The increase in the government contribution was mostly from the significant increase in government investments for land acquisition. Even though some works under the roads and flood-control components were cancelled because of the difficulty of acquiring land, the Government's investments for acquiring land reached \$28.40 million, or 20% of the total project cost. This is an increase of more than 50% on the estimated land acquisition allocation of \$18.80 million at appraisal.

34. By component-wise breakdown, the roads component was the largest, representing 23% of the total project costs. The sanitation component was smallest, representing only 0.13% of the total project costs. The estimated and actual project costs, broken down by component and category, are in Appendix 4.

D. Disbursements

35. Disbursements under the ADB loan totaled \$74.54 million, or 97% of the revised loan amount of \$76.98 million. The undisbursed loan balance of \$2.43 million was canceled at the actual loan closing date of 2 April 2007.

36. The report and recommendation of the President (RRP) indicated that, to simplify loan administration, funds were to be disbursed based on ADB's *Guidelines on Imprest Funds and Statement of Expenditures (SOE) Procedures*. However, in response to the tendency of abusing the imprest account and SOE procedures by splitting the agreed packages into many smaller packages of no more than \$50,000 to avoid the requirement of getting prior approval from ADB, the midterm review mission of March 2002 recommended a minor change in implementation

¹⁰ The loan was closed on 31 December 2006. However, it was kept open until 2 April 2007 to finalize disbursement on contracts that had been committed earlier.

arrangement, namely the use of the direct payment method and the cancellation of the imprest account and SOE procedure.¹¹

E. Project Schedule

37. The appraisal and actual project schedules are given in Appendix 5. The Project was expected to be completed in 5 years but actually took about 8 years despite the cancellation of some works due to land acquisition issues. There were many reasons for this long delay: delay in consultant selection; land acquisition and settlements problems; problems in approval of SLAs and insufficient counterpart funds; problems in procurement, organization and management of the Project; and disbursements. The delays meant the loan closing date had to be extended for 39 months from 30 September 2003 to 31 December 2006, and the Project closed for final disbursement only on 2 April 2007.

F. Implementation Arrangements

38. The implementation arrangements agreed at appraisal were generally followed (Appendix 6). The EA was DGHS in the Ministry of Public Works, which was subsequently renamed the Directorate General of Urban and Rural Development in the Ministry of Settlements and Regional Infrastructure. It did not function as well as expected, taking a long time to put into place the proper organization and management structure for project implementation. Also, a lack of coordination among the PPMU, PMUs, PIUs, and the other agencies concerned caused misunderstandings and delays in project implementation. The PPUM began to make a positive contribution to project implementation only after it was strengthened with appropriate organizational and staffing changes in 2002.

G. Land Acquisition

39. Land acquisition was required for the urban road and flood-control components. At appraisal, the total number of assets to be acquired for the Project was estimated at 907 dwellings and commercial structures for demolition and 937 structures for partial demolition. The land acquisition and resettlement cost was estimated at \$18.8 million.

40. At appraisal, it was expected that 11 project packages would require land acquisition. By the time the Project was completed, 10 urban road project packages and two flood-control packages had required land acquisition. During project implementation, two new packages were proposed and five packages were removed from ADB financing, of which four were cancelled because of difficulties in acquiring land.¹²

41. The Project started before ADB made a land acquisition and resettlement action plan (LARP) mandatory. The implementation of the Project continued until ADB's Operations Manual on Involuntary Resettlement was issued in 2003.¹³ Consequently, most of the LARPs were prepared after or during the civil works, and the land required for the Project was acquired in parallel with construction works. The LARPs for 10 of the 11 urban road packages and 2 of the

¹¹ In 2001, ADB noted that the EA broke down the indicated packaging agreed at appraisal without ADB approval. The splitting led to a poor quality of work, and some works under the drainage component were not financed by the loan. The splitting of contracts for the preparation of design engineering for the drainage component demanded component reformulation.

¹² In November 1999, the packages flood control (FC) 103 and FC 112 were dropped from the Project. In November 1999 and February 2003, package transportation (TR) 18 was dropped, as was TR 16 in January 2007.

¹³ Operation Manual Section F2 dated 29 October 2003, which was renewed by OM section F2 25 September 2006.

3 flood-control packages were prepared ex post facto. Thus, the LARPs were prepared, approved by ADB and implemented prior to the commencement of the civil works for only three packages (two original and one additional).

42. On project completion, 2,285 households, or 11,075 people, had been affected. The cost of land acquisition and the resettlement of affected people amounted to Rp252,040,227,048 (\$28.4 million equivalent). By the project completion date of 31 December 2006, four plots of land were still to be acquired to enable the completion of one urban road package. Failure to acquire the land resulted in the ineligibility of the road works contract under loan financing; the Government completed the works with its own resources. A further 11 riverside plots for a flood control package (FC 102) could not be acquired as ownership conflicts prevent the local government from paying compensation to the affected landowners. Failure to acquire these plots neither affected the implementation of the flood-control works as designed, nor did it impact the functionality of project facilities.

43. The land acquisition issues the Project experienced resulted mainly from (i) the lack of a country legal framework for compensating nonphysical assets;¹⁴ (ii) the delayed release of compensation funds; and (iii) insufficient guidance and clarity from both ADB and EA staff on the implementation of ADB's *Involuntary Resettlement Policy* (1995). These factors significantly hampered civil works. These issues, in particular those related to staff capacity, were resolved through the recruitment of a national resettlement specialist by the Indonesia Resident Mission.¹⁵

44. The Project was affected by insufficient mechanisms for evaluating and monitoring the implementation of land acquisition and resettlement activities. The evaluation process set up by the Government through the state audit office at the request of the Ministry of Finance focused on the utilization of funds and conducted only ex post facto review of land acquisition activities and expenditures.

45. Land acquisition and resettlement were monitored and their issues addressed through ADB review missions, including several special project administration missions. After project completion, all documents related to land acquisition, including receipts and other evidence of compensation paid to affected people, were comprehensively reviewed. This confirmed that the requirements of the LARPs were generally met and that affected people were compensated in accordance with their provisions. No issues remain outstanding related to land acquisition and resettlement. A synopsis of the land acquisition issues is provided in Appendix 7

H. Conditions and Covenants

46. The status of compliance with loan covenants is given in Appendix 8. Most of the covenants have been complied with, but some were not or were only partly complied with, including the (i) arrangements for insuring project facilities, (ii) provision of adequate counterpart funds and land acquisition budget, (iii) promotion of community participation, and (iv) provision of required land and assets before project implementation.

47. On the land acquisition issue, the ADB Review Mission in February 2004 found that, contrary to what was stated in the loan agreement and the RRP, no land acquisition and

¹⁴ The legal background and government regulation for land acquisition used in the Project was PD No.55/1993, which did not provide for rehabilitation measures or relocation assistance for affected people as required by ADB's *Involuntary Resettlement Policy*.

¹⁵ The resettlement specialist was fielded only in June 2006 only, more than 5 years after loan effectiveness.

resettlement action plan had been prepared, and that ex post facto LARPs were prepared. This was realized only about halfway through implementation, by which time delays had already started to occur.

I. Related Technical Assistance

48. With funding from the previous ADB-funded Second Medan Urban Development Project, the Government retained consultants to identify and prepare a package of urban infrastructure investments. The work yielded an infrastructure-development program estimated to cost \$600 million, which exceeded the financial and institutional capacity of the implementing agencies. To strengthen project preparatory work, ADB provided a small-scale technical assistance. Based on its findings, the Government identified an integrated package of high-priority infrastructure investments and institutional capacity-building measures for the project area.

J. Consultant Recruitment and Procurement

49. The consultant selection process adopted by DGHS was partly satisfactory. Although their recruitment followed ADB's *Guidelines on the Use of Consultants*,¹⁶ the selection process took a long time, with advisory consultants fielded only in November 1999, or about 21 months after the loan became effective.¹⁷ No valid reason for this delay is evident other than changes in the EA organizational structure.¹⁸ The delay raised concerns about governance practices in developing member countries and the need for EAs of ADB-financed projects to scrupulously follow ADB guidelines on the recruitment of consultants. That delay accounted for a substantial part of the overall delay in project implementation.

K. Performance of Consultants, Contractors, and Suppliers

50. The performance of consultants was partly satisfactory. They helped to complete the Project within the revised scope and cost estimate, albeit delayed, and made some contribution to institutional development. The delays in project implementation were beyond their control to some extent. However, weaknesses in their work were identified in two specific areas. Although the need for community participation was emphasized and became the main theme of the Project, the consultants did not appear to have given due attention to properly addressing it. Had that been done with proper planning, organization, and budgets—and been vigorously followed up with government agencies during the very early stages of the Project—the prospects for generating public support would have been much greater, perhaps avoiding the delays caused by land acquisition and resettlement.

51. Second, knowing the general context in Indonesia, similar proactive measures should have been taken to ensure that a mechanism was in place with adequate funding to ensure proper project supervision and control. That would have helped to reduce the implementation delays and the financial malpractices that appeared to have taken place.

52. The RRP estimated that the Project would require 472 person-months of consulting services, 115 person-months international and 357 person-months national. However, the PCRM analysis indicated that the actual consultant time was 570 person-months, 145 person-

¹⁶ Early in project implementation, the *Guidelines for Procurement* dated January 1994 was used.

¹⁷ The team consisted of a team leader, implementation specialist, financial analyst, municipal engineer, urban planner, programming specialist, and support staff. All but the implementation specialists were local.

¹⁸ The EA carried out two reorganizations following Cabinet reshuffles in 1998 and 2000. During these reorganizations, which effectively took more than 1 year, the division of responsibilities was often unclear.

months international and 425 person-months national. Project implementation delay was one of the causes for the increased assistance required. The poor quality of design and of supervision consultants required the provision of additional person-months and budget for design reformulation and supervision strengthening. Appraisal estimated that the design and supervision component would require \$7.2 million, but the actual cost was \$8.48 million.

53. The performance of contractors was partly satisfactory, with some being disqualified from further participation. Their poor performance could be attributed to inadequacies in the design work, contractor selection process, and closeness of supervision and control. The situation improved with the recruitment of foreign quality-assurance advisors. The PCRMs' field investigations and discussions with stakeholders showed that the quality of work appeared to be maintained so far for the six components. The performance of the suppliers of materials and equipment was generally adequate in terms of quality and timeliness.

L. Performance of the Borrower and the Executing Agency

54. The performance of the Borrower and the EA is considered partly satisfactory. Both could jointly be held responsible for the various problems and considerable delay in completion. There were delays in (i) selecting and fielding the consultants responsible for project implementation; (ii) approving the SLAs for PDAMs after the cancellation of SLAs for Binjai and Deli Serdang, which adversely affected the implementation of the water supply, sanitation, and waste disposal components; (iii) establishing the required organization and management structure of the PPMU, PMUs, and PIUs; (iv) providing the required counterpart funds; and (v) acquiring the required lands.

55. ADB relied heavily on the experience of DGHS to minimize project risks and take appropriate steps to facilitate the smooth implementation of the Project. However, DGHS did not seem to have the wherewithal to help where their help was most needed or their experience would have mattered most to resolve problems adequately. In these circumstances, Government ownership of the Project and its commitment to it became questionable. An explanation may be that the Project began to be implemented when decentralization was underway, making unclear which government entities, the central Government or those of Metropolitan Medan, was responsible for project implementation. None seems to have paid full attention to ensure the smooth implementation of the Project.

M. Performance of the Asian Development Bank

56. ADB's performance is considered partly satisfactory. A major flaw in ADB's design and formulation work caused most of the problems and delays during project implementation. Interestingly, the delays were caused by the exact potential risks previously identified by ADB. The major flaws were a lack of project preparatory work and adequate measures to mitigate potential risks. First, as the complexities of a project of this nature, its inherent weaknesses, and the potential risks were recognized, project preparatory work should have been done to resolve the key issues before project implementation commenced. For example, the legal owners of the land parcels needed for the road, flood-control and drainage components should have been identified, eliminating those parcels with potential risks arising from ownership or high asking prices and including in the design only those parcels without any potential problems.

57. At that stage, alternative approaches should have been discussed with the central and local governments and with the communities in respect of any vital land sections that were not

going to be available.¹⁹ As that was not done, the problems were postponed, to be faced when the Project was implemented. That was too late, and the subsequent cancellation of efforts to acquire some parcels of land caused long delays in project implementation. Land availability should have been clarified and legally documented before the Project was submitted for approval by the ADB Board of Directors. ADB appeared to have acted in haste.

58. The Indonesia Resident Mission was handed responsibility for supervising the Project in 2001. During the 6 years of implementation, ADB fielded 12 project administration missions (seven review, four special project administration, and one midterm review) for a total of about 185 staff person-days, or about 31 staff person-days per year. The missions were composed mainly of project implementation specialists and project officers. On the face of it, the frequency and the number of staff person-days per mission appears to have been sufficient for effective supervision, but this did not seem to mitigated implementation delays.

59. A resettlement specialist was included only in the review mission in February/March 2004 for 11 person-days. Such a specialist should have included in the review missions from the moment ADB realized that the Government was not meeting its commitment to have the land acquisition and settlement issue resolved before project implementation commenced and land acquisition became a serious issue. Ultimately, ADB had to give special assistance to devise a LARP. But that came far too late. The problems of delays had already begun, and some purchases of land for the road, flood-control and drainage components were cancelled. From the outset, ADB's supervision work should have been stronger and more aggressive and proactive in taking up the key issues with the various government entities and having them resolved, so that project implementation could proceed smoothly and without delay.

III. EVALUATION OF PERFORMANCE

A. Relevance

60. The relevance of the Project decreased during implementation and at completion. This was for lack of project preparatory work and problems in project design and formulation, which reduced the original project scope and caused considerable delays in implementation. With the Government unable to keep its commitment regarding land acquisition and resettlement, the flood-control, drainage and road components could not be fully implemented or fully realize the benefits expected at appraisal. Similarly, the Government's refusal to approve the SLAs brought reductions in the scope of the water supply, sanitation and waste disposal components, delays in their implementation, and failure to fully realize benefits estimated at appraisal.

61. There is no evidence of public participation or support, particularly to resolve the land acquisition issue. However, the project has now been fully implemented within its reduced scope and the revised project cost, albeit with a long delay. Overall, the Project is rated partly relevant. The Government is in the process of acquiring the land originally expected with the view to clearing the bottlenecks on the roads by 2010, which would enhance the usefulness of the roads component. Also, local governments and municipalities in Medan, Binjai, and Deli Serdang continue to implement the redesigned drainage systems initiated under the Project.

¹⁹ Indonesia does not have a law allowing the state to forcibly acquire private land for the public good when all other alternatives for acquisition have failed. Apparently, this need is now being looked into.

B. Effectiveness in Achieving Outcome

62. The Project objective was to improve living conditions and access to basic services, and to generate public health and hygiene, environmental, and economic benefits to a growing urban population including urban poor, women, and children in the project area. These benefits were expected to be reaped by a population of 2.4 people (12%, or 400,000, classified as poor) as estimated at appraisal. However, none of the six components met appraisal estimates in terms of physical work, impact, and economic feasibility. The built facilities also have operational problems. Because of land acquisition problems, which ultimately required a reduced scope of work, the improved roads continue to have bottlenecks that impede traffic flow and raise concerns about road safety, and some of them that were expected to serve as major highways do not.

63. Although flood-control work was done on the Deli River downstream, the Deli River upstream work planned at appraisal could not be done due to the land acquisition problem. Concerns have arisen regarding the sustainability of the downstream work without matching work done upstream. Design flaws restricted the implementation of the drainage component, with only 10% of the needed system improvements now completed. The sanitation and waste disposal components fell far short of appraisal estimates. Only in the water supply component were appraisal estimates largely achieved, despite problems with their SLAs.

64. Some transfer of knowledge and experience in project implementation took place through the consulting services assisting project implementation. The consultants prepared a BME methodology for the Government. ADB cancelled the consulting services' preparation of action plans. However, the project, in its revised scope, has now been fully implemented. That contributed to some extent toward achieving the project objective. Taking all these factors into account, the Project is rated as less efficient in achieving its outcome.

C. Efficiency in Achieving Outcomes and Outputs

65. The Project was less efficient in achieving outcomes and outputs. What was expected to be achieved in 5 years at appraisal took, in reduced scope, 8 years. Delays in project implementation were caused by land acquisition problems, the poor quality of work, the need to redesign some work done earlier, and poor funding arrangements. The EA and the implementing agencies did not seem to have managed project implementation efficiently. Apart from delays caused by the land acquisition problems, the causes of other delays (consultant selection, SLAs, administrative arrangements, procurement, and quality control) could have been better managed to minimize them. Establishing the PPMU, PMUs, and PIUs took a long time. Once established, they never seemed to have worked well, what with continuing staffing, coordinating, and budgeting problems. The delays and problems caused a threefold increase in the project advisory budget and staffing levels.

66. Appraisal estimated economic internal rates of return (EIRRs) for nonrevenue-generating components such as flood control, drainage, roads, and water supply, as well as financial internal rates of return (FIRRs) on the revenue-generating water-supply component. The flood-control component was assessed to be economically viable with an EIRR of 13%–21%, drainage with an EIRR of 15%–26%, and urban roads at 15% to more than 40%. However, the actual EIRRs after project completion in 2006, as recalculated by the PCRM, showed these components to be largely uneconomic. The actual EIRRs ranged between 0.7% and 10.9% for flood control, 6.5% and 21.7% for drainage, and 7.2% and 45.7% for urban roads. Most of these EIRRs are below the cutoff rate of 12%. On the other hand, the actual EIRRs for the water-

supply component show that it is largely economically viable, ranging from 5.5 to 53.9% for PDAM Tirtanadi in Medan, 12.5% to 109.1% for PDAM Tirtasai in Binjai, and 12.5% to 19.1% for PDAM Tirtadeli in Deli Serdang. The appraisal estimated base case EIRRs of 27.1% for Medan, 28.0% for Binjai, and 12.0% for Deli Serdang.

67. A comparison of the appraisal estimates of EIRRs to actual EIRRs at project completion is given in Appendix 9. However, the EIRRs of the roads, drainage and flood-control components should increase in the future with the clearing of road bottlenecks, flood control on the Deli River upstream, and the continued implementation of the redesigned drainage systems initiated under the Project.

D. Preliminary Assessment of Sustainability

68. The preliminary assessment is that the Project's sustainability is likely. The reduced project has now been fully implemented. With decentralization, local and city governments have direct responsibility for infrastructure and municipal services including the six project components. They have set up the required organizational, administrative, and accounting structures to provide the services efficiently. They have their own internal systems to audit and control financial and other transactions.

69. After a poor start in the quality of work, particularly with regard to road improvements and design work for the drainage systems, subsequent work on all six components appeared to be satisfactory. Maintaining the six components in satisfactory condition will depend on the timely availability of adequate O&M facilities. Other than the three local water-supply enterprises and, to some extent, the solid waste component, the other four components (sanitation, flood control, drainage, and roads) do not generate any income on their own for sustainability.²⁰

70. With regard to O&M for road maintenance, the central Government appears to provide sufficient O&M support to local governments to maintain regional road networks. Flood control also benefits from ad hoc central Government support. Only for the sanitation and drainage components do local and city governments need to provide O&M directly for sustainability.

71. Under the decentralization program, provincial and local governments appear to receive budget support from the central government for their O&M activities to cover shortfalls in their revenue collection, but not under a formal arrangement. There appears to be a need for a clear arrangement or a formula to share O&M budgets between the central and provincial or local governments. That would enable the provincial and local governments to have a clear idea what will be available and plan their maintenance accordingly. The availability of adequate O&M support and its judicious utilization should ensure the sustainability of the six components.

72. The central Government has initiated action to acquire the parcels of land that cause bottlenecks on the two outer ring roads (North West and North East) and should have them fully cleared by 2010. That will ensure the sustainability of that key national highway.

E. Impact

73. The Project brought about positive impacts for a population of 2.4 million (about 12%, or 400,000, categorized as poor)²¹ in the project area covering the three cities of Medan, Binjai,

²⁰ Except in the case of the Medan–Krakatau Road, for which a toll of Rp6,000 is collected.

²¹ Ministry of Public Works. 2006. *Project Benefit Monitoring and Evaluation Report*. Jakarta.

and Deli Serdang. It helped to improve the quality of life through better health, hygiene, and sanitation standards brought about by the implementation of the components for water supply, sanitation, and solid waste disposal. Similarly, public health standards and opportunities for livelihoods increased with the implementation of the flood-control and drainage components. They also contributed to protecting infrastructure and private property, including agricultural land, from repeated flooding. The roads component contributed to some extent by easing traffic congestion, facilitating a freer flow of traffic and reducing air pollution and noise. A detailed project impact description is provided in Appendix 10.

74. The Project contributed to institutional development. The advisory consultants conducted workshops and worked with central, provincial and local government officials, dealing with the day-to-day requirements involved in project implementation. The officials, EA and staff of the PPMU, PMUs, and PIUs benefited to some extent from on-the-job training. The consultants prepared a BME methodology and PPIs for use in monitoring the benefits of urban development projects. They also trained officials of government agencies in conducting baseline surveys, BME activities, and data processing and reporting.

75. The Project had a positive impact on the environment. An initial environmental estimate was conducted during the preparation of the Project, which received a “B” classification. Since the implementation of the Project, no significant adverse impacts have been identified. However, the Government and ADB need to follow up on the continued compliance of the six components with environmental regulations.

76. The Project stressed the importance of community participation and coordination in a bottom-up process of project planning and implementation. However, it appeared that the communities did not play a positive role in planning project activities and therefore did not contribute to resolving the key issues such as land acquisition and the O&M of the built facilities. The absence of a clear guidance on applying the participatory approach and a lack of understanding of the concept are among the reasons for this failure.

77. What appeared to be needed at project preparation was to mount a program of community-based planning to empower communities to identify their needs and priorities, and to submit them formally in partnership with government and perhaps nongovernment organizations, which would have given the communities time to learn to identify problems and solutions, to be planners in a bottom-up process, and to relate the subprojects to their actual needs. That type of planning would have enhanced the prospects of success and sustainability. The Government and ADB have been working toward establishing such a system and thereby harness and organize meaningful community participation for successful project implementation. This is reflected in the approval and implementation of ADB-financed community-driven development projects such as the Neighborhood Upgrading and Shelter Sector Project (implemented in 2005)²².

IV. OVERALL ASSESSMENT AND RECOMMENDATIONS

A. Overall Assessment

78. The Project is rated partly successful on the bases of its assessed relevance, effectiveness, efficiency, and sustainability. The positive aspects are that the revised project

²² ADB. 2005. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to the Republic of Indonesia for the Neighborhood Upgrading and Shelter Sector Project*. Manila (L 2072/2073-INO)

was achieved within the revised project cost, albeit with delay. The water-supply component was successful. The roads component fell short of the appraisal estimate by 12%. Road bottlenecks are being cleared by the Government, which will enhance their usefulness and economic viability. The drainage component fell short of the appraisal estimate by 9%. It has improved the drainage situation in the three cities considerably. The flood-control component fell short of the appraisal estimate by 46%. It has reduced the incidence of flooding in previously affected areas. These were the four largest components of the six based on cost. The two smallest components made little contributions to improving sanitation and waste disposal.

B. Lessons

79. Five important lessons can be learned from this Project: (i) Although the Asian financial crisis adversely affected the Project, the confluence of several factors contributed to the final outcome. (ii) If a proposed project identifies potential risks, it should go ahead only after substantial proof is available that those risks can be adequately mitigated. (iii) Success in implementing a development project depends largely on the extent of project preparatory work prior to its presentation for approval. (iv) For project loans in which package or contract sizes have been indicated at appraisal, the direct payment procedure is appropriate, to avoid the abuse of the imprest account and SOE procedures by splitting contracts into smaller ones. (v) Local contractors' work should be supervised and monitored closely to ensure its quality and to avoid cost increases and delays.

C. Recommendations

1. Project-Related

80. Government agencies complete as soon as possible the work planned at appraisal to (i) clear the bottlenecks on the outer ring roads (North West and North East) and ensure the free flow of traffic and allow the roads serve as major highways as the appraisal intended; (ii) undertake flood-control work on the Deli River upstream that would correct the current mismatch between the upstream and downstream flood-control systems and enhance the sustainability of the work already done; (iii) carry out flood-control work on the Kuala Namu/Gingging River; (iv) prepare and implement an integrated master plan and a drainage and river maintenance program to bring about more effective and sustainable storm water drainage in the long term in Medan and surrounding areas; and (v) repeat the BME survey to measure the effective impact of the fully completed developments.

81. The central, provincial and local governments should make available sufficient budgets for (i) completing the implementation of the redesigned plan for improving the drainage systems in Medan, Binjai and Deli Serdang that have now been halted due to budget constraints; (ii) properly maintaining and ensuring the sustainability of the facilities established under the six project components; and (iii) supporting the government agencies concerned with ensuring that environmental regulations continue to be complied with in relation to the six project components.

82. The other recommendations in this regard are that (i) ADB should ensure that the equipment purchased under the Project for water supply, sanitation, and waste disposal are properly insured so that the covenant will be complied with in this regard and (ii) the project performance evaluation report should be prepared around 2009, when the passage of 3 years will make available more reliable data on project operation.

2. General

83. ADB should prepare projects more comprehensively, including proper research, analysis, and due diligence prior to their presentation for Board approval. Sufficient budgets should be made available for project preparation and for supervision and monitoring during implementation. The Government and ADB should make greater efforts to plan and discuss projects with communities to relate them to their proper social context (aside from the physical aspects) and thereafter vigorously harness and organize community support, particularly if their assistance is needed to resolve vital issues.

PROJECT FRAMEWORK

Design Summary	Project Targets	Project Inputs	Achievements
<p>1. Goals (Sector/Area)</p> <p>1.1 Improve living conditions in the Metro Medan area</p> <p>1.2 Facilitate public-private partnership for bulk water supply</p>	<ul style="list-style-type: none"> - Improve public health standards of 3.4 million people by 2003 - Improve access to basic infrastructure and services for 3.4 million people by 2003 - Improve the urban environment for 3.4 million people by 2003 - Private sector participation in bulk water supply 	<ul style="list-style-type: none"> - Investment programs totaling \$141.66 million made to finance the rehabilitation and improvement of facilities under the water-supply, sanitation, flood-control, drainage, waste-disposal, and roads components 	<ul style="list-style-type: none"> - About 2.4 million people are estimated to have benefited in 2006 from improved public health standards, basic infrastructure and services, and environment in the project area through the implementation of the six project components. - Private sector participated by way of Build-operate-transfer (BOT) project in PDAM (local water enterprise/Perusahaan Daerah Air Minum) Tirtanadi but to the extent of only 500 liters per second (l/s) bulk water against appraisal estimate of 2,000 l/s
<p>2. Objective/Purpose</p> <p>2.1 Increase the capacity and capability of local government and PDAMs to provide, operate, manage, and maintain urban services and equipment</p>	<ul style="list-style-type: none"> - Improve inter-agency cooperation for the planning, coordination, and management of water supply and solid waste disposal - Develop and implement appropriate revenue improvement action plans (RIAPs) to improve financial management and cost-recovery for local government functions, particularly sanitation and solid waste management - Develop and implement appropriate corporate plans for PDAMs to improve financial management and cost-recovery for water supply and sewerage - Develop and implement appropriate local institutional development action plans (LIDAPs) to 	<ul style="list-style-type: none"> - Consulting services provided project implementation assistance and on-the-job training to central and local governments and PDAMs, as well as prepared a Benefit, Monitoring and Evaluation (BME) methodology, but the component to assist in preparing RIAPs, corporate plans, and LIDAPs was cancelled. 	<ul style="list-style-type: none"> - Through consulting services' provision of project implementation and training, inter-agency cooperation for planning, coordination, and the management of water supply and solid waste improved. The system developed for BME is expected to help the Government monitor project impacts and benefits.

Design Summary	Project Targets	Project Inputs	Achievements
	<p>improve inter-agency coordination and infrastructure-maintenance systems</p> <ul style="list-style-type: none"> - Develop and implement a project BME system including project performance indicators (PPIs) 		
<p>2.2 Improve existing basic infrastructure, essential urban services, and equipment and provide new such benefits by 2003</p>	<ul style="list-style-type: none"> - Water supply: additional 80,000 houses are connected - Sanitation: additional 10,000 septic tanks to be serviced each year - Flood control: 53 kilometers (km) are protected from 10-year flood - Drainage: improve 90 km of primary drains and 220 km of secondary drains - Roads: additional 90 km of roads are constructed or improved - Solid waste: collection service extended to cover 40% of population in Binjai and Lubuk Pakam 	<p>-Investment programs totaling \$141.66 million made to finance the rehabilitation and improvement of facilities under the water-supply, sanitation, flood-control, drainage, waste-disposal, and roads components. Non-approval of subsidiary loan agreements (SLAs) by Government reduced scope of water-supply, sanitation and waste-disposal components and delayed their implementation. Ultimately, some portions of the 3 components were financed by project funds provided directly by the central Government .</p>	<ul style="list-style-type: none"> - Water supply: 30,000 new connections were installed: 28,000 in Medan, 2,500 in Deli Serdang, and an estimated 1,400 in Binjai - Sanitation: septic tanks were serviced in Medan - Flood control: only 25.7 km of flood control was done (see below) - Drainage: 243.93 km of primary and secondary drains improved (see below) - Roads: 72.51 km of roads constructed or improved - Solid waste: 2 solid waste disposal sites developed in Binjai and Deli Serdang. A bulldozer for Binjai and bulldozer/ excavator for Deli Serdang, not provided for in the appraisal, were purchased with project funds provided by the central Government.
<p>3. Project Components/ Outputs</p> <p>3.1 Part A: Infrastructure</p> <p>Water Supply</p> <ul style="list-style-type: none"> - PDAM Tirtanadi, serving Medan 	<p>Rehabilitate and expand water-distribution system and increase the number of consumer connections.</p> <ul style="list-style-type: none"> - Develop primary distribution network (57 km) - Develop secondary distribution network (400 km) - install 80,000 new 	<p>Project made investments in the water supply component that helped to rehabilitate the distribution system and increase the number of consumer connections. The Project</p>	<ul style="list-style-type: none"> - Developed primary distribution network (36 km) - Developed secondary distribution system (261 km) - Installed 28,000 house connections - Constructed a 500 liters/second

Design Summary	Project Targets	Project Inputs	Achievements
- PDAM Tirtanadi serving Deli Serdang	connections - Rehabilitate existing water distribution network and install 1,000 new consumer connections - Expand the distribution system and install 2,500 new consumer connections - Improve water distribution network (28 km)	supported the 3 PDAMs in their successful efforts to raise tariffs and so strengthen their financial viability, O&M capability, and sustainability	water treatment plant - Constructed a 4,000-cubic-meter reservoir. - Rehabilitated existing distribution network and installed 2,500 service connections - Expanded distribution system and installed 1,000 new connections - Improved distribution network (25 km)
- PDAM Tirtasari serving Binjai	- Provide new support facilities for O&M		- Provided support for new O&M facilities - Developed distribution network (77.6 km) not provided for in the appraisal
Sanitation	Increase the capacity and capability to empty and maintain septic tanks	Project made investments in the sanitation component but not to the extent expected at appraisal	Sanitation in Binjai and Medan improved to some extent
- Binjai	- Construct a new septic treatment plant		- New septic treatment plant not constructed, but a trunk sewer cleaner provided improved septic tank maintenance
- Medan	- Supply 3 trucks and equipment for septic tank maintenance		- Only one high-pressure sewer-flushing truck provided improved septic tank maintenance
Flood Control	Major river improvements to provide flood improvements, including	Project made investments in the flood control component. Land acquisition problems reduced scope	Flood control achieved to some extent
- Badera River	- Improve 20 km		- Badera River, 15.2 km improved
- Upper Deli River, upstream	- Improve 6.5 km		- Upper Deli River, none
- Serdang, Batugingging, Kuala Namu River system	- Improve 21.5 km		- Serdang, Batugingging, Kuala Namu River system, 8.6 km improved
- Badera River, downstream	- 1.9 km (added during implementation) by ADB		- Badera River, downstream, 1.9 km
Drainage	Rehabilitation of existing drains and construction of new drains to reduce flooding in urban areas, including	Project made investments in the drainage component. Land acquisition problems reduced scope.	
- Medan	- 10 km of primary and 25 km of secondary		- Constructed 81.76 km of primary and secondary drainage systems

Design Summary	Project Targets	Project Inputs	Achievements
<p>- Binjai</p> <p>- Deli Serdang</p> <p>Urban Roads</p> <p>- Medan</p> <p>- Binjai</p> <p>- Deli Serdang</p>	<p>drainage</p> <p>- 52 km of primary and 29 km of secondary drainage</p> <p>- 25 km of primary and 45 km of secondary</p> <p>Widening and improvement of existing roads and bridges and the construction of new primary and secondary roads and bridges</p> <p>50 km</p> <p>26 km</p> <p>7 km</p>	<p>Project made investments in the urban roads component. Land acquisition problem reduced its scope.</p>	<p>- Constructed 64.61 km of primary and secondary drainage systems</p> <p>- Constructed 97.60 km of primary and secondary drainage systems</p> <p>35.73 km in Medan</p> <p>29.78 km in Binjai</p> <p>7.00 km in Deli Serdang</p>
<p>Solid Waste</p> <p>- Binjai</p> <p>- Deli Serdang</p> <p>3.2 Consulting Services</p> <p>- Project implementation assistance</p>	<p>Increase solid waste collection capacity and improve the waste disposal conditions:</p> <p>- Improve final disposal site</p> <p>- Rehabilitate existing and construct new transfer depots</p> <p>- Procure collection vehicles, heavy equipment, and containers</p> <p>- Improve final disposal site</p> <p>- Rehabilitate existing and construct new transfer depots</p> <p>- Procure collection vehicles, heavy equipment, and containers</p> <p>- Assist Directorate General of Human Settlements, local governments, PDAMs, provincial project management unit, and local project management and implementation units with (i) participatory</p>	<p>Project made investments in the waste disposal component. SLA problem reduced its scope.</p> <p>Project recruited consultants to provide these services. The consulting budget increased due to additional services that needed to be provided for</p>	<p>- Improved final disposal site</p> <p>- Though not provided under appraisal, bulldozer purchased with project funds provided directly by the central Government</p> <p>- Improved final disposal site</p> <p>- Though not provided under the appraisal, bulldozer and excavator purchased with project funds provided directly by the central Government</p> <p>The consultants assisted these agencies in the 7 areas mentioned, and they benefited by way of on-the-job training during Project implementation</p>

Design Summary	Project Targets	Project Inputs	Achievements																																				
<p>- Action Plans</p> <p>- Project Benefit Monitoring and Evaluation</p>	<p>approaches; (ii) technical, economic, financial, and management advice; (iii) programming and budgeting; (iv) reviewing detailed engineering designs; (v) procurement procedures; (vi) disbursement procedures; and (vii) contract management procedures</p> <p>- Develop and implement appropriate LIDAPs, RIAPs for local governments, and corporate plans for PDAMs</p> <p>- Assist Government to undertake project BME and develop appropriate PPIs</p>	<p>redesigning work and for provision of quality-control services</p>	<p>- The action plans did not go ahead as ADB cancelled this portion of consulting services during project implementation, as the clients were considered to be able to prepare them on their own</p> <p>- BME methodology with appropriate PPIs was developed by the consultants for use by the Government</p>																																				
<p>4. Activities</p> <p>4.1 Land Acquisition</p> <p>4.2 Relocation</p> <p>4.3 Civil Works</p> <p>4.4 Materials and Equipment</p> <p>4.5 Consulting services ^a</p> <p>4.6 Design and Supervision</p> <p>4.7 Administration, Incremental O&M</p> <p>Cost</p> <p>Interest during construction (IDC)</p> <p>Total Cost</p>	<p>5. Inputs</p> <p>Project cost summary (\$ million)</p> <table border="0"> <tr><td>21.85</td></tr> <tr><td>2.04</td></tr> <tr><td>117.31</td></tr> <tr><td>23.70</td></tr> <tr><td>5.21</td></tr> <tr><td>8.82</td></tr> <tr><td>3.53</td></tr> <tr><td><hr/></td></tr> <tr><td>182.46</td></tr> <tr><td>15.76</td></tr> <tr><td><hr/></td></tr> <tr><td>198.22</td></tr> </table>	21.85	2.04	117.31	23.70	5.21	8.82	3.53	<hr/>	182.46	15.76	<hr/>	198.22		<p>Project cost at completion (\$ million)</p> <table border="0"> <tr><td>4.1 Land Acquisition</td><td>28.40</td></tr> <tr><td>4.2 Resettlement</td><td>0.00</td></tr> <tr><td>4.3 Civil Works</td><td>76.47</td></tr> <tr><td>4.4 Materials & Equipment</td><td>9.81</td></tr> <tr><td>4.5 Consulting services^b</td><td>6.16</td></tr> <tr><td>4.6 Design & supervision</td><td>8.48</td></tr> <tr><td>4.7 Incremental O&M and administration</td><td>1.90</td></tr> <tr><td><hr/></td><td></td></tr> <tr><td>Cost</td><td>131.22</td></tr> <tr><td>IDC</td><td>10.44</td></tr> <tr><td><hr/></td><td></td></tr> <tr><td>Total Cost</td><td>141.66</td></tr> </table>	4.1 Land Acquisition	28.40	4.2 Resettlement	0.00	4.3 Civil Works	76.47	4.4 Materials & Equipment	9.81	4.5 Consulting services ^b	6.16	4.6 Design & supervision	8.48	4.7 Incremental O&M and administration	1.90	<hr/>		Cost	131.22	IDC	10.44	<hr/>		Total Cost	141.66
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^a Consulting services totaled 472 person-months, comprising 115 person-months of international services and 357 person-months of domestic.

^b Consulting services total 570 person-months, 5, companies 145 person-months of international services and 425 person-months of domestic.

STATUS OF PHYSICAL PROGRESS OF OUTPUTS
Comparison of Appraisal Estimates Against Actual

Table A2.1: Water Supply Component

No.	Item	Appraisal Est.	Actual	Difference
PDAM Tirtanadi				
1.	Additional water capacity	2,000 l/s under BOT	500 l/s under BOT and 500 l/s under Project	- 1,000 l/s
2.	Reservoir	None	4,000 m ³	+ 4,000 m ³
3.	Primary distribution	245 km	36 km	- 209 km
4.	Secondary distribution	400 km	261 km	- 139 km
5.	Service connections	80,000	28,000	- 52,000
6.	Service in new areas		None	
PDAM Tirtadeli				
1.	Rehabilitate and install new connections	1,000	2,500	+ 1,500
2.	Distribution network	15 km	25 km	+ 10 km
3.	New service connections	2,500	1,000	- 1,500
PDAM Tirtasari				
1.	Distribution network	28 km	77.6 km	+49.6 km

PDAM = Perusahaan Daerah Air dan Minum (local water enterprise)

Note: The two plants in Tirtanadi serviced 70,000 customers including 28,000 new and 42,000 existing.

Sources: ADB.1997. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to the Republic of Indonesia for the Metropolitan Medan Urban Development Project*. Manila, Ministry of Public Works. 2006. *Final report on consulting services for project implementation & supervision management service to DGHS*. Jakarta, and Project Completion Review Mission Analysis.

Table A2.2: Sanitation Component

No.	Item	Appraisal Est.	Actual	Difference
Medan				
1.	Septic tank maintenance vehicles and equipment	6 units	High-pressure flushing sewer truck (1 unit)	- Septic tank maintenance vehicles and equipment (6 units) + High-pressure flushing sewer truck (1 unit)
Binjai				
1.	Septic tank maintenance vehicles and equipment	3 units	none	
Deli Serdang				
1.	None	None		

Sources: ADB.1997. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to the Republic of Indonesia for the Metropolitan Medan Urban Development Project*. Manila, Ministry of Public Works. 2006. *Final report on consulting services for project implementation & supervision management service to DGHS*. Jakarta, and Project Completion Review Mission Analysis.

Table A2.3: Flood Control Component

No.	Item	Appraisal Est.	Actual	Difference
	Medan			
1.	Deli River upstream (canceled by "spring cleaning" in 2000)	7 km		- 7 km (cancelled due to land acquisition problem)
2.	Deli River downstream added by ADB in August 2000	None	Deli River downstream 1.9 km	+ 1.9 km
3.	Badera River	20 km	15.2 km	- 4.8 km
	Deli Serdang			
1.	Batu Gingging/Kuala Namu River (canceled by "spring cleaning" in 2000)	12.2 km		- 12.2 km
2.	Serdang River	8.8	8.5	- 0.3

Note: Shortfalls on Deli upstream and Badera River were due to land acquisition problems. Another 1.4 km on Deli River downstream was done from central Government funds. Twenty-one flood controls were installed. Since 2002, floods have not been recorded. Badera River included an elevated bridge.

Sources: ADB.1997. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to the Republic of Indonesia for the Metropolitan Medan Urban Development Project*. Manila, Ministry of Public Works. 2006. *Final report on consulting services for project implementation & supervision management service to DGHS*. Jakarta, and Project Completion Review Mission Analysis.

Table A2.4: Drainage Component

No	Item	Appraisal Est.	Actual	Difference
	Medan			
1.	Deli-Babura primary drains	8 km	A new system of 2.29 km covering both items	- 30.71 km
2.	Deli/Babura secondary drains	25 km		
3.	Percut primary drains	3 km	5.84 km	+ 2.84 km
4.	Secondary drains rehabilitation	100 km	18.20 km	- 81.80 km
5.	Maskera	None	20.10 km	+ 20.10 km
6.	Baderahatu	None	12.70 km	+ 12.70 km
	Binjai			
7.	Primary drains	52 km	A new system of 64.6 km covering both items	- 16.4 km
8.	Secondary drains	29 km		
	Deli Sardang			
1.	Primary drains (West)	14 km	A new system of 50.2 km covering both items	+ 24.2 km
2.	Secondary drains (West)	12 km		
3.	Primary drains (East)	14 km	A new system of 42.4 km covering both items	+ 17.4 km
4.	Primary drains (East)	11 km		
	Total – Primary and Secondary	268 km	216.33 km	- 51.67 km

Note: Shortfalls on Deli Babura and some secondary drains were due to land acquisition problems. Shortfall on Deli Barbura secondary drains was because the Asian Development Bank cancelled the work due to poor quality. The previous design work was poor as some drains were not connected. Therefore, a redesign was made in 2001. Five new systems have been added: 2.29 km replacing items 1 and 2 above; 5.84 km – Percut system; 18.2 km under secondary drains rehabilitation, 20.1 km under Maskera new system; and 12.7 km under Baderahatu new system. The redesign, although it covered only 10% of the system, the impact has been significant. The incidence of flooding has been reduced considerably, for example, in Bukit Banisan and Makro areas.

Sources: ADB.1997. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to the Republic of Indonesia for the Metropolitan Medan Urban Development Project*. Manila, Ministry of Public Works. 2006. *Final report on consulting services for project implementation & supervision management service to DGHS*. Jakarta, and Project Completion Review Mission Analysis.

Table A2.5: Solid Waste Component

No.	Item	Appraisal Est.	Actual	Difference
	Binjai			
1.	Improve waste disposal site	Improve waste disposal site	Improve waste disposal site	None
2.	New transfer depots	4 units	None	- 4 units
3.	Small collection vehicles	80 units	None	- 80 units
4.	New containers	16 units	None	- 16 units
5.	New 6 m ³ trucks	4 units	None	- 4 units
6.	Front loader with backhoe	1 unit	None	- 1 unit
7.	Inspection car	1 unit	None	- 1 unit
8.	Bulldozer		1 unit	+ 1 unit
	Deli Sardang			
1.	Rehabilitate transfer depots	2	2	None
2.	Small collection vehicles	100 units	90 units	- 10 units
3.	New containers	44 units	8 units	- 36 units
4.	New 6 m ³ trucks	6 units	1 unit	- 5 units
5.	Front loader with backhoe	1 unit	None	- 1 unit
6.	New transfer depots	2 units	2 units	None
7.	Improve waste disposal site	Improve waste disposal site	Improve waste disposal site	None
8.	Inspection motorcycle	4 units	None	- 4 units
9.	Inspection car	1 unit	None	- 1 unit
10.	Bulldozer and excavator		1	+1

Note: MOF did not approve the SLAs of Binjai and Deli Serdang due to past debt problems. Therefore, these units originally expected to be funded by the Project were ultimately funded by the local government. However, a bulldozer for Binjai and bulldozer and excavator for Deli Serdang not provided in the appraisal were purchased under direct financing of the Project.

Sources: ADB.1997. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to the Republic of Indonesia for the Metropolitan Medan Urban Development Project*. Manila, Ministry of Public Works. 2006. *Final report on consulting services for project implementation & supervision management service to DGHS*. Jakarta, and Project Completion Review Mission Analysis..

Table A2.56: Urban Roads Component

No.	Item	Appraisal Est.	Actual	Difference
	Medan			
1.	Krakatau Road improvement	1 km	1.42 km	+ 0.42 km
2.	Setia Budi Road improvement	6 km	3.70 km	- 2.3 km
3.	Inner Ring Road	5 km	None	- 5.0 km
4.	Outer Ring Road (West)	8 km	8.47 km	+0.47 km
5.	Jalan Marelan	7 km	2.92 km	- 4.08 km
6.	Outer Ring Road (North West)	9 km	3.10 km	- 5.90 km
7.	Yos Sudarso Flyover	1 unit	1 unit	None
8.	Outer Ring Road (North East)	6 km	0.70 km	- 5.30 km
9.	Terusan Flamboyan	9 km	8.02 km	- 0.98 km
	Deli Serdang			
1.	Jalan Marelan	7 km	5.40 km	- 1.6 km
2.	Jl. Binjai Medan	None	4.10 km	+4.10 km
3.	Jembatan Helvetia Baru	None	None	None
	Binjai			
4.	Lingkar Bypass	7 km	7.98 km	+ 0.98 km
5.	New-Anggur-Gunung Sibayak	5 km	6.35 km	+1.35 km
6.	Secondary Roads Rehabilitation and Bridge	13 km	15.40 km	+ 2.40 km + 2 bridges
	Total	83 km	67.56 km	- 15.44 km

Note: The shortfalls were due to the land acquisition problems. All bottlenecks on the Outer Ring Road (North West), over 1.2 km, due to land acquisition problems will be cleared by the national government by 2009. Bottlenecks in Outer Ring Road (North East) will be cleared by 2010 as support road for the proposed new airport in Kuala Namu. The balance 0.98 km on Terusan Flamboyan will be completed in 2010 by provincial government. A new bridge was constructed by the provincial government on Jembatan Helvetia Baru to eliminate bottleneck for free-flow of traffic (this missing link was identified by the Asian Development Bank. All operation and maintenance provided by the national government for which they have sufficient allocations (Rp20 million per km for national roads 7 meter wide until 2008 and expected to double after that. Local governments do the operation and maintenance under monitoring and supervision by the national government. The benefits of road improvements are reduced travel time and vehicle maintenance costs, and roads capable of handling larger traffic volumes (minimum speed 47 km/hour on a national road such as the Outer Ring Road. The roads have positive economic internal rates of return. The Krakatau Road has a toll gate at Rp6,000 per each usage.

Sources: ADB.1997. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to the Republic of Indonesia for the Metropolitan Medan Urban Development Project*. Manila, Ministry of Public Works. 2006. *Final report on consulting services for project implementation & supervision management service to DGHS*. Jakarta, and Project Completion Review Mission Analysis.

LOAN AMOUNT
(Estimated and Actual)
(\$ million)

No	Loan Category	Appraisal Estimate November 1997	Project Restructuring Exercise 1998	Project Restructuring Exercise 1999	Project Restructuring Exercise 2000	Partial Cancellation December 2006	Actual 2 April 2007
1	Civil Works	58.00	48.7	41.5	45.74	43.17	42.69
2	Material and Equipment	16.50	13.9	13.9	10.54	9.95	9.81
3	Design and Supervision	6.50	5.5	4.6	7.64	7.36	7.22
4	Consulting Services	4.40	3.7	3.7	4.90	4.69	4.37
5	Interest During Construction	15.80	13.2	13.2	12.8	11.8	10.44
6	Unallocated	14.80	12.4	12.4	1.18	0.00	0.00
	Total	116.00	97.4	87.4	82.8	76.98	74.54

Sources: Ministry of Public Works. 2008. Project Completion Report. Jakarta and Project Completion Review Mission Analysis.

PROJECT COSTS

Table A4.1: Project Costs Breakdown by Currency Cost
(\$ million)

Cost	Appraisal Estimate	Actual
Foreign Exchange Cost	80.80	49.67
Local Currency Cost	117.40	91.99
Total	198.20	141.66

Sources: ADB.1997. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to the Republic of Indonesia for the Metropolitan Medan Urban Development Project*. Manila, and Project Completion Review Mission Analysis.

Table A4.2: Project Costs Cost Breakdown by Component
(\$ million)

Component	Appraisal Estimate	Actual
Part A (Infrastructure):		
Land Acquisition	18.80	28.40
Resettlement	1.80	0
Civil Works	96.00	76.47
Materials and Equipment	20.70	9.81
Design and Supervision	7.20	8.48
Incremental O&M and Administration	2.90	1.90
Part B (Institutional Development):		
Project Implementation Assistance	4.20	5.49
Action Plans	0.30	0
Benefit Monitoring and Evaluation	0.40	0.67
Contingencies	30.20	0
Interest During Construction	15.80	10.44
Total	198.20	141.66

O&M = operation and maintenance.

Sources: ADB.1997. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to the Republic of Indonesia for the Metropolitan Medan Urban Development Project*. Manila, Ministry of Public Works. 2006. *Final Report of Information System Consultant*. Jakarta, and Project Completion Review Mission Analysis.

Table A4.3: Project Costs Breakdown by Component
(\$ million)

Component	Costs	% of Total Component A	% of Total Costs
Part A (Infrastructure)			
Water Supply	20.14	16.10	14.22
Sanitation	0.18	0.14	0.13
Flood Control	10.49	8.39	7.41
Drainage	21.35	17.07	15.07
Solid Waste	0.84	0.67	0.59
Urban Roads	33.28	26.61	23.49
Design and Supervision	8.48	6.78	5.98
Land Acquisition	28.40	22.71	20.05
Incremental O&M and Project Administration	1.90	1.52	1.34
Subtotal Part A	125.06		
Part B:			
Consulting Services (including assistance to PPMU)	6.16		4.35
Interest During Construction	10.44		7.37
Total	141.66		100.00

Note: Project costs breakdown by component was not provided at appraisal.

Sources: ADB.1997. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to the Republic of Indonesia for the Metropolitan Medan Urban Development Project*. Manila, and *Project Completion Review Mission Analysis*

PROJECT SCHEDULE

COMPONENT	1998				1999				2000				2001				2002				2003				2004				2005				2006																															
	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct																												
A. Binjai																																																																
1. Water Distribution																																																																
a. Planned	[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]																			
b. Actual	[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]															
2. Sanitation																																																																
a. Planned	[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]															
b. Actual	not implemented/cancelled																																																															
3. Solid Waste																																																																
a. Planned (equipment)	[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]															
b. Actual (equipment)	[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]											
4. Drainage																																																																
a. Planned	[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]											
b. Actual	[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]							
5. Roads																																																																
a. Planned	not provided in the RRP																																																															
b. Actual	[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]											
B. Deli Serdang																																																																
1. Water Distribution																																																																
a. Planned	[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]											
b. Actual	[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]							
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a. Planned	[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]							
b. Actual	[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]			
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a. Planned (equipment)	[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]							
b. Actual (equipment)	[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]				[Bar]			

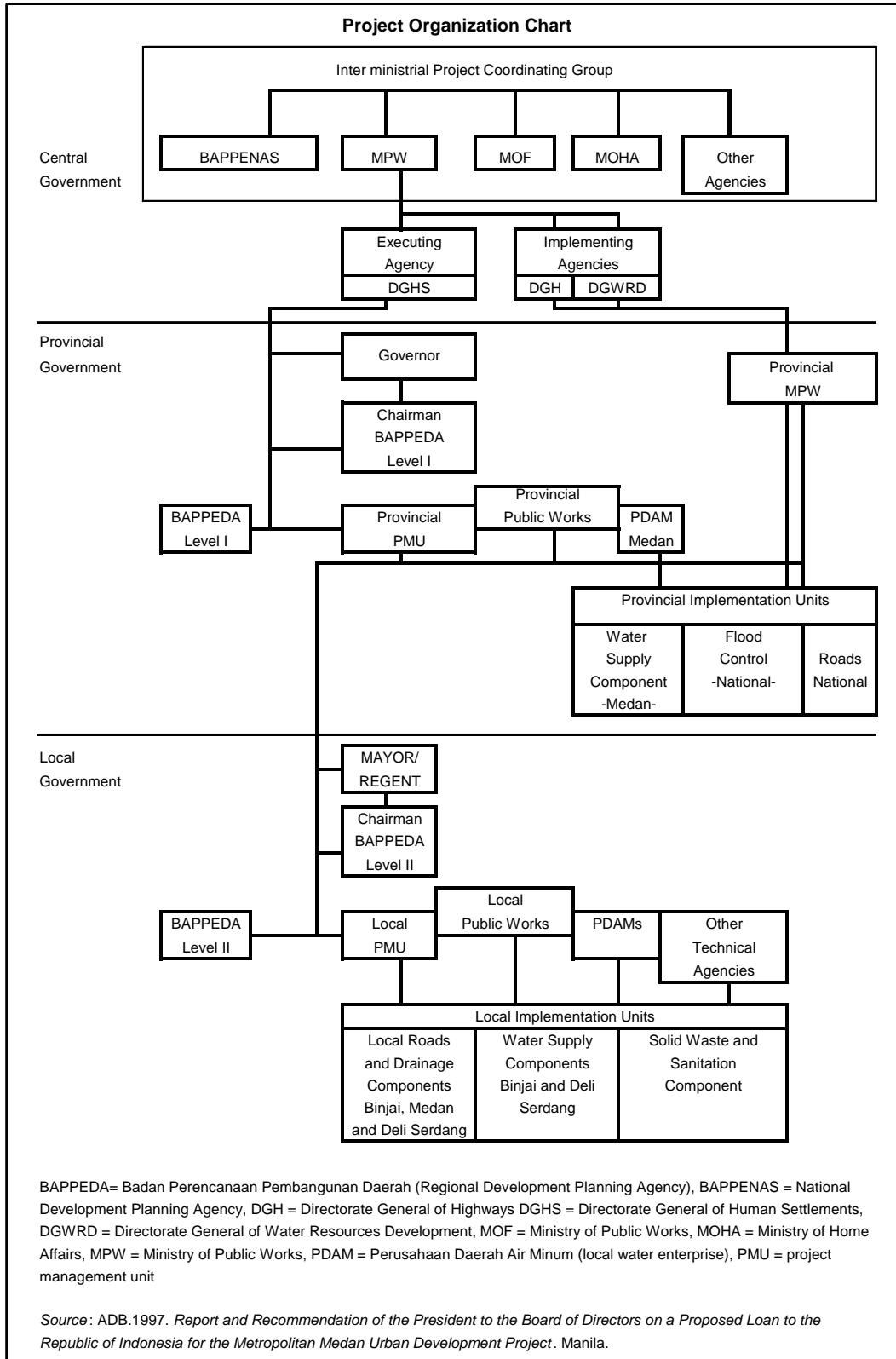
COMPONENT	1998				1999				2000				2001				2002				2003				2004				2005				2006							
	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct				
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5. Roads																																								
a. Planned																																								
b. Actual																																								

Notes:

	Detailed Engineering Design
	Land Acquisition and Resettlement
	Construction and Procurement

Sources: ADB.1997. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to the Republic of Indonesia for the Metropolitan Medan Urban Development Project*. Manila, and Directorate General of Human Settlement. 2006. *Project Completion Report Metro Medan Urban Development Project*. Jakarta

IMPLEMENTATION ARRANGEMENT



SYNOPSIS OF LAND ACQUISITION AND RESETTLEMENT ACTIVITIES

Metropolitan Medan Urban Development Project

A. History

1. Based on the report and recommendation to the President (RRP), the total number of affected assets acquired for all project packages was 907 dwellings and commercial structures for demolition and 937 structures for partial demolition. The estimated cost of land acquisition and resettlement was \$18.8 million.

2. The summary of land acquisition and resettlement plan for the Metropolitan Medan Urban Development Project (the Project) in the RRP Appendix 14 details the principles, tendril systems, legal and government regulations for land acquisition and resettlement, compensation categories, institutional capacity building, organizational responsibilities, and procedures for monitoring and evaluation and handling grievances.

3. The Project had six types of packages, two of which—urban roads and flood control—required land acquisition. The RRP stated 11 project packages would require land acquisition. However, up to the project closing date, 10 urban road project packages and 2 flood-control packages had land acquisition. In the course of project implementation, two new packages were proposed and five packages were cancelled from Asian Development Bank (ADB) financing. Four of the cancellations were due to difficulty in acquiring land.¹

4. Schedule 6, paragraph 14, of the loan agreement, stated that resettlement shall be completed before the physical work starts. However, most land acquisition was done in parallel with the physical works. The Project started prior to ADB's land acquisition and resettlement action plan (LARP) requirement, but the project life continued until ADB's Operations Manual (OM) on Involuntary Resettlement was issued in 2003². Consequently, most of the LARPs were prepared during or after the civil works. For urban road packages, 10 of 11 approved packages had ex post facto LARP documents, and two of three approved flood-control packages had ex post facto LARPs. Thus, only three packages under the Project had LARP documents that were prepared and submitted to ADB prior to civil work implementation.

B. Land Acquisition and Resettlement Activities

5. Land acquisition and resettlement involved two local governments, Medan city and Deli Serdang district. Each used different approaches and mechanisms for land acquisition. For Deli Serdang district, land acquisition was done with the involvement of the Committee of Nine, which was set up by the district head following the implementation of the national law on land acquisition for public purposes, PD No. 55/1993. For Medan city, a special land-acquisition team was formed by the city government. Land acquisition in Medan city was done mostly prior to the LARP document being submitted to and approved by ADB.

6. Appendix 14 of the RRP outlined the requirement for training project staff on the effective implementation of the LARP. However, ADB had to provide an international resettlement consultant to prepare the LARP documents for the Executing Agency (EA), which

¹ In November 1999, packages FC (Flood Control) 103 and FC 112 were dropped from the project. In November 1999 and February 2003, package TR (Road) 18 was dropped, as was TR 16 in January 2007.

² Operation Manual Section F2/OP dated 29 October 2003, which was replaced by OM Section F2, dated 25 September 2006

had limited capacity to prepare them. Training was apparently insufficient, if it was done, for improving the capacity of project staff on land acquisition and resettlement.

7. LARP documents indicate that the total number of households affected by project activities was 2,285, amounting to 11,075 people, and the final cost of land acquisition was estimated at Rp252 million (equivalent to \$28.4 million).

8. However, as the land was acquired before the LARPs' approval by ADB, additional allowances were required to comply with ADB's *Involuntary Resettlement Policy* (1995). These allowances apparently could not be paid using government funds because (i) government regulations did not provide legal background for compensation or allowances for the nonphysical losses incurred by affected people, (ii) the EA offered no clear guidance for complying with ADB's *Involuntary Resettlement Policy* and Project requirements for land acquisition, and (iii) it was too late to be financed in the Government's fiscal year. Thus, to avoid more delay in project implementation, the funds for these additional allowances had to come from other sources, most likely from contractors. That was not an appropriate practice and should be avoided in the future.

9. As stated above, land acquisition involved two local governments using two different mechanisms. Therefore, ADB had difficulty accessing the legal background for implementation of the two processes and procedures for areas that were adjacent to each other and within one package of the Project. Lack of coordination between the two local governments caused problems in the implementation of land acquisition that complied with ADB's *Involuntary Resettlement Policy*. For Deli Serdang district, the land acquisition compensation team considered payment only for the loss of physical assets based on national regulations on land acquisition. The additional allowance that was required by ADB's *Involuntary Resettlement Policy* could not be granted. Thus, the contractor had to pay the additional allowances for land acquisition to ensure that the Project proceeded smoothly. In Medan city, the additional living allowance was provided as required by ADB policy.

10. The lack of transparency and coordination between local governments' land acquisition teams and the project implementation unit caused difficulty in preparing the LARP documents and excessive delay in implementing civil works. The major difficulties for Medan city's completion of the LARP were establishing the market rate, timely availability of counterpart funds to conclude the purchase, and clarity on a timeframe for concluding negotiations.

11. Up to the project closing date (31 December 2006, or 8 years from the effective date of the loan on 30 March 1998), there were four plots of land remaining to be acquired in the urban road package, which were consequently dropped from ADB financing (work continues with government funds). In one urban road package, TR 17A, a community *mushola* (*small mosque*) could not be demolished because the government was unable to find a nearby replacement site. Road construction continued, and the presence of the building caused a serious traffic hazard. To solve the problem, the Medan city government approached a railway about buying land from it for relocating the building.

12. In the flood-control package (original FC 102), 11 plots in the river embankment area could not be acquired. Ownerships conflicts meant the land acquisition team set up by the local government could not pay compensation for the land. In a later development, the Deli Serdang government decided not to pay compensation for land along the river embankment, as it was

considered to belong to the state.³ Consequently, no effort was made to resolve this problem. According to project staff, the failure to acquire the plots did not harm project design.

13. The slowness of project activity, as reported by ADB review missions, was mostly because of land acquisition issues: (i) the lack of country legal background for compensating nonphysical assets,⁴ (ii) the delayed availability of counterpart funds to pay compensation, and (iii) limited guidance and clarity from both ADB and the EA as to how the Project could comply with ADB's *Involuntary Resettlement Policy*. These were the major obstructions to implementing project LARPs. The involvement of the local resettlement specialist at ADB's Indonesia Resident Mission to provide guidance to government staff on ADB policy started only in June 2006, more than 5 years after the effective date of the loan.

C. Institutional Capacity and Roles

14. As of the effective date of the loan, the legal basis for land acquisition and resettlement under the Project was the Government's PD 55/1993. The roles of national Government agencies were relatively limited. However, in the course of project implementation, government regulations on land acquisition for public purposes changed. Apparently, no adjustment had been made, so most arrangements were still made at the provincial and district levels, with no clear coordination between agencies. In the current government regulation for land acquisition for public purposes, Presidential Regulation No. 36/2005 and its amendment No. 65/2006, any land acquisition for public purposes in two different districts should be managed by the provincial governor.

15. Aside from incompatible land acquisition regulations and approaches employed by the two local governments, the local capacity for resettlement was almost nonexistent. The Project relied heavily on the local governments for providing land. This became the main problem for resettlement compliance because the land acquisition team set up by each local government did not know ADB's *Involuntary Resettlement Policy* and requirements, nor did EA staff.

16. As no local resettlement expert was available to prepare the LARPs as required by ADB policy, an international resettlement consultant was contracted to prepare the documents for the EA. However, complications arose because the information required to prepare the LARPs was not complete, mostly because land had already been acquired, and information was not available on the market prices payable to justify the compensation rates to be paid to affected people in compliance with the ADB's *Involuntary Resettlement Policy*. Further as the LARP completion documents were prepared by the international consultant and not written in the local language, the ownership of the documents, between the consultant and EA, became another problem. Consequently, a series of revisions were required, which caused prolonged delays in the approval of project financing.

D. Evaluation and Monitoring

17. No external evaluation or monitoring mechanism for the implementation of land acquisition and resettlement was prepared. The only evaluation was conducted by the Government audit office at the request of the Ministry of Finance.

³ According to Public Work Ministerial Decree No. 63/1993 and Regional Decree No. 05/1995, the area within 15 meters of the river belongs to the government.

⁴ The legal background and government regulation for land acquisition used in the Project was PD No.55/1993 did not provide rehabilitation measures or relocation assistance for the affected people as required by ADB's *Involuntary Resettlement Policy*.

18. The monitoring and evaluation of land acquisition and resettlement were done by ADB during review missions. An exercise by a consultant was conducted to review the payment of the agreed compensation as stated in the LARPs. An assessment of all documents related to land acquisition (LARPs and other implementation reports provided by the Medan city government and related project implementation units) found that recommendations and additional allowances as required by the LARPs were implemented.

E. Lessons

19. Financing project packages with partly completed land acquisition processes is complicated, as shown by the Project, and must be avoided when possible. This is especially true where country systems are weak in data recording and management. With the limited understanding of ADB's involuntary resettlement policy among EA staff, clear guidance and monitoring by ADB appeared to be necessary for compliance.

20. During project preparation, it is important to conduct institutional and legal analyses related to land acquisition. That should be done properly to (i) avoid misinterpretation and the inappropriate use of regulations that could bring legal consequences in relation to land acquisition and (ii) identify and solve in a timely way problems that may occur because of gaps between country regulations or laws and ADB's social safeguard policy.

21. During project preparation, it is also necessary to conduct public awareness campaigns among stakeholders and parliamentary members on project activities and the requirements of ADB social safeguard policy to ensure better understanding of the Project's needs. Government staff are subject to various queries and clarifications demanded from them, so early disclosure of project requirements, including the land acquisition mechanism and ADB social safeguard policy, may be required to facilitate project implementation.

22. Synchronizing ADB's *Involuntary Resettlement Policy* requirements and those of beneficiary countries need to be improved. EA staff capacity on land acquisition and resettlement for the preparation of LARP documents should also be improved to avoid problems in the implementation of ADB's *Involuntary Resettlement Policy*.

STATUS OF COMPLIANCE WITH LOAN COVENANT

Covenant	Reference	Status of Compliance
<p>Borrower shall make the proceeds of the Loan available to the Project Executing Agency (EA) and Project Implementing Agencies (IAs) (i) re-lend a portion of the proceeds of the loan under Subsidiary Loan Agreements (SLA) and upon terms and conditions satisfactory to the Bank and (ii) make up to \$77,300,000 equivalent of the proceeds of the Loan available to Project EA and Project IA through budgetary allocations.</p>	<p>Loan Agreement (LA) Article 3, Section 3.01(a).</p>	<p>Partly complied with. (i) SLA for PDAM Tirtanadi was signed. However, the amount of the SLA was reduced (from \$19.9 million to \$13.025 million) due to cancellations of related items. The scope of work was adjusted to accommodate the reduction. Projects financed through the SLA were implemented. Proposed SLAs for Kota Binjai (\$1.6 million) and Kabupaten Deli Serdang (\$1.4 million) were cancelled because they could not fulfill the conditions for the SLA as required by the MOF (they were not able to clear their previous debt arrears). (ii) Due to partial loan proceeds cancellation (Project Restructuring Exercises) only \$56.78 was available through budgetary allocations.</p>
<p>Borrower shall cause the EA and IAs to apply the proceeds of the Loan to the financing of expenditures on the Project in accordance with the provisions of the Loan Agreement.</p>	<p>LA Article III, Section 3.01(b).</p>	<p>Complied with.</p>
<p>The Borrower shall cause the project to be carried out with due diligence and efficiency and in conformity with sound administrative, financial, engineering, environmental, urban development and public utilities practices.</p>	<p>LA Article IV, Section 4.01 (a)</p>	<p>Complied with.</p>
<p>In the carrying out of the Project and operation of the Project facilities, the Borrower shall perform, or cause to be performed, all obligations set forth in Schedule 6 to this Loan Agreement</p>	<p>LA Article IV, Section 4.01 (b).</p>	<p>Complied with.</p>
<p>The Borrower shall make available, and shall cause the EA and the IAs concerned also to make available, promptly as needed, the funds, facilities, services, land and other resources which are required, in addition to the proceeds of the Loan, for the carrying out of the Project and for the operation</p>	<p>LA Article IV, Section 4.02.</p>	<p>Partly complied with delay. Required land was not fully acquired; and counterpart funds were released with delay.</p>

and maintenance of the Project facilities.		
In the carrying out of the Project, the Borrower shall cause competent and qualified consultants and contractors, acceptable to the Borrower and the Bank, to be employed to an extent and upon terms and conditions satisfactory to the Borrower and the Bank.	LA Article IV, Section 4.03 (a)	Complied with.
The Borrower shall cause the Project to be carried out in accordance with plans, design standards, specifications, work schedules and construction methods acceptable to the Borrower and the Bank. The Borrower shall furnish, or cause to be furnished, to the Bank, promptly after their preparation, such plans, design standards, specifications and work schedules, and any material modifications subsequently made therein, in such detail as the Bank shall reasonably request.	LA Article IV, Section 4.03 (b)	Complied with. Until early 2001, work under the drainage component was not implemented in accordance with the agreed plans. ADB refused to finance some of the works because of the resulting poor quality. In 2001 the drainage component was re-designed and works started in 2002 following the approved procedures and designs. Work under other components have been implemented in accordance with the approved procedures and designs.
The Borrower shall ensure that the activities of its departments and agencies with respect to the carrying out of the Project and operation of the Project facilities are conducted and coordinated in accordance with sound administrative policies and procedures.	LA Article IV, Section 4.04	Complied with.
The Borrower shall make arrangements satisfactory to the Bank for insurance of the Project facilities to such extent and against such risks and in such amounts as shall be consistent with sound practice.	LA Article IV, Section 4.05 (a).	Not complied with.
Without limiting the generality of the foregoing, the Borrower undertakes to insure, or cause to be insured, the goods to be imported for the Project and to be financed out of the proceeds of the Loan against hazards incident to the acquisition, transportation and delivery thereof to the place of use or installation, and for such insurance any indemnity shall be payable in a currency freely usable to replace or repair such goods.	LA Article IV, Section 4.05 (b)	Complied with.

<p>The Borrower shall maintain, or cause to be maintained, records and accounts adequate to identify the goods and services and other items of expenditure financed out of the proceeds of the Loan, to disclose the use thereof in the Project, to record the progress of the Project (including the cost thereof) and to reflect, in accordance with consistently maintained sound accounting principles, the operations and financial condition of the agencies of the Borrower responsible for the carrying out of the Project and operation of the Project facilities, or any part thereof.</p>	<p>LA Article IV, Section 4.06 (a)</p>	<p>Complied with. The Audit Financial Statement (AFS), recording all expenditures financed out of the proceeds of the Loan, the progress of the Project and the operations and financial conditions of the agencies of the Borrower responsible for carrying out the Project and operation of the Project facilities have been prepared and submitted to ADB annually.</p>
<p>The Borrower shall (i) cause each IA to maintain separate accounts for its respective component of the Project; (ii) have the consolidated Project accounts and related financial statements audited annually, in accordance with appropriate auditing standards consistently applied, by independent auditors whose qualifications, experience and terms of reference are acceptable to the Bank; (iii) furnish to the Bank through DGHS, as soon as available but in any event not later than nine (9) months after the end of each related fiscal year, certified copies of such audited accounts and financial statements and the report of the auditors relating thereto (including the auditors' opinion on the use of the Loan proceeds and compliance with the covenants of this Loan Agreement), all in the English language; and (iv) furnish to the Bank such other information concerning such accounts and financial statements and the audit thereof as the Bank shall from time to time reasonably request.</p>	<p>LA Article IV, Section 4.06 (b)</p>	<p>Complied with. Each PIU had its own account. BPKP (Badan Pemeriksa Keuangan dan Pembangunan, state auditor) prepared the audited financial statement. For FY 2005, the APA was received in September 2006 (no delay). The FY2006 APA was received on 30 September 2007(no delay).</p>
<p>The Borrower shall enable the Bank, upon the Bank's request, to discuss the Borrower's financial statements for the Project and its financial affairs related to the project from time to time with the Borrower's auditors, and shall authorize and require any representative of such auditors to participate in any such discussions requested by the Bank, provided that any such discussion shall be conducted only in the presence of an authorized officer of the Borrower unless the Borrower shall otherwise agree.</p>	<p>LA Article IV, Section 4.06 (c)</p>	<p>Complied with.</p>
<p>The Borrower shall furnish, or cause to be furnished, to the Bank all such reports and information as the Bank shall reasonably request concerning (i) the Loan, and the expenditure of the proceeds and</p>	<p>LA Article IV, Section 4.07 (a)</p>	<p>Complied with.</p>

<p>maintenance of the service thereof; (ii) the goods and services and other items of expenditure financed out of the proceeds of operations and financial condition of the agencies of the Borrower responsible for the carrying out of the Project and operation of the Project facilities, or any part thereof; (v) the financial and economic conditions in the territory of the Borrower and the international balance-of-payments position of the Borrower; and (vi) any other matters relating to the purposes of the Loan.</p>		
<p>Without limiting the generality of the foregoing, the Borrower shall cause DGHS to furnish to the Bank consolidated quarterly reports on the carrying out of the project and on the operation and management of the Project facilities. Such consolidated reports shall be submitted in such form and in such detail and within such a period as the Bank shall reasonably request, and shall indicate, among other things, progress made and problems encountered during the quarter under review, steps taken or proposed to be taken to remedy these problems, and proposed program of activities and expected progress during the following quarter.</p>	<p>LA Article IV, Section 4.07 (b)</p>	<p>Complied with. The PPMU assisted by the Advisory Consultants prepared the quarterly reports. However, some reports were received late, therefore the information contained in the reports were outdated.</p>
<p>Promptly after physical completion of the Project, but in any event not later than three (3) months thereafter or such later date as may be agreed for this purpose between the Borrower and the Bank, the Borrower shall cause DGHS to prepare and furnish to the Bank a report, in such form and in such detail as the Bank shall reasonably request, on the execution and initial operation of the Project, including its cost, the performance by the Borrower of its obligations under this Loan Agreement and the accomplishment of the purposes of the Loan.</p>	<p>LA Article IV, Section 4.07 (c)</p>	<p>Complied with.</p>
<p>The Borrower shall enable the Bank's representatives to inspect the Project, the goods financed out of the proceeds of the Loan, and any relevant records and documents.</p>	<p>LA Article IV, Section 4.08</p>	<p>Complied with. During all missions/ field visits, ADB's representatives were able to inspect all structures/goods/all relevant documents and records financed out of the proceeds of the Loan.</p>
<p>The Borrower shall ensure that the Project facilities are operated, maintained and repaired in accordance with sound administrative, financial, engineering, maintenance and operational</p>	<p>LA Article IV, Section 4.09</p>	<p>Generally complied with.</p>

practices.		
<p>Except as the Bank may otherwise agree, the Borrower shall establish, immediately after the Effective Date, an imprest account at Bank Indonesia or at a designated state-owned commercial bank to expedite disbursement of the Loan proceeds (the Special Account). Such disbursements shall be in local currency for eligible expenditures incurred under the Project. The Special Account shall be established, managed, replenished and liquidated in accordance with the Bank's "Loan Disbursement Handbook" dated June 1996, as amended from time to time, and detailed arrangements agreed upon between the Borrower and the Bank. The initial amount to be deposited into the Special Account from the Loan shall not exceed an amount equivalent to \$5,000,000.</p>	<p>LA Schedule 3 Para. 8 (a)</p>	<p>Note applicable anymore. Based on the agreements resulting from the Mid Term Review Mission (2002), the special account was cancelled and Direct Payment to suppliers by the Bank applied since 2003.</p>
<p>The Bank's Statement of Expenditures (SOE) procedure may be used for reimbursement of eligible expenditures and for liquidation of advances for payments from the Special Account in accordance with the Loan Disbursement Handbook and detailed arrangements agreed upon between the Borrower and the Bank. Except as the Bank may otherwise agree, the individual payments that may be reimbursed or liquidated under the SOE procedure shall not exceed the equivalent of \$200,000.</p> <p>The Borrower shall ensure that (i) the Special Account and the expenditures liquidated under the SOE procedures are audited, and (ii) the opinion of the auditors relating thereto is included separately in the auditors' reports required pursuant to Section 4.06(b) of this Loan Agreement</p>	<p>LA Schedule 3 Para. 8 (b)</p>	<p>Not applicable anymore with the cancellation of Special Account.</p>
<p>The Borrower shall ensure that (i) the Special Account and the expenditures liquidated under the SOE procedures are audited, and (ii) the opinion of the auditors relating thereto is included separately in the auditors' reports required pursuant to Section 4.06(b) of this Loan Agreement.</p>	<p>LA Schedule 3 Para. 8 (c)</p>	<p>Not applicable anymore with the cancellation of Special Account.</p>
<p>Notwithstanding any other provision of this Loan Agreement, no disbursement may be made from the Loan Account for certain component or to certain Project Implementing Agencies as provided in the following sub-paragraphs until the specified conditions in the respective sub-paragraphs have been satisfied.</p> <p>(a) Each Project Implementing Agency shall</p>	<p>LA Schedule 3 Para. 9.</p>	<p>(a) Complied with (b) Partly complied with. (c) Complied with (d) Partly complied with. SLAs with local governments for Binjai and Deli Serdang were not approved by MOF. Hence, funds expected</p>

<p>have established a PIU or PIUs, as the case may be, prior to disbursement of any Loan proceeds to such Project Implementing Agency.</p> <p>(b) Participating Level I and Level II governments and PDAMs shall have implemented appropriate LIDAPs, RIAPs, and CPs prior to disbursement of any Loan proceeds for their respective components under the Project.</p> <p>(c) Each participating Level I and Level II government and PDAM shall have entered into a written agreement with DGHS (DGURD) acceptable to the Bank prior to disbursement of any Loan proceeds to such Project Implementing Agency.</p> <p>(d) Each of PDAM Tirtanadi, Kotamadya Binjai and Kabupaten Deli Serdang shall have entered into a Subsidiary Loan Agreement acceptable to the Bank and all conditions to disbursement under its respective Subsidiary Loan Agreement shall have been satisfied.</p> <p>(e) The decree establishing the revised water and sewerage tariff for PDAM Tirtanadi shall be approved and made effective prior to disbursement of any Loan proceeds to PDAM Tirtanadi.</p> <p>(f) The build-operate-transfer agreement with a private sector entity to construct a bulk water supply scheme for PDAM Tirtanadi shall be made effective prior to disbursement of any Loan proceeds for water supply to PDAM Tirtanadi.</p>		<p>under those SLAs did not become available and project scope reduced to that extent. Some items however were financed by funds given directly by the central government under project finance and/or funded by local governments with their own funding sources.</p> <p>(e) Complied with.</p> <p>(f) Complied with.</p>
<p>National Government Level Bappenas shall head an inter-ministerial group consisting of senior representatives of MPW (MSRI), MOHA, MOF and other relevant government agencies to provide policy coordination for the Project.</p>	<p>LA Schedule 6 Para. 1</p>	<p>Complied with.</p>
<p>As the Project Executing Agency DGURD shall be responsible for overall technical supervision, management and monitoring of the Project and shall ensure that the Project Implementing Agencies perform their roles in an adequate manner.</p>	<p>LA Schedule 6 Para. 2</p>	<p>Complied with.</p>
<p>Provincial Government Level The provincial development planning agency (Bappeda I) shall provide policy and program coordination to the project implementing agencies (PIAs) of the level I and II governments. Bappeda II shall provide policy and program coordination to the PIAs of the level II governments.</p>	<p>LA Schedule 6 Para. 3</p>	<p>Complied with.</p>
<p>A Provincial Project Management Unit (PPMU) shall be established and maintained within the provincial</p>	<p>LA Schedule 6</p>	<p>Complied with. However, the PPMU was established with</p>

<p>public works agency (DPU I) of the province of North Sumatra by 1 April 1998. The PPMU shall be responsible for (i) preparing progress report to Bappeda Level I, and consolidated Project reports to DGURD and ADB, (ii) liaising with the central government agencies, (iii) supervising and coordinating the activities of certain PIUs and the PMUs, (iv) evaluating and advising on the Project components under the responsibility of the Level II governments and PDAMs, and (v) reviewing and clearing all Project documents prior to their delivery to ADB for its approval.</p>	<p>Para. 4.</p>	<p>delay, did not perform satisfactorily in the initial stage and had to be strengthened mid way in project implementation.</p>
<p>A Project Management Unit (PMU) shall be established and maintained within the local public works agencies (DPUK) of each participating level II government by 1 April 1998. Each PMU shall be responsible for (i) liaising with the PPMU, (ii) reviewing and supervising the Project documents to be prepared by the PIUs for ADB's approval, (iii) supervising and coordinating the activities of its respective PIUs, and (iv) the day-to-day coordination, monitoring and supervision of project implementation in its respective jurisdiction.</p>	<p>LA Schedule 6 Para. 5.</p>	<p>Complied with.</p>
<p>Each PIA shall establish and maintain a Project Implementation Unit (PIU) with respect to each Project component for which it has responsibility. The PIUs shall be responsible for (i) the preparation of detailed engineering designs and contract documents, (ii) the prequalification, tender, bid evaluation and award of contracts and (iii) contract management procedures. The PIUs shall also operate a prescribed reporting and progress monitoring system. Upon completion, the Project facilities shall be transferred to the respective PIA for management and O&M.</p>	<p>LA Schedule 6 Para. 6.</p>	<p>Complied with.</p>
<p>Without limiting the generality of Section 4.02 of the LA, the Borrower shall ensure that all necessary budget requests are submitted and all necessary budget approvals are issued in sufficient time to avoid delays in project implementation. The Borrower shall cause the participating Level I and Level II governments to provide their respective counterpart financing in a timely manner. As soon as possible after 30 June 1998, and each year thereafter, the Borrower shall review the provisions for the Project in the budgets of the participating entities and ensure that suitable adjustments, if any, are promptly made.</p>	<p>LA Schedule 6 Para. 7.</p>	<p>Partly complied with. Counterpart funds made available with delay.</p>
<p>The Subsidiary Loan Agreements shall carry standards terms and conditions acceptable to the</p>	<p>LA Schedule 6</p>	<p>Partly complied with.</p>

Bank, including the prevailing terms for MOF loans for urban sector projects, relevant covenants relating to implementation arrangements and targets agreed with ADB, and the provision for adjustments in scope. The Borrower shall bear the foreign exchange risks.	Para. 8.	
Participating Level I and level II governments shall develop and implement appropriate LIDAPs and RIAPs, and participating PDAM shall develop and implement appropriate CPs, in consultation with PPMU and relevant Bappedas and in cooperation with the consultants engaged under Part B (II) of the Project.	LA Schedule 6 Para. 9.	Partly complied with. Assistance for the preparation of RIAPs/LIDAPs was cancelled. The local governments prepared their own LIDAPs and RIAPs. PDAMs prepared their own CPs.
The LIDAPs, RIAPs, and CPs, as the case may be, shall include (i) strategies for effective beneficiary consultation and participation in the detailed design and subsequent O&M of community-based components such as water supply, solid waste collection, drainage and sanitation facilities; (ii) strategies for effective inter-change coordination on infrastructure planning and management for water supply, sanitation and solid waste; (iii) infrastructure maintenance plans, including inventories of existing assets; (iv) improved cost recovery mechanisms; (v) improved financial management systems; (vi) measures relating to improvement of accounting systems and overall financial management; (vii) review and adjustment of tariffs for water supply, sanitation and solid waste management to cover at least operating costs and debt service within one year of the completion of the respective component under the Project; (viii) steps to increase revenue from taxes through periodic assessments of real poverty and improved collection; and (ix) implementation of an annual program to reduce unaccounted for water.	LA Schedule 6 Para. 10.	Not applicable with the cancellation of the consulting component that was to attend to these matters, by the Bank's Mid Term Review Mission of 2002.
Among other features, the revised water supply, sanitation and solid waste management tariffs shall eliminate for one-time sewer connection charge and replace it with a regular monthly payment to enhance affordability. A sanitation charge for all water consumers shall be introduced within one year of the completion of the respective LIDAPs, RIAPs, and CPs to achieve full cost recovery.	LA Schedule 6 Para. 11.	Complied with.
Within one year of the completion of water supply component under the Project, participating PDAMs	LA Schedule 6	Complied with.

<p>shall introduce and maintain tariff structures that ensure full cost recovery at or above the marginal cost of water from households using large volumes of water and from industrial and commercial users.</p>	<p>Para. 12.</p>	
<p>The Borrower shall cause the Level I and II governments to ensure that all lands or rights to land required for the Project shall be acquired or made available in a timely manner to ensure that the Project is implemented on schedule.</p> <p>If involuntary resettlement is required in connection with the Project, the Borrower shall ensure that the responsible Level II government prepares a resettlement plan, in consultation with the affected community, providing inter alia for suitable compensation and assistance in resettlements according to principles agreed between the Borrower and the Bank. Resettlement shall be completed before the physical works begin.</p>	<p>LA Schedule 6 Paras. 13 and 14.</p>	<p>Partly complied with. Some lands did not become available and some were acquired late that reduced project scope and delayed project implementation. There were also delays in the preparation of the land acquisition plans that delayed the civil works.</p>
<p>The Borrower shall ensure that the preparation and implementation of the components under Part A of the Project reflect environmental and social concerns, and shall take steps to alleviate negative environmental or social effects. Initial Environmental Examinations (IEE) shall be prepared and Environmental Impact Assessments (EIA) shall be prepared for each such component with a substantial adverse environmental impact. Any recommendation made in an EIA requiring mitigation measures, design changes, or monitoring systems shall be incorporated. Each Project Implementing Agency shall prepare, as part of the detailed engineering design phase, an environmental monitoring and surveillance procedure and a standard operating procedure to safeguard against adverse environmental effects during construction.</p>	<p>LA Schedule 6 Para. 15.</p>	<p>Partly complied with. IEE was prepared during appraisal. Evaluation of the IEE was conducted in 2004. However, environmental monitoring and surveillance procedure and a standard operating procedure to safeguard against adverse environmental effects during construction were not made as part of detailed engineering designs for all components. After construction is completed, environmental monitoring and surveillance should be conducted. The flood control environmental specialist was proposed to help the EA with this.</p>
<p>The relevant Level II government, with the assistance of the respective PMUs, shall ensure that community-based organizations and informal groups are encouraged to participate in the planning, construction and O&M of the Project facilities.</p>	<p>LA Schedule 6 Para. 16</p>	<p>Not complied with.</p>
<p>Each PMU shall develop and implement a coordinated public information and public education and participation campaign to enhance the</p>	<p>LA Schedule 6 Para. 17.</p>	<p>Partly complied with. The Advisory consultants assisted prepared the</p>

<p>beneficial impact of the Project. Such campaign shall be sustained over the duration of the Project, and shall focus on the proper use of facilities provided, the benefits of proper hygiene, and public health. The campaign shall also emphasize community participation through a consultative process with neighborhood and community-based organizations.</p>		<p>campaign strategy, but it was not implemented.</p>
<p>The Borrower shall ensure that social dimensions are generally incorporated in the preparation of each component under Part A of the Project through consultation with beneficiary groups, including women and the poor, to ensure they are committed to implementing such component and operating and maintaining the Project facilities provided thereunder.</p>	<p>LA Schedule 6 Para. 18.</p>	<p>Partly complied with.</p>
<p>The Borrower shall cause respective PDAMs to prepare budgets and undertake responsibility for O&M of water supply systems, and also cause PDAM Tirtanadi to undertake responsibility for O&M of pipes sewage collection and treatment provided or improved under the Project, as well as for levying and collecting water charges.</p>	<p>LA Schedule 6 Para. 19 (a)</p>	<p>Complied with. Bagian Instalasi Air Limbah PDAM Tirtanadi was established in 1995. It continues to undertake the responsibility for O&M of sewage collection.</p>
<p>The respective level II governments shall prepare budgets and undertake responsibility for O&M of the Project facilities for drainage, solid waste, sanitation, and local roads, including levying and collecting charges, fees and tariffs.</p>	<p>LA Schedule 6 Para. 19 (b)</p>	<p>Generally complied with.</p>
<p>The respective level II governments shall encourage the relevant communities to assist with solid waste management and the collection, treatment and disposal of septic tank sludge.</p>	<p>LA Schedule 6 Para 19 (c)</p>	<p>Complied with.</p>
<p>The Borrower shall implement BME system in consultation with the Bank and in accordance with the provisions of the Bank's "Handbook for Benefit Monitoring and Evaluation" within six months of the Effective Date. DGURD shall be responsible for carrying out BME during, and beyond the Project implementation period. The BME system shall establish measurable parameters that demonstrate that the Project's objectives are being met. The BME system shall focus on indicators for financial management and technical matters. Consideration shall also be given to measures of community participation, health benefits, the effect of tariff increases on affordability and willingness to pay, and the financial performance of the PDAMs.</p>	<p>LA Schedule 6 Para. 20.</p>	<p>Complied with.</p>

Benchmark surveys shall be undertaken to provide an initial assessment and basis for comparison. The Borrower shall prepare and submit a final BME report to ADB within one year of the completion of the Project.		
In addition to periodic reviews of the Project, a first year review shall be carried out by the Borrower and the Bank within one year after the effective date and a mid-term review not later than three years after the Effective Date. These reviews shall include a comprehensive evaluation of the project scope, implementation arrangements, the progress of the project as compared to targets set, feedback from BME activities and consultations with community groups and project beneficiaries. In particular, the reviews shall focus on the status of project implementation and the sustainability of benefits, including social impact, resources mobilization, environmental effects, and O&M.	LA Schedule 6 Para. 21.	Complied with. Midterm review was conducted in March 2002.

ADB = Asian Development Bank, AMDAL = analisis mengenai dampak lingkungan (environmental impact assessment), BAPPENAS = Badan Perencanaan Pembangunan Nasional (National Development Planning Agency), BAPPEDA = Badan Perencanaan Pembangunan Daerah (Regional Development Planning Agency), BME = benefit monitoring and evaluation, BPKP = Badan Pemeriksa Keuangan and Pembangunan (state audit agency), CP = corporate plan, DGHS = Directorate General of Human Settlements, DGURD = Directorate General of Urban and Rural Development, DPUP = Dinas Pekerjaan Umum Propinsi (provincial public work agency), EIA = environment impact assessment, IEE = initial environmental examination, LIDAP = local government institutional development action plan, MOHA = Ministry of Home Affairs, MPW = Ministry of Public Works, O&M = operation and maintenance, PCR = project completion report, PDAM = Perusahaan Daerah Air Minum (local water enterprise), PIU = project implementation unit, PMU = project management unit, PPMU = provincial project management unit, RIAP = revenue improvement action plan, SPAR = subproject appraisal report.

Source: Asian Development Bank's Records

ECONOMIC INTERNAL RATES OF RETURN AND FINANCIAL INTERNAL RATES OF RETURN

1. The Project Completion Review Mission recalculated the economic internal rates of return (EIRRs) and financial internal rates of return (FIRRs) for several subprojects using available data. The EIRRs were calculated for the water-supply, drainage, urban roads, and flood-control components, and the FIRRs for the water-supply component. A summary of the economic and financial analyses is provided below.

A. Assumptions and Methodology

2. For the economic analysis, duties, taxes, and other transfer payments were deducted from investment costs. The economic life of the infrastructure was assumed to be 15 years. All costs and revenue streams were converted to 2007 prices.

3. The approach used in the report and recommendation of the President¹ was applied in the assessment of quantifiable benefits for the EIRR recalculation. Water supply improvements produced benefits to households with existing and new connections. Households previously connected to the piped water system benefited under the Project from the increased quantity of piped water. The households with new connections benefited from cost savings associated with switching from the non-pipe source to the piped system, and the consumer surplus on the incremental consumption. Market price data were collected as indicators of willingness to pay.

4. For roads, vehicle operating cost savings was used. This consisted of reduced operating time, savings in travel time for passengers and goods, and reduced maintenance costs. Vehicle operating costs were calculated “with” and “without” the Project. Traffic counts were obtained from the provincial public works office. The savings in these costs benefited road transport operators and road users.

5. For drainage, quantifiable benefits consisted of savings on the repair and rehabilitation of houses and commercial properties damaged by flooding, as well as gains in the ease of movement and improved environment. These factors were reflected in the significant difference between the land values in areas prone to flooding and those in adjacent areas at higher elevation.

6. Because the social and environmental benefits generated by the Project were difficult to quantify, they were not included in the EIRR recalculation. The upgraded and better-maintained water, drainage and flood control systems improved public health and environmental conditions; reduced air and water pollution; and enhanced hygiene, sanitation, and visual impression.

¹ ADB. 1995. *Report and Recommendation of the President to the Board of Directors on Proposed Loans to the Republic of Indonesia for the Sumatra and West Java Urban Development Sector Projects*. Manila.

B. Economic Analysis

8. For the drainage component, the EIRRs ranged from 15.2% to 29.1%, reflecting a substantial increase in land value before and after the Project. The recalculated EIRRs also indicated that all subprojects were economically viable. For the road component, the EIRRs ranged from 19.0% to 89.2%, showing that the subprojects were viable economically. Substantially reduced vehicle operating costs, derived from savings in travel time, were responsible for the unusually high EIRR in Majalaya. The EIRRs for the kampong and market improvement programs ranged from 10.5% to 26.8%. The EIRRs for the sanitation component were not recalculated, as most of the facilities built under the Project were not operational.

C. Financial Analysis

9. The FIRRs ranged from -1.9% to 18.4% (Table A14.1). FIRRs for Tasikmalaya, Sukabumi, and Pandeglang could not be calculated as the net revenues were negative. The FIRRs for the solid waste management and sanitation components could not be calculated either, because the net revenues for the former were negative (with operation and maintenance costs exceeding revenue from service charges) and the latter was not used.

Table A9.1: Actual Economic Internal Rates of Return Against Appraisal Estimates

Item	Economic Internal Rates of Return					
	Base Case	Costs Increase by 10%	Benefits Decrease by 10%	Benefits Delayed by 1 year	Costs Increase and Benefits Decrease by 10%	Actual at Project Completion in December 2006
Flood Control						
Badera River (Medan)	20.0	18.2	18.1	17.0	16.4	10.9
Serdang Batuging Kualanamu(Deli Serdang)	12.6	11.1	11.0	10.8	9.6	Not implemented
Deli River Upstream (Deli Serdang)	20.8	19.0	18.9	17.7	17.2	Not implemented
Drainage						
Medan to Deli Babura	14.7	12.9	12.8	12.4	11.1	
Medan Secondary System Rehabilitation	23.3	20.5	20.2	18.4	17.7	
Medan Deli/Babura Secondary	22.2	18.4	18.0	16.3	14.5	
Binjai Primary and Secondary	21.5	18.9	18.7	17.2	16.3	
Deli Serdang Primary and Secondary, West	25.6	22.6	22.3	20.0	19.6	21.7
Deli Serdang	25.3	22.3	22.0	19.8	19.3	18.4

Primary and Secondary/East Roads						
Medan - Krakatau Road	23.8	21.8	21.6	20.1	19.7	11.3
Medan - Setia Budi Road	40.8	38.3	38.0	33.4	35.6	10.8
Medan - Outer Ring Road, West	13.8	12.3	12.2	12.1	10.7	
Medan - Outer Ring Road, North West	25.5	23.6	23.4	21.7	21.6	
Medan - Inner Ring Road, North-South	51.5	48.3	47.9	40.4	44.8	
Medan - Yos Surdaso Flyover	15.4	14.3	14.2	13.4	13.2	22.0
Binjai-New Anggur/Gunung Sibayak	24.2	22.2	22.0	20.3	20.0	45.7
Binjai-Secondary Road Rehab.	20.1	17.2	16.9	15.7	14.2	20.3
Binjai-Outer Ring Road	23.5	22.1	22.0	20.5	20.7	12.6

Sources: ADB.1997. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to the Republic of Indonesia for the Metropolitan Medan Urban Development Project*. Manila, and *Project Completion Review Mission Analysis*

Table A9.2: Water Supply Projects – Economic Internal Rates of Return

Project	Base Case	10% Increase in Costs	10% Decrease in Revenues	1-Year Delay in Realizing Revenues	10% Increase in Costs and Decrease in Revenues	Actual at Project Completion in December 2006
Water Supply in Medan:						
EIRR	27.1	23.2	22.7	18.5	19.2	21.2
Sensitivity indicators	-	0.6	0.7	-	-	
Water supply in Deli Serdang						
EIRR	12.0	9.4	9.2	8.5	6.9	15.7
Sensitivity indicators	-	2.3	2.6	-	-	
Water supply in Binjai						
EIRR	28.0	22.6	22.0	17.0	17.4	55.7
Sensitivity indicators	-	0.9	1.0	-	-	

EIRR = Economic Internal Rates of Return

Sources: ADB.1997. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to the Republic of Indonesia for the Metropolitan Medan Urban Development Project*. Manila, and *Project Completion Review Mission Analysis*

Table A9.3: Water Supply Projects – Financial Internal Rates of Return

Project	Base Case	10% Increase in Costs	10% Decrease in Revenues	1-Year Delay in Realizing Revenues	10% Increase in Costs and Decrease in Revenues	Actual at Project Completion in December 2006
Water Supply in Medan						
FIRR	13.0	8.8	8.3	7.4	4.0	8.8
Sensitivity indicators	-	3.7	4.3	-	-	
Water supply in Deli Serdang						
FIRR	9.5	9.4	7.3	7.0	6.7	7.6
Sensitivity indicators	-	2.3	2.6	-	-	
Water supply in Binjai						
FIRR	20.1	12.9	12.0	9.1	3.6	8.1
Sensitivity indicators	-	0.9	1.0	-	-	

FIRR = Financial Internal Rates of Return

Sources: ADB.1997. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to the Republic of Indonesia for the Metropolitan Medan Urban Development Project*. Manila, and *Project Completion Review Mission Analysis*

PROJECT BENEFITS AND IMPACTS

1. The report and recommendation of the President¹ does not state how the number of beneficiaries was calculated. The Project Completion Review Mission methodology for each component is as follows:

A. Water Supply

2. It is estimated that about 370,000 people in Medan, Binjai, and Deli Serdang benefited from the regular supply of clean water. Surveys conducted by the benefit monitoring and evaluation consultants suggested that the Metropolitan Medan Urban Development Project (the Project) has improved water services in the city of Medan, indicated by increased water consumption and better water pressure.² The unaccounted-for water of the three local water enterprises (*perusahaan daerah air minum*, or PADMs) has been reduced through these improvements.

3. Water service coverage increased by 11% under PDAM Tirtanadi in Medan, from 73% before the Project to 84% after. The two new water plants serviced 70,000 households, 28,000 of them newly served and 42,000 existing. Under PDAM Tirtanadi Deli Serdang Branch, water service coverage increased by 31 points from 9% before the Project to 40% after. The distribution network increased by 25 kilometers (km) and provided new and rehabilitated service connections to about 2,500 households. Assuming five people per household, the number of beneficiaries comes to 362,500 (350,000 under PDAM Tirtanadi in Medan and 12,500 under PDAM Tirtadeli in Deli Serdang).

4. Under PDAM Tirtasari in Binjai, the water distribution network increased by 77.6 km. About 1,400 households, or about another 5,600 persons, will have benefited from the regular supply of clean water under PDAM Tirtasari in Binjai (calculated on the same basis as under PDAM Tirtadeli in Deli Serdang, where 25 km provided new and rehabilitated service connections to about 3,500 households).

B. Sanitation

5. The Project did not improve sanitation. The facilities that were to be provided under the Project could not be implemented as the Ministry of Finance did not approve the subsidiary loan agreements for Medan, Binjai, and Deli Serdang. However, a high-pressure sewer-flushing truck was provided for Medan, funded directly by the central Government under the Project. This benefited people in Medan to some extent. Also, some equipment (two units of solid waste collection equipment and a trunk sewer cleaner unit for Binjai, and three desludging trucks for Deli Serdang) were subsequently supplied by the local government through their own funding. This benefited people by improving their sanitation.

C. Flood Control

6. The Project had some impact on flood control. Land acquisition issues meant the outputs as planned at appraisal were not met. However, the reduced work has had a significant impact, as floods have not been reported since 2002 in those areas. People have benefited by

¹ ADB. 1995. *Report and Recommendation of the President to the Board of Directors on Proposed Loans to the Republic of Indonesia for the Sumatra and West Java Urban Development Sector Projects*. Manila.

² Directorate General of Human Settlements, Ministry of Public Works. 2006. *Project Benefit and Monitoring Evaluation*. Jakarta.

being able to carry out their livelihood activities unaffected by floods. Also, the flooding of about 3,000 hectares of valuable agricultural land along the Serdang River has now stopped. Two concerns have arisen: (i) whether flood control on the Deli River downstream will continue to be successful and sustainable without doing the flood control work on its upstream (7 km) as originally contemplated under the Project, and (ii) illegal sand mining under the bridge spanning the Serdang River may damage its foundation. The authorities need to address these two issues as soon as possible.

D. Drainage

7. The Project had some impact on drainage. Appraisal estimated an improvement in drainage over 268 km, but the actual work done covered only 216.33 km. The shortfall of 51.67 km was due to poor design work, the failure to follow the draft master plan for drainage prepared under the previous MMUDP, and ADB's cancellation of some contracts for their poor quality of work. The component needed to be redesigned in 2001 and formulated. Although the new system covered only 10% of the two cities of Medan and Deli Serdang, the impact has been significant. The incidence of flooding has been reduced considerably in most areas covered by the Project. About 400,000 people now benefit from the Project.

E. Solid Waste

8. The Project did not have significant impact on solid waste disposal. This component was to be implemented only in Binjai and Deli Serdang. As the Ministry of Finance did not approve the subsidiary loan agreements because of the municipalities' past debt problems, the waste disposal equipment to be provided under the Project did not materialize. However, a bulldozer for Binjai and a bulldozer and excavator for Deli Serdang, not provided for in the appraisal, were purchased with funds provided directly by the central Government under the Project. These contributed to improving waste disposal in the two cities to some extent.

F. Urban Roads

9. The Project improved urban roads in Medan, Binjai and Deli Serdang. The improvements benefited people as the roads became capable of handling larger volumes of traffic with minimum speeds of 47 km/hour on national roads such as the outer ring road, reducing travel time and vehicle maintenance costs. Also, the improved roads have positive economic internal rates of returns. The overall impact was, however, less than expected at appraisal because of (i) the shortfall of 15.44 km of road improvements caused by land acquisition problems that resulted in the cancellation of some road improvement packages; (ii) some bottlenecks persisting on the outer ring road (North West) over a distance of about 1.2 km and on the outer ring road (North East) due to land acquisition problems; and (iii) a design flaw that provided a two-lane bridge for the four-lane Jembatan–Helvetia Road.

10. These bottlenecks hamper the free flow of traffic and reduce the expected impact of improving these three highways for a faster flow of traffic. The bottlenecks are being cleared by the central Government, with the outer ring road (North West) to be cleared by 2009 and the outer ring road (North East) to be cleared by 2010. A new bridge was constructed by the provincial government on the Jembatan–Helvetia Road to eliminate the bottleneck caused by that two-lane bridge. These improvements should increase the impact of the Project's urban roads component.