

**ASIAN DEVELOPMENT BANK**

**TAR:INO 37049**

**TECHNICAL ASSISTANCE**

**TO THE**

**REPUBLIC OF INDONESIA**

**FOR PREPARING THE**

**INTEGRATED CITARUM WATER RESOURCES MANAGEMENT PROJECT**

**August 2004**

## CURRENCY EQUIVALENTS

(as of 1 July 2004)

|               |   |             |
|---------------|---|-------------|
| Currency Unit | – | rupiah (Rp) |
| Rp1.00        | = | \$0.000106  |
| \$1.00        | = | Rp9,400     |

## ABBREVIATIONS

|          |   |   |
|----------|---|---|
| ADB      | – | Asian Development Bank  |
| BAPPENAS | – | Badan Perencanaan Pembangunan Nasional (National Planning and Development Agency) |
| DGWR     | – | Directorate General of Water Resources  |
| IWRM     | – | Integrated Water Resources Management   |
| O&M      | – | operation and maintenance   |
| PCR      | – | project completion report   |
| PJT II   | – | <i>Perusahaan Umum Jasa Tirta II</i> (public corporation for water management)    |
| PPAR     | – | project performance audit report  |
| PSDA     | – | <i>pengelolaan sumba daya air</i> (water resources management)                    |
| TA       | – | technical assistance  |

## TA CLASSIFICATION

|                               |   |  |
|-------------------------------|---|--|
| <b>Poverty Classification</b> | – | Targeted intervention  |
| <b>Sector</b>                 | – | Agriculture and Natural Resources                            |
| <b>Subsector</b>              | – | Water Resources Management                                   |
| <b>Thematic</b>               | – | Sustainable economic growth and environmental sustainability |

## NOTES

- (i) The fiscal year (FY) of the Government ends on 31 December.
- (ii) In this report, "\$" refers to US dollars.

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## I. INTRODUCTION

1. During the 2003 country programming mission of the Asian Development Bank (ADB), the Government of Indonesia requested technical assistance (TA) to prepare a water resources management project, aimed at improving deteriorated irrigation and water supply facilities in the Citarum River basin through an integrated water resources management (IWRM) approach. The TA Fact-Finding Mission visited Indonesia from 1 to 9 June 2004 to develop the scope of work and implementation arrangements with the Government. After discussions with the Government officials, the title of the proposed Project was changed to Integrated Citarum Water Resources Management Project. The preliminary project framework is in Appendix 1, and an initial poverty and social analysis is in Appendix 2. The TA is included in ADB's 2004 country assistance program for Indonesia.<sup>1</sup>

## II. ISSUES

2. The Citarum River basin measures over 11,000 square kilometers and the Citarum River is about 270 kilometers in length. More than 9 million people, including the population in the provincial capital of the west Java, Bandung City, live in the basin. Three large, multipurpose reservoirs from upstream to downstream (Saguling, Cirata, and Jatiluhur) in the basin regulate the water flow and are the main source of water supply in Jakarta City, through the West Tarum Canal. The canal was constructed in the early 1970s, is 70 kilometers long, and can conduct 27 cubic meters (m<sup>3</sup>) per second of water. Jatiluhur irrigation system covers 240,000 hectares downstream of the Citarum River. The Citarum River can carry about 12.95 billion m<sup>3</sup> annually, consisting of 6 billion m<sup>3</sup> from the Citarum River and 6.95 billion m<sup>3</sup> from its tributaries. Currently, more than 85% of the river water is used for irrigation and the rest is used for domestic and industry water supply. Due to rapid development in the basin and Jakarta City, water shortage is expected in the near future.

3. **Poor Operation and Maintenance.** Perusahaan Umum Jasa Tirta II (PJT II), a state-owned corporation, was established by Government Regulation 94/1999, and is responsible for (i) conducting self-funding operation and maintenance (O&M) of the Jatiluhur water resources systems (including irrigation, raw water supply, and hydro power systems); (ii) providing water resources services; (iii) collecting from the water users funds for O&M of the Jatiluhur water systems; and (iv) managing the Citarum River basin (conservation, utilization, and flood control mitigation). The management function of PJT II is limited to acting as an operator of the system without having a regulatory function.

4. Currently, the water users pay to PJT II only a part of the required O&M cost, because of low water tariff. According to the Government regulation, PJT II is responsible for the main canal system, while the provincial government is responsible for the secondary canal systems. However, PJT II is taking the responsibility for O&M of the secondary canals because the predecessor (Jatiluhur Authority) of PJT II had O&M responsibilities since 1970s, which is an additional financial burden on PJT II. Due to the shortage of O&M funds, PJT II cannot operate and maintain the facilities properly. The West Tarum Canal supplies 80% of water required in Jakarta and its surrounding cities from the Jatiluhur Reservoir, but the canal's condition has deteriorated rapidly. In 2002, water supply through the West Tarum Canal was completely suspended for 10 days because part of its foundation collapsed near Jakarta City. The restoration work was carried out by the special working team organized and financed by the central Government. The current capacity of the canal is insufficient to deliver the water that will

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<sup>1</sup> The TA first appeared in *ADB Business Opportunities* (Internet edition) on 21 June 2004.

be needed in the area by 2010, and, unless additional water supply is ensured, the domestic water supply will be critically short in Bekasi, Bogor, Jakarta, and Tangerang cities.

5. The cropping intensity mainly for rice in the lower reaches of the Jatiluhur irrigation system has decreased by 25% in recent years due to the shortage of irrigation water caused by the degradation of the main and the secondary canals. Irrigation facilities covering the service area of about 145,000 hectares must be rehabilitated. Overall, the water delivery from the Jatiluhur system is inefficient due to (i) seepage from the canals,<sup>2</sup> (ii) evaporation loss, and (iii) delivery loss. The major reason for the canal's degradation is inadequate O&M resulting from shortage of funds.

6. **Lack of Coordination Mechanisms.** The West Java Provincial Water Resources Management (PSDA) Unit is responsible for (i) formulation of provincial policies and local government regulations related to water resources; (ii) technical recommendations to the governor regarding any water resources use permits; (iii) implementation of water resources management actions funded by the West Java provincial government; and (iv) comanagement with Directorate General of Water Resources (DGWR) of construction and maintenance of irrigation, flood control, and raw water supply infrastructures. Citarum Balai PSDA under the provincial government is responsible for (i) implementing a regulatory function within the Citarum River basin by the order of the West Java PSDA, and (ii) implementing water resources management and O&M works for the rivers and water resources infrastructures for the Citarum River tributaries.

7. A new water resources law (7/2004) was approved by the Parliament and enforced in early 2004. As stipulated in the new law, establishment of national and provincial water resources councils is mandatory, but the establishment of district/city and river basin councils is based on local conditions. Provincial water resources councils are responsible for (i) coordination and policy formulation for provincial water resources issues, (ii) monitoring and evaluation of implementation of policy at the provincial level, (iii) provision of recommendations on policy and any other measures and actions related to the governor, and (iv) conflict resolution and mediation on provincial water resources issues or issues brought up by the local government. However, water resources councils are not functioning yet, since the implementing rules and regulations for the new water resources law (7/2004) are still being prepared.

8. **Environmental Degradation.** The environment upstream of the Citarum River basin has severe problems related to soil erosion, heavy sedimentation, poor water quality and heavy pollution loads, improper disposal of garbage and other solid waste, water shortage in the dry season, flooding in the rainy season, over extraction of groundwater, land subsidence, effluent from factories, and improper land use.

9. The pollution of surface water upstream of the Saguling Reservoir<sup>3</sup> has reached an alarming level. The concentrations of organic pollutant, pathogenic bacteria, dissolved oxygen, ammonia, and some heavy metals exceed the water quality standards, especially in the dry season. The Saguling Reservoir has a natural self-purification capacity, but many signs (e.g., dead fish floating on the water surface) indicate the reservoir's self-purification capacity has been exceeded.

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<sup>2</sup> Most parts of the canal are unlined.

<sup>3</sup> The Saguling Reservoir is one of three large reservoirs in the Citarum River, and is downstream of Bandung City.

10. There are no proper mechanisms to restrict land use and to control the development activities in watershed area. According to the new water resources law (7/2004), water-related matters in the watershed area are under the jurisdiction of DGWR. However, coordination mechanisms between local governments and DGWR are still weak. DGWR does not have the authority to restrict development to maintain the watershed area adequately as a water source.

11. **Lessons Learned.** A substantial amount of money has been invested in infrastructure development in the Citarum River basin without consultation with civil society, water users, and people living in upper watershed areas. Heavy reliance on infrastructure development has led to costly solutions. Cheaper and more sustainable solutions could have been found through promoting upstream-downstream cooperation in integrated river basin management; strengthening local governance capacity for land-use planning and management; and helping people, industry, and commerce to make better informed decisions about location and arrangement of their homes and businesses so they are less vulnerable to the effects of flood, landslides, and timber felling.

12. Projects attempting to tackle several issues with many executing agencies through a number of components have often been unsuccessful. Lack of coordination among the executing agencies hampers implementation. A comprehensive solution requires the involvement of many government agencies and staff to tackle complicated rules and regulations. Thus, a project is more likely to be successful if it is sharply focused to resolve issues and has few executing agencies so they can develop a strong sense of “ownership”.

### III. THE TECHNICAL ASSISTANCE

#### A. Purpose and Output

13. The purpose of the TA is to prepare the Integrated Citarum Water Resources Management Project. The proposed Project will promote integrated water resources and environmental management within the Citarum River basin, addressing water conservation and use, mitigation of impacts, and covering watershed management, agriculture, water supply, and energy, for the benefit of all water users in the river basin.

14. The TA will assist the Government to (i) update the IWRM plan for the Citarum River basin; (ii) strengthen the institutional capacity for IWRM; (iii) review the Government policy on raw water tariff and on O&M of water supply system by PJT II, and recommend the appropriate level of raw water tariff with future responsibility of PJT II; (iv) prepare a regulatory framework on IWRM, including roles and responsibilities of stakeholders; and (v) formulate an IWRM project for the Citarum River basin, for possible funding by ADB.

#### B. Methodology and Key Activities

15. The TA will comprise studies to (i) provide an overview of the Government's water resources management strategies, priorities, and investment plans; (ii) assess the completeness and adequacy of the existing water resources management plan for the basin, based on technical, institutional, environmental, social, economic, financial, and other relevant factors; (iii) formulate recommendations, as appropriate, for adjusting the plan, and for institutional strengthening, improvement of coordination, legislative reforms, financing, cost recovery, and justification of proposed works; (iv) assess institutional reform needs for river basin management as required under the water resources law (7/2004); and (v) assess the steps required to implement IWRM principles and processes, such as conjunctive use of surface

and groundwater, and water use and polluters pay principles. The outcome of the study will be a tool for policy dialogue during processing of the loan for the Project.

16. Considering the environmental degradation in the basin, the study will also examine measures to integrate sound environmental management and increased social awareness into the planning, design, and implementation of water resources management, and coordination of activities between upstream and downstream societies, including resources transfer among stakeholders. The role of civil society in IWRM will also be reviewed and identified.

17. In the first phase of 4 months, the consultants will work closely with the National Planning Agency (BAPPENAS) and the relevant agencies concerned to update the current Citarum Water Resource Management Plan, determine appropriate institutional setting for the plan and review and assess lessons from similar past and on-going projects financed by ADB and other external agencies. The consultant team will identify a prioritized list of investment subprojects for the basin. After the stakeholder analysis in the basin, the beneficiaries will be consulted via meetings with local government officials to discuss the investment plan.

18. Subject to a satisfactory conclusion of the first phase, further studies will be under taken for the priority subprojects, with detailed scope of work, cost estimates, implementation arrangements, initial environmental assessments, and resettlement plans, if necessary. A 1-day stakeholder workshop to discuss the draft final report will be held right after the submission of the draft final report. The consultants will also prepare the documents for clearance by the Indonesian Government in accordance with Ministerial Decree 35/2003. The consultants will analyze the local governments and PJT II's abilities to be able to afford to implement the proposed Project.<sup>4</sup>

### **C. Cost and Financing**

19. The total TA cost is estimated at \$1.26 million equivalent of which \$543,000 is the foreign exchange cost and \$717,000 equivalent is the local currency cost. The Government has requested ADB to finance \$1.00 million equivalent, covering the entire foreign exchange cost and \$457,000 equivalent of the local currency cost. The TA will be financed from ADB's TA funding program. The Government will provide the remaining local currency cost of \$260,000 equivalent through the provision of experienced counterpart staff, office space, data, administrative and clerical services, and communications. Detailed cost estimates are provided in Appendix 3. The Government has been advised that approval of the TA does not commit ADB to finance any ensuing project.

### **D. Implementation Arrangements**

20. The TA will be implemented in two phases over a period of 12 months. The consultants will commence field work in January 2005 and complete their work in December 2005. The Executing Agency for the TA at the national level will be DGWR. Although the ensuing Project will be nationally coordinated, it will be implemented at decentralized levels of administration, with most of the planning, implementation, and capacity-building efforts taking place at the local level in accordance with Indonesia's policy on regional administration (Republic Law 22/1999). Close coordination and effective linkages will need to be established between national,

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<sup>4</sup> ADB. 2002. *Guidelines for the Financial Governance and Management of Investment Projects Financed by Asian Development Bank*. Manila.

provincial, and local governments within the context of their defined roles and responsibilities in program implementation.

21. A TA coordination committee will be established to facilitate interagency coordination and review the progress and outputs of the TA. The committee will be chaired by a senior officer within BAPPENAS, and will comprise senior representatives from DGWR; the ministries of agriculture, environment, finance, forestry, and home affairs; West Java provincial government; PJT II; and the Perusahaan Listrik Negara.<sup>5</sup>

22. A total of 78 person-months of consulting services (20 person-months of international consultants and 58 person-months of domestic consultants) will be engaged through an international consulting firm, which will also have domestic consultants associated with it. The team leader, an international consultant, will work full-time in Indonesia for the duration of the TA study. Expertise will be required in water resources planning, integrated river basin management, hydrology, hydraulic structure engineering and irrigation, sociology, rural income generation, agriculture, land and forest management and spatial planning, community participation and institutional strengthening, environment, and economy. The outline terms of reference for the consultants are provided in Appendix 4. The consultants will be engaged in accordance with ADB's *Guidelines on the Use of Consultants* and other arrangements satisfactory to ADB for the engagement of domestic consultants. Simplified technical proposals will be evaluated using the quality- and cost-based selection method for the consulting firm. Equipment will be procured in accordance with arrangements acceptable to ADB, and retained by DGWR upon TA completion.

23. The final report will cover the project rationale; objectives; scope; detailed cost estimate; organization, implementation, and management arrangements; socioeconomic and environmental aspects; policy recommendations; and a proposal for impact monitoring and evaluation. The main report will follow the format of ADB's report and recommendation of the President,<sup>6</sup> and will include detailed appendixes covering the consultants' work and analyses. The appendixes will include the project framework, sector and subsector analysis, summary of external assistance, cost estimates and financing plan, implementation schedule, proposed project organization chart, financial and economic analysis, poverty reduction and social strategy, indigenous people's development plan, initial environmental examination, benefit monitoring and evaluation framework, outline terms of reference for consultant services, and lessons learned from previous water resources development projects in Indonesia and from ADB-financed projects in other countries. The report will include a map of the project area showing the location of proposed project sites.

#### **IV. THE PRESIDENT'S DECISION**

24. The President, acting under the authority delegated by the Board, has approved the provision of technical assistance not exceeding the equivalent of \$1,000,000 on a grant basis to the Government of Indonesia for preparing the Integrated Citarum Water Resources Management Project, and hereby reports this action to the Board.

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<sup>5</sup> State electricity enterprise that owns two reservoirs (Cirata and Sagulin) in the Citarum River.

<sup>6</sup> Prepared in accordance with Appendix 8 of ADB. 2002. *Business Processes for the Reorganized ADB*. Manila.

### PRELIMINARY PROJECT FRAMEWORK

| Design Summary  | Performance Indicators/Targets  | Monitoring Mechanisms  | Assumptions and Risks  |
|---|---|--|--|
| <p><b>Goal</b><br/>(To be refined during TA)</p> <p>Poverty reduction in the project area</p>                     | <p>(To be refined during TA)</p> <p>Poverty incidence in the project area reduced by 10% by year 10</p> <p>Incidence of water-borne diseases in water delivered communities reduced by 20% by year 10</p>   | <p>(To be refined during TA)</p> <p>National statistics and other regional, and local socioeconomic surveys and data</p>   |  |
| <p><b>Purpose</b><br/>(To be refined during TA)</p> <p>Improved water use in agriculture and raw water supply</p> | <p>(To be refined during TA)</p> <p>Rice production increased by 20% by year 7</p> <p>Cropping intensity increased from 150% to 200% by year 7</p> <p>10% increase in raw water delivered to urban centers by year 7</p> <p>Soil erosion in watershed area reduced by 10% by year 7</p> <p>Silt load in inflows to the dams reduced by 10% by year 7</p> <p>Flood damage in the basin decreased by 20% by year 7</p> <p>Operating cost for water treatment plant reduced by 10% because of improved raw water quality by year 7</p> | <p>(To be refined during TA)</p> <p>Project impact assessment, project completion report (PCR), project performance audit report (PPAR), and annual socioeconomic reports at province and district levels</p> <p>PCR, PPAR, project impact assessment, and dam's operational record</p> <p>Public Health Department statistics, report on operational cost for water treatment plant, PCR, PPAR, and project impact assessment</p> | <p>No severe economic or political crises</p> <p>Farm-gate prices for irrigated rice will remain sufficiently high to cover production cost</p> <p>Water distribution system in the cities will be well managed.</p> |

## INITIAL POVERTY AND SOCIAL ANALYSIS (IPSA)

### A. Linkages to the Country Poverty Analysis

|  |  |  |  |
|--|--|--|--|
| <b>Is the sector identified as a national priority in country poverty analysis?</b>  | <input checked="" type="checkbox"/> Yes<br><br><input type="checkbox"/> No | <b>Is the sector identified as a national priority in country poverty partnership agreement?</b> | <input checked="" type="checkbox"/> Yes<br><br><input type="checkbox"/> No |
| <p><b>Contribution of the sector or subsector to reduce poverty in Indonesia:</b><br/>         Although incidence of poverty has improved steadily, dropping from the crisis peak of 23.5% to 18.2% in 2002, rural poverty remains high as a result of poor agricultural performance and deteriorated infrastructure.</p> <p>One project component will provide improved livelihood and sustained income-generating opportunities to such communities by increasing production and marketing of legal forest products and food as a result of increased access to land and improved management of resources. One project component will focus on creating and supporting community management groups, and sustaining institutional (government and nongovernment) arrangements to support communities.</p> |  |  |  |

### B. Poverty Analysis

#### Proposed Poverty Classification: Poverty Intervention

|  |
|--|
| <p><b>What type of poverty analysis is needed?</b><br/>         A poverty and social analysis will be undertaken to estimate the expected impact of project interventions on poor communities, other stakeholders (including intermediaries and nongovernment organizations, and national and local governments). The analysis will examine the distribution of project costs and benefits, in financial and economic terms, allocated to various stakeholders; assess the social impact; and estimate the distribution of project effects to the poor to determine the poverty impact, as outlined in <i>Handbook for Integrating Poverty Impact Assessment in the Economic Analysis of Projects of the Asian Development Bank</i> (ADB), and ADB's <i>Handbook on Poverty and Social Analysis</i>.</p> |
|--|

### C. Participation Process

|   |
|---|
| <p><b>Is there a stakeholder analysis?</b>      <input checked="" type="checkbox"/> Yes      <input type="checkbox"/> No<br/>         During implementation of the technical assistance (TA), the consultant team will carry out a stakeholder analysis throughout the Citarum River basin.</p> <p><b>Is there a participation strategy?</b>      <input checked="" type="checkbox"/> Yes      <input type="checkbox"/> No<br/>         The TA will be implemented in a fully participatory manner, and the consultants will organize participatory stakeholder workshops during TA implementation at the national, island-group, and district levels to discuss the approach and findings with key central, provincial, and district agencies; representatives of target communities; external agencies; nongovernment organizations; research organizations; and other interested parties. The TA will prepare districts (particularly local administrations and local parliaments) to participate in the investment project in accordance with Ministerial Decree 35/2003.</p> |
|---|

### D. Gender Development

|   |
|---|
| <p><b>Strategy to maximize impacts on women:</b><br/>         The gender and development strategy will include practical steps to enhance women's participation in basin resource management planning, access to formal and informal training, participation in decision making at community and professional levels, and ability to protect their interests and improve their livelihood. Through gender sensitization training and gender-disaggregated data, awareness about gender and development issues will be enhanced among all stakeholders of the project.</p> <p><b>Has an output been prepared?</b>      <input type="checkbox"/> Yes      <input checked="" type="checkbox"/> No (will be prepared during the TA)</p> |
|---|

**E. Social Safeguards and other Social Risks**

| Item                                      | Significant/<br>Not Significant/<br>None   | Strategy to Address Issues   | Plan Required   |
|---|--|--|---|
| <b>Resettlement</b>                       | <input type="checkbox"/> Significant<br><input checked="" type="checkbox"/> Not significant<br><input type="checkbox"/> None | No major resettlement will be under the proposed scope since almost all works are rehabilitation of existing facilities.   | <input type="checkbox"/> Full<br><input checked="" type="checkbox"/> Short<br><input type="checkbox"/> None |
| <b>Affordability</b>                      | <input checked="" type="checkbox"/> Significant<br><input type="checkbox"/> Not significant<br><input type="checkbox"/> None | The consultant will review the Government policy on raw water tariff and on operation and maintenance cost of water supply and irrigation by the public cooperation. Currently, water users in Jakarta City pay only 30% of the required operation and maintenance cost. The study will be carried out for the appropriate raw water tariff. | <input checked="" type="checkbox"/> Yes<br><input type="checkbox"/> No                                      |
| <b>Labor</b>                              | <input type="checkbox"/> Significant<br><input type="checkbox"/> Not significant<br><input checked="" type="checkbox"/> None | People severely affected by the Project, if any, and identified vulnerable groups will have the highest priority access to project-related jobs.   | <input type="checkbox"/> Yes<br><input checked="" type="checkbox"/> No                                      |
| <b>Indigenous Peoples</b>                 | <input type="checkbox"/> Significant<br><input checked="" type="checkbox"/> Not significant<br><input type="checkbox"/> None | The proposed Project will not adversely impact a specific ethnic.  | <input type="checkbox"/> Yes<br><input checked="" type="checkbox"/> No                                      |
| <b>Other Risks and/or Vulnerabilities</b> | <input type="checkbox"/> Significant<br><input type="checkbox"/> Not significant<br><input checked="" type="checkbox"/> None |  | <input type="checkbox"/> Yes<br><input checked="" type="checkbox"/> No                                      |

**COST ESTIMATES AND FINANCING PLAN**  
(\$'000)

| Item  | Foreign<br>Exchange | Local<br>Currency | Total<br>Cost   |
|---|---------------------|-------------------|-----------------|
| <b>A. Asian Development Bank Financing<sup>a</sup></b>            |                     |                   |                 |
| 1. Consultants  |                     |                   |                 |
| a. Remuneration and Per Diem                                      |                     |                   |                 |
| i. International Consultants                                      | 420.00              | 0.00              | 420.00          |
| ii. Domestic Consultants  | 0.00                | 290.00            | 290.00          |
| b. International Travel   | 30.00               | 0.00              | 30.00           |
| c. Local Travel (land and air)                                    | 0.00                | 10.00             | 10.00           |
| d. Reports and Communications                                     | 5.00                | 1.00              | 6.00            |
| 2. Office and Technical Equipment <sup>b</sup>                    | 15.00               | 2.00              | 17.00           |
| 3. Workshops/Stakeholder Consultations                            | 0.00                | 40.00             | 40.00           |
| 4. Surveys  |                     |                   |                 |
| a. Socioeconomic Assessment, Core<br>Subprojects                  | 0.00                | 30.00             | 30.00           |
| b. Technical Investigations <sup>c</sup>                          | 0.00                | 30.00             | 30.00           |
| c. Purchase of Satellite Images                                   | 10.00               | 0.00              | 10.00           |
| 5. Miscellaneous Administration and<br>Support Costs <sup>d</sup> | 0.00                | 10.00             | 10.00           |
| 6. Representative for Contract Negotiations                       | 5.00                | 0.00              | 5.00            |
| 7. Contingencies  | 58.00               | 44.00             | 102.00          |
| <b>Subtotal (A)</b>   | <b>543.00</b>       | <b>457.00</b>     | <b>1,000.00</b> |
| <b>B. Government Financing</b>                                    |                     |                   |                 |
| 1. Office Accommodation and Transport                             | 0.00                | 100.00            | 100.00          |
| 2. Remuneration and Per Diem<br>of Counterpart Staff              | 0.00                | 80.00             | 80.00           |
| 3. Information, Data, and Security                                | 0.00                | 80.00             | 80.00           |
| <b>Subtotal (B)</b>   | <b>0.00</b>         | <b>260.00</b>     | <b>260.00</b>   |
| <b>Total</b>  | <b>543.00</b>       | <b>717.00</b>     | <b>1,260.00</b> |

<sup>a</sup> Financed by Asian Development Bank's technical assistance funding program.

<sup>b</sup> Includes computers, software, communications, survey, and investigation equipment.

<sup>c</sup> Includes topographic survey, hydrological measurements, geotechnical investigations, and soil surveys.

<sup>d</sup> Includes support and translation services.

Source: Asian Development Bank estimates.

## **OUTLINE TERMS OF REFERENCE FOR CONSULTANTS**

### **A. Required Expertise**

1. The international consultants required for the study are (i) an integrated water resources management specialist and team leader (11 person-months), (ii) a hydraulic structure engineer (2 person-months), (iii) a sociologist and resettlement specialist (3 person-months), (iv) an environment specialist (2 person-months), and (v) an economist and financial management specialist (2 person-months). The domestic consultants required are (i) a water resources planner and coleader (12 person-months), (ii) a water resources management specialist (6 person-months), (iii) a watershed management specialist (4 person-months), (iv) an economist (4 person-months), (v) a sociologist and rural income generation specialist (3 person-months), (vi) a legal specialist (2 person-months), (vii) an environment specialist (4 person-months), (viii) a resettlement and institutional management specialist (4 person-months), (ix) a financial analyst (2 person-months), (x) a hydrologist (3 person-months), (xi) a hydraulic structure engineer (4 person-months), (xii) an irrigation engineer (6 person-months), and (xiii) a database and geographic information systems specialist (4 person-months).

### **B. Phase 1: Review of Water Resources Management Plan and Selection of Subprojects**

#### **1. Initial Activities**

2. The consultants will compile and review data on water resources management in the Citarum River basin. Such data will include, but not be limited to, (i) central and local government policies, laws, and regulations on integrated water resources management including groundwater, under the decentralization policy; (ii) central and local government water resources management objectives, investment priorities, and programs; (iii) relevant studies and reports of previous, ongoing, and proposed projects; (iv) water tariff for domestic and industrial water supply and raw water tariff; (v) statistical data relating to climatic, hydrological, geographical, and socioeconomic conditions in the river basin, with emphasis on people who either benefit from or are harmed by water sector; (vi) current land use in the basin and land title issues in the basin including watershed areas; (vii) environmental conditions and safeguards; (viii) current standards and procedures for water resources management; (ix) current watershed management activities; (x) current institutional arrangements for water resources management, including financing of capital investments, operation and maintenance (O&M) costs, and cost recovery; (xi) public awareness of water resources management and environmental degradation in watershed area; (xii) compilation and assessment of water pollution data, proposal of measures for rehabilitation and development of an integrated land use strategy for abatement of soil and water pollution; (xiii) financial statement of Perusahaan Umum Jasa Tirta II (PJT II) and its business plan; and (xiv) lessons learned from ongoing or completed water resources development projects funded by the Asian Development Bank (ADB) and other funders.

3. The consultants will have a series of meetings with communities and local governments in the river basin to evaluate the level of acceptance of water resources management. Potential beneficiaries and those who may be harmed by the works will be interviewed to help design the social surveys to be conducted during phase 2 of the technical assistance (TA). Based on the field reconnaissance and information collected, a prioritized list for studying the feasibility of the subprojects will be prepared in phase 2. The inception report will describe the preliminary findings and recommend revisions to the work plan.

## **2. Update Water Resources Management Plan**

4. The consultants will update the national and local governments' water resources management plans to arrive at a cost-effective, technically sound, and socially acceptable plan. The following will be examined: (i) appropriateness of objectives and strategies; (ii) water allocation and future demands in agriculture, and raw water supplies; (iii) institutional capacity and proposals to overcome identified weaknesses; (iv) adequacy of legal and regulatory frameworks, and procedures for endorsement; (v) adequacy of financial resources of agencies responsible for aspects of water resources management; (vi) socioeconomic analyses of how the proposed water resources and watershed management will benefit the community, especially the poor and other disadvantaged groups; (vii) adequacy of environmental safeguards and procedures, and capacity to manage environmental plans and monitor environmental conditions; (viii) adequacy of provisions relating to land-use planning, zoning control, risk assessment, and prevention of encroachment on unsafe areas; (ix) assessment of current raw water tariff and cost recovery mechanisms; and (x) status of O&M of water supply facilities.

## **3. Recommendations**

5. The consultants will prepare a report describing the major elements of the integrated water resources management plan for the river basin, including recommendations to modify or improve the Government's policy and/or plan, and the appropriate level of raw water tariff to cover major part of O&M cost. The report will cover (i) planning measures; (ii) development and land-use controls; (iii) structural measures; (iv) transfer of payment (compensation) from downstream beneficiaries and water users to upstream communities; (v) review and analysis of institutional issues of responsibility for water resources management; (vi) effectiveness of nonstructural measures, (vii) regulatory framework for the role of local governments, communities, and Balai Water Resources Management; (viii) lessons learned from the past projects; (ix) effective coordination mechanisms between district governments for watershed management; (x) possible collaboration with Network of Asia River Basin Organizations (NARBO); and (xi) issues related to financing mechanisms for on-lending and/or on-grant to local governments, with mention, in the independent section of the report, the relation to the decentralization policy (Republic Law 22/1999 and 25/1999) and the Ministerial Decree 35/2003.

6. The consultants will also review the Government policy on raw water tariff (untreated water, price at the entry point of water treatment plant), and on O&M of water supply system by PJT II, following Technical Note 9 of ADB's Economics and Research Department. Recommendations on raw water tariff, cost recovery mechanism, and future responsibility for O&M by PJT II will be made and policy dialogue will be conducted based on the recommendation.

7. The consultants will support all conclusions and recommendations with analyses of options and present the findings in the interim report, which will also set out programs (including terms of reference, costs, and implementation arrangements) for any additional surveys, investigations, and studies to be carried out during phase 2 or as part of the project. A tripartite meeting will be held to review the interim report, following which the Government and ADB will jointly decide subprojects for feasibility study during phase 2.

#### 4. Workshops and Beneficiary Consultation

8. Since the TA will be implemented in a fully participatory manner, consultation meetings must be held with stakeholders, including women's groups. The beneficiaries' consultation meeting will be held to explain the scope of the Project to beneficiaries and officials 1 month after consulting services start. Based on the data collection and detailed selection criteria set forth by the consultant, the prioritized list of subprojects should be submitted to the TA coordination committee and ADB at least 1 week before the tripartite meeting to be held at the end of phase 1. A 2-day workshop will be held at the end of phase 1 to discuss the concept of water resources management, raw water tariff, and the selection of subprojects for phase 2. About 100 stakeholders will be invited to attend (such as the national, provincial, and district government officials concerned; beneficiaries upstream and downstream of the basin; academics; policy makers; journalists; nongovernment organizations; funding agencies; and other interested parties).

### C. Phase 2: Preparation of an Investment Project

#### 1. Feasibility Studies

9. The consultants will undertake feasibility studies for the subprojects to formulate the major works components, together with their costs and justification. Where possible, the consultants will use existing studies and reports and will undertake supplementary studies to update them as necessary. The proposed scope should be presented to the communities, and their comments will be incorporated in the scope. The consultants will consider the need for (i) capacity building of PJT II and local government agencies, (ii) community participation for water resources management, (iii) watershed management, (iv) public awareness for water resources management, and (v) structural measures for water resources management to improve water use efficiency.

10. A consultant will undertake a social analysis for the river basin to identify (i) groups who will benefit from and/or use the proposed works, (ii) groups who may be adversely affected by the works, (iii) indigenous peoples, (iv) gender concerns, and (v) other major stakeholders.<sup>1</sup> Each social analysis will describe the needs, demands, and absorptive capacity of the groups, and will consider the need to compensate those likely to be adversely affected. Socioeconomic data, including current urban and rural population levels and migration trends, growth predictions, presence of minority peoples, land use and tenure, employment, gender issues, division of labor, and productivity and family incomes, will be derived from secondary sources supplemented by interviews and rapid rural appraisals. Particular attention will be given to discerning differences in the extent and severity of poverty among beneficiaries and the population as a whole. An assessment of the impact on indigenous peoples should be prepared in accordance with ADB's *Operations Manual on Indigenous Peoples*.

11. Consultants will prepare records of all interviews and discussions, with a summary of the major points of discussion and the views of the group concerned. Socioeconomic profiles will be prepared for vulnerable groups and for all groups who may be adversely affected by the Project. For the Citarum River basin, the consultants will describe (i) effective measures to reduce the vulnerability of the poor, especially women, to water resources and watershed management activities; (ii) beneficiaries' willingness and capability to contribute in cash or kind to implement

<sup>1</sup> The procedures to conduct social analyses using rapid appraisal techniques are described in ADB. 2001. *Handbook on Poverty and Social Analysis*. Manila.

and maintain works; (iii) procedures to be adopted during project implementation to (a) ensure beneficiary and stakeholder participation in selection and formulation of works, (b) respect cultural needs and existing patterns of livelihood, and (c) enhance the positive impacts of project works; (iv) institutional development and training needs under the Project; (v) interventions that may be needed to complement works proposed under the Project (such as improved drinking water supplies, collection and disposal of solid and liquid wastes, and improved treatment of effluents discharging into surface and groundwater bodies); and (vi) benefit and poverty impact monitoring activities, disaggregated by gender wherever possible.

12. The consultants will prepare a resettlement policy framework, which will cover all land acquisition and resettlement activities of the Project. For any structures that may entail significant land/house acquisition or disruption of livelihood, the consultants will prepare a resettlement plan following the requirements of the ADB's *Handbook on Resettlement: A Guide to Good Practice*. The consultants will prepare the land acquisition and resettlement policy framework to be applied to the Project in consultation with the central, provincial, and district governments.

13. The consultants will prepare a gender action plan to reflect the analysis of the roles of men and women in the proposed Project, including recommendations for strategies and activities to reduce the economic burden of women.

14. In accordance with ADB's environmental policy, the consultants will prepare an initial environmental examination and/or environmental impact assessment, if warranted, following ADB's *Environmental Assessment Guidelines* (2003). The environmental assessments should identify all positive and negative environmental and social impacts. The consultants will recommend measures (including changes in the design) to eliminate, offset, or reduce adverse impacts to an acceptable limit. Wherever feasible, the consultants will identify complementary works to enhance the positive environmental impacts of proposed works. Costs and benefits of all such measures and complementary works will be estimated.

15. A draft environmental management plan will be prepared for each subproject, to describe the procedures for environmental management and monitoring, including institutional arrangements; tasks and implementation schedules; estimated costs; reporting arrangements and schedules; and any special measures, such as training and public involvement activities. The plans will be finalized during the detailed design phase.

16. The consultants will analyze local governments' capability to fund their contribution to the proposed Project, and their sources of funds. The analyses should follow the rules and regulations of the government financing policy for local governments (Ministerial Decree 35/2003). The *Guidelines for the Financial Governance and Management of Investment Projects Financed by ADB* should be used for the analysis.

17. The consultants will analyze the economic benefits and costs and will calculate the economic internal rate of return, perform sensitivity and risk analyses, and calculate switching values for each subproject in accordance with ADB's *Guidelines for Economic Analysis of Projects* and *Economic Analysis of Environmental Impacts of Development Projects*. The COSTAB software program should be used to estimate the project cost. The consultants will also examine the distribution of project costs and benefits, in financial and economic terms, allocated to the various stakeholders, and estimate the distribution of project effects on the poor to determine their poverty impact, as outlined in ADB's *Handbook for Integrating Poverty Impact Assessment in the Economic Analysis of Projects*.

## **2. Formulation of the Project**

18. The consultants will formulate a water resources management project in the Citarum River basin. Specific attention will be given to (i) financing plans and mechanisms for cost recovery; (ii) assessment of institutional reforms needed for river basin management in order to cope with the new water resources law (7/2004); (iii) arrangements for O&M of project facilities with capacity-building mechanisms; (iv) framework for monitoring and evaluation of project benefits; (v) assessment of the appropriate level of raw water tariff; (vi) community participation in water resources management, and/or watershed management; (vii) development of public awareness of water resources management and watershed management; (viii) assessment of the steps required to implement integrated water resources management principles and processes, such as conjunctive use of surface and groundwater, and water-use and polluters-pay principles; (ix) watershed management, including income generation and community-based land and natural resources management; (x) financial sustainability of asset management of river infrastructure; (xi) restriction of land use in the basin; (xii) a children's education program on community participation in water resources management; (xiii) gender concerns in water resources management; (xiv) contract packaging (including procurement arrangements), work schedules and detailed implementation arrangements; and (xv) development of a logical framework along with the progress of the study. The consultant will recommend executing agencies with funding mechanisms. Right after submission of the draft final report, a second workshop will be held to discuss it with about 50 stakeholders. The outcome of the workshop will be reflected in the final report.

### **D. Reporting**

19. The consultants will submit three reports. The inception report, to be submitted within 1 month of commencement of the TA, will summarize the initial findings and present an implementation plan to reflect specific identified issues. The interim report, to be submitted 1 week prior to the end of phase 1, will describe the findings and recommendations of the first phase, and will be reviewed in a meeting between senior representatives of the Government and ADB. The final report will be submitted 2 weeks after the final tripartite meeting. All reports will be prepared in English, and the executive summary will be translated into Bahasa Indonesia. All other translation will be the responsibility of the executing agency, and will be undertaken at the executing agency's discretion. The draft final report will be submitted 2 weeks prior to the end of phase 2. The consultants will submit 20 copies each of the inception and interim reports, 30 copies of the draft final report, and 20 copies of the final report.