

**REPORT AND RECOMMENDATION
OF THE
PRESIDENT
TO THE
BOARD OF DIRECTORS
ON A
PROPOSED LOAN AND TECHNICAL ASSISTANCE GRANT
TO THE
INDEPENDENT STATE OF SAMOA
FOR THE
SANITATION AND DRAINAGE PROJECT**

November 2003

CURRENCY EQUIVALENTS

(as of 2 September 2003)

Currency Unit	–	tala (ST)
ST1.00	=	\$0.323
\$1.00	=	ST3.10

ABBREVIATIONS

ADB	–	Asian Development Bank
CBA	–	central business area
CEO	–	chief executive officer
CSO	–	community service obligation
EIA	–	environmental impact assessment
EIRR	–	economic internal rate of return
EMP	–	environmental management plan
EOCC	–	economic opportunity cost of capital
GDP	–	gross domestic product
GIS	–	geographic information system
IEE	–	initial environmental examination
LCB	–	local competitive bidding
MOA	–	Ministry of Agriculture
MOH	–	Ministry of Health
MWTI	–	Ministry of Works, Transport, and Infrastructure
O&M	–	operations and maintenance
OMM	–	operations, maintenance, and management
PMU	–	project management unit
PPMS	–	project performance management system
PUMA	–	Planning and Urban Management Agency
RRP	–	report and recommendation of the president
SIEE	–	summary initial environment examination
SOE	–	statement of expenditures
SRP	–	short resettlement plan
SWA	–	Samoa Water Authority
TA	–	technical assistance
TOR	–	terms of reference
WHO	–	World Health Organization
WWTP	–	wastewater treatment plant

WEIGHTS AND MEASURES

m ³	–	cubic meter
km	–	kilometer
m	–	meter

NOTES

- (i) In this report, "\$" refers to US dollars.
- (ii) The fiscal year (FY) of the Government ends on 30 June. FY before a calendar year denotes the year in which the fiscal year ends.

This report was prepared by N. Convard, team leader and senior project specialist, Water Supply & Urban Development; L. Nazarbekova, counsel; and H. Baxter, social protection specialist.

CONTENTS

	Page
LOAN AND PROJECT SUMMARY	i
MAP	vii
I. THE PROPOSAL	1
II. RATIONALE: SECTOR PERFORMANCE, PROBLEMS, AND OPPORTUNITIES	1
A. Performance Indicators and Analysis	1
B. Analysis of Key Problems and Opportunities	3
III. THE PROPOSED PROJECT	5
A. Objectives	5
B. Components and Outputs	6
C. Special Features	8
D. Cost Estimates	8
E. Financing Plan	9
F. Implementation Arrangements	9
IV. TECHNICAL ASSISTANCE	13
V. PROJECT BENEFITS, IMPACTS, AND RISKS	13
A. Policy Reform	14
B. Institutional Strengthening	14
C. Social Dimensions	14
D. Financial Aspects	15
E. Economic Aspects	16
F. Environmental Aspects	17
G. Project Risks	18
VI. ASSURANCES	18
A. Specific Assurances	18
B. Conditions for Loan Effectiveness	20
VII. RECOMMENDATION	20
APPENDIXES	
1. Project Framework	21
2. Chronology	25
3. External Assistance	26
4. Sector/Subsector Analysis	27
5. Institutional Analysis	32
6. Indicative Procurement Packages	34
7. Implementation Schedule	35
8. Cost Estimates and Financing Plan	36
9. Summary Financial Analysis	38
10. Summary Economic Analysis	43
11. Environmental Analysis	47
12. Summary Poverty Reduction and Social Strategy	50

13.	Short Resettlement and Land Acquisition Plan	52
14.	Outline Terms of Reference for Project Implementation Assistance and Loan-Funded Capacity Building Consulting Services (Loan Funded)	53
15.	Technical Assistance	58

SUPPLEMENTARY APPENDIXES (available upon request)

A.	Technical Analysis
B.	Detailed Economic Analysis
C.	Detailed Financial Analysis
D.	Initial Environmental Examination (IEE)
E.	Summary Initial Environmental Examination
F.	Implementation Arrangement Organization Chart

LOAN AND PROJECT SUMMARY

Borrower	The Independent State of Samoa
Classification	Poverty classification: Not classified Thematic: Primary: Environmental protection Secondary: Water and waste management
Environment Assessment	Non-sensitive B Will have a positive effect on environment and public health
Project Description	The Project has three components: (A) drainage, (B) wastewater management and sanitation, and (C) capacity building. Outputs include (i) improved floodways (2,850 meters [m]); (ii) rehabilitated existing drains (2,425 m); (iii) installation of water gauges to for flood monitoring and establish survey levels to support future master planning and drainage design; (iv) design, construction, and operation of a wastewater collection and treatment system for the central business area (CBA) (a treatment plant with a capacity of 950 cubic meters/day, and approximately 5 kilometers of sewers); (v) upgrading of individual sanitation facilities in low-lying areas, particularly southwest of the CBA, and utility-managed individual sanitation systems, specifically a regular pump-out program for septic tanks and cesspools; and (vi) strengthened institutions and legislative frameworks for wastewater management, drainage, urban management, and environmental monitoring.
Rationale	Apia is the capital of Samoa and its population and economic center. It has approximately 37% of the population of 164,217 (based on the 1999 census), or 60,000 people. Apia, particularly its center, shows typical signs of inadequate planning and infrastructure provision for environmental protection associated with urban areas. Nearshore marine water and urban stream water quality in Apia has been significantly degraded as a result of inadequate sanitation and wastewater management systems. Most wastewater is now treated in individual systems such as cesspools and septic systems before being discharged into drainage channels (including open channels and streams), soil, and groundwater. Flooding is frequent due to high rainfall and an inadequate drainage system that is compounded by land filling, blocking of drains, and historical lack of town planning. Flooding after heavy rain is intensified, and foul water flooding poses a public health risk due to septage and latrine wastes being released to the ground surface environment. Businesses have suffered substantially financial losses from the frequent flooding, hampering the overall economic growth of the country. The growing urban population density, poor soil conditions, and high groundwater, together with flooding potential, mean that individual systems in the denser urban areas can no longer effectively treat wastewater. A large reticulated wastewater collection and

treatment system covering all the urban area or even a large part of it are not affordable for the Government or the consumers. Limited institutional and technical capacity also hinder the potential to operate and maintain such a system at this time. The Samoa Water Authority (SWA) reasonably and effectively provides water services to Apia and rural areas of the country. SWA has not provided wastewater or sanitation services and has no specific capabilities to do so in this area. SWA's skills and capacities need to be upgraded to cover wastewater and sanitation services. The Government recognizes the urgent need to urgently address the wastewater management, including sanitation issue together with the integrally related and drainage problems. The Government's commitment to this and other planning and urban management issues is reflected in its Planning and Urban Management Strategy and the creation in 2002 of a Planning and Urban Management Agency (PUMA).

Objective

The overall objective of the Project is to improve the environment and public health of Apia through assistance in improving urban infrastructure for drainage and sanitation as well as improving urban management capacity. The Project objectives include improved public health, environmental quality, and surface and groundwater quality; and reduced frequency of flooding in specific low-lying areas of Apia. The Project also promotes private sector participation in provision of urban services by outsourcing a number of utility services to the private sector, and advances private sector development by providing improved infrastructure and business environment.

Cost Estimates

The total project cost is estimated at \$10 million, including a foreign exchange cost of \$3.8 million (about 38% of the total) and a local cost of \$6.2 million (about 62% of the total cost).

Financing Plan

Sources	\$ million equivalent		
	Foreign Exchange	Local Currency	Total Cost
Asian Development Bank	3.8	4.2	8.0
Government	0.0	2.0	2.0
Total	3.8	6.2	10.0

Loan Amount and Terms

The loan will be SDR 5,604,000 (\$8 million equivalent) from the Asian Development Bank (ADB) Asian Development Fund (ADF). The loan will have a 32-year term, including a grace period of 8 years. The interest rate charged will be 1.0% during the grace period and 1.5% thereafter.

Allocation and Relending Terms

The Government will re-lend a portion of tala-denominated loan proceeds allocated with foreign exchange risk borne by the Government for the wastewater and sanitation component to SWA at a 32-year term, 5-year grace period, and interest charged at 5% per annum.

Period of Utilization	March 2004 to June 2009
Estimated Project Completion Date	31 December 2008
Executing Agency	Ministry of Finance
Implementation Arrangements	<p>A project steering committee has been constituted, chaired by the chief executive officer (CEO) MOF and co-chaired by the managing director of SWA and CEOs of Ministry of Works, Transport, and Infrastructure (MWTI) and Ministry of Environment and Natural Resources. Other steering committee members include the CEOs of Ministry of Agriculture (MOA), Ministry of Health (MOH), Ministry of Women, Community and Social Development; and the general manager of the Electric Power Corporation.</p> <p>The Project will have two implementing agencies: (i) Ministry of Works, Transport, and Infrastructure (MWTI) for the drainage component; and (ii) SWA for the wastewater management and sanitation and capacity building component.</p>
Procurement	<p>ADB-financed goods and services will be procured in accordance with ADB's <i>Guidelines for Procurement</i>. Major contracts for civil works costing over \$1 million, and equipment purchases valued at \$500,000 or more will be undertaken through ADB's international competitive bidding procedures (ICB), and equipment packages valued at less than \$500,000 will be procured following ADB's procedures for international shopping. Civil works estimated to cost \$1 million or less per package will be carried out under local competitive bidding (LCB) procedures acceptable to ADB, and in accordance with government procurement laws and regulations. For LCB packages, local contractors have the expertise and capacity to undertake such works, which will be determined through a prequalification exercise.</p>
Consulting Services	<p>The loan will fund recruitment of a firm to provide 48 person-months of international and 65 person-months of domestic consulting services to help the Government and SWA implement the Project and provide capacity building. Project management unit will be staffed with a Project Manager and administrative and accounting services funded by the loan.</p> <p>SWA will also use loan funds to finance a twinning or partnership arrangement with another regional wastewater utility, which will be separately retained.</p> <p>The recruitment of consultant services for the capacity building and Project implementation and twinning arrangement, will be undertaken in accordance with ADB's <i>Guidelines on the Use of Consultants</i>, using the quality- and cost-based selection method,</p>

and other arrangements satisfactory to ADB on the engagement of domestic consultants. The PMU Project Manager will be recruited in accordance with ADB's *Guidelines on the Use of Consultants*, as an individual consultant with an allowance for accounting and administrative services.

Project Benefits and Beneficiaries

The Project will improve environmental conditions, reduce health risks, and greater amenities to Apia's 60,000 residents, approximately 2,000 working population, and 50,000 visitors. The Project will directly benefit residents by providing sanitation services. A proportion of the 1,750 residents of low-lying areas will benefit from rehabilitation of their household sanitation facilities to a minimum standard. Businesses, government departments, and other organizations located in CBA will benefit from connection to the central reticulated sewerage system. The upgraded sanitation services for the National Hospital will benefit the 10,000 in-patients and 50,000 outpatients annually, hospital and Department of Health staff (approximately 130), and the adjacent village community. The Malifa compound population of approximately 2,200 students, staff, and Department of Education staff will benefit from improved sanitation. Residents and businesses will benefit from improved drainage. These benefits include less disruption to roadways and footpaths during and after rainfall, less water damage to roadways and footpaths, and litter entering Apia harbor and neighboring mangrove areas.

Indirect beneficiaries of the Project include the fisheries industry through improved marine environment resources from reduction in seawater pollution, and the tourism industry through improved urban and marine environments.

Staff of PUMA, MWTI, Ministry of Agriculture, and Ministry of Health will upgrade their skills and capabilities through training. SWA staff will benefit from a twinning arrangement with an experienced wastewater utility. The Government will benefit from improved environmental and health outcomes, and reductions in health expenditure in relation to water-related diseases.

Risks and Assumptions

Project risks center on (i) continued government commitment to improve urban management, (ii) business community participation in the sewerage connection program, and (iii) effectiveness and sustainability of capacity-building measures. Government commitment has been demonstrated through the establishment of PUMA, promulgation of the Planning and Urban Management Bill, and efforts to develop this Project. Business community support and participation were fostered through dialogue during project development, and continue to be fostered through pre-loan dialogue on tariff needs and private sector participation wastewater service provision. To make capacity building measures more effective and sustainable, the capacity building consultancy emphasize a high level of interaction with the

Government and SWA staff during the Project. The establishment and funding of a twinning arrangement for SWA and a well-established and effective utility will promote long-term capacity building. There is some risk of inadequate cost recovery from tariffs resulting in greater-than-anticipated government subsidy of wastewater management operations. However, the Government and SWA have demonstrated their commitment to improved cost recovery through recent water tariff increases, enactment of a Public Bodies (Performance and Accountability) Act that promotes sustainable commercial operations for public enterprises, and its deliberate review of cost recovery issues associated with this Project. Also, based on project estimates and consultations, estimated tariffs. Government has provided strong assurances on tariff systems and levels as well as support of SWA when it provides necessary community services that are not commercially viable (community service obligations). The Project emphasizes building community and other stakeholder awareness and commitment to the Project, and encouraging SWA and government responsiveness to community needs. Land acquisition risks, which only affect portions of the drainage component, are minimal due to limited land acquisition requirements.

Technical Assistance

Attached to the Project is a concurrent technical assistance (TA) for institutional strengthening of infrastructure planning for the Project, and long-term planning for drainage and wastewater management. The TA Executing Agency (EA) will be the Treasury Department, and the implementing agency, PUMA. The TA has two components: (i) drainage and wastewater management planning and (ii) urban planning and regulation. Long-term drainage and wastewater management plans for greater Apia, and enabling legislation will be developed. The planning and regulation component focuses on institutionalizing the new PUMA legislation with key affected stakeholders, including PUMA, MWTI, and SWA, and strengthening them, primarily PUMA. It will facilitate new planning assessment processes and procedures and implementation of a land planning and geographic information system (GIS) for PUMA. The TA will also help PUMA develop a strategy for community awareness of wastewater and drainage issues.

The TA involves 11 person-months of international and 13 person-months of domestic consultants, to be recruited in accordance with ADB's *Guidelines on the Use of Consultants*, using the quality- and cost-based selection method and simplified technical proposal, and other arrangements satisfactory to ADB on the engagement of domestic consultants. The total cost of the TA is estimated at \$475,000, with \$400,000 financed by the Japan Special Fund. Expertise areas to be recruited under the TA include civil/environmental engineering, urban planning, environmental law, GIS, and community development awareness.



I. THE PROPOSAL

1. I submit for your approval the following report and recommendation on a proposed loan to the Independent State of Samoa for the Sanitation and Drainage Project. The report also describes proposed technical assistance (TA) for Capacity Building for Drainage and Sanitation, and if the Board approves the proposed loan, I, acting under the authority delegated to me by the Board, will approve the TA.

II. RATIONALE: SECTOR PERFORMANCE, PROBLEMS, AND OPPORTUNITIES

2. Samoa is a small archipelago consisting of two main islands—Upolu and Savai'i—and five smaller islands, with a total area of 2,820 square kilometers. In 2001 the population¹ was 176,848, with natural increase in the order of 1% per annum. However, with significant emigration, net population growth is estimated at 0.5% as it has been for the last 30 years. Some 98% of the population lives on the coastal plains in small villages, including in and around urban Apia, the capital, on Upolu. Approximately 60,872 people or 34.4% of the population lived in Apia while 52% lived in northwest Upolu, including Apia and the undulating foothills stretching 30 kilometers (km) to the northwest. Much of development is between these foothills and the coastline.

A. Performance Indicators and Analysis

3. Samoa has made great progress over the past two decades in economic and social development. The Strategy for the Development of Samoa 2002–2004² continues the Government's emphasis on macroeconomic stability; public sector efficiency and reform; improved education and health standards; better urban planning and management, including provision of infrastructure; and a strong private sector.

4. Samoa's stable political environment, combined with vigorous economic growth and inclusive social development strategies, has contributed towards Samoa achieving its development goals. With a Human Development Index of 0.59, Samoa rates well on the achievement of social development goals. Adult literacy rates for both genders (96%) and gross enrolment rates in primary (94%) and secondary (70%) levels are high by Pacific developing member country standards. Infant mortality (22 per 1,000 births), under-5 mortality (35 per 1,000 births), and maternal mortality (4 per 100,000 births) rate amongst the three lowest in the Pacific region. Some 90% of the population has access to potable water. Concern for the environment is strong. New legislation, Planning and Urban Management Bill (PUMA Bill) deals with the biophysical, social, and economic environments. Drafted in 2002, it is expected to be enacted in December 2003.³ Real gross domestic product (GDP) was 6.5% in 2001 and 6.9% in 2000. Strong economic growth has been attributed to development of commerce, public administration, hotels and restaurants, transportation and communications, construction, and fisheries. Economic activities and government offices are concentrated in Apia, particularly the central business area (CBA).

5. The 2001 census data indicate that 88% of the population has access to safe sanitation, and World Bank data for 2002 indicate that 95% of the urban population has improved facilities.⁴ This access to sanitation data misrepresents the public health implications of the sanitation

¹ Extracted from the 2001 *National Population and Household Census for Samoa*.

² Government of Samoa. 2002. *Strategy for the Economic Development of Samoa*.

³ Prepared with assistance under ADB. 2002. *Implementation of the Urban Planning and Management Strategy*. Manila.

⁴ ADB. 2003. *Millennium Development Goals in the Pacific*. Manila.

status of many living in the urban areas. In urban Apia, for example, about 75% of households have septic systems, but many are too small, rarely cleaned, and sometimes directly linked to the nearest drainage channel, polluting groundwater, surface streams, and the harbor. In the CBA and special needs areas (those with special wastewater concerns) such as hospitals and major school compounds, less than 10% of wastewater is adequately treated. The hospital has a poorly operating treatment plant, as do most commercial centers and government complexes. Others have inadequate septic systems. The situation is exacerbated by the historical lack of urban management, including the absence of drainage or wastewater management plans and the absence of effective town planning. Individuals have elevated their plot heights, reclaimed land in the mangrove area, and blocked drainage channels. The effect is a haphazard and cumulative nonfunctioning drainage system. Flooding after heavy rain is intensified, and foul water flooding poses a health risk due to septage and latrine wastes being released to the surface environment. The Health Sector Strategic Plan specifically identifies environmental health issues, including the lack of a public sewerage system and drainage problems, as affecting public health. The plan links recent outbreaks of dengue, incidence of diarrhea, respiratory and skin diseases with the need for more intensive environmental health control.⁵

6. Nearshore marine water and urban stream-water quality in Apia has been significantly degraded due to inadequate sanitation and wastewater management systems. Water quality-monitoring data, which have been only intermittently collected, show definitive evidence of sewage contamination as evidenced by low dissolved oxygen saturation, high biochemical oxygen demand (BOD), high total nitrogen concentration, and high indicator bacteria concentration.⁶ Urban drains are often choked with litter and vegetation, foul smelling (indicating anaerobic conditions), and contain floating oil and sewage. Drains and natural watercourses are contaminated with sewage and, occasionally, industrial waste. Monitoring is done infrequently and usually result from donor-funded activities, including previous Asian Development Bank (ADB)-supported TA.⁷ Samoa has no legislative framework for environmental standards.

7. Throughout the last decade, the Government has been increasingly concerned with the impact of rapid population growth and development pressures in urban areas: (i) inadequate urban infrastructure provision to cope with the expanding urban population; (ii) absence of an agreed framework and coordinated approach for urban management and planning, including unclear institutional arrangements; and (iii) the need to resolve land issues (supply, tenure, and availability) to meet demand for housing, infrastructure development, and urban expansion. The Government's reform agenda includes reducing the scope of government activity through rationalization, corporatization and contracting out of some services. The dramatic downsizing of the Ministry of Works Transport and Infrastructure (MWTI) by about 80%, and outsourcing of many traditional functions are examples of this.⁸ Public health, environmental quality, and better urban planning are all incorporated into the Economic Development Strategy. Similarly, the Tourism Development Plan 2002-2006 emphasizes sustainability (including planning and development, natural resources, waste and pollution) and appropriateness of development for Samoa.

⁵ Health data are not in a form useful to state quantitative indicators. Thus, the Health Sector Strategic Plan is referenced. Capacity-building components described elsewhere in the Report and Recommendation of the President address this issue.

⁶ For example, fecal coliform levels in Vaiusu Bay have been measured at over 5,700 organisms per 100 milliliter (ml), while the United States standard for shellfish gathering is 14 organisms per 100 ml. Additional indicative data are included in Supplementary Appendix A.

⁷ ADB. 1995. *Technical Assistance to Samoa for Integrated Urban Development Projects*. Manila; and ADB. 1998. *Technical Assistance to the Independent State of Samoa for Evaluation of Sewage Treatment Options*. Manila.

⁸ Ongoing World Bank Asset Management Project.

8. The Government started to provide water supply services more efficiently and commercially by creating the Samoa Water Authority (SWA) through the Water Authority Act in 1993. The Government is committed to the principle of full cost recovery and autonomy of SWA and other government utility corporations, as expressed in the Public Bodies (Performance and Accountability) Act. However, the Government recognizes that full cost recovery from user charges is not feasible now due to broader environmental, economic, and social objectives. The Government thus supports public utilities through compensation for Community Service Obligations (CSOs), i.e., services that contribute to these broader objectives.⁹ As costs are gradually recovered, CSOs will be reduced to the point where they are only used to guarantee access to the poor and vulnerable. Currently, the CSOs include subsidies for a lifeline block of water supply and fire protection, however, additional subsidy is necessary to support SWA.

9. Urban infrastructure and services have traditionally been provided by national government agencies such as the Department of Lands, Survey, and Environment (DLSE), and MWTI. The social, cultural, and administrative aspects of traditional village life in Apia come under the village councils for which the Ministry of Women Community and Social Development has administrative responsibility.¹⁰ These agencies planned and provided for infrastructure requirements and constituted the de facto institutional framework for planning and urban management before the establishment of the Planning and Urban Management Agency (PUMA) in 2002, and preparation of the Planning and Urban Management Strategy for Samoa, which were assisted by ADB TA. PUMA and the strategy resulted from extensive stakeholder consultations that showed a growing awareness of the urgent need for a coordinated and integrated approach to urban planning and development.¹¹

B. Analysis of Key Problems and Opportunities

10. With the Government's growing concern about inadequate urban infrastructure and coordination of development activities also came concern at the community level; where customary lands in Apia were once not available for development, *fono* increasingly accepted that they had to discuss land-planning options, given increasing development pressure. In 2000-2001 this joint concern resulted in the review of institutional arrangements for planning and urban management in Apia and the ensuing establishment of PUMA. Key among the issues raised by the community were the environmental deterioration of the urban and peri-urban areas, increasingly inadequate or inefficient provision of infrastructure and services, and land tenure problems associated with complex traditional land ownership systems and need for government access to certain lands to provide basic services.

11. Rehabilitation and improvement of drains and floodways to mitigate regular flooding in the CBA, markets, and low-lying adjacent areas are urgently needed. Wastewater and sanitation improvements are needed to meet basic public health requirements for households and mitigate impacts of inadequate wastewater facilities in the CBA and other identified priority needs areas. The Project takes advantage of the Government's commitment to improve urban management and the growing community awareness to respond to the urgent drainage and sanitation problems, which is an important step to establish a fully functioning urban management system. Besides the benefits of physical development, the Project also includes

⁹ CSO legally refers to the services performed but is commonly applied to the funding of these services. Financial aspects section of this report and Appendix 9 contain more details on CSO, cost recovery, and other government financial subsidies of SWA.

¹⁰ Samoa has 236 village councils, of which 15 are within the Apia urban area.

¹¹ ADB. 2000. *Technical Assistance the Independent State of Samoa for Capacity Building for Urban Planning and Management*. Manila.

planning, legislative, and institutional strengthening to support successful implementation and to increase the likelihood of future investment in urban management.

12. The Apia Drainage Scheme, completed in 1993, was based on 1979 fieldwork, after which land use changed substantially and urban growth increased, greatly affecting runoff and drainage characteristics. Much of Apia is built on low-lying flood-prone land, parts of which were mangrove swamp before reclamation and development. Filling is most prominent in the natural floodplain of Vaiusu Bay adjoining the CBA, with such activities continuing to change storm water runoff patterns, and groundwater and flood flow patterns. The continuing lack of urban planning, including lack of land-use controls and guidelines, land filling, encroachment into waterways, and lack of drainage maintenance, have all contributed to the incidence of flooding and impact on property and health.¹²

13. Previous proposals for sanitation in Apia in the mid- to late 1990s all advocated large-scale sanitation systems based on a reticulated system serving a minimum 10,000 population.¹³ These schemes were extensive, covering the CBA, low-lying and floodplain areas, and industrial estates some 6 kilometers to the northwest. Such blanket schemes for sanitation failed to win government and other stakeholder support. Large-scale schemes were not considered appropriate because (i) they were expensive; (ii) institutional capacity and commitment to implement, operate, and maintain them was limited; (iii) they failed to recognize the highest priority of improving the Apia water scheme and implementing water tariffs; (iv) disposal to sea by ocean outfall was seen by many as resulting in adverse impacts on the marine ecology and Samoa's image; and (v) the proposed sewage treatment plant sites in northwest Apia were not considered appropriate. Since 2000 the Government has reviewed options that address these stakeholder issues and concerns,¹⁴ including a focus on incremental sewerage and drainage system development and affordable integrated solutions that meet user groups' technical needs while developing the planning and urban management framework. This focus is documented in the Government's Apia Planning Policy Framework.

14. ADB has invested \$1.67 million in urban development and wastewater management TA. Initial TA recommendations failed to gain support for the reasons outlined above, while recent TA that have focused on consultation first and detailed design second which have been able to gain the necessary support. Lessons learned from this experience and other ADB and other donors are (i) consultation and dialogue among stakeholders is important in achieving project support; (ii) large-scale reticulated solutions are not appropriate at this time for several reasons including affordability (Government and consumers), institutional capacity, and technical capacity; (iii) land tenure matters are an integral part of project design and implementation; (iv) ocean discharge of effluent requires a high level of treatment and long outfall pipes; (v) wastewater management infrastructure needs to be improved as part of broad urban management planning; (vi) management needs to be included in capacity-building assistance; and (vii) capacity building requires long-term approaches with more time allocated to process and provide for long-term, distance advisory services, such as twinning arrangements. Solutions need to be locally driven and respectful of the local situation, including understanding why previous schemes did not win broad stakeholder support. The Project addresses these lessons by including multifaceted solutions. It is an appropriately scaled incremental approach that ensures affordability, and institutional and technical capacity to support the Project, while

¹² Appendixes 4 and 10 provide detailed data on the flooding, including technical data and economic costs.

¹³ The most recent proposals were embodied in ADB. 1994. *Integrated Urban Infrastructure Project*. Manila; and ADB. 1998. *Evaluation of Sewage Treatment Options*. Manila.

¹⁴ ADB. 2000. *Technical Assistance to the Independent State of Samoa for Capacity Building for Urban Planning and Management*; and ADB. 2002. *Technical Assistance to the Independent State of Samoa for Implementation of the Urban Planning and Management Strategy*. Manila.

incorporating expandability and flexibility for future wastewater and drainage management improvement.

15. Although it does have reasonable water supply services capacity, SWA provides no wastewater or sanitation services and thus has no specific capacity in this area. Consequently, the Project includes a substantial capacity-building component, which is consistent with recent ADB Operations Evaluation Department recommendations for improving capacity building.¹⁵ The Project provides the opportunity to foster the Government's expressed goal of improving transparency of CSOs, overall financial autonomy, and general governance of public utilities by addressing these issues for SWA under the capacity building component of the loan. Project management capacity building will foster the MWTI strategy to outsource works to the private sector.¹⁶

16. The Project is a part of the Government's overall strategic urban management strategy. It is the first significant investment toward achieving urban environmental conditions that meet internationally recognized standards of environmental quality and Samoa standards as they are developed. While achieving incremental environmental and drainage improvements, it provides (i) data needed to develop long-term physical improvement plans, and (ii) capacity building to sustainably provide urban services such as wastewater and drainage.

17. The Project supports ADB's strategy for Samoa¹⁷ and Water Policy by (i) fostering good water and environment governance, (ii) improving living conditions, and (iii) promoting private sector growth and creating jobs through private sector participation in providing wastewater services and improving environmental infrastructure. The emphasis on integrated water resource management, which is promoted through capacity building, support for PUMA, and promotion of regional cooperation by establishing a utility twinning arrangement, supports ADB's *Water Policy*.

III. THE PROPOSED PROJECT

A. Objectives

18. The overall objective of the Project is to help improve Apia's environment and public health through improved drainage and sanitation infrastructure and capacity in urban management. Project objectives include (i) improved public health, (ii) improved environmental quality, (iii) improved surface and groundwater quality, and (iv) reduced frequency of flooding in specific low-lying areas. The Project also promotes private sector participation in the provision of urban services through the outsourcing of certain utility services to the private sector and further promotes private sector development through provision of improved urban infrastructure and environment for businesses.

19. Drainage-related activities will include rehabilitation of floodways and drains upstream of the Asaga and Gasegase confluence in the lower catchment area, and installation of water gauges for flood monitoring in the upper and lower catchment areas. The sanitation component provides a range of solutions to meet varying sanitation needs and concerns in the CBA, adjoining low-lying areas, and urban Apia. The Project also includes capacity building of the

¹⁵ ADB. 2003. IN64-03. Special Evaluation Study: ADB Capacity Building for Managing Water Supply and Sanitation to Pacific Developing Member Countries. Manila.

¹⁶ Capacity building, particularly management systems to support private sector participation and consultations on tariff structures, are being supported through demonstration activity grants from the ADB Water Fund and ADB. 2002. *Implementation of the Urban Management Strategy*. Manila, respectively, that will conclude by March 2004.

¹⁷ ADB. 2002. *Country Strategy and Program Update (2003–2005)*. Samoa. Manila.

implementing agencies. The Ministry of Health (MOH), Environmental Health Division, and the Ministry of Agriculture (MOA) will receive targeted capacity building.

B. Components and Outputs

20. The Project's three components are (i) drainage, (ii) wastewater management and sanitation, and (iii) capacity building. Project outputs include (i) improved floodways; (ii) rehabilitated existing drains; (iii) installation of water gauges for flood monitoring; (iv) design, construction, and operation of a wastewater collection and treatment system; (v) utility-managed individual sanitation systems; and (vi) strengthened institutions and legislative frameworks for wastewater management, drainage, urban management, and environmental monitoring.

1. Component A: Drainage for the Gasegase and Asaga Catchments

21. Component A mitigates the effects of flooding in the Gasegase River, Asaga Stream Bypass, and Fugalei Stream area to the southwest of the CBA, and will provide data to develop a broader drainage management plan to guide future improvements. The component focuses on rehabilitating the floodway (440 meters [m]) in the Fugalei River downstream of the Fugalei Street Bridge to the confluence with the Gasegase Stream (860 m) in Asaga Stream Bypass and (1,550 m) in the Gasegase River. Accumulated waste in the mangroves lining the Gasegase River to its mouth in Vaiusu Bay will be removed. Upstream of Fugalei Street Bridge in the Fugalei Stream (1,350 m) and north of Vaitele Road of Asaga Stream Bypass (1,075 m), storm drains will be cleaned, rubbish and silt removed, and survey levels established. Water gauging stations will be installed in the project area and other catchments to monitor flood flows and provide data for hydraulic modeling and further drainage design. Topographical and cadastral surveys will establish levels in the floodplain and low-lying area, support hydraulic modeling of flood flows, guide design and implementation of civil works. Pumps that can be mounted on trucks will be provided to release floodwaters from constrained drainage ways and provide emergency pumping for areas where foul water may accumulate, to minimize health hazards.

2. Component B: Wastewater Management and Sanitation Infrastructure for Apia

22. Component B, which addresses urgent wastewater and sanitation needs in urban Apia and, has three subcomponents:

- (i) **Individual system rehabilitation and septage collection and treatment program.** SWA will implement an operation and maintenance (O&M) program for individual systems, which will include rehabilitation of systems in low-lying areas and regular pump-out of all individual systems in greater Apia. A detailed sanitary survey at the start of the Project will determine specific rehabilitation needs, define rehabilitation standards, prioritize rehabilitation activities, and identify appropriate pump-out intervals. SWA will manage private sector O&M contracts for delivery of individual sanitation system services. The program will be funded by a sanitation surcharge on all greater Apia water bills. Up to 500 households will be included in the rehabilitation program, and all of greater Apia's 8,000 households will be provided septage collection services. The Project will provide two 10 cubic meter (m³) vacuum trucks for this service. Septage will be disposed of in lined lagoons at the Tafai'gata landfill and in a pilot waste-to-energy

anaerobic digester that is being developed through a government-private sector partnership.^{18, 19}

- (ii) **CBA wastewater collection and treatment system.** The wastewater system includes 2.0 km of sewers, 1.3 km of rising mains, and a wastewater treatment plant (WWTP) with an average capacity of 950 m³/day. The WWTP will meet secondary treatment standards and include disinfection. WWTP effluent will be discharged to adjoining subsurface infiltration galleries. The WWTP also serves several priority special needs areas, including the National Hospital, Malifa School, and Fugalei Market, which make up approximately 450 m³/day of indicated capacity. WWTP will treat its biosolids (sludge) and dispose of it in the Tafa'igata landfill. This system will serve approximately 110 business and government customers.
- (iii) **Special needs area wastewater treatment.** A number of areas with particularly significant pollutant sources or other factors requiring special consideration and prioritization for improved wastewater management were prioritized for inclusion under the Project. These areas include the National Hospital, Malifa Education Compound, Fugalei Market area, and the commercial area from Mulivai to Vaisigano streams along the Main Beach Road. The total wastewater flow for these facilities is approximately 450 m³/day. These areas will be directly connected to the CBA scheme, with sewers connecting these facilities to the CBA collection system, sized to allow future connections.²⁰ Approximately 3.0 km of sewers and 0.4 km of rising mains will be constructed to connect these systems to the WWTP. The Project includes an allocation for additional special needs areas based on criteria to be developed during the detailed design phase, which may be addressed through a range of technical options, including reuse of existing systems.

3. Component C: Capacity Building

23. Component C will provide capacity building in technical and management areas as well as community awareness programs. Capacity building will focus on SWA, with targeted capacity building for MWTI, PUMA, Fisheries Department, MOA, and MOH. Capacity building will be provided in the following technical and utility management areas: (i) project management; (ii) contract management; (iii) utility management; (iv) financial management, including billing systems; (v) customer management; (v) community awareness and public relations; (vi) planning for wastewater management and drainage; (vii) technical aspects of wastewater management and sanitation systems; (viii) asset management; (ix) development of project and institutional monitoring systems; (x) development of ambient water quality standards and an ambient water quality monitoring system; (xi) health benefits monitoring for the MOH; and (xii) monitoring of marine resources for environmental pollutants for the Fisheries Department.

24. Key to capacity building will be completion of training-needs analysis prior to developing training programs and monitoring to ensure effective capacity building. Training programs are being provided to target groups in SWA, MWTI, PUMA, MOA, and MOH. Sustainability of SWA capacity building will be enhanced by funding a twinning arrangement with a well-functioning

¹⁸ This project is facilitated by Sustainable Project Management, a nongovernment organization that promotes public-private partnerships.

¹⁹ The digester is not yet operational and energy use not yet determined.

²⁰ The Government has no immediate plans for such connections. However, additional capacity is warranted as a centralized system is likely to expand as management capacity increases and such expansion becomes affordable.

wastewater utility, or similar organization, for SWA. Project implementation assistance will also be included with the consulting services package for this component.²¹ Outline terms of reference (TOR) for these consulting services are in Appendix 14.

25. Community education and awareness programs are needed throughout the Project in the following key areas: (i) need for new infrastructure and new practices, including environmental implications of unsafe sanitation and drainage practices; (ii) the application of good on-site planning principles and practices for sanitation and drainage; (iii) on-site sanitation design and O&M, including information on where to seek technical assistance and advice; (iv) responsibilities of the Government, households, and individuals for sanitation and drainage; and (v) safe wastewater practices. The focus will be on development of SWA and government capabilities to develop community and public relations programs, and will emphasize proactive rather than reactive programs. The main activities will focus on the use of radio, TV Samoa, and target programs for groups and individuals most affected, including residents in the low-lying areas, youth, school children, and the Apia Chamber of Commerce and Industry. Assistance in developing these programs is included in the capacity-building consulting services.

C. Special Features

26. The Government has begun a pilot project with a nongovernment organization to use an anaerobic digester to convert organic solid waste to energy at the Tafai'gata landfill site. Integration with that project may be possible by disposing of WWTP sludge to the digester.

D. Cost Estimates

27. The total project cost is estimated at \$10 million equivalent. This includes a foreign exchange cost of \$3.8 million equivalent (about 38% of the total) and a local cost of \$6.2 million equivalent (about 62%). Cost estimates include (i) land; (ii) physical works, including an additional allocation for special needs areas to be determined; (iii) consulting services; (iv) incremental administration; (v) contingencies; and (vi) financial charges. Taxes are excluded from project cost estimates. Cost estimates are shown in Table 1 and details are in Appendix 8.

Table 1: Cost Estimates
(\$ million)

Item	Foreign Exchange	Local Currency	Total	Percentage of Base Cost
Drainage	0.3	1.9	2.1	27%
Sanitation	1.3	2.7	4.0	49%
Capacity Building	0.8	0.1	0.9	11%
Project Implementation Assistance ^a	0.5	0.5	1.1	13%
Base Costs	2.9	5.3	8.2	100%
Contingencies ^b	0.5	0.9	1.4	
Project Cost	3.4	6.2	9.5	
Finance Charges	0.5	0.0	0.5	
Total Cost to be Financed	3.8	6.2	10.0	

^a Project implementation assistance is PIA Consultancy services, PMU Consultancy services, and Incremental administration.

^b Ten percent physical contingency on all components except land; local price escalation allowance of 4% (2004); 3.5% per annum thereafter; foreign 2% per annum (2004, 2005); and 2.5% thereafter.

^c Numbers may not add up due to rounding.

Source: Asian Development Bank estimates

²¹ Details of the project implementation assistance are provided in the consulting services section (paragraph 36) of this RRP.

E. Financing Plan

28. The Government has requested a loan of \$8.0 million equivalent from ADB's Asian Development Fund. The loan will have a 32-year term, including a grace period of 8 years. The interest rate will be 1.0% during the grace period and 1.5% thereafter. The Government will on-lend a portion of the loan proceeds (\$3.5 million equivalent) denominated in tala, with foreign exchange risk borne by the Government for the wastewater and sanitation component to SWA at a 32-year term, a 5-year grace period, and interest at 5% per annum. If SWA's financial situation improves, these terms may be adjusted, subject to prior agreement with ADB.

29. Samoa is a category-A country and eligible for 80% financing of the estimated project cost. Government counterpart funding will provide \$2.0 million equivalent. ADB funding includes \$3.8 million equivalent for foreign exchange cost and \$4.2 million equivalent for local currency costs. The Government will fund any tax liability over and above its 20% counterpart contribution. The Government is committed to providing timely counterpart funds and will incorporate required amounts into the budget for financial years 2004/05 onward. Counterpart funding requirements and debt service on the loan are reasonable compared to Treasury resources and ongoing commitments to other externally funded projects. Table 2 shows the summary financing plan, and Appendix 8 has the detailed plan.

Table 2: Financing Plan
(\$ million)

Sources	Foreign Exchange	Local Currency	Total Cost	Percentage
Asian Development Bank Loan	3.8	4.2	8.0	80
Government Counterpart Funds				
Land	0.0	0.5	0.5	5
Tariff Increases and Cash ^a	0.0	1.4	1.4	15
Subtotal	0.0	2.0	2.0	20
Total Cost to be Financed	3.8	6.2	10.0	100

^a Includes additional staff required for the new wastewater department of SWA during the construction period, and cash needs for private land.

Note: Figures may not add up due to rounding.

Source: Asian Development Bank estimates

F. Implementation Arrangements

1. Project Management

30. The Ministry of Finance (MOF) will be the Executing Agency (EA). A project steering committee has been constituted, chaired by the chief executive officer (CEO) MOF and co-chaired by the managing director of SWA and CEOs of MWTI and Ministry of Natural Resources and Environment. Other steering committee members include the CEOs of MOA, MOH, Ministry of Women, Community and Social Development; and the general manager of the Electric Power Corporation.

31. The Project will have two Implementing Agencies (IA): (i) MWTI for the drainage component, and (ii) SWA for the wastewater management and sanitation component. A project management unit (PMU) will be established. The EA will appoint a local, full-time, dedicated project manager acceptable to ADB, who will be financed under the loan, to coordinate project activities; monitor overall project progress; and manage project accounts, procurement, and reporting; and report to the project steering committee. The PMU will be assisted by designated coordinators from each of the IAs and PUMA, and implementation assistance consultants,

through the implementing agencies. Coordinators will report to the steering committee.²²

2. Implementation Period

32. The loan is expected to be effective by the end of the first quarter of 2004. Preparatory activities, including detailed design, tender documentation, and procurement of consulting services will be completed by the end of 2004, with construction and commissioning to be completed by the end of 2006. This timeframe takes account of the wet season and appropriate construction periods. Capacity building and the community awareness program will be undertaken over the entire project period (2004-2005).

3. Procurement

33. ADB-financed goods and services will be procured in accordance with ADB's *Guidelines for Procurement*. Major contracts for civil works valued at greater than \$1 million and supply contracts valued at \$500,000 or more will be undertaken through ADB's international competitive bidding procedures (ICB). Equipment packages valued at less than \$500,000 will be procured following ADB's procedures for international shopping (IS). Civil works estimated to cost \$1 million or less per package will be carried out under local competitive bidding (LCB) procedures acceptable to ADB, and in accordance with government procurement laws and regulations. For LCB packages, local contractors have the expertise and capacity to undertake such works. Since such civil works will involve mainly labor costs, international contractors are unlikely to be interested in the works, and the use of LCB is considered acceptable. In accordance with ADB requirements, foreign contractors may participate in the bidding for LCB contracts. Prequalification, selection, and engagement of contractors will be subject to ADB approval.²³ As soon as the bids received have been evaluated, the proposal for award of contracts will be submitted to ADB for approval. It will be furnished with three copies of (i) an account of the public opening of bids, (ii) summary evaluation of bids, (iii) the proposal for award, and (iv) a draft contract or letter of acceptance. Promptly after such award, ADB will be furnished with three copies of the contract as executed. The internationally tendered equipment packages will include technical support to ensure proper installation, testing, commissioning, and training of operational staff as part of the related contracts. This approach assures quality control in equipment installation and operator training by utilizing the manufacturers' and suppliers' technical experts who are most knowledgeable about the equipment.

34. The EA has requested ADB to approve advance action to initiate the early start of consultant recruitment so that project implementation proceeds in a timely manner and project goals can be achieved as soon as possible.²⁴ Recruitment of international consultants is for project implementation and capacity building. Advance recruitment of consultants will be carried out in conformity with ADB's *Guidelines on the Use of Consultants*. The Government was advised that approval of advance action does not commit ADB to finance procurement and recruitment costs or to finance the Project.

4. Consulting Services

35. The staff of SWA, PUMA, and MWTI need strengthened expertise in management and technical areas described for component C and project implementation assistance. Capacity building will be achieved through consultant inputs that will include formal training based on a

²² Supplementary Appendix F includes an implementation arrangement organization chart.

²³ ADB will encourage the EA to use ADB-approved standard bidding documents (to be developed as necessary) to ensure high quality and consistency of the documents, which will hasten ADB's review.

²⁴ Approval of advance action was published in *ADB Business Opportunities* on 16 September 2003.

comprehensive training needs analysis and hands-on training on project facilities. A twinning relationship with an experienced wastewater utility will be established for SWA. Capacity building will be financed from the loan.

36. Provision has been made for 48 person-months of international and 65 person-months of domestic consulting services to support SWA in Project implementation and provide the necessary capacity building to be funded under the loan. These consultants will provide assistance to SWA in the areas of ADB procedures and reporting, recruitment of detailed design construction and operations contractors, design review, procurement, quality control, construction supervision, start-up testing, commissioning, O&M training, and implementation of the project performance management system (PPMS). Detailed design of the wastewater system will be undertaken through a design-build-operate contract. Outline TOR for the consulting services are in Appendix 14. In addition to training provided directly by the consulting firm, SWA will use loan funds to finance a twinning arrangement, with an allocation of 10 person-months with a regional wastewater utility to foster sustainable long-term capacity building and cooperation. This twinning arrangement will be retained separately, with the capacity-building consultancy assisting in developing appropriate TOR, implementation mechanisms, and contracting arrangements. The project manager for the PMU will be recruited with loan consultant funds under a separate package that will include provisions for accounting and administrative services.

37. Recruitment of consultant services as a firm will be undertaken in accordance with ADB's *Guidelines on the Use of Consultants* using the quality- and cost-based selection method, and other arrangements satisfactory to the ADB on the engagement of domestic consultants. The firms will be required to submit a full technical proposal. The PMU project manager will be recruited as an individual in accordance with ADB's *Guidelines on the Use of Consultants*.

5. Disbursement Arrangements

38. An imprest account will be established by the EA immediately after loan effectiveness. Replenishment to the imprest account will be supported by appropriate withdrawal application and related documentation. The initial amount to be deposited in the imprest account will not exceed \$300,000 equivalent. The statement of expenditures (SOE) procedure may be used for reimbursement of eligible expenditures and liquidation of imprest account expenses. The SOE procedure is applicable to individual payments not exceeding the equivalent of \$50,000. Detailed arrangements for the establishment and operation of the Imprest Account and SOE procedure will be made in accordance with ADB's *Loan Disbursement Handbook 2001*.

6. Accounting, Auditing, and Reporting

39. The EA and SWA will maintain separate accounts for the Project. The EA, through the PMU, and SWA will maintain records of all project expenditures. The EA, through the PMU, will prepare consolidated project accounts, which will be audited annually by independent auditors acceptable to ADB. Loan consulting services include funding of accounting and administrative services for the PMU, including funds to cover quarterly accounts and independent audits. Certified copies of such audited accounts will be submitted to ADB not later than 9 months after the end of the financial year to which they relate. An externally audited financial statement of government and SWA project accounts will also be submitted to ADB annually, no later than nine months after the end of the relevant financial year, for the entire implementation period.²⁵

²⁵ SWA has three tiers of audit: internal, government, and external.

The EA and SWA were informed of ADB's policy on submission of audited financial statements and possible penalties for delays in submission. The submitted audited project accounts and financial statements must be of acceptable quality; financial statements with adverse opinions or disclaimers of opinion from auditors are not acceptable and cannot be submitted for this purpose. Independent review and scrutiny of project implementation will be undertaken for (i) environmental monitoring and adherence to Summary Initial Environment Examination (SIEE) and the Government's Environmental Impact Assessment (EIA) provisions, and (ii) audit of project accounts and compliance with loan covenants.

40. The Government will submit to ADB reports and information concerning the use of the loan proceeds, project implementation, and SWA performance. The reports will include (i) quarterly progress reports on project implementation; (ii) annual reports; and (iii) a project completion report, no later than three months after completion of the project facilities. Progress reports will emphasize progress made in the areas of policy dialogue, including (i) wastewater tariff charges and financial management, (ii) environmental and water quality monitoring, and (iii) capacity building and financial management of SWA.

7. Project Performance Monitoring and Evaluation

41. The PPMS indicators agreed on during project preparation include service levels, treated wastewater quality and other measures of operational performance, percentages of wastewater collected and treated, user satisfaction with the urban environment, and relevant health, environmental and economic data to monitor project impacts. The relevance and practicability of data collection for the proposed measures have been confirmed with the Government. At the beginning of the Project, the Government and SWA will develop comprehensive PPMS procedures to systematically generate data on inputs and outputs of the three project components and the agreed-on socioeconomic and environmental indicators to be used to measure project impacts. The PMU and SWA will refine the PPMS framework, confirm achievable goals, refine monitoring and recording arrangements, and establish systems and procedures no later than six months after loan effectiveness.

42. Under the PPMS framework, baseline and progress data will be reported at the requisite time intervals by the EA, which will be responsible for analyzing and consolidating the data through its management information system. The PPMS will permit adequate flexibility to adopt remedial action for project design, schedules, activities, and development impacts. The PMU, with assistance from consultants, will monitor and assess activities, and report to ADB quarterly on the physical implementation and financial aspects of the Project as well as environmental aspects to ensure that progress and impacts are monitored and reported in line with ADB requirements.

8. Project Review

43. Regular ADB review missions are envisaged, and a midterm review will be undertaken by ADB and the Government, approximately 1.5 years after project implementation begins. This review will include a detailed evaluation of the scope, implementation arrangements, achievement of scheduled targets, and progress on the agenda for policy reform and capacity building measures. A detailed review of the wastewater tariffs will also be undertaken. Feedback from the PPMS activities will be analyzed.

IV. TECHNICAL ASSISTANCE

44. The Government has confirmed its request for a concurrent TA for institutional strengthening of infrastructure planning as it relates to the Project and long-term planning for drainage and wastewater management.²⁶ Project investments need to be supported by further planning, including (i) development of drainage and wastewater management plans for Apia, (ii) revision of building standards for on-site sanitation systems, and (iii) development of enabling legislation and implementing regulations for improved wastewater management and sanitation. The sustainability of the outputs delivered under the Project will depend on (i) improved planning and management for PUMA, SWA and MWTI; (ii) systems to strengthen implementation of regulations for the Government's new Planning and Urban Management Bill²⁷ and (iii) improved community awareness and understanding of new planning and development processes. The TA is expected to start soon after loan effectiveness, or April 2004, and be completed by March 2005.

45. The TA has two components: (i) drainage and wastewater management planning and (ii) urban planning and regulation. Long-term drainage and wastewater management plans for greater Apia, and enabling legislation will be developed. These plans will detail preferred technical, institutional, policy, and legislative measures to address current to long-term requirements, and emphasize integration and phasing so that improvements are affordable and sustainable. The enabling legislation for wastewater management, including sanitation, will describe institutional arrangements for wastewater management. The planning and regulation component focuses on institutionalizing the new PUMA Bill with key stakeholders, including PUMA, MWTI, and SWA. It will facilitate new planning assessment processes and procedures and implementation of a land planning and geographic information system (GIS) for PUMA. The TA will also help PUMA develop a strategy for community awareness.

46. The TA involves 11 person-months of international and 13 person-months of domestic consultants, who will be recruited in accordance with ADB's *Guidelines on the Use of Consultants* using the quality- and cost-based selection method and simplified technical proposal, and other arrangements satisfactory to the ADB on the engagement of domestic consultants. The total cost of the TA is estimated at \$475,000 equivalent, with \$400,000 equivalent financed by ADB.²⁸ Expertise areas to be recruited under the TA include civil/environmental engineering, urban planning, environmental law, GIS, and community development awareness.

V. PROJECT BENEFITS, IMPACTS, AND RISKS

47. The Project will improve environmental conditions, reduce health risks, and provide greater amenities to Apia's 60,000 residents, approximately 2,000 working population, and 50,000 visitors. The Project directly benefits residents of Apia through provision of sanitation services. A proportion of the 1,750 residents (minimum 500) of the low-lying areas will benefit from rehabilitation of household sanitation facilities to a minimum standard. Businesses, government departments, and other organizations in the CBA will benefit from connection to the central reticulated sewerage system. The upgraded sanitation services for the National Hospital will benefit the 10,000 in-patients and 50,000 outpatients annually, hospital and MOH staff

²⁶ This TA is included in the current *Country Strategy and Program Update* for Samoa (footnote 17) as Capacity Building for Drainage and Sanitation. The TA was first listed in ADB *Business Opportunities* (Internet edition) on 12 February 2003.

²⁷ The Government anticipates that the planning and urban management bill will be enacted by the end of 2003.

²⁸ Cofinancing from the Japan Special Fund has been applied for. If the application is not approved, the TA will be financed by ADB's TA funding program.

(approximately 130), and the adjacent village. The Malifa compound population of approximately 2,200 students, staff, and Department of Education staff will benefit from improved sanitation. Residents and businesses, particularly vendors based in the Fugalei market and their customers, will benefit from improved drainage. These benefits include less disruption to roadways and footpaths during and after rainfall, less water damage to roadways and footpaths, reduction of surface litter entering Apia harbor and neighboring mangrove areas.

48. Indirect beneficiaries of the Project include the fisheries industry through improved marine resources from reduction in seawater pollution, and the tourism industry through improved urban and marine environments.

49. Staff of PUMA, MWTI, MOA, and MOH will upgrade skills and capabilities through training, and a twinning arrangement with an experienced wastewater utility will benefit SWA. The Government will benefit from improved environmental and health outcomes, and from reductions in health expenditures in relation to water-related disease.

A. Policy Reform

50. The Project supports key government policy reforms and several ADB *Water Policy* initiatives, including (i) improved urban management and planning, (ii) improved provision of urban services, (iii) cost recovery and tariff reform (discussed in Financial Aspects); and (iv) private sector participation in provision of urban water services, (v) mainstreaming environmental management, (vi) poverty alleviation and access to basic services (vii) regulation of public services, and (ix) stimulating private sector development.

B. Institutional Strengthening

51. Consultant advisory services will be provided under the loan to assist in the institutional strengthening and capacity building of the key stakeholders, namely, SWA, MWTI, MOA, MOH and PUMA. Capacity building will occur via a program of formal, informal, and on-the-job training.

C. Social Dimensions

1. Land and Resettlement

52. The overall government strategy for drainage and wastewater management is to avoid land acquisition, and the Project follows this approach. Nevertheless, preliminary design indicates that some limited land acquisition involving up to three landowners (1.6 hectares) may be necessary for drainage. This level of land acquisition is considered insignificant by ADB's *Policy on Involuntary Resettlement* and only a short resettlement plan (SRP) is required (Appendix 13). If any significant land acquisition or resettlement becomes necessary during the course of the Project, it will notify ADB. In all cases, the Government will ensure that land acquisition is carried out in accordance with all applicable laws and regulations of the Borrower, and ADB's *Policy on Involuntary Resettlement*. No land acquisition is expected for other components as government land will be used for the WWTP, sewers, pump stations, and septage treatment lagoons.

2. Poverty

53. The Project provides direct benefits to the poor through improved living conditions, health, and limited job creation; and indirect benefits by reducing income poverty that accrue

from reduced health care costs, increased productivity, and economic development. The Project will make a limited direct and greater indirect contribution to poverty alleviation.

54. The proportion of the poor in the service area population cannot be quantified as no official poverty line has been determined for Samoa.^{29, 30} There is evidence that some of the poorest households in Apia are in the low-lying area identified in the project design for sanitation facility rehabilitation. Many Apia residents are urban migrants who live outside the traditional village structure and are exposed to greater social and economic risks because they have no or limited access to traditional social protection mechanisms. These poor households will benefit from improved living conditions and reduction in health risks. Greater Apia is likely to include some poor households who will share the same benefits but with greater marginal utility. The improved marine environment will benefit the urban poor relying on fishing for consumption and income, as well as recreational users. As an environmental project, the Project will improve living conditions for all in the service area, including the poor. Improved environmental quality will promote sustainable urban development, for example, through tourism. Improvement in water quality will contribute to the steady development of the water tourism industry.

55. The Project will directly reduce poverty by providing limited jobs for unskilled laborers during construction and for ongoing drainage maintenance. Poverty reduction impacts can be expected from economic growth as a result of improvements to CBA infrastructure, private sector participation in provision of utility facilities, and improved marine environment for the fisheries industry. An inventory to assess the quality of sanitation facilities throughout the project area will also assess the capacity and willingness of the poor to pay for improved services. The design of the cost-recovery framework will take into account the impact on the poor and vulnerable.

D. Financial Aspects

56. Cost recovery from user charges is proposed only for the wastewater components; drainage and capacity building will be funded by the Government. Full cost recovery is the target recovery rate from users. However, government policy also considers the social and economic aspects of utility provision as well as affordability of customer charges such that the Government may substitute part of user charges with a CSO. Government will ensure that user charges are set at minimum to recover operations, maintenance, and management (OMM) of SWA's wastewater services. The Government will also ensure that the cost of any on-lending to SWA is either charged to customers, through user charges, or provided by MOF through a CSO.³¹ SWA is also seeking an appropriate return for providing the service in line with commercial principles and the Public Bodies Act. Further public relations and consultation work, particularly government commitment to improving and tightening environmental standards, will be undertaken, before the Government decides on the allocation between recovery from user charges and government funds. Since for the CBA scheme about half the revenue is from public bodies, specific consideration of the impact on MOF and budgetary allocation will also be considered.

²⁹ The Government is developing a poverty line with assistance from ADB. 2001. *Consultative Workshops on Poverty Reduction Strategies in Selected PDMCs*. Manila. The 1997 household income and expenditure survey attempted to identify a basic-needs poverty line and a food poverty line, but these have not been accepted and lack credibility.

³⁰ ADB. 2002. *Priorities of the People, Hardship in Samoa*. Manila includes living in areas as subject to flooding as hardship. This is further supported by general agreement that those who can afford to avoid living in such areas do so.

³¹ CSO will not cover up or make up for any inefficiency in tariff collection.

57. The proposed charging mechanism is to introduce (i) a water volume based sewerage surcharge for all customers of the CBA and Special Needs Areas, and (ii) a water volume-based environmental charge for all other customers in urban Apia.³² Customers will be issued a single, itemized bill, and will be disconnected if the charge is not paid in full. The tariff structure for the environmental charge will likely include a provision to support those in hardship, similar to the existing lifeline tariff for water.

58. ADB funds will be re-lent to SWA at the same terms as the ADB loan but at 5% interest. For the CBA scheme, although the calculated tariffs appear high compared to the water charge, they are not out of line given that currently water tariffs do not even cover O&M. Estimated tariffs at break even (ST4/m³) and at full cost recovery (ST5/m³) are lower than the unit operational cost of treatment for the few businesses in Apia that treat their own wastewater to a similar standard (ST7/m³ and ST9/m³). For the individual systems the estimated environmental charge for a household with average water consumption is ST11 per month at break even, and ST14 at full cost recovery. This represents 2.3% of a low-income household's income of ST600/month. A low-income household with very low water use would pay nothing. The financial internal rate of return was 9.7% for the CBA and special needs and 6.8% for the individual systems. Both exceeded the calculated weighted average cost of capital of 4.9%.³³

59. SWA does not have a history of financial viability and makes a considerable loss each year in providing water services. This is largely a result of provision of water to rural areas undertaken as a social obligation although not financially viable. The position has been exacerbated by (i) recent grant funded investments in rural operations, lack of counterpart funds from Government, and delays in customer connections to provide the required cost recovery for operations; and (ii) CSO payments for water for 2003/04 have provided only 30% of the amount claimed.³⁴ Net trade debts as of 30 June 2003 were reported at ST2 million. The current cash position of SWA is poor. SWA has prepared a 5year financial plan that aims to improve financial performance to at least cover O&M. The plan shows that wastewater operations will have a positive impact on performance. The metering program has improved collection rates and reduced unaccounted-for-water. This is expected to improve further over the next few years.³⁵

60. Financial planning for the wastewater component is designed to ensure that its financial impact on the SWA is positive. Two aspects of the Project will also help improve SWA's financial performance: (i) assistance in financial planning and management and an assurance that CSOs for water as well as wastewater are tightly defined and transparent, and (ii) improvements to the billing and database system. The extent to which SWA becomes financially viable depends on CSO payment for water more than any other factor.

E. Economic Aspects

61. The Project will be the first major physical infrastructure project following PUMA's establishment and is an important step in the process to establish a fully functioning urban management system. Direct and indirect benefits will accrue to the economy of Apia and, therefore, as the capital of Samoa, to Samoa as a whole. Direct economic impacts include savings from the cleanup of unsanitary floodwater; and from reduced traffic disruptions, damage

³² Special arrangements will be made for residents with private water supply.

³³ Government equity was calculated at 7.9% based on the current 12-month bond.

³⁴ About 30% of the claim was for lost revenue from the planned tariff restructuring for commercial customers. This was not introduced.

³⁵ Unaccounted-for water was reduced from 72% in 2001 to 44% in 2002. Billing collection rates have improved from 52% in 2001 to 80% in 2002.

to property and resources, expenditure on environment-related diseases and epidemics, and loss of economic activity. Indirect benefits include improved investment and business opportunities, including general commerce, tourism, and aquaculture resulting from a cleaner, more attractive urban environment, and improvements to productivity from a healthier workforce. The planning, legislative, and institutional strengthening components will improve coordination, prioritization, and chances of success of future projects, thus promoting long-term sustainable economic growth.

62. The Project has been selected based on identified needs and priorities: government and beneficiary affordability, least-cost solutions, appropriate technology, and ease of implementation. Alternative solutions were considered to determine geographical coverage of the reticulated system and each special needs areas. For urban areas outside the CBA, development of a reticulated system remains the long-term goal but is not affordable now. Upgrading the systems of the most vulnerable households and proper O&M of existing systems was considered affordable while recognizing the benefits of improved environmental standards.

63. An economic internal rate of return (EIRR) was calculated for the Project as a whole, given the integrated nature of drainage and wastewater. Economic costs included physical and nonphysical project components. Valued benefits included (i) estimated repair cost savings from flood damage, (ii) estimated labor cleanup cost of flood damage, (iii) resource cost savings on minimal individual sanitation systems as in current practice, and (iv) willingness to pay for wastewater management. The base case EIRR of 12.4% exceeded the economic opportunity cost of capital, which is assumed to be 10%. Under sensitivity tests, even under the most adverse scenarios, the Project was found to be economically viable or so close to be marginal. The EIRR is likely to underestimate the true value of the Project, largely because many of the identified benefits are excluded from the EIRR calculation.

F. Environmental Aspects

64. An initial environmental examination (IEE) for the Project was completed under TA³⁶ and has confirmed its classification as category B. The Project's overall environmental effects are positive. The Project will (i) improve surface and groundwater quality, including marine waters, by reducing untreated and partially treated sewage discharges to the environment; (ii) improve public health by reducing sewage and decreasing flooding; and (iii) reduce solid waste to the urban streams and marine waters by improving drainage system management.

65. Several alternatives for wastewater management, including treatment and disposal options and alternative sites for the facilities, were reviewed. The combination of individual system improvement, and the selected option for the limited reticulated system with secondary biological treatment, disinfection, and land disposal of effluent at an environmentally appropriate site represents the most cost-effective and environmentally appropriate solution. It will protect the surface and groundwater of urban Apia.

66. Potential impacts during construction are those typically expected for any construction activity, including erosion and sedimentation, traffic disruption, and noise. These will be mitigated by standard engineering practices and proper construction methods. Typical mitigation measures include dry-season construction, placement of erosion control material, use of silt fences, and limitation of construction work hours. Operational concerns such as odor control are mitigated by appropriate siting, selection of minimal-odor technologies, odor-control measures, and capacity-building programs to support proper operations and maintenance. Discharge of the

³⁶ ADB. 2002. *Implementation of the Urban Planning and Management Strategy*. Manila.

effluent into a subsurface infiltration gallery at a site adjacent to mangroves after secondary treatment and disinfection avoids negative marine impacts through the additional nutrient removal and buffering capacity of natural wetlands.

67. A preliminary environmental management plan (EMP), which is attached to the SIEE, spells out environmental measures that will be required of the final design, construction, and operations. The EMP will be refined during the detailed design phase. The SIEE is included as a supplementary appendix. Appendix 11 includes a project environmental analysis.

G. Project Risks

68. Project risks center on (i) continued commitment to improved urban management, (ii) business community participation in the sewerage connection program, and (iii) the effectiveness and sustainability of capacity-building measures. The Government's commitment to the Project and overall urban management has been demonstrated through the establishment of PUMA, promulgation of Planning and Urban Management Bill, and efforts to develop this Project. Business community support and participation have been fostered through dialogue with the business community during project development, continuing pre-loan dialogue on tariff needs and private sector participation in the provision of wastewater services.³⁷ To enhance effectiveness and sustainability of the capacity-building measures, the capacity building consultancies emphasize a high level of interaction with Government and SWA staff during the entire Project. The establishment and funding of a twinning arrangement for SWA with a well-established utility promotes long-term capacity building. Financial risks include (i) inadequate cost recovery resulting in greater-than-anticipated government subsidy of wastewater management operations, and (ii) inadequate financing of SWA water supply operations. However, the Government and SWA have demonstrated their commitment to improve cost recovery through recent water tariff increases, enactment of the public bodies bill to promote sustainable commercial operations for public enterprises, and review of the Project's cost recovery issues. The Project emphasizes the importance of building community and other stakeholder awareness and commitment to the Project, as well as building SWA and government responsiveness to the community's needs and views. Land acquisition risks, which only affect portions of the drainage component, are minimal due to limited land acquisition requirements.

VI. ASSURANCES

A. Specific Assurances

69. In addition to the standard assurances, the Government has given the following assurances, which are incorporated into the legal documents:

- (i) By 30 August 2004 the Government will establish a SWA division dedicated to wastewater management and sanitation services with adequate staffing. SWA's corporate plan will be updated to reflect the role of the wastewater division. The Government will further ensure the appointment of a qualified full-time Project Manager satisfactory to ADB for the PMU by 30 July 2004, and such position will be retained at least until the completion of project construction activities.

³⁷ This pre-loan assistance has been supported through the Water Cooperation Fund, pilot demonstration activity program, and TA (footnote 3).

- (ii) The Government will ensure that throughout project implementation, no material organizational changes (either financial, operational or structural) to, or material asset transfers to or from SWA, will be made without the prior approval of ADB, if such changes would affect the ability of the Government or SWA to perform their various obligations under the Project Agreement and re-lending agreement.
- (iii) The Government will ensure that the counterpart financing necessary for the Project is provided and disbursed in a timely manner to enable completion of project activities, and that additional counterpart funding will be provided for any shortfall in funds or cost overruns.
- (iv) The Government will ensure that an appropriate wastewater tariff and environmental fee will be endorsed by the Cabinet by 30 December 2005, and implemented on commissioning of the project facilities such that (a) wastewater tariff revenues and environmental fees cover at minimum the cost of OMM; (b) no entity, whether any government agency, institution, or enterprise, regardless of ownership, will be granted an exemption from the wastewater tariff and environmental fees established pursuant to the above, or granted a preferential rate, or excused for delays in payments without penalties; and (c) the impact of any user charges on the poor is reviewed and appropriate measures introduced to protect the basic living standards of the poor.
- (v) The Government will ensure that (a) provision of CSOs by SWA for water and wastewater services is annually approved in accordance with procedures established under the Public Bodies Act; and (b) sufficient budget funds are allocated and disbursed in a timely manner to finance the difference between the established tariffs and full cost recovery tariff that includes an agreed rate of return in accordance with agreements between MOF and SWA that will set forth the (a) form and detail of the CSO application, and (b) financial and SWA operational and management performance requirements.
- (vi) The Government will develop an appropriate act(s) concerning wastewater management by 31 December 2005, that (a) clearly defines institutional roles for wastewater management and sanitation; (b) establishes requirement and procedures for development of regulations, guidelines, and standards for wastewater management, including industrial and trade waste discharges to the wastewater system (including pretreatment standards), and the environment, WWTP effluent standards, and ambient water quality standards; (c) requires connection to a centralized system where one exists; and (d) provides for independent monitoring of utility service providers. These regulations, guidelines, and standards shall be issued by 31 December 2006 and implemented by 30 September 2007. The Government will revise existing Building and Planning Standards, with consideration of the TA recommendations, to ensure compliance with the Planning and Urban Management Bill by 30 June 2005.
- (vii) The Government will ensure that the MWTI will implement a comprehensive drainage O&M program through contracting of the private sector, community groups, and involvement of appropriate stakeholders by 31 July 2005.
- (viii) The Government and SWA will ensure that all applicable government environmental laws, regulations, and standards, and ADB's guidelines and procedures, in particular *ADB's Environmental Assessment Guidelines 2003*, are

adhered to throughout project implementation and that all environmental monitoring and mitigation measures identified in the SIEE, the EMP, and the government's environment assessment process are fully implemented. The Government and SWA will further ensure that environmental mitigation measures are incorporated into design and bidding documents. The Government will monitor and record EMP implementation under the guidance and supervision of PUMA and will include monitoring information in project progress reports submitted to ADB.

- (ix) The Government will develop a land access and land acquisition plan for future drainage, wastewater, and sanitation works. The plan will identify priority areas and processes for access and acquisition and provide for reservation of sufficient land at the WWTP site for future expansion and a reasonable buffer zone in accordance with other relevant government laws by 30 June 2006.
- (x) The Government will ensure that all land and rights of way required by the Project will be made available in a timely manner, i.e., before civil works on the affected property, and that the provisions of the SRP, including compensation and entitlements for APs, will be implemented in accordance with all applicable laws and regulations, and ADB's *Handbook on Resettlement, Guide to Good Practice*. The Government will ensure timely provision of sufficient counterpart funds for land acquisition and resettlement activities and meet any obligations in excess of the SRP budget estimate and ensure that the APs will be at least as well-off as they would have been in the absence of the Project. Adequate staff and resources will be committed to supervision and internal monitoring of the implementation of the SRP. The SRP will be updated as necessary to reflect any significant material changes of the Project scope, and such changes will be subject to ADB approval.

B. Condition for Loan Effectiveness

70. As a condition for loan effectiveness, the Government agrees that the Government and SWA shall have entered into an re-lending agreement in a form satisfactory to ADB.

VII. RECOMMENDATION

71. 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 5,604,000 to the Independent State of Samoa for the Sanitation and Drainage Project from ADB's Special Funds resources with a term of 32 years, including a grace period of 8 years, an interest charge at the rate of 1% per annum during the grace period, and 1.5% per annum thereafter; 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 November 2003

PROJECT FRAMEWORK

Design Summary	Performance Indicator/Target	Monitoring Mechanism	Assumptions and Risk
<p>Goals</p> <p>High standard of environmental quality and public health for Apia</p>	<ul style="list-style-type: none"> Improved living standards Water-quality indicators Water-related health statistics 	<p>Government monitoring programs and statistics</p>	
<p>Objective / Purpose</p> <p>Improved drainage and delivery of wastewater management and sanitation services in Apia with involvement of the private sector</p> <p>Improved environmental /water quality and public health</p>	<p>By 2008</p> <ul style="list-style-type: none"> Improved drainage, particularly in Fugalei area measured by areal extent, ponding in drains, and frequency Policy, institutional and legislative and regulatory requirements in place 100% central business area (CBA) wastewater collected and treated SWA Wastewater Management and Sanitation Division established and functioning effectively Well-managed outsourcing of appropriate activities, e.g., septage collection and sewerage and treatment plant operation and maintenance (O&M) by the private sector SWA management of private sector implemented septage collection Wastewater and drainage master plans prepared Sustainable twinning arrangement in-place Sewage-related water quality parameters reduced by 20% in central urban area streams and stream outlets to marine waters^a Reduced incidence of water-related diseases^b 	<ul style="list-style-type: none"> Monitoring of frequency and extent of floods by the Planning and Urban Management Agency (PUMA) Water quality monitoring in surface water drains (SWA) Householder surveys Business surveys Project reporting and review missions <ul style="list-style-type: none"> PUMA environmental monitoring reports Household surveys Ministry of Health (MOH) data 	<ul style="list-style-type: none"> Samoa Water Authority (SWA) and Ministry of Works Transport and Infrastructure (MWTI) implements asset management plan PUMA and government departments continue to plan and manage urban area Institutional, regulation, and policy initiatives not implemented Political support for urban management continues Stakeholder support and willingness to pay for improved urban management and environmental quality

Design Summary	Performance Indicator/Target	Monitoring Mechanism	Assumptions and Risk
Output 1			
Improved drainage infrastructure in the Gasegase/Asaga catchment	<ul style="list-style-type: none"> Debris, silt, and sediment in floodway and storm drains cleaned up by June 2005 		<ul style="list-style-type: none"> Land acquisition limited to government land or limited number of private landowners (<5)
Rehabilitation of floodway and storm drains	<ul style="list-style-type: none"> Rehabilitation of 2,425 meters (m) of storm drains by end of 2006 Rehabilitation of 2,850 m floodway built by end of 2006 	<ul style="list-style-type: none"> Project reporting ADB review missions 	<ul style="list-style-type: none"> Access to all drains
Supporting facility for drainage works	<ul style="list-style-type: none"> Bar screens and gauging station completed by the end of 2004 	<ul style="list-style-type: none"> SWA, PUMA, and MWTI annual reports 	
Supporting equipment for drainage system improvements	<ul style="list-style-type: none"> Pumps/trucks equipped by end of 2004 	<ul style="list-style-type: none"> ADB review missions 	
Supplementary assistance to the drainage work management	<ul style="list-style-type: none"> Flow monitoring and hydraulic model developed by the end of 2008 		
Drainage work improvements	<ul style="list-style-type: none"> Drainage works maintenance program developed and in place by the end of 2005 		
Output 2			
Wastewater management and sanitation system	<ul style="list-style-type: none"> CBA wastewater treatment plant (WWTP) scheme completed and operational by the end of 2006 	<ul style="list-style-type: none"> Project reporting 	<ul style="list-style-type: none"> Land acquisition
1. Reticulated CBA scheme/ wastewater management/ Special Needs Areas	<ul style="list-style-type: none"> Sewer completed and operational by end of 2006 	<ul style="list-style-type: none"> Government organization (SWA, PUMA, MWTI) management and annual reports 	<ul style="list-style-type: none"> Effective project management Customer willingness to pay
2. Septage collection system for Greater Apia	<ul style="list-style-type: none"> Septage collection system and septage treatment systems completed and operational by June 2006 	<ul style="list-style-type: none"> Review missions 	<ul style="list-style-type: none"> Concurrent technical assistance (TA) implemented effectively
3. Septage treatment system	<ul style="list-style-type: none"> Policy, institutional, and legislative/ regulatory requirements in place 		<ul style="list-style-type: none"> SWA implemented asset management
4. Individual sanitation system improvements	<ul style="list-style-type: none"> 500 on-site sanitation 		

Design Summary	Performance Indicator/Target	Monitoring Mechanism	Assumptions and Risk
	systems replaced/upgraded		plan
Output 4 Staff of SWA, MWTI, and PUMA trained in drainage and wastewater management and retain strong capabilities in assigned field	Training programs completed by end 2005 in the following: <ul style="list-style-type: none"> Financial management, including tariff setting Business planning and administration, including revolving fund Asset management plan Project management/contract administration Monitoring and enforcement of regulatory framework - SWA, MWTI, PUMA Appraisal of sanitation components of sanitation projects Technical training in design, operation of maintenance systems (CBA and on-site systems) Water quality system and monitoring system Effective long-term twinning arrangement established	<ul style="list-style-type: none"> Training-needs analysis plan Project implementation reports Government management and annual reports—SWA, PUMA, MWTI ADB review missions 	<ul style="list-style-type: none"> Counterpart availability Design of training program effective Training and skills applied Trained staff retained
Output 5 Community awareness and support of improved drainage, sanitation, and wastewater services and their delivery systems as well as improved individual practices in these areas	<ul style="list-style-type: none"> Awareness campaign implemented throughout the Project Long-term community awareness programs established in SWA and PUMA 	<ul style="list-style-type: none"> Project reporting Government management and annual reports—SWA, PUMA, MWTI 	<ul style="list-style-type: none"> Counterpart availability Design of awareness program effective

Design Summary	Performance Indicator/Target	Monitoring Mechanism	Assumptions and Risk
	Awareness programs will address <ul style="list-style-type: none"> • environmental implications of poor sanitation and drainage practices • sanitation and hygiene • on-site sanitation design • on-site sanitation operation and maintenance • Agency/household/individual responsibility • Regulatory and administrative procedures and processes for upgrading/new on-site sanitation systems 	<ul style="list-style-type: none"> • ADB review missions • Household surveys 	<ul style="list-style-type: none"> • Community commitment to apply new practices, and changing perceptions
Inputs <ul style="list-style-type: none"> • Government staff • Project implementation assistance (PIA) consultancy • Capacity-building consultancy • Twinning arrangement 	<ul style="list-style-type: none"> • SWA, PUMA, MWTI, MOH, and Fisheries Department • PIA and capacity building: 48 person-months international and 65 person-months domestic consultants • Twinning arrangement: 10 international person-months equivalent 	<ul style="list-style-type: none"> • Project reporting • Review missions 	<ul style="list-style-type: none"> • Consultant inputs ineffective • Counterpart staff availability and effectiveness

^a No recent quantitative monitoring data exists in appropriate specific monitoring locations; thus, specific targets will be reviewed and adjusted based on baseline data obtained in the first year of the project.

^b Determining cause and effect of a single intervention is extremely difficult as is the disaggregation of health data to the specific project areas. Therefore, this monitoring mechanism will require a great deal of professional judgment that will consider Ministry of Health data together with household surveys and anecdotal information.

CHRONOLOGY

Date	Activity
Dec 1995	TA 2480-SAM: Integrated Urban Development, ^a for \$552,000, was approved on 18 December 1995.
Apr 2002	TA 3860-SAM: Implementation of Planning and Urban Management Strategy, for \$400,000, was approved on 25 April 2002
Feb 2003 1–12 September 2003	Loan fact-finding Appraisal mission
IV Sep 2003	Staff review committee meeting
IV Oct 2003	Loan negotiations
IV Nov 2003	Board consideration
I Apr 2004	Loan effectiveness

^aNo loan resulted from recommendations produced in project preparatory technical assistance.

EXTERNAL ASSISTANCE

A. Other Funding Agencies

1. Table A3.1 indicates ongoing or confirmed projects funded with external assistance in the water, wastewater, and environmental sectors.

Table A3.1: Non-ADB Assistance to Relevant Sectors

Project Name	Donor	Type	Amount (\$'000)
Rural Water Supply, EDF 8	European Union	Grant	20,000
Rural Water Supply, EDF 9	European Union	Grant	16,000
Asset Management Project	World Bank	Loan	19,000
Institutional Strengthening Project (multi-sectoral)	AusAID	Grant	4,000
Tagai'ata Land Fill Upgrade	JICA	Grant	250

AusAID=Australian Agency of International Development, EDF=European Development Fund, JICA=Japan International Cooperation Agency

Note: Negotiations expected in November for a Phase II asset management project valued at about \$20,000

B. Asian Development Bank

2. Table A3.2 shows historical ADB funding for Urban Management and Urban Infrastructure Sectors.

Table A3.2: Past ADB Funding in Relevant Sectors

TA Number	TA Name	Year Approved	Amount (\$)
0287	Tariff Study and Revaluation of Assets	1979	70,000
1515	Watershed Management and Community Development	1991	94,000
2480	Integrated Urban Development	1995	552,000
3044	Evaluation of Sewerage Treatment Options	1998	115,000
3566	Capacity Building in Urban Planning and Management	2000	500,000
3860	Implementation of the Urban Planning and Management Strategy	2002	400,000

SECTOR/SUBSECTOR ANALYSIS

A. Introduction and Scope

1. The relevant subsectors analyzed here are urban wastewater management, sanitation, drainage, and overall urban planning and management. This analysis summarizes the current status of the subsectors, including (i) relevance to the Asian Development Bank (ADB) *Water Policy* and country strategy, (ii) indicators such as environmental quality and access to sanitation, and (iii) institutional framework. Lessons learned and the need for the Project are also presented.

B. Sector Context

2. Samoa is a small archipelago consisting of two main islands—Upolu and Savai'i—and five smaller islands, with a total area of 2,820 square kilometers. In 2001 the population¹ was 176,848, with natural increase of about 1% per annum. However, with significant emigration, net population growth is estimated at 0.5% as it has been for the last 30 years. Some 98% of the population lives on the coastal plains in small villages, including in and around urban Apia, the capital, on Upolu. Approximately 60,872 people or 34.4% of the population lived in Apia while 52% lived in northwest Upolu, including Apia and the undulating foothills stretching 30 kilometers (km) to the northwest. Much of development is between these foothills and the coastline.

C. ADB Sector Focus and Country Strategy and Program

3. ADB's *Water Policy* calls for support of integrated water resource management (IWRM), improved and expanded delivery of water services, foster cooperation and awareness, promote regional cooperation, facilitate the exchange information, and improve governance. It further emphasizes the need for autonomous management of water utilities, cost recovery, and private sector participation while ensuring access and equitable service to the poor and vulnerable.

4. The Country Strategy and Program Update (CSPU) for 2004-2006 for Samoa aims to improve the enabling environment for accelerated private sector growth and employment generation through enhancing the policy and institutional framework for private sector development, supporting sound macroeconomic and financial policies and management, and facilitating public-private partnerships and privatization of state-owned enterprises. Second, the strategy aims to improve access to basic public services. Third, ADB will continue to help the Government improve living standards and reduce income disparity. The strategy reflects the common aspirations of vulnerable and disadvantaged communities, as expressed in ADB's participatory poverty surveys:² employment, access to basic services, and education.

5. The Project supports ADB's strategy for Samoa and ADB's *Water Policy* by (i) fostering good water and environment governance, (ii) improving living conditions, and (iii) promoting private sector growth and generating employment opportunities through private sector participation in wastewater service provision and improving environmental infrastructure. The water policy is supported through (i) emphasis on IWRM, that is promoted through the capacity-building efforts for PUMA; and (ii) regional cooperation and exchange of information through a twinning arrangement with an established wastewater utility.

¹ Extracted from the 2001 *National Population and Household Census for Samoa*.

² ADB. 2001. *Technical Assistance for Consultation Workshops on Poverty Reduction Strategies in Selected Pacific Developing Member Countries*. Manila.

D. Indicators

6. Samoa has made strong progress over the past two decades in economic and social development. The Strategy for the Economic Development of Samoa 2002-2004³ continues government emphasis on macroeconomic stability; public sector efficiency and reform; improved education and health standards; and better urban planning and management, including provision of infrastructure, and a strong private sector.

7. Samoa's stable political environment, combined with vigorous economic growth and inclusive social development strategies, has contributed towards Samoa achieving its development goals. With a Human Development Index of 0.590, Samoa rates well on the achievement of social development goals. Adult literacy rates for both genders (96%) and gross enrolment rates in primary (94%) and secondary (70%) levels are high by Pacific developing member country standards. Infant mortality (22 per 1,000 births), under-5 mortality (35 per 1,000 births), and maternal mortality (4 per 100,000 births) rate amongst the three lowest in the Pacific region. Some 90% of the population has access to potable water. Concern for the environment is strong. New legislation, Planning and Urban Management Bill (PUMA Bill) deals with the biophysical, social, and economic environments. Drafted in 2002, it is expected to be enacted in December 2003.⁴ Real gross domestic product (GDP) was 6.5% in 2001 and 6.9% in 2000. Strong economic growth has been attributed to development of commerce, public administration, hotels, and restaurants, transportation, communications, construction, and fisheries. Economic activities and government offices are concentrated in Apia, particularly the central business area (CBA).

8. The 2001 census data indicate that 88% of the population has access to safe sanitation, and World Bank data for 2002 indicate that 95% of the urban population has improved facilities.⁵ This access to sanitation data misrepresents the public health implications of the sanitation status of many living in the urban areas. In urban Apia, for example, about 75% of households have septic systems, but many are too small, rarely cleaned, and sometimes directly linked to the nearest drainage channel, polluting groundwater, surface streams, and the harbor. In the CBA and special needs areas (those with special wastewater concerns) such as hospitals and major school compounds, less than 10% of wastewater is adequately treated. The hospital has a poorly operating treatment plant, as do most commercial centers and government complexes. Others have inadequate septic systems. The situation is exacerbated by the historical lack of urban management, including the absence of drainage or wastewater management plans and the absence of effective town planning. Individuals have elevated their plots heights, reclaimed land in the mangrove area, and blocked drainage channels. The effect is a haphazard and cumulative nonfunctioning drainage system. Flooding after heavy rain is intensified, and foul water flooding poses a health risk due to septage and latrine wastes being released to the surface environment. The Health Sector Strategic Plan specifically identifies environmental health issues, including the lack of a public sewerage system and drainage problems, as affecting public health. The plan links recent outbreaks of dengue, incidence of diarrhea, respiratory and skin diseases with the need for more intensive environmental health control.⁶

³ Government of Samoa. 2002. *Strategy for the Economic Development of Samoa 2002-2004*.

⁴ Prepared with assistance under ADB. 2002. *Implementation of the Urban Planning and Management Strategy*. Manila.

⁵ ADB. 2003. *Millennium Development Goals in the Pacific*. Manila.

⁶ Health data are not in a form useful to state quantitative indicators. Thus, the Health Sector Strategic Plan is referenced. Capacity-building components described elsewhere in the Report and Recommendation of the President address this issue.

9. Nearshore marine water and urban stream-water quality in Apia has been significantly degraded due to inadequate sanitation and wastewater management systems. Water quality-monitoring data, which have been only intermittently collected, show definitive evidence of sewage contamination as evidenced by low dissolved oxygen saturation, high biochemical oxygen demand (BOD), high total nitrogen concentration, and high indicator bacteria concentration.⁷ Urban drains are often choked with litter and vegetation, foul smelling (indicating anaerobic conditions), and contain floating oil and sewage. Drains and natural watercourses are contaminated with sewage and, occasionally, industrial waste. Monitoring is done infrequently and usually result from donor-funded activities, including previous Asian Development Bank (ADB)-supported TA.⁸ Samoa has no legislative framework for environmental standards.

10. The Apia Drainage Scheme, completed in 1993, was based on fieldwork carried out during 1979. Substantial growth and changes to land use and urban growth, which greatly affect runoff and drainage characteristics, occurred after the fieldwork. Much of Apia is built on low-lying flood prone land, parts of which were mangroves prior to land reclamation and development. Filling is most prominent in the natural floodplain area of Vaiusu Bay adjoining the CBA, with such activities continuing to change storm water runoff patterns, groundwater and flood flow patterns. The continuing lack of urban planning including lack of land use controls and guidelines, land filling, encroachment into waterways and lack of drainage maintenance, continue to contribute to the incidence of flooding and impact on property and health.

11. Detailed historical data on the frequency and extent of flooding are not available. A recent South Pacific Applied Geoscience Commission (SOPAC) study⁹ records a long history of flooding in Apia. Severe floods were reported in 1939, 1975, 2001, and May 2003. Less severe floods occur more frequently; moderately severe flooding was reported in 1982, 1991, and 2000. Minor localized flooding is more frequent. The 2001 flood was particularly severe, estimated to have damaged some 1,300 buildings. Residential and commercial properties were flooded, some thigh-deep, leaving a layer of mud when the water abated. In the low-lying areas, residents were forced to evacuate to higher ground. Stock and equipment were damaged and many businesses and schools were forced to close to clear up damage for up to several days. Traffic congestion and road damage from the mud and debris were severe, particularly near Fugalei Market. More than 28,000 people were affected by water cuts resulting from damage to water supply infrastructure. Some businesses not directly affected by the flood were forced to close because of the water supply cut. The estimated repair bill exceeded ST11 million (2001 prices).¹⁰

12. Previous proposals for sanitation in Apia in the mid-1980s to late 1990's all advocated large-scale sanitation systems based on a reticulated system serving a minimum 10,000 population.¹¹ These schemes were physically extensive, covering the CBA area, low-lying areas and floodplains, and industrial estates some 6 kilometers to the northwest. By the end of the 1990s, the promotion of such blanket schemes for sanitation failed to win government and other stakeholder support. Large scale schemes were not considered appropriate to the Samoan situation because: (ii) the high cost of such schemes, (iii) little institutional capacity and

⁷ For example, fecal coliform levels in Vaiusu Bay have been measured at over 5,700 organisms per 100 milliliter (ml), while the United States standard for shellfish gathering is 14 organisms per 100 ml. Additional indicative data are included in Supplementary Appendix A.

⁸ ADB. 1995. *Technical Assistance to the Independent State of Samoa for Integrated Urban Development Projects* and ADB. 1998. *Technical Assistance to the Independent State of Samoa for Evaluation of Sewage Treatment Options*. Manila.

⁹ A Review of Flooding in Apia, Samoa, April 2001, Yeo, July 2001, SOPAC Technical Report 338.

¹⁰ This estimate only includes reported insurance claims. The report notes that due to significant numbers of uninsured businesses and residents, this will be an underestimate.

¹¹ The most recent proposals were embodied in ADB. 1994. *Integrated Urban Infrastructure Project*. Manila; and ADB. 1998. *Evaluation of Sewage Treatment Options*. Manila.

commitment to implement, operate and maintain a large scale sewerage scheme (iv) priority of improving the Apia water scheme and implementing water tariffs (v) disposal to sea by ocean outfall was seen by many as resulting in adverse impacts on the marine ecology and image of Samoa, and (vi) the proposed sewage treatments plant sites in northwest Apia were not considered appropriate. Given this background, the emphasis of Government since 2000 has been to review options that address these stakeholder issues and concerns.¹² This has included a focus on incremental sewerage system development and integrated solutions that meet the technical and affordability needs of the varying user groups while concurrently developing the planning and urban management framework.

E. Institutional Framework: Laws, Policies, and Government Agencies

13. The Government throughout the last decade has been increasingly concerned with the impact that rapid population and development pressures are having on: (i) inadequate urban infrastructure provision to cope with the rising expanding urban population, (ii) the absence of an agreed framework and coordinated approach for urban management and planning, including unclear institutional arrangements, and (iii) the need for resolution of land issues in the urban area (land supply, land tenure and land availability) to meet the timely demand for housing, infrastructure development and urban expansion. Its reform agenda includes institutional reform, to reduce the scope of government activity through rationalization, corporatization and contracting out of some services. The dramatic downsizing of the Ministry of Works Transport and Infrastructure (MWTI) and outsourcing of many of their traditional functions is an example of this.¹³ The Strategy for the Economic Development of Samoa 2002-04 continues the emphasis on macro-economic stability and sustainable growth, supported by further efficiency improvements and also a focus on social and environmental aspects to support the policy program. Public health, environmental quality, and better urban planning are all incorporated into the Strategy. Similarly, the focus on sustainability, (of planning, development, natural resources, waste and pollution control) and their appropriateness for Samoa are emphasized in the Tourism Development Plan 2002-2006.

14. Government efforts toward more efficient provision of water supply services on a commercial basis were initiated through the creation of the Samoa Water Authority through the Water Authority Act in 1993. Presently, the government is committed to the principle of full cost recovery and autonomy of SWA and other Government utility corporations as expressed in the recent Public Bodies Act; however it recognizes that full cost recovery from user charges is not feasible now due to broader environmental, economic, and social objectives. It thus supports public utilities through Community Service Obligations (CSO) for services that contribute to these broader objectives. SWA currently provides no wastewater or sanitation services and thus has no specific capacity in this area, though it does have reasonable water supply services capacity. Consequently, the Project includes a substantial capacity building component.¹⁴ Urban infrastructure and services have traditionally been provided by national government agencies such as the Department of Lands, Survey and Environment (DLSE), MWTI and the Ministry of Internal Affairs (MIA). The social, cultural and administrative aspects of traditional village life in Apia come under the legally established village councils of which the MIA has administrative responsibility.¹⁵ These agencies planned and provided for infrastructure requirements and

¹² ADB. 2000. *Capacity Building for Urban Planning and Management*. Manila; and ADB. 2002. *Implementation of the Urban Planning and Management Strategy*. Manila.

¹³ Ongoing World Bank Asset Management Project.

¹⁴ Capacity building, particularly management systems to support private sector participation and consultations on tariff structures are being supported through demonstration activity grants from the ADB Water Fund and ADB. 2002. *Implementation of the Urban Planning and Management Strategy*. Manila, respectively.

¹⁵ Of 236 village councils, 15 are within the Apia urban area.

constituted the *de facto* institutional framework for urban management and planning prior to the establishment of the Planning and Urban Management Agency (PUMA) in 2002 which resulted from extensive stakeholder consultations, which showed a growing awareness of the urgent need for a more coordinated and integrated approach to urban planning and development.¹⁶

F. Evaluation of Current Framework, Needed Reforms, and Capacity Building

15. The current framework provides a strong foundation for continuing improvements in urban management and the provision of wastewater and sanitation services. Nevertheless, there is continued capacity building of SWA, PUMA, and MWTI and reforms to further foster the Government's reform of state-owned enterprises (SOE), particularly the SWA in the areas of financial management and autonomy. Specifically, there is a need to foster the Government's expressed goal of improving transparency of the CSO, overall financial autonomy, and general governance of public utilities by addressing these issues for SWA under the capacity-building component of the loan. Project management capacity building will foster the MWTI strategy to outsource works to the private sector. PUMA is a young agency with substantial responsibilities. Assistance in developing subsector management plans, regulations, and guidance documents are key capacity building needs. Targeted assistance to Ministry of Health (MOH) and Ministry of Agriculture (MOA) will help provide needed monitoring data.

G. Lessons Learned

16. ADB and other donors have studied the urban infrastructure situation in Samoa over the last 20 years. Wastewater management, drainage, and sanitation infrastructure and urban management recommendations have received no or lukewarm support for the reasons described above. Lessons learned are: (i) process involving consultation and dialogue amongst stakeholders is important achieving project support; (ii) large scale reticulated solutions are not appropriate now for a number of reasons, including affordability (Government and consumers), institutional capacity, and technical capacity; (iii) land tenure matters are an integral part of project design and implementation; (iv) ocean discharge of effluent requires a high level of treatment and long outfall pipes to meet marine environmental concerns; and, (v) sanitation and wastewater management infrastructure improvements need to be undertaken in the context of broader urban management planning. Solutions need to be locally driven and respect the local situation, including understanding of why previous schemes have not won broad stakeholder support. The Project addresses these lessons learned by including multi-faceted solutions. It is an appropriately scaled incremental approach with capacity building components that acknowledge affordability levels and institutional and technical capacity while incorporating expandability and flexibility for future improvements.

H. Need for the Project

17. Rehabilitation and improvement to drainage and floodways to mitigate flooding that regularly occurs in the CBA and low-lying areas is urgently needed. Wastewater and sanitation improvements are needed to meet basic human requirements for domestic households and mitigate the impacts of inadequate wastewater facilities in the CBA and other identified priority needs areas. These are important steps to establish a fully functioning urban management system. Besides the benefits of physical development, the Project also includes appropriate planning, legislative, and institutional strengthening to support both the successful implementation of this Project and increase the likelihood of future projects.

¹⁶ ADB. 2000. *Capacity Building for Urban Planning and Management*. Manila.

INSTITUTIONAL ANALYSIS

A. Introduction and Scope

1. The institutional analysis covers the three agencies significantly affected by the Project: Ministry of Works Transport and Infrastructure (MWTI), Samoa Water Authority (SWA), and Planning and Urban Management Agency (PUMA). The Ministry of Health (MOH) and Ministry of Agriculture (MOA) have new monitoring responsibilities, and the Project addresses their capacity requirements. The analysis includes input from the Asian Development Bank (ADB) technical assistance (TA) projects,¹ the Australian Agency for International Development (AusAID) Institutional Strengthening Project, various missions leading to the loan, and source documents and reports from agencies concerned; and describes the agencies' present capabilities and assesses them against their current mission and the proposed project impacts. The analytical framework covered the institutional dimensions relevant to the successful implementation of the Project, including corporate management and governance, financial and human resource capabilities, performance and results management, customer and community relations management, and capacity to change. This appendix summarizes the full analysis.

B. Samoa Water Authority

2. Government efforts toward more efficient provision of water supply services on a commercial basis were initiated through the creation of the SWA in 1994. Although it does have reasonable water supply services capacity, SWA provides no wastewater or sanitation services and thus has no specific capacity in this area.

3. The Government is committed to the principle of full cost recovery and autonomy of SWA and other government corporations,² while recognizing that full cost recovery from user charges is not feasible now due to environmental, economic, and social objectives. It supports public utilities through Community Service Obligations (CSO), for services contributing to these objectives. Although SWA has not been financially independent, upcoming tariff increases aim to improve financial performance to at least cover operation and maintenance. The Government is committed to making CSOs more transparent, conditional, and allocated to specific activities, rather than simple budget funding, and this should improve SWA's finances. The Project will not enable SWA to become financially independent, but the Government's clear intention is to ensure that for wastewater, CSOs and user charges at minimum cover operations, maintenance, and management (OMM), and debt service and to this extent, the wastewater operations of SWA will be financially sustainable. Better billing and collection will improve the financial situation of SWA's water operations. Loan assurances require appropriate CSOs for water and wastewater services.

4. Current performance challenges include reducing the high levels of unaccounted-for water, billing and collection, and metering. SWA has improved the level of unaccounted-for water from 72% in 2001, and aims to further reduce it from 44% in 2002 to 30% within 5 years. Billing and collection rates are improving, with a revenue recovery rate of approximately 80% in 2002 from 52% in 2001. The gap is due to nonpayment and non-billing. Metered customers now number over 6,000 or 33% of total customers. Water quality varies according to water source but meets locally set standards, and 70% of World Health Organization (WHO) standards. Customers and community perception is mixed with some reluctance to acknowledge the cost of water and the "user pays" principle. Lessons from the European Union Rural Water Supply

¹ ADB. 2000. *Capacity Building for Urban Planning and Management*. Manila; and ADB. 2002. *Implementation of the Urban Planning and Management Strategy*. Manila.

² As expressed in the Public Bodies Act.

Project warn against extensive capital investment without corresponding expansion of service delivery and associated revenue collection. SWA lacks contract management capabilities due to minimal experience with outsourcing.

5. SWA has a corporate management framework in place, with corporate and business plans focused on results. Its customer management focus and community education could be improved. The SWA Board is required to have 50% of its directors from outside the Government.

6. To address the capacity shortfalls, the Project includes a substantial capacity-building component focusing on technical and management areas, in particular in asset and financial management, contract management, customer management, billing and collection, and wastewater management and sanitation operations and monitoring. Capacity will be built through structured training, development of systems and procedures, and establishment of a twinning arrangement with an established water authority.

C. Ministry of Works Transport and Infrastructure

7. MWTI has been dramatically downsized through the Government's institutional reform program and now acts as a coordinating and project management agency for a range of infrastructure projects. Its key need is stronger project management, contracting and contract supervision, and performance monitoring. In the technical area MWTI requires strengthening in hydraulic model use and drainage maintenance. The capacity-building program will address these needs by establishing programs for drainage maintenance and performance monitoring, developing procurement and tendering procedures, and using hydraulic modeling and structured training.

D. Planning and Urban Management Agency

8. PUMA was established in 2002 after an ADB-assisted government study to develop a more effective planning and urban management strategy.³ This effort involved extensive stakeholder consultations, which revealed an urgent need for an integrated approach to urban planning and development. Further assistance⁴ is being provided to help PUMA achieve its ambitious urban planning and management mission.

9. As a new and inexperienced agency, PUMA requires support in project management and procurement. Other shortfalls in capacity relate to its new responsibilities in drainage and wastewater management. The Project will support PUMA by developing water and environmental quality monitoring programs and revising environmental impact assessment guidelines and regulations. The associated TA will help PUMA by strengthening the policy, procedural, and legislative bases for water and sanitation. The TA will develop drainage and wastewater plans; prepare draft legislation including for environmental monitoring; develop building codes and regulatory procedures; implement a geographic information system; and provide training.

E. Ministry of Health and Ministry of Agriculture

10. MOH and MOA will receive support from monitoring programs, laboratory upgrades, and training to enable them to undertake their new responsibilities.

³ ADB. 2000. *Capacity Building for Urban Planning and Management*. Manila.

⁴ ADB. 2002. *Implementation of the Urban Planning and Management Strategy*. Manila.

INDICATIVE PROCUREMENT PACKAGES

Item	Mode	Packages		Financed by
		Total Value (\$ million)	Number	
A. Component A — Drainage				
1. Civil Works				
a. Floodway Improvements	LCB	1.17	2	80
b. Storm Drains Improvements	LCB	0.50	1	80
2. Equipment and Materials				
a. Gauging Station	IS	0.20	1	100
b. Trucks and Pumps	IS	0.05	1	100
B. Component B — Sanitation				
1. Individual Systems				
a. Civil Works				
(i) Low-Lying Area	LCB	0.06	1	80
(ii) Septage Collection Facility	—	0.00		80
(iii) Septage Treatment Facility	LCB	0.80	1	80
b. Equipment and Materials				
(i) Low Lying Area	IS	0.02	1	100
(ii) Septage Collection Equipment	IS	0.21	1	100
(iii) Septage Treatment Equipment	IS	0.11	1	100
2. Central Business Area				
(including special needs areas)				
Design and Build Entire System	ICB	2.26	1	93 (est.)

ADB=Asian Development Bank, ICB=international competitive bidding, IS=international shopping, LCB=local competitive bidding.

IMPLEMENTATION SCHEDULE

Activity	2004				2005				2006				2007				2008			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Asian Development Bank Loan Period	◆																◆			
A. Component A - Drainage	Loan Effectiveness Date																Physical Completion Date			
1. Preliminary and Final Design	=====																			
2. Tendering					=====															
3. Debris and Sediment Clean-up					=====															
4. Floodway Improvements					=====				=====											
5. Storm Drain Improvements					=====				=====											
6. Hydraulic Modeling	=====																			
B. Component B - Sanitation																				
1. Individual Systems																				
a. Preliminary and Final Design	=====																			
b. Tendering					=====															
c. Low-Lying Areas					=====				=====											
d. Septage Collection System Construction and Commissioning					=====				=====											
e. Septage Treatment System Construction and Commissioning					=====				=====											
2. Central Business Area																				
a. Preliminary and Final Design	=====																			
b. Tendering					=====															
c. Wastewater Treatment Plant Construction and Commissioning					=====				=====											
d. Sewers and Pumping Stations Construction and Commissioning					=====				=====											
3. Special Needs Areas																				
a. Preliminary and Final Design	=====																			
b. Tendering					=====															
c. Sewers Construction and Commissioning					=====				=====											
d. Other Allocated Special Needs Area					=====				=====											
C. Component C - Capacity Building																				
a. Technical and Utility Management					=====				=====											
b. Community Awareness					=====				=====											
c. Twinning Arrangement									=====				=====							

Source(s):

Table A8.1: Cost Estimates
(\$ million)

Item	Foreign Exchange	Local Currency	Total Cost	Percentage of Base Cost
A. Drainage				
1. Rehabilitation of Existing Drains	0.1	0.5	0.5	7%
2. Rehabilitation of Floodways	0.0	1.4	1.4	18%
3. Hydraulic Modeling and Gauging Stations	0.2	0.0	0.2	2%
Subtotal (A)	0.3	1.9	2.2	27%
B. Sanitation				
1. Individual Systems	0.3	1.3	1.6	20%
2. Central Business Area	0.8	1.1	1.9	23%
3. Special Needs Areas	0.1	0.4	0.5	7%
Subtotal (B)	1.3	2.7	4.0	49%
C. Capacity Building and Project Implementation				
1. Technical and Utility Management	0.6	0.1	0.6	5%
2. Community Awareness	0.0	0.1	0.1	1%
3. Twinning Arrangement	0.2	–	0.2	2%
4. PIA Consultancy Services	0.4	0.1	0.6	8%
5. PMU Consultancy Services	–	0.3	0.2	2%
6. Incremental Administration	–	0.3	0.3	3%
Subtotal (C)	1.2	0.7	1.9	24%
Base Costs (A to C)	2.9	5.3	8.2	100%
D. Contingencies				
1. Physical	0.3	0.5	0.7	
2. Price	0.2	0.5	0.6	
Subtotal (E)	0.5	0.9	1.4	
Project Cost (A to E)	3.4	6.2	9.5	
F. Finance Charges (interest during construction)	0.5	0.0	0.5	
Total	3.8	6.2	10.0	

Notes:

- (i) Special needs includes an allocated ST0.25 million program for additional special needs areas.
- (ii) Physical contingencies are 10% of base cost, excluding land.
- (iii) Price contingencies assume escalation rates: 2.0% (2004, 2005), 2.5% thereafter for international prices; and 4% for 2004, and 3.5% for 2005 onward for domestic prices.
- (iv) Numbers may not add up due to rounding.

Source: Asian Development Bank estimates

**Table A8.2: Financing Plan
by Expenditure Category**
(\$ million)

Item	ADB	Government	Total
1. Land	—	0.8	0.8
2. Civil Works	3.0	0.8	3.8
3. Equipment & Materials	1.5	—	1.5
4. Design	0.1	—	0.1
5. Consulting Services	1.7	—	1.7
6. Incremental Administration	—	0.3	0.3
7. Special Needs Allocation	0.1	0.0	0.1
Subtotal	6.4	1.8	8.2
1. Physical Contingencies	0.6	0.1	0.7
2. Price Contingencies	0.5	0.1	0.6
Subtotal	1.2	0.2	1.4
Project Cost	7.6	2.0	9.5
Financing Charges	0.5	—	0.5
Total	8.0	2.0	10.0

ADB=Asian Development Bank.

Source: Asian Development Bank estimates

SUMMARY FINANCIAL ANALYSIS

A. Financing Plan

1. The Project with an estimated cost of \$10 million, is proposed to be funded by the Asian Development Bank (ADB) Asian Development Fund (80%) and through government counterpart contribution (20%). The Executing Agency (EA), Ministry of Finance (Treasury Department or Treasury) will fund the Government's 20%, including \$500,000 in land contribution and \$1.5 million in cash or in kind covering the cost of private land, staff, office space, and other costs. This amount can be reduced if land swaps or other alternative payments can be made to landowners. Committed counterpart funding contributions over fiscal years (FY) 2005 to 2009 total \$2.0 million (ST6.1 million) and are mainly incurred in the first 3 years. Although government funds are severely restricted, the proposed counterpart funding does not appear out of line. Government will incorporate counterpart contributions into the budget for FY2004 onward to cover counterpart funding and timely disbursements are included as a loan assurance.

2. The Treasury Department will be ultimately responsible for all loan repayments to ADB. The ADB loan of \$8.0 million will have loan repayments of \$400,000 per annum (ST1.2 million) from 2012 to 2036. Total government debt in 2001 was \$159 million (ST503 million). Estimates of loan repayments for 2002-2003 were ST18.0 million, including ST13.4 million in principal repayments and ST4.6 million in interest. The additional burden of the proposed loan is in the order of 2%, which is considered to be affordable.

3. The Treasury Department will enter into an on-lending agreement with SWA for the proposed physical aspects of the sanitation components (design, civil works, and materials and equipment) of about \$3.5 million. SWA will be responsible for repayments to the Treasury department as set out in the agreement. Treasury will finance the repayments for drainage, capacity building, and project implementation support.

B. Government Institutional Reform and Implementing Agency Performance

1. Ministry of Works, Transport, and Infrastructure

4. Under the ongoing public service reform program, the Ministry of Works, Transport and Infrastructure (MWTI) took on new responsibilities in January 2003 and is undergoing considerable reorganization and rationalization. The intention is that the original Public Works Department will become the Land Transport Ministry by 2004. From staff of around 500, there are now less than 100. Responsibilities now focus on policy setting; asset management; and regulation of ports, roads, bridges, seawalls, and drainage. All construction and maintenance is contracted out to the private sector, in many cases to new businesses set up by employees of the former Public Works Department. This change process has been supported by the World Bank under phase 1 of the Infrastructure Asset Management Program.

5. The annual MWTI budget for FY2003 was ST27 million, excluding foreign capital assistance grants and soft loans. The operation and maintenance for the proposed drainage project will be procured through a private sector contract, managed by MWTI. The estimated cost of the contract is about ST75,000 and is considered affordable. Private sector contracting is expected to reduce costs improve efficiency and outputs, but will require MWTI to successfully manage the contract, monitor, and regulate the outputs.

2. Samoa Water Authority

6. The Samoa Water Authority (SWA) is an independent government corporation, established in 1994. SWA is responsible for the water supply of about 80% of the population. It employs 138 staff (2003) and has 17,734 customers (as of December 2002). Annual water production is about 16 million (m³) (46,000 m³ a day). Coverage in the urban area is more than 90%.

7. SWA is listed as a potential public trading body under the 2001 Public Bodies Act, which describes the principal objectives of public trading bodies as (i) to be as profitable and efficient as comparable businesses that are not owned by the state, and (ii) to meet community service obligations (CSOs) as directed. A CSO is defined as provision of good or service, agreement or action "on any other terms other than normal commercial terms." In this way government policy aims to encourage efficiency in utility operations and also provide services that have desirable social or economic outcomes through payment to said utilities for undertaking CSOs.

8. SWA has made some progress over the past years in moving toward financial independence and transparency of operations. However, SWA does not have a history of financial viability and makes a considerable loss each year in providing water services. This is largely a result of provision of water supplies to the rural areas, which is undertaken as a social obligation and is not financially viable. The position has been exacerbated by recent grant funded investments in rural operations, lack of counterpart funds from the Government, and delays in customer connections to provide the required cost recovery for operations. Net trade debtors at 30 June 2003 were reported at ST2 million. Allocated budgetary CSO payments for water for 2003/04 were only 30% of the amount claimed largely because they are neither tightly defined nor transparent. To date, none of the CSO payment for 2003/04 has been made and the current cash position of SWA is extremely difficult. The situation demonstrates that the process of establishing the level and effective CSO payments is not well developed and requires attention particularly for the CSO for rural water provision and capital works.

Table A9.1: Samoa Water Authority, Summary Financial Indicators
(ST million)

Item	1998–1999	1999–2000	2000–2001	2001–2002
Income	4.7	4.5	3.7	4.9
Expenses	(11.2)	(11.0)	(12.1)	(11.9)
Net Loss from Operating Activities	(6.5)	(6.6)	(8.4)	(7.0)
Accumulated Losses	(10.2)	(16.8)	(24.2)	(31.2)
Total Assets	70.2	68.4	66.2	68.5
Loans Outstanding	8.5	8.5	0.0	0.0
Government Equity Injection (including CSO)	5.5	4.6	6.1	4.9
Return on Capital Employed	(1.3)	(1.4)	(1.9)	(1.6)
Current Assets Ratio	3.3	3.4	6.3	4.8

CSO=community service obligation.

9. SWA implemented tariff increases in July 2003. The changes were largely an appropriate restructuring of water charges to encourage water conservation and further reductions in unaccounted-for water. Simplification of the tariff to commercial customers was not implemented since it would have had a negative impact on SWA finances. A summary of key indicators is shown in Table A9.1 based on SWA annual reports and audited accounts.

D. Tariffs, Cost Recovery, and Project Financial Appraisal

1. Cost Recovery and Tariffs

10. Cost recovery from user charges is proposed only for the wastewater components; drainage and capacity building will be funded by the Government. In line with government policy for user pays systems and financial independence of public corporations, full cost recovery is the target recovery rate. However, government policy also considers the social and economic aspects of utility provision as well as affordability of customer charges such that the Government may substitute part of user charges with a CSO. The Government will ensure that user charges are set at minimum to recover operation, maintenance, and management (OMM) of the wastewater services provided by SWA. Government will also ensure that the cost of any on-lending to SWA is either charged to customers through user charges or provided by Treasury through a legally binding and transparent CSO.¹ SWA is also seeking an appropriate return for providing the service in line with commercial principles. Further public relations work about the Project, particularly government commitment to improve and tighten environmental standards will be undertaken, in conjunction with continuing public consultation before the Government decides on the allocation between recovery from user charges and government funds. As about half of the customers for the central business area (CBA) scheme (in terms of water volume) are public bodies, then specific consideration of the impact on Treasury and budgetary allocation will also be considered.

11. The proposed charging mechanism is to (i) introduce a water volume-based sewerage surcharge on the water bill for all customers of the CBA and Special Needs Areas (about 110 mainly commercial customers); and (ii) a water volume based environmental charge on the water bill for all customers in urban Apia.² Customers will be issued a single, itemized bill and would be subject to disconnection if the charge is not paid in full. Payments made will reduce the wastewater charge first. Under the Project, an analysis of combining electricity water and wastewater charges will be undertaken. The eventual tariff structure for the environmental charge will likely include a provision to support those in hardship, similar to the existing lifeline tariff for water. However, unlike water the ‘free allocation’ will likely be cross-subsidized by higher water users through the tariff rather than paid for as a CSO.³

12. ADB funds will be on-lent to SWA in the local currency tala (ST), at the same terms as the ADB loan (32 years and an 8-year grace period) but at 5% interest to cover the foreign exchange risk. Tables A9.2 and A9.3 show the tariff, average user charges, and CSO payment implications of three pricing options.⁴ CSO payments are calculated in line with the ‘commercial principles’ objective of the Public Bodies Act such that the CSO is the amount corresponding to the difference between the tariff charged and the full cost recovery rate.

¹ The CSO will not cover or make up for any inefficiency in tariff collection. For the CBA scheme a collection rate of 85% based on analysis of debtor list for water for said customers, and 70% for individual systems.

² Water supply connections number about 7,000 domestic and 160 commercial users. Special arrangements will be made for residents with private water supply.

³ All tariff calculations for individual systems assume cross-subsidy such that no CSO is required to cover the ‘free allocation.’

⁴ Tariff estimates are based on the tariff applied to 100% of water supplied, and increase annually relative to inflation to cover the increase in OMM cost.

Table A9.2: Central Business Area Scheme: Estimated Tariffs, User Charges, and Community Service Obligation Payments

Options	Tariff / m ³	Annual CSO Payment ST	Example Monthly Charges (ST)		
			Business 1	Business 2	Business 3
A. Daily Water Use			4 m ³	14 m ³	222 m ³
1. User Charges Set at OMM	2.6	980,000	350	1,117	17,289
2. User Charges Set at OMM plus Debt Service	4.0	400,000	539	1,718	26,598
3. User Charges Set at Full Cost Recovery	5.0	0	674	2,148	33,248
B. Current Wastewater Expenditure (ST/m ³ and ST/month)	Depends on system		Minimal	7.7/m ³ (3,300/month)	Minimal
C. Current Water Expenditure (ST/m ³ and ST/month)	Log10 - based tariff		0.6/m ³ 72/month	1.1/m ³ 481/month	1.4/m ³ 9,324/m

CSO=community service obligation, OMM=operations, maintenance, and management

13. For the CBA scheme, although the calculated tariffs appear high compared to the water charge, they are not excessive given that (i) currently water tariffs do not even cover operation and maintenance (O&M), and (ii) the high cost of wastewater collection and proper treatment and disposal. The estimated tariffs at break even (ST4/m³) and at full cost recovery (ST5/m³) are lower than the unit operational cost of treatment for the few businesses in Apia that treat their own wastewater to a similar standard (ST9/m³ and ST7.7/m³ [Business 2 in Table A9.2]). Some businesses with very large water use (Business 3) spend minimal amounts on wastewater currently, and it is these businesses that require strict enforcement of proposed environmental standards. The cost of meeting these standards individually exceeds the estimated wastewater charges. For example, the capital cost alone of Business 3 meeting secondary treatment standards would be about ST1.5 million. Significantly, public bodies tend to fall into this category, currently spending minimal amounts on wastewater treatment and with relatively high water consumption.

Table A9.3: Individual Systems: Estimated Tariffs, User Charges, and Community Service Obligation Payments

Options	Tariff / m ³	Annual CSO Payment ST	Example Monthly Charges (ST)		
			Household 1 (average)	Household 2 (low)	Household 3 (high)
A. Daily water use			1.4m ³	1.0	
1. User Charges set at OMM	0.25	470,000	6	4	16
2. User Charges set at OMM plus Debt Service	0.40	160,000	11	6	27
3. User Charges set at Full Cost Recovery	0.48	0	14	7	32
B. Current Wastewater Expenditure per Month			Minimal	Minimal	Minimal
C. Current Water Expenditure per Month	0.5/m ³ 0.67/m ³		14	8	36

CSO=community service obligation, OMM=operations, maintenance, and management.

14. For the individual systems the estimated environmental charge for a household with average water consumption is ST11 per month at break even and ST14 at full cost recovery. The calculation includes an entitlement of 0.5 m³ a day “free” the same as the CSO for water, but in this case, rather than a CSO payment, the tariff is adjusted such that high volume users

cross subsidize the low volume users. Average tariffs represent 2.3% of a low-income household of ST600/month. Given the “free entitlement,” a low income household with very low water use would pay nothing. A household using low volume of water, as in household 2, would pay between ST4 and ST7 per month.

2. Financial Appraisal

15. For the financial appraisal, cost recovery from user charges is assumed to cover OMM, and a transparent CSO payment, treated as operational income, is assumed to cover the difference between that tariff rate and full cost recovery. The weighted average cost of capital (WACC) is calculated using the loan terms to SWA.⁵ The financial internal rate of return was 9.7% for the CBA and special needs areas, and 6.8% for the individual systems. Both exceed the calculated WACC of 4.9%.

3. Financial Forecasts and Sustainability

16. SWA does not have a history of financial viability and makes a considerable loss each year. Recent tariff increases aim to improve financial performance to cover O&M, but this remains a medium- to long-term goal. The new tariff structure and metering program has already improved collection rates, and this is likely to improve further over the next few years, particularly in the rural areas, where the current levels of cost recovery are extremely low. Completion of the rural water supply project to obtain connections and the introduction of meters is intended to improve revenue collection.

17. Calculated tariffs and CSO payments have been designed to ensure that the financial impact of the Project on SWA is positive. The Government will ensure that for wastewater, CSO payments combined with user charges at minimum cover OMM and debt service for SWA. To this extent, the wastewater operations of SWA will be financially sustainable. In addition, two specific aspects will assist the water side of the business improve financial performance. First, the Government is committed to making CSO payments more transparent and allocated to specific activities, rather than simple budget funding, and the Project includes as an assurance that CSO payments for water as well as wastewater are made transparent. Second, the Project provides improvements to the billing and database system.

18. SWA has prepared financial forecasts to FY 2008/09. The impact of the sanitation project is positive, although the net position in the final year remains negative, indicating that SWA is not, and is unlikely to become, financially viable in the medium term. However, the extent to which SWA becomes financially viable depends on the agreed CSO payment for water more than any other factor.

⁵ Government equity contribution was assumed at 7.9%, the current yield on 12-month bonds.

SUMMARY ECONOMIC ANALYSIS

A. Economic Rationale

1. Apia, with an urban population of around 60,000 people (about 8,200 households) is the capital and the main focus for economic activity in Samoa. Over the last decade, following two cyclones in the early 1990s, the Government has been pursuing economic reform, within a culturally acceptable and socially responsible framework. Average real economic growth since 1994 has been about 4.5%, and in 2000 and 2001 was over 6%. Gross domestic product (GDP) per capita is about ST5,000 per annum (around \$1,570). However, the economy remains vulnerable, largely due to weather and other exogenous shocks, because of its small size, limited diversity of economic activity, and dependence on agriculture. The economy is highly supported by external sources: approximately a third of government revenues are external grants, and private remittances from abroad are an important part of the economy.

2. The Government's reform agenda includes institutional reform, to reduce the scope of government activity through rationalization, corporatization, and contracting out of some services. The Strategy for the Economic Development of Samoa 2002-2004 continues the emphasis on macroeconomic stability and sustainable growth, supported by further efficiency improvements, and also a focus on social and environmental aspects to support the policy program. Public health, environmental quality, and better urban planning are all incorporated.

3. Publicly and politically, there is strong concern for environmental issues. The new Planning and Urban Management Bill, deals with the biophysical as well as the social and economic environment. Similarly, the focus on sustainability and appropriateness for Samoa are emphasized in the Tourism Development Plan 2002-2006. The Health Sector Strategic Plan specifically identifies environmental health issues, including the lack of a public sewerage system and drainage problems as affecting public health. The plan links recent outbreaks of dengue, incidence of diarrheal diseases, respiratory diseases, and skin disease with the need for more intensive environmental health control.

4. Apia shows the typical signs of inadequate planning and infrastructure provision for environmental protection associated with many urban areas. Here the traditional village community responsibility in many aspects has broken down. About 75% of households are estimated to have septic systems but these are not functioning properly. Individual systems tend to be undersized, and rarely cleaned, and most are linked to the nearest drainage channel, polluting groundwater, surface streams, and the harbor. In the central business area (CBA) and special needs areas, less than 10% of wastewater is currently treated adequately. In Apia the situation is exacerbated by the historical lack of urban management, including the absence of a drainage or wastewater management plan and the absence of effective town planning. Individuals have raised the heights of sections, reclaimed land in the mangrove area, and built over and blocked drainage channels. The combined effect is a haphazard and non-functioning drainage system. Flooding after heavy rain is intensified, while foul water flooding poses a public health risk.

5. Detailed historical data on the frequency and extent of flooding is not available, although a recent South Pacific Applied Geoscience Commission (SOPAC) study¹ records a long history of flooding in Apia. A severe flood occurred in 2001, and the report estimates that 5,000 residents were directly affected with water entering their home or business and 28,000 indirectly through damage to the water supply infrastructure. The estimated repair bill was in excess of ST11 million (2001 prices).

¹ A Review of Flooding in Apia, Samoa, April 2001, Yeo, July 2001, SOPAC Technical Report 338.

6. The Project provides the first major physical infrastructure project following the establishment of the Planning and Urban Management Agency (PUMA) and is an important step in establishing a fully functioning urban management system. In addition to demonstrating the benefits accruing from physical development, the Project also includes appropriate planning and legislative and institutional strengthening to support both the project implementation and increase the likelihood of future projects.

7. Without the drainage component, the CBA and surrounding low-lying areas will continue to be subject to flooding with unsanitary water with its associated damage to property, economic activity, livelihood, and public health. Without the wastewater component, the population of Apia is exposed to public health risks associated with poor sanitation, pollution of ground- and surface water, and consequent impacts on the urban living environment. The Project provides a two-pronged urban management solution to reduce the risk and mitigate the impacts of flooding in the CBA and surrounding low-lying areas.

B. Project Description and Beneficiaries

8. The drainage component will improve the drainage and mitigate the risk of flooding for the CBA and an estimated 225 households (1,800 people) in the immediate area. Beneficiaries include more than 150 institutional and businesses establishments, an estimated 2,000 working people, and most of the estimated 50,000 annual holiday visitors.

9. The wastewater component will provide (i) improved urban environment and public health for all 60,000 urban residents of Apia (about 8,200 households) through a regular pump-out system for septic tanks and latrines, and septage treatment and disposal; rehabilitation of systems in the low-lying area identified as a priority (about 500 households); and (ii) reticulated sewerage collection, treatment, and sludge disposal for the CBA and identified special needs areas. As with the drainage component, beneficiaries include all establishments and persons who live, own property, work or visit the CBA plus the special needs areas, including: (i) in- and out-patients and employees of the National Hospital (estimated at 10,000, 50,000, and 130 people, respectively); students and staff at the Malifa School compound (2,200 persons); stallholders and visitors to Fugalei Market.

10. Also, all persons affected by the negative impacts of poor drainage and wastewater management will benefit from an overall improvement to amenity and environment. This includes some specific examples where existing wastewater facilities are polluting the environment to the extent that the odor, water quality, health and living environment is severely affected, such as the families living immediately downstream of the hospital wastewater facility, which regularly breaks down. Improvements in water quality will likely have positive marine and coastal impacts.

11. There will also be direct and indirect impacts to the economy of Apia and, as the capital of Samoa, to Samoa as a whole. Apia accounts for an estimated 70% of GDP, 50% of hotel beds, 80% of commerce (the largest single sector), 90% of the finance and business services, and 60% of public administration. Direct economic impacts include the savings from the cleanup of unsanitary flood water, traffic disruptions, damage to property and resources, expenditure on environment-related diseases and epidemics, and loss of economic activity. Indirect impacts include improved investment and business opportunities, including general commerce, tourism, and aquaculture, resulting from a cleaner, more attractive urban environment and improvements to productivity from a healthier workforce.

C. Project Selection and Analysis of Alternatives

12. The Project has been selected based on identified needs and priorities, government and beneficiary affordability, comparison of alternatives and least-cost solutions, appropriate technology and ease of implementation. A number of previous studies from 1983 onward have looked at the drainage and wastewater sector in Samoa, primarily looking at much more ambitious schemes. For wastewater, this involved larger reticulation systems which, while environmentally preferable, are expensive. The project scale needed to be more affordable, to the Government and beneficiaries. The drainage component has been scaled back to mitigate problems associated with implementing projects requiring the use of customary land. At the same time, the Government's priority to improve residential sanitation, particularly in the low-lying areas as well as identified special needs areas, had to be addressed, balancing environmental, financial, and social considerations.

13. Alternative solutions were considered in determining the geographical coverage of the reticulated system and for each of the identified special needs area. The proposed CBA scheme is slightly larger than was originally proposed to include one of the largest wastewater generators. The net present values (NPV) of individual systems were compared to the incremental costs of expanding the CBA reticulated scheme. In both cases the incremental NPV of expanding the CBA scheme was lower than the NPV of an independent package treatment plant. Expanding the system to include these outlying buildings has the benefit of including all the other customers in between and also reducing the average incremental cost of the scheme through economies of scale. For two special needs areas—the Malifa School compound and National Hospital—a similar exercise was undertaken. The cost of an on-site package plant was compared to the incremental cost of linking to the CBA scheme, including expanding the size of the treatment plant. The NPV of linking to the scheme was found to be the least cost solution.

14. A recent report reviewed and compared more than 20 options for wastewater treatment, including screening plants, aerated lagoons, biological nutrient removal, activated sludge, and ocean outfalls. However, the options are not strictly comparable since some provide much higher levels of treatment than others. The proposed solution combines a least cost approach to secondary treatment through the use of a prefabricated package plant plus the use of an infiltration gallery, maximizing the use of the adjoining wetlands to provide additional environmental protection. Secondary treatment is necessary to avoid the need for expensive ocean outfalls and adequately protect Vaiusu Bay, which is used for subsistence and some commercial fishing.

15. For the urban areas outside the CBA, development of a reticulated system remains the long-term goal, but at this stage, the opportunity cost to the Government of a larger scheme is too high. Rather, upgrading the systems of the most vulnerable households and proper operation and maintenance of existing systems was considered to be appropriate to affordability levels, while recognizing the benefits of improved environmental standards. Currently very few individual systems function properly, residents have no incentives to maintain the systems adequately, and no regulations compel the residents to do so. The Project will provide a mandatory pump out, operated through a private sector contractor, and residents will be charged some or all of the cost. This system takes away the disincentive of payment at the point of delivery, which results in the vast majority of households doing nothing. At the same time, the regular charge to customers encourages people to appreciate the collective benefits of better environmental standards.

D. Economic Rate of Return Analysis

16. The analysis compares a calculated economic internal rate of return (EIRR) for the Project to the economic opportunity cost of capital (EOCC), which is assumed to be 10%.² The analysis is undertaken as a whole, rather than for specific components, since there are mutual benefits from the integrated nature of drainage and wastewater. The analysis uses the domestic price numeraire, and constant January 2003 prices.

17. Economic costs include physical and nonphysical project components, excluding taxes. The shadow exchange rate factor was estimated to be 1.19, based on the value of imports and exports and related taxes and subsidies. The land to be occupied by facilities created has minimal chance of being used in any other productive capacity except as proposed under the Project, and thus a conversion factor of 0.5 was used. The incremental economic costs are phased over the planning period, assumed to be 20 years. Replacement costs are included for vacuum trucks, and a residual value is included at the end of the period.

18. Valued benefits include (i) estimated repair cost savings from flood damage, (ii) estimated labor clean-up cost of flood damage, (iii) resource cost savings on minimal individual sanitation systems as in current practice, and (iv) willingness to pay for improvements to wastewater management. Values for flood damage were based on the Yeo report, which reports the damages of the 2001 flood and assuming the risk of a severe flood of 1 in 25 years and a less severe flood of 1 in 5 years. These values were adjusted to (i) include only the damage to the low-lying areas, primarily residents, businesses, and roads, the risk to which would be significantly reduced as a result of the Project; and (ii) to account for the underestimate of damage due to non-insurance, primarily of disruption to business. Labor clean-up costs are minimal, assumed to be 2 days per affected building at a wage rate of ST30/day. Minimal sanitation systems were based on the number of commercial establishments in the CBA and an average ST50,000 spent on individual systems every 20 years, plus the current pump out cost every 2 years. The capital cost of the existing package plant that can be reused was included. Finally, coverage of operation, maintenance, and management of the wastewater components only was taken a proxy for residents' and businesses' willingness to pay for wastewater management. This is the Government's minimum cost recovery policy based on existing water charges and a perceived minimum willingness to pay. The valuation of economic benefits is likely to underestimate the true value of the Project in economic terms, largely because many of the benefits are difficult to quantify, attribute, and assign a monetary value. These include savings in health expenditure, and improvements in urban living and working conditions, water quality, and business environment. Equally important are the benefits of improving planning and urban management, and increasing the potential of similar projects downstream.

E. Results and Conclusion

19. The base case EIRR of 12.4% exceeded the EOCC. Standard sensitivity tests were taken at 10 percent and for project delays, and project-specific sensitivity tests were undertaken for (i) the conversion factor for land (from 0.5 to 1.0), (ii) willingness to pay (less 50%), and (iii) reduced risk of a severe flood (from 4% to 2%). Under all the sensitivity tests, the Project was found to be economically viable or so close to be marginal. The calculated EIRR is expected to be lower than the true EIRR since it has not been possible to value all of the economic benefits of the Project. Detailed economic analysis is presented in the Supplementary Appendix B.

² ADB. 1997. *Guidelines for the Economic Analysis of Projects*. Manila.

ENVIRONMENTAL ANALYSIS

A. Introduction

1. Apia, particularly the central area, shows the typical signs of inadequate planning and infrastructure provision for environmental protection associated with many urban areas. Nearshore marine water and urban stream water quality has been significantly degraded as a result of inadequate sanitation and wastewater management systems. Most wastewater is now treated in individual systems such as cesspools and septic systems before it is discharged to drainage channels (including open channels and streams), soil, and groundwater.¹ Flooding is a frequent problem due to high rainfall and inadequate drainage system, that is compounded by land filling, blocking of drains, and lack of town planning. Flooding after heavy rain is intensified and foul water flooding poses a public health risk due to septage and latrine wastes being released to surface environment. The objective of the proposed project is to improve drainage, wastewater and sanitation management in Apia. An initial environmental examination (IEE) has been conducted in accordance with Government of Samoa guidelines² and Asian Development Bank (ADB) policies. A summary IEE (SIEE) has also been prepared and included in Supplementary Appendix B.

B. Description of the Environment

2. The SIEE and IEE fully describe the environment. The project area's key features relevant to wastewater management are as follows: (i) high island tropical climate with abundant rainfall (about 2,500 millimeters [mm] on average annually and about 5,500 mm at the top of the catchment that drains to Apia) although there is a distinctive dry season; (ii) many rivers, lakes, and ponds with more than 25% of the municipality covered by water; (iii) mostly clay and sandy clay soil in the upland area; and (iv) in the Apia town area, including the central business area (CBA), the flora and fauna have been substantially modified by expansion of urban development and introduction of exotic plants and animals. Apia soil is characterized by coral limestone sands with a high water table. Soils of the Vaiusu Bay area are described as sandy clay and peaty sand that are difficult to drain, unsuitable for agriculture, and sustain primarily mangrove development. Marine waters, including Vaiusu Bay, are used for subsistence and commercial fishing. Tourism, which is reliant on high environmental quality, is a major economic sector.

3. Water quality monitoring data, which has been only intermittently collected, shows definitive evidence of sewage contamination as evidenced by low dissolved oxygen saturation, high biochemical oxygen demand (BOD), high total nitrogen concentrations, and high indicator bacteria concentrations. Urban drains are often choked with litter and vegetation, emit foul smells (indicating anaerobic conditions), and contain floating oils and sewage. Drains and natural watercourses are contaminated with sewage and, occasionally, industrial waste.

C. Alternatives

4. Without the Project, water quality will continue to deteriorate since individual systems cannot effectively treat wastewater given the population density, hydrologic conditions, soil conditions, etc. With the Project, living conditions and aquatic environmental quality in the Apia

¹ There are a few, mostly poorly operating package plants at some business centers and government complexes, with the facilities for the National Provident Fund Building and Lotemau business centers being the notable exceptions.

² The Government's 1998 Environmental Impact Assessment Guidelines have not yet been promulgated. Nevertheless, the IEE was prepared to comply with Preliminary Environmental Assessment Report Guidance.

urban area will be improved. Project preparations and numerous previous studies considered a number of alternative wastewater collection and treatment schemes. Many have involved large-scale schemes with varying levels of treatment, which were generally considered unaffordable (by the Government and consumers) and technically beyond the capacity of the country. Some also had environmental concerns associated with ocean outfalls. The proposed solution combines a least cost approach to secondary treatment through the use of a prefabricated package wastewater treatment plant (WWTP), plus the use of an infiltration gallery, maximizing the use of the adjoining wetlands to provide additional environmental protection.

D. Anticipated Environmental Impacts and Mitigation Measures

Table A11: Summary of Key Environmental Impacts

Project Phase	Air		Water		Land	
	Effect	Mitigation Measures ^a	Effect	Mitigation Measure ^a	Effect	Mitigation Measure ^a
Construction ^b	Dust	<ul style="list-style-type: none"> Covering of fill transport vehicles Water spraying Minimization of on-site material storage 	Erosion and sedimentation	<ul style="list-style-type: none"> Erosion control Construction scheduling 	Vegetation removal	<ul style="list-style-type: none"> Minimizing removal replanting
	Noise and traffic	<ul style="list-style-type: none"> Careful construction scheduling Site sound barriers Proper operation and maintenance (O&M) of equipment 			Land acquisition (1–3 landowners)	<ul style="list-style-type: none"> Short resettlement plan^c in accordance with Asian Development Bank Policies
					Refuse generation	<ul style="list-style-type: none"> Timely clean-up Landfill disposal
					Dredge material disposal	<ul style="list-style-type: none"> Testing and landfill disposal
Operational	odor	<ul style="list-style-type: none"> Engineering controls Buffer zones Odor control O&M capacity building 	Localized pollution from emergency discharges	<ul style="list-style-type: none"> Controls Buffer zones Odor control O&M capacity building 	Sludge disposal	<ul style="list-style-type: none"> Sampling and analysis Disposal at sanitary landfill
	Corrosive gas damage to sewers	<ul style="list-style-type: none"> Appropriate design 	Overflows and bypasses	Standby equipment and proper O&M		
				Appropriate design		Appropriate design
						O&M capacity building and training

^a Listed measures are indicative. A comprehensive suite of mitigation measures will be incorporated into all contract specifications.

^b Includes siting issues.

^c Appendix 13 includes the short resettlement plan.

^d Overall effect to receiving water quality is positive with reductions in a number of sewage-related contaminants as well as some reduction in sediment loadings in flood waters since more runoff will be contained in lined channels.

WWTP effluent discharge to infiltration gallery eliminates need for ocean outfall; siting adjacent to wetlands provides for natural buffering effect to marine waters in event of overflows.

E. Environmental Monitoring and Public Participation

5. Preliminary environmental monitoring programs, which address monitoring of all environmental media, have been developed and will be finalized during detailed design. A baseline water quality-monitoring program needs to be implemented to demonstrate positive project effects as well as monitor sediment loadings and turbidity during construction. Key monitoring points will include outlets for the Gasegase, Asaga, and Mulivai stream and the Vaisigano River. The Mulivai Stream just downstream of the National Hospital will also be a key monitoring point as will Vaiusu Bay, particularly near the WWTP.

6. Public participation was a key part of the development of the Urban Planning and Management Strategy from which this Project emerged. The Government is continuing consultations as part of its pre-loan preparations. The SIEE describes completed and planned public participation activities, agency responsibilities, staffing needs, and monitoring programs.

7. Promulgated environmental legislation are limited. The capacity-building component will help develop such legal frameworks.

F. Conclusion

8. The Project will improve the environmental quality and public health of Apia. Adverse impacts will be minimal and will be mitigated. Comprehensive monitoring and environmental management programs will be implemented to ensure adherence to Samoan laws and ADB policies. The Category B environmental classification is confirmed.

SUMMARY POVERTY REDUCTION AND SOCIAL 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?	Not applicable
Contribution of the sector/subsector to reduce poverty in Samoa:			

B. Poverty Analysis Proposed Classification: Nonclassified

- Poverty data and information from a community consultation process contributed to the project design. Poverty analysis was taken into account in relation to the cost recovery and user-pay features of the wastewater and sanitation infrastructure components.
- The Project provides direct benefits to living conditions, health, and some limited job creation, and indirect benefits to income poverty that accrue from reduced health care costs, increased productivity, and economic development. The Project will make a limited direct and greater indirect contribution to poverty alleviation.
- The proportion of the poor¹ in the service area population cannot be quantified meaningfully as no official poverty line has been determined for Samoa. There is evidence that some of the poorest households in Apia are in the low-lying area identified in the project design for sanitation facility rehabilitation. Many Apia residents are urban migrants who live outside the traditional village structure and are exposed to greater social and economic risks because they have no or limited access to traditional social protection mechanisms. These poor households will benefit from improved living conditions and reduction in health risks. The greater Apia area is likely to include some poor households who will share the same benefits but with greater marginal utility. Urban poor relying on local fishing for consumption and income will benefit from the improved marine environment. Cleaner marine water will benefit those using it for recreation.
- As an environmental project, the living conditions for all in the service area of the Project will improve. These benefits will also accrue to the poor. Improved environmental quality will promote sustainable urban development, for example, through tourism. The improvement in water quality will contribute to the steady development of a water-based tourism industry that depends directly on good water quality.
- The Project will directly benefit poverty reduction through the provision of some limited jobs for unskilled laborers during the construction phase and for ongoing drainage maintenance. Poverty reduction impacts can be expected from economic growth as a result of improvements to CBA infrastructure, private sector participation in the provision of utility facilities, and improved marine environment for the fisheries industry. An inventory to assess the quality of sanitation facilities throughout the project area will also assess the capacity and willingness of the poor to pay for improved services. The design of the cost-recovery framework will take into account the impact on the poor and vulnerable.

C. Participation Process

Stakeholder analysis prepared:	Yes
Public consultation/participation is an element of the project design and planning and is prepared through community-driven design mechanisms involving beneficiaries. A community participation and awareness program will be formulated and implemented to serve as ongoing consultation mechanism with the involvement of all stakeholders.	
Participation Strategy	Yes
Consultation with the community is planned as a critical component of the capacity building of involved agencies component of the Project. The community awareness program will be developed with the direct involvement of the community and will include the development of community involvement principles, a participative framework, and mechanisms for community awareness and education. The Project will assess the education and information needs of the community and identify the special needs of target groups such as low-income and	

¹ The Government has not determined a poverty line. The 1997 Household Income and Expenditure Survey attempted to identify a basic needs poverty line and a food poverty line, but these have not been accepted and lack credibility.

vulnerable households, women and the socially excluded, and households outside the traditional village structure. The information and education program will deliver targeted information about the Project and its impacts, specifically the rights and obligations of the Government, households, organizations, and communities, and general information about related environmental and health issues. Performance indicators and a performance monitoring program for community awareness will be developed and implemented. In collaboration with the relevant agencies, the program will develop and implement community and customer feedback and complaint-handling procedures and will integrate this feedback into agency decision-making processes.

D. Gender and Development

Strategy to maximize impacts on women: Women are fully represented to ensure that improvement of sewage service and sanitary conditions reflect women's role in household activities and domestic economy, and that health and income generation benefits reflect women's needs.

Gender plan prepared: No

E. Potential Issues

	Significant/ Not Significant/ Uncertain/ None	Strategy to Address Issues	Output Prepared
Resettlement	Not Significant	No to minimum land acquisition will be required as the government strategy is to avoid land acquisition for infrastructure property. However, preliminary design indicates that one to two landowners may be affected. Land is of marginal, and has no productive purposes, with no structures on it. Government land acquisitions are legally established and consistent with the <i>ADB Policy on Involuntary Resettlement</i> . Therefore, a short resettlement plan has been prepared and is included in the Report and Recommendation of the President as Appendix 13.	Summary resettlement plan
Affordability	Not Significant	The potential negative impact of wastewater tariff increases on the poor is considered to be minimal given that tariff paid by the household is a small percentage of total income. A lifeline tariff regime will protect poor households.	No
Labor	None	No job loss will occur. The construction and operation of the Project will generate employment opportunities to the local beneficiaries.	No
Indigenous People	None	Samoa is ethnically homogeneous and its indigenous population remains in place. It has no minority population except for expatriate workers.	No
Other Risks/ Vulnerabilities	Not Significant	No other risks of impoverishment were identified.	No

SHORT RESETTLEMENT AND LAND ACQUISITION PLAN

A. Scope of Land Acquisition

1. The Government's strategy is to avoid land acquisition and resettlement for all drainage and urban services and that approach has been followed in this Project. Nevertheless, the preliminary design indicates that limited land acquisition may be necessary for the drainage component. The potentially affected land involves low-lying, undeveloped land along natural stream floodways in the urban area. The land is unproductive and includes no structures. Landowners hold legal title and are not considered vulnerable by economic status, gender, or minority status. The assessment also considered the potential need for sewer alignment changes based on detailed design and determined that any reasonable shift could still only involved less than five landowners and this would only involve subsurface land use.

2. Given the few affected persons (less than 5 households) and that no structures, sources of livelihood, or productive lands are affected, this level of land acquisition is considered insignificant by the Asian Development Bank (ADB) *Policy on Involuntary Resettlement* and the *Handbook on Resettlement, A Guide to Good Practice*.

B. Policy Framework and Entitlements

3. The Government has well-established procedures for the taking of lands, that consider traditional land tenure systems and modern systems Compensation and grievance procedures are well articulated in the relevant *Act* and these are consistent with ADB policy and guidance.

C. Implementation Arrangements

1. Institutional Framework

4. The Department of Lands, Survey, and Environment (DLSE) is closely involved in the Project through its Planning and Urban Management Agency (PUMA), which will facilitate timely coordination of land acquisition. The project management unit will coordinate detailed design with PUMA and DLSE to ensure that land acquisition is in accordance with applicable government laws and regulations, ADB policies, and this short resettlement plan.

2. Resettlement Budget and Financing

5. Land acquisition will be 100% financed by the national Government. A budget of \$260,000 (ST790,000) has been allocated for this.

3. Implementation Schedule

6. The Government will undertake preliminary consultations with potentially affected landowners as part of its ongoing pre-loan preparations and no later than loan effectiveness. Detailed discussions will begin after detailed design has determined which, if any, landowners will be affected and to what extent. Design will be completed by third quarter of 2004.

D. Monitoring and Evaluation

7. Monitoring and evaluation will be mainstreamed into the overall project implementation monitoring program, and quarterly reports will confirm the number of affected persons and status of the land acquisition process.

OUTLINE TERMS OF REFERENCE FOR PROJECT IMPLEMENTATION ASSISTANCE AND LOAN-FUNDED CAPACITY BUILDING CONSULTING SERVICES

A. Scope of Work

1. The Consultant will work with the Ministry of Works Transport and Infrastructure (MWTI), Planning and Urban Management Agency (PUMA), and Samoa Water Authority (SWA) to develop all necessary needs, plans and programs, and to provide assistance, advice, and training on the following:

B. Project Implementation Assistance

1. Project Management and Implementation Support

(i) Design and construction supervision:

The following activities will be completed in this area:

- (a) Perform preliminary and final designs wastewater treatment plant (WWTP), sewers, septage lagoons, drainage works). Design for WWTP will be taken to 20% to allow design build contract.
- (b) Prepare Government environmental assessment (EA), including final environmental management plan and project environmental monitoring.
- (c) Develop bid packaging and manage bidding processes for rehabilitation work, WWTP and sewers, and septage collection and treatment program.
- (d) Supervise construction.

(ii) Project management:

- (a) Develop comprehensive project implementation and monitoring plans.
- (b) Prepare a project performance monitoring system (STET).
- (c) Establish document control and contract management systems.
- (d) Review and assess project designs, drawings, and the bidding documents.
- (e) Develop bidding procedures based on Asian Development Bank (ADB) *Guidelines on Procurement*.
- (f) Develop reporting procedures and reporting to ADB.
- (g) Provide training and on-the-job guidance on project management.
- (h) Deliver project community awareness program in coordination with overall community awareness capacity building.

2. Technical Services

(i) Conduct detailed sanitary survey for individual systems.

- (a) Assess existing conditions and necessary rehabilitation work and initial pump-out intervals.
- (b) Prepare detailed budget for rehabilitation work.

(ii) Identify gauging station program needs.

- (iii) Develop implementation plan for a wastewater flow and quality monitoring program.
- (iv) Provide training for a monitoring program.
- (v) Establish hydraulic modeling (include monitoring and data collection programs).
- (vi) Establish hydraulic model use and training programs (PUMA and MWTI).
- (vii) Establish necessary laboratory upgrades and training program (Ministry of Health [MOH] and Ministry of Agriculture [MOA]).

3. Capacity Building

2. The Consultant will work with SWA, PUMA, MWTI, MOH and MOA to develop all necessary plans and programs, and provide training to improve their capacities in wastewater management, sanitation, urban management and related areas, and capacity to implement and update plans and programs. In all areas the consultant will complete a comprehensive training-needs assessment for implementation under these services. The Consultant will provide assistance for, advice on, and training in the following:

a. Part A: Technical and Utility Management

i. Utility Management

3. Help Assist SWA management establish an SWA sanitation division with the following:

- (i) policies and procedures,
- (ii) divisional plans (5 year),
- (iii) divisional budgets,
- (iv) administration/ filing system,
- (v) office facilities and equipment,
- (vi) technical skills as identified,
- (vii) divisional performance measurement and reporting processes, and
- (viii) operation and maintenance manuals and procedures.

ii. Contract Management

4. Develop contract management skills within the Sanitation Division in the following key areas:

- (i) contract administration;
- (ii) Contractor Performance Monitoring; and
- (iii) Receiving water and wastewater quality monitoring, and upgrading of laboratory equipment and procedures as necessary (Environmental Business Unit).

iii. Financial Management

- (i) Develop final tariff.
- (ii) Revise 5-year financial projections.
- (iii) Reconfigure the financial information system to include sanitation or environmental tariffs.
- (iv) Establish revenue collection / service disconnection procedures.
- (v) Establish customer management procedures.
- (vi) Develop periodic review methodology for wastewater tariffs to reflect new systems.

- (vii) Review tariff structures.
- (viii) Assess and develop billing and income collection arrangements.
- (ix) Assess and make recommendations for integrated utility billing system, i.e., Electrical Power Corporation and SWA.
- (x) Assess the financial information systems and procedures of the implementing agencies (IAs).
- (xi) Prepare and assist implement a financial management development plan.
- (xii) Prepare a program of financial training seminars and courses.
- (xiii) Deliver training courses in financial management for nonfinancial managers.

iv. Customer Management

- (i) Develop and implement customer feedback and complaint-handling procedures.
- (ii) Coordinate with all relevant agencies to integrate community and customer feedback in decisions affecting them.

v. Expansion of the Samoa Water Asset Management System to Include Sanitation Scheme

- (i) asset register and valuations;
- (ii) geographic information system-based master plans;
- (iii) sanitation standards and specifications (levels of service, standard materials, standard construction techniques, standard drawings);
- (iv) design principles and rules for future expansion of the scheme; and
- (v) other policies and procedures.

vi. Management and Governance

- (i) Review the overall management organization of the IAs.
- (ii) Develop and agree strategic performance indicators and targets for the IAs.
- (iii) Identify requirements for the development of human resources policy for the IAs.
- (iv) Advise on arrangements for corporate governance.
- (v) Prepare, agree on, and implement a program of management training.
- (vi) Assess and identify training needs and other capacity requirements (PUMA, MOH, and MOA).

vii. Wastewater Management

- (i) Provide guidance in operational standard setting.
- (ii) Recommend improvements to drainage and sanitation system maintenance programs.
- (iii) Develop wastewater management guidance documents and manuals for technical design and review processes.
- (iv) Develop wastewater management and sanitation O&M procedures and programs.
- (v) Develop and establish receiving water and wastewater quality-monitoring programs.
- (vi) Review and upgrade laboratory services and capabilities.
- (vii) Develop a trade waste/industrial pretreatment program.

viii. Monitoring for PUMA, MWTI, MOH, and MOA

5. The Consultant will assist relevant agencies do the following:

- (i) Develop water and environmental quality-monitoring programs (PUMA, MOH, and MOA).
- (ii) Review and develop water quality standards (PUMA).
- (iii) Review and revise environmental impact assessment guidelines and implementing regulations (PUMA). Develop drainage maintenance program (MWTI).
- (iv) Establish an environmental health outcome monitoring program (MOH).

ix. Community Awareness

6. The consultant will assist the relevant agencies do the following:

- (i) Consult with the community to develop principles for its involvement, a participative framework, and mechanisms for community awareness and education.
- (ii) Assess information and education needs of the community, including identification of target groups such as small, medium, and large enterprises, groups with special needs such as low-income and vulnerable households, households outside the traditional village structure, women, and the socially excluded.
- (iii) Develop and deliver targeted information and education program in collaboration with all relevant agencies and other stakeholders. The program should include information about the Project and its impacts.
- (iv) Develop ongoing and post-project community awareness and education program and institutionalize it within SWA.
- (v) Develop and implement community awareness performance indicators and a monitoring program.
- (vi) Identify training needs and other capacity requirements of all relevant agencies in relation to the design and delivery of effective community awareness and education programs and propose workable and affordable solutions to meet these needs.

C. Twinning Arrangement for the Samoa Water Authority (SWA)

7. (To be separately recruited and contracted-not included in the indicative resourcing below). An established wastewater utility will be retained to do the following:

- (i) Undertake twinning arrangement.
- (ii) Establish an interagency cooperation program.
- (iii) Provide Intermittent on-site support and distance support for 3 years to cover general wastewater utility management and O&M.
- (iv) Establish modality and agreement for a long-term twinning arrangement with international utility management affiliates.

8. Estimated budget for the twinning arrangement is \$200,000, or approximately 10 person-months of international consulting services.

D. Indicative Resourcing and Budget

9. Approximately 48 person-months international and 65 person-months domestic consultants in the following areas of expertise will be recruited: team leader/senior wastewater utility management engineer, civil/environmental engineer, asset management specialist, senior O&M specialist, billing systems specialist, institutional and financial management specialist, community education specialist, public relations specialist, GIS specialist, and environmental specialist.

10. The Government will provide the following counterpart facilities at no cost to the consultants: office space, office furniture, and utilities (electrical, water, sanitation, three telephone lines).

Table A14: Indicative Budget

Item	
International Consultancy, 48 person-months	804,000
Domestic Consultancy, 65 man-month	260,000
Equipment	20,000
International travel and local transport	125,000
Seminars	10,000
Communications and Reporting	10,000
Publicity Materials	20,000
Surveys	20,000
Total	\$1,269,000

Note: Budget above does not include the \$200,000 for the twinning arrangement or \$600,000 allocate for the PMU.

TECHNICAL ASSISTANCE ON INSTITUTIONAL STRENGTHENING FOR DRAINAGE AND WASTEWATER MANAGEMENT

A. Objectives, Scope, and Outputs

1. The objective of the technical assistance (TA) is to strengthen the policy, procedural, and legislative base of key agencies involved in the water and sanitation sectors as well as strengthen urban management and planning capacity generally. The scope of the TA includes (i) identifying priority flood areas on the Apia floodplain in the context of a total catchment management approach; (ii) examining options and alternatives to alleviate localized flooding and wastewater impacts including costing the preferred options; (iii) liaising with local villages as to flooding and wastewater problems and likelihood of access over land for drainage rehabilitation and maintenance; (iv) identifying sources of wastewater pollution and means to minimize environmental impact; (v) developing drainage and wastewater management plans for the agreed priority areas (vi) assessing existing problems of constructing septic toilets and pit latrines in low lying flood prone areas and setting new affordable and pragmatic building standards (vii) developing a legislative regime to ensure, amongst other matters, connection to the central business area (CBA) sewerage scheme and permits for the discharge of industrial wastewater, and (viii) working with key stakeholders to develop new procedures and processes to ensure the new Planning and Urban Management Bill is institutionalized and operational. There are seven TA outputs, three in component A and four in component B:

1. Component A: Drainage and Wastewater Management Plans

The following will be completed under Component A:

- (i) Development of competencies in urban management and planning, and drainage and wastewater management to Management and Staff of Planning and Urban Management Agency (PUMA), Samoa Water Authority (SWA), and Ministry of Works Transport and Infrastructure (MWTI).
- (ii) Preparation of drainage and wastewater management plans for the remaining priority drainage areas in the Apia urban area.
- (iii) Training and development program in urban management and planning and drainage and wastewater management for PUMA, SWA, and MWTI.

2. Component B: Planning and Regulation

The following will be completed under Component B:

- (i) A revised Building Code as it relates to upgrading on-site sanitation systems, with attention to the needs of low-lying areas.
- (iv) Documented and implemented processes and procedures to support implementation of regulatory framework and ongoing operations of PUMA, SWA, and MWTI.
- (v) Draft legislation to enable wastewater management and environmental monitoring, including provision of sanitation.
- (vi) Implementation of the approved geographic information system design for PUMA.

B. Component A: Drainage and Wastewater Management Plans

The following activities will be done:

- (i) Identify and assess priority drainage, wastewater, and flood areas in Apia.
- (ii) Collate topographical, asset, hydrological, and cadastral information.
- (iii) Develop models to predict surface water run-off flow paths.
- (iv) Identify structural drainage solutions and alternatives for priority areas.
- (v) Prepare drainage and wastewater management plans for each area.
- (vi) Liase with key stakeholders, including landowners.
- (vii) Identify constraints on and opportunities for agreed-on priority areas.
- (viii) Review water quality-monitoring data and environmental implications.
- (ix) Prepare draft land use and development management for priority areas.
- (x) Prepare development guidelines that could apply to the priority areas.
- (xi) Exhibit plans in accordance with the new Planning and Urban Management Act.
- (xii) Help the Government design a public education program.
- (xiii) Assess community preferences and requirements for drainage.
- (xiv) Evaluate social customs, norms, and practices affecting wastewater discharge.
- (xv) Help identify costs and benefits of the proposed management plans.
- (xvi) Quantify the beneficiaries of the proposed improvements.
- (xvii) Facilitate community public meetings on drainage and wastewater issues.
- (xviii) Develop and deliver awareness and media strategies for affected communities.

Legislation

The following activities will be done:

- (i) Identify major policy issues to be clarified for waste water and sanitation.
- (ii) Identify and document required changes to existing legislation.
- (iii) Draft legislation for wastewater management and sanitation.
- (iv) Liaise with the Office of the Attorney General and other key agencies.
- (vii) Identify the main components of proposed legislation. Detail the policy, procedural, and administrative matters for legislation.

C. Component B: Planning and Regulation

The following activities will be done:

- (i) Identify components of the PUMA Bill and assign institutional responsibilities.
- (ii) Identify new processes and procedures implied by the PUMA Act.
- (iii) Identify administrative and procedural responsibilities and resource implications.
- (iv) Train local counterpart staff on the above and produce training manuals.
- (v) Identify technical and human resource needs of the above.
- (vi) Install agreed GIS hardware and software, load data layers, and make them operational.
- (vii) Introduce specified data management systems, including data validation.
- (viii) Train PUMA staff to use the system and in its day-to-day application.
- (viii) Produce training manuals to facilitate the above, including backup and security.

Building Standards

The following activities will be done:

- (i) Review standards for siting, construction, and maintenance of on-site sanitation systems as contained in the Building Code.
- (ii) Assess the status of on-site systems, including needs in low-lying areas.
- (iii) Identify options to improve building standards for on-site systems in the low-lying areas specifically, and Apia generally.
- (iv) Identify the costs, benefits, and affordability of the proposed options.
- (v) Recommend a new code of practice for individual on-site sanitation systems.

B. Implementation

2. The Executing Agency for the TA will be the Ministry of Finance, and the Implementing Agency (IA) will be PUMA. The local and international consultants will work closely with the project management unit established for the Drainage and Sanitation Project. A total of 23 person-months of consulting services—13 domestic and 11 international—will be required to achieve the TA objectives, scope, and outputs. The team of consultants will be recruited from an international firm to implement the TA. The consultants will be engaged as a firm in accordance with the ADB's *Guidelines on the Use of Consultants*, using the quality- and cost-based selection method, and other arrangements satisfactory to ADB on the engagement of domestic consultants. The firms will be required to submit a simplified technical proposal. The TA is expected to commence soon after loan effectiveness, or April 2004, and be completed by March 2005.

C. Cost Estimates

Table A15: Cost Estimates and Financing Plan
(\$'000)

Item	Foreign Exchange	Local Currency	Total Cost
A. Asian Development Bank Financing			
1. Consultants			
a. Remuneration and Per Diem			
i. International Consultants (11 person-months)	225	0	225
ii. Domestic Consultants (13 person-months)	0	57	57
b. International and Local Travel	30	2	32
c. Reports and Communications	3	2	5
2. Equipment (computer, printer, etc.) ^a	10	0	10
3. Workshops and Training/Seminars ^b	3	3	6
4. Vehicle ^c	0	7	7
5. Surveys	7	2	9
6. Miscellaneous Administration and Support Costs	3	1	4
7. Contingencies	35	10	45
Subtotal (A)	316	84	400
B. Government Financing			
1. Office Accommodation ^d	0	30	30
2. Remuneration and Per Diem of Counterpart Staff	0	25	25
3. Others	0	20	20
Subtotal (B)	0	75	75
Total	316	159	475

^a Equipment includes desktop computer, laser printer, scanner, digitizer, and other geographic information system related equipment to be identified by the consultants for approval of ADB.

^b Four workshops will be held for consultation and information dissemination purposes.

^c Car rental to facilitate surveys and consultations.

^d The Government will provide furnished office space and utility service (electricity, water, sanitation, and three telephone lines).

Source: Asian Development Bank estimates.