

ASIAN DEVELOPMENT BANK

TAR:PRC 36594

TECHNICAL ASSISTANCE
(Financed by the Poverty Reduction Cooperation Fund)

TO THE

PEOPLE'S REPUBLIC OF CHINA

FOR

SAFE DRINKING WATER AND SANITATION FOR THE RURAL POOR

November 2003

CURRENCY EQUIVALENTS

(as of 31 October 2003)

Currency Unit	–	yuan (CNY)
CNY1.00	=	\$0.121
\$1.00	=	CNY8.277

The exchange rate of the yuan is determined under a managed floating exchange rate system. In this report, a rate of \$1.00 to CNY8.277 is used.

ABBREVIATIONS

ADB	–	Asian Development Bank
FYP	–	Five-Year Plan
IEC	–	information, education, and communication
MDG	–	Millennium Development Goal
O&M	–	operation and maintenance
PRC	–	People's Republic of China
RWSS	–	rural water supply and sanitation
TA	–	technical assistance
WUG	–	water users group

NOTE

In this report, "\$" refers to US dollars.

I. INTRODUCTION

1. During the 2003 Country Programming Mission, the Government of the People's Republic of China (PRC) requested the Asian Development Bank (ADB) to provide an advisory technical assistance (TA) for a study on Safe Drinking Water¹ and Sanitation² for the Rural³ Poor. The ADB Fact-Finding Mission visited the PRC in September 2003 and reached an understanding with the ministries of finance and health on the goals, purpose, outputs, cost estimates, and implementation arrangements for the TA.⁴ The TA framework is in Appendix 1.

II. ISSUES

2. Although the PRC has substantially reduced overall poverty during the last two decades, inequalities between regions and within communities have increased. The ADB Country Strategy and Program (2003-2005) focuses on four interrelated challenges: (i) growing inequality, (ii) building an enabling environment for the private sector, (iii) environmental sustainability, and (iv) regional cooperation. To support the Government's development strategy and reflect ADB's medium-term planning directions, the PRC operational strategy in the next five years has been designed to promote pro-poor economic growth by enabling the poor to have greater access to opportunities and benefits of economic prosperity. A key constraint on reducing poverty and promoting economic prosperity in rural areas is the lack, or absence of, sustainable community-based safe water supply and sanitation systems.

3. The lack of adequate rural water supply and sanitation (RWSS) services impairs rural community health, especially among the poor.⁵ Improved access to safe drinking water⁶ and sanitation is a key objective of the PRC's 10th Five-Year Plan (FYP, 2001-2005), and will be reflected in the 11th FYP (2006-2010). Improved access to safe water and sanitation is also critical to achieve the goals of the PRC's Outline for Poverty Alleviation and Development of China's Rural Areas (2001-2010).⁷ The Government follows the Millennium Development Goals (MDGs) to ensure environmental sustainability and aims to halve, by 2015, the proportion of rural people without sustainable access to safe drinking water and sanitation. This is one of the few MDGs that the PRC has not been achieving ahead of schedule.

4. The relationship between access to safe water and sanitation, and poverty should be better understood by integrating improved analyses of community priorities and needs into policymaking and implementation, and by delivering increased access to water and sanitation to the poorest people. Access to water has significantly improved recently. However, this is not the same as access to safe water. About 450 million rural people, 40% of the rural population, still continue to use unsafe water. About 76% have access to improved water that does not meet national safety standards. The remaining 24% lack access to any improved water source. Unsafe water sources may have high pathogen loads due to (i) fecal or other contamination; (ii)

¹ "Safe drinking water" meets standards outlined in The National Patriotic Health Campaign Committee. July 2001. *Sanitary Standard for Drinking Water Quality—Implementation Guideline for Rural Areas*. Beijing.

² "Sanitation" includes latrines, health education, and hygiene promotion.

³ "Rural" includes all areas not under the jurisdiction of a city government. This TA will focus on townships not serving as the seat of a county government, and administrative and natural villages.

⁴ The TA first appeared in *ADB Business Opportunities* (Internet edition) on 17 July 2003.

⁵ Rural poverty is generally based on an average per capita annual net income. The national poverty line is CNY635 and 300 kilograms of grain production per capita per year.

⁶ "Access to water" means "having to walk no further than 1 kilometer in the horizontal sense, and no further than 100 meters in the vertical sense to the nearest water-point."

⁷ Aimed at assisting 26 million rural people below the Government's official poverty line, the strategy identifies 592 key working counties eligible for national poverty reduction funds.

water with high levels of naturally occurring fluoride, arsenic, or salts; and (iii) growing industrial and agricultural chemical pollution. Some areas suffer seasonal water shortages. These problems are manifested in high human intake of contaminants and prevalence of water-related diseases, including high rates of diarrheal diseases and viral hepatitis, and lower, although problematic, incidence rates of cholera, dysentery, and typhoid.

5. International experience has shown that for overall improvement in community health, provision of safe water must be integrated with latrine improvement, health education, and hygiene promotion. In the PRC, only 30% of the rural population uses sanitary latrines.⁸ Despite health education, behavior change has been slower to follow. Health messages must be made more effective and demonstrate clearly the relationship between hygienic behavior and improved health. A key area for enhancing future integrated RWSS projects should be hygiene promotion to realize behavioral change. Village schools provide a key focal point for such activities. Integration of the provision of safe water and sanitation requires cooperation between government ministries and agencies at various levels.

6. The Government recognizes the need to further strengthen national policy, strategy, and operational frameworks to develop the RWSS sector. National coordination of the sector is fragmented, involving a number of ministries with overlapping responsibilities. Local institutional capabilities are limited, especially in management and operations. Financial resources are limited, caused partly by poor cost recovery and inadequate operation and maintenance (O&M).

7. Providing safe RWSS services will help improve rural living standards and reduce incidence rates of water-related diseases and associated medical expenditures, thus reducing poverty. Increased access to convenient and safe drinking water for the rural poor will also translate into increased time for productive activities and long-term human development. Water collection has a particularly high opportunity cost for women and school-age children. For example, especially in mountainous areas, time devoted to water carrying limits opportunities for women (often responsible for household water use and sanitation) to earn income, and depresses children's (particularly girls') enrolment and active participation in schooling. Lack of access to safe water, and inadequate sanitation (e.g., use of common latrines) also disproportionately burden women and children with disease, while rising costs of health services are particularly problematic in poor localities.⁹

8. Past efforts to develop the RWSS sector focused mainly on the construction of physical facilities. The Government is now giving more attention to strengthening sector policy, strategy and operational frameworks, and institutional capabilities, including in the poorest communities (often located in remote mountainous areas). Policies must reflect the PRC's regional diversity. Very active sector support from a number of international organizations, notably the United Nations Children's Fund and World Bank, in cooperation with the ministries of health and water resources, and Department of International Development of the United Kingdom have supported the sector. This has created a base of knowledge on which future projects can build and add value. The work of community-based organizations and the All-China Women's Federation complement and strengthen this foundation. ADB has been active in water resource strategy

⁸ The Government defines "sanitary latrines" are those with full walls and a roof, odorless, and insect free.

⁹ Especially in areas with high levels of male out-migration in search of urban employment, women bear a disproportionate share of agricultural and household work, including caring for children and elderly family members, water collection, water use, and sanitation. The PRC's Agenda 21 calls for action to promote the role of women in sustainable development, and sets out specific issues to remove constraints hindering women's participation in sustainable development.

planning and developing urban water supply and wastewater utilities in the PRC, from which lessons can be drawn and applied to the RWSS sector.

9. The TA will analyze key lessons from the experience and determine how these can be embedded in future RWSS policies and strategy. Lessons include the following:

- (i) Water supply and sanitation should be integrated.
- (ii) Drinking-water user groups should participate more, from scheme design to construction to operations, and ensure that decision-making on water and related issues involves a balanced mix of men and women in the villages.
- (iii) National procedures, such as manuals, design, and construction standards, should be harmonized.
- (iv) Operation and quality maintenance models tailored to local situations are needed for existing and new schemes.
- (v) National, provincial, and local capacity building should be ongoing.
- (vi) Short-term processes and long-term outcomes, and related targeted dissemination should be monitored and evaluated.
- (vii) Financing of sustainable RWSS in poor townships and remote villages need innovative, viable models that use participatory approaches to take into account cost recovery, water pricing, and willingness and ability to pay.

10. The TA is timely as it will help formulate the 11th FYP by developing the medium-term (2006-2010) RWSS sector investment plan and an outline RWSS strategy to achieve related MDGs in the long-term (2006-2015).

III. THE TECHNICAL ASSISTANCE

A. Purpose and Output

11. The long-term goal of the TA is to provide safe and sustainable water supply, and improve rural sanitation, health, and hygiene behavior. The purpose of the TA is to help the Government prepare pro-poor RWSS policies, and a strategic investment framework for integrated RWSS, focused on defining viable models for financing sustainable pro-poor RWSS systems, and related institutional capacity building.

12. The scope of the TA will focus on preparing a medium-term RWSS sector plan and investment strategy for 2006-2010, for inclusion in the 11th FYP, and, in the context of realizing the related MDGs, a longer-term outline strategy up to 2015. Strategy formulation will include (i) detailed desk and field reviews; (ii) national and provincial workshops to ensure stakeholder involvement, recognition, and understanding of perspectives; (iii) synthesis of lessons from local and international projects; and (iv) about three case studies to test selected critical issues¹⁰, including an in-depth analysis of organizational models for water user groups (WUGs), pro-poor RWSS tariff setting, and community-based O&M models for existing RWSS schemes. The TA will be nationwide but give particular attention to rural poor areas in the western region¹¹ and central areas; decentralization initiatives; researching and promoting private sector participation; integrating water supply and sanitation; and enhancing participatory processes, including

¹⁰ The case studies will research and analyze selected critical priority issues, based primarily on secondary information and supported by field visits. Selection of case studies will involve liaison with ongoing RWSS projects.

¹¹ Western Region comprises 12 provinces, autonomous regions, and municipalities, covering Chongqing, Gansu, Guangxi, Guizhou, Inner Mongolia, Ningxia, Qinghai, Shaanxi, Sichuan, Tibet, Xinjiang, and Yunnan; and 3 prefectures in Hubei, Hunan, and Jilin.

community consultations, women's involvement, and incorporation of children's needs, in the design and implementation of RWSS projects and programs.

13. The principal outputs will be (i) a RWSS sector profile, in accordance with ADB's format and standards; and (ii) a RWSS medium-term (2006-2010) sector development plan, for incorporation in the 11th FYP. The plan will contain recommended investment projects, a capacity-building program, a research and development program (if appropriate), and a RWSS sector road map; and (iii) in the context of realizing the MDGs, a RWSS long-term (2006-2015) outline strategy. The plan and the strategy will include recommendations for RWSS monitoring and evaluation systems and outline frameworks to disseminate information these generate. The outputs will provide the Government with a framework to guide and improve policymaking, coordination, investment, and implementation of RWSS.

B. Methodology and Key Activities

14. The TA will be implemented over seven months, starting March 2004, with key findings and recommendations to feed into national policy dialogue toward final drafting of the 11th FYP (2006-2010) in March 2005. The TA will comprise (i) a sector review to identify sector constraints; (ii) an analysis of the constraints and selected case studies; and (iii) preparation of sector policies and strategies, an investment plan, priority programs, and external assistance. National and provincial workshops will be convened as required.

C. Cost and Financing

15. The total cost of the TA is estimated at \$505,000, comprising \$214,000 in foreign exchange and \$291,000 equivalent in local currency. The Government has requested a TA grant in an amount not exceeding the equivalent of \$400,000 to meet the total foreign exchange cost and part of the local currency amounting to \$186,000 equivalent. The TA will be financed from the Poverty Reduction Cooperation Fund. The remaining portion of the local currency cost will be financed by the Government through the provision of counterparts, office facilities, and logistical support. Details of the cost estimates are in Appendix 2.

D. Implementation Arrangements

16. The Department of Disease Control of the Ministry of Health will be the Executing Agency and will appoint a senior official as the TA director. The National Patriotic Health Campaign Committee will act as the TA steering committee to be responsible for coordination with all relevant government agencies. Key stakeholders at all levels will be involved in the TA. The TA's participatory approach will be enhanced by consultations through the dissemination strategy and several workshops. The TA will liaise with, involve, and continuously consult the National Development and Reform Commission to ensure that the proposed RWSS medium-term (2010-2010) sector development plan is incorporated into the 11th FYP. The TA will be implemented over seven months to allow sufficient time for comprehensive consultation, involving preparation of various issues papers, workshops, and agreements on the RWSS development strategy.

17. Consultants will be engaged through a firm in accordance with ADB's *Guidelines on the Use of Consultants*, based on the quality- and cost-based selection method and other arrangements satisfactory to ADB for engaging domestic consultants. International consultants will render 7 person-months' service: a water supply and sanitation institutional development expert (5 person-months) and a public economist (2 person-months). Domestic consulting

services will total 26 person-months: water supply development (7 person-months), sanitary development (7 person-months), health education and hygiene promotion (3 person-months), community participation (3 person-months), economic and financial analysis (4 person-months), and management development (2 person-months). All consultants should have experience in working on poverty reduction studies/projects. The outline terms of reference are in Appendix 3. TA equipment will be procured in accordance with ADB's *Guidelines for Procurement*.

18. Within one month following mobilization the consultants will submit an inception report to define the direction of the study and identify critical sectoral issues for assessment and case studies to be prepared. Within three months after commencement, an interim report will present a detailed analysis of the key issues and constraints, including the findings from the case studies, strategic opportunities, and proposals. The findings will be presented in a workshop for selected stakeholders. The recommendations will be endorsed in a tripartite meeting before proceeding to the third part of the TA. Six months after commencement, a draft final report will analyze the sector strategy and policies, institutional arrangements, medium-term investment plan and strategy, including a capacity-building and training program, and a longer-term outline strategy. A second tripartite meeting will be held to discuss the draft final report. Incorporating this feedback, the final report will be completed one month after the second tripartite meeting.

IV. THE PRESIDENT'S DECISION

19. The President, acting under the authority delegated by the Board, has approved ADB administering technical assistance not exceeding the equivalent of \$400,000 to the Government of the People's Republic of China to be financed on a grant basis by the Poverty Reduction Cooperation Fund for the purpose of a study on Safe Drinking Water and Sanitation for the Rural Poor, and hereby reports this action to the Board.

TECHNICAL ASSISTANCE FRAMEWORK

Design Summary	Performance Indicators/Targets	Monitoring Mechanisms	Assumptions and Risks
<p>Sector Goals</p> <p>Provide safe and sustainable water supply to, and improve related sanitation, health, and hygiene behavior of, the rural poor in the PRC</p>	<ul style="list-style-type: none"> • Halve by 2015 the proportion of people without sustainable access to safe drinking water from the current 40% to 20% • Increased coverage of safe water supply and sanitary latrines¹ • Decline in the incidence of diarrheal diseases, viral hepatitis • Increased percentage of people practicing water-related hygiene behaviors 	<ul style="list-style-type: none"> • Project monitoring and evaluation systems • Water quality monitoring programs • Information disseminated • Periodic surveys • World Health Organization statistics • Government statistics 	<ul style="list-style-type: none"> • Sustained government commitment • Limited institutional capacity at the county, township, and village levels • Lack of counterpart funds • Communities not adequately involved in planning, design, construction, and operation and maintenance, and ownership of facilities
<p>Purpose/Objectives</p> <p>Help the Government prepare and implement RWSS policies, and develop a strategic investment framework for integrated RWSS</p>	<ul style="list-style-type: none"> • Proposed medium-term RWSS sector investment plan and strategy ready by March 2005² and incorporated into the 11th FYP • Proposed long-term RWSS outline strategy to 2015 adopted in the context of achieving the Millennium Development Goals (MDGs) 	<ul style="list-style-type: none"> • Tripartite meetings • TA completion report and review missions • Post-TA monitoring 	<ul style="list-style-type: none"> • Sustained government commitment • Timely completion of the TA by September 2004 • Viable financing models for sustainable RWSS projects identified
<p>Outputs</p> <ul style="list-style-type: none"> • RWSS sector profile 	<ul style="list-style-type: none"> • Definition of specific investment programs, including an outline of priority pro-poor projects for project preparatory or advisory TAs 	<ul style="list-style-type: none"> • TA tripartite meetings • TA review missions • TA progress and completion reports • TA workshops 	<ul style="list-style-type: none"> • Timely provision of data and information to the consultant's team

¹ Safe water supply coverage was 57% at end 2002, and 'sanitary' latrine coverage was 49%.

² The deadline for incorporating an RWSS sector investment strategy in the 11th FYP.

Design Summary	Performance Indicators/Targets	Monitoring Mechanisms	Assumptions and Risks
<ul style="list-style-type: none"> A RWSS medium-term sector investment plan and strategy (2006-2010) A RWSS long-term (2006-2015) outline strategy 	<ul style="list-style-type: none"> Identification of critical issues for long-term RWSS planning Capacity-building plan 		<ul style="list-style-type: none"> Plan and strategy design not inhibited by institutional barriers
<p>Activities</p> <ul style="list-style-type: none"> Part 1: Sector review (desk and field) leading to definition of sector constraints and issues Part 2: Analysis of constraints/issues Part 3: Definition of sector policy, plans, strategies, priority programs, and external assistance <p>About three case studies for selected key issues under part 2</p> <p>National, provincial, and local workshops convened</p>	<ul style="list-style-type: none"> Start: Month 1 Completion: Month 2 Start: Month 2 Completion: Month 4 Start: Month 4 Completion: Month 7 	<ul style="list-style-type: none"> TA, inception, interim, draft final, and final report Review missions TA workshops Tripartite meetings 	<ul style="list-style-type: none"> Adequate, usable data available on time Adequate stakeholder participation Delayed recruitment of consultants and appointment of counterpart staff, data not available on time, and experienced counterpart staff and other government support not available on time
<p>Inputs</p> <ul style="list-style-type: none"> Consultants 	<ul style="list-style-type: none"> \$258,000 7 person-months of international consulting services: water supply and sanitation institutional development (5 person-months) and economic/ financial analysis (2 person-months) 26 person-months of domestic consulting services: water supply development (7 person-months), sanitary development (7 person-months), health education/hygiene promotion (3 person-months), community participation (3 person- 	<ul style="list-style-type: none"> TA progress reports TA review missions 	<ul style="list-style-type: none"> Appropriate, qualified counterpart staff available Timely and adequate counterpart funding, provision of counterpart staff, logistical support and access to relevant data and reports

Design Summary	Performance Indicators/Targets	Monitoring Mechanisms	Assumptions and Risks
<ul style="list-style-type: none"> • Workshops and seminars • Counterpart staff • Government funding • ADB <p style="text-align: right;">Total</p>	<p>months), economic/financial analysis (4 person-months), and management development (2 person-months)</p> <ul style="list-style-type: none"> • \$26,000 • \$50,000 • \$105,000 • \$400,000 • \$505,000 		

COST ESTIMATES AND FINANCING PLAN
(\$'000)

Item	Foreign Exchange	Local Currency	Total Cost
A. Asian Development Bank Financing^a			
1. Consultants			
a. Remuneration and Per Diem			
i. International (7 person-months)	154	0	154
ii. Domestic (26 person-months)	0	104	104
b. International and Local Travel	20	5	25
c. Reports and Communications	2	8	10
2. Workshops and Seminars	0	26	26
3. Miscellaneous Administration and Support Costs ^b	1	15	16
4. Representatives for Contract Negotiations	5	0	5
5. Contingencies	32	28	60
Subtotal (A)	214	186	400
B. Government Financing			
1. Office Accommodation and Administration	0	30	30
2. Remuneration and Per Diem of Counterpart Staff	0	50	50
3. Others ^c	0	25	25
Subtotal (B)	0	105	105
Total	214	291	505

^a Financed by the Poverty Reduction Cooperation Fund.

^b Including car rental, interpretation, and administration.

^c Including transportation, translation costs, and provincial logistics support.

Source: Asian Development Bank estimates.

OUTLINE OF TERMS OF REFERENCES

A. Part 1: Sector Review and Analysis

1. The review and analysis of policy, strategy, and operational frameworks, including targeting of rural poor areas, will be based on desk reviews and field surveys. The consultants will have the following responsibilities: (i) review and analyze the status and demand for rural water supply and sanitation (RWSS) in the People's Republic of China (PRC), giving particular attention to the western region and central areas, and the Government's development plans, and identify directions and needs for sector development in accordance with the report *Water for All: The Water Policy of ADB (2003)*; (ii) review and analyze existing and proposed RWSS regulations at the national, provincial, and lower levels; (iii) review and analyze the relations between access to safe water, sanitation, and poverty, and determine how improved analyses of community priorities and needs can be incorporated into policymaking and implementation; (iv) review and analyze the commitment of the governments at all levels to integrate hygiene promotion and improved sanitation with improved water supply into new policies and approaches; (v) based on a review and critical analysis, recommend necessary improvements to national policies and strategies related to RWSS sector development, including the roles and capabilities of the central Government, local public agencies, private sector, water operators, regulators, and consumers; (vi) analyze past and planned internal and external investment in the sector, broken down into rural water supply, sanitation, and health education and hygiene promotion. Assess investment trends, and the allocation between rural water supply, sanitation, health education, hygiene promotion, and geography; (vii) document key patterns in sector development assistance provided by external aid agencies, including information on the nature and value of the assistance, policies, terms and conditions, priority areas, and future programs; (viii) assess the impacts of other external funding agencies on sector development to provide a guide for the formulation of future Asian Development Bank (ADB) strategies, and avoid duplication of efforts with other external aid agencies, in this context, the consultants should review key reports¹ from ADB's Operations and Evaluation Department. Consultants should also interface with the PRC Council for International Cooperation on Environment and Development; (ix) based on lessons learned from previous privatization sector activities in the PRC and international models, assess ongoing and future opportunities for private sector participation to further finance, operate, and maintain sector facilities, including identifying opportunities for private sector participation, and improving the public-private interface and the regulatory framework; (x) based on a field review of selected externally and domestically financed RWSS projects, complemented by RWSS experience in other countries, define key issues and constraints, and lessons that can contribute to development of a RWSS strategy, and necessary refinement in policy and regulations; and (xi) define a dissemination strategy for the process and outcomes of the TA, including lessons from RWSS sector projects.

B. Part 2: Analysis of Sector Constraints

2. The review will lead to definition of the key issues that need to be addressed and analyzed. The analysis and recommendations will be presented as RWSS strategic guidance papers. Selected critical issues will be more rigorously investigated as case studies. Workshops will review key findings and help refine recommendations. This analysis will include consideration of the aspects outlined below. Where appropriate, PRC guidelines for feasibility studies, as well as ADB guidelines, should be observed.

¹ ADB. 2002. *Impact Evaluation Study on Water Supply and Sanitation Projects in Selected Developing Member Countries*. Manila.

a. Institutional and Legal Aspects

3. The consultants will do the following: (i) review, analyze, and provide recommendations to enhance cooperation, communication, and sharing of information between key RWSS central level ministries; (ii) review existing institutional framework, and administrative systems and procedures for sector development, including decentralization initiatives involving the local governments, as well as the incentive structures that support or inhibit efficient and equitable RWSS management; (iii) establish a clear picture of the interactions between key agencies, (i.e., including the central Government, local governments at all levels, plant operators, water regulators, drinking water user groups (WUGs), village committees, community-based organizations, and private entrepreneurs), and identify related areas in the existing institutional framework and administrative systems and procedures that need improvement; (iv) review and analyze in detail the performance of WUGs for RWSS and formulate detailed recommendations for WUG models that will (a) ensure that the whole community is represented, and decision-making in relation to water and water-related issues, involves a balanced mix of men and women at village level, including poor groups; and (b) guide establishment, organization, and management of the WUG and its elected committee. Institutional and legal lessons should be drawn from the formation and operations of existing irrigation water user associations, and ongoing external agencies-financed irrigation water users association/WUG initiatives; (v) determine appropriate levels of sector services for township and village RWSS. This should emphasize the needs of rural areas and be framed in the context of countrywide and regional climatic, topographic, social and cultural diversity, poverty, need to identify innovative approaches, and application of available and appropriate technology. The assessment of technology options should also take into consideration the varying financial, institutional and organizational implications for operation and maintenance (O&M) of different technologies and service levels, for existing schemes that are underperforming or operational, and new schemes; and (vi) based on desk and field surveys, review and analyze ownership models for RWSS. Propose innovative models for community-owned schemes such as cooperatives.

b. Economic Aspects

4. The consultants will do the following: (i) in accordance with ADB's water policy, review and recommend key improvements in RWSS tariff policies, tariff setting (including the consultation process), metering, billing and collection efficiency, and accounting and financial management systems; review and analyze studies on willingness to pay for different standards of service, and ability-to-pay reviews to help determine tariff options for rural water supply at different service levels; analyze, and make recommendations on (a) adequacy and affordability of tariffs, especially for poor people; and (b) improvement of collection of RWSS charges; (ii) undertake financial and economic analyses in accordance with ADB's guidelines² and models developed by ADB's Economic and Research Department; (iii) analyze various cost-recovery, cost-sharing, and cross-subsidy models that may be viable for RWSS; (iv) estimate the extent of unaccounted for rural water supply and propose improvements; and (v) develop methods for economic evaluation of RWSS investments that are appropriate for use in selection criteria in the RWSS medium-term (2006-2010) sector development plan.

c. Financing Future Rural Water Supply and Sanitation Projects

5. The consultants will do the following: (i) identify possible constraints and limitations in mobilization and effective use of funds for future RWSS projects, especially in poor remote areas, including borrowing capacities of sector agencies involved. (ii) review, analyze, and prepare

² The following ADB guidelines and references will be used: *Framework for the Economic and Financial Appraisal of Urban Development Sector Projects*, *Guidelines for Economic Analysis of Projects*, *Handbook for the Economic Analysis of Water Supply Projects*, *Economic Issues in the Design and Analysis of a Wastewater Treatment Project*, and *Guidelines for the Financial Governance and Management of Investment Projects Financed by the ADB*.

financial models and “what-if” analysis to test and define innovative and viable options for the future financing of RWSS systems, including loan-equity-grant/subsidy “packaging” for township and village RWSS; and (iii) provide indicative estimates of the need for internal and external funds for a medium-term sector development plan for 2006-2010 (11th Five-Year Plan [FYP]).

d. Poverty, Social, and Gender Aspects

6. The consultants will do the following: (i) identify pre- and in-project mechanisms to evaluate the impact of RWSS projects on the beneficiaries, particularly on poverty reduction, gender, and other social equity issues, based on ADB's *Guidelines for Incorporation of Social Dimensions in Bank Operations*, *Gender Checklist for Water Supply and Sanitation*, and *Handbook on Poverty and Social Analysis*. (ii) review and analyze past and present RWSS projects/programs, and propose methods to improve them through community involvement, project preparation, formulation, and implementation that will also reduce poverty; (iii) assess the level of community participation in identification, design, construction, and O&M of rural water supply facilities, emphasizing involvement of women and potentially marginalized groups, including ethnic minorities. For existing sector programs, examine the mechanisms for and efficacy of community voice regarding preferences/social acceptability of various technology options and cost-recovery schemes. Propose feasible approaches to ensure supply modes better match community needs; (iv) assess and recommend interventions to support the formation of village-based women's groups to produce plans for women's requirements in sanitation, and to ensure that improvements in sanitation meet women's needs; (v) assess the ability of central, provincial, and subprovincial government agencies' ability to be proactive in, and readiness for, involvement in community participation, as well as efficacy in targeting the poor and other key rural population groups. Define the roles of the administration of local governments, water operators, water regulators, and village committees in assessing and addressing community needs. Recommend improved mechanisms to increase the community involvement and targeting of the rural poor; and (vi) review and analyze current policies, and applications for determining the minimum amount of water (at a given quantity) that should be delivered to the poor.

e. Engineering Aspects and Resource Allocation

7. The consultants will do the following: (i) review existing national design guidelines for RWSS prepared by different agencies and recommend ways to harmonize and standardize design manuals and guidance documents; (ii) define and analyze approaches to offer poor communities design options for RWSS schemes; (iii) review the availability and quality of locally manufactured materials, assess product quality, and recommend improvements; (iv) review local construction standards and codes of practices, assess their adequacy, and identify areas that need attention in preparing specifications and construction supervision; (v) based on a review of external agencies- and government-financed projects, assess the extent to which overdesign is an issue; assess the impact of overdesign on the cost of safe water; identify the reasons for overdesign; and recommend ways to rationalize approaches to design, including future forecasting of consumption; and (vi) in the context of recent and proposed developments in integrated water resources management, analyze allocation of water for drinking (domestic) purposes in rural areas, and identify potential future imbalances between demand, available resources, and resource allocation, and recommend ways to harmonize imbalances.

f. Environmental Aspects

8. The consultants will, in accordance with ADB and PRC environmental guidelines, do the following: (i) review and analyze environmental aspects of RWSS in detail, including institutional issues; identify key environmental hazards in RWSS; assess the level and appropriateness of investments to mitigate these hazards; and identify low-cost and innovative options; (ii) review and

analyze efforts by government agencies of various levels, and nongovernment institutions to monitor groundwater quality in shrinking water tables; (iii) based on a literature review and focused fieldwork (as needed), analyze the extent to which fluoride, arsenic, and saline contamination are serious threats to safe drinking water. Evaluate ongoing mitigation measures and comment on their effectiveness. If appropriate, propose investments necessary to enhance these measures; (iv) assess the prevalence of water supply contamination due to use of latrine waste as fertilizer, and recommend preventive measures; and (v) review existing systems for surveillance, monitoring, and reporting on water quality, and recommend ways to strengthen water quality control and monitoring, and disseminate information to key target groups.

g. Health Aspects

9. The consultants will do the following: (i) review health aspects of RWSS in detail, including (a) assessing institutional issues (e.g., cross-agency collaboration, integration of water and health improvement initiatives, etc.); and (b) compiling and analyzing relevant health data, including morbidity and mortality associated with waterborne diseases and poor sanitation. To the extent possible, the latter should provide disaggregated estimates for rural areas, and include water- and sanitation-related infectious disease as well as evidence on linkages between water/sanitation and chronic diseases; (ii) identify the priority RWSS-related risk factors that impose the greatest burden on health, and assess the extent to which these derive from (a) underinvestment in RWSS physical facilities and (b) unsafe behaviors; (iii) assess government and public support levels for investments in local sanitation, ranging from overall awareness of related health impacts by officials at various levels, to local government emphasis on and public demand for such investments and willingness to pay (especially for sanitation). As part of broader recommendations, identify low-cost, innovative, and contextually appropriate options to mitigate drinking water and sanitation risk factors, as well as advocacy approaches with strong potential to mobilize community and local governments; (iv) assess public awareness of RWSS-related risk factors, as well as the coverage and efficacy of information, education, and communication (IEC) campaigns to change hygiene- and water-related behaviors. Survey efforts by national and local government agencies and other domestic and international organizations: (a) content (What key messages have been given to the public?); (b) agencies/organizations responsible for delivery; (c) delivery modes; (d) technical accuracy of information; and (e) extent to which IEC has been targeted in content and delivery (i.e., addressing specific local priorities and appropriate to local communities), including "accessibility" of information. Reaching remote rural populations, the poor, women, and other key at-risk groups should be emphasized; (v) formulate a strategy for targeted and cost-effective RWSS-related IEC, including recommendations on key aspects such as (a) optimal levels of involvement by agencies at different levels in IEC design, implementation, budgeting, and delivery, balancing local responsiveness with economies of scale and other considerations; (b) delivery modes and targeting to get the right message to the right audience; (c) a system to monitor evidence of behavioral change; (d) mechanisms for review and revision of IEC approaches; and (e) upfront and recurrent budgetary requirements; and (vi) propose other concrete interventions to ensure that health promotion, health education/advocacy, and sanitation are addressed at the same time that water supply is improved so that potential health benefits are realized.

h. Capacity Building Aspects

10. The consultants will do the following: (i) assess the division of responsibilities between, and overall capacity of, key RWSS agencies, particularly at subprovincial levels; review current sector personnel development programs, assess their adequacy, and identify areas that need capacity-building strengthening; (ii) review the involvement of domestic consultants, contractors, and other institutions in RWSS development activities, and assess their capabilities; recommend ways to enhance individual and consulting entity capacity; (iii) as part of the medium-term sector strategy/plan, prepare a human resource development plan for RWSS at all levels, emphasizing

development of the decision-making capacity of women as key planners in the RWSS sector; and (iv) identify areas in RWSS that warrant research and development; and define and cost a program for inclusion in the medium-term sector investment plan (2006-2010).

i. Monitoring and Evaluation and Dissemination Aspects

11. The consultants will do the following: (i) propose monitoring and evaluating systems to assess the transparency, impact, and sustainability of RWSS projects; (ii) propose simple and measurable indicators to monitor and evaluate project processes and outcomes; (iii) propose a system flexible enough to measure short- and long-term outcomes, with particular emphasis on health and related outcomes among the poor, women, children, and vulnerable groups; and (iv) propose a framework to disseminate monitoring and evaluation information that could be incorporated into future RWSS projects. Given the crucial role of women in RWSS, the framework should give priority to enhancing women's access to information. In proposing monitoring and evaluation systems, particular attention should be given to the frequent inconsistency and lack of clarity on definitions and data.

C. Part 3: Sector Policies and Strategy, Investment Plan, Priority Programs, and External Assistance

1. Policies and Strategy Formulation

12. Based on tasks under parts 1 and 2, the consultants will propose a policy framework for sector development and a RWSS sector strategy, including viable models for financing future RWSS projects, to be endorsed by the Government.

2. Sector Development Plan and Millennium Development Goals

13. The consultants will do the following: (i) focusing on rural areas, but drawing information from ADB's experiences in urban water supply and other sources, prepare an RWSS sector profile in accordance with ADB's format and standards; (ii) propose an RWSS medium-term (2006-2010) sector development plan, for incorporation in the 11th FYP. This will contain an outline of technical assistance (TA) and pro-poor investment projects, and include a capacity-building program, and, if appropriate, a research and development subprogram. The plan will provide adequate details on objectives, justification, scope, cost estimates, proposed funding sources, implementation arrangements, and a, RWSS sector road map. The consultants will prepare specific investment programs suitable for possible external assistance, including an outline of priority projects potentially suitable for project preparation or advisory TA; and (iii) in the context of realizing the Millennium Development Goals for access to clean water, formulate an RWSS long-term (2006-2015) outline strategy.