

SUMMARY

INTEGRATED CITARUM WATER RESOURCE MANAGEMENT INVESTMENT PROGRAM

(A Multitranche Financing Facility for Integrated Water Resource Management in the Citarum River Basin)



(Report Draft Pending ADB and Government Agreement)

November 2008

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CITARUM INTEGRATED WATER RESOURCE MANAGEMENT INVESTMENT PROGRAM

I. IMPLEMENTATION STATUS

A. Investment Program Processing

1. Indonesia and ADB on 29 October 2008 signed a Framework Financing Agreement (FFA) for a \$503.8 million Multitranchise Financing Facility (MFF) to support, the 15 year, \$921 million Citarum Integrated Water Resource Management Investment Program (Investment Program), to assist the Government to implement the Road map for Integrated Water Resources Management in the Citarum River basin (CRB). The Government also submitted to ADB the first Periodic Financing Request (PFR Project 1) to be supported by the MFF. The FFA, PFR and proposed Loans and Grants to support Project 1 and technical assistance support will be presented to ADB Board on 4 December 2008.

B. Implementation Schedule

2. Project 1 and supporting technical assistance (TA) implementation is scheduled to commence in 2009. Advance action for recruitment of consultants and construction activities has commenced together with preparatory resettlement and environmental safeguard work.

C. Executing Agency

3. The Executing Agency for the Investment Program is the Directorate General Water Resources (DGWR), Ministry of Public Works (MPW) which has established a Project Coordination and Management Unit (PCMU) under the Balai Besar Wilayah Sungai Citarum (BBWSC). As part of the project implementation the National Planning and Development Agency (BAPPENAS) has established a Roadmap Coordination and Management Unit (RCMU) under the Directorate of Water Resources and Irrigation; and Project Implementing Units (PIUs) are being established in all Project 1 Implementing Agencies (Table 5 shows contact details).

Executing Agency

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Roadmap Coordination and Management Unit (RCMU)

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II. SUMMARY OF INVESTMENT PROGRAM AND PROJECT 1 AND TECHNICAL ASSISTANCE MAIN FEATURES

A. Impact and Outcomes

4. The desired impact of this Investment Program is that, by the year 2023, poverty, health and living standards in the Citarum River Basin will be significantly improved. This will be achieved through a measurable decrease in poverty levels in the basin's communities, GDP growth in the basin at least maintained at 2008 levels without further degradation of environmental status, and significant improvements in water quality in the rivers and reservoirs of the basin.

5. The proposed investment program is very comprehensive and will result in a range of outcomes for the people of the basin. These will include: (i) improved condition of water catchments in the upper basin; (ii) adequate quantity and good water quality in streams and reservoirs; (iii) more reliable water supply and improved sanitation to urban centers (including the Jakarta conurbation that receives about 80% of its water from the Citarum River Basin via West Tarum Canal) and rural communities; (iv) reduced damage and loss of life from flooding and other water-related disasters; (v) improved agricultural outputs resulting from more effective delivery of water for irrigation and more efficient irrigation practices; and (vi) more equitable and economically efficient allocation and sharing of limited water resources.

6. Importantly, there will also be appropriate and effective institutional arrangements in place for integrated water resource management in the basin¹. This will be achieved by: (i) promoting and facilitating effective partnerships between government agencies at national, provincial and district level to implement planned water and land management activities to be funded under the Investment Program; (ii) putting comprehensive and accessible databases in place to provide decision-makers, water managers and technical experts with the best information to undertake their responsibilities for water resource management; and (iii) creating the conditions for improved and integrated water resource development and management, with government and the community working in partnership to achieve a shared vision.

B. Outputs

1. Road map for Integrated Water Resource Management

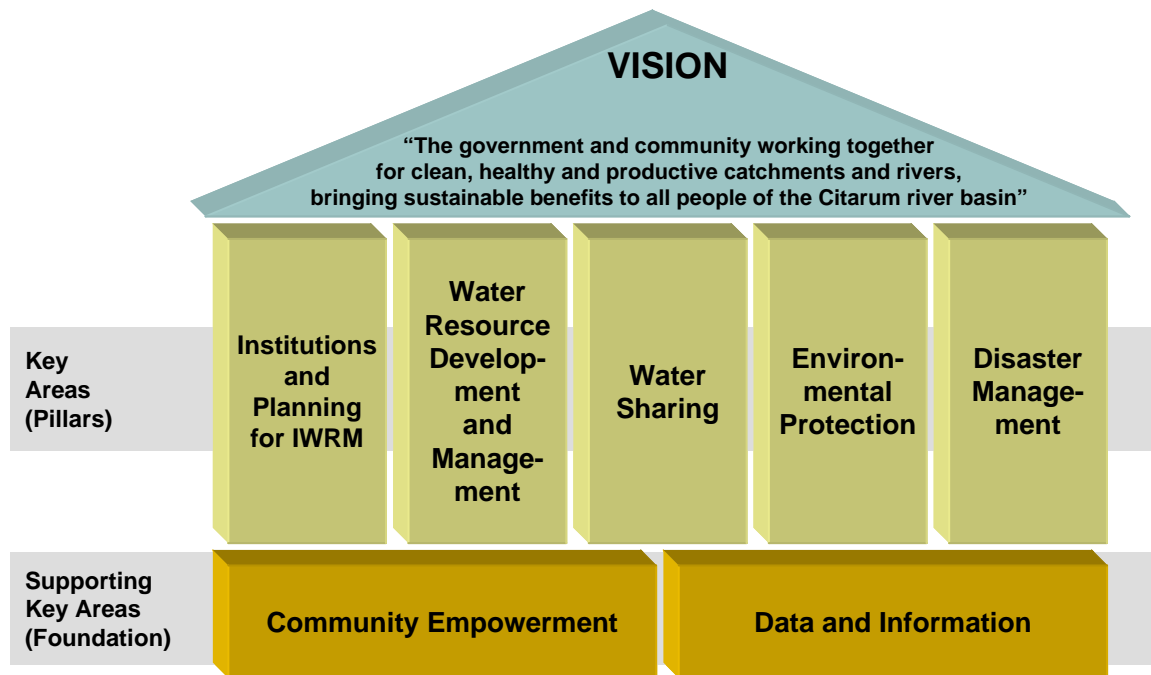
7. The Investment Program is a multi-sectoral program and will fund a range of interventions across sectors that relate to water and land management that are necessary to pursue a truly integrated approach to river basin management for the Citarum River basin. The selection of interventions for funding under the Investment Program was made based on a "road map" for integrated water resource management in the basin, developed under the preparatory technical assistance². This process, based on sound strategic planning principles was highly participatory, and involved extensive consultations with key stakeholder representatives (government and civil society) in all

¹ Assistance to put those arrangements in place will be provided through an ADB grant to fund a technical assistance that will run in parallel with Project 1 (the first tranche of the MFF).

² ADB Manila, 26 August 2004. TA INO-4381 Integrated Citarum Water Resources Management Project (37049): <http://www.adb.org/Projects/project.asp?id=37049>

relevant sectors, and at a number of levels. The process began with the identification of a stakeholder vision for the basin's future (to the year 2023), and several "key areas", for which specific objectives were developed³. The road map sets out the set of agreed (future) interventions up until 2023 that will be required to achieve the key area objectives. Initial estimates of the cost of the full suite of road map interventions total around \$3.5 billion. The strategic framework for the road map is shown in Figure 1.

Figure 1: Strategic Framework for IWRM



8. The component projects selected for inclusion in the Investment Program all come from the road map, and the criteria for selection included: (i) importance and urgency of the intervention; (ii) potential contribution to implementation of IWRM (and not concentrated in a single sector); (iii) whether the intervention was likely to be funded by other donors, or GOI itself; and so on. In some cases, the road map interventions have been "packaged" into projects in a logical way so as to facilitate easier implementation.

9. The outputs from the components of the Investment Program will be many and varied. Because of the flexible nature of the MFF modality, outputs for projects (tranches) beyond the first one are necessarily indicative, and are based on the project scope agreed by GOI at the time of loan preparation. It is inevitable that circumstances will change in the future, and Periodic Financing Requests (PFRs) for tranches after Project 1 may differ from those envisaged at the beginning.

10. The Investment Program components are (i) institutions and planning for IWRM; (ii) water resource development and management; (iii) water sharing; (iv) environmental

³ The key areas are: Institutions and Planning for Integrated Water Resource Management; Water Resource Development and Management; Water Sharing; Environmental Protection; Disaster Management; Community Empowerment; Data, Information and Decision Support.

protection; (v) disaster management; (vi) community empowerment; (vii) data, information, and decision support; and (viii) program management. The planned outputs for the Investment Program, which are grouped by components following the road map key areas, are described below. Project 1 outputs are highlighted (see the periodic financing request for Project 1). A design and monitoring framework for the Investment Program is given in Attachment 1, Attachment 2 summarizes the Road map.

11. **Component 1: Institutions and Planning for IWRM.** The term “institutions” is used in its broadest sense, including organizations and the legislation, policies, and other protocols that define relations among them. IWRM and river basin planning is seen as a mechanism for promulgating and implementing government policies and, as such, is included in this key area. Assistance will be provided to support key government agencies involved in IWRM in the CRB. Activities include organization restructuring, organizational capacity building, policy development, legislation, planning for IWRM,⁴ regulation such as licensing water utilization and wastewater discharge, setting water tariffs, and strengthening institutions for participatory irrigation management. Project 1, including its supporting TA, provide considerable support to these water resource institutions in the CRB and the 6 Cis River Basin Territory.

12. **Component 2: Water Resource Development and Management.** Investments are aimed at activities to efficiently exploit water resources by increasing water availability to authorized users and effectively operating and maintaining the infrastructure developed in the process. The main activities included are (i) project planning, which focuses on developing infrastructure and incorporates water-related climate change adaptation needs; (ii) constructing infrastructure for storing and delivering water, including reservoirs, canals, and groundwater and pipeline systems; (iii) operating and maintaining infrastructure; (iv) and promoting the efficient and effective utilization of water. The Investment Program has been designed to include several interventions aiming specifically to increase the sustainable water yield of the basin to accommodate projected growth in demand. These include supplementing groundwater supplies to Bandung with surface water from the upper basin, raising the capacity of the existing Cirata Reservoir, and evaluating options for increasing water supply in the Bekasi urban area. Investments will increase the capacity of the existing water supply infrastructure to address issues of bulk water supply to key irrigation areas and domestic, municipal, and industrial water supply to Jabodetabek and Bandung. Project 1 will rehabilitate the 54 km Curug–Bekasi stretch of the WTC, a high Government priority, including renovating intake mechanical and electrical works, improving canal capacity, installing protection fencing, improving access roads, adding river crossing siphons, and rehabilitating gates and water management structures. Project 1 includes community-led efforts to (i) improve on-farm irrigation management over 3,000 ha in the three districts and 16 subdistricts in the WTC command area; and (ii) improve water supply and sanitation facilities following participatory planning and design, with local communities along the WTC developing and implementing water supply and sanitation works under community action plans.

13. **Component 3: Water Sharing.** Investments aim to establish and protect water rights, allocate water among competing uses and users, and set priorities for water entitlement during times of shortage.

⁴ As distinct from project planning.

14. **Component 4: Environmental Protection.** Investments in a combination of structural and other measures aim to protect the environment of rivers, lakes, wetlands, forests, and other natural ecosystems with impact on water management and rehabilitate and enhance degraded environments, both aquatic and terrestrial. Activities include building wastewater treatment plants, the community development of solid waste and sanitation facilities, improving institutional regulatory arrangements, and encouraging community participation and behavioral change. The Investment Program includes inputs to address many of the environmental problems faced in the basin. A comprehensive study will be carried out under the first tranche to identify appropriate priority water quality and quantity improvements and potential investment opportunities that will be implemented under later tranches. Project 1 includes initial community-driven environmental improvements and the protection of ecosystems in about 30 villages and communities adjacent to seven protected areas in the upper basin. These activities will be funded by a grant from GEF administered by ADB.

15. **Component 5: Disaster Management.** Investments are aimed only at those disasters related to water such as floods and mud flows. While drought must also be classified as a water-related disaster, the strategic response to drought mitigation is to increase water availability, which is included above under the key area of water resource development. Activities related to disaster management under this definition include (i) planning and constructing structures to control flood and mud flows such as levees, dikes, and flood control reservoirs; (ii) developing and implementing disaster preparedness plans, flood plain management, and flood forecasting and warning systems; (iii) providing public information on flood risks; (iv) and identify and quantify water-related climate change adaptation needs. Urgent flood protection works in the upper basin will be prioritized under Project 2 after option studies and engineering designs have identified optimal solutions under Project 1.

16. **Component 6: Community Empowerment.** Involving the community in planning and implementing IWRM activities is essential. It is considered a “foundation” key area, as it supports the five “pillar” key areas described above. The strong feeling among stakeholders is that empowering the community to participate should be an important theme of the Investment Program. In this context, community empowerment includes (i) the education, awareness raising, and capacity building of communities and individuals on water management issues; (ii) activities aiming to provide information to all that need it on water resource management and related activities; (iii) implementing measures to facilitate the participation of the community in water planning and management; and (iv) developing community-based self-help programs and specific projects to provide local improvement in water supply, the environment, and water quality. Starting in Project 1, a community-based approach will be taken to the problem of degraded community environmental and health status in peri-urban and rural communities, empowering local communities through awareness raising and capacity building to supplement local efforts to implement improved community water supply and sanitation facilities.

17. **Component 7: Data, Information, and Decision Support.** This is another foundation key area, as data is fundamental to all aspects of water resource management. It includes collecting, validating, archiving, managing, and disseminating relevant data covering surface and groundwater quantity and quality, as well as other natural resource data such as on soils, geology, land cover, and ecosystems, including such socioeconomic data as population, poverty, and land use. This key area includes

research into such fields as catchment processes and demography; developing new technologies for water conservation and environmental protection; and developing and implementing decision-support tools, including geographic information systems, hydrologic and hydraulic models, and other analytical tools.

18. **Component 8: Program Management.** Program management activities will support (i) effective liaison between program stakeholders and the teams undertaking component subprojects so that outcomes align with stakeholders needs; (ii) effective coordination among components to promote cooperation and information exchange, improve performance overall, and minimize wasted effort caused by overlaps; and (iii) accurate and timely monitoring and reporting of investment program and Project 1 performance, including financial management. Monitoring and evaluation will be included, with the establishment and management of a road map performance management system and an investment program performance management system.

2. Total Investment Program

19. Table 1 shows the planned outputs for the entire Investment Program and parallel funded technical assistance. These are grouped by key area and an indicative implementation schedule is given in Attachment 3.

3. Project 1

20. Anchored on the principle of integrated management and the thrusts of Water Law #7/2004, Project 1⁵ has been designed to undertake priority interventions for basin management. Table 2 shows the planned outcomes for Project 1; including the Global Environmental Facility (GEF) and ADB parallel grant funded projects that logically complement the Project 1 component subprojects.

⁵ The collection of subprojects to be funded under Tranche 1 of the MFF is termed as "Project 1" and similarly for successive tranches.

Table 1: Indicative Investment Program Outputs

Key Area	Component Subprojects
Institutions and Planning for IWRM	Road map Management
	Road map Institutional Strengthening (ADB TA)
	Institutional Strengthening for IWRM in the 6 Cis River Basin Territory (ADB TA)
	Spatial Planning for 6 Ci's River Basin Territory (ADB TA)
	Development of an enhanced Citarum River Basin Plan for IWRM
Water Resource Development and Management	Rehabilitation of West Tarum Canal
	Upgrading Bandung Water Sources
	Improved Land and Water Management
	Support for Community- and NGO-Driven Initiatives for Improved Water Supply and Sanitation
	Upgrading of Water Source for Irrigation (Upper Cipunegara)
	Cisankuy Irrigation Improvement
	Curug Run-of-River Power Plant
	Mini and Micro Hydro Basin Study
	Raising of Cirata Dam
	Development and Implementation of Preferred Bulk Water Supply Options for Bekasi and Karawang
Development of Strategies and Options for Demand Management and Water Conservation with Respect to Industrial and Domestic Use	
Implementation of Water Supply and Sanitation Options for Urban Areas	
Water Sharing	Development of Key Policies and Strategies for WRM (ADB TA)
	Review of Allocation Priorities and Optimization of Operating Rules for Key Sub-Basins, Including the Operation of the River / Reservoir System as a whole
	Implementation of a Water Entitlements and Licensing System for Surface Water Users
	Implementation of Water Pricing and Allocation Strategies
Environmental Protection	Development and Implementation of a Basin River Quality Improvement Strategy and Action Plans
	Improvement in Water Quality in Saguling, Cirata and Jatiluhur Reservoirs through Management of Fish Farming and Other Polluting Activities
	Sewerage and Wastewater Treatment Upstream of Saguling Reservoir (Stage 1)
	Development and Implementation of Integrated Coastal Zone Management Strategy and Action Plan for Citarum coastline
	Land and Biodiversity Conservation (GEF funded)
Disaster Management	Upper Citarum Basin Flood Management (ADB TA)
	Implementation of Upper Citarum Flood Management Measures
	Climate Change Adaptation
	Integrated Management of Water Related Disasters
Community Empowerment	Information, Education and Awareness Strategy (IEAS) for capacity building of communities across the basin for improved participation in water resources policy development, planning and management
Data, Information and Decision Support	Decision Support System for IWRM in Citarum River Basin (ADB TA)
	Development of an on-line flow forecasting system on unregulated rivers
Program Management	Program Management
	Independent Monitoring and Evaluation
	Technical Project Preparation for Future Projects

Table 2: Proposed Project 1 Outputs (Loan Funded Sub Components)

Component (Subproject)	Outputs
Institutions and Planning for IWRM	
Road map Management	<ul style="list-style-type: none"> • Coordination among component projects (planning, policy coordination, integrated AWP approval, mid term development plans) • Studies, dialogue and preparation for future tranches Implementation • Support the RCMU and its secretariat operation to National Water Resources Steering Committee • Funding allocations management • Identification of the need for and coordination of implementation of minor studies (up to \$400,000 total) to improve knowledge of water issues in CRB (3 to 6 studies) • Monitoring and reporting of Road map implementation performance • Assist with capacity building for Road map management • Coordination and synergetic planning between National and Regional Governments, CSOs, communities and private sector on IWRM initiatives • Road map Data and Information System development and management • Identification and development of private sector investment opportunities • Road map Media communication plan, information dissemination and implementation
Water Resource Development and Management	
Rehabilitation of West Tarum Canal	<ul style="list-style-type: none"> • West Tarum Canal restored to its design capacity • Water quality improved through exclusion of inflows of polluted water from crossing stream through construction of siphons • Water control structures restored to full operational status • Environmental impacts minimized, and in particular through proper disposal of dredged material • Social disruption for those living along the canal minimized, and in particular access to water supply and sanitation maintained and improved if necessary • Capacity of PJT II for ongoing management of the canal improved.
Detailed Engineering Design for Upgrading Bandung Water Sources	<ul style="list-style-type: none"> • Detailed engineering design for surface water supply option(s) identified in a parallel project preparatory technical assistance • Complete documentation for procurement of construction and construction supervision contractors/consultants
Improved Land and Water Management	<ul style="list-style-type: none"> • Adoption of System of Rice Intensification (SRI) in the project area accelerated. • About 3,000 ha of paddy land in three districts will improve water management practices leading to increased yields and reduced water consumption
Support for Community- and NGO-Driven Initiatives for Improved Water Supply and Sanitation	<ul style="list-style-type: none"> • Strengthened community capabilities to develop, co-finance, build, operate, and maintain community-based water supply and sanitation facilities • Development of sanitation and facilities by providing a subsidy for latrine constructions for the poorest 10% of households • Development of simple drainage, washing platforms, soak pits, bashing and washing facilities • Health impacts of project investments in water supply and sanitation maximized and the incidence of water borne and water related diseases reduced through improved practices
Water Sharing [addressed in parallel support TA]	
Environmental Protection	
Development and Implementation of a Basin River Quality Improvement Strategy and Action Plans	<ul style="list-style-type: none"> • Policies and procedures for water quality management • Improvements to water quality monitoring and data management • Strengthening of organizational capacity • Preparation of basin-wide River Water Quality Improvement Strategy (RWQIS) • Preparation and implementation of area-based pollution sources management action plans
Disaster Management [addressed in parallel support TA]	
Community Empowerment [addressed in parallel support TA]	

Program Management

Program Management	<ul style="list-style-type: none">• Liaison with executing agencies and other relevant stakeholders• Coordination among projects• Capacity building for NGOs involved in Project 1 component projects• Monitoring and reporting of project performance• Coordination of preparation for Project 2
Independent Monitoring and Evaluation	<ul style="list-style-type: none">• Monitoring of the Road map physical and financial process as well as the effectiveness and efficiency in achieving major outputs, outcomes and impact.• Review and report to NWRSC Road map progress and inter-agency program planning and coordination• Establishing a RPMS for the overall Road map investments• Monitor the level and adequacy of participation of various stakeholders in the planning, implementing and monitoring of project activities• Monitoring the Road map's social, environmental, and economic impacts including the establishment of benchmark using existing Government information and data systems• Assessing the impact and utilization of water resources data management information systems• Developing a mechanism for making necessary adjustments in the Road map design and implementation arrangements

4. Parallel Institutional Project Funded by ADB Technical Assistance

21. Subsequent to developing the road map for IWRM in the Citarum Basin, the Government has designated the river basins of the Citarum, Ciliwung-Cisadane, and Ciujung-Cidanua-Cidurian as sub-basins of a new natural planning unit territory of national strategic importance, important for the future water supply of Jakarta and its satellite urban and industrial areas. The territory has a total population of 35 million people and has been termed the “6 Cis⁶ River Basin Territory.” The CRB is the largest and most strategic of the six rivers, but the 6 Cis River Basin Territory will be managed under a coordinated framework plan that recognizes both the role of water in fulfilling economic development targets in a sustainable manner and the diverse individual characteristics and needs of each of the six sub-basins. Since early 2007, ADB has been providing technical assistance in institutional capacity building to the 6 Cis River Basin Territory and sub-basin institutions.⁷ To provide institutional support to the Investment Program and Project 1 IWRM activities in the CRB and to extend planning and programming support to the rest of the 6 Cis River Basin Territory, the Government has asked ADB to provide TA support to strengthen institutions for IWRM in the 6 Cis River Basin Territory.

22. The desired impact of this TA is the sustainable management of water resources. The immediate objectives are to (i) improve capacity for IWRM in the 6 Cis River Basin Territory, and (ii) ensure the effective and efficient implementation of the Investment Program (further details are given in Attachment 4).

⁶ *Ci* means “river” in the local West Java Indonesian language.

⁷ ADB. 2006. *Technical Assistance for Effective Water Management Policies and Practices (Phase 5)*. Manila (TA-6325-REG).

C. Special Features

23. **Multitranche Financing Facility.** The Investment Program will be funded through an MFF. The rationale for this derives from the broad agenda of the road map, which involves the provision over 15 years of water-related infrastructure and services across a number of IWRM key areas throughout the CRB. The MFF will enable flexibility in investment decisions and timing based on the needs and constraints from downstream to upstream within a framework, instead of a precise definition of investments up front as required in a conventional modality. It will allow implementation to be based on the readiness of individual projects, as under the MFF, funds will be made available in a phased manner subject to the eligibility and readiness of projects. The MFF will allow ADB and the Government to develop a long-term partnership for supporting the long-term vision of CRB stakeholders in a sustainable manner. It will allow long-term engagement for building capacity in IWRM in a realistic timeframe. Finally, the MFF will provide flexibility to match various funding sources available to the central and regional governments; leverage private and community investments; and allow the Government to plan efficiently and effectively with other funding institutions.

24. **Community-Driven Development and Participatory Approaches.** The Investment Program supports community and nongovernment organization (NGO)-driven participatory approaches for many of the outputs. Communities will decide priority areas and the type of technology to be used on a number of subcomponents, with community participation in the development of water and sanitation systems, environmental improvements, and on-farm water management. Community groups will be strengthened to lead planning and implementation activities with the assistance of community facilitators trained by qualified NGOs and will permanently take charge of operating and maintaining the works constructed. NGOs have participated in dialogues on preparing road maps and detailed subcomponents, as well as in initial pilot IWRM demonstration activities in the CRB. Singularly and in informal networks, some NGOs are already active in many activities that complement, synergize, or form part of the road map. Increased engagement with and support to communities working with NGOs is designed into Project 1, as communities and civil society organizations (CSOs) become more active in policy making, planning, implementation, management, and monitoring and evaluation.

25. **Corporate Social Responsibility.** Many large and medium-sized companies in Indonesia practice corporate social responsibility. Awareness of the importance of this is now a global trend and, if applied properly, it can be one of several solutions for breaking through the barrier between fulfilling the needs of the poor and profit seeking. Both profits and fulfilling needs can advance side by side toward empowering the poor and sustainable environmental protection. The Investment Program has significant potential to initiate and sustain cooperation with some big textile companies and other firms that rely on basin water and show interest in providing support to community initiatives to improve river water quality and community water and sanitation supply.

26. **Environmental Improvement Compensation.** A special feature of the Investment Program will be the development of compensation mechanisms for communities that actively contribute to protecting the land and water of the CRB, or

paying for environmental services. An ADB-assisted⁸ pilot demonstration of paying for environmental services commenced in the CRB with the objectives of (i) introducing and increasing understanding of this mechanism in accordance with the water law, (ii) strengthening the commitment of users of land and water to support compensating farmers who contribute by taking care of the river basin, and (iii) preparing government institutions for facilitating the implementation and promotion of payments.

27. **River Basin Performance Benchmarking.** The Network of Asian River Basin Organizations supports performance benchmarking as a priority network activity and works closely with CRB organizations in developing benchmarking tools to include new river performance indicators to augment the network's existing river basin organization performance system. This ongoing work, carried out in collaboration with ADB and the University of Tokyo,⁹ has been pilot tested in the CRB and will be used to set targets and monitor the performance of road map implementation against its vision.

28. **Climate Change Adaptation.** The CRB will be the first basin in Indonesia with a comprehensive strategy for adapting to climate change. In collaboration with the University of Tokyo¹⁰ and the Regional Water Knowledge Hub for Climate Change National Hydraulic Research Institute of Malaysia, ADB assists with a climate risk assessment for the basin, which will be developed under the Investment Program to climate-proof the road map. Financing for climate-proofing the road map will be sought from internal and external sources.

⁸ ADB. 2006. *Technical Assistance for Effective Water Management Policies and Practices (Phase 5)*. Manila. (TA 6325-REG).

⁹ Saiki, K. 2008. MSc thesis on Performance Benchmarking for IWRM.

¹⁰ Yutaka, A. 2008. Climate Change Adaptation in CRB. Under preparation.

D. Cost Estimates and Financing Plan

1. Investment Program

19. The estimated total investment cost for the Investment Program, including contingencies for the program is \$921 million (Table 3).

**Table 3: Cost Estimates and Financing Plan for Investment Program
(By Key Area - \$ million)**

Components	P1	P2	P3	P4	Total	Percent
1. Institutions and Planning for IWRM	8.52	1.20	0.60	0.00	10.32	1.12
2. Water Resources Devt & Management	60.83	196.47	67.10	131.82	456.22	49.51
3. Water Sharing	1.08	4.90	0.00	0.00	5.98	0.65
4. Environmental Protection	8.72	9.72	66.31	0.00	84.75	9.20
5. Disaster Management	0.68	60.00	0.00	0.00	60.68	6.59
6. Community Empowerment	0.00	2.21	0.00	0.00	2.21	0.24
7. Data, Information and Decision Support	5.16	0.00	0.00	1.60	6.76	0.73
8. Program Management	4.44	10.40	2.20	1.20	18.24	1.98
Total Baseline Costs	89.43	284.90	136.21	134.62	645.16	70.02
Physical Contingencies	1.71	28.15	13.15	13.01	56.02	6.08
Price Contingencies	9.50	50.56	31.85	73.73	165.64	17.98
Total Project Costs	100.65	363.61	181.21	221.36	866.83	94.07
Interest During Implementation	2.67	29.77	14.90	3.43	50.77	5.51
Commitment Charges	0.11	1.80	1.06	0.87	3.84	0.42
Total Costs to be Financed	103.43	395.18	197.17	225.66	921.44	100.00

ADB=Asian Development Bank; OCR=ordinary capital resources; TA=technical assistance

20. It is estimated that ADB loans will be \$500 million (or 54% of the non-grant project cost) while the GOI and beneficiaries and grant and TA grant support will provide \$421 million (46%).

2. Project 1

21. The estimated loan funded total investment cost for Project 1, including contingencies and IDC for the Project is \$103.4 million Table 4.

Table 4: Project 1 Cost Estimates by Expenditure Category

	(Rp million)			(\$ million) ^a		
	Local	Foreign	Total	Local	Foreign	Total
A. Land Acquisition and Resettlement	8,619	-	8,619	0.93	00.00	00.93
B. Civil Works						
1. MPW - Detailed Engineering Design	32,889	13,904	46,793	3.54	01.50	05.03
2. MPW - Construction Works	152,537	101,692	254,229	16.40	10.93	27.34
3. Installation of Hydro-mechanical Equipment	48,929	32,619	81,548	5.26	03.51	08.77
4. Rehabilitation and Restricting New Resettlement	13,015	8,677	21,692	1.40	00.93	02.33
5. MOE - Construction Works	9,002	-	9,002	0.97	00.00	00.97
6. MOA - Construction Works	2,970	1,980	4,950	0.32	00.21	00.53
7. MOH - Construction Works	14,848	9,899	24,747	1.60	01.06	02.66
Subtotal Civil Works	274,191	168,771	442,961	29.48	18.15	47.63
C. Consulting Services						
1. TA - Consulting Services	68,448	38,665	107,113	7.36	04.16	11.52
2. ADF - Consulting Services	62,678	31,396	94,074	6.74	03.38	10.12
3. GEF - Consulting Services	9,321	6,307	15,627	1.00	00.68	01.68
Subtotal Consulting Services	140,447	76,368	216,815	15.10	08.21	23.31
D. Survey, Investigation and Design						
ADF - Survey, Investigation and Design	5,527	-	5,527	0.59	00.00	0.59
E. Equipment						
1. TA – Equipment	131	131	261	0.01	00.01	0.03
2. ADF – Equipment	12,370	3,835	16,205	1.33	00.41	1.74
3. GEF – Equipment	456	124	580	0.05	00.01	0.06
Subtotal Equipment	12,957	4,090	17,047	1.39	00.44	1.83
F. Training and Demonstration						
1. ADF - Training and Demonstration	23,544	-	23,544	2.53	00.00	2.53
2. GEF - Training and Demonstration	2,514	-	2,514	0.27	00.00	0.27
Subtotal Training and Demonstration	26,058	-	26,058	2.80	00.00	2.80
G. Socialization and Community Development						
1. TA - Socialization and Community Development	327	-	327	0.04	0.00	0.04
2. ADF - Socialization and Community Development	20,591	-	20,591	2.21	0.00	2.21
3. GEF - Socialization and Community Development	15,348	-	15,348	1.65	0.00	1.65
Subtotal Socialization and Community Development	36,266	-	36,266	3.90	0.00	3.90
H. Project Coordination and Management	8,130	-	8,130	0.87	0.00	0.87
I. Project Administration Support	44,033	-	44,033	4.73	0.00	4.73
J. Beneficiaries Contribution	26,282	-	26,282	2.83	0.00	2.83
Total Investment Costs^b	582,510	249,228	831,739	62.64	26.80	89.43
Physical Contingencies	11,925	4,023	15,948	1.28	0.43	1.71
Price Contingencies	77,565	10,823	88,387	8.34	1.16	9.50
Total Project Costs^c	672,000	264,074	936,074	72.26	28.40	100.65
Interest During Implementation	24,456	-	24,456	2.63	0.00	2.63
Commitment Charges	1,071	-	1,071	0.12	0.00	0.12
Total Costs to be Financed^d	697,527	264,074	961,601	75.00	28.40	103.43

ADF=Asian Development Fund, GEF=Global Environment Facility, MOA=Ministry of Agriculture, MOE=Ministry of Environment, MOH=Ministry of Health, MPW=Ministry of Public Works, TA=technical assistance

^a In mid-2008 prices.

^b Includes taxes and duties of \$9.04 million.

^c Physical contingencies computed at range about 0-5% for civil works, field research and development, consulting services, training, surveys and studies. Price contingencies computed at range about 0.5%-1.5% on foreign exchange costs and 5.6% - 6.8% on local currency costs; includes provision for potential exchange rate fluctuation under the assumption of a purchasing power parity exchange rate.

^d Includes interest, commitment charges and front end fees. Interest during construction has been computed at the five-year forward London interbank offered rate plus a spread of 0.2%.

E. Implementation Arrangements

1. Executing and Implementing Agencies

22. Implementation of the Project 1 various components will be the responsibility of national level PIUs as shown in Table 5.

Table 5: Implementing Agencies

Component Subprojects	Implementing Ministry	Implementing Agency/ Project Implementation Units (PIU)
		Deputy of Infrastructure Affairs
		RCMU/PIU: Water Resources and Irrigation Directorate
<ul style="list-style-type: none"> - Road map Management - Road map Institutional Strengthening - Independent Monitoring and Evaluation 	Ministry of National Development Planning	<p>Head: Dr. Ir. Donny Azdan, MA, MS – Director of Water Resources and Irrigation - Bappenas</p> <p>Address: Jl. Taman Suropati No. 2, Jakarta 10310, Indonesia</p> <p>Phone: +62 (021) 336207, 3905650</p> <p>Fax: +62 (021) 3145374</p> <p>Email: dmazdan@bappenas.go.id</p> <p>Web: www.bappenas.go.id</p>
<ul style="list-style-type: none"> - Program Management - Rehabilitation of West Tarum Canal - Water Supply Options for Upgrading Bandung Water Sources - Feasibility Study for Upgrading Bandung Water Sources - Detailed Engineering Design for Upgrading Bandung Water Sources 	Ministry of Public Works	<p>Directorate General of Water Resource</p> <p>PCMU/PIU: Balai Besar Wilayah Sungai Citarum</p> <p>Head: Ir. Mudjiadi – Head of Balai Besar Wilayah Sungai Citarum, Ministry of Public Works</p> <p>Address: Balai Besar Wilayah Sungai Citarum, Jl. Inspeksi Cidurian STA 5600- Bandung, West Java, Indonesia</p> <p>Phone: +62 (022) 756 4073-4</p> <p>Fax: +62 (022) 750 5760</p> <p>Email: mudjiadi@yahoo.co.id</p>
<ul style="list-style-type: none"> - Institutional Strengthening for IWRM in the 6 Cis River Basin Territory - Development of Key Policies and Strategies for WRM 	Ministry of Public Works	<p>Directorate General of Water Resources</p> <p>Head: Ir. Iwan Nusyirwan Diar, Ir,Dipl.- Director General of Water Resources</p> <p>Address: Jl. Pattimura No. 20 Kebayoran Baru, Jakarta selatan12110, Indonesia</p> <p>Phone: +62 (021) 722 2804</p> <p>Fax: +62 (021) 722 2804</p> <p>Email: iwannusy@pu.go.id</p>

Spatial Planning for 6 Ci's River Basin Territory	Ministry of Public Works	<p>Web: www.pu.go.id</p> <p>Directorate General of Spatial Planning</p> <p>PIU: Directorate of Spatial Planning Region II</p> <p>Head: Ir. Sri Apriatini Soekardi, MM, Director of Spatial Planning Region II</p> <p>Address: Jl. Pattimura No. 20 Kebayoran Baru, Jakarta selatan 12110, Indonesia</p> <p>Phone: +62 (021) 72796463</p> <p>Fax: +62 (021) 726 0810</p> <p>Web: www.penataanruang.net</p>
Upper Citarum Basin Flood Management	Ministry of Public Works	<p>Research and Development Agency</p> <p>PIU: Center of Water Resources Research and Development</p> <p>Head: Arie Setiadi Moerwanto, Ph.D, Head of the Center of Water Resources Research and Development</p> <p>Address: Jl. Ir. H. Juanda 193 Bandung 40135, Indonesia</p> <p>Phone: +62 (022) 2501083</p> <p>Fax: +62 (022) 2500163</p> <p>Email: kapus@pusair-pu.go.id</p> <p>Web: www.pusair-pu.go.id</p>
Decision Support System for IWRM in for Citarum River Basin	Ministry of Public Works	<p>PIU: Jasa Tirta II Public Corporation</p> <p>Head: Mr Djendam Gurusinga, President Director</p> <p>Address: Jl. Lurah Kawi, Jatihulur, Purwakarta 41152, Indonesia</p> <p>Phone: +62 (0264) 201972</p> <p>Fax: +62 (0264) 201971</p> <p>Email: dirut@jasatirta2.co.id</p> <p>Web: www.jasatirta2.co.id/</p>
Improved Land and Water Management	Ministry of Agriculture	<p>Directorate General of Land and Water Management</p> <p>PIU: Directorate of Land Management</p> <p>Head: Ir.Suhartanto, MM, Director of Land Management</p> <p>Address: Jl. Harsono RM No. 3 Ragunan Jaksel Gedung D, Lantai</p>

		IX, Jakarta 12550, Indonesia Phone: +62 (021) 789 0043 Fax: +62 (021) 789 0043 Web: www.deptan.go.id
		Directorate General of Disease Control and Environment Health PIU: Directorate of Environmental Health
Support for Community and CSO Driven Initiatives for Improved Water Supply and Sanitation	Ministry of Health	Head: Dr. Wan Alkadri, MSc, Director of Environmental Health Address: Jl. Percetakan Negara No. 29, Kotak Pos 223, Jakarta 10560, Indonesia. Phone: +62 (021) 424 5778 Fax: +62 (021) 424 5778 Web: www.pppl.depkes.go.id
		Deputy of Water Resources Conservation and Environment Damage Control PIU: Assistant Deputy for Lake and River Degradation Control
Development and Implementation of a Basin River Quality Improvement Strategy and Action Plans	State Ministry of the Environment	Head: Ir. Antung Deddy Rabiensyah, Assistant Deputy for Lake and River Degradation Control Address: Jl. D.I. Panjaitan Kav-24, B Bldg 4th Floor, Kebon Nanas - Jakarta 13410, Indonesia Phone: +62 (021) 851 7163 Fax: +62 (021) 8590 5770 Email: antung@menlh.go.id Web: www.menlh.go.id
		Directorate General of Water Resource and Protected Area Conservation. PIU: Directorate of Area Conservation
Watershed Management and Biodiversity Conservation	Ministry of Forestry	Head: Ir.Noor Hidayat, MSc, Director of Area Conservation Address: Gedung Manggala Wanabakti, Jl. Gatot Subroto, Senayan, Jakarta 10270, Indonesia Phone: +62 (021) 572 0229 Fax: +62 (021) 572 0229 Email: dirkw.pka@dephut.go.id Web: www.dephut.go.id

23. DGWR will be the Executing Agency (EA) of the Investment Program and Project 1. DGWR has established a project coordination and management unit (PCMU) in the Balai Besar Wilayah Sungai Citarum, to be responsible for managing and coordinating all project activities. Specifically, the PCMU will (i) ensure that annual work plans (AWPs) are submitted by PIUs in a timely manner and a standard format; (ii) review and consolidate for all PIUs the AWPs and corresponding budget estimates; (iii) prepare and submit reports to ADB and the National Steering Committee for Water Resources (NSCWR); (iv) compile the results of project monitoring and evaluation and convey the consolidated results to implementing agencies and ADB; (v) liaise and coordinate with other funding agencies on complementary activities; (vi) organize coordination meetings and workshops with national, provincial, or district implementing agencies (IAs), as appropriate; and (vii) arrange for representatives of implementing agencies to assist ADB review missions. Routine communications from ADB on Project 1 will be addressed to the PCMU. In addition, a road map coordination and management unit (RCMU) has been established within the National Development Planning Agency (Badan Perencanaan Pembangunan Nasional, or BAPPENAS) to ensure efficient and effective overall planning and financial management in national and local governments. ADB, the RCMU, and the EA shall coordinate closely on road map implementation. The RCMU will primarily (i) ensure effective coordination among component road map projects, (ii) review the prioritization of activities under the MFF and other funding, (iii) facilitate consultation with stakeholders, (iv) liaise with bilateral and multilateral funding agencies and the private sector, and (v) monitor and evaluate the performance of road map implementation. The RCMU and PCMU will work closely with the NSCWR. Project implementation units (PIUs) will be established in each IA. Attachment 5 shows the proposed investment program management organization.

2. Implementation Period and Schedule

24. The Investment Program is a long term 15 year program 2009-2023, with Project 1 to be implemented over five years starting in FY 2009. Establishment of the PCMU, RCMU and PIUs has taken place and advance procurement and preparatory activities (including safeguard compliance related activities, and initial biodiversity and land degradation field preparation) is well advanced (Attachment 6). Implementation will commence with (i) full operational effectiveness of PIUs, RCMU and PMCU; (ii) engagement of consultants; (iii) detailed engineering design WTC; (iv) institutional assessments and diagnostics; (v) CSO stakeholder analysis and media campaigns, (vi) identification of target villages for ICWRMIP, (vii) assistance in establishing and strengthening the 6 Cis Water Council, (viii) capacity building, and (ix) data gathering, establishment of information systems and setting up project support management systems and procedures.

DESIGN AND MONITORING FRAMEWORK^A

Design Summary	Performance Targets/Indicators	Data Sources/Reporting Mechanisms	Assumptions and Risks
<p>Impact Reduced poverty and improved health and living standards in the Citarum River basin</p>	<p>Achieve a 5 percentage point decrease in poverty in the basin's communities currently below the national poverty average by the end of the Investment Program in 2023^b</p>	<p>Review of annual statistics on poverty as published by the Bureau of Statistics</p>	<p>Assumptions</p> <ul style="list-style-type: none"> The Government maintains a strong commitment to implementing IWRM in CRB
<p>Outcome Improved and integrated water resource management (IWRM) in the Citarum River basin</p>	<ul style="list-style-type: none"> Appropriate and effective institutional IWRM arrangements in basin (minimum scorecard level 3, 2015)^c Effective partnerships between national and local government agencies to implement water and land management activities (effective RCMU, 2010) Empowered communities play a role in the management of water and land resources (2012 self-assessed) Infrastructure in place to provide equitable access to adequate quantity and good water quality by all authorized water users (minimum scorecard level 3, 2023) Comprehensive and accessible databases and information systems in place (2012) 	<p>Legislation and policy documents released by Government</p> <p>Minutes of meetings of the Water Council, RCMU, and other key management organizations</p> <p>Progress and final reports of individual projects funded under the Investment Program</p> <p>Survey of beneficiaries</p> <p>Published information on available databases on water, land, and related resources</p> <p>Review of state-of-the-basin report (to be prepared)</p>	<p>Assumptions</p> <ul style="list-style-type: none"> Institutional arrangements to be put in place under new legislation provides a robust framework for IWRM and clearly separates resource management and development and operational responsibilities. National, provincial, and district government agencies have the resolve to involve the community meaningfully in all stages of water resource planning and management.
<p>Outputs 1. Institutions and Planning for IWRM</p> <p>Good IWRM institutions and effective planning with stakeholder participation</p>	<ul style="list-style-type: none"> Implementing agencies and other relevant stakeholders are well informed about road map program progress (effective RCMU and PCMU, 2009) Operationalized and effective multi-stakeholder Water Council (2011) Strategic Planning Framework for the 6 Cis (<i>Pola</i>), ratified by 2012 and 6 Cis Water Resources Management Plan (Rencana) by 2013 	<p>Minutes of meetings and workshops with executing agencies and other relevant stakeholders</p> <p>Program status reports</p> <p>Minutes of periodic coordination workshops</p> <p>Final reports of studies</p>	<p>Assumptions</p> <ul style="list-style-type: none"> Government continues to support the execution of the projects and facilitates stakeholder support for their preparation. Those involved are willing to cooperate and share information. Stakeholders provide sufficient information to identify knowledge gaps.

Design Summary	Performance Targets/Indicators	Data Sources/Reporting Mechanisms	Assumptions and Risks
	<ul style="list-style-type: none"> All monitoring and reporting undertaken in accordance with agreed procedures, and full implementation of RPMS and IPPMS by 2009 	Reports produced	<p>Risk</p> <ul style="list-style-type: none"> Government organizations focus primarily on physical works, allocating insufficient resources to management and participatory aspects of IWRM.
<p>2. Water Resource Development and Management Effective planning, implementation, and operation and maintenance of water resource infrastructure</p>	<ul style="list-style-type: none"> Improved sources of water consistent with water availability and sustainability (program implemented in line with road map) All people in the basin have access to adequate water supply and sanitation by 2023. All rehabilitated water supply infrastructure capable of operating at design capacity 2 years after rehabilitation. 	<p>Implementation progress reports and loan review missions</p> <p>Quarterly progress reports</p> <p>Contracts with consulting services</p> <p>Quality control and quality assurance reports</p>	<p>Assumption</p> <ul style="list-style-type: none"> Government funds for operation and maintenance of infrastructure made available <p>Risks</p> <p>Approval of rights-of-way and land acquisition is not obtained in a timely manner</p>
<p>3. Water Sharing Established and protected water rights and water allocated among competing uses and users, as well as priorities set for water entitlement during times of shortage</p>	<ul style="list-style-type: none"> By 2012, an equitable water-sharing arrangement endorsed by Water Council for upper and lower basin and transboundary water resources Clearly defined water utilization rights for all authorized water users by 2012 Conflicts over utilization of water resources resolved quickly and satisfactorily by 2015 	<p>Minutes of meetings and workshops with relevant stakeholders</p> <p>Program status reports</p> <p>Annual basin performance reports</p>	<p>Assumption</p> <ul style="list-style-type: none"> Water Council established and functions efficiently and effectively, and transparently with multi-stakeholder representation
<p>4. Environmental Protection Environmental protection and environmental enhancement by a combination of structural and other measures</p>	<ul style="list-style-type: none"> Comprehensive land-use plans in place and adhered to by 2012 Minimal pollution from domestic, industrial, or agricultural sources entering the waterways of the basin (minimal score card level 2 by 2023) Maintain and, if possible, enhance biodiversity no further degradation by 2012 	<p>Annual basin performance reports</p> <p>Program status reports</p> <p>Minutes of periodic coordination workshops</p>	<p>Assumption</p> <ul style="list-style-type: none"> Community-led, sustainable environmental improvement activities adequately supported by government, CSOs, and private sector programs <p>Risk</p> <ul style="list-style-type: none"> Low enforcement of

Design Summary	Performance Targets/Indicators	Data Sources/Reporting Mechanisms	Assumptions and Risks
			spatial planning and environmental legislation
<p>5. Disaster Management Improved structural and other measures for flood and drought disaster management</p>	<ul style="list-style-type: none"> • Appropriate infrastructure works and disaster preparedness plans in place to minimize the physical impacts of floods and mud flows by 2023 • Effective drought management plans in place by 2012 where available water falls seasonally below design expectations • Climate-proof the road map by 2012 	<p>Implementation quarterly progress report and loan review missions</p> <p>Contracts with consulting services</p> <p>Quality control and quality assurance reports</p> <p>Minutes of meetings and workshops with relevant stakeholders</p>	<p>Assumption</p> <ul style="list-style-type: none"> • Government funding for operation and maintenance of infrastructure made available <p>Risks</p> <ul style="list-style-type: none"> • Approval of rights-of-way and land acquisition is not obtained in a timely manner.
<p>6. Community Empowerment Empowered communities and individuals actively participate in water management issues</p>	<ul style="list-style-type: none"> • High awareness in basin communities about conservation, utilization, and protection of natural resources, including their rights and responsibilities, by 2014 • CRB NGOs and local communities have the opportunities and forums to participate meaningfully in the planning and management of water resources by 2012 • Enabling institutional, financial, and capacity conditions in place for local community involvement in provision of local water supply and sanitation services, watershed improvements, and waste management by 2023 	<p>Project documentation</p> <p>Post-project survey of the community</p> <p>Routine MIS and DSS reporting</p> <p>Minutes of meetings and workshops with executing agencies and other relevant stakeholders</p> <p>Minutes of periodic coordination workshops</p>	<p>Assumptions</p> <ul style="list-style-type: none"> • Communities are receptive to awareness-raising activities. • Newspapers, radio, and television support awareness-raising activities. • Education authorities agree to modify curricula to include teaching of water- and environment-related principles. <p>Risks</p> <ul style="list-style-type: none"> • Stakeholders unwilling to share data • Policy makers fail to make sufficient use of MIS and DSS
<p>7. Data and Information Effective data collection and storage and decision-support systems for water resources management</p>	<ul style="list-style-type: none"> • MIS for land and water resources in place by 2012 • Effective arrangements for (i) custodianship of the different water- and catchment-related datasets, and (ii) data sharing by 2012 • Suitable models and decision-support tools 	<p>Final reports of studies</p> <p>Contracts with consulting services</p> <p>Water Council meetings</p> <p>Reports produced</p>	<p>Risks</p> <ul style="list-style-type: none"> • Stakeholders unwilling to share data • Policy makers fail to make sufficient use of MIS and DSS.

Design Summary	Performance Targets/Indicators	Data Sources/Reporting Mechanisms	Assumptions and Risks
	operational by 2012		
<p>8. Project Management Effective program management with timely monitoring and evaluation</p>	<ul style="list-style-type: none"> • Timely procurement of consultants and contractors (no delays over 3 months) • Routine quarterly reports prepared and disseminated widely (web availability within 2 months of quarter end) • Wide stakeholder involvement in project activities (min scorecard level 3, 2012) 	<p>Monthly procurement monitoring system</p> <p>Routine reports, website</p> <p>Surveys of stakeholders</p>	<p>Assumptions PCMU and RCMU continue to engage stakeholders in an inclusive way.</p>
<p>ACTIVITIES</p> <p>A. Investment Program (excluding Project 1 and TA funding)</p> <p>Output 1: Institutions and Planning for IWRM Road map management (continuous) Development of an enhanced Citarum River basin plan for IWRM (P3, 2018) Support for basin Water Council and IWRM</p> <p>Output 2: Water Resource Development and Management Upgrading Bandung water source (P2, 2016) Upgrading of water source for irrigating upper Cipunegara (P3, 2020) Cisankuy irrigation improvement (P4, 2023) Curug run-of-river power plant (P3, 2020) Mini- and micro-hydro basin study (P3, 2019) Heightening of Cirata Dam (P4, 2022) Bulk water supply options for Bekasi and Karawang (P4, 2023) Development of strategies and options for demand management and water conservation with respect to industrial and domestic use (P2, 2013) Urban water supply and sanitation options and implementation in urban areas (P4, 2023)</p> <p>Output 3: Water Sharing Review of allocation priorities and optimization in key sub-basins (P2, 2012) Implementation of surface water entitlements and licensing systems (P2, 2016) Implementation of water pricing and allocation strategies (P2, 2016)</p> <p>Output 4: Environmental Protection Water quality improvement in the 3 CRB reservoirs (P3, 2017) Wastewater and sewerage treatment upstream of Saguling Dam (P3, 2017) Development and implementation of integrated coastal zone management strategy and action plan for Citarum coastline (P3, 2020) Productive reforestation (P2, 2016) Protected area management (continuous)</p> <p>Output 5: Disaster Management Upper Citarum basin flood management (P2,2015)</p>		<ul style="list-style-type: none"> • Consultant services for project preparation, road map and program management, detailed engineering design and construction supervision, financial management, fiduciary oversight, and ADB policies and procedures • Civil works and equipment for water resource improvements, flood and drought prevention, and environmental enhancements • Training, demonstrations, and community development • Capacity building of 6 Cis water management organizations and other implementing agencies 	

<p>Integrated management of water related disasters (P2,2016)</p> <p>Output 6: Community Empowerment Community participatory activities (continuous) Information, education, and awareness strategy for capacity building of communities across the basin for improved participation in water resource policy development, planning, and management (P2,2014)</p> <p>Output 7: Data, Information, and Decision Support Development of online flow-forecasting systems (P4,2023)</p> <p>Output 8: Program Management Program management (continuous) Independent monitoring and evaluation (continuous) Program completion report (P4,2023)</p> <p>B. Project 1 Loan effective (January 2009) RCMU and PCMU established (Q2 2008), PIUs established (Q1 2009) Recruitment of main design and program management consultants (Q2 2009) Establishment of Water Council (by end of 2011) Confirm strategic water resources management plan (<i>Pola</i>) for 6 Cis (2012) First state-of-basin report end 2009, followed by routine annual reports Confirm basin water resources management plan (<i>Rencana</i>) for 6 Cis (2013) Rehabilitation of West Tarum Canal (2013) Improved land and water management (2012) Support for community- and NGO-driven initiatives for improved water supply and sanitation (2012) Development and implementation of basin river quality improvement strategy and action plans (2012) Watershed management and biodiversity conservation (GEF funded, 2012) Tranche PFR 2 released in timely manner (2012)</p>	<ul style="list-style-type: none"> • ADB:\$470 million OCR loan • ADB \$30 million ADF loan • Government \$382 million • GEF \$3.8 million • Beneficiaries \$21 million equivalent • ADB-administered TA supporting Project 1, \$10.7 million for Project 1 only • Parallel TA funding \$4.0 million
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ADB = Asian Development Bank, ADF = Asian Development Fund, CRB = Citarum River basin, CSO = civil society organization, DSS = decision support systems, GEF = Global Environment Facility, IPPMS = investment program performance monitoring system, IWRM = integrated water resources management, MIS = management information systems, OCR = ordinary capital resources, P = project, PCMU = program coordination and management unit, PIU = project implementation unit, PFR = periodic financing request, Q = quarter, RCMU = road map coordination and management unit, RPMS = road map performance monitoring system, TA = technical assistance, WFPF = Water Financing Partnership Facility.

^a The design and monitoring framework for Project 1 is detailed in the periodic financing request 1, with another related design and monitoring framework available for the TA

^b Pre-project benchmarks refer to Government Bureau of Statistics village potential survey reports, documenting poverty and infrastructure in individual villages.

^c The balanced scorecard system has been introduced in the CRB for benchmarking management and river performance and will be further refined and adopted for use in annual state-of-the-basin reporting under the Investment Program. Scores will be allocated annually to agreed key performance categories following definitions and procedures adopted from the guidelines, now under development, of the Network of Asian River Basin Organizations. Score 1 = unacceptable, 2 = poor, 3 = good, and 4 = excellent.

SUMMARY ROAD MAP

Key Area	Definition	Objectives
<p>Institutions and Planning for integrated water resources management (IWRM)</p>	<p>The term “institutions” is used here in its broadest sense to include organizations, legislation, policies, and other protocols that define the relations among those organizations. Planning for IWRM, and in particular in this context, river basin planning, is seen as a mechanism for promulgating and implementing the policies of government and, as such, is included in this key IWRM area. Accordingly, the following activities are included:</p> <ul style="list-style-type: none"> (i) organizational restructuring, (ii) organizational capacity building, (iii) policy development, (iv) implementing the legislative framework, (v) planning for IWRM, (vi) regulation such as licensing of water utilization and wastewater discharge, (vii) setting water tariffs, and (viii) institutions for participatory irrigation management. 	<ul style="list-style-type: none"> • Effective organizational frameworks with clearly defined responsibilities and working partnerships with other stakeholders in place for the Citarum River basin, encompassing both in-stream and off-stream aspects
		<ul style="list-style-type: none"> • An effective coordination mechanism for water resource management in the basin
		<ul style="list-style-type: none"> • A harmonious and comprehensive legal framework for effective water resource management in the basin.
		<ul style="list-style-type: none"> • Transparent, effective, and holistic water resource planning mechanisms linked to spatial planning and including stakeholder needs and aspirations
		<ul style="list-style-type: none"> • Effective regulatory and licensing mechanisms in place and operating for surface and groundwater utilization and wastewater discharge, including tariffs.
		<ul style="list-style-type: none"> • Agencies concerned with water management commanding appropriate technology for effective and sustainable water resource management.
		<ul style="list-style-type: none"> • Decision makers, technical experts, and other key stakeholders able to effectively carry out their responsibilities with regard to water resource planning and management, including procedures for environmental impact assessment and review of projects.
<p>Water Resource Development and Management</p>	<p>This key IWRM area includes activities exploiting water resources to improve water availability to authorized users and operating and maintaining the infrastructure developed in the process. The main activities included are</p> <ul style="list-style-type: none"> (i) project planning, including master planning (that is, planning that focuses on development of infrastructure, as distinct from broader basin planning); (ii) constructing infrastructure for storing and delivering water, including reservoirs, canals, and pipeline systems; (iii) operating and maintaining infrastructure; (iv) promoting the efficient and effective utilization of water; and (v) drilling wells to reach groundwater. 	<ul style="list-style-type: none"> • New or improved sources of water for domestic, irrigation, industrial, hydropower, aquaculture, leisure, and other uses developed and consistent with water availability and sustainability • Access for all people in the basin to adequate water supply and sanitation
		<ul style="list-style-type: none"> • All water supply infrastructure capable of operating at design capacity
		<ul style="list-style-type: none"> • Sustainable asset-management practices in place for all water-related infrastructure in the basin

Key Area	Definition	Objectives
Water Sharing	<p>This key IWRM area is often overlooked, particularly where water resources are plentiful relative to demand. It covers the process of establishing and protecting water rights and allocating water among competing uses and users, as well as setting priorities for water entitlement during times of shortage. Such allocations may be among sectors (irrigation, urban water supply, and hydropower, for example), or geographically (upstream versus downstream and inter-basin transfers). It does not include water use registration and licensing, which is a regulatory mechanism to assist in managing water rights and allocations and thus comes under the key IWRM area Institutions and Planning for IWRM.</p>	<ul style="list-style-type: none"> • An equitable water-sharing arrangement for the upper and the lower basin and trans-boundary sourcing such as water supply to Jakarta • Clearly defined water-utilization rights for all authorized water users • All conflicts over utilization of the water resources of the basin resolved quickly and satisfactorily
Environmental Protection	<p>Included in this key IWRM area are activities for protecting the environment of rivers, lakes, wetlands, forests, and other natural ecosystems that have an impact on water management, and rehabilitating or enhancing degraded aquatic and terrestrial environments.</p> <p>Out of all the key areas, this one probably is the most difficult to define clearly, as environmental protection and enhancement normally must be achieved by a combination of structural and other measures that may include such infrastructure as wastewater treatment plants, improved institutional and regulatory arrangements, community participation, and so on.</p> <p>Enhancing environment management capacity in the organizations charged with this responsibility is included under the institutional key area. Water quality and environmental monitoring and research activities are included in Data, Information, and Decision Support.</p> <p>Provisions for mitigating the potential adverse effects of water development projects such as dredging are built into the projects themselves.</p> <p>Legislation and other regulatory processes aimed at minimizing adverse impacts are included in an environmental assessment and review procedure, and therefore come under institutions.</p>	<ul style="list-style-type: none"> • Comprehensive land-use plans in place and adhered to in order to minimize the impacts of human activities on the environment • Forest protection measures in place to ensure no reduction in the existing forest area • Priority catchments improved through reforestation and the adoption of appropriate land-use and agricultural practices to minimize erosion • Biodiversity maintained and, where possible, enhanced without further degradation • Minimal pollution from domestic, industrial, and agricultural sources entering the waterways of the basin • Adequate water share for environmental flows and ecological maintenance, with minimum dry season flow to prevent salinity intrusion, sedimentation, and pollutant accumulation near coastal areas to protect river and coastal fisheries
Disaster Management	<p>In this context, disasters include only those related to water such as floods and mud flows. Activities related to disaster management under this definition include</p> <ul style="list-style-type: none"> (i) planning and constructing structures to control floods and mud flows such as levees, dikes, and flood-control reservoirs; (ii) developing and implementing disaster-preparedness plans; and (iii) developing and implementing drought-management plans 	<ul style="list-style-type: none"> • Effective disaster preparedness plans in place for floods and mud flows • Appropriate works in place to minimize the physical impacts of floods and mud flows • Effective drought-management plans in place where the water available seasonally falls below design expectations

Key Area	Definition	Objectives
Community Empowerment	<p>Involving the community in planning, implementing, monitoring, and evaluating IWRM activities is essential. It may be considered the foundation key IWRM area, as it supports the five pillar key IWRM areas. The strong feeling among stakeholders is that empowering the community to participate should be an important theme of the Investment Program. In this context, community empowerment includes</p> <ul style="list-style-type: none"> (i) education, awareness raising, and capacity building of communities and individuals on water management issues; (ii) activities aimed at providing information to all that need it on water resource management and related activities; (iii) implementing measures to facilitate community participation in water planning and management; and (iv) developing community-based self-help programs and specific projects to provide local improvement of water supply, the environment, water quality, and so on. 	<ul style="list-style-type: none"> • Heightened awareness in basin communities about the conservation, utilization, and protection of natural resources, including their rights and responsibilities.
		<ul style="list-style-type: none"> • Local communities provided with opportunities and forums to participate meaningfully in planning and managing basin water resources
		<ul style="list-style-type: none"> • The enabling institutional, financial, and capacity conditions in place for local community involvement in the provision of local water supply and sanitation services, watershed management, and waste management
Data, Information, and Decision Support	<p>This is another foundation key IWRM area, as data is fundamental to all aspects of decision making in water resource planning and management. It includes</p> <ul style="list-style-type: none"> (i) data collection on surface and groundwater quantity and quality and of other natural resource data regarding soils, geology, land cover, ecosystems, and so on, as well as such socioeconomic data as population, poverty, and land use; (ii) data archiving and management, including the collation of data from various sources, validation, computerization, and so on; (iii) data sharing and dissemination among government agencies, research establishments, and so on, and providing public access to data; (iv) research to increase knowledge in such fields as catchment processes, demography, and so on, as well as the development of new technologies for water conservation and environmental protection; and (v) developing and implementing decision-support tools, including geographic information systems, hydrologic and hydraulic models, and other analytical tools. 	<ul style="list-style-type: none"> • A comprehensive database on land and water resources in place and in a form that is accessible to all who need it to facilitate sustainable management of the basin's water resources
		<ul style="list-style-type: none"> • Community participatory methods where applicable for data collection and verification
		<ul style="list-style-type: none"> • Effective arrangements in place for custodianship of the different water and catchment datasets
		<ul style="list-style-type: none"> • Effective data-sharing arrangements in place among agencies in the basin and with central agencies
		<ul style="list-style-type: none"> • Suitable models and decision-support tools developed and operational to assist rational decision making about water resource management
		<ul style="list-style-type: none"> • Research programs in place to fill gaps in knowledge about water-related processes and scenarios

TECHNICAL ASSISTANCE

Technical Assistance Outputs

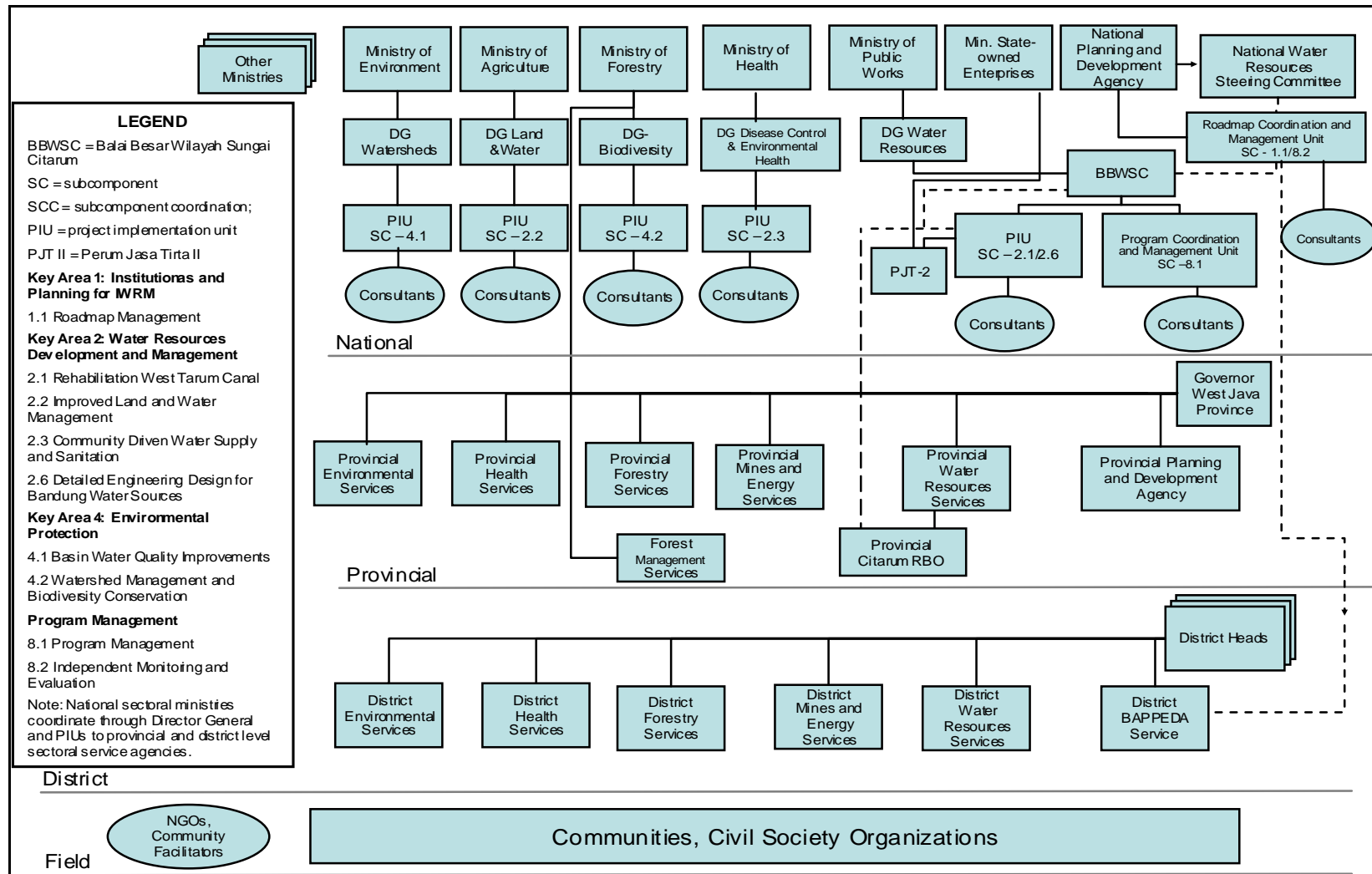
Section 1: Strengthening of Institutions, Policies, and Strategies for 6 Cis River Basin Territory	(continuation, Subcomponent B.2)
Subcomponent A: Road map Institutional Strengthening Activities aimed at improved coordination and communication among integrated water resources management (IWRM) stakeholders in the Citarum River basin (CRB) Strengthening of road map coordination and management unit and regional planning agencies (BAPPEDA) in IWRM planning and programming Establishment of effective data and information systems to support IWRM planning and programming Capacity building for improved national and regional IWRM planning and programming. Develop improved funding and more effective fiscal planning for IWRM in basins in Indonesia Capacity building to improve RCMU staff skills	Quantification of water-related zoning on land-use in the basin Strategic assessment of the impacts of water-related zoning on other sectors Coordination and integration of the many implementing agencies and the section subprojects of the Investment Program
Subcomponent B.1: Institutional Strengthening for IWRM in 6 Cis River Basin Territory Activities to improve technical capacity: (i) flood warning systems and real-time communication, (ii) management and data systems, (iii) flow quantity and quality monitoring and regulation for efficient allocation Support for Water Council and supporting office(s) and capacity building for water resource management agencies Support ongoing activities where little or no capacity building is required: (i) strategic planning, (ii) performance monitoring and evaluation, (iii) develop basin strategic plans <i>pola</i> and <i>rencana</i> (iv) water infrastructure operation and maintenance (O&M) Internal <i>Balai Besar</i> organizational management: (i) leadership and teamwork, (ii) human resource management, and (iii) financial planning and management Development of an Internet-based data directory for water, land, and related data in the CRB Design and implementation of a decision-support tool for use by relevant agencies for planning Development of annual state-of-the-basin reporting system	Subcomponent B.3: Development of Key Policies and Strategies for WRM Develop policy for appropriate water pricing, water sharing, and balanced stakeholder participation. Develop strategies and options for industrial and domestic water demand management and conservation. Develop water entitlements and licensing systems. Review water allocation policies and optimize water-control infrastructure operation in key sub-basins and for the operation of the basin's river and reservoir systems.
Subcomponent B.2: Spatial Planning in 6 Cis River Basin Territory Preparation of a consistent regional plan reflecting the existing local plans Preparation of an up-to-date land-use map through remote sensing for the project area Preparation of the Java spatial model for further projecting of population and land use in the 6 Cis Estimation of spatial requirements for the water sector and the related sectors of housing, industry, agriculture, and environment Develop spatial strategies and scenarios, review projections, and optimize the use of space	Section 2: Modeling and Decision Support System for Citarum River Basin Subcomponent C: Upper Citarum Basin Flood Management Completion of current 1-dimensional river model studies Develop a 2-dimensional floodplain model. Design studies with modeling Update existing flood management strategy. Determine regional spatial planning impacts. Formulate O&M operational plan. Prepare terms of reference for detailed design by others and implementation under Project 2 Subcomponent D: Decision-Support System for IWRM in for CRB Development of a water-quality model and management system for in the CRB Development of a water-balance model and water-allocation system for the CRB Development of a rainfall runoff-analysis model for the catchments of the basin Develop a spatial database using geographic information systems for water and land-related data of the CRB Capacity building for sustainable O&M

TA Implementation Overview

PACKAGE A		Subcomponent A1		
Title	Road map Institutional Strengthening			
Implementing Agency	BAPPENAS			
Project Management Unit	DWRI			
Estimated Duration (months)	36			
International Consultants (pm)	18			
National Consultants (pm)	54			
PACKAGE B		Subcomponent B1	Subcomponent B2	Subcomponent B3
Title	Institutional Strengthening for IWRM in 6 Cis River Basin Territory	Spatial Planning in 6 Cis River Basin Territory	Development of Key Policies and Strategies for WRM	
Implementing Agency	DGWR	DG Spatial Planning	DGWR	
Project Management Unit	DWRM	DSPR-IV	DWRM	
Estimated Duration (months)	36	18	14	
International Consultants (pm)	32	17	21	
National Consultants (pm)	204	61	55	
PACKAGE C		Subcomponent C1		
Title	Upper Citarum Basin Flood Management			
Implementing Agency	ARD			
Project Management Unit	AWRRD			
Estimated Duration (months)	18			
International Consultants (pm)	11			
National Consultants (pm)	80			
PACKAGE D		Subcomponent D1		
Title	Decision Support System for IWRM in for Citarum River Basin (includes parallel activities under K Water)			
Implementing Agency	DGWR			
Project Management Unit	PJT-2			
Estimated Duration (months)	48			
International Consultants (pm)	279			
National Consultants (pm)	375			

ARD=Agency for Research and Development, AWRRD=Agency for Water Resources Research and Development, BAPPENAS=National Planning and Development Agency, CRB=Citarum River basin, DGWR=Directorate General of Water Resources, DSPR-IV=Directorate of Spatial Planning Region IV (Java-Bali), DWRM=Directorate of Water Resources Management, DWRI=Directorate of Water Resources and Irrigation, PJT-2=Perum Jasa Tirta 2, operating in CRB with a water management mandate.

MANAGEMENT ORGANIZATION CHART



BBWSC=Balai Besar Wilayah Sungai Citarum, IWRM=integrated water resources development, PIU=project implementation unit, RBO=river basin organization
 Sources: Asian Development Bank and Government.

PROCUREMENT PLAN PROJECT 1

A. Project Information

Country	Republic of Indonesia
Name of Borrower	Government of the Republic of Indonesia
Project Name	Integrated Citarum Water Resources Management Investment Program
Loan or TA Reference	37049
Date of Effectiveness	January 2009
Amount US\$ (total from all financiers)	\$103.4 million
Of which Committed, US\$	\$50 million
Executing Agency	Directorate General of Water Resources, Ministry of Public Works
Approval Date of Original Procurement Plan	March 2007
Approval of Most Recent Procurement Plan	October 2008
Publication for Local Advertisement	Q3 2007 (first)
Period Covered by this Plan	2009 – 2013

B. Procurement Thresholds - Works and Goods

Procurement Methods	To be used above/below (\$)
international competitive bidding (ICB) works	Above \$5,000,000
ICB goods	Above \$1,000,000
national competitive bidding (NCB) works	\$5,000,000 and below but more than \$100,000
NCB goods	\$1,000,000 and below but more than \$100,000
Shopping Works	\$100,000 and below
Shopping Goods	\$100,000 and below
Community contracting	\$30,000 and below

C. Procurement Thresholds - Services

Procurement Methods	To be used above/below (\$)
Quality Cost Based Selection (QCBS)	Above \$200,000
Consultants' Qualifications Selection (CQS)	\$200,000 and below

D. List of Contract Packages for Works, Goods and Services Exceeding \$100,000

Ref	Contract Description	Estimated Costs (\$ '000)	Procurement Method	Expected Date of Advertisement	Prior Review Y/N	Agency
1	Civil Works	50,231 (6 packages)	ICB/NCB	3 rd Quarter-2008 ^a	Y	PIU / BBWSC
2	Consulting Services	22,238 (10 packages)	QCBS	3 rd Quarter 2008 2 nd Quarter 2009	Y	PCMU & 5 PIUs ^b

BBWSC=Balai Besar Wilayah Sungai Citarum, ICB = international competitive bidding, NCB = national competitive bidding, PCMU = program coordination and management unit, PIU = project implementation unit, QCBS = quality- and cost-based selection.

^a Only Package1 (Bekasi siphon), as other packages will be advertised in 4th quarter 2009.

^b PIUs of the National Planning and Development Agency and the Ministries of Agriculture, Environment, Health, Forestry and Public Works.

Section 1: 18-Month Procurement Plan

A. Goods and Works Contracts Estimated to Cost More Than \$1 Million

The following table lists goods and works contracts for which procurement activity is either ongoing or expected to commence within the next 18 months.

General Description	Contract Value (\$'000)	Procurement Method	Prequalification Of Bidders (y/n)	Advertisement Date (quarter/year)	Comments
Rehabilitation of West Tarum Canal from Curug to BTb9:	7,885	ICB	y	Q1/2010	
Rehabilitation of West Tarum canal from BTb9 to Cibeet:	9,404	ICB	y	Q1/2010	
Rehab of West Tarum Canal from Cibeet to Cikarang:	9,600	ICB	y	Q1/2010	
Rehabilitation of West Tarum canal from Cikarang to Bekasi:	11,508	ICB	y	Q1/2010	
Bekasi siphon including mechanical work	3,264	NCB	y	Q4/2008	

B. Consulting Services Contracts Estimated to Cost More Than \$100,000

The following table lists consulting services contracts for which procurement activity is either ongoing or expected to commence within the next 18 months.

General Description	Contract Value (\$'000)	Recruitment Method	Advertisement Date (quarter/year)	International or National Assignment	Comments
WTC Detailed Engineering Design and Construction Supervision	5,686	QCBS with FTP	Q3/2007	International 79 pm National 345 pm	
Program Management Consultant for PCMU	1,948	QCBS with FTP	Q4/2008	International 33 pm National 156	
Road map Management Consultant for RCMU	1,543	QCBS with FTP	Q4/2008	International 24 pm National 153 pm	
Improved Soil and Water Management	628	QCBS with FTP	Q1/2009	International 0 pm National 63 pm	
Development and Implementation of Basin River Quality Improvement Strategy and Action Plans	2,252	QCBS with FTP	Q1/2009	International 39 pm National 214 pm	
Support for Community and CSO Driven Initiative	1,120	QCBS with FTP	Q1/2009	International 7 pm National 179 pm	
Independent Monitoring and Evaluation	1,314	QCBS with FTP	Q1/2009	International 13 pm National 255 pm	
Survey and Investigation					
Study on Resettlement	147	CQS with BTP	Q1/2009	Only national	
Study on technical, social, economy, and cut off	346	QCBS with FTP	Q1/2009	Only national	
Environment study	169	CQS with BTP	Q1/2009	Only national	

BTP=biotech proposal, CSO = civil society organization, FTP = full technical proposal, CQS = consultants qualification selection, QCBS = quality- and cost- based selection, WTC = West Tarum Canal

C. Goods and Works Contracts Estimated to Cost Less than \$1 Million and Consulting Services Contracts Less than \$100,000

The following table groups smaller-value goods, works and consulting services contracts for which procurement activity is either ongoing or expected to commence within the next 18 months.

General Description	Value of Contracts (\$'000)	Number of Contracts	Procurement / Recruitment Method ¹	Comments
Goods				
Office equipment for various PIUs	145	7	Shopping	
Telemetric equipment	31	1	Shopping	
Cars/motor cycles	369	152	Shopping	
Field water management equipment	9	1	Shopping	
Organic fertilizer production equipment	381	300	Shopping	
GPS equipment for village	2	1	Shopping	
GPS for education action plan	12	1	Shopping	
Equipment for riparian study	3	1	Shopping	
Works				
Construction of water supply and sanitation facilities, biogas plant, biogas garbage bin, riverbank gardening, communal septic tank, communal/individual waste water plant, and rehabilitation of tertiary irrigation systems.	5,027	NA	Community Participation	
Consulting Services				
Water supply and testing, topographical and sociological surveys	74	3	CQS	
Environmental impact assessment	200	1	CQS	

CQS=consultants qualification selection

D. ADB Prior or Post Review

Except as ADB may otherwise agree, the following prior or post review requirements apply to the various procurement and consultant recruitment methods used for the project.

Procurement of Goods and Works		
Procurement Method	Prior or Post	Comments
International Competitive Bidding (ICB) Works	Prior	
ICB Goods	Prior	
National Competitive Bidding (NCB) Works	Prior ^a	Only for first NCB works package
NCB Goods	Prior ^a	Only for first NCB goods package
Shopping for Works	Post	
Shopping for Goods	Post	
List other methods of procurement		
Recruitment of Consulting Firms		
Quality and Cost Based Selection (QCBS)	Prior	
Consultants Qualifications Selection(CQS)	Prior	
Recruitment of Individual Consultants		
Individual Consultants	Prior	

ICB = international competitive bidding, NCB = national competitive bidding

Source: Government of Indonesia and ADB.

^a For NCB procurement, the first draft English language version of the bidding documents should be submitted to ADB for review and approval regardless of the estimated contract value. ADB-approved bidding documents should be used as model for all other ADB-financed packages. For NCB, ADB will review the bid evaluation reports and award of contracts on a post-review basis.