

**REPORT AND RECOMMENDATION
OF THE
PRESIDENT
TO THE
BOARD OF DIRECTORS
ON A
PROPOSED LOAN
TO THE
DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA
FOR THE
SECONDARY TOWNS AND RURAL COMMUNITY-BASED
WATER SUPPLY AND SANITATION PROJECT**

December 2002

CURRENCY EQUIVALENTS

(as of 31 October 2002)

Currency Unit	–	Sri Lankan Rupee/s (SLRe/SLRs)
SLRs1.00	=	\$0.010
\$1.00	=	SLRs96.25

ABBREVIATIONS

ADB	–	Asian Development Bank
BME	–	benefit monitoring evaluation
CBO	–	community-based organization
CEA	–	Central Environmental Authority
EIRR	–	economic internal rate of return
EMP	–	Environmental Management Plan
FIRR	–	financial internal rate of return
LCB	–	local competitive bidding
LPCD	–	liters per capita per day
MH&PI	–	Ministry of Housing and Plantation Infrastructure
NGO	–	nongovernment organization
NRW	–	nonrevenue water
NSC	–	National Steering Committee
NWSDB	–	National Water Supply and Drainage Board
O&M	–	operation and maintenance
OED	–	Operations Evaluation Department
PIU	–	project implementation unit
PMU	–	project management unit
PPMS	–	Project Performance Monitoring System
PSIU	–	Pradeshiya Sabha implementation unit
SRPLA	–	Short Resettlement Plan for Land Acquisition
WACC	–	weighted average cost of capital

GLOSSARY

Pradeshiya Sabha – smallest political unit created under the Pradeshiya Sabha Act

NOTES

- (i) The fiscal year (FY) of the Government of Sri Lanka ends on 31 December. FY before a calendar year denotes the year in which the fiscal year ends, e.g., FY2000 ends on 31 December 2000.
- (ii) In this report, "\$" refers to US dollar.

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LOAN AND PROJECT SUMMARY

Borrower	The Democratic Socialist Republic of Sri Lanka
Classification	Poverty: Core poverty intervention Thematic: Human development and gender development
Environment Assessment	Category B. An initial environmental examination was undertaken, the summary is a core appendix.
Project Description	<p>The Project aims to contribute to poverty reduction efforts by increasing the access to safe water and sanitation of the poor, thereby improving their living conditions, especially of women. Within this framework, the following challenges are addressed in the Project: (i) to contribute to the reconstruction efforts by providing piped water to major urban centers in the northeast; (ii) to support the devolution of rural water supply and sanitation to the provincial councils and Pradeshiya Sabhas; and (iii) to continue supporting the sector reforms identified in previous interventions, including achievement of full cost recovery, independent regulation of the water sector, and increased participation of the private sector. The Project will provide water in two major urban areas in the North Central, and Eastern provinces, one urban area in the North Central Province, and two urban areas in the Southern Province. The Project will also implement a rural water supply program in the North Central Province through community-based organizations, local government, and nongovernment organizations, and support the National Water Supply and Drainage Board (NWSDB) to advance and adapt to the ongoing sector reforms by improving its operational efficiency and its financial management.</p>
Rationale	<p>In its Poverty Reduction Strategy, the Government states that "the provision of safe drinking water, and adequate sewage and sanitation systems, is frequently cited as the single, highest social service priority by poor households" and it identifies access to safe water and appropriate sanitation as one of its priorities. Section III of the Government's 2001 Millennium Goals includes halving by 2015 the proportion of people who are unable to reach or afford safe drinking water. It also identifies as a main strategy increasing investment in the water and sanitation sectors.</p> <p>Provision for water supply and sanitation in Sri Lanka has improved during the last 15 years. During this period, the Asian Development Bank (ADB) has been a constant partner in the sector. Yet, to achieve the Government's objective of increasing to 85% the portion of the population with access to safe water in 2010, about SLRs12 billion a year will be needed to meet the demand for piped water supply by the year 2010.</p>

In the last two years, the Government has reviewed its rural and urban water supply and sanitation policies to improve its capacity to face this challenge and it has proposed a "two-pronged strategy involving large-scale system expansion for urban schemes and a vast number of small-scale community improvement initiatives, to bring better water supply and sanitation services to poor communities." Consequently, the Project will focus on major investments in five secondary towns and in small community-based rural water supply.

Objectives

The overall goal of the Project is to contribute to poverty reduction efforts and to promote human development by improving access to safe water and sanitation for poor populations, thereby decreasing waterborne diseases and reducing the amount of resources spent in these activities. The Project objectives are to (i) provide safe water to 969,000 people and sanitation to 171,500 in five urban areas and in the rural districts of the North Central Province; and (ii) increase the capacity of the Government of Sri Lanka to provide safe water by strengthening the water sector institutions.

The Project components are: (i) provision of urban water supply, sanitation, and drainage in the towns of Batticaloa, Hambantota, Muttur and Polonnaruwa; (ii) provision of rural water supply and sanitation in the districts of Anuradhapura and Polonnaruwa in the North Central Province; (iii) institutional strengthening focusing on training, public awareness campaigns, and improvement of operational and financial management of the NWSDB.

Cost Estimates

The estimated project cost is \$86.4 million equivalent, comprising foreign exchange costs of \$19.6 million (23%) and local currency costs equivalent to \$66.8 million (77%).

Financing Plan

Source	(\$ million)			
	Foreign Exchange	Local Currency	Total Cost	Percent
ADB	19.6	40.7	60.3	70.0
Government	0.0	23.0	23.0	26.6
Communities	0.0	3.1	3.1	3.4
Total	19.6	66.8	86.4	100.0
Percentage Share	22.7	77.3	100.0	

ADB = Asian Development Bank

Loan Amount and Terms

A loan in various currencies equivalent to Special Drawing Rights 45,689,000 (\$60.3 million equivalent) from ADB's Special Funds resources will be provided. The loan will have a 32 year term including a grace period of 8 years, with an interest rate of 1% per annum during the grace period and 1.5% per annum thereafter.

Period of Utilization

Until 30 September 2009

Estimated Project Completion Date

31 March 2009

Implementation Arrangements

A project management unit will be established in Colombo. To head the unit, the Ministry of Housing and Plantation Infrastructure will appoint a project director who will provide management and policy support to the project implementation units and will facilitate the detailed strategy and the implementation of the institutional strengthening component. Project implementation units will be established in Batticaloa, Hambantota, Muttur, and Polonnaruwa to support the Project's urban investments. Two district project support units and 14 implementation units will support community-based organizations in implementing the rural subprojects. The Rural Water Supply Division of NWSDB will provide technical support for the rural component. A participatory approach will be adopted to formulate and design the rural subprojects, and the community will have main responsibility for subproject identification, design, and implementation.

Executing Agency

NWSDB, under the Ministry of Housing and Plantation Infrastructure

Procurement

Goods and services to be financed by the ADB loan will be procured in accordance with *ADB's Guidelines for Procurement*, reflecting ADB's Anticorruption Policy and mandatory use of standard bidding documents. International competitive bidding procedures will be applied for supply contracts estimated to cost the equivalent of more than \$500,000, and civil works contracts valued at more than \$2 million. Supply contracts with a value of \$500,000 equivalent or less will be procured following international shopping and supply contracts at \$100,000 and less may be procured following local competitive bidding or direct purchase procedures. Civil works contracts valued at \$2 million or less will be carried out under local competitive bidding.

Consulting Services

The Project will require 1,140 person-months of consulting services (120 person-months of international and 1,020 person-months of domestic) for design engineering, finance and accounting, social development, community development, and project management. Two consulting firms will be engaged in accordance with *ADB's Guidelines on the Use of Consultants by Asian Development Bank and its Borrowers* using the quality- and cost-based selection method and other arrangements satisfactory to ADB for the engagement of domestic consultants.

Project Benefits and Beneficiaries

The main benefits of the Projects will be: (i) improved health and nutrition; (ii) less resources (time and cash) spent by households in water provision, especially by women and young girls; and (iii) support to environmentally sustainable economic and population growth, especially in the urban centers. By reducing child mortality and malnutrition due to waterborne diseases, and increasing environmental sustainability due to a reduction of ground water extraction and unsafe sanitation practices, the Project directly addresses ADB's goal of poverty reduction and contributes to the achievement of the Government's Millennium Goals.

An indirect benefit of the Project will be its support to the ongoing peace process. The cooperation needed to implement the project subcomponents in the northeast will provide a visible platform for the commitment to the peace process and will translate the benefits of the peace process into specific improvements to the living conditions of the civilian population, who have suffered from civil unrest for the last two decades

Other benefits include improving school attendance due to better health and reduced water carrying burdens, especially for girls; supporting sustainable economic growth of targeted urban centers; supporting decentralization efforts; and improving health for the general population and reduced mortality.

The Project will provide access to safe water to about 969,000 people in the cities of Batticaloa, Hambantota, Matara, Muttur and Polonnaruwa and in the rural areas of Anuradhapura and Polonnaruwa. About 171,500 people will benefit from safe sanitation facilities. Upon completion of the Project, all residential, commercial, industrial, and institutional consumers in project urban areas will receive 24 hour water supply. In the rural areas, 85% of the population will have access to safe drinking water by project completion. Tariffs and connection fees have been calculated to be affordable by potential consumers; thus, assuring an optimum rate of connection and targeting of the poor.

At a macro level, 74% of the capital investment of the Project will benefit the poor rural population in the north central province and urban population in the northeast region. Poverty in the north central region is at least 8% higher than the national average and the incidence of poverty is even higher for targeted rural beneficiaries. Due to civil conflict, no official statistics exist for the urban population of the northeast project towns, but are likely far greater than in the other areas of the district.

Risks and Assumptions

The Project assumes (i) a stable political environment and positive economic growth in Sri Lanka; (ii) continuing Government support to the Project, in the form of timely procurement and availability of funds, and support to the decentralization process; and (iii) independent regulation of the water sector and the improved efficiency of water service provision. Especially, it is assumed that tariff setting will be driven by financial considerations and that it will be independent of political influence, to achieve adequate levels of project cost recovery and proper asset management.

It is assumed that rural communities will demand the improvement of water infrastructure in their communities and will be willing to contribute up to 20% of the capital investment and to take over the operation and maintenance of the schemes.

Disruption of the peace process may delay project implementation in Batticaloa and Muttur. Weak political support for sector reforms would impede the implementation of the strategies to improve the operational and financial efficiency of NWSDB and other service providers.



I. THE PROPOSAL

1. I submit for your approval the following report and recommendation on a proposed loan to the Democratic Socialist Republic of Sri Lanka for the Secondary Towns and Rural Community-Based Water Supply and Sanitation Project.

II. RATIONALE: SECTOR PERFORMANCE, PROBLEMS, AND OPPORTUNITIES

2. In its Poverty Reduction Strategy the Government states that "the provision of safe drinking water, and adequate sewage and sanitation systems, is frequently cited as the single, highest social service priority by poor households"¹ and it identifies access to safe water and appropriate sanitation as one of its priorities. Section III of the 2001 Millenium Goals includes halving, by 2015, the proportion of people who are unable to reach or afford safe drinking water. It also identifies, as one of the main strategies increased investment in the water and sanitation sectors.² The Asian Development Bank (ADB) country strategy for the social sectors emphasizes the development of adequate infrastructure and services in urban areas outside Colombo.³

3. Provision for water supply and sanitation in Sri Lanka has improved during the last 15 years. During this period, ADB has been a constant partner in the sector. However, the requirements for potable drinking water and sanitation have exceeded the Government's institutional and financial capacity. At present, piped water service is only available to 29% of the population, mostly in urban areas. In rural areas, supply coverage is only 57%. The Government estimates that the investment requirements in the water sector will be as much as \$1.125 million during the 2001–2010 period.

4. Finally, with the progress of the peace process, Sri Lanka faces the challenge of reconstruction efforts, including improving the access to water and sanitation in areas of the country where no investment in basic infrastructure has taken place in the last 20 years. The Project will contribute to these efforts by providing piped water to major urban centers in the northeast.

A. Performance Indicators and Analysis

5. In April 2002, the Government of Sri Lanka approved a tariff increase that allows the National Water Supply and Drainage Board (NWSDB) to finance operation and maintenance (O&M) and debt service from tariffs.⁴ And during the last 5 years, a number of activities such as meter reading and billing and collection have been out-sourced to the private sector. To reduce personnel ratios, no new staff have been hired. NWSDB is now in a better position to take over the O&M and rehabilitation of existing urban schemes, and it has gained significant experience with implementing participatory approaches in rural communities (which has proved to be more

¹ ADB. 2002. *Sri Lanka: Connecting to Growth: Sri Lanka's Poverty Reduction Strategy*. Government of Sri Lanka. Manila

² United Nations. 2001. *Road Map Towards the Implementation of the United Nations Millenium Declaration*. Report of the Secretary-General.

³ In 2000, the Government of Sri Lanka requested ADB assistance to prepare a water supply and sanitation project. In December 2000, a \$1 million technical assistance (TA3587-SRI: Secondary Towns Water Supply Sanitation Project) was approved and the consultants (Coffey MPW et. al.), mobilized on 15 May 2001.

⁴ In doing so, the Government has complied with Loan Covenants 13.a and 13c of L1575-SRI: ADB. 1997. *Third Water Supply and Sanitation (Sector)*. Manila. A detailed review of these covenants is included as Supplementary Appendix A.

sustainable than top-down approaches).

6. However, more progress is needed. To improve the sector's performance, the following reforms should be implemented: (i) improving the operational efficiency and self-financing ratios of water schemes, (ii) decentralizing to local governments and community-based organizations (CBOs) the responsibility for small schemes, (iii) increasing the participation of the private sector, and (iv) creating an independent regulatory structure. The project framework is shown in Appendix 1, and a detailed discussion of the policy environment and ongoing sector reforms is included in Appendix 2.

B. Analysis of Key Problems and Opportunities

7. Where no piped systems exist, most people rely on groundwater for drinking purposes. Although groundwater quality in most parts of the country is good and relatively constant throughout the year, biological contamination, high levels of fluoride, and salinity intrusion in wells and water intakes is a common problem in the project areas. In addition, urban growth has increased pressure on the already scarce groundwater resources, making the need for piped water supply more urgent. NWSDB is mainly responsible for water supply in Sri Lanka and manages 181 piped water schemes. Budgetary support for construction of new piped schemes is limited and NWSDB does not have the capacity to finance new investments through tariffs. As a result, the sector depends on external funding to increase coverage (Appendix 3 describes the existing external assistance in the sector).

8. The main problems faced by the sector in the delivery of water and sanitation are its low self-financing ratios, poor asset management, and high production costs. The underlying causes of these problems are the lack of appropriate management incentives, an inefficient cross-subsidy structure, and an over centralized delivery of services.⁵ Consequently, the sector faces poor service levels and coverage. To address these problems, the new Government policy⁶ for the sector recognizes that (i) water is a basic need, but also has an economic value and that within the acknowledged limits of affordability the Government will seek full cost recovery in its tariff policy and phase out heavy cross-subsidies among users; (ii) eventually the mandate for schemes under 1,000 connections will be fully shifted to local authorities; and (iii) conditions in the sector must be conducive to attract private sector investment. These issues are currently being addressed by sector reforms and have been integrated in the proposed Project.

9. Lessons learned from previous water projects in Sri Lanka indicate the need to improve the financial sustainability of NWSDB, to enhance the involvement of beneficiaries in planning and implementation, to improve water demand management, and to improve the efficiency of service delivery.⁷ The reviews of ADB's projects stressed the need for increasing community involvement, setting up professional project management units (PMUs), and decentralizing operations.⁸ The Government has also reviewed external assistance to the sector and has recommended a "two-pronged" strategy involving large-scale system expansion (for urban schemes) and a vast number of small-scale community improvement initiatives, to bring better water supply and sanitation services to poor communities.

⁵ The challenges faced by the rural and urban sectors differ and are analyzed in more detailed in Appendix 2.

⁶ Government of Sri Lanka. 2002. *Water Supply and Sanitation Policy Statement and the 2002 Poverty Reduction Strategy*. Sri Lanka.

⁷ ADB. 2002. Draft Final Report. *Impact Evaluation Study on Water Supply and Sanitation Projects in Selected DMCs*. Manila.

⁸ Analysis of external funded assistance by in Sri Lanka Final Report of TA-3587-SRI: ADB. 2000. *Secondary Towns Water Supply and Sanitation*. Manila.

10. In line with the Government and ADB policies and the lessons learned, the Project will finance investments in five large-scale urban water schemes and in small community-based projects in rural areas. The Project will address the key problems in the sector by including in the Project design (i) local government and community participation in the planning and implementation of rural projects, with communities contributing up to 20% of the capital cost and becoming owners of the assets; (ii) delegation of O&M for rural schemes to CBOs and a strategy to improve operational efficiency of NWSDB; (iii) implementation of a strategy to improve the financial sustainability of NWSDB; and (iv) public awareness campaigns to educate consumers about water as a scarce resource and the relationship between water, sanitation, and health; and the new institutions in the sector. In addition, ADB has proposed advisory technical assistance to support the development of water sector regulation under the Public Utilities Commission. Appendix 4 describes in detail how the Project design has incorporated these lessons.

III. THE PROPOSED PROJECT

A. Objective

11. In March 2002, the Government and ADB signed a poverty reduction partnership agreement, which highlighted the access to safe water supply and sanitation as a key dimension in reducing poverty for Sri Lanka. The goal of the Project is to reduce the incidence of waterborne diseases in the beneficiary populations and to reduce the level of resources (both cash and time) that targeted households spend in acquiring water for their basic needs. The Project will also increase the capacity of water sector institutions to operate, maintain, and augment existing water schemes and to invest in new water schemes in rural and urban areas.

12. The objective of the Project is to deliver safe water to approximately 969,000 people and provide sanitation to 171,500 people. The Project will benefit people living in the rural areas of Anuradhapura and Polonnaruwa districts in the North Central Province and in the towns of Batticaloa, Hambantota, Matara, Muttur, and Polonnaruwa. The Project will also increase the financial and institutional sustainability of NWSDB and the institutional capacity of the provincial councils, Pradeshiya Sabhas, and CBOs participating in the Project.

B. Components and Outputs

13. The project components are (i) provision of urban water supply and sanitation in five urban centers (the urban component); (ii) provision of rural water supply and sanitation in two districts of the North Central Province (the rural component); and (iii) institutional strengthening and public awareness campaigns (the institutional strengthening component).

1. Urban Component

14. The urban component (Table 1) will (i) provide new piped water supply systems and improvement of drainage in the towns of Batticaloa and Muttur, (ii) expand the existing water supply systems in the towns of Polonnaruwa and Hambantota, (iii) provide for construction of a salinity barrier at the intake in Matara to prevent saline intrusion during dry periods, (iv) provide wastewater collection and treatment for Batticaloa Hospital, and (v) improve drainage in the most densely populated areas of Batticaloa and Muttur. Local authorities will be engaged by the PMU in the implementation of the drainage subcomponent. The administrative divisions, where drainage will be undertaken, will be selected based on population density and state of existing facilities.

Table 1: Urban Subcomponents

Town	Subcomponent
Batticaloa	a. New piped water supply system to provide 47,000m ³ /day for 270,000 people b. Low cost latrine program for 10,000 people c. Waste treatment system for Batticaloa Hospital and prison for 3,500 people d. Drainage improvement
Hambantota	a. Augmentation of existing piped water supply system to provide 17,500m ³ /day for 100,000 people b. Low cost latrine program for 7,500 people
Muttur	a. New piped water supply system to provide 9,800m ³ /day to 52,000 people b. Low cost latrine program for 10,000 people c. Drainage Improvement
Polonnaruwa	a. Augmentation of existing piped water supply system to provide 17,800m ³ /day to 85,000 people b. Low cost latrine program for 2,500 people
Matara	a. Construction of salinity barrier at intake to prevent salinity intrusion during dry periods in existing system providing water to 140,000 people

m³ = cubic meter.

Note: Design assumptions for all urban schemes are 100 liters per capita per day over a 20-year design period (2005-2025)

2. Rural Component

15. The rural component will finance a demand-driven and community-based rural program to provide water and sanitation in 14 selected Pradeshiya Sabhas of Polonnaruwa and Anuradhapura districts in North Central Province. An estimated 322,000 people will be provided with safe water and 138,000 with latrines. Subprojects will be identified during project implementation based on criteria approved by ADB. Subproject selection combines elements of both a poverty-targeted and a demand-responsive approach. Poor and underserved areas will be identified in each local government based on transparent criteria. The administrative divisions that exhibit the highest incidence of poverty and lack of water supply, and that are interested and willing to contribute 20% of the investment costs and take responsibility for the O&M of the facilities, will be invited to apply for assistance. After counterpart nongovernment organizations (NGOs) and local government technical officers have provided initial training and information regarding source availability, initial capital investment, and expected O&M cost for each option, the beneficiaries themselves will choose the type of system they want to implement in their community. Technologies selected should be simple and appropriate, have affordable capital cost, and be within the community's capability for O&M management. Technologies recognized as appropriate for rural water supply are tubewells with hand pumps, shallow dug wells, pipe-borne water supply schemes (gravity or pumping), rainwater harvesting, and household water treatment technologies. CBOs will contribute a minimum of 20% of the construction cost, or the entire unskilled labor component, whichever is higher. Further, the project contribution per household is limited to a ceiling that will be calculated depending on the water supply technology.

16. The rural component focuses on the project beneficiaries developing the ownership of the Project. The beneficiaries will organize into CBOs and participate actively in the project design and implementation. The component includes institutional support for the North Central Provincial Council and for participating Pradeshiya Sabhas and CBOs to develop their capacity

to implement, operate, and maintain water supply schemes and sanitation facilities and assure the sustainability of water supply after project completion.

3. Institutional Strengthening

17. The institutional strengthening component will support specific strategies to improve NWSDB's financial management and service delivery. This component has three subcomponents.

a. National Public Awareness and Education Campaign

18. The Project will support NWSDB in developing and implementing a national strategy focusing on educating and raising awareness on the need to improve water demand management and conservation, and improving public knowledge of the new National Water Supply and Sanitation Policy. Special attention will be given to ongoing changes in the sector, including the existence of new service providers, private sector participation, the need for tariffs to reflect real cost, and the role of the public utilities commission in monitoring service standards and protecting consumers rights. The Project will also support project implementation units (PIUs) under the urban component and Pradeshiya Sabha implementation units (PSIUs) under the rural component to run project-specific awareness campaigns on hygiene and sanitation.

b. NWSDB Financial and Operational Improvement Support

19. The Project will help NWSDB improve its management, especially financial management and regional operations within the context of the recent sector reforms and policies, including the establishment of a public utilities commission, the participation of private operators in the sector, and the decentralization of the provision of water to local authorities.

20. NWSDB will prepare a strategy to improve its financial management and operations, with a detailed schedule and financial plan, to be submitted to ADB for approval within 3 months of loan effectiveness. The strategy will include detailed designs for the implementation of the following:

- (i) NWSDB will implement a corporate strategy to improve (among others) financial planning and resource allocation to adapt to the current reforms in the sector, with emphasis in reduction of tariff cross-subsidies, introduction of performance-based financial incentives to regional centers, and appropriate management of existing assets. The strategy is to be implemented within 2 years of loan effectiveness.
- (ii) NWSDB will implement its strategy and action plan to address audit findings and KPMG International⁹ accounting and financial management recommendations agreed on 13 September 2002. These are to be implemented within 1 year of loan effectiveness.
- (iii) NWSDB will implement, within 2 years of loan effectiveness, an action plan to improve operational performance including cubic meters billed, collection rates, aging of accounts receivable, staff to connection ratio, kilowatt-hours of electricity used, and reduction of establishment expenses.
- (iv) NWSDB will complete an asset registry in all regional (outside of Greater

⁹ ADB. 2000. Technical Assistance for the *Accounting Review of the National Water Supply and Drainage Board*. Manila.

Colombo) water supply schemes with more than 10,000 connections, within 2 years of loan effectiveness.

- (v) The strategy will identify water schemes with less than 1,000 connections for rehabilitation and eventual transfer to local government institutions, the private sector, and/or CBOs within 4 years of loan effectiveness. The strategy will focus on improving the efficiency of the schemes so they can be profitable and on training of the Pradeshiya Sabhas, private sector entities, and/or CBOs for taking over the schemes. The NWSDB will agree with a local authority, the private sector, or CBOs to take responsibility for the assets and O&M, prior to disbursing project funds for scheme-specific investments (physical works and O&M training). The implementation will be completed within 4 years of loan effectiveness. Any physical works implemented under this subproject will follow Government and ADB guidelines, including guidelines on environment, land acquisition, and resettlement.

21. The performance of NWSDB will be measured in relation to the specific components. Target indicators have been defined in Appendix 2, Table A2.2, and the Government, NWSDB, and ADB will monitor performance of this component according to these targets.

c. Training

22. Water supply system operators in the district offices and NWSDB, technical officers in the Pradeshiya Sabhas, and CBOs will be trained during project implementation. Under the urban component, contractors' obligations will include training of NWSDB staff in the O&M of the new facilities. The training will be carried out in conjunction with the physical implementation of the Project. The rural component will provide training to strengthen CBOs' capacity to participate in community development. This training will be undertaken by NGOs. In addition, the institutional strengthening component will provide resources for management training of NWSDB staff. NWSDB will submit for ADB's concurrence a 5-year strategic training plan within 3 months of fielding of the two project management consultants and an annual training plan prior to 31 October of each year. The plan will specify training institutions, methodologies, targeted population, and expected outputs. As per the gender action plan, 20% of the trainees will be women.

C. Special Features

23. **Support for the Peace Process.** Major physical works for Batticaloa and Muttur water supply systems will take place in conflict affected areas. During project preparation, the Government of Sri Lanka and the local community representatives were consulted to obtain their consensus and support for the project. Both the Government and the local community believe that construction of badly needed water supply and sanitation in these areas can promote the peace process.

24. **Ethnic Diversity.** Ethnicity has been integrated in project design, with all major ethnic groups in Sri Lanka significantly represented among the beneficiary population. Within subcomponents, attention was made to include all ethnic groups within the project area so benefits will accrue equally to all groups residing in the project towns.

25. **Targeting the Poor.** Mechanisms to ensure that the project benefits will accrue to the poorest of the poor include the following: (i) populations that cannot afford a connection will have access to safe water through metered public stand posts to be provided by the Project; (ii)

continuation of the financial mechanisms provided by NWSDB to subsidized connection fees and facilitate initial payment to recipients of the government's social assistance program (Samurdhi); and (iii) tariff structure is designed to provide affordable prices for basic consumption¹⁰ while full cost recovery prices apply only to consumption above 100 liters per person per day. See Appendix 5, Poverty Reduction and Social Development Strategy, for a detailed discussion of the Project's social impacts.

26. **Demand-Driven and Participatory Approach through NGOs.** The rural component is based in a demand-driven participatory approach facilitated by NGOs where the beneficiaries organize in CBOs and collectively take responsibility for the subprojects implementation and the O&M of water systems. The counterpart NGOs work with the communities to raise awareness and introduce the project methodology. Communities are required to show their commitment by providing self-assessment forms and contributing to 20% of the capital cost of the Project. The beneficiaries decide on the type of technology for the schemes and, with the assistance of the project staff, they take responsibility for designing and implementing the schemes. The Project provides training and practical experience to the beneficiaries in project and financial management, which will provide communities with the skills to initiate other community improvements.

27. **Support to Decentralization.** The Project supports decentralization of the provision of services to local governments, private providers, and civil society. The rural component will be implemented by CBOs, and facilitated by NGOs and Pradeshiya Sabhas. The latest will be the PIUs for the rural component and Pradeshiya Sabhas will receive training and assistance to develop their technical knowledge of rural water schemes, to improve their project management and monitoring skills and to enhance their capacity to work with NGOs and CBOs using participatory demand-driven approaches. The institutional component will assist NWSDB to transfer the management of small schemes to local governments, CBOs, or the private sector and requires the out-sourcing to the private sector of noncore activities for all new schemes.

28. **Policy.** The Project supports ongoing policy reforms and provides the resources for NWSDB to adapt to its new role in the sector. The implementation of the corporate management strategy, the financial strategy, and the operational strategy under the institutional component will allow NWSDB to continue to provide services in the sector under the new policy framework, which includes the participation of the private sector, introduction of independent regulation under the public utilities commission, and decentralization to local governments.

29. **Resettlement.** The Project will require the permanent acquisition of 10.0 hectares (ha) of land, of which 1.1 ha are owned by NWSDB, 7.5 ha are owned by the Government, and 1.4 ha are privately owned. Acquisition of the identified land will not result in loss of livelihoods or community resources and it will affect seven people. A short resettlement plan has been discussed with the affected people and is a public document in ADB's web page. The construction of the Batticaloa scheme requires raising the Unnichchai tank bund to increase raw water availability for domestic consumption. During construction works, it may be necessary to lower the tank water level to below dead water level. This may deprive a source of livelihood for one dry season to 1,898 farmers and 2,200 wage laborers that depend on the Unnichchai tank for irrigation. It may also deprive 177 fishermen of income because they will not be able to fish for 1 year. If construction activities affect irrigation, a plan has been developed to provide fair compensation to any person that temporarily may lose all or part of its income due to the project, as defined under Sri Lanka's National Involuntary Resettlement Policy and ADB's Policy

¹⁰ Government of Sri Lanka Water Policy defines basic consumption as 100 liters per capita per day.

on Involuntary Resettlement. Appendix 6 contains a summary of the short resettlement plans for land acquisition and temporary loss of income.

D. Cost Estimates

30. The total cost of the Project, including physical and price contingencies, and taxes and duties, is estimated at \$86.3 million equivalent. The cost estimates are summarized in Table 2. Detailed cost estimates are found in Appendix 7.

Table 2: Cost Estimates
(\$ million)

Component	Foreign Exchange	Local Currency	Total Cost
A. Base Cost			
Component 1: Urban Water Supply & Sanitation	9.50	32.08	41.58
Component 2: Rural Water Supply & Sanitation	0.97	10.01	10.98
Component 3: Institutional Strengthening	1.23	2.02	3.25
Project Management	3.22	4.51	7.73
Subtotal (A)	14.92	48.62	63.54
B. Contingencies			
1. Physical Contingencies ^a	1.49	4.95	6.44
2. Price Contingencies ^b	1.69	5.61	7.30
Subtotal (B)	3.18	10.56	13.74
C. Interest on Loan^c	1.45	0.0	1.46
D. Taxes and Duties^d	0.0	7.60	7.60
Total	19.55	66.78	86.34
Percent	23%	77%	100%

^a Estimated at 10% of base cost.

^b Estimated at an annual factor of 2.4% of both foreign and local project costs in dollar terms.

^c Related to ADB loan financing.

^d Value added tax: 20% on local goods and 10% on services; customs and duty; 50% on mechanical and electrical equipment; 37% on pipes; 50% on vehicles; 0% on motorcycles; 15% on office equipment; 0% on computers.

Source: Asian Development Bank estimates.

E. Financing Plan

31. It is proposed that ADB provide a loan of \$60.3 million equivalent from its Special Funds resources. ADB will finance approximately 70% of the project costs. ADB financing will be used to finance costs relating to civil works, procurement of vehicles, office equipment, consulting services, and training and public awareness and education campaigns, but will exclude salaries of project counterpart staff, rental of office space, and taxes and duties. The Government and community will provide \$22.5 million and \$3.6 million equivalent, respectively (26% and 4% of total costs). The financing of the local currency cost by ADB is justified on the basis of social benefits accruing from the Project and its positive environmental impact. The summary of the financing plan is in Table 3.

Table 3: Financing Plan
(\$ million)

Source	Foreign Exchange	Local Currency	Total Cost	Percent (%)
Asian Development Bank	19.6	40.7	60.3	70
Government of Sri Lanka	0	23.0	23.0	27
Community	0	3.1	3.1	3
Total	19.6	66.8	86.4	100

Source: Asian Development Bank estimates.

32. The loan will have a 32 year term, including a grace period of 8 years, with an interest charge of 1% per annum during the grace period and 1.5% per annum thereafter. The community contribution corresponds to the rural component, and is equal to 20% of the capital cost up to a defined limit for each technical option.

33. The financial assessment was undertaken to assess the viability of the Project, understood as the capacity of each subcomponent to generate sufficient revenues to cover capital and operating costs and generate rates of return that meet or exceed the weighted average cost of capital (WACC). Revenues are those derived from water tariffs and other related charges directly attributable to the Project. The financial internal rate of return (FIRR) for each project town ranges between 5.2% and 9.9% and the FIRR for the project overall is 7.5%. All exceed the WACC estimated at 0.78% for the four towns. The sensitivity of the FIRR was tested for increases in capital cost, increases in O&M cost, and reduction in overall revenues. The FIRR is most sensitive to a reduction in incremental revenues derived from water tariffs; however, the FIRR is sufficiently robust and exceeds the WACC following the sensitivity analysis. See Appendix 8 for a detailed discussion of the financial analysis.

34. The Government will make the proceeds of the proposed loan available to NWSDB through a subsidiary financing agreement acceptable to ADB. The financial analysis has assumed current lending agreements between the Government of Sri Lanka and NWSDB, which are expected to be maintained. Of funding for water supply schemes in Pradeshiya Sabhas, 85% will be made available to NWSDB as a grant and 15% as a loan; for urban local authorities, 50% as a grant and 50% as a loan; and for rural communities, 100% as a grant. In each case, financing will be at the rate of 10% per annum and the repayment period will be 24 years with a grace period of 8 years.

35. The Project is economically viable. The estimated economic internal rate of return for the urban component varies from 12.7% to 17.2% and the projected economic internal rate of return for the rural component is 13%. Benefits were calculated taking into account the savings in time and cash currently used to access safe water and sanitation. Unquantifiable benefits such as health have not been included in the analysis but will accrue in the form of gains in productive days for the economically active population and lower medical expenses for beneficiaries and for Government's public health institutions. The sensitivity of the results was tested for different times spent collecting water, rates of growth in real household incomes, and levels of O&M cost; lower cross-subsidies from nondomestic water consumption; and higher construction works and assumed consumption. A detailed economic analysis is in Appendix 9.

F. Implementation Arrangements

1. Project Management

36. NWSDB, under the Ministry of Housing and Plantation Infrastructure (MH&PI), will be the executing agency. A PMU will be established in Colombo under NWSDB, to support the Project. PIUs will be established in each of the project towns under the urban component, and PSIUs and technical support units will be established under the rural component. A provincial project coordinating committee will be established in the North Central Provincial Council to provide coordination for the rural PSIUs. A national steering committee (NSC) chaired by the secretary, MH&PI, who will be the project coordinator will guide the PMU and make all policy and strategic decisions. Complementary project coordinating committees will be established at the district, divisional, and village levels. The Government will call for a coordination meeting of funding organizations to the water sector at least once a year to assure coordination of sector reforms and interventions supported by external funds and to assure exchange of information. Implementation responsibilities of each institution and a flow chart of the structure are included in Appendix 10.

37. The PMU will be established in the NWSDB's Colombo office. An experienced project director will be appointed to head the PMU. A core team of NWSDB employees will assist the project director. They will be supported by a project management consulting team headed by a team leader (international) and deputy team leader (domestic). A separate design and supervision team of consultants will assist in detailed design and construction supervision of the urban water supply components. PIUs will be established under the district officers of the NWSDB for each of the four urban water supply subcomponents. A separate irrigation department PIU will be established under the Irrigation Department to implement the Unnichchai tank bund raising subcomponent. Under the rural component, PSIUs will be established in the participating Pradeshiya Sabhas, which will each employ full time one technical officer for the duration of the Project. The technical support units at Polonnaruwa and Anuradhapura will be supported by a team of consultants specializing in rural water supply, community participation, and institutional capacity building. The Rural Water Supply section of NWSDB will act as the technical advisory unit for the rural component and will provide technical support to the technical support units and PSIUs. The Rural Water Supply and Sanitation Division in MH&PI will provide policy guidance to PMU, provincial project coordinating committee, project support units, and PSIUs, and will monitor policy implementation.

38. The NSC, chaired by the secretary, MH&PI will provide overall coordination and guidance for the Project.¹¹ During the project implementation, the NSC will be responsible for (i) dealing with policy matters as they arise, and (ii) coordinating with other ministries and agencies. The NSC will meet at least every 3 months, or as often as necessary. In addition, a provincial coordinating committee will be established in North Central Province for monitoring and coordination purposes immediately after the effective date.

39. The participating Pradeshiya Sabhas, CBOs, and NGOs will (i) implement instructions in the manuals developed under the Third Water Supply and Sanitation Sector Project¹² when they

¹¹ The National Steering Committee will be chaired by the secretary, MH&PI and will include representatives from NWSDB, Ministry of Policy Development and Planning, Ministry of Irrigation, Ministry of Health, Ministry of Provincial Councils and Local Government, Chief Secretary of North Central Province, line agencies under these ministries, and others.

¹² The *Water Supply Management Manual for Pradeshiya Sabhas* and the *Water Supply Management Manual for CBOs*.

have been approved by the Rural Water Supply Division of the MH&PI, and (ii) institute and comply with the by-laws and resolutions for the management of rural water supply developed under the Third Water Supply and Sanitation Project when they have been approved by the provincial councils and other concerned local authorities. The Project will ensure that CBOs and Pradeshiya Sabhas enter into agreements relating to management, regulation, and distribution of water.

40. The PMU will undertake central procurement for the urban and institutional components, including for the capacity building component and the packages for materials and equipment. Counterpart funds will be channeled to the PIUs through regular budgetary allocations, including appropriate allocations for taxes and duties. For the rural component, the funds will be channeled from the PMU to the project support unit in Anuradhapura, to the PSIUs, and then to the CBOs and NGOs involved in the implementation.¹³ CBOs will be responsible for the procuring supplies for their own subprojects. Costs will be recovered from the consumers in the form of tariff charges, connection fees, and capital cost contributions.

41. At the start of the Project, the PMU will help the PIUs and the PSIUs formulate budgets for all activities, with estimates for each year of project implementation. These budgets will be reviewed and updated every 6 months and approved by the PMU before implementation. Expenditures will be recorded at source by the implementing agencies, PIUs, PSIUs, district PMUs, and PMU. The PMU will approve and supervise all drawdown arrangements. The PMU will be responsible for compiling project expenditures based on its own expenditures and the reports of expenditures submitted by the PIUs, PSIUs, and project support units. It will report project expenditures to NWSDB, with copies to ADB, on a monthly basis, with quarterly and annual summaries.

2. Implementation Schedule

42. The Project will be implemented over 6 years starting in March 2003 and ending in March 2009. Detailed feasibility and engineering design will commence 1 year after loan effectiveness and tendering of contracts will commence 21 months after loan effectiveness. Construction of the urban water supply and distribution facilities included in the urban component will begin 2 years and 9 months after loan effectiveness and be completed within 2.5 years. All components will be implemented in the five urban cities simultaneously. In the rural component, review of guidelines, public awareness, and community mobilization work will precede the physical implementation of the subprojects. The project implementation schedule is included in Appendix 10.

3. Procurement

43. Goods and services financed by the ADB loan will be procured in accordance with ADB's *Guidelines for Procurement* and the Government's procurement procedures acceptable to ADB. Urban water supply schemes will be combined into design, supervision, and supply and construction packages for international competitive bidding and local competitive bidding (LCB). Due to preceding ADB projects in the water sector in Sri Lanka, the capacity of local contractors, and the expected limited interest of international contractors to work in difficulty areas, civil works contracts valued over \$2 million equivalent and equipment contracts valued over \$500,000 equivalent will be undertaken through international competitive bidding procedures. Civil works contracts valued at \$2 million equivalent or less will be carried out under

¹³ The PIUs must have qualified for imprest accounts under the disbursement arrangements.

LCB procedures acceptable to ADB and in accordance with Government regulations. Equipment packages valued at \$500,000 equivalent or less will be procured following international shopping procedures acceptable to ADB. Supply contracts (for goods) valued at \$100,000 and less could be procured following LCB or direct purchase procedures. All construction works for the rural component are expected to be valued at less than \$1 million equivalent and therefore to be procured through LCB, or, in the case of contracts valued at less than SLRs2 million (approximately \$20,000) equivalent, by the CBOs through procedures for community participation in procurement acceptable to ADB. The proposed procurement packages are in Appendix 11.

4. Consulting Services

44. A total of 1,140 person-months of consulting services are estimated, of which 120 are international and 1,020 are local. For project management, 711 person-months of consulting services will be required to support the PMUs, PIUs, PSIUs, project support units, and provincial project coordinating committees. Consulting services for detailed design and construction supervision for the urban component, including the Unnichchai Tank, will be contracted out separately and 536 person-months are estimated to be required. International consultants will be involved in both project management and in detailed design and construction supervision activities. The international consultants in the PMU will provide advice on the best international practices to NWSDB for designing strategies to implement the institutional strengthening component. For the rural component, the Pradeshiya Sabhas will contract with suitable NGOs to be partner organizations and work with the CBOs. Summary terms of reference for all consulting services are provided in Appendix 12. Consultant firms financed under the loan will be recruited in accordance with ADB's *Guidelines on the Use of Consultants by Asian Development Bank and its Borrowers* using the quality- and cost-based selection method and other arrangements satisfactory to ADB for the engagement of domestic consultants.

5. Disbursement Arrangements

45. The PMU will be responsible for preparing disbursement projections, requesting budgetary allocations for the counterpart funds, collecting supporting documents, and preparing withdrawal applications and sending them to ADB in accordance with ADB's *Loan Disbursement Handbook*. To facilitate the timely release of loan proceeds and counterpart funds and to expedite project implementation, the Government will, immediately after loan effectiveness, open and maintain a project imprest account with the Central Bank of Sri Lanka for NWSDB, to be managed by the PMU. The total advances to the imprest account, including the initial advance, will not at any time exceed estimated ADB-financed expenditures for the next 6 months or 10% of the loan amount, whichever is lower. The ceiling of the imprest account will be \$2 million. To facilitate implementation of the Project and, with respect to the rural component, in keeping with the Government's Rural Water Supply and Sanitation Policy of decentralization, second generation imprest accounts will be established at the Central Bank of Sri Lanka for the technical support units and for the district office of NWSDB at Anuradhapura. Subject to the approval of ADB based on the development of adequate financial and accounting controls in the Pradeshiya Sabhas, third generation imprest accounts to receive funds from the rural component second-generation imprest accounts may be established at any bank approved by the Central Bank of Sri Lanka for each PSIU. The initial ceiling of the second and third imprest accounts will be \$200,000 equivalent and \$20,000 equivalent, respectively. Because the Pradeshiya Sabhas have only limited experience with implementing externally financed investment projects, the third generation imprest accounts will be established in PSIUs only after the fielding of the project-financed financial management consultants. The PMU will be

responsible for ensuring that all imprest accounts will be established, managed, replenished, and liquidated in accordance with ADB's *Loan Disbursement Handbook*, and with detailed arrangements agreed to by the Government and ADB. ADB's statement of expenditures procedure will be used to liquidate advances from the imprest accounts.

6. Accounting, Auditing, and Reporting

46. The Government will provide ADB with quarterly progress reports on project implementation following the ADB standard procedures. The PMU will be responsible for obtaining and consolidating relevant data from PIUs and PSIUs. The PIUs and PSIUs will maintain separate project accounts, in coordination with the PMU, which will prepare the project accounts and related financial statements, including imprest account statements for all imprest accounts and records of the statement of expenditures. NWSDB and the Pradeshiya Sabhas will maintain an adequate accounting system. Any PIU or PSIU for which an imprest account is established will agree to have its project accounts audited by NWSDB. The accounts and statements of expenditure and revenues related to the Project will be audited annually by auditors acceptable to ADB. The annual audit will include the audit of the imprest account and statement of expenditure procedure. A separate audit opinion on the use of the imprest account and statement of expenditure procedure will be included in the annual audit report. Audited project subaccounts and financial statements, together with the report of the auditor, will be submitted to ADB through the PMU within 9 months after the end of each fiscal/financial year. In addition, the audited annual report of NWSDB will be submitted to ADB not later than 9 months after the close of each fiscal year following the reporting period. The PMU will also submit to ADB, within 3 months of the physical completion of the Project, a project completion report following standard ADB procedures. The PMU and project support units will have an adequate number of suitably qualified accounting staff, including a senior officer.

7. Advance Action

47. ADB management has approved advance action for procurement of consulting services and civil works. The Government has been informed that approval of advance action does not commit ADB to finance the whole or any part of the Project and that consultants will be contracted and fielded only upon effectiveness of the loan.

8. Project Performance Monitoring and Evaluation

48. **Annual Operation Plans and Financial Review.** To facilitate project implementation and decentralization of communal services, both the Government and the local governments will prepare by 31 December of each year an operation plan for the next fiscal year. The plan will include (i) proposed budgetary allocations for communal services, and, specifically, the allocation of sufficient counterpart funds from local and central governments and other sources for timely project implementation; (ii) status of policy actions; and (iii) financing plan for the project activities for the succeeding year. The plan will confirm that the Government has allocated an adequate budget for financing project implementation and recurrent costs.

49. **Project Performance Monitoring System** The PMU, with the help of an external independent monitoring institution, will undertake a quantitative and qualitative performance monitoring for each project component to evaluate the delivery of the planned facilities and the project benefits accrued. The PMU, with the assistance of project-financed consultants, will develop comprehensive project performance monitoring system (PPMS) procedures and plans in accordance with ADB's standards, within 6 months after loan effectiveness. The PPMS is to

be reviewed and approved by ADB. The PIUs will assist the independent monitoring institutions to carry out PPMS activities. ADB and MH&PI will agree on the performance parameters to be monitored during the project inception and will include the establishment of benchmarks for water supply and sanitation improvements in the project areas and sector performance.

50. Baseline data collection will be carried out prior to the start of any construction under the Project and in conjunction with socioeconomic surveys and focus group discussions. It will then continue on a regular basis during project implementation until 3 months after project completion. The results will be presented to MH&PI and ADB independently, and incorporated into the project progress and completion reports.

51. **Project Review.** ADB and the Government will jointly undertake annual project reviews to assess progress, and a comprehensive midterm review in the last quarter of 2005. The project review will follow standard ADB procedures. The Government will ensure that the midterm reviewers are informed of any policy or implementation changes affecting the local governments and the urban infrastructure sector. If necessary, the midterm review will recommend changes in design and implementation. The midterm review will (i) review the scope, design, and implementation arrangements of the Project; (ii) identify changes needed since project appraisal; (iii) assess implementation performance against project indicators; (iv) review and establish compliance with loan covenants; and (v) identify problems and constraints and, if necessary, recommend changes in the design or implementation arrangements.

IV. PROJECT BENEFITS, IMPACTS, AND RISKS

A. Benefits and Impacts

52. **Social.** The Project's targeted unit is the household, but because women are traditionally responsible for cooking, cleaning, and taking care of the family and are highly affected by problems associated with water supply, they will be the main beneficiaries of the Project. The Project will reduce the time women spend fetching water, the burden of carrying heavy loads, and the time spent taking care of children suffering from waterborne diseases. A gender action plan, with specific targets, will be implemented to ensure that at least 50% of participants in community discussions and CBO committees are women and 25% of PIU members are women. The capacity building and training of women members of CBOs, Pradeshiya Sabhas, NWSDB, and PIUs will enhance women's role in the sector. Women's participation in the CBOs and implementing units will provide them with greater voice in the planning, implementation, and management of water supply schemes.

53. An indirect benefit of the Project will be its support to the ongoing peace efforts. The implementation of the Project in Muttur and Batticaloa towns will require the collaboration of both the Government of Sri Lanka institutions and the local communities. The cooperation needed will provide a visible platform for the commitment to the peace process and will translate the benefits of the peace process into specific improvements to the living conditions of the civil population, which has suffered civil unrest for the last two decades. The rural component will empower communities by involving them in the decision making process and transferring the assets and the responsibility for the O&M of the schemes to the CBOs.

54. **Health.** Access to safe drinking water and sanitation will reduce waterborne diseases in the general population, improving their health status. This benefit will accrue especially to infants and children, who are more vulnerable and who suffer more frequently and more severely from waterborne diseases. The Project will significantly reduce infant and child

mortality, and malnutrition caused or aggravated by waterborne diseases in the project areas.

55. **Economic.** The Project will reduce the amount of resources (time and cash) households spend to procure safe water. Other benefits will accrue from savings in number of work days lost due to waterborne diseases and related medical expenditures. Direct benefits to the economy through contracts and employment have been estimated to amount to \$7.2 million. Basic infrastructure will increase the potential for private investment in the project areas and will indirectly benefit the local economy.

56. **Environmental.** With increasing population and growth of urban centers, increasing pressure is placed on the limited aquifers if underground water continues to be the only source of water. Provision of piped water from surface sources will decrease the pressure on the aquifers, especially in Batticaloa and Muttur. Provision of sanitation, drainage, and waste treatment will reduce domestic waste pollution.

B. Assumptions and Risks

57. **Policy.** The Project assumes a stable political environment and positive economic growth. A halt in the peace process, currently considered unlikely, is a significant risk as it may impede the implementation of the Batticaloa and Muttur subcomponents. It is assumed that the implementation of policy reforms will continue, including the development of a regulatory structure for the water sector under the public utilities commission and the introduction of private sector participation. The institutional strengthening component is designed to support this momentum by strengthening the capacity of NWSDB to implement these policies in coordination with other external agencies.

58. **Economic and Financial.** The financial and economic viability of the Project assumes a 2% growth in household income per year. Inadequate cost recovery and financial capacity and inadequate maintenance and asset management will risk the sustainability of the Project. Policy changes affecting tariffs would pose a financial risk to the Project. Tariff settings need to be driven by financial considerations and be independent of political influence.

59. Moreover, tariffs and connection fees should be affordable to the intended beneficiaries to assure an optimal connection rate and tariff collection, which are the main sources of revenue for the Project. Affordability is calculated as the percent of monthly household income spent on the monthly water and wastewater bill. At the proposed tariff level (in 2008) the average monthly water bill for a median and low income household will range between 2.4% and 2.7% and between 2.6% and 3.2% of household income, respectively. In all cases, this is considered well within generally accepted affordability levels. In accordance with NWSDB existing practice, it has been assumed that the full cost of connection will be charged to the customer. The minimum cost of a connection is calculated to be SLRs8,100 per household. Full payment up front will be an estimated 6.8% of annual income for a median income household and 13.5% of annual household income for a low income household. Payment in installments over 24 months (i.e., exclusive of financing charges) will represent 3.3% of household income or 6.5%, respectively.

60. **Institutional Capacity.** Insufficient institutional capacity at the local government level poses a risk to the implementation of the rural component. Therefore, the Project will provide training and support to the Pradeshiya Sabhas. In addition, the Government will provide the necessary budget allocations for the Pradeshiya Sabhas to have one technical officer to be trained and to work full time in the Project.

61. **Environment.** The Project is in environmental category B. An initial environmental examination was carried out for each of the project districts, and supplementary analysis is being carried out for the proposed augmentation of the Unnichchai Tank in Batticaloa, the borehole in Polonnaruwa, and the salinity barriers in Hambantota and Matara. The preliminary initial environmental examination shows that adverse environmental effects will be limited and can be mitigated through integrated corrective measures integrated in the project environmental mitigation plan. The examinations indicate that a safe, clean, and reliable water supply and improved sanitation in urban areas will significantly improve public health and environmental conditions in the project towns.

62. Communities using wells for water supply are vulnerable to the contamination of groundwater by the high density of latrines and septic tanks, and unsatisfactory drainage works. The expansion of the water supply systems will reduce the need for some sections of the community to continue to use groundwater and the awareness campaign will educate beneficiaries on how to mitigate this risk. To ensure that urban schemes deliver safe water, effective monitoring of treatment processes and O&M procedures, and daily chlorine residual testing will be instituted and monitored by NWSDB. The treatment plants will produce very small amounts of sludge over several years. The sludge is not toxic and will be disposed of safely.

63. Mitigation measures have been proposed and with the findings of the supplementary studies, these will be incorporated in the project design. Environmental management plans are proposed for each project component to the NWSDB district offices for implementation. Environmental training programs will be provided for the staff of the PSIU and CBOs, to strengthen their capacities of addressing environmental concerns during the design and construction phases of the Project. The contractors will be required to prepare and implement their own environmental management plans, and carry out the construction work in line with international standards. Other measures to be implemented as part of the Project include (i) control and monitoring of activities in catchments upstream of water supply intakes and borefields, (ii) monitoring of water quality and quantity at water supply intakes, and (iii) licensing of wastewater treatment plants. Additional information is included in Appendix 13.

64. **Water Rights.** The Project has identified raw water sources required to supply water for domestic use to the targeted populations. With the exception of Batticaloa, no conflict between existing and new users has been identified. In Batticaloa, the Project will raise the Unnichchai Tank to increase its storage capacity to provide sufficient water for domestic use and farming. The construction of the Batticaloa water supply scheme involves raising the Unnichchai Tank bund and modifying the spill gates to increase raw water available for domestic consumption. Initial feasibility studies indicated that during the raising of the tank it may be necessary to lower the tank water level, which will temporarily deprive rice cultivators, wage laborers, and fishermen in the Unnichchai area of income. The Project has made provisions for this event and consultations have taken place with the affected people. On 6 June 2002, NWSDB discussed and distributed a draft compensation plan among the affected people and relevant stakeholders. NWSDB has consulted with affected farmers in Polonnaruwa and Batticaloa to obtain their consent to use the water rights for drinking purposes. Additional information is included in Appendix 6.

V. ASSURANCES

A. Specific Assurances

65. The Government will give the following assurances, in addition to the standard assurances, which will be incorporated in the legal documents.

- (i) **Counterpart Funding:** The Government will ensure that during each year of project implementation, adequate budgetary allocations of required counterpart funds will be made and released by the relevant authorities on a timely and regular basis by 31 December.
- (ii) **Project Implementation:** The Government will ensure that NWSDB and each relevant local government ensures that each of the following implementation units is established and staffed to the satisfaction of ADB and maintained during the term of the Project:
 - (a) the NWSDB PMU, no later than 1 month after loan effectiveness;
 - (b) for the urban component, (i) at the NWSDB district level, the PIUs for Batticaloa, Polonnaruwa, Muttur, Hambantota, and Matara; and (ii) at the Irrigation Department, the Irrigation Department PIU, in each case not later than 6 months after the design and supervision consultants are fielded;
 - (c) for the rural component, (i) in Anuradhapura district, conversion of the PIU for the Third Water Supply and Sanitation Project into the Anuradhapura District technical support unit, and (ii) in Polonnaruwa, the Polonnaruwa District technical support unit, in each case not later than 6 months after the design and supervision consultants are fielded; and
 - (d) for the rural component, at each local government, a PSIU prior to the implementation of any subprojects in that local government.
- (iii) The Government will ensure that (a) the NSC will be established to the satisfaction of ADB, and project area stakeholders will be encouraged by the NSC to participate in meetings and raise any concerns specific to the Project, and (b) the provincial coordinating committee will be established to the satisfaction of ADB immediately after loan effectiveness. At least once per year, the Government will call for coordination meetings among external agencies that are funding the water sector.
- (iv) The Government and NWSDB will ensure (and NWSDB will obtain Government assurance from the Land Acquisition Section) that all land, land rights, rights-of-way, and other land-related rights, and all water and water-related rights for the Project be acquired in accordance with (a) the Government's *National Involuntary Resettlement Policy*; (b) ADB's *Policy on Involuntary Resettlement*; and (c) the "Short Resettlement Plan for Land Acquisition" for the Project submitted by the Government to ADB on 15 September 2002, which contains guidelines on compensation, implementation, grievance procedures, and monitoring and evaluation, and which was agreed between the Government, NWSDB, and ADB and is attached as Supplementary Appendix A to this Report; in each case to the satisfaction of ADB. The Government will ensure that compliance with this paragraph is covered in the quarterly progress reports to be submitted by the

Government to ADB.

- (v) The Government and NWSDB will ensure that the Project is implemented in accordance with the gender action plan agreed between the Borrower, NWSDB, and ADB on the date of this Loan Agreement. Within 1 month of the effective date, NWSDB will submit to ADB a strategy to ensure that at least 25% of professional and technical staff working in the PMU, the PIUs, the PSIUs, and counterpart NGOs are women, and NWSDB will ensure that such employment targets are met by the midterm review of the Project and are maintained thereafter. Within 3 months of the fielding of the PMU consultants, NWSDB will submit to ADB a strategy to ensure that women comprise (a) 50% of participating CBOs and CBO executive committees, and (b) at least 20% of NWSDB employees receiving training under the institutional strengthening component.
- (vi) The Government and NWSDB will ensure that (a) the Project is carried out in accordance with the existing environmental laws and regulations of Sri Lanka and ADB's environmental guidelines, in particular the *Environmental Assessment Requirements and Procedures of ADB*; (b) all monitoring and mitigation measures indicated in the initial environmental examination and the CEA environmental approval documents, and provided for under the environmental management plan are undertaken for the Project; and (c) project implementation will include consultation with local communities on environmental issues.
- (vii) The Government will ensure (a) the registration of CBOs in order for them to legally perform the activities designated to them under the Project; (b) the approval by the relevant authorities of the by-laws and resolutions relating to the management of rural water supply by CBOs developed under the Third Water Supply and Sanitation Project (footnote 12) and the implementation thereof by the CBOs; (c) that the CBOs have been duly constituted; (d) the approval by the relevant authorities of, and the use of the *Water Supply Management Manual for Pradeshiya Sabhas* by the Pradeshiya Sabhas and the *Water Supply Management Manual for CBOs* developed under the Third Water Supply and Sanitation Project (footnote 12) by the CBOs; and (e) that NWSDB ensures that rural PSIUs select subprojects that meet selection criteria satisfactory to ADB, including the entry by CBOs and Pradeshiya Sabhas into agreements relating to management, regulation, and distribution of water.
- (viii) **Institutional Strengthening.** Within 3 months of loan effectiveness, NWSDB will develop a strategy, with a detailed schedule and financial plan acceptable to ADB for (a) implementation of an NWSDB corporate strategy, to improve among others financial planning and resource allocation within 2 years of loan effectiveness; (b) implementation of financial management strategies in the NWSDB strategy and action plan to address audit findings and KPMG accounting and financial management recommendations study within 1 year of loan effectiveness; (c) implementation of strategy to reduce O&M costs (including reduction in electricity cost and nonrevenue water), within 2 years of loan effectiveness; (d) completion of an asset registry in all regional water supply schemes (outside of Greater Colombo) with more than 10,000 connections, within 2 years of loan effectiveness; and (e) identify water schemes with less than 1,000 connections for rehabilitation, and eventual transfer to local government institutions, the private sector, and/or CBOs, and transfer identified

schemes, within 4 years of loan effectiveness. Performance targets, including a self-financing ratio and collection rate, reduction of nonrevenue water, and cross subsidy ratios will measure the performance of NWSDB.

B. Conditions for Loan Effectiveness

66. The following are the conditions that will be met before the loan becomes effective:
- (i) The subsidiary financing agreement will have been duly authorized or ratified by and executed and delivered on behalf of, the Government and NWSDB, and is legally binding upon them in accordance with its terms.
 - (ii) The public utilities commission will have been legally established and allocated with a budget, and PUC commissioners will have been appointed.
 - (iii) A draft of the water service industry act, satisfactory to ADB, will have been approved by the Cabinet for submission to Parliament.

VI. RECOMMENDATION

67. I am satisfied that the proposed loan would comply with the Articles of Agreement of ADB and recommend that the Board approve the loan in various currencies equivalent to Special Drawing Rights 45,689,000 to the Democratic Socialist Republic of Sri Lanka for the Secondary Towns and Rural Community-Based Water Supply and Sanitation Project from ADB's Special Funds resources with an interest charge at the rate of 1% per annum during the grace period and 1.5% per annum thereafter; a term of 32 years, including a grace period of 8 years; and such other terms and conditions as are substantially in accordance with those set forth in the draft Loan and Project Agreements presented to the Board.

Tadao Chino
President

4 December 2002

PROJECT FRAMEWORK

Design Summary	Performance Indicators/Targets	Monitoring Mechanisms	Assumptions and Risks
<p>Goal</p> <p>Reduce poverty and promote human development by reducing the incidence of water borne diseases and by reducing the time and resources that households spend in acquiring water.</p>	<p>Significant decrease in infant mortality in project areas by 2009</p> <p>Significant decrease in incidence of waterborne diseases in project areas by 2009</p> <p>Significant decrease in time spent collecting water in project areas by 2009</p>	<p>Hospital and medical centers' records in project areas</p> <p>Town, district, provincial, and national official statistics</p> <p>Project completion report</p> <p>Project review missions Reports, and OED impact evaluation studies</p>	
<p>Purpose</p> <p>To provide safe drinking water and safe sanitation to people in project areas.</p>	<p>An additional 969,000 people have access to safe water and 171,500 people with access to safe sanitation in five urban areas and two rural districts by 2009.</p>	<p>Project BME reporting, Government of Sri Lanka official statistics, ADB review and evaluation reports</p> <p>NWSDB monthly report on service performance, billing, collection, and expenditure</p>	<p>A stable political environment and positive economic growth</p>
<p>Outputs</p> <p>Urban Component</p> <p>Construction of two water networks to provide 47,000 m³/day and 9,800 m³/day in Batticaloa and Muttur and extension of two existing water network to provide 17,500 m³/day and 17,800 m³/day in Hambantota and Polonnaruwa</p> <p>Construction of salinity barrier at Matara intake</p> <p>Construction of 33,500 low cost latrines</p>	<p>101,400 connections providing at least 15 m³/month of safe drinking water 24 hours daily by 2009</p> <p>Matara piped water network meets WHO standards 365 days a year by 2007</p> <p>90% of households in project area access to safe sanitation by 2009</p>	<p>Project BME reporting, Government of Sri Lanka official statistics, ADB review and evaluation reports</p> <p>NWSDB monthly report on service performance, billing, collection, and expenditure</p> <p>PMU monitoring reports NWSDB water quality tests Project progress reports</p> <p>Department of Health assessments Project progress reports</p>	<p>Timely provision of counterpart funds</p> <p>No delays in construction activities due to conflict in Batticaloa and Muttur</p> <p>Continuous Government support to the National Water Supply and Sanitation Policy and sector reforms</p>

Design Summary	Performance Indicators/Targets	Monitoring Mechanisms	Assumptions and Risks
<p>Construction of Batticaloa Hospital waste treatment plan with capacity to treat 350m³/day</p> <p>Provision of training and public awareness campaigns</p>	<p>Batticaloa Hospital waste discharge meets Government of Sri Lanka standards by 2007</p> <p>Piped water networks are appropriately operated and maintained; nonrevenue water less than 25% and collection rate is greater than 90% by 2009</p>	<p>Central Environmental Authority monitoring</p> <p>Hospital records</p>	<p>Willingness of consumers to pay full cost of water</p>
<p>Rural Component</p> <p>Construction of rural water schemes to provide drinking water (piped, rain fed, protected well) to 322,000 people in Polonnaruwa and Anuradhapura</p> <p>Construction of 27,600 low cost latrines</p> <p>Delivering of training to participating CBOs, 14 participating Pradeshiya Sabhas, and one provincial council</p>	<p>85% of the population in project areas with access to at least 20 l/person/day of safe drinking water by 2009</p> <p>85% of the population in Project areas with access to safe sanitation by 2009</p> <p>CBOs, Pradeshiya Sabhas, and provincial councils have capacity to implement all project activities and to assure sustainability of investments including O&M</p>	<p>Project BME reporting and surveys</p> <p>ADB review missions reports and OED impact evaluation studies</p> <p>Department of Health assessments</p> <p>Government of Sri Lanka official statistics</p> <p>Project progress reports</p>	<p>Willingness of beneficiaries to organize into CBOs and participate in project activities</p>
<p>Institutional Strengthening Component</p> <p>Delivery of a national public awareness and education campaign</p> <p>Implementation of a corporate strategy to improve NWSDB management</p> <p>Implementation of a strategy to reduce O&M cost</p>	<p>Increased public awareness of cost of water</p> <p>Performance targets agreed by the project are met, including 1.2 debt-service ratio, 10% decrease of establishment expenses and 20% increase of rehabilitation, 2% annual decrease of kilowatt-hours electricity and 5% annual decrease of staff, 14% increase of cubic meter billed, and 97% collection rate by 2008</p>	<p>Project BME reporting and surveys</p> <p>ADB review missions' reports and OED impact evaluation studies</p> <p>NWSDB planning and operational data/ annual reports.</p> <p>Project progress reports</p>	<p>Enforcement of water sector regulations</p> <p>Implementation of sector reforms</p>

Design Summary	Performance Indicators/Targets		Monitoring Mechanisms	Assumptions and Risks
<p>Implementation of a financial management strategy</p> <p>Implementation of a strategy to transfer systems with less than 1,000 connections to local authorities, CBOs, private sector</p> <p>Development of an asset registry for systems with more than 10,000 connections</p>	<p>Weighted average tariff covers O&M, debt service, and rehabilitation expenses by 2008</p> <p>85% of schemes with less than 1,000 connections are operated by CBOs, local authorities, or private sector by 2009</p> <p>100% of schemes with more than 10,000 connections have an asset registry by 2007</p>		<p>NWSDB planning and operational data/ annual reports Project progress reports</p> <p>NWSDB planning and operational data and annual reports Project progress reports</p> <p>NWSDB planning and operational data and annual reports Project progress reports</p>	<p>Willingness of CBOs, local authorities, or private sector to take responsibility for small schemes</p>
<p>Activities</p> <ul style="list-style-type: none"> • Project management • Water supply—urban schemes • Unnichchai Tank raising • Rural water supply • Policy reform, institutional development 	<p>Start</p> <p>Dec. 2002</p> <p>Aug. 2003</p> <p>Aug. 2003</p> <p>Jun. 2003</p> <p>Mar. 2003</p>	<p>Completion</p> <p>Sept. 2009</p> <p>Mar. 2009</p> <p>Oct. 2006</p> <p>Dec.2009</p> <p>Dec. 2008</p>	<p>Responsible</p> <p>Ministry of Housing & Plantation Infrastructure, NWSDB, PMU</p> <p>PMU, project design, consultant team, PIUs</p> <p>PMU, Irrigation Department, project design consultant team, PIU</p> <p>PMU, PIUs, TSUs, Pradeshiya Sabhas, CBOs</p> <p>Ministry of Housing & Plantation Infrastructure, NWSDB, PMU</p>	
<p>Inputs</p> <p>1. Civil Works</p> <p>2. Materials and Equipment</p> <p>3. Land Acquisition</p> <p>4. Resettlement Compensation</p> <p>5. Environmental and Socioeconomic Surveys</p> <p>6. Training and Education Campaigns</p> <p>7. Consulting Services</p> <p>8. Project Management Equipment and Operating Cost</p> <p>Total</p>	<p>(in \$ million)</p> <p>36.57</p> <p>14.33</p> <p>0.79</p> <p>1.15</p> <p>0.11</p> <p>1.96</p> <p>5.71</p> <p>2.92</p> <p>64.44</p>			

ADB = Asian Development Bank, BME = benefit monitoring evaluation, CBO = community-based organization, m³ = cubic meter, NWSDB = National Water Supply & Drainage Board, OED = Operations Evaluation Department, O&M = operations and maintenance, PIU = project implementation unit, PMU = project management unit, TSU = technical support unit, WHO = World Health Organization.

SECTOR ANALYSIS

1. Most of the piped water in Sri Lanka is supplied by the National Water Supply and Drainage Board (NWSDB). Consequently, the financial and operational efficiency of NWSDB defines the quality of service in Sri Lanka and the sector's capacity for new investments. Finally, NWSDB has a major role in implementing new policies and starting the decentralization of service provision to local authorities, the private sector, and community-based organizations (CBOs).

A. NWSDB Performance

2. A financial model for NWSDB uses NWSDB's historical financial statements and performance targets as a basis for projecting water sales and revenues and operating costs. It reflects NWSDB ongoing capital projects and loan repayment obligations and incorporates the capital cost and financing assumptions of the proposed Project. The financial model provides indicative targets for the tariff levels and financial and operational performance improvements necessary to support the sustainability of existing investments, to meet debt-service obligations, and to satisfy the financial covenants of the Asian Development Bank (ADB).

3. NWSDB's financial performance has improved as a result of increased customer numbers and improved technical performance. Revenue, since 1966, has been sufficient to meet actual operation and maintenance (O&M) costs and debt service; and from 1997 through to 2001, NWSDB has achieved a cost recovery ratio of 1.0 as covenanted under its existing ADB loan. These achievements recognize necessary adjustments to reflect the impact of certain accounting policies.¹ Table A2.1 summarizes NWSDB's financial performance from 1996 to 2001. Despite NWSDB's improved financial performance to date, O&M is not regarded as adequate in many towns and debt-service obligations remain highly subsidized, with a high level of grant funding provided to NWSDB. Moreover, except for some modest rehabilitation, revenues from water sales remain inadequate to make any real contribution to future capital expenditure out of tariffs and NWSDB continues to be heavily reliant on the Government and official development assistance funding for major capital works.

Table A2.1: Summary of NWSDB's Net Profit, 1996 to 2001

Item	1996 Audited	1997 Audited	1998 Audited	1999 Audited	2000 Audited	2001 Est.
As Presented						
Net Profit	(312)	88	182	359	221	371
CRR ^a	1.0	1.2	1.2	1.3	1.2	1.2
Adjusted^b						
Net Profit	(341)	(57)	27	125	(34)	96
CRR ^a	1.0	1.1	1.1	1.2	1.1	1.1
Nondomestic : Domestic Tariff ^c	12.6	7.3	6.0	5.5	7.3	6.2

CRR = cost recovery ratio, NWSDB = National Water Supply and Drainage Board.

^a Operation and maintenance costs plus the greater of depreciation or debt service.

^b Adjustments involve adding back depreciation on grant-funded assets, and reducing capitalization of overheads by 50%.

^c Ratio nondomestic (commercial) : domestic tariffs for 25 cubic meters (volumetric and fixed charges).

Source: ADB and Government agreed performance targets.

¹ Head office salaries and planning costs have been overcapitalized, depreciation is not charged against grant-funded assets, and a high proportion of assets remain in work-in-progress, further reducing depreciation actually expensed.

B. NWSDB Financial Viability

4. NWSDB prepared a tariff policy for drinking water that was endorsed by the previous government. However, the policy limits the level of cost recovery that could be achieved by users and does not adequately distinguish between cost recovery policies for what should be regarded as large urban centers such as Colombo, other urban centers, and smaller urban and rural centers. Nor are the affordability of service levels and technology options appropriately taken into account in investment decisions, which ultimately impact the level of costs. Both need to be addressed to best ensure affordable tariff levels that can optimally support full cost recovery and financially sustainable service delivery.

5. Financial and operational performance covenants have been discussed with NWSDB and the following targets have been agreed:

Table A2.2: NWSDB Performance Indicators

Performance Indicator		2003	2004	2005	2006	2007	2008
1. m ³ Billed ^a (%)	Increase		5	4	3	2	1
2. Collection Rate ^b (%)	Target		95	96	97	97	97
3. Accounts Receivables							
a. Private (days)	Target		60	50	45	40	35
b. Government (days)	Target		65	55	50	45	40
4. Staff to Connection Ratio ^c (%)	Decrease		5	5	5	5	5
5. kWh Electricity Use (%)	Decrease		1	1	1	1	1
6. Maintenance Expense (%)	Increase of Total Operating Exp.	7.5	10	10	10	10	10
7. Establishment Expense (%)	Decrease of Total O&M		6	6	6	6	6
8. Rehabilitation Expenses (%)	Increase of Total Operating Exp.	15	20	20	20	20	20
9. Debt Service Coverage	To Maintain		1.2	1.2	1.2	1.2	1.2

kWh = kilowatt-hour, m³ = cubic meter, NWSDB = National Water Supply and Drainage Board, O&M = operation and maintenance.

^a Excluding new schemes.

^b Excluding new schemes, which will perform at 2008 targets from their first year of operation.

^c Including new schemes and connections.

Source: NWSDB data and TA3587-SRI: Secondary Towns Water Supply & Sanitation Project consultant's estimates.

6. Currently, all regional centers rely on the Greater Colombo Region to generate a surplus sufficient to meet NWSDB overhead costs, including debt service and some modest capital expenditure for rehabilitation and replacement. This will become a particularly critical issue for the Project should plans to explore private sector options for Greater Colombo Region materialize. Under the technical support of the Project's institution strengthening component, NWSDB will review the tariff strategy and develop and implement a strategy to transfer responsibility of smaller water schemes (with less than 1,000 connections) to local government institutions, private sector, or CBOs to better ensure their cost effective operation.

7. Real increases in the tariff will be required and the Government has agreed to ensure that tariff levels will meet at least O&M, depreciation, and rehabilitation cost. The affordability assessment presented in this section suggests the proposed tariff levels are generally affordable in accordance with internationally accepted benchmarks. Timely public campaigns will be critical to generate the support of key decision makers as well as general public support and willingness to pay. The Project provides resources for this activity.

8. **Independent Regulation and Private Sector Participation.** The establishment of an independent regulatory structure for the water sector is currently under way. The Public Utilities Commission Bill has been approved by Parliament and commissioners are expected to be appointed by the end of 2002. The Commission will implement the regulations to be developed by the Ministry of Housing and Plantation Infrastructure under the water industry act.

9. The private sector in Greater Colombo has successfully participated in activities such as metering, billing, and collection. Outsourcing will be encouraged by the Project in all regional schemes and especially in those under the urban component. The Government is in the process of introducing private sector participation in the operation of some water schemes. In October 1999, the National Policy on Private Sector Participation in Water Supply and Sanitation stated eight urban water supply schemes would be selected as pilot projects for private sector participation, and demarcated potentially profitable service areas for the Government to enter into partnerships with the private sector for O&M and to extend water systems.²

10. **Decentralization to Local Government and CBOs.** Currently, local authorities have little capacity to implement their recent mandate to provide water and sanitation. Most local governments do not have the financial capacity to invest in water and sanitation, and many do not even have the financial and technical capacity to operate and maintain the existing ones. NWSDB manages 99 water schemes with less than 1,000 connections and although it has tried to transfer them to local authorities, they have not accepted the responsibility. The small schemes have a higher O&M cost than large ones due to lack of economies of scale and higher cost of management if run by NWSDB, and should be transferred to local authorities, CBOs, or the private sector. The Project provides support for these schemes to be rehabilitated and transferred.

11. **Rural Water Supply and Sanitation Sector.** The National Policy for Rural Water Supply and Sanitation Sector, approved in 2001, indicates that rural sector activities should be based on participatory approaches. The role of Government, provincial councils, and local government authorities should be to regulate and facilitate the implementation of the sector activities while CBOs and the private sector should be the providers of services. Nongovernment organizations are recognized as facilitators of water provision. Local authorities are also recognized as service providers when required. The policy recognizes water as an economic good and indicates that users should bear the full responsibility of the sustainable O&M of facilities and assets and be encouraged to share the initial capital investment

² Government of Sri Lanka. 2002. *Connecting to Growth: Sri Lanka's Poverty Reduction Strategy*. Sri Lanka.

EXTERNAL ASSISTANCE TO THE WATER SECTOR IN SRI LANKA 1996-2002

Sources, Project	Amount (million)	Grant / Loan	Year of Approval
Asian Development Bank			
TA 2609: Rural Water Supply and Sanitation Sector	\$0.60	Grant	1996
Loan 1575: Third Water Supply & Sanitation Sector Project	\$75.00	Both	1998
TA 3030: Western River Basins Sector Project	\$1.50	Grant	1998
TA 3434: Accounting Review of NWSDB	\$0.09	Grant	2001
Denmark			
Kalmunai Water Supply	\$3.15	Loan	1997
France			
Water Treatment Plant at Anuradhapura	\$7.34	Loan	1998
Anuradhapura Water Supply and Sanitation	\$5.60	Loan	1999
Ambatale Refurbishment	FF29.50	Loan	1996
Germany			
Rural Water Supply and Sanitation – Vavuniya	\$24.68	Grant	1997
Water Supply Nawalapitiya	\$6.16	Loan	1998
Water Supply Ampara	\$3.52	Loan	1998
Kegala Water Supply Project	\$5.82	Loan	1999
Rehabilitation Water Supply Mannar	\$0.53	Grant	1999
Japan			
Walawe Left Bank Irrigation & Extension Project (II)	\$83.32	Loan	1996
The Improvement of Drinking Water Supplies	\$7.70	Grant	1996
Towns North of Colombo Water Supply Project	\$47.10	Loan	1996
Kalu Ganga Water Supply Project for Greater Col.	\$96.72	Loan	1997
Mahaweli System C Upgrading Project	\$32.06	Loan	1997
Towns South of Colombo	\$30.31	Both	1997
Towns North of Colombo	\$43.19	Both	1998
Kalu Ganga Project	\$91.76	Both	1999
Groundwater Investigation – Hambantota and Monaragala Districts	\$17.00	Grant	2000
New Zealand			
Pre-Investment Study and Pilot Project	\$0.13	Grant	1999
Polonnaruwa District Rural Water Supply & Sanitation Pre-Investment Study	\$0.12	Grant	2000
Norway			
Third Rural Water Supply and Sanitation Sector	\$7.42	Grant	1998
Rural Water Supply	\$5.00	Grant	1999
United Kingdom			
Greater Colombo Sewerage Project	\$3.20	Grant	1997
United Nations Development Program			
National Framework for Development of Rural Water Supply & Sanitation	\$0.50	Grant	1997
The World Bank			
Mahaweli Restructuring and Rehabilitation Project	\$56.22	Loan	1998
Community Water Supply and Sanitation Sector (Phase II)	\$20.00	Loan	2001

Source: TA3587-SRI: Secondary Towns Water Supply & Sanitation Project consultant's report.

LESSONS LEARNED FROM EXTERNAL ASSISTANCE TO THE WATER SUPPLY SECTOR

ADB: Impact Evaluation Study on Water Supply and Sanitation Projects in Selected Developing Member Countries. Final Report. Sept. 2002	
Major Lessons Learned	Lessons Incorporated in Project Design
<p>1. Need to support cost recovery and financial sustainability to achieve long term sustainability</p> <p>2. Need to reduce nonrevenue water and, in general, improve utilities performance using benchmarking.</p> <p>3. Need to include sanitation, hygiene, and health promotion programs, as providing adequate quantities of good water is not enough.</p> <p>4. Need to improve water demand-side management, especially in water scarce areas</p> <p>5. Need to enhance customer roles in planning and implementation to achieve successful participation.</p> <p>6. Need to streamline management and administration, especially in socially oriented projects. Delays in implementation erode customer ownership of the Project.</p>	<p>1. Incorporated in loan covenants regarding financial performance and the assurance that tariffs will cover operation and maintenance (O&M), debt service, and rehabilitation of National Water Supply and Drainage Board (NWSDB) schemes. The institutional strengthening component includes resources to implement as strategy to improve financial management of NWSDB, including an assets registry. In the rural component, sustainability is ensured by demand-driven and community ownership approaches and the education and awareness regarding the O&M cost implications for each technical option.</p> <p>2. Operational performance targets have been agreed with NWSDB, including for nonrevenue water. The institutional component provides financial support to implement these strategies. Specific targets and dates in covenants will be used as benchmarks to evaluate NWSDB's performance.</p> <p>3. Sanitation and hygiene have been included in awareness campaigns. To build confidence for the Project in the communities, it starts with implementing the sanitation and hygiene subcomponent.</p> <p>4. The Project is implemented in water-scarce areas of the country. Water demand management has been incorporated in the National Water Supply and Sanitation Policy and will be part of the awareness campaign message to be implemented under the institutional strengthening component. Similarly, the Project supports the new Government policy to target 100 liters per capita per day (instead of 120), already reflected in the tariff increase approved in June 2002, which penalizes high consumption.</p> <p>5. The rural component uses a demand-driven community-based approach that requires the participation of beneficiaries in the design, implementation, financing, and operation of the systems. The Project includes a gender action plan that requires women to participate as beneficiaries and implementers in decision-making. Communities will also participate in the identification of subprojects.</p> <p>6. Many of the delays in previous projects were related to slow project design and bidding procedures. The Project provides a separate consulting team dedicated exclusively to detailed design and supervision for the urban component. In addition, the Government is approving a new procedure for competitive bidding to shorten the procurement period of civil works. Similar proposals are being approved for the rural component, to give more autonomy to community-based organizations (CBOs) implementing projects and procuring goods.</p>

World Bank: Rural Water Projects. Lessons from OED Evaluations. OED Working Paper Series No. 3, March 2000	
Major Lessons Learned	Lessons Incorporated In Project Design
<p>7. A longer-term presence than is generally provided for under most projects is required to leave behind an organization that can maintain and administer the water point source or piped system.</p> <p>8. Lack of proper attention to institutional development results in governments having to return to beneficiary communities to rehabilitate what they have provided.</p> <p>9. One level of service rarely meets all village needs. However, in recent years aspirations have been raised even in poor communities, and people in small rural communities have little incentive to participate in water providing organizations if the services to be provided does not meet their aspirations.</p> <p>10. To improve project outcomes, interventions have to be carefully adapted to the social characteristics of each village served and take into account the different levels of social capital of each community.</p>	<p>7. The rural component focuses in developing the capacity of CBOs to maintain the system. In the third project (1575-SRI: Third Water Supply and Sanitation Project), the NWSDB project implementation units with the partner nongovernment organization (NGO) implemented the project with the CBO and, after project completion, the local government engineer was to provide support to the CBO. In the proposed Project, the local government will be implementing the Project and the expertise and support role will continue even after project implementation.</p> <p>8. The Project focuses on institutional development in the rural and urban components. The rural component is designed to provide communities with the capacity to form viable sustainable CBOs that can take responsibility for the systems. The institutional strengthening component is very substantial and addresses the major challenges to make the NWSDB sustainable and capable for O&M of the project investments.</p> <p>9. The demand-driven approach, with communities providing 20% of the investment and being involved in the identification, design, and implementation of the schemes, ensures that the service to be provided meets community's aspiration. Also, the Project allows households to opt for different technical options in the same community when viable.</p> <p>10. The Project acknowledges the different levels of social capital in the communities and that this problem is more acute with a demand-driven approach. The project awareness campaign in rural areas commences with the introduction of sanitation to allow communities to gain confidence in the Project and in their capacity to organize. The use of NGO partner organizations is also a key factor, as they have skills in identifying and strengthening social capital in communities.</p>
Key Lessons of Community Involvement	
<p>11. Develop rules early in the project</p> <p>12. Contract NGOs to give support and follow up when social capital levels are low.</p> <p>13. Involve women in the design and management of the service.</p>	<p>11. The Project has a well-defined set of rules successfully tested in the Third Water Supply and Sanitation Sector Project. The rules have been developed into manuals to be used by the project implementation units, CBOs, and the Pradeshiya Sabhas.</p> <p>12. NGOs are facilitating the implementation of the rural component.</p> <p>13. The Project requires that 25% of the professionals in the project implementation team are women and 50% in the CBOs' committees and executive committees. To provide a supportive environment for women's participation in decision-making, women will have preliminary meetings before joining the plenary discussions.</p>

<p>14. Design systems for full coverage and equitable distribution by taking into account all the families in the village.</p>	<p>14. As in the third project, during the education and awareness of communities, emphasis is made on the need to plan strategically for new connections from (i) members who choose not to participate in the Project, and (ii) population growth in the near future.</p>
Key Lessons for Financial Sustainability	
<p>15. It takes a long time for people to get over the idea that Government will provide at no cost.</p> <p>16. When beneficiaries make a regular and significant financial contribution to the operation of water scheme, they feel a sense of ownership and demand more say in scheme operation.</p> <p>17. Tariffs need to be set at sustainable levels, including cost of infrastructure replacement from the outset.</p> <p>18. Early involvement of community in the Project in collection of initial capital contributions and system construction activities facilitates communities undertaking O&M and system administration.</p> <p>19. Private sector providers could contribute to operating efficiencies but it is better to let private providers and committees find each other than to try to arrange a meeting.</p>	<p>15. One of the objectives of the public awareness campaign under the institutional strengthening component is to educate consumers regarding their rights and their responsibilities, emphasizing that water is scarce and is an economic good.</p> <p>16. Beneficiaries are required to provide 20% of the capital cost of the Project and the CBO takes ownership of the assets after project completion.</p> <p>17. CBOs are provided with training on how to set tariffs and are advised to include not only O&M but also capital replacement.</p> <p>18. Beneficiaries' involvement starts at the selection process, where communities are required to fill in a self-assessment form to be eligible for the Project. CBOs participate in project identification, design, implementation, and procurement, and they collect initial capital contributions and monitor construction activities.</p> <p>19. The Project encourages CBOs to use private sector providers.</p>

SUMMARY POVERTY REDUCTION AND SOCIAL DEVELOPMENT STRATEGY

A. Linkages to the Country Poverty Analysis

Sector identified as a National Priority in Country Poverty Analysis?	Yes	Sector identified as a National Priority in Country Poverty Partnership Agreement?	Yes
<p>Contribution of the sector/sub-sector to reduce poverty in Sri Lanka</p> <p>Sri Lanka ranked 84th among 174 countries in the 2000 human development index. The percentage of poor households has fallen from 18.2% to 13.4% in urban areas from 1992 to 1996, and, in the same period, the percentage of poor households has declined in rural areas. Despite impressive achievements, poverty levels in Sri Lanka remain high. Poverty is multifaceted and is manifested in the ability to afford basic consumption goods, and lack of access to basic needs such as safe drinking water, sanitation facilities, health care, and education. In recent years, water-related diseases and child malnutrition have worsened. Twenty-eight percent of the population does not have access to safe drinking water and 24% does not have access to safe sanitation. There are regional variations in terms of dimensions to poverty with poverty levels in the northeast among the highest in the nation. In some districts, including Muttur, over half of the rural population does not have access to safe drinking water supplies. Inadequate sanitation infrastructure and access to safe drinking water in urban and rural areas are the leading causes of public health problems in poor communities.</p> <p>The 2002 Poverty Reduction Strategy of the Government of Sri Lanka states “the provision of safe drinking water, and adequate sewage and sanitation systems, is frequently cited as the single, highest social service priority by poor households.” The strategy includes provision of water to 85% of the population by 2010. In April 2002, the Government and the Asian Development Bank (ADB) signed a poverty partnership agreement that recognizes water supply and sanitation as a main strategy for poverty reduction.</p> <p>The proposed Project will provide safe drinking water to approximately 969,000 people and sanitation facilities to 171,500 people, specifically to poor and low income households in rural areas of Anuradhapura and Polonnaruwa districts of North Central Province and in the towns of Batticaloa, Hambantota, Matara, Muttur, and Polonnaruwa. The Project aims to improve living condition and health status of the people in the project area specifically for the poor and disadvantaged. Table A5.1 summarizes how investment in the Project will contribute to the poverty reduction.</p>			

Table A5.1: Contribution of the Water Supply and Sanitation Sector to Poverty Reduction in Sri Lanka

Poverty As	Direct Contribution	Indirect Contribution
Access to income	Investment in water infrastructure is a catalyst for local and regional development	Improved health for better quality water increases productive capacities
Access to primary education	None	Improved school attendance from improved health and reduced water-carrying burdens, especially for girls
Gender equality	None	Community-based organizations (CBOs) for water management will improve social capital of women

¹ Sri Lanka Poverty Indicators. *Household Income & Expenditure Survey 1995/96*. Department of Census and Statistics.

² Sri Lanka Labour Force Survey, and Fourth Quarter 1999, Department of Census and Statistics.

		<ul style="list-style-type: none"> • Reduced time and health burdens from improved water services lead to more balanced gender roles
Health	<ul style="list-style-type: none"> • Improved quantities and quality of domestic water and sanitation reduce main morbidity and mortality factor for young children. • Improved health reduces susceptibility to anemia and other conditions that affect maternal mortality 	<ul style="list-style-type: none"> • Improved health and reduced labor burdens from water portage reduce mortality risks for women
Access to safe environments	<ul style="list-style-type: none"> • Access to safe sanitation reduces defecation on open areas and domestic pollution. 	<ul style="list-style-type: none"> • Minimizing groundwater extraction decreases risk of salinization and changes in ecosystem

B. Poverty Analysis

Poverty consultations carried out in Sri Lanka by the Poverty Impact Monitoring Unit on behalf of ADB indicate that the poor unanimously identify basic infrastructure, including water supply and sanitation, as a priority need.

The project area includes both urban and rural areas from east, south and north central regions of the country. There has been a significant deterioration in the general economic, social, and physical conditions have deteriorated significantly in the northeast region over the past two decades due to ethnic conflict and war, and poverty is quantitatively and qualitatively different from that in other parts of the country. Although no official statistics are available for this region due to the unfavorable security situation, the project socioeconomic surveys show that in Batticaloa and Muttur in the Northeast Province, poverty is higher than in the rest of the country, there is a high concentration of ethnic minorities, and health indicators are lower, and the situation is more acute in Muttur. Therefore, 74% of the capital investment of the Project will concentrate in the northeast, where investments in basic infrastructure have been arrested for the last 20 years and poverty is greater.

In Polonnaruwa and Anurapurah districts, the poverty incidence is 8% higher than the national figure³ and is the third poorest province based on the higher poverty line. Within the districts, poverty is higher in the rural areas, which are targeted in the rural component. The Project will prioritize rural investments based on demand-driven and need criteria.

Four of the five project districts are in the northeast and northcentral regions. In these four districts, 40–45% of the people live below poverty line. Hambantota in the south has a high incidence of drought and limited groundwater. Although income levels are similar to the national average, the population has to spend more than in other parts of the country to have access to drinking water. Lack of income, employment, and water are the main concerns among the poor in Hambantota district. In low-density areas of Hambantota, the Project will use a community-based approach (currently implemented by the Third Water Supply and Sanitation Sector Project) to reach communities. During implementation, special attention will be given to community participation to overcome the lack of trust in the Government and nongovernment organization (NGO) efforts.⁴

³ Poverty incidence based on the lower and higher poverty line in North Central Province is 31% and 47% respectively, while at national level it is 25% and 39%.

⁴ ADB. 2000. *Perceptions of the Poor. Poverty Consultations in Four Districts of Sri Lanka*. Manila.

C. Participation Process

Stakeholder Analysis	Yes
Participation strategy required	Yes

During Project preparation, the project components were discussed with the stakeholders at various levels. The rural component of the Project requires active participation of people. CBOs will be formed before subproject implementation and take responsibility for the selection of proper water system and technology, procurement of goods, monitoring of construction, and contribution to the capital investment (20% in kind and/or labor). After implementation, the CBOs will take ownership of the assets and be responsible for the operation and maintenance of the systems. Local NGOs facilitate community participation with the CBOs supported by the Pradeshiya Sabhas. In the urban components, a mechanism will be developed for community members in project areas to bring their concerns and/or feedback regarding project implementation to the project coordination committee at the central level.

D. Potential Issues

	Impact	Strategy to Address Issues	Plan Required
Resettlement	Not Significant	The Project will require the permanent acquisition of 10.0 hectares (ha) of land, of which 1.1 ha are owned by National Water Supply and Drainage Board (NWSDB), 1.4 ha private land and the rest by the Government. Land acquisition will not result in loss of livelihoods or community resources. Temporary loss of livelihoods may be incurred because construction in the Unnichchai Tank will affect approximately 4,000 people. A compensation plan has been prepared and disclosed to the affected people.	Short resettlement plan
Gender	Significant	The Project will benefit women in several ways: (i) availability of safe drinking water in the household or neighborhood will reduce the drudgery of women's work associated with fetching water and will reduce waterborne diseases; (ii) at least 50% of CBO membership will be women; (iii) women staff of NWSDB and Pradeshiya Sabhas will be given preference for training under the Project; (iv) women will be especially encouraged to apply for the project implementation unit (PIU).	Incorporated in the project design See gender action plan in Section E
Affordability	Not Significant	Subsidized connection for recipients of the Government's social assistance program that provides some subsidized or free food and other basic services to poor people; provision of metered communal stand post taps in poor communities and markets; provision of affordable tariff for basic consumption (100 liters per person per day).	Incorporated in the Project design
Labor	Not Significant	The Project will ensure fair wages for the laborer in the construction works and that women and men get equal wages for similar work. The Project will monitor fair wages for the laborers, and equal wages for women and men laborers.	Incorporated in the project design
Indigenous People	Not Significant	Two of the project areas (Muttur and Batticaloa) include 100% of the ethnic minority groups.	None

Other Risks/ Vulnerabilities	Not Significant		None
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E. Gender Action Plan

The Project recognizes that participation of women in decision making is important, as they are providers, users, and managers of water at the household level. The woman is the best person in a village household to ask about the quantity, quality, and reliability of water used by her family. The Project also recognizes that communication and interaction with women are more effective when done by other women, and consequently it is important to include women in the implementation team. Therefore, the Project will actively encourage the participation of women as beneficiaries and implementers.

During social mobilization at selected villages, the importance of women participation will be explained to beneficiary communities in village meetings, hygiene education, and all other project activities. The following targets will be achieved in the implementation of the rural component:

- (i) Project facilitators will emphasize the need to have active participation of all at community meetings, which will include 50% participation by women.
- (ii) 50% participation in small group activities will be by women.
- (iii) The executive committee of the CBO will be at least 50% women.
- (iv) Separate discussions with women's groups will take place regarding technologies and service level of the water supply facilities built by the Project. If major differences occur between women's groups and mixed or men's groups, the Project facilitators will take an active role to prevent women's decisions being overshadowed.

The Executing Agency will actively recruit qualified women in all levels of the project implementation structure, especially in the rural component. The institutional strengthening component activities related to training will specify how participation of women will be encouraged. The following targets shall be achieved in the project implementation and the institutional strengthening component.

- (i) 25 % of professional and technical level staff working in the project, project monitoring unit (PMU), project implementation unit (PIU), Pradeshiya Sabhas, and counterpart NGOs will be women.
- (ii) On the institutional strengthening component, at least 20% by NWSDB professionals who participate in the training subcomponent will be women.
- (iii) In designing awareness campaigns about water supply and sanitation, the role of women in the household for most of the provision and use of water will be taken into account.

The NWSDB and PMU will be responsible for developing and implementing the appropriate strategies and action plans to achieve these targets. NWSDB and the PMU will monitor these targets through the project progress reports and the project benefit monitoring.

SUMMARY SHORT RESETTLEMENT PLAN

A. For Temporary Loss of Livelihood

1. The Project will build, among others, a water supply scheme for Batticaloa to provide piped water to approximately 270,000 people. The construction of this scheme may require raising the Unnichchai Tank bund to increase raw water availability for domestic consumption. During construction, the tank water level may have to be lowered to below the level where the tank can provide water. This may deprive for one dry season the source of livelihood of 1,898 farmers and 2,200 wage laborers who depend on the tank for irrigation, and 177 fishers who may not be able to fish for one year. Although engineering solutions to avoid disrupting irrigation are still being explored, NWSDB has prepared a draft compensation plan in the event that the people will be affected by the tank augmentation. The objective of this plan is to set a mechanism to provide fair compensation, as defined under and Sri Lanka National Involuntary Resettlement Policy and the Policy on Involuntary Resettlement of the Asian Development Bank (ADB), for any person who may lose all or part of her or his income due to the Project.

2. **Entitlements.** If there are any affected people, they will be entitled to compensation, including (i) male and female farmers, both owners and tenants, (ii) male and female wage laborers, and (iii) male fishers. Affected people are entitled to be compensated for their losses and to be informed fully and consulted on compensation options. The assessment of the exact extent of cultivated land affected by the Project will be obtained from a special land assessment committee that will be formed. It will comprise a government agent or divisional secretary, Agricultural Service Committee, farmer organization, and the Irrigation Department of the National Water Supply & Drainage Board (NWSDB). The land assessment committee will use the Paddy Land Register as the bases of its assessment. The estimated total area is approximately 1,227 hectares (ha) during the dry season, which may affect approximately 3,687 people. A detailed description of the current estimates is provided in Supplementary Appendix A.

3. **Consultation, Participation, Grievances, and Public Disclosure.** After consultations with the farmers and discussions with the project consultants and ADB officers, the Government prepared a draft compensation plan that summarized the actions that the Government and ADB are planning to put in effect to compensate the people affected by the raising of the Unnichchai Tank. The draft plan was translated into Tamil and made into a simplified cartoon version. Copies were provided to the representatives of the affected farmers, wage laborers, and fishers. The plan was discussed with the affected people on 6 and 7 June 2002. The affected farmers were asked to raise any questions or concerns regarding the plan by 30 July 2002.

4. The plan will set the guidelines and process for delivering any required compensation. The details of the compensation plan are not yet finalized, as it is important that the affected people and the stakeholders participate in designing the final plan. Thus, the draft plan will establish two local stakeholders committees to consider compensation entitlement and grievance and compensation disbursement procedures (compensation committees). Both female and male representatives from the affected groups and from the stakeholders will be part of both compensation committees. The two groups should meet separately to assess their position without undue pressure from influential persons or groups. Once their individual stances are determined, plenary meetings can be held to come to an agreement. An independent and knowledgeable facilitator will be provided by the Project to participate in the meetings and assure appropriate transparency and fairness of the process. The compensation

committees, in coordination with the project monitoring unit (PMU), will decide upon the (i) units entitled to compensation (individuals vs. households); (ii) criteria to be entitled to compensation; (iii) criteria to assess due compensation amounts for each affected unit; (iv) monitoring mechanisms to assure that compensation has reached the intended beneficiaries; (v) procedures to redress grievances by people regarding entitlement to compensation; (vi) modality for payment of compensation (timing, kind or cash, etc); (vii) type of identification required to claim compensation; (viii) advance warning period needed by the different affected groups before construction; and (ix) institutional arrangements for delivery of compensation.

5. **Compensation.** The Project will make sure that people receive appropriate compensation for any losses incurred due to the Project. The exact amounts will be agreed between the affected people and the committee with the assistance of a facilitator. Although the compensation committee will determine the final amounts and type of compensation, the Project has prepared estimates using data from adjacent areas and information from local people in order to prepare a budget to cover compensation. These estimates were revised with the affected people during consultations on 6 and 7 June 2002. Payment and disbursement of compensation will be the responsibility of the Executing Agency (NWSDB) and the project implementation unit (PIU).

6. **Institutional Framework.** The project director appointed by NWSDB is directly responsible for paying the compensation to the affected people. The Batticaloa NWSDB, with the support of the resettlement specialist, will coordinate day-to-day implementation and monitoring of the plan, including participation in the committee meeting, collection of data on affected people, and disbursement of payments. NWSDB will be responsible for implementing the final compensation plan.

7. **Implementation Schedule and Monitoring and Evaluation.** The construction works should be completed within 8–10 months to ensure water storage for the next year. Sufficient warning will be provided to the affected persons of disruption to irrigation so they do not unnecessarily invest in crop inputs. In the 6–12 months leading up to civil works to raise the bund, names of people entitled to compensation will be assembled by Project and the compensation committee. NWSDB is responsible for carrying out overall internal monitoring and evaluation. The PIU in Batticaloa will be responsible for day-to-day implementation and monitoring.

B. For Land Acquisition

8. The Project will require the permanent acquisition of 10.0 ha of land of which 1.1 ha are owned by NWSDB, 7.5 ha are Government owned, and 1.4 ha are privately owned. Approximately seven private landowners will be affected by the Project. NWSDB will be responsible for carrying out all land acquisition activities and has prepared a plan according to the National Involuntary Resettlement Policy and ADB's Policy on Involuntary Resettlement. To estimate the budget needed for land acquisition, information regarding land market price in the area for similar landholdings has been used. Discussions have been held with the affected Government institutions and private owners.

9. **Objectives, Policy Framework, and Entitlements.** In adherence with ADB's policy, the physical structures and pipes have been sited to avoid relocation of any permanent houses or structures or impact on land. Therefore, no people will be relocated. NWSDB will assure that the land acquisition procedures for project activities are implemented according to the provisions set in the Short Resettlement Plan for Land Acquisition (SRPLA) and in accordance

with the National Involuntary Resettlement and ADB policies. Affected people have been identified by the Project and are entitled to compensation based on replacement value.

10. **Consultation and Grievance Redress Participation.** The SRPLA has been disclosed to all affected people and discussed with them. After submission by the Government, it was posted in ADB's web page for information.

11. **Compensation.** The Project consultants, the Government, and the consultations with affected people have confirmed that, as a result of the Project, (i) no structures or productive assets are in any of the land properties; (ii) no relocation or loss of income will result from the Project's land acquisition; and (iii) all of the affected people have legal titles to their lands, although, all landowners (with or without legal titles) are entitled to compensation for their land. Valuation of compensation will be done applying the replacement value as defined by the Government in the National Involuntary Resettlement Policy and by ADB's Resettlement and Land Acquisition Policy.

12. **Institutional Framework.** The PMU in NWSDB is responsible for the overall implementation and monitoring of the land acquisition. The NWSDB district offices in Trincomalee and Hambantota will be responsible for the day-to-day implementation and monitoring of the SRPLA. Project implementation units (PIUs) in Muttur and Hambantota will take over these responsibilities once they have been established. The PMU and PIUs will be supported by a resettlement specialist provided by the Project. In the PIUs, the NWSDB resident engineer will be responsible for monitoring the implementation of the SRPLA and coordinating with the resettlement specialist.

13. The PMU will proceed with land acquisition procedures as soon as the Project is effective. (i) When the title to the land is clear, a government evaluation will be prepared and the negotiations with the owner will start. Negotiations will be conducted by NWSDB. (ii) The government evaluation will be based in replacement value as defined in ADB's Involuntary Resettlement Policy. Titleholders will be compensated for all permanent land losses at full replacement cost. (iii) NWSDB will approve the earlier agreement reached between the owner and NWSDB. NWSDB's legal officer will execute the deed, and compensation will be disbursed by the PMU to the owner within one month of reaching the agreement. (iv) If agreement is not reached, NWSDB will resort to compulsory acquisition, in which the minister responsible for lands will issue an order under section 2 of Lands Acquisition. In such an event, NWSDB will comply with the National Involuntary Resettlement Policy and ADB policies and ensure that replacement value is paid for the required land.

14. **Implementation Schedule, Budget, and Financing.** Land acquisition activities will commence 1 month after loan effectiveness (April 2003). All land acquisition will be completed, including payment of compensation, before civil works contracts can be awarded. The Project has allocated counterpart funding to finance the land acquisition. The PMU will be responsible for disbursing compensation within 1 month of reaching a written agreement with the landowner.

COST ESTIMATES AND FINANCING PLAN

Table A7.1: Detailed Project Costs and Financing Plan
(\$'000)

Item	ADB			Government	Community	Total Cost
	Foreign Exchange	Local Currency	Total Cost	Local Currency	Local Currency	
A. Base Cost						
1. Civil Works	0	27,428	27,428	6,736	2,407	36,570
2. Materials & Equipment			12,352			14,329
Civil Works	10,699	1,153		1,977	0	
Bulk Meters	500	0		0	0	
3. Land Acquisition & Development	0	0	0	798	0	798
4. Resettlement Compensation	0	0	0	1,150	0	1,150
5. Socioeconomic Surveys	0	60	60	0	0	60
6. Environmental Surveys	0	50	50	0	0	50
7. Community Participation and Public Awareness & Education Campaigns	0	747	747	0	0	747
8. Training	0	1,217	1,217	0	0	1,217
9. Consulting Services			5,710			5,710
International	1,458	0		0	0	
National – Professional	0	599		0	0	
National – Technical	0	315		0	0	
National – Support	0	120		0	0	
Detailed Design & Construction Supervision	1,329	1,329		0	0	
Institutional Strengthening	0	500		0	0	
Component Support						
Audit Services	0	60		0	0	
10. Vehicles	350	0	350	0	0	350
11. Motorcycles	20	0	20	0	0	20
12. Computers & Office Equipment	560	0	560	0	0	560
13. Project Management Office Running Costs	0	0	0	356	0	356
14. Recurring Costs						1,620
Counterpart Salaries – Technical	0	0		800	0	
Counterpart Salaries – Support	0	0		444	0	
O&M for Vehicles	0	0		264	0	
O&M for Office Equipment	0	0		112	0	
Subtotal (A)	14,916	33,578	48,494	12,636	2,935	63,536
B. Contingencies						
1. Physical Contingencies ^a	1,492	3,358	4,849	1,302	293	6,444
2. Price Contingencies ^b	1,690	3,804	5,494	1,475	333	7,301
Subtotal (B)	3,182	7,162	10,344	2,776	626	13,746
C. Interest Charges^c	1,455	0	1,455	0	0	1,455
D. Taxes and Duties^d	0	0	0	7,607	0	7,607
Total	19,552	40,740	60,292	23,020	3,033	86,345
Percent Share (%)	32	68	70	27	3	100

ADB = Asian Development Bank, O&M = operation and maintenance.

^a Estimated at 10% of base cost.

^b Estimated at an annual factor of 2.4% of both foreign and local project costs in dollar terms.

^c Related to ADB loan financing.

^d Value-added tax: 20% on local goods and 10% on services; customs and duty: 25% on mechanical and electrical equipment, 10% on pipes, 25% on vehicles, 10% on motorcycles, 15% on office equipment, 0% on computers.

Source: ADB estimates.

Table A7.2: Project Costs by Component and Financing
(\$'000)

Component/Subcomponent	Foreign Exchange	Local Currency	Total Cost
A. Base Cost			
1. Component 1: Urban WSS			
a. Batticaloa Urban WSS	6,397	16,549	22,946
b. Hambantota Urban WSS	1,270	6,925	8,196
c. Matara Urban WSS	175	2,010	2,185
d. Muttar Urban WSS	1,067	3,533	4,600
e. Polonnaruwa Urban WSS	588	3,065	3,653
Component Subtotal	9,498	32,083	41,581
2. Component 2: Rural WSS			
a. Anuradhapura Rural WSS	484	4,400	4,884
b. Polonnaruwa Rural WSS	484	4,400	4,884
c. RWSS Training	0	717	717
d. Community Participation, Public Awareness and Education Campaigns	0	497	497
Component Subtotal	969	10,013	10,982
3. Component 3: Institutional Strengthening			
a. NWSDB FOPIP Support			3,000
i. Corporate Strategy and Financial Management Strengthening	400	100	
ii. Asset Registry	100	400	
iii. Improving O&M Cost Effectiveness			
– NWSDB Training	0	500	
– Reducing NRW (Bulk Meters)	500	0	
iv. Transfer of Schemes	233	768	
b. National Public Awareness and Education Campaigns		250	250
Component Subtotal	1,233	2,018	3,250
4. Project Management			
a. Consultancy – International	1,458	0	1,458
b. Consultancy – National	0	1,034	1,034
c. Detailed Design and Construction Supervision	1,329	1,329	2,659
d. PMU/PIU Offices (Counterpart Salaries and Running Costs)	430	1,976	2,406
e. Socioeconomic and Environmental Surveys	0	110	110
f. Audit Services	0	60	60
Project Management Subtotal	3,217	4,509	7,726
Subtotal (A)	14,916	48,622	63,538
B. Contingencies			
1. Physical Contingencies ^a	1,492	4,953	6,444
2. Price Contingencies ^b	1,690	5,611	7,301
Subtotal (B)	3,182	10,564	13,746
C. Interest Charges^c	1,455	0	1,455
D. Taxes and Duties^d	0	7,607	7,607
Total	19,552	66,794	86,346
Percent Share	22.64	77.36	100.00

ADB = Asian Development Bank, FOPIP = financial and operational improvement, NWSDB = National Water Supply and Drainage Board, NRW = nonrevenue water, O&M = operation and maintenance, PIU = project implementation unit, PMU = project monitoring unit, RWSS = rural water supply and sanitation, WSS = water supply and sanitation.

^a Estimated at 10% of base cost.

^b Estimated at an annual factor of 2.4% of both foreign and local project costs in dollar terms.

^c Related to ADB loan financing.

^d VAT: 20% on local goods and 10% on services; customs and duty: 25% on mechanical and electrical equipment, 37% on pipes, 50% on vehicles, 0% on motorcycles, 15% on office equipment, 0% on computers.

Source: ADB estimates.

FINANCIAL ANALYSIS

1. An economic and financial assessment has been undertaken of each of the town water supply subcomponents and the Project as a whole. The economic internal rate of return and the financial internal return (FIRR) of each has been estimated, and a sensitivity analysis undertaken. In addition, the financial performance of National Water Supply and Drainage Board (NWSDB) has been evaluated to determine its ability to financially sustain project-developed assets subsequent to their completion.

A. Project Financial Analysis

2. The objective of the financial analysis is to ensure that each town subcomponent and the Project as a whole are financially viable; meaning that in each case they generate revenues sufficient to cover capital and operating costs and rates of return that meet or exceed the weighted average cost of capital (WACC) used to finance each. Revenues are those derived from water tariffs and other related charges that are directly attributable to the project. The major assumptions employed in the financial analysis are as follows:

- (i) **Scope.** Only incremental revenues and costs directly associated with each subcomponent and/or the Project have been considered. The revenue and costs of existing systems have not been considered.
- (ii) **Cost Savings Due to Reduced Nonrevenue Water (NRW).** The subcomponent will rehabilitate portions of the existing transmission and distribution systems, resulting in a reduction in NRW and a consequent reduction in the required production per cubic meter of water sold and the unit cost of water sold.
- (iii) **Forecast Period.** The FIRR and average incremental financial cost are calculated from 2003 to 2050.
- (iv) **Price Basis.** All revenues and costs are expressed in Sri Lankan rupees on an incremental basis in constant mid-2001 prices. They do not incorporate projected inflation over the forecast period. All foreign costs are converted to Sri Lankan rupees at an exchange rate of SLRs95 to US\$1.
- (v) **Weighted Average Cost of Capital.** The WACC is expressed in constant prices before tax. It is based on the cost of the capital for the subcomponents and the project respectively, assuming debt at an interest rate of 10% and equity provided by the Government, with an assumed no cost of capital as relevant. A long-term domestic inflation rate of 6.5% is assumed in the estimate of the WACC.
- (vi) **Domestic Consumption.** This is estimated assuming water consumption of 100 liters per capita per day and an average household size of five people. Households are assumed to connect to water supply progressively over the initial years of the Project, with coverage based on an expected rate of connection uptake from 2003 in each town to 2025 and then remaining constant over the remainder of the forecast period. Nondomestic consumption is assumed at 30% of domestic sales. NRW is estimated at 25% of water production.

3. Proposed real increases in NWSDB domestic tariffs for the lowest consumption bands are approximately 50% per annum over the next 4 years, (i.e., 2003–2006), 10% for the subsequent 2 years (2007–2008), and 5% for the next 3 years (2009–2011). No real increase is assumed in 2012. The increases result in NWSDB tariffs as set out in Table A8.1.

4. Capital costs are estimated for each project town and include physical contingencies,

difficult areas allowance, taxes, and duties. The construction period is estimated to be over the period 2003–2007, with plant commissioning in 2007 but 1 year later, in 2008, in Batticaloa. No residual values are assumed at the end of the evaluation period.

5. Operating costs are based on the expected incremental costs of additional water production and sales. Incremental salaries and wages are based on the expected increase in establishment costs with the proposed Project. An allowance for growth in customer numbers and resulting metering reading and billing and other incremental costs has been assumed at SLRs0.5 per cubic meter for additional water production over the first year of operations and material expenses are based on a percentage of gross fixed assets. It is assumed that expenses will be at 50% of the long-term allowance in the first year of operations and 75% in the second year.

Table A8.1: NWSDB Tariffs Assuming Real Annual Increases

Item	2002	2008	2012
Proposed Domestic Tariff	SLRs/m³		
0-10	1.25	6.50	7.53
11- 15	2.5	13.0	15.0
16 - 20	6.5	19.0	22.0
21-25	20.0	48.0	54.0
> 26	45.0	48.0	54.0
Nondomestic	42.0	48.0	54.0
Fixed Charges	SLRs/month		
Domestic	50	54	60
Nondomestic	76	83	91

Source: ADB estimates.

6. The FIRR calculated for each project town (Batticaloa, Hambantota, Muttur, and Polonnaruwa) and the Project as a whole are presented in Table A8.2.¹ The calculated FIRR for each project town ranges between 5.2% and 9.9%, and the FIRR for the overall Project is 7.5%. All well exceed the WACC estimated at 0.78% for the four towns. The sensitivity analysis indicates that the FIRR is most sensitive to a reduction in incremental revenues derived from water tariffs. However, the FIRR is robust and exceeds the WACC following the sensitivity analyses. The results are also summarized in Table A8.2.

¹ In the case of Matara, the technical proposal being evaluated will improve the quality and reliability of the service and not the level of service. Therefore the analysis was limited to an economic evaluation of the salinity barrier to assess whether it represented the least cost option of meeting existing demand.

Table A8.2: FIRR and Sensitivity Analysis (%)

Item	Batticaloa	Hambantota	Muttur	Polonnaruwa	Overall
Base Case	8.0	5.2	5.8	9.9	7.5
WACC	1.6	0.5	0.5	0.5	0.8
Sensitivity					
Revenues (-10%)	6.8	4.1	4.5	8.6	6.2
Capital (+ 10%)	7.2	4.4	5.0	9.0	6.6
O&M (+10%)	7.8	4.9	5.4	9.6	7.2
Sensitivity Indicator					
Revenues (-10%)	15.2	21.6	22.4	13.5	16.3
Capital (+ 10%)	10.6	14.7	13.9	9.1	11.2
O&M (+10%)	3.3	5.0	6.7	3.3	3.8

FIRR = financial internal rate of return, O&M = operation and maintenance, WACC = weighted average cost of capital.

Note: Sensitivity indicator (SI) = ratio of percentage change in FIRR to change in parameter.

Source: TA3587-SRI: Secondary Towns Water Supply & Sanitation Project consultant's report.

ECONOMIC ANALYSIS

1. An economic assessment was undertaken for each of the town water supply components, for the rural water supply component, and for the sanitation components. For the town water supply components, the economic internal rate of return (EIRR) and the net present value were estimated and a sensitivity analysis undertaken. A poverty impact assessment was also undertaken and the benefits accruing to the poor estimated. The rural water supply component has a sector-like approach; as such, the specific investments will be identified in the course of the Project, and so a specific economic analysis is not possible at this stage. Instead, the economic analysis considered least-cost technical options, and identified the kinds and scale of benefits that will be derived from the Project. The sanitation component is based strictly on least-cost analysis of the minimally feasible alternatives.

2. The Project is estimated to benefit a total of 969,000 people in the project area. The estimated EIRR for the town water supply component varies from 12.7% to 17.2%, and the projected EIRR for the rural water supply component is 13.0%. The poverty impact ratio varies from 0.54% in Batticaloa to 2.20% for the rural component. Potential health benefits of improved water supply have not been explicitly taken into account, therefore overall benefits may be higher than indicated in this analysis. Table A9.1 summarizes findings of the assessment.

Table A9.1: Summary of Economic Benefit Assessment

Subproject	Number of Beneficiaries	EIRR %	NPV (SLRs million)	Benefits to the Poor	PIR %
Batticaloa Water Supply	270,600	17.2	976.79	524.0	0.54
Hambantota Water Supply	107,700	12.7	43.12	89.6	2.08
Muttur Water Supply	52,900	13.9	71.2	73.4	1.03
Polonnaruwa Water Supply	84,100	14.3	40.95	67.8	0.77
Rural Water Supply	322,000	13.0	2.9	595.5	2.20

EIRR = economic internal rate of return, NPV = net present value, PIR = poverty impact ratio.

Source: ADB estimates.

A. Urban Town Water Supply

3. **Existing Situation.** Project towns (Batticaloa, Hambantota, Polonnaruwa, and Matara) are considered major regional centers in Sri Lanka. Muttur is a smaller secondary town. Their populations range between just under 50,000 to almost 300,000. With the security situation over the last 20 years, Batticaloa and Muttur are particularly disadvantaged. In terms of piped water supply, in Hambantota approximately 30% of the population are served, less than 50% of the urban population is served in Matara and Polonnaruwa, and in Batticaloa and Muttur virtually no household has access to properly treated piped water supply. Most people in project towns rely on groundwater for drinking and cooking. Groundwater quality in the project areas is poor and high levels of fluoride are common in Anuradhapura, Hambantota, and Polonnaruwa. In the more densely settled towns, there is concern regarding pollution of wells from nearby latrine soakage pits. In addition, sand river extraction and upstream irrigation has caused increased salinity in Matara and Muttur. Table A9.2 summarizes the situation found in each town.

Table A9.2: Project Towns

Item	Batticaloa	Hambantota	Matara	Muttur	Polonnaruwa
2001 Population	257,804	89,967	286,791	45,279	60,083
Population Growth Rate	1.7%	1.8	1.5	1.5%	2.2
Population Without Piped Water	96.8%	52.4%	51.5%	100.0%	70.0%
Average Monthly Household Income	9,000	9,000	9,000	8,000	8,000

Source: ADB estimates.

4. **Economic Benefits.** Future “with- and without-project” situations have been compared to derive the marginal benefits in terms of resource cost savings and consumer surplus from additional water use with the Project. The benefits of the water supply subprojects are the value of incremental water supply, and the savings of time and cost in fetching, carrying, pumping, purchasing, storing, and treating water. For households without pumps, which is the majority, surveys in Batticaloa and Polonnaruwa indicated that households spend an average of 15 minutes per day collecting water for drinking and cooking. The economic cost of time was valued at SLRs10 per hour, to which is added costs of replacement and repair of wells, bores, jars, and buckets of SLRs475 per year. The Project is designed to provide up to 100 liters per capita per day (lpcd), based on the Government service levels policy and the current average water consumption in similar towns of 94–127 lpcd. Surveys indicated that households currently use up to 60 lpcd. Since the benefits of incremental water exceed the resource cost savings, a conservative assumption is to take the nonincremental water use at 60 lpcd. Nondomestic benefits are assumed to be 1.25 times the domestic benefits per cubic meter. With nondomestic consumption at 30% of domestic consumption, nondomestic benefits average about SLRs1,746 per household.

5. The Matara salinity barrier will not significantly increase the number of people connected to the system, but will improve the quality of water provided to current users, which currently does not meet World Health Organization (WHO) standards when salinity intrusion occurs at the Nadugala intake. The discounted present value of losses from 1 day of salinity intrusion each year is about SLRs2.6 million at 12% discount rate. An average of 50 or more days per year would justify the construction of the salinity barrier at the present time. Currently, salinity intrusion takes place an average of 60 to 75 days a year, during the dry season.

6. **Economic Costs.** A least-cost assessment of project options for each town was undertaken. The assessment was based on preliminary cost estimates, and associated operations and maintenance (O&M) cost. Economic costs for the purpose of this assessment are based on those used for the financial analysis. Financial costs (capital investment costs and O&M) have been adjusted to economic costs by deducting duties and taxes (value-added tax allowed at 10%) and applying a shadow exchange rate factor of 1.11 to the foreign component, and a shadow wage rate factor of 0.7 to the unskilled labor. To convert financial costs to economic costs, the overall adjustment factor is 0.82.

7. **Sensitivity Analysis.** The sensitivity of the results was tested for different levels of capital cost, O&M, and benefits. Table A9.3 summarizes the extent to which assumptions have to change in each town water supply subcomponent to drive the EIRR below 12%. The Project is most sensitive to the benefits accrued in the form of additional consumption and time savings. An increase in O&M will not significantly affect any of the subcomponents, and changes in

nondomestic consumption proved to have little or no impact on the EIRR. An increase in capital cost is only a risk to the EIRR for Hambantota.

Table A9.3: EIRR Switching Values – Percentage Change in Parameters Required to Reduce EIRR Below 12%

Parameter	Hambantota %	Batticaloa %	Muttur %	Polonnaruwa %
Capital Costs	8	67	21	30
O&M Costs	40	400	80	95
Consumption without project	8	49	16	20
Consumption with Project	7	37	14	19
Time Savings	7	35	14	19

EIRR = economic internal rate of return, O&M = operations and maintenance.

Source: ADB estimates.

B. Urban Town Sanitation

8. A least-cost analysis was done for each of the main urban sanitation activities, building of pit latrines for individual households without any sanitation, and a waste treatment plant for the Batticaloa Hospital and prison. The proposed household sanitation for the urban component is the least-cost technology that meets the requirements of the Department of Health. The selection of beneficiaries and subsidy levels is the same as that used in the rural component; therefore no separate analysis was undertaken.

9. Batticaloa Hospital has 3,282 people who use, work on, or stay in 60 buildings within the 8 hectares property of the hospital. It is planned to increase the capacity of the hospital by 2003 with additional nurses, housing, and wards. The prison houses 363 people. Batticaloa hospital and the adjacent prison currently discharge their sewerage into septic tanks, which need to be emptied periodically, and the septage is disposed of near the garbage dumpsite. The sludge effluent is disposed untreated into street drains, which flow into the Batticaloa Lagoon. Although there are no national standards for discharge of wastewater from hospitals, main tolerance limits for domestic effluents discharged into marine coastal areas are not met by the effluent from overflowing septic tanks. Because of the geology and the high density of population in the area, rehabilitation of the septic tanks would not meet the requirements for discharge. Although pumping and treating the septage could be done, there is in Batticaloa no adequate septage treatment available, making centralized treatment for the hospital the only alternative to ensure the level treatment required for public health.

10. The waste treatment plant will be selected based on least-cost criteria, with specifications of the amount and quality of effluent to be treated and expected quality of the discharge. With the increase enforcement by the Central Environmental Authority, a number of local firms have gained expertise in construction and maintenance of wastewater treatment plants, including package treatment plants, using anaerobic and aerobic treatments. Bidding for this component will include evaluation criteria that emphasize capital cost investment as well as O&M to ensure that the least-cost technology is selected.

11. Broad estimations indicate that the town sanitation activities will benefit 32,500 people in the project areas. The economic benefits of sanitation activities are difficult to measure, but include improved health and welfare, as well as environmental benefits.

C. Rural Water Supply and Sanitation

12. The rural component is based on a study conducted in 2001 conducted by Worley International of rural water supply and sanitation in Polonnaruwa district.¹ The study included an economic analysis, which is briefly described here.

13. **Economic Benefits.** The rural component targets 322,000 beneficiaries—161,000 in Polonnaruwa and 161,000 in Anuradhapura. It is proposed that water supply be improved for all these population, and latrines will be provided for 124,000 households.

14. The economic benefits of rural water supply improvement have been estimated following the standard approach, by quantifying the resource cost savings and value of incremental water use provided by the Project. The average time needed to collect water was estimated at 30 minutes per day. Nonincremental water use was estimated at 68 liters per capita per day, and incremental water use was projected as 32 lpcd, giving a total water use under the project of 100 lpcd. Cost savings resulting from reduced use of water storage containers was estimated at SLRs5 per household per month.

15. The Project is expected to significantly improve the health of beneficiaries, both from the availability of better quality water, and from the provision of sanitation facilities. The health benefits may be substantial, but they are difficult to measure, and so are not included in the benefit-cost analysis. As such, the benefit-cost analysis provides a conservative evaluation of the net benefits of the Project.

16. **Economic Costs.** The total capital investment cost proposed in the Worley report project, including taxes and duties, and institutional development and including community contributions, is SLRs1.678.5 billion, of which SLRs475 million are community contributions. O&M costs are estimated, on average, at SLRs50 per household per month. Across all households, this represents about SLRs36 million per year. Maintenance of assets is likely to cost SLRs20 million per year. Some of the subprojects will entail some pumping costs, but in aggregate this will probably not exceed SLRs5 million per year. The financial cost estimate has been adjusted to economic costs by deducting all taxes and duties, then applying a shadow exchange rate factor of 1.11 to the foreign component and a shadow wage rate factor of 0.7 to unskilled labor.

17. **EIRR.** The specific investments to be undertaken will be identified in the course of the Project, and so a specific estimate of the EIRR is not possible at this stage. But based on the projected number of beneficiaries, and assuming a constant rate of completion until the end of the Project, the EIRR for the Project would be 13%. In the rural component, the total capital investment per beneficiary is lower than that used by Worley International, mainly because of savings gained in project management due to economies of scale. However, because the benefits of both projects are expected to be the same, the EIRR for the Project should be higher.

18. **Sensitivity Analysis.** Table 9.4 shows the results of a sensitivity analysis. To drive the EIRR below 12%, capital costs would have to increase by 32%, benefits would have to be reduced by 36%, or the lifetime of assets would have to fall by 25%. The economic basis of the

¹ The Government of New Zealand provided a \$500,000 grant through its Asian Development Bank Assistance Facility for preparing a preinvestment study for rural water supply and sanitation in Polonnaruwa District. The report was completed in January 2001.

Project is therefore reasonably robust to adverse changes in the key components of the benefit-cost analysis.

Table A9.4: Sensitivity Indicators and Switching Values

Parameter	Percentage Change	EIRR	NPV Before Change (SLRs'000)	NPV After Change (SLRs'000)	Switching Value (SV)	Sensitivity Indicator (SI)
Increase in Capital Cost	+ 15 %	13 %	204,970	117,405	+ 32 %	- 43 %
Reduction in Benefits	-40 %	11 %	204,970	67,013	-36 %	-47 %
Reduction in Assets Lifetime	-10 %	12%	204,970	123,009	-25 %	-40 %

EIRR = economic internal rate of return, NPV = net present value.

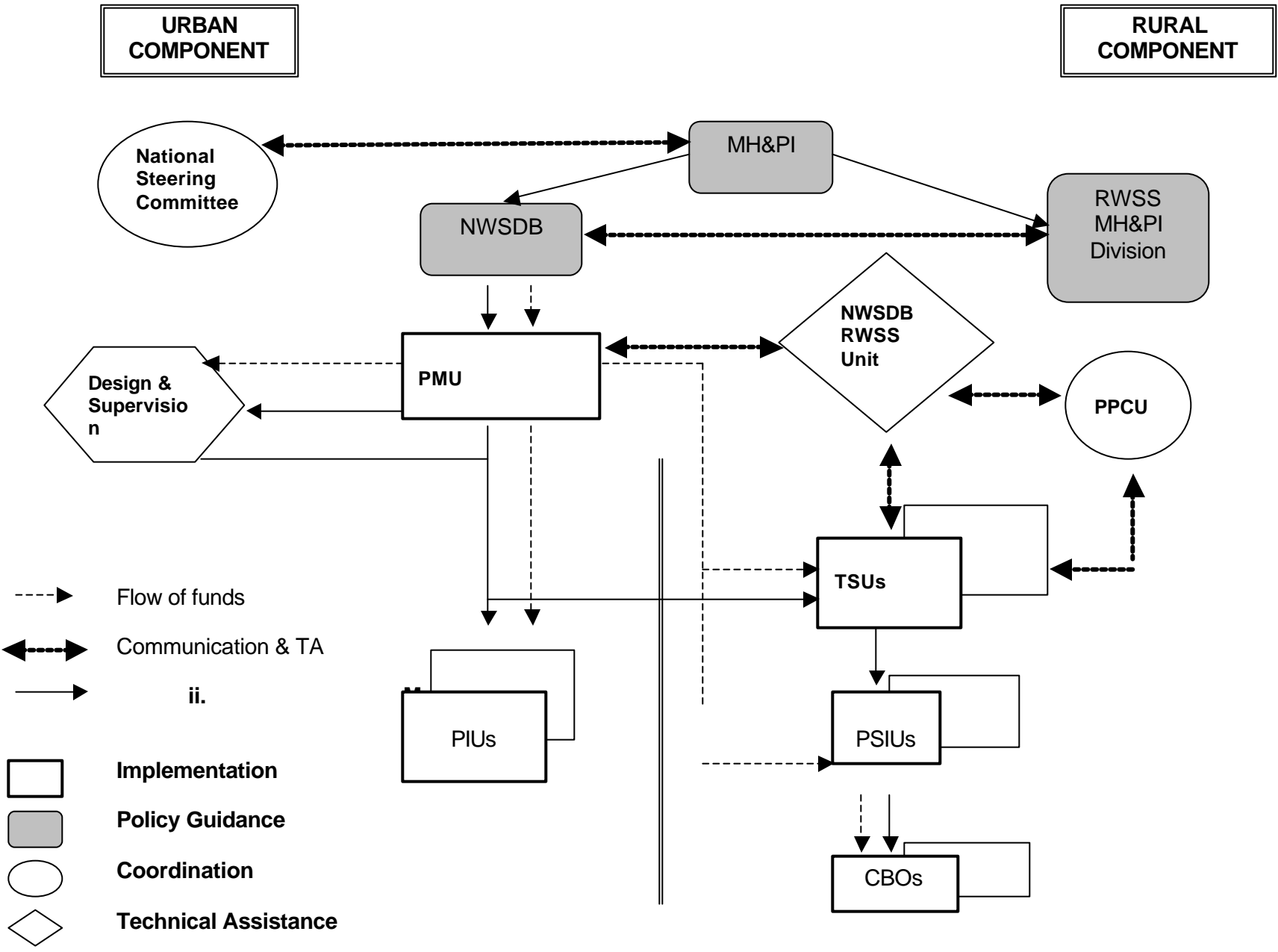
Source: ADB estimates.

Note: NPVs and SVs are calculated at the 10% discount rate.

19. **Rural Sanitation.** For the sanitation component, no useful data are available to estimate resource use savings in the without-project situation. However, an average willingness-to-pay can be estimated, generally based on previous experience of sanitation developments in other areas of Sri Lanka, adjusted as necessary to take account of specific conditions in Polonnaruwa. This willingness-to-pay can then be taken as an approximation of the benefits that can be attributed from the sanitation component of the Project. The value of the sanitation benefits is assumed to accrue on completion of the sanitation facilities. Latrine owners will need to pay (or contribute labor) for ongoing maintenance, cleaning (of pits) and upgrading of the facilities. This has been estimated as SLRs350/year, equivalent to the construction cost of the latrine depreciated over 10 years. Given that materials form approximately 50% of the household contribution and labor the remainder, the willingness-to-pay for sanitation facility construction is estimated as follows:

- Materials contribution SLRs1,750/household
- Labor contribution SLRs1,750 x 0.65 SWRF² SLRs1,140/household
- Value of Sanitation Benefits SLRs2,890/household

² Shadow wage rate factor.



CBOs = community-based organizations, MH&PI = Ministry of Housing and Plantation Infrastructure, NWSDB = National Water Supply and Drainage Board, PIU = project implementation unit, PMU = project monitoring unit, PPCU = provincial project coordinating unit, PSIU = Pradeshiya Sabha implementation unit, RWSS = rural water supply and sanitation, TA = technical assistance, TSU = technical support unit.

CONTRACT PACKAGES
(\$ million)

Contract	Packaging	Cost Estimate	Procurement Method
A. Civil Works - Head Works and Treatment			
1. Urban Water Supply Schemes	Package 1 – Batticaloa	5.10	ICB
	Package 2 – Polonnaruwa and Muttur	1.90	LCB
	Package 3 – Hambantota	1.30	LCB
2. Unnichchai Tank	Package 1 – Batticaloa	4.00	ICB
3. Salinity Barriers	Package 1 – Matara	2.20	ICB
	Package 2 – Hambantota	2.40	ICB
B. Civil Works - Distribution, Storage, and Drainage			
4. Urban Water Supply Schemes	Package 1 – Batticaloa	5.20	ICB
	Package 2 – Muttur	2.00	LCB
	Package 3 – Polonnaruwa	2.50	ICB
	Package 4 – Hambantota	3.90	ICB
5. Wastewater Treatment Plant	Package 1 – Batticaloa Hospital	0.44	LCB
6. Urban Drainage	Package 1 – Batticaloa	1.70	LCB
	Package 2 – Muttur	0.40	LCB
C. Equipment			
7. Pipes	Package 1	6.50	ICB
8. Metering & Leak Equipment	Package 1	0.50	IS
9. Vehicles & Motorcycles	Package 1	0.40	IS
10. Computers and Office Equipment ^a	Package 1	0.60	IS
D. Community-Based Infrastructure^b			
11. Rural Water Supply and Sanitation	Package 1 – Anuradhapura	4.40	LCB
	Package 2 – Polonuruwa	4.40	LCB
	Package 3 – Batticaloa	0.38	LCB
12. Urban Sanitation	Package 1 – Batticaloa	0.10	LCB
	Package 2 – Polonuruwa	0.02	LCB
	Package 3 – Muttur	0.10	LCB
	Package 4 – Hambantota	0.07	LCB
D. Transfer of Schemes^a			
13. Rehabilitation of small schemes	Package 1	1.00	LCB
Total		54.51	

ICB = international competitive bidding, IS = international shopping, LCB = local competitive bidding.

Source: ADB estimates.

^a Several contracts to be determined during implementation.

^b Small civil works to be procured and implemented by CBOs. Average contract amounting to \$50,000.

Note: Packages do not include taxes and duties

OUTLINE TERMS OF REFERENCE FOR CONSULTANTS

A. Packaging and Scope

1. Two packages of consulting services are required to assist the Government in the delivery of the urban and rural water supply, sanitation improvements, drainage improvements, and rising of the Unnichchai Tank.

1. Package A—Project Management and Institutional Strengthening

2. The consultants recruited under this package will assist the National Water Supply and Drainage Board (NWSDB) with the day-to-day management of the Project. Their main responsibilities will include contracts management, supervision of design and supervision consultants, coordinating implementation schedules and plans, monitoring of quality of works, identification and resolution of constraints, conducting of surveys and specific studies, design and supervision of urban sanitation and drainage, and preparation of procurement documents for the urban component. For the rural component, the consultants will assist with the public awareness campaign, evaluation and selection of communities, socioeconomic surveys, subproject appraisals, community mobilization and public participation, and planning and design of community-based schemes. The consultant will assist NWSDB and the Irrigation Department in the supervision of the detailed design and supervision consultants for the urban component including the raising the Unnichchai Tank bund and head works. The consultants will also assist with the institutional strengthening development component. They will help monitor the progress of the Project and keep appropriate financial records.

2. Package B—Design and Supervision

3. The consultants will prepare detailed designs and supervise the construction of the urban schemes. The consultants will directly report to the project management and institutional development consultants. The main responsibilities of the consultants will include detailed surveys, detail design, preparation of tender documents, assistance with tender evaluation, construction supervision, recommendation for payments, quality assurance, and training trainers for project implementation and future operation and maintenance (O&M).

B. Required Expertise and Inputs

4. The teams of international and domestic consultants will provide a total of 3,208 person-months, of which 120 are international and 3,088 domestic. The specialist positions required for the water supply and sanitation component of the Project, the policy reform program, and institutional strengthening are shown in Tables A12.1 and A12.2.

Table A12.1: Project Management and Institutional Strengthening
(person-months)

Position	International	Domestic
Project Manager	54	
Environmental Specialist	3	
Financial /change Management Specialist	4	
Sociologist	3	
Deputy Project Manager/ Water Supply Engineer		60
Procurement Specialist		18
Financial Specialist		7
IT Specialist		4
Environmental Specialist		36
Resettlement Specialist		12
Sociologist		42
Public Awareness and Media Communication Specialist		12
Health Education Officer		12
Sanitation Specialist		6
Accountant		60
Community Development Officer		42
Training Officer		24
Rural Water Supply Specialist		48
Other Specialist		120
Support Staff		1,188
Total	64	1,690

Source: ADB estimates.

Table A12.2: Design and Construction Supervision
(person-months)

Position	International	Domestic
Team Leader	42	
Water Treatment Specialist	6	
Dam Specialist	4	
Hydrogeologist	4	
Deputy Team Leader		48
Water Supply Design Engineer (3)		66
Mechanical and Electrical Engineer		48
Structural Engineer		18
Architect		2
Geotechnical Specialist		6
Sanitation Specialist		12
Irrigation Engineer		12
Resident Engineer		150
Assistant Resident Engineer		132
Other Specialists		24
Support Staff		1000
Total	56	1,554

Source: ADB estimates.

Estimated consultant rates are given on Table A12.3:

Table A12.3: Consultant Rates

Consultant	\$ per Month per Person
International Project Manager and Team Leader	18,000–16,000
Technical Experts	16,000–12,000
Domestic Project Manager and Team Leaders	2,000
Senior Technical Experts	1,250
Technical Experts	800
Technical Support Staff	400
Administrative Support Staff	200

Source: ADB estimates .

C. Specific Tasks

1. Project Management and Institutional Strengthening

5. The project management team will comprise (i) a project manager and team leader (international), (ii) a financial and change management specialist (international), (iii) a sociologist (international), (iv) a deputy project manager and water supply engineer (domestic), (v) a procurement specialist (domestic), (vi) accountants, (vi) a rural water supply specialist (domestic), and (vii) resident engineers. Their main tasks and outputs will include the following:

- (i) Assist the project director with the day-to-day management of all Project activities.
- (ii) Coordinate planning, control, and management of the work of a multidisciplinary team.
- (iii) Develop implementation schedules and resource requirements.
- (iv) Monitor progress, evaluate results, and identify and resolve constraints.
- (v) Provide long-term input to the development of project methodologies.
- (vi) Provide assistance in design, tendering, and supervision of construction contracts.
- (vii) Develop procurement documents in line with the Asian Development Bank guidelines.
- (viii) Check the bill of quantities and specifications.
- (ix) Establish a contract tracking systems, including implementation schedules and milestones achievable.
- (x) Coordinate the design and implementation of the Unnichchai Tank bund rising.
- (xi) Develop and implement training module for reduction of nonrevenue water, water quality control, and O&M.
- (xii) Develop and implement asset registry for all the existing (more than 1,000 connections) and proposed schemes.
- (xiii) Maintain day-to-day accounts of the Project.

6. The technical design, quality assurance, and monitoring team will comprise the following domestic consultants: (i) a water supply engineer, (ii) a sanitation specialist, (iii) resident

engineers, and (iv) a rural water supply specialist. It will also comprise of an international environment specialist. Their main tasks and outputs will include the following:

- (i) Evaluate demand and establish criteria to meet demand.
- (ii) Identify appropriate technologies and the need for standardization of equipment and materials.
- (iii) Lead the development of conceptual designs for rural water supply, sanitation, and drainage subcomponents.
- (iv) Participate in the presentation of the designs to the communities.
- (v) Identify the training needs of technical personnel involved in the Project at different levels and assist in developing training modules.
- (vi) Assure the quality of works of the design and supervision consultants.
- (vii) Conduct detailed hydrogeological investigations and prepare groundwater assessments for Anuradhapura and Polonnaruwa districts for the rural water supply component, and the RWSS program in Batticaloa.
- (viii) Prepare the environmental management plans for the water supply and sanitation subprojects and subcomponents;
- (ix) Develop indicators and monitor methodologies to continue assessment of environmental changes due to the improvement of water supply and sanitation facilities.
- (x) Conduct training programs for project implementation staff on environmental aspects. Monitor environmental resources and design mitigation measures to be taken in water supply and sanitation sub-projects and sub-components.
- (xi) Investigate the suitability of sanitation and drainage alternatives for the towns and districts, particularly Batticaloa and Muttur, and help prepare implementation procedures.
- (xii) With the sociologist and environmental specialist, assess the cultural, technical, and environmental suitability of the sanitation alternatives.
- (xiii) With the public awareness team, design a campaign that encourages community acceptance of and investment in the selected technology.

7. The social and institutional development team will comprise (i) a resettlement specialist, (ii) a sociologist (international), (iii) a health and sanitation specialist, (iii) a public awareness and media communications specialist, (iii) a community development officer, (iv) a community development assistant, (v) a training officer, (vi) a health education officer, (vii) a financial management specialist (international), (viii) a change management specialist (international), and (ix) economists. The responsibilities of the team will include the following:

- (i) Design, implement, and monitor the public awareness campaign.
- (ii) Develop, test, and evaluate methods of mobilizing community participation in the design, management, construction, and O&M of rural water supply and sanitation.
- (iii) Develop the community awareness and schools programs in the public awareness campaign for conservation of water and public health.
- (iv) Promote a participatory development approach within the project team.
- (v) Design and conduct socioeconomic baseline surveys and participatory field appraisals.
- (vi) Assess social impacts.
- (vii) Liaise with NWSDB sociologists, public relations units of NWSDB, nongovernment organizations (NGOs), and the Department of Health.

- (viii) Review the NWSDB accounting system and any studies done, and help implement the changes.
- (ix) Study and suggest introduction of an information technology-based accounting system linking the regions with the main office and able to track expenditure.
- (x) Study and suggest the possibility of a scheme-specific tariff system with the view of meeting O&M, meeting the replacement costs, and possibility of introducing an incentive system for better performing schemes.
- (xi) Review the NWSDB management system and suggest changes required to meet with the challenges of private sector participation and decentralization of operations.
- (xii) Identify and suggest training needs at the management, staff, and support staff levels.
- (xiii) Identify, develop, and implement training modules to support the institutional development of the North Central Provincial Council, Pradeshiya Sabhas, NGOs, and CBOs in RWSS.
- (xiv) Develop and implement a comprehensive benefit monitoring and evaluation program.

2. Design and Construction Supervision Specific Tasks

8. The design and supervision management team will comprise (i) a project manager and team leader (international), (ii) a deputy project manager, (iii) supervisors, and (iv) assistant engineers. The responsibilities of the team will include the following:

- (i) Review the feasibility reports prepared under the PPTA.
- (ii) Carry out detail investigation and engineering surveys.
- (iii) Design the urban water supply schemes, including the raising of the bund of the Unnichchai tank, if needed.
- (iv) Design the sewerage facility for the hospital and prison of Batticaloa, and the drainage facilities in Muttur and Batticaloa.
- (v) Establish water treatment guidelines and procedures for the detailed design of the water treatment plants in each of the urban schemes.
- (vi) Coordinate the preparation of detailed designs for the water treatment plants.
- (vii) Develop bidding documents, including bill of quantities and specifications.
- (viii) Assist in evaluation of bids.
- (ix) Prepare implementation schedule and resource requirements.
- (x) Supervise and assure quality of implementation of the urban schemes.
- (xi) Supervise all construction activities under the Project, including liaison with the engineering design team and community development team, operation, health and safety aspects, and implementation of the environmental management plan as required.
- (xii) Develop and implement quality assurance program for all works.
- (xiii) Lead the conceptual design of the drainage works in Muttur and Batticaloa.
- (xiv) Supervise day-to-day construction management.
- (xv) Develop O&M manuals for future maintenance.
- (xvi) Prepare asset registry for all assets built under the Project.

9. The technical design and construction supervision monitoring team will comprise: (i) a water treatment specialist, (ii) a hydrogeologist, (iii) a water supply design engineer, (iv) mechanical, electrical and structural engineers, (v) a dam specialist, (vi) a hydrogeologist, (vii)

water supply engineers, (viii) an irrigation engineer, (ix) a sanitation specialist, and (x) a water treatment specialist. The responsibilities of the team will include the following:

- (i) Conduct design and engineering surveys.
- (ii) Design the urban water supply and sanitation schemes.
- (iii) Develop the bidding documents, bill of qualities, and specifications.
- (iv) Assist in bid evaluation.
- (v) Develop and implement quality assurance programs for civil works and pipe laying.
- (vi) Develop a manual for water quality checks and assurance.
- (vii) Develop and implement training requirements for O&M, preventive maintenance, and the asset registry system.

SUMMARY INITIAL ENVIRONMENTAL EXAMINATION

A. Introduction

1. An initial environmental examination (IEE) of the proposed Project was undertaken as part of the Secondary Towns and Rural Community-Based Water Supply and Sanitation Project to ascertain its impact on the environment and to identify measures to prevent or mitigate any adverse environmental impacts that could arise from its implementation.

2. The Project is categorized as a “B” Project in accordance with *Guidelines on Environmental Assessment* of the Asian Development Bank (ADB). A summary IEE can be found in supplementary appendix B. All the subcomponents are undertaken to improve the quality and security of water supply and sanitation. Most IEEs carried out for each subcomponent showed no significant environmental effect. Project activities that may have a marginally significant effect, and the main mitigation measures proposed, are summarized below.

B. Summary of Proposed Mitigation Measure

4. **Batticaloa.** The raising by 1.5 meters of the Unnichchai water tank could create conflicts with other users. It is critical to ensure participatory planning to resolve issues and examine alternatives to minimize disruption to farmers. An extra 5–10 meters from the current inundation area will be flooded. A detailed IEE will be carried out, examining the site of the dam area, the inundation area, the affected cultivated areas, and immediate river valley. Any mitigation measures ensuing from the IEE will be included in the environmental management plan (EMP) and implemented.

5. A wastewater treatment plant with a capacity of 350 cubic meters per day will be constructed for Batticaloa Hospital and the adjacent prison, which currently discharge their sewage and sullage effluent into Batticaloa Lagoon. Liquid biomedical waste is relatively small and the treatment plant will have the appropriate process to treat it. Under Central Environmental Authority (CEA) regulations, the sewage treatment plant does not require a full IEE nor an environmental impact assessment (EIA) as its capacity is less than 500 cubic meters per day. A supplementary study will be carried out during detailed design to ensure that all mitigation measures are in place and a comprehensive EMP has been drawn up before an environmental protection license can be issued.

6. **Muttur.** High turbidity levels during the wet season and possible contaminants such as agro-chemicals may present a problem at the intake site. A long term water quality and quantity monitoring program should be implemented at the proposed intake site, particularly for low flow events. Elephants frequent the intake site during the dry season; therefore the intake infrastructure will need to be designed to minimize potential damage to it by elephants. Special consideration should be given to keeping workers and elephants apart during the construction period.

7. **Polonnaruwa.** Agro-industrial activities and uncontrolled solid waste management in the Parakrama Samudra catchment area could pollute the tank water. Intermittent algal bloom have been seen. NWSDB will engage the assistance of CEA and local catchment management agencies to develop and implement appropriate catchment and water source improvement strategies and a long-term water quality and quantity monitoring program.

8. Though most of the proposed project infrastructure is in urban areas, well away from any historical monuments or other related sites, two structures (water treatment plant and 2 kilometers of transmission line) will have to be carefully sited. The Archeological Authorities and the Road Development Authorities have given their clearance for the two structures and it has been agreed that NWSDB will work closely with them to ensure that all appropriate and necessary protective measures are in place to avert any damage to historical or archeological monuments.

9. **Hambantota.** Upstream rice mill discharges into the Walawe Ganga and the presence of agro-chemicals are the main water quality concerns. Close monitoring by NWSDB and the CEA will be required to prevent any upstream pollution of the raw water sources. NWSDB should participate in the Mahaweli Authority of Sri Lanka's Walawe Ganga catchment management processes and establish a long-term water quality and quantity monitoring program.

10. Increased water extraction could allow saline water to intrude upstream from its existing limit. The detailed design will determine whether a salinity barrier will be required for Hambantota. Should this be the case, a full IEE will be undertaken to ensure that all alternatives have been investigated.

11. **Matara.** The Matara salinity barrier is specifically designed to enable raw water extraction to continue during low flow periods, which means that the flow of fresh water downstream will be reduced. A conflict could arise if the reduction causes environmental flow in the Nilwala Ganaga to drop to a level that results in adverse downstream environmental effects. CEA, in accordance with the National Environmental Act, has requested that a full IEE be undertaken to ensure that all alternatives have been investigated. The supplementary study will be submitted to CEA and ADB for approval for the construction of the salinity barrier.

12. **Rural Component, North Central Province.** The schemes for the rural component will include small elements such as dug wells, tubewells, rainwater collectors, and latrines. These schemes will have no significant environmental effects. A selection criteria for the small schemes has to be established. Once the communities and the type of scheme have been selected, a screening will be done to determine whether an IEE or EIA is required. Based on the results, an EMP will be drawn up to ensure that all mitigation measures are in place and implemented.

13. **General Potential Environmental Impacts.** All sludge generated by the water treatment plants will be treated on site, and not off-site discharges will occur. To ensure the integrity of the treated water quality, all water storages will be roofed and ventilated, and the system operated to ensure that the distribution system is maintained under pressure. To ensure the health and safety of workers and the public are not affected by the Project, appropriate detailed design and EMPs are to include a safe working environment to international standards, coupled with appropriate training in chemical handling and mechanical, electrical, and system operations.

14. During construction, there will be some minor and temporary disruption to the surroundings and environment. Potential environmental issues include soil erosion, siltation and increase in runoff, waste and effluent from temporary construction camps, noise pollution, air pollution from dust, and increased traffic congestion. These issues will need to be minimized through an EMP for each subcomponent at the detailed design stage. All mitigation

requirements will be included in the contract document for the contractors, and for sensitive areas a performance bond system might be included.

15. Effective monitoring of treatment processes, operation and maintenance of procedures and daily chlorine residual testing will be instituted to ensure safe water is delivered. Microbiological testing of treated water will also be done periodically. Structured and planned preventive maintenance programs will be developed for all facilities constructed under the Project.

C. Institutional Requirement and Environmental Monitoring Program

16. NWSDB will be required to commission a detailed EMP for each project component. Implementation of mitigation measures for the protection of the environment prior to construction will be the responsibility of NWSDB and its district offices. A project environmental officer will be responsible for monitoring the implementation of these measures; liaising with local community groups, the CEA, and relevant agencies such as the Archeology Department and the Department of Wildlife Conservation; gathering baseline data; and providing technical support. Implementation of mitigation measures during the construction stage will be the responsibility of the contractor. An environmental engineer, who will be hired as part of the consultant team for implementing the Project, will assist NWSDB in preparing contractual documentation so that the bidding documents, bills of quantity, and other contractual obligations of contractor clearly identify environmental responsibilities and describe penalties for noncompliance. The environmental reports will be submitted to local environmental agency offices if present and to CEA if not, according to the engineering phases of plant construction and pipe laying. NWSDB will be responsible for overall environmental monitoring and management. The project implementation units and local government implementation units will be responsible for sending quarterly reports to the project monitoring unit, which will be in charge of consolidating the data and sending it on to ADB.

D. Conclusion

17. The Project will improve the health and sanitation of the communities. The IEE concludes that an EIA will not be necessary based on the findings that the Project will not cause significant environmental problems and the potential adverse impacts are manageable through proper policy, planning, public relations, and good construction and supervision practices. CEA approval is being sought for a number of subcomponents where detailed IEEs are currently being prepared. The Project has sufficient contingencies should CEA require additional mitigation measures to be put in place. However, no work will commence until the appropriate approvals from CEA and relevant authorities have been sought and granted.