



Completion Report

Project Number: 25136
Loan Number: 1886
December 2007

Samoa: Power Sector Improvement Project

CURRENCY EQUIVALENTS

Currency Unit – tala (ST)

		At Appraisal (4 October 2001)	At Project Completion (26 May 2006)
ST1.00	=	\$0.2814	\$0.3615
\$1.00	=	ST3.3554	ST2.7663

ABBREVIATIONS

ADB	–	Asian Development Bank
EIA	–	environmental impact assessment
EPC	–	Electric Power Corporation
MW	–	megawatt
O&M	–	operation and maintenance
SDR	–	special drawing rights
TA	–	technical assistance

NOTES

- (i) The fiscal year (FY) of the Government and its agencies ends on 30 June.
- (ii) In this report, "\$" refers to US dollars.

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BASIC DATA

A. Loan Identification

1.	Country	Samoa
2.	Loan Number	1886-SAM(SF)
3.	Project Title	Power Sector Improvement Project
4.	Borrower	Independent State of Samoa
5.	Executing Agency	Electric Power Corporation
6.	Amount of Loan (at approval) (at closing)	SDR4,695,000 (approximately \$6.0 million) SDR353,449.40 (approximately \$0.513 million)
7.	Project Completion Report Number	PCR: SAM 1010

B. Loan Data

1.	Appraisal		
	– Date Started	01 August 2001	
	– Date Completed	10 August 2001	
2.	Loan Negotiations		
	– Date Started	29 October 2001	
	– Date Completed	14 November 2001	
3.	Date of Board Approval	17 December 2001	
4.	Date of Loan Agreement	29 April 2002	
5.	Date of Loan Effectiveness		
	– In Loan Agreement	28 July 2002	
	– Actual	28 Oct 2002	
	– Number of Extensions	One	
6.	Closing Date		
	– In Loan Agreement	30 June 2004	
	– Actual	26 May 2006	
	– Number of Extensions	One	
7.	Terms of Loan		
	– Interest Rate	1% per annum (grace period); 1.5% per annum (thereafter)	
	– Maturity (number of years)	32 years	
	– Grace Period (number of years)	8 years	
8.	Disbursements		
	a. Dates		
	Initial Disbursement	Final Disbursement	Time Interval
	27 May 2004	15 May 2006	24 months
	Effective Date	Original Closing Date	Time Interval
	28 October 2002	30 June 2004	20 months

b. Amount (\$)

Category	Original Allocation ^a	Latest Allocation ^b	Amount Canceled ^c	Net		Undisbursed Balance
				Amount Available	Amount Disbursed	
01A Diversion Canal	1,051,354	1,226,648	1,226,648	-	-	-
01B Afulilo Dam	305,314	356,220	356,220	-	-	-
02A Electromechanical Equipment	1,173,991	1,369,733	1,369,733	-	-	-
02B Transmission-Related Equipment Consulting	2,152,529	2,511,425	2,511,425	-	-	-
03 Services	449,668	524,642	16,601	508,041	508,041	-
04 Service Charge	39,601	46,204	41,727	4,477	4,477	-
05 Unallocated	825,243	962,837	962,837	-	-	-
Total	5,997,701	6,997,709	6,485,191	512,518	512,518	-

^a As of 29 October 2001.

^b As of 3 May 2006. The increase in allocation is due to the depreciation of the \$ against special drawing rights between 2001 and 2006.

^c Unutilized loan balance.

C. Project Data

1. Project Cost (\$ million)

Cost	Appraisal Estimate	Actual
Foreign Exchange Cost	6.0	0.513
Local Currency Cost	1.5	0.939
Total	7.5	1.452

2. Financing Plan (\$ million)

Cost	Appraisal Estimate	Actual
Implementation Costs		
Borrower Financed	1.500	0.939
Asian Development Bank Financed	5.970	0.508
Total	7.470	1.447
Interest/Service Charges		
Borrower Financed	0.000	0.000
Asian Development Bank Financed	0.036	0.004
Total	0.036	0.004

3. Cost Breakdown by Project Component (\$)

Component	Appraisal Estimate			Actual		
	Foreign	Local	Total	Foreign	Local	Total
A. Eastern Diversion Canal						
Preliminary and General	97,462	9,000	106,462			
Earthworks	522,222	120,000	642,222			
Lining	249,267	25,000	274,267			(not done)
Structures	177,159	17,000	194,159			
Miscellaneous	6,013	600	6,613			
Subtotal (A)	1,052,123	171,600	1,223,723			
B. Raising Spillway						
Preliminary and General	33,845	3,000	36,845			
Excavation and Demolition	45,259	15,000	60,259			

Concrete	133,181	13,000	146,181		(not done)	
Structural/Mechanical Works	29,228	3,000	32,228			
Miscellaneous	63,230	6,000	69,230			
Subtotal (B)	304,743	40,000	344,743			
C. Third Generator at Ta'elefaga						
Preliminary and General	118,076	10,000	128,076			
Civil Work	7,200	700	7,900			
Electrical Equipment	292,436	10,000	302,436		(not done)	
Mechanical Equipment	756,035	25,000	781,035			
Subtotal (C)	1,173,747	45,700	1,219,447			
D. Transmission and Telemetry Upgrade						
South Feeder Transmission Line	1,662,466	25,500	1,687,966		1,258	
System Modeling	16,458	1,200	17,658			
Engineering Costs						
North Trans Loop and Telemetry Upgrade	474,463	30,000	504,463			
Subtotal (D)	2,153,387	56,700	2,210,087		1,258	1,258
E. Impact Mitigation Measures						
New Water Supply in Tiavea Village		268,000	268,000		389,030	
New Bridge in Ta'elefaga Village		57,000	57,000		89,628	
Environmental Monitoring Program		40,000	40,000		198	
Land Compensation		250,000	250,000		16,364	
Subtotal (E)		615,000	615,000		495,220	495,220
F. Implementation Consulting Service						
Design, Specification, and Tendering	199,259	50,000	249,259	508,041	152,090	660,131
Contract Administration	250,741	20,000	270,741		290,766	290,766
Subtotal (F)	450,000	70,000	520,000	508,041	442,856	950,897
Subtotal (A,B,C,D,E, and F)	5,134,000	999,000	6,133,000	508,041	939,334	1,447,375
Taxes and Duties		396,959	396,959			
Physical Contingency	480,000	64,041	544,041			
Price Contingency	350,000	40,000	390,000			
Interest during Construction	36,000		36,000	4,477		4,477
Subtotal	866,000	501,000	1,367,000	4,477		4,477
Overall Total	6,000,000	1,500,000	7,500,000	512,518	939,334	1,451,852
Percentage	80%	20%	100%			

4. Project Schedule

Item	Appraisal Estimate	Actual
Implementation Consultants		
Contract Date	February 2002	3 December 2002
Completion Date	December 2003	April 2006
Plant Design, Supply, and Install		
Award of Contract	October 2002	Not done
Other Milestones:		
Approval of Major Change in Scope		19 August 2004

5. Project Performance Report Ratings

Implementation Period	Development Objectives	Ratings
		Implementation Progress
From December 2001 to January 2004	Satisfactory	Satisfactory
From February 2004 to March 2004	Satisfactory	Partly satisfactory
From April 2004	Partly satisfactory	Unsatisfactory
From May 2004 to December 2005	Partly satisfactory	Partly satisfactory
From January 2006 to February 2006	Partly satisfactory	Partly satisfactory

D. Data on Asian Development Bank Missions

Name of Mission	Date	No. of Persons	No. of Person-Days	Specialization of Members ^a
Fact-Finding	24 April–4 May 2001	4	31	a, b, c, d
Appraisal	1–10 August 2001	2	15	a, d
Preinception	21–28 January 2002	1	8	A
Inception	5–11 August 2002	3	21	a, e, f
Loan Review 1	28–30 January 2003	2	6	a, g
Loan Review 2	28 September–4 October 2003	1	7	E
Loan Review 3	22–30 April 2004	2	18	a, d
Loan Review 4	10–18 June 2004	1	9	E
Loan Review 5	29 November–7 December 2004	1	9	E
Reappraisal	29 August–9 September 2005	4	37	e, h, i, j
Reappraisal	18–31 October 2005	2	15	g, h
Special Loan Administration	6–10 March 2006	2	6	f, h

^a a = project economist, Pacific Operations Division (PAHQ); b = senior environment specialist, Environment Division; c, counsel, Office of the General Counsel; d = consultant; e = senior project implementation specialist, South Pacific Regional Mission; F= Associate Operations Analyst/Operations Officer, PAHQ; g = director, PAHQ; h = economist, PAHQ; i = senior procurement officer, Central Operations Services Office.

Source: Asian Development Bank.

I. PROJECT DESCRIPTION

1. The Power Sector Improvement Project¹ (the Project) was developed to assist the Government in undertaking policy changes to increase the efficiency and commercial viability of the Electric Power Corporation (EPC) and meet growing power demand on Upolu through the development of least-cost renewable generation resources. The project objectives would be met through (i) provision of reliable power; (ii) increased private sector participation in the power sector; (iii) enhancement of EPC's efficiency, autonomy, and financial sustainability; (iv) increased hydropower supply by a 2 megawatt (MW) augmentation of the existing Afulilo Hydropower Project; (v) enhanced transmission capacity; and (vi) reduction of energy losses. The Project was appraised in August 2001. Technical assistance (TA) was provided under the Project to strengthen EPC's capacity to reduce (i) the frequency and duration of power outages, (ii) maintenance costs, and (iii) energy losses.

2. Following the commissioning of the Afulilo Hydropower Project² in June 1993, the preparation of the Project commenced in 1994 with Asian Development Bank (ADB) approval of a project preparatory TA in December 1994.³ The Project did not proceed at that time due to EPC's weak financial performance. In June 1999, the financial performance was viewed as sufficiently improved, and a TA⁴ was approved to confirm project design, update project costs and the preliminary environment impact assessment (EIA), and prepare a financial management assessment.⁵

3. In December 2001, ADB approved a loan in various currencies equivalent to 4.695 million special drawing rights (SDR) (\$6 million equivalent) from its Special Funds resources and a TA for \$150,000 from ADB's TA program. The Independent State of Samoa was the borrower. The loan was to be repaid in local currency by the Government to EPC. EPC was the Executing Agency for the Project.

II. EVALUATION OF DESIGN AND IMPLEMENTATION

A. Relevance of Design and Formulation

4. With policy and reform measures, and the development of renewable energy resources, the rationale and relevance of the Project was in line with ADB's country strategy for Samoa⁶ and the Government's objective to reduce dependence on imported fuels. Improved governance through the promotion of transparent tariff-setting principles and increased private sector

¹ ADB. 2001. *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 Power Sector Improvement Project*. Manila.

² ADB. 1986. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to Western Samoa for the Afulilo Hydropower Project*. Manila. The Afulilo Hydropower Project was cofinanced by the Australian International Development Assistance Bureau, European Investment Bank, European Union, World Bank, and ADB: ADB. 1993. *Report and Recommendation of the President to the Board of Directors on a Proposed Loan to Western Samoa for the Afulilo Hydroelectric Project*. Manila.

³ ADB. 1994. *Technical Assistance to the Independent State of Samoa for Institutional Support and Power Development Study for Electric Power Corporation*. Manila (\$350,000).

⁴ ADB. 1999. *Technical Assistance to the Independent State of Samoa for Institutional Strengthening of the Electric Power Corporation*. Manila (\$150,000).

⁵ A staff consultant was fielded specifically to confirm the technical feasibility of augmenting the Afulilo Hydropower Project.

⁶ ADB. 2000. *Country Assistance Plan (2001–2003)*. Manila; and ADB. 2001. *Country Strategy and Program Update (2002–2004): Samoa*. Manila.

involvement was consistent with ADB's energy policy (1995)⁷ and energy review (2000).⁸ The design and monitoring framework is in Appendix 1.

5. As a result of sustained economic growth, Samoa experienced a transformation from traditional fuels to an energy supply based on imported petroleum and hydropower-generated electricity. Project design was driven by the need to reduce Samoa's and EPC's dependence on imported fuels and meet growing peak demands. The power shortages, which were becoming a bottleneck to economic growth and social development, combined with the objective of reducing the country's reliance on imported petroleum, resulted in the Government giving high priority to the Project. The Project was assessed as the least-cost option among other alternatives.

6. EPC's historic financial performance was assessed as unsatisfactory. The project design incorporated specific measures to improve EPC's financial performance. The lack of timely tariff adjustments in response to changes in fuel costs and exchange rate fluctuations were identified as the prime cause of EPC's poor financial performance. Although the tariff structure was revised in 2001 to incorporate block tariffs for domestic consumers, the average tariff has remained largely unchanged between 1998 and 2005. Unchanged average tariffs coupled with increasing fuel, and operation and maintenance (O&M) costs weakened EPC's financial position constraining the utility's ability to service its debt. By the beginning of fiscal year (FY) 2001, the accumulation of unpaid principal and interest on loans to the Government had reached unmanageable levels. As a result of policy dialogue, the automatic tariff adjustment mechanism was adopted in a Government directive in October 2001. EPC agreed to implement the automatic tariff adjustment, phase out discounts for prompt payment, and reevaluate its fixed assets. With 90% of its debt payable to the Government under 12 separate loans, EPC secured an agreement to restructure its debt into a single loan.

7. The objective of reducing dependence on imported fuel and the specific measures included in the project design to improve EPC's operating and financial performance remain highly relevant. However, weak due diligence on project feasibility coupled with poor procurement packaging increased risks and caused implementation delays that resulted in significant cost increases. Despite the Project being classified as environment category A, project design did not adequately address social and environmental concerns associated with the downstream impacts of the existing Afulilo Hydropower Project. Resettlement and environmental impacts associated with upgrading the transmission lines were not identified and, therefore, not considered in the project design. In addition, project design did not identify and incorporate mitigation measures to address risks associated with augmenting the capacity of the Afulilo Hydropower Project and the weak implementation capacity of EPC.

8. Weak monitoring of project progress and continued failure to identify and address risks associated with procurement during implementation were the key underlying factors that ultimately led to cancellation of the Project. Weak reporting requirements and lack of policy dialogue on EPC's compliance with financial covenants during project implementation undermined implementation of the policy reform measures incorporated in the project design.

⁷ ADB. 1995. *The Bank's Policy Initiatives for the Energy Sector*. Manila

⁸ ADB. 2000. *Energy 2000. Review of the Energy Sector Policy of the Asian Development Bank*. Manila.

B. Project Outputs

9. The project outputs were defined in terms of (i) policy reform, (ii) investment components and associated implementation consulting services, and (iii) TA for strengthening energy loss reduction and maintenance capacity.

1. Policy Reform

10. The policy reform measures aimed at improving EPC's efficiency and financial performance comprised (i) full cost recovery of power production through implementation of the automatic tariff adjustment mechanism; (ii) application of a lifeline tariff to ensure affordability of electricity for low-income consumers; and (iii) improved O&M.

11. **Cost Recovery.** The automatic tariff adjustment mechanism was designed to automatically adjust tariffs to changes in international fuel prices and exchange rates. The mechanism was envisaged to enable timely tariff adjustments through a transparent and depoliticized process. To date, the automatic tariff adjustment mechanism is not functioning as intended. Although EPC has undertaken semiannual reviews of tariff requirements using the approved adjustment formula, no actions were undertaken to implement the adjustments calculated until May 2005 when a 15% tariff increase was approved.⁹ This was the first tariff increase since November 2001. However, the increase was not automatically implemented as provided for under the approved mechanism, but instead went through a government review process and approval by Cabinet. Because of the lack of timely tariff adjustments in response to fuel price increases, EPC's revenue from electricity sales has been sufficient to recover costs in only 4 of the 6 years between FY2001 and FY2006. Actual cost recovery was lower than indicated by revenues due to poor collection performance. Based on cash generated from electricity sales, EPC was able to recover its cost of supply only in FY2004.

12. **Lifeline Tariff.** The agreed tariff structure approved in November 2001 introduced a lifeline tariff for low-income consumers. Under this structure, tariffs for higher consuming domestic consumers were envisaged to cross-subsidize lifeline consumption with a neutral impact on EPC's revenue. The lifeline tariff comprised the first 50 kilowatt-hours of consumption per month for all domestic consumers. The unit cost was set at about 83% of the second block, which covered the next 150 kilowatt-hours. The second block was intended to be priced at full cost recovery. The third block, which covered consumption above 200 kilowatt-hours, was set at 120% of the second block. The tariff for nondomestic consumers was the same as the second block for domestic consumers. EPC has maintained the lifeline tariff, but the ability to recover costs through cross-subsidization diminished as fuel prices increased without tariff adjustments.

2. Investment Components

13. The investment components comprised (i) augmenting the existing Afulilo Hydropower Project by (a) installing an additional 2 MW generator at Ta'elefaga power station, (b) diverting extra water by a gravity-fed canal from a runoff in the Ti'avea watershed to increase the Afulilo reservoir by 50%, and (c) raising the dam crest by 1.7 meter; (ii) upgrading the telemetry system for the Afulilo Hydropower Project; (iii) upgrading the south coast transmission line; and (iv) upgrading the transformer capacity on the north coast transmission line. The design of the augmentation of the Afulilo Hydropower Project was regarded as relatively

⁹ Since May 2005, a fuel surcharge of 15% was implemented in February 2007. The fuel surcharge was subject to Government review and Cabinet approval.

straightforward as the existing penstock was adequate for increased water flow and the powerhouse at Ta'elefaga under the existing Afulilo Hydropower Project was constructed with provision for a third generator. The preliminary design of the augmentation was based on the original design of the Afulilo Hydropower Project and the gravity-fed canal originated from the power sector development plan prepared under the 1994 TA (footnote 3). A staff consultant confirmed that the preliminary design was appropriate for the proposed augmentation but advised that further investigation would be needed to confirm the feasibility of the gravity-fed canal. The detailed design was to be done under a plant design, supply, and install contract to specifications and performance standards to be established by implementation consultants.¹⁰ The chronology of main events is in Appendix 2.

14. To support implementation of the investment components, implementation consultants were recruited for detailed design, tender, contract award, and supervision of construction. Despite ADB approval of advance action for their recruitment, firms were not shortlisted until April 2002. Following loan effectiveness in October 2002, the implementation consultants were fielded in November 2002. The implementation consultants submitted an inception report in January 2003 expressing doubts about the feasibility of the proposed gravity-fed diversion canal. The implementation consultants were suspended and an independent assessment was undertaken. The assessment confirmed that the diversion canal would not be feasible due to unfavorable hydrology, geology, and topographic conditions. The implementation consultants were reinstated to undertake a supplementary engineering study to identify and investigate alternative diversion schemes. The draft supplementary engineering report submitted in August 2003 recommended adoption of a pump diversion scheme with intake at the Mulivai stream in the Ti'avea watershed.

15. Following the draft supplementary engineering report, an ADB review of the Project in September 2003 called for the implementation consultants to assess three alternatives¹¹ for the overall project scope. The preferred alternative by EPC comprised a reduction of scope and focus on increasing generation capacity through the pumped diversion scheme. The revised overall project cost was estimated at \$8.86 million as compared to \$7.50 million at appraisal. The estimated cost increase of \$1.36 million¹² would be met from a combination of reallocation of unallocated loan proceeds and increased government contribution.

16. In August 2004, ADB approved a major change of the project scope in accordance with EPC's preferred alternative. The change of scope was envisaged to keep the original objectives of the Project. The loan closing date was extended by 24 months to 30 June 2006.

17. Despite the change in scope, none of the investment components of the Project were achieved. The revised scope was bid out, but the lowest compliant bid price was \$14.12 million. Following a request by the Government to ADB in July 2005 for supplementary financing of \$10.2 million, ADB fielded reappraisal missions in September and October 2005. The bid validity period of the lowest bidder was extended until 31 December 2005 and EPC commenced

¹⁰ The terms of reference of the implementation consultants included detailed design, which defeated the purpose of a plant design, supply, and install contract and may have resulted in overly tight technical specifications of the bid documents.

¹¹ The three alternatives comprised (i) a complete project addressing both generation and reliability concerns; (ii) a generation only focused project; and (iii) a project scope focusing on reliability with limited generation gains from the present reservoir level optimization and installation of a third generator.

¹² Excluding any additional costs of implementation consultants, environmental costs, and contingencies.

negotiations in November 2005.¹³ The reappraisal of the Project concluded that EPC's poor collection performance needed to be addressed to ensure sustainability of the Project, and that supplementary financing was needed to include the installation of prepayment meters. The overall project costs at the time of reappraisal were estimated at \$21.5 million, excluding prepayment meters.¹⁴ However, negotiations with the lowest bidder failed to achieve the necessary cost reductions to ensure the economic and financial viability of the Project. The Government requested cancellation of the outstanding balance in May 2006.

18. **Social Mitigation Measures.** At appraisal, 4.2 hectares of customary land were expected to be required for the diversion canal located upstream from the Afulilo reservoir. Public consultations were conducted to address villagers' concerns and to agree on compensation measures. By the time of appraisal, EPC had obtained agreement with the affected people in Ti'avea village. Compensation was paid for land acquisition associated with the pumped diversion scheme. The additional land required for increasing the water level of the reservoir was anticipated to be within the area acquired by the Government for the existing Afulilo reservoir. The social mitigation measures comprising the installation of a water supply system for Ti'avea village and construction of a new bridge at Ta'elefaga, where the outflow from the powerhouse flooded the village road, were achieved.

19. **Environmental Mitigation Measures.** The Project was classified as environmental category A. The summary EIA was circulated to the ADB Board in July 2001, and the EIA was approved by the Government prior to loan effectiveness in October 2002. Sulfuric smell and brown water discharged from the water was identified at the time of appraisal, but had decreased in recent years. The result of a water quality analysis was inconclusive. No significant environmental impacts associated with additional freshwater inflow to the reservoir were envisaged at the time of appraisal. A water quality monitoring program was to be implemented to identify and address any unforeseen impacts on water quality in Fagoloa Bay. EPC undertook some additional investigations of the water quality under the Project.¹⁵

20. Other identified environment and social mitigation measures associated with noise from powerhouse operation and impacts associated with construction activities were not implemented as the investment components did not proceed to construction.¹⁶

¹³ Negotiations were undertaken with respect to price increases believed to be associated with the tight performance specifications for raising the dam crest and procurement of the 2 MW generator (which was estimated at 200% above prevailing international prices), and with respect to extension of the bid validity period to allow for processing of supplementary ADB financing.

¹⁴ Cost estimates were based on 2006 prices for base costs, and included physical and price contingencies, taxes and duties, and interest charges during construction.

¹⁵ An ADB mission in April 2007 noted that construction of the original Afulilo Hydropower Project had introduced environmental and social impacts that were not identified at the time of plant construction. The reservoir was constructed on a unique swamp forest. Thick peat deposits (up to 8 meters) formed within the swamp forest. Neither the peat deposits nor the swamp forests were cleared prior to filling the dam. Once submerged, these materials started to decompose anaerobically, generating hydrogen sulfide and increasing acidity of the impounded water. The water released from the reservoir to the stream at Telefaga resulted in irreversible environmental impacts including loss of fish and shellfish stocks, destruction of the inner reef, increased frequency of flooding, and loss of amenity due to the sulfurous odor, which is particularly bad when the water level in the reservoir is low. Consultations with two villages downstream from the powerhouse were undertaken to assess the impacts. The mission concluded that the impacts on affected people had not been addressed.

¹⁶ Land acquisition and resettlement impacts, and environmental impacts of investment components beyond the generation component were not documented in the Report and Recommendation of the President for the Power Sector Improvement Project (footnote 1). The October 2005 ADB reappraisal mission noted that temporary land acquisition would be required and that EPC needed to complete a short land acquisition and resettlement plan and an initial environmental examination covering the upgrades of the south and north coast transmission lines.

3. Strengthening of Capacity for Energy Loss Reduction and Maintenance

21. The TA attached to the Project¹⁷ was provided to strengthen EPC to undertake energy loss reduction, and improve O&M and asset utilization. However, EPC's financial capacity to undertake the TA recommendations was constrained. Only some of the recommended measures were implemented sequentially under EPC's capital works program. EPC's system losses remain high. By 2006, system losses on Upolu reached 19.2% and on Savai'i 21.4%.

C. Project Costs

22. At appraisal, the project costs were estimated at \$7.5 million including foreign exchange costs of \$6 million and local currency costs of \$1.5 million. The investment components associated with augmentation of the Afulilo Hydropower Project were estimated at \$2.8 million at the time of appraisal. The costs estimated at the time of the change of scope amounted to \$3.9 million. At reappraisal, the lowest responsive bid price for these components was \$8.4 million. The change of scope from the gravity-fed canal to the pumped diversion canal increased costs from an estimated \$1.2 million at appraisal to \$2.3 million at the time of the change in scope, to an actual bid price of \$5.2 million. Costs for consulting services increased from an estimated \$0.52 million to an estimated \$1.7 million by the time of reappraisal. By the time of loan cancellation, without any construction commencing, the incurred costs for the implementation consultants was \$0.95 million. Sunk costs associated with consulting services, mitigation measures, and interest during construction amounted to \$1.5 million.¹⁸ The project costs are detailed in Appendix 3.

23. Project delays were found to be the principal contributing factor to cost overruns. An initial delay occurred as a result of a 10-month lapse between loan approval and loan effectiveness. The required change in project design, adopting a pumped water diversion scheme in place of the gravity-fed canal, was a significant contributing factor to delays and cost increases. The impact of delays on project costs were reinforced by (i) the strengthening of the New Zealand dollar against the US dollar;¹⁹ (ii) weakening of the US dollar against major currencies;²⁰ (iii) increased prices of materials; and (iv) increased prices due to a booming construction market in Australia and New Zealand.

24. The implementation schedule of about 2 years at the time of appraisal was optimistic considering EPC's capacity and the choice of procurement method. The optimistic schedule may have contributed to the initial underestimation of project costs, particularly of physical contingencies, considering that the feasibility of the gravity-fed canal was not confirmed at appraisal. At the time of the change of scope, project costs were significantly underestimated and did not account for prevailing market conditions in the main contract markets: Australia and New Zealand. Tight performance specifications in the bid documents and placing the majority of the physical risks associated with raising the dam crest also affected the bid prices. The terms of reference of the implementation consultants and the adoption of a plant design, supply, and install contract resulted in duplication of detailed design works with increased costs for implementation consultants and additional delays that may have impacted costs.

¹⁷ ADB. 2001. *Technical Assistance to the Independent State of Samoa for Strengthening Energy Loss Reduction and Maintenance Management Capacity of the Electric Power Corporation*. Manila.

¹⁸ Sunk costs exclude costs incurred for the project office, including the externally recruited project manager.

¹⁹ The two lowest responsive bidders were from New Zealand.

²⁰ Equipment under the plant design, supply, and install contract was to be sourced mainly from Europe.

D. Disbursements

25. The disbursement schedule was linked to the optimistic implementation schedule. The delays in disbursements were attributed to delays in project implementation. Reimbursement procedures were used. By loan closing in May 2006, a total of \$512,518 had been disbursed from the loan account. Disbursements under the loan were for expenditures in foreign exchange associated with implementation consultants and interest during construction. EPC paid for expenditures in local currency: \$939,334 equivalent. These expenditures were associated with costs for the implementation consultants, \$442,856 equivalent; minor works on the south feeder road transmission line, \$1,258 equivalent; and environmental and social mitigation measures, \$495,220 equivalent.

E. Project Schedule

26. The implementation schedule envisaged complete commissioning 2 years after loan approval (footnote 1). A summary of actual and appraised implementation schedules of major project activities is in Appendix 4. The Project was approved in December 2001, but loan signing did not take place until April 2002. By August 2003, the Project had suffered a 1.5 year delay. The delays associated with recruiting the implementation consultants and procurement are described in paras. 34–39. The award of the plant design, supply, and install contract, which was expected to be completed in October 2002, was not completed as the negotiations with the lowest bidder failed to achieve expected outcomes. The loan was canceled in May 2006.

F. Implementation Arrangements

27. Implementation arrangements were as envisaged at appraisal. EPC was the executing agency. The general manager of EPC was responsible for overall project management. The project office, which was responsible for day-to-day project management and implementation, was established prior to loan effectiveness. A full-time project manager was recruited externally to lead the project office. A full-time project accountant was appointed. When project activities were delayed, the project accountant was engaged as a regular EPC staff, and provided assistance to the project office on a needs basis. EPC recruited a full-time environment coordinator to supervise the environmental mitigation measures, and coordinate environmental management and monitoring during project implementation. The environment coordinator was absorbed as EPC staff. Implementation consultants were recruited to assist in preparing engineering designs, supervising construction, and providing technical review.

28. The implementation arrangements did not ensure coordination and communication between EPC, Ministry of Finance, and other affected government agencies. Given EPC's capacity constraints, strengthening the oversight of project management through an interagency project steering committee²¹ and reporting arrangements may have been useful.

G. Conditions and Covenants

29. Although the conditions for loan effectiveness were met prior to loan approval and were not a source of delay, the subsidiary loan agreement was not signed until October 2002, after which the loan became effective. During implementation, EPC only achieved full compliance with 24 of the 55 covenants stipulated in the Loan and Project agreements (Appendix 5): 1

²¹ Interagency project steering committees are being used to provide strategic guidance and coordination for infrastructure projects funded by other international financing institutions.

covenant had delayed compliance, 17 were partially complied with, 6 were not complied with, and 7 became inapplicable as the Project was not implemented. Particularly, EPC achieved only weak compliance with the financial covenants between FY2001 and FY2006 (Table 1).

Table 1: Status of Covenant Compliance

Indicator	ADB Covenant	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006
Return on Average Net Fixed Assets	Minimum: 4% FY2002–FY2004, minimum 6% thereafter	(1.8%)	(0.1%)	1.1%	1.6%	0.4%	1.2%
Self-Financing Ratio (5 year average)	Minimum: 20%	(18%)	(10%)	(2%)	9%	14%	26%
Net Income/(Loss) (ST million)	Minimum: 0	(3.74)	(0.74)	1.38	2.32	0.28	1.39
Debt-Service Ratio (times)	Minimum: 1.3	0.38	0.68	1.21	1.51	1.21	1.44
Receivables (months of sales)	Maximum: 2 months	1.80	1.90	2.30	3.10	2.60	2.70

() = negative, ADB = Asian Development Bank, FY = fiscal year, ST = tala.

Source: Asian Development Bank estimates.

30. Between FY2001 and FY2006, EPC struggled to improve its financial performance. Due largely to inadequate tariffs and poor collection performance, EPC was unable to meet its debt service obligations and still fund investments to meet growing electricity demand. Although EPC has undertaken semiannual reviews of tariff requirements using the formula provided under the approved automatic tariff adjustment mechanism, no actions were undertaken to implement the adjustments calculated until May 2005, when Cabinet approved a 15% tariff increase. EPC's collection performance also deteriorated. In FY2004, accounts receivables reached the equivalent of 3.1 months of annual billings. This subsequently dropped below 3 months of annual billings for FY2005 and FY2006, and remains a critical issue for EPC's financial performance and sustainability.

31. EPC's overall weak compliance with financial covenants was largely due to (i) increasing fuel prices coupled with failure to implement the automatic tariff adjustment; and (ii) deteriorating collection performance that adversely affected EPC's net cash flow and undermined the impact of the tariff increase in May 2005. Although EPC has made some progress in achieving better collections from its private sector customers, its inability to take action against delinquent government accounts has blocked any meaningful improvement in collections. While sales to government customers account for 11% of total sales, 55% of arrears were due to the Government.²² The Samoa Water Authority accounted for 47% of electricity arrears by the Government, and 26% of total electricity arrears.

32. Inadequate reporting and audit arrangements on EPC's compliance with financial loan covenants to the Government and ADB, coupled with a lack of emphasis during project implementation on the policy reform measures, resulted in a failure to address EPC's financial performance.²³

²² As of May 2007.

²³ EPC's financial results between fiscal years are subject to large variations due to variable fuel prices and rainfall affecting hydropower generation.

H. Related Technical Assistance

33. To assist EPC in strengthening energy loss reduction and improve O&M and asset utilization (para. 21), the Project included a TA (footnote 18). The specific objectives were to help EPC improve maintenance capacity by reducing the frequency and duration of power outages and maintenance costs, and improve energy loss reduction. The final report of the TA consultants was submitted in July 2004 and made a number of worthwhile recommendations. However, EPC's financial capacity to undertake the TA recommendations was constrained. Only some of the recommended measures were implemented sequentially under EPC's capital works program.

I. Consultant Recruitment and Procurement

1. Recruitment of Implementation Consultants

34. Implementation consultants were recruited to provide assistance to EPC for detailed design, procurement activities, and construction supervisions (para. 14). The consultants were expected to be appointed in February 2002. Despite approval of advance action, they were appointed following loan effectiveness in October 2002. They were fielded in November 2002, and detailed investigation and design commenced in December 2002, 13 months after loan approval. The project manager was recruited as an individual consultant.²⁴

2. Procurement

35. Following a 7-month delay in appointing the implementation consultants and the investigations associated with the gravity-fed canal, detailed investigation and design were completed in August 2003. The discovery that the gravity-fed diversion canal would not work increased the detailed investigations and design work to be undertaken. Detailed investigations and design took about 21 months as compared to the 7 months envisaged at appraisal.

36. The report and recommendation of the President for the Project specifies that all investment components and civil works under the Project are to be procured through a single plant design, supply, and install contract following international competitive bidding and two-stage bidding procedures. A single contract package was expected to attract more bidders.

37. Tendering of the contract commenced in mid-2004, 2 years after the time envisaged at appraisal. Concurrent with design and preparation of bid documents, EPC invited firms to prequalify under a single-stage procedure.²⁵ Ten firms responded. When the tender documents were reviewed and completed in October 2004, five contractors passed the preliminary screening and preliminary assessment, of which four responded with technical and financial bids. A 3-month bidding period was allowed to ensure the bids could be carefully prepared. Three bidders were considered responsive.

38. Evaluation of bids was a lengthy exercise. The technical bids were reviewed in detail and clarifications sought. Amendments based on questions from the contractors and those raised during technical review were prepared and communicated to the contractors. Bid evaluation was completed in May 2005, about 3 years later than envisioned at appraisal.

²⁴ The project manager was not financed under the Project.

²⁵ The bidding process commenced without prior approval from ADB for the postqualification. Approval by ADB was provided retroactively.

39. Following opening of the financial proposals, the lowest evaluated bid was \$13.4 million. A supplementary price proposal was requested in February 2005 from the responsive bidders to include minor modifications. Price proposals, including the supplementary proposals were opened on 20 March 2005. The bid price of the lowest evaluated bidder was \$14.4 million, including physical contingencies. The implementation consultants noted that the prices for mechanical and electrical equipment were significantly higher than market prices. Indirect bid prices were also very high. The bid validity period was extended twice to accommodate consideration of bid prices and the Government's request for supplementary financing. Procurement of goods and services took about 28 months as compared to the 5 months envisaged at appraisal. EPC commenced negotiations with the lowest bidder in November 2005, but the outcome was not successful.

J. Performance of Consultants

40. The implementation consultants appear to have followed their terms of reference as modified from time to time. They expressed early concern over the feasibility of the gravity-fed canal. However, they grossly underestimated costs for the revised change in scope with implications for EPC's decision to proceed with the preferred alternative project scope and ADB's approval of a major change in scope. Given the severe implications of the underestimation of costs, the performance of the implementation consultants is rated as "partly satisfactory."

K. Performance of the Borrower and the Executing Agency

41. The Government was responsible for initial delays associated with loan signing and effectiveness. When the cost increases became known to the borrower, action was taken to address the financing gap. The borrower, being responsible for ensuring that EPC would take all reasonable steps to meet the requirements of the covenants, in particular the financial covenants, did not take action in a timely manner. This was likely an outcome of weak reporting arrangements on compliance with financial covenants, which resulted in weak policy dialogue between ADB and the borrower during implementation. When ADB commenced policy dialogue on EPC's financial performance during reappraisal, the borrower was generally responsive. Therefore, the performance of the borrower is satisfactory.

42. EPC, the executing agency, generally performed well with regard to implementation activities and compliance with environmental and social covenants under the Project. With limited capacity, EPC relied heavily on the recommendations and guidance provided by the implementation consultants and, in particular, on the externally recruited project manager who was not experienced in project management.

43. The lack of financial capacity meant that most of the TA recommendations were not implemented. EPC performed weakly with regard to improving its financial performance. No actions were taken to implement the automatic tariff adjustment mechanism and substantially improve accounts receivables. This resulted in weak compliance with the financial covenants under the loan. EPC also failed to discuss its borrowing from commercial banks with ADB when its debt-equity ratio was below 1.3 times as required by the Loan Agreement. EPC performance is rated "partly satisfactory."

L. Performance of the Asian Development Bank

44. At the time of ADB Board approval of the Project, the feasibility of the gravity-fed canal was not confirmed. At appraisal, ADB hired a staff consultant to confirm the suitability of the canal, but the recruited consultant did not have the appropriate qualifications for the task, nor the resources to confirm the feasibility of the gravity-fed canal.²⁶ ADB underestimated the risks of the gravity-fed canal and the single procurement package ensured that all other investment components were directly affected when the risk was realized. Furthermore, when the gravity-fed canal was confirmed to not be feasible, no action was taken to review risks associated with contract packaging. Existing social and environmental issues associated with the Afulilo Hydropower Project were identified but not addressed at the time of appraisal. Additionally, the Project did not include preparation of land acquisition and resettlement plans, and environmental impact assessment for the south and north coast transmission lines as was required by ADB's prevailing environment and social safeguard policies.

45. When the Project was approved, ADB fielded one inception mission and five review missions between 2002 and 2004. ADB undertook dialogue with the Government when the financing gaps became known and two reappraisal missions were fielded within reasonable time of ADB receiving the Government's request for supplementary financing. Communication between ADB and EPC also took place through email and fax during implementation. However, communication between ADB and the Ministry of Finance appears to have been weak with regard to addressing the slow implementation, and took place only once when the financing gap became evident. Furthermore, ADB should have reviewed the procurement method and contract packaging in conjunction with the approval of the change of scope. In addition, ADB did not place emphasis on engaging in a policy dialogue to address EPC's deteriorating financial performance until October 2005, when a financial management assessment was conducted.

46. The project performance reports did not reflect the slow implementation progress. Satisfactory implementation progress was recorded until January 2004, even though the Project should have been completed in 2003. In April 2004, implementation progress was rated as unsatisfactory. But a month later, implementation progress was noted as partly satisfactory for no obvious reason. In January 2004, implementation progress was unsatisfactory but jumped to partly satisfactory in May 2004 with no apparent explanation. ADB's performance is rated as "partly satisfactory".

III. EVALUATION OF PERFORMANCE

A. Relevance

47. The project design was highly relevant to the Government's development objectives and ADB's country strategy by supporting policy reform and development of renewable energy resources. A major objective of the Government and EPC is to reduce exposure to foreign exchange fluctuations and fuel prices increases. However, project design failed to identify²⁷ and address risks associated with project implementation, particularly with regard to risks of the

²⁶ This claim is highly questionable as the project site is only 3 hours from the capital of Samoa. The topography of the land between the proposed original intake site and the reservoir is visible from the site of the Afulilo Hydropower Project. Based on the topography alone, the feasibility of a gravity-fed canal should have been questioned at the time of appraisal.

²⁷ The risks were not reflected in the design and monitoring of the report and recommendation of the President for the Project.

gravity-fed canal, procurement method, and EPC's implementation capacity. The Project is rated as "relevant."

B. Effectiveness in Achieving Outcome

48. The design and monitoring framework included six outcome statements, none of which were achieved. The Project did not achieve any of the stated outcomes and EPC's financial performance deteriorated because of the failure to implement the approved automatic tariff adjustment and improve collection performance, the Project is rated as "ineffective."

C. Efficiency in Achieving Outcome and Outputs

49. The Project achieved very limited outputs. In terms of policy reform measures, only the lifeline tariff was implemented. While the TA was implemented, no improvements in O&M are apparent as a result of the TA recommendations. EPC's energy losses increased and its financial performance deteriorated. The implementation consultants were recruited and some of the mitigation measures were achieved. But these activities caused sunk costs of \$1.45 million. In addition, the Project incurred costs associated with the project manager of about \$0.4 million (footnote 24). As the Project did not realize any benefits, a reevaluation of the project economic and financial rates of return was not undertaken for this project completion report.²⁸ The Project is rated as "inefficient" in terms of achieving the outcome and outputs.

D. Preliminary Assessment of Sustainability

50. The preliminary assessment of sustainability is limited to the lifeline tariff block. The sustainability of EPC's ability to maintain the lifeline tariff block is determined by the ability to cross-subsidize with other consumers and its ability to improve collection performance. With no improvements in EPC's collection performance and lack of implementation of timely tariff adjustments, the lifeline tariff block is assessed as "unsustainable."

E. Impact

51. The overall envisaged impact of the Project was to help the Government and EPC undertake policy changes, increase efficiency, and meet growing power demand through least-cost renewable resources. None of these impacts can be achieved as a result of this Project.

52. No adverse social and environmental impacts resulted from the Project. The water supply scheme for Ti'avea village, included as a social mitigation measure under the Project, provided villagers with more convenient access to clean water. EPC also constructed a new bridge and installed streetlights downstream from the powerhouse at Ta'elefaga to improve the safety of crossing for villagers.

IV. OVERALL ASSESSMENT AND RECOMMENDATIONS

A. Overall Assessment

53. The Project failed to achieve the envisaged outcome and impact because the risks associated with policy reform measures and investment components were not adequately identified and addressed during project preparation and implementation. The risks associated

²⁸ A reevaluation would have yielded negative economic and financial rates of return.

with the gravity-fed canal and EPC's procurement and implementation capacity were not identified in the report and recommendation of the President for the Project. Furthermore, the opportunity to address risks in project design and mitigate risks was not acted upon at the time of approval of the change of scope. The risks associated with the plant design, supply, and install contract package were not reviewed, and therefore were not mitigated. Based on an assessment of the Project's achievements in terms of policy changes, investment components, and impacts of the TA, the Project is rated as "unsuccessful." The details of the overall rating are in Appendix 6.

B. Lessons

54. **Project Preparation.** Inadequate resources for due diligence during project preparation and underestimation of risks associated with the augmentation of the Afulilo project were key contributing factors to the implementation delays and cost increases, beyond the initial delays associated with loan effectiveness. More careful preparation of cost estimates is warranted. As the feasibility of the gravity-fed canal was not confirmed at appraisal, this uncertainty should have been reflected in the physical contingencies. Given EPC's capacity constraints, project preparation did not adequately address risks associated with implementation, including the engagement of an experienced project manager, oversight of project implementation activities, and reporting arrangements. Project preparation should also have identified the risk of a delay associated with loan effectiveness and introduced mitigation measures.²⁹

55. **Procurement.** At the time of appraisal, consideration should have been given to individual contracts for civil works associated with augmenting the Afulilo project, supply and install contracts for mechanical and electrical works associated with upgrades of the transmission line and telemetry system, and for the 2 MW generator. Once the gravity-fed canal was found inappropriate, a review of the contract packaging would have been appropriate. If the Project had been packaged into separate contracts, much of the delays could have been avoided and all investment components except for the gravity-fed canal could have been achieved.³⁰

56. **Social and Environmental Safeguards.** Despite the Project being categorized as environment category A, insufficient resources were spent to prepare the EIA. No effective measures were put in place to mitigate the identified social concerns about the water quality from villages located downstream from the Afulilo Hydropower Project. Furthermore, a short land acquisition and resettlement plan and an initial environmental assessment for the south and north coast transmission line components should have been prepared prior to ADB approval of the Project.

57. **Policy Dialogue.** While project preparation identified and addressed significant issues related to EPC's financial performance and project financial sustainability, implementation failed to recognize and address the deterioration of EPC's financial performance. Policy dialogue with the Government, particularly with regard to EPC's deteriorating collection performance and lack of implementation of the automatic tariff adjustment mechanism, appears not to have taken place until October 2005 during reappraisal of the Project. The ADB review missions did not

²⁹ Delayed loan effectiveness is a key contributing factor for delays on most infrastructure projects funded by international financial institutions in Samoa and in the Pacific.

³⁰ An additional 2 MW generator at Ta'elefaga power station and raising the dam crest would have been feasible and provided additional capacity without the gravity-fed canal. In addition, the upgrades of the transmission lines and the telemetry system were not dependent on the gravity-fed canal.

appear to have the required expertise to conduct a policy dialogue on EPC's financial performance.

58. **Project Management.** EPC's project management and implementation capacity were weak. Further consideration needs to be given during project preparation to identifying and addressing risks associated with the implementation capacity of EPC. The externally recruited project manager, although not included under the financing of the Project, was not sufficiently experienced in project management. Involvement of EPC staff in the Project was also very limited.

C. Recommendations

59. **Project Preparation.** Adequate resources need to be provided for project preparation. Small and larger projects require similar resources. Particular attention needs to be placed on the identification of risks, particularly associated with EPC's procurement and implementation capacity. Additional resources need to be spent on strengthening project management. Financial due diligence during project preparation needs to identify specific measures to support EPC's compliance with financial covenants, and address and incorporate such measures in project design. These measures should be supported by appropriate reporting requirements for monitoring compliance with financial covenants. Project design should also ensure that measurable indicators are established to monitor EPC's operating performance.

60. **Financing Modality.** Infrastructure projects in the Pacific region have a history of cost overruns. Costs are difficult to estimate given the high reliance on international markets. Project preparation needs to comprise a careful assessment of the market conditions and sourcing of equipment and civil works, and identify risks as perceived by potential bidders. When physical components are not confirmed, physical contingencies need to reflect risk associated with physical works. Unpredictable project costs, coupled with the need to increase predictability of financing, require a flexible financing modality. Sector loans can help avoid transaction costs associated with supplementary financing and address the need to increase planning capacity with the provision of longer-term financing to realize investment plans. However, a sector financing modality must be accompanied by specific measures to support and build EPC's capacity for project management.

61. **Procurement.** Preparation of bid documents during project preparation to reduce the risk of implementation delays and associated cost increase is good practice. This is particularly important when the procurement and implementation capacity of the executing agency is weak. While the plant design, supply, and install contract helped address EPC's implementation capacity in terms of coordination, contracts need to be based on logical procurement packages. Transferring the risks of one unconfirmed component to other components when these components are not interdependent should be avoided.

62. **Financial Performance.** Identification of measures and policy dialogue to address EPC's weak financial performance needs to be strengthened as an integral part of project implementation. Financial covenants should be regarded as outcomes that need to be supported by TA and be appropriately designed to target cash-flow generation. Significant emphasis needs to be placed on strengthening EPC's reporting to its board and to the Government in terms of compliance with financial covenants. Such reporting should comprise remedial actions when noncompliance is identified.

63. **Implementation and Monitoring.** Considerable attention needs to be given to implementation and monitoring of projects where capacity of the executing agency is weak. Adequate resources and expertise need to support implementation activities, including activities for policy reform. Strengthening of monitoring of implementation progress in the performance evaluation reports needs to be undertaken such that any issues can be identified at an early stage.

64. **Social and Environmental Safeguards.** Project preparation did not meet the prevailing ADB social and environmental safeguards. Since 2001, mechanisms³¹ have been put in place to improve upfront safeguard compliance. Nevertheless, environment category A projects must be subject to thorough preparation and review of safeguard compliance. Participation by safeguard specialists during project processing missions for such projects is essential.

³¹ For instance social and environmental checklists.

DESIGN AND MONITORING FRAMEWORK

Design Summary	Appraisal Performance Indicators/Targets	Project Achievements	Key Issues and Recommendations
<p>Impact Assist the Government and Electric Power Corporation (EPC) in undertaking policy changes, increasing efficiency and viability, and meeting growing power demand with least-cost renewable energy resources.</p>	<p>EPC meets growing power demand.</p> <p>EPC improves its financial performance.</p> <p>Fuel imports for power production are reduced.</p>	<p>The Project did not help meet growing power demand.</p> <p>EPC's financial position deteriorated.</p> <p>Fuel imports for power production increased with growing power demand.</p>	<p>The Project was not constructed and commissioned.</p> <p>EPC's collection performance deteriorated.</p> <p>The approved automatic tariff adjustment mechanism was not implemented.</p> <p>Policy dialogue with the Government and EPC needs to be strengthened during project implementation.</p> <p>Baseline data is missing for monitoring purposes.</p> <p>Given growing demand and limited renewable resources, a reduction of fuel imports for power production was unrealistic.</p>

Design Summary	Appraisal Performance Indicators/Targets	Project Achievements	Key Issues and Recommendations
<p>Outcome Provide reliable power.</p> <p>Increase private sector engagement.</p> <p>Enhance EPC efficiency, autonomy, and financial sustainability.</p>	<p>No major load shedding occurs in the system by 2005.</p> <p>Noncore activities are left to the private sector.</p> <p>EPC increases outsourcing</p> <p>Tree clearing and housing and vehicles repair and maintenance are outsourced</p> <p>EPC's return on net assets is higher than 5% in 2004 and 8% in 2008</p>	<p>Utility interruption reports</p> <p>EPC outsourced vehicle maintenance and repair, heavy equipment rental, tree clearing, and customer payments.</p> <p>EPC's rate of return on assets ranged from a low of minus 0.8% to a high of 1.6% between</p>	<p>Load shedding may occur as a result of factors outside the scope of the project, such as major overhauls and cyclones.</p> <p>Load shedding indicators were not recorded during implementation.</p> <p>Establishment of indicators to monitor load shedding is recommended.</p> <p>The capacity of the private sector and competition needs to be taken into account to assess the cost-effectiveness of outsourcing.</p> <p>After unsatisfactory contractor performance, EPC resumed responsibility for tree clearing.</p> <p>The actual expense of outsourced activities represented between 0.7% and 1.7% of total expenses, and did not constitute a major issue for EPC's financial performance.</p> <p>The target indicators are inconsistent with the covenanted rate of return on assets that</p>

Design Summary	Appraisal Performance Indicators/Targets	Project Achievements	Key Issues and Recommendations
Increase hydroelectricity supply.	Hydroelectricity supply increased by 20% between 2000 and 2005.	fiscal year (FY) 2001 and FY2005. Hydroelectricity supply has not increased since 2001.	stipulated 4% between FY2002 and FY2004, and 6% thereafter. Indicators and covenants should focus on more precise tools for ensuring adequate cash flow. If the Project had been implemented, it would have increased total hydropower capacity by 17%, or 20% of estimated dry season hydropower capacity. The Project was not implemented.
Enhance transmission capacity.	Reliability of the system is improved.	The Project did not contribute to enhanced transmission capacity.	The Project was not implemented. EPC does not produce indicators for reliability of power supply. The establishment and monitoring of system average duration interruption and average interruption frequency would be essential to monitor reliability.
Reduce system losses.	System energy loss is reduced from 15% to less than 12% in 5 years.	The Project did not contribute to a reduction in system losses.	The Project was not implemented. Current estimates of energy loss

Design Summary	Appraisal Performance Indicators/Targets	Project Achievements	Key Issues and Recommendations
			<p>are not based on actual system losses.</p> <p>The establishment and monitoring of technical and nontechnical system losses would be essential for useful system loss management.</p>
<p>Outputs</p> <p>Tariffs to cover the full cost of power production</p> <p>Lifeline tariff applied to low-income consumers</p> <p>Improved EPC operation and maintenance</p> <p>Installation of new 2 megawatt generators</p> <p>Raising of dam crest (1.7 meters)</p> <p>Construction of diversion canal (7.1 kilometers)</p> <p>Upgrading of south coast feeder from 22 kilovolts (kV) to 33 kV</p>	<p>The automatic tariff adjustment mechanism is fully implemented.</p> <p>The lifeline tariff is fully implemented.</p>	<p>The approved automatic tariff adjustment was not implemented.</p> <p>The lifeline block introduced in November 2001 comprises the first 50 kWh of consumption per month for all consumers.</p>	<p>Political commitment to implementing automatic tariff adjustments is lacking. Timely tariff adjustments remain critical for EPC.</p> <p>No indicators were provided to assess progress in EPC's operation and maintenance.</p> <p>The investment components were not implemented.</p>

Design Summary	Appraisal Performance Indicators/Targets	Project Achievements	Key Issues and Recommendations
<p>Upgrading of transformer capacity on the north coast transmission feeder from 6 megavolt-amperes (MVA) to 12 MVA</p> <p>Upgrading of the Afulilo scheme telemetry equipment</p> <p>Implementation consulting services</p> <p>Technical assistance (TA) for strengthening energy loss reduction and maintenance capacity</p>	<p>EPC develops and implements cost-effective strategies to reduce energy loss to less than 12% within 5 years.</p>	<p>Implementation consulting services were provided for detailed investigation and design, preparation of bid documents, and procurement activities.</p> <p>The TA was implemented but resources were not available for any significant implementation of the TA recommendations. Some measures were undertaken as part of EPC's capital works program.</p> <p>The TA completion report (November 2004) rates the TA as "partially satisfactory."</p>	<p>EPC's financial capacity to undertake implementation was constrained.</p> <p>EPC was assessed to be slow in implementing the recommendations on loss reduction.</p> <p>System losses in 2006 were 19% for Upolu and 21% for Savai'i.</p> <p>Given high system losses, EPC needs to establish and verify losses and distinguish between technical and nontechnical system losses.</p>

Design Summary	Appraisal Performance Indicators/Targets	Project Achievements	Key Issues and Recommendations
<p>Inputs</p> <p>\$6 million of foreign exchange</p> <p>\$1.5 million equivalent in local currency</p> <p>4 person-months of international consultants for implementing the TA on energy loss reduction and maintenance capacity building</p>	<p>The loan would be fully disbursed by December 2003.</p> <p>Mitigation measures would be financed by December 2002.</p>	<p>Disbursements as of May 2006 amounted to about \$0.5 million.</p> <p>Mitigation measures commenced in January 2003.</p> <p>Consultants were fielded in March 2002.</p>	<p>Mitigation measures were delayed following delays in detailed project design.</p>
<p>Activities^a</p> <p>Implementation consultants to be appointed by February 2002</p> <p>Detailed investigation and design completed by August 2002</p> <p>Contractor appointed by October 2002</p>		<p>Implementation consultants were appointed in November 2007.</p> <p>The first feasibility report was issued in January 2003.</p> <p>Detailed design was completed in August 2003.</p> <p>Not completed.</p>	<p>Delays in loan effectiveness caused delayed appointment of implementation consultants.</p> <p>Detailed design was delayed because the proposed gravity-fed canal was not feasible.</p> <p>Alternative diversion schemes were investigated.</p> <p>High bid prices resulted in cancellation of the loan.</p>
<p>Project completion by December 2003</p>		<p>Not completed. The loan was closed in May 2006.</p>	

^aThe activities were included as performance indicators/targets for outputs in the project framework at appraisal.

CHRONOLOGY OF MAIN EVENTS

Date	Event
A.	Project processing
2001	
1–10 August	– Loan appraisal
29 October–14 November	– Loan negotiations
17 December	– ADB Board approval
B.	Project implementation
2002	
10 April	– Shortlisting of implementation consultants
29 April	– Loan agreement signed
5–11 August	– ADB Inception Mission
28 October	– Loan effectiveness
18 November	– Implementation consultants fielded
2003	
28–30 January	– ADB Review Mission 1
30 January	– Consultants issue the inception report expressing doubts on the feasibility of the gravity-fed canal
18 March	– Suspension of implementation consultants and independent evaluation of the feasibility of the gravity-fed canal undertaken
29 April	– Implementation consultants reinstated
1 August	– Prequalification invitation documents issued to potential bidders
14 August	– Consultants issue draft supplementary engineering report on alternative water diversion schemes
28 September–4 October	– ADB Review Mission 2
30 November	– EPC decision to replace the gravity-fed canal with a pumped diversion scheme
2004	
22–30 April	– ADB Review Mission 3
10–18 June	– ADB Review Mission 4
30 June	– ADB approved an extension of the loan closing date to 30 June 2006
12 July	– Bid documents issued to contractors
19 August	– In response to estimated cost increases, ADB management approves a major change of scope for the Project
15 October	– ADB's procurement committee approves retroactive prequalification and prequalification of five firms
12 October	– EPC receives four bids
29 November–7 December	– ADB Review Mission 5
2005	
7 March	– Technical evaluation of bids completed and approved by EPC

21 March	–	Price envelopes for three bidders are opened
25 April	–	ADB sends letter to the Government offering options for proceeding with the Project
11 July	–	Government requests supplementary ADB financing
29 August –9 September	–	ADB Reappraisal Mission 1
18 – 31 October	–	ADB Reappraisal Mission 2
2006		
6–10 March	–	ADB Special Loan Administration Mission
26 May	–	Government requests cancellation of outstanding loan balance

ADB = Asian Development Bank, EPC = Electric Power Corporation.

Source: Asian Development Bank.

PROJECT COSTS
(\$'000)

Item	Appraisal Costs	Change of Scope Costs	Reappraisal Costs ^a	Actual Incurred Costs
A. Base Costs				
1. Diversion Canal/Pumped Scheme	1,223	2,338	5,230	0
2. Afulilo Civil Works	345	345	1,130	0
3. 2 MW Generator	1,220	1,220	2,020	0
4. Upgrade of Transmission Lines and Telemetry System ^b	2,210	2,210	2,240	1
5. Mitigation Measures	615	615	750	495
6. Consulting Services	520	520	1,679	951
Subtotal (A)	6,133	7,248	13,049	1,447
B. Taxes and Duties^c	397	470	384	0
Subtotal (B)	397	470	384	0
C. Contingencies				
1. Physical	544	640	1,384	0
2. Price	390	460	2,145	0
Subtotal (C)	934	1,100	3,529	0
D. Interest during Construction^d	36	42	4,549	4
Subtotal (D)	36	42	4,549	4
Total (A+B+C+D)	7,500	8,860	21,511	1,451

MW = megawatt.

^a Reappraisal costs are based on bid prices and exclude price reductions to be negotiated; costs of prepayment meters are estimated at \$729,000.

^b The reappraisal cost estimates include north coast transmission upgrade.

^c The Asian Development Bank portion of financing was exempted from taxes and duties.

^d Interest during construction seems to exclude Electric Power Corporation costs of the 5% relending interest rate on the Government loan.

Source: Asian Development Bank and Electric Power Corporation estimates.

IMPLEMENTATION SCHEDULE

Activity	2001			2002			2003			2004			2005			2006		
1. Recruitment of Implementation Consultants																		
Appraisal			█	█														
Actual			█	█	█	█												
2. Detailed Investigation and Design																		
Appraisal						█	█											
Actual								█	█	█	█							
3. Tendering and Award of Contract																		
Appraisal						█	█											
Actual											█	█	█	█			Not completed	
4. Construction and Commissioning																		
Appraisal								█	█	█								
Actual																	Not done	

Estimate
 Actual

Source: Asian Development Bank.

STATUS OF COMPLIANCE WITH LOAN COVENANTS

Covenant	Reference	Status of Compliance
A. CONDITIONS FOR LOAN EFFECTIVENESS		
The following are specified as additional conditions to the effectiveness of the Loan Agreement for the purposes of Section 9.01(f) of the Loan Regulations: (i) Electric Power Corporation (EPC) shall have commenced the phased-out elimination of the ten percent (10%) discount for prompt payment of electricity accounts by eliminating five percent (5%) of the discount; (ii) EPC shall have established the Project Office; and (iii) Department of Lands, Survey and Environment shall have approved the environmental impact assessment (EIA).	LA Article 5 Section 6.01	Complied with
The following is specified as an additional matter, for the purposes of Section 9.02(d) of the Loan Regulations, to be included in the opinion or opinions to be furnished to the Bank: the acquisition of all land required for the Project shall have been approved in accordance with the existing laws of the Borrower.	LA Article 5 Section 6.02	Complied with
B. GENERAL		
The Borrower shall cause EPC to carry out the Project with due diligence and efficiency and in conformity with sound administrative, financial, engineering, environmental and public utility practices.	LA Section 4.01 (a); PA Section 2.01(a)	Partly complied with
In the carrying out of the Project and operation of the Project facilities, the Borrower shall perform, or cause to be performed, all their respective obligations set forth in Schedule 6 of Loan Agreement.	LA Section 4.01 (b) PA Section 2.01(b)	Partly complied with
The Borrower shall make available to EPC promptly as needed, and on terms and conditions acceptable to the Bank, the funds, facilities, and other resources which are required, in addition to the proceeds of the Loan, for the carrying out of the Project. EPC shall make available, promptly as needed, the funds, facilities, services, equipment, land and other resources which are required, in addition to the proceeds of the Loan, for the carrying out of the Project.	LA Section 4.02 PA Section 2.02	Partly complied with
The Borrower shall ensure that the activities of its departments and agencies with respect to the carrying out of the Project and operation of the Project facilities are conducted and coordinated in accordance with sound administrative policies and procedures.	LA Section 4.03	Partly complied with
The Borrower/EPC shall furnish, or cause to be furnished, to the Bank all such reports and information as the Bank shall reasonably request concerning (i) the Loan, and the expenditure of the proceeds and maintenance of the service thereof; (ii) the goods and services and other items of expenditure financed out of the proceeds of the Loan; (iii) the Project; (iv) the administration, operations and financial condition of EPC and any other agencies of the Borrower responsible for the carrying out of the Project and operation	LA Section 4.04; PA 2.08(a)	Partly complied with

Covenant	Reference	Status of Compliance
of the Project facilities, or any part thereof; (v) financial and economic conditions in the territory of the Borrower and the international balance-of-payments position of the Borrower; and (vi) any other matters relating to the purposes of the Loan.		
Without limiting the generality of the foregoing, EPC shall furnish to the Bank quarterly reports on the execution of the Project and on the operation and management of the Project facilities. Such reports shall be submitted in such form and in such detail and within such a period as the Bank shall reasonably request, and shall indicate, among other things, progress made and problems encountered during the quarter under review, steps taken or proposed to be taken to remedy these problems, and proposed program of activities and expected progress during the following quarter.	PA Section 2.08, para (b)	Delayed compliance; latest quarterly progress report submitted to the Asian Development Bank was as of 1st quarter 2005.
Promptly after physical completion of the Project, but in any event not later than three (3) months thereafter or such later date as the Bank may agree for this purpose, EPC shall prepare and furnish to the Bank a report, in such form and in such detail as the Bank shall reasonably request, on the execution and initial operation of the Project, including its cost, the performance by EPC of its obligations under this Project Agreement and the accomplishment of the purposes of the Loan.	PA Section 2.08, para (c)	Not applicable ^a
The Borrower/EPC shall enable the Bank's representatives to inspect the Project facilities, the goods financed out of the proceeds of the Loan, and other relevant records and documents.	LA Section 4.05; PA Section 2.10	Complied with
The Borrower shall take all action which shall be necessary on its part to enable EPC to perform its obligations under the Project Agreement, including the establishment, maintenance and increasing of tariffs, and shall not take or permit any action which would interfere with the performance of such obligations.	LA Section 4.06	Complied with
(a) The Borrower shall exercise its rights under the Subsidiary Loan Agreement in such a manner as to protect the interests of the Borrower and the Bank and to accomplish the purposes of the Loan. (b) No rights or obligations under the Subsidiary Loan Agreement shall be assigned, amended, or waived without the prior concurrence of the Bank.	LA Section 4.07(a) and (b)	Partly complied with
It is the mutual intention of the Borrower and the Bank that no other external debt owed a creditor other than the Bank shall have any priority over the Loan by way of a lien on the assets of the Borrower. To that end, the Borrower undertakes (i) that, except as the Bank may otherwise agree, if any lien shall be created on any assets of the Borrower as security for any external debt, such lien will <u>ipso facto</u> equally and ratably secure the payment of the principal of, and service charge and any other charge on, the Loan; and (ii) that the Borrower, in creating or permitting the creation of any such lien, will make express provision to that effect.	LA Section 4.08 (a)	Complied with
The provisions of paragraph (a) of Section 4.08 shall not apply to (i) any lien created on property, at the time of	LA Section 4.08 (b)	Not applicable

Covenant	Reference	Status of Compliance
purchase thereof, solely as security for payment of the purchase price of such property; or (ii) any lien arising in the ordinary course of banking transactions and securing a debt maturing not more than one year after its date.		
The term "assets of the Borrower" as used in paragraph (a) of Section 4.07 includes assets of the Central Bank of Samoa and any other institution performing the functions of a central bank for the Borrower.	LA Section 4.08(c)	Complied with
(a) In the carrying out of the Project, EPC shall employ competent and qualified consultants, acceptable to the Bank, to an extent and upon terms and conditions satisfactory to the Bank. (b) Except as the Bank may otherwise agree, all goods and services to be financed out of the proceeds of the Loan shall be procured in accordance with the provisions of Schedule 4 and Schedule 5 to the Loan Agreement. The Bank may refuse to finance a contract where goods or services have not been procured under procedures substantially in accordance with those agreed between the Borrower and the Bank or where the terms and conditions of the contract are not satisfactory to the Bank.	PA Section 2.03 (a) and (b)	Complied with Partly complied with
EPC shall carry out the Project in accordance with plans, design standards, specifications, and work schedules and construction methods acceptable to the Bank. EPC shall furnish to the Bank, promptly after their preparation, such plans, design standards, specifications and work schedules, and any material modifications subsequently made therein, in such detail as the Bank shall reasonably request.	PA Section 2.04	Not applicable
(a) EPC shall each take out and maintain with responsible insurers, or make other arrangements satisfactory to the Bank, for insurance against such risks and in such amounts as shall be consistent with sound practice. (b) Without limiting the generality of the foregoing, EPC undertakes to insure, or cause to be insured, the goods to be imported for the Project and to be financed out of the proceeds of the Loan against hazards incident to the acquisition, transportation and delivery thereof to the place of use or installation, and for such insurance any indemnity shall be payable in a currency freely usable to replace or repair such goods.	PA Section 2.05 (a) and (b)	Not applicable
(a) The Bank and EPC shall cooperate fully to ensure that the purposes of the Loan will be accomplished. (b) EPC shall promptly inform the Bank of any condition which interferes with, or threatens to interfere with, the progress of the Project, the performance of its obligations under this Project Agreement, or the Subsidiary Loan Agreement, or the accomplishment of the purposes of the Loan. (c) The Bank and EPC shall, from time to time, at the request of either party, exchange views through their representatives with regard to any matters relating to the Project, EPC and the Loan.	PA Section 2.07 (a), (b), and (c)	Complied.
(a) EPC shall promptly as required, take all action within its powers to maintain its corporate existence, to carry on its operations, and to acquire, maintain and renew all rights,	PA Section 2.11, paras (a), (b), and (c)	Partly complied

Covenant	Reference	Status of Compliance
<p>properties, powers, privileges and franchises which are necessary in the carrying out of the Project or in the conduct of its business.</p> <p>(b) EPC shall at all times conduct its businesses in accordance with sound administrative, financial, environmental, and public utility practices, and under the supervision of competent and experienced management and personnel.</p> <p>(c) EPC shall at all times operate and maintain its plants, equipment and other property, and from time to time, promptly as needed, make all necessary repairs and renewals thereof, all in accordance with sound administrative, financial, engineering, environmental, public utility, and maintenance and operational practices.</p>		
<p>Except as the Bank may otherwise agree, EPC shall not sell, lease or otherwise dispose of any of its assets which shall be required for the efficient carrying on of its operations or the disposal of which may prejudice its ability to perform satisfactorily any of its obligations under the Project Agreement.</p>	PA Section 2.12	Complied with
<p>Except as the Bank may otherwise agree, EPC shall apply the proceeds of the Loan to the financing of expenditures on the Project in accordance with the provisions of the Loan Agreement and this Project Agreement and shall ensure that all goods and services financed out of such proceeds are used exclusively in the carrying out of the Project.</p>	PA Section 2.13	Complied with
<p>Except as the Bank may otherwise agree, EPC shall duly perform all its obligations under the Subsidiary Loan Agreement, and shall not take, or concur in, any action which would have the effect of assigning, amending, abrogating or waiving any rights or obligations of the parties under the Subsidiary Loan Agreement.</p>	PA Section 2.14	Complied with
<p>EPC shall promptly notify the Bank of any proposal to amend, suspend or repeal any provision of its Governing Laws and shall afford the Bank an adequate opportunity to comment on such proposal prior to taking any action thereon.</p>	PA Section 2.15	Complied with
C. FINANCIAL AND REPORTS		
<p>The Borrower shall relend the proceeds of the Loan to EPC under a Subsidiary Loan Agreement upon terms and conditions satisfactory to the Bank. Except as the Bank shall otherwise agree, the terms for relending the proceeds of the Loan shall include interest at the rate of five percent (5%) per annum and a repayment period of twenty-five (25) years including a grace period of five (5) years. The proceeds of the Loan shall be relent by the Borrower to EPC in Samoan Tala and repayment by EPC to the Borrower shall likewise be in Samoan Tala.</p> <p>The Borrower shall cause EPC to apply the proceeds of the Loan to the financing of expenditures on the Project in accordance with the provisions of this Loan Agreement and the Project Agreement.</p>	LA Section 3.01	Complied with
<p>Implementation of Prompt Payment Discount The Borrower shall ensure, or cause EPC to ensure, that the</p>	LA Schedule 6, para 9	Partly complied with; discount reduced to 5%

Covenant	Reference	Status of Compliance
ten percent (10%) discount for prompt payment of electricity shall be eliminated completely by 1 January 2003.		
Debt Restructuring Agreement The Borrower/EPC shall ensure that no amendments are made to the Debt Restructuring Agreement without the prior consent of the Bank.	LA Schedule. 6, para 10; PA, Section 2.22	Complied with
EPC shall maintain, or cause to be maintained, records and accounts adequate to identify the goods and services and other items of expenditure financed out of the proceeds of the Loan, to disclose the use thereof in the Project, to record the progress of the Project (including the cost thereof) and to reflect, in accordance with consistently maintained sound accounting principles, its operations and financial condition.	PA Section 2.06	Complied with
Counterpart Funding Without limiting the generality of Section 4.02 of this Loan Agreement, the Borrower shall, by 31 December of each year, prepare in conjunction with EPC an operation plan for the next year to ensure that during each year of construction throughout Project implementation adequate allocations of required counterpart funds are made by the Borrower and EPC and such funds are released on a timely and regular basis.	LA Schedule 6, para 7	Not applicable
Audit The Borrower shall ensure that, within nine months of the end of each fiscal year, EPC shall submit to the Bank its audited annual financial statements prepared in accordance with international accounting standards acceptable to the Bank. EPC shall (i) maintain separate accounts for the project and for its overall operations; (ii) have such accounts and related financial statements (balance sheet, statement of income and expenses, statement of source and application of funds, and related statements) audited annually, in accordance with appropriate auditing standards consistently applied, by independent auditors whose qualifications, experience and terms of reference are acceptable to the Bank; and (iii) furnish to the Bank, promptly after their preparation but in any event not later than nine (9) months after the close of the fiscal year to which they relate, certified copies of such audited accounts and financial statements and the report of the auditors relating thereto (including the auditors' opinion on the use of the Loan proceeds and compliance with the covenants of the Loan Agreement as well as on the use of the procedures for imprest account/statement of expenditures), all in the English language. EPC shall furnish to the Bank such further information concerning such accounts and financial statements and the audit thereof as the Bank shall from time to time reasonably request.	LA Schedule 6, para 8; PA Section 2.09 (a)	Partly complied with; reports were submitted late. Latest AFS: ending 30 June 2004
In addition to annual audited financial statements referred to in sub-paragraph (a) of this Section, EPC shall furnish to the Bank: (i) within thirty (30) days after the end of the first six months of each fiscal year, unaudited semiannual financial statements on its operations for such six month period; (ii) within three (3) months after the end of each fiscal	PA Section 2.09 (b)	Not complied with

Covenant	Reference	Status of Compliance
<p>year, unaudited annual financial statements on its operations for such fiscal year; and</p> <p>(iii) by 31 December of each year, its approved budget for the following fiscal year and its updated projections (including income statements, balance sheets and cash flow statements) for the ensuing five (5) years.</p>		
<p>EPC shall enable the Bank, upon the Bank's request, to discuss EPC's financial statements and its financial affairs from time to time with EPC's auditors, and shall authorize and require any representative of such auditors to participate in any such discussions requested by the Bank, provided that any such discussion shall be conducted only in the presence of an authorized officer of EPC unless EPC shall otherwise agree.</p>	PA Section 2.09 (c)	Complied with
<p>(a) Except as the Bank shall otherwise agree, EPC shall from time to time take all such measures as shall be required to produce, starting from its fiscal year 2001 and thereafter based on a five-year moving average, funds from its internal sources as contribution to the capital expenditures at a level equivalent to not less than twenty percent (20%) of its capital expenditures.</p> <p>(b) For the purposes of sub-paragraph (a) above: (i) "five-year moving average" shall mean the average of the amount of two fiscal years preceding, two fiscal years subsequent and the respective fiscal year in consideration, applied both to the numerator and the denominator; (ii) the term "capital expenditures" shall mean any expenditure incurred on account of fixed or capital assets, including interest charged to construction financed under a loan contract, but excluding interest during construction financed from funds from its internal sources; and (iii) the term "funds from internal sources" shall mean the difference between: (aa) the sum of net operating revenue, net non-operating income, and any other cash inflows other than funds for financing capital expenditures; and (bb) the sum of all expenses of operations including maintenance and administration (excluding depreciation and other non-cash operating charges), interest and other charges on debt (excluding interest during construction financed under a loan contract), repayment of loans (including sinking fund payment, if any), all tax payments or payments in lieu of taxes, all cash distributions or surplus and any other cash outflows other than capital expenditures.</p> <p>(c) EPC shall from time to time take all necessary measures (including adjustments of its electricity tariffs) as shall provide EPC with revenue sufficient to cover all operating expenses including taxes, depreciation, interest payments and other charges on borrowings.</p>	PA Section 2.16 (a), (b), and (c)	Partly complied with
<p>(a) Except as the Bank shall otherwise agree, EPC shall not incur any debt, if after the incurrence of such debt the internal cash generation of EPC would be less than 1.3 times the estimated maximum debt service requirement.</p> <p>(b) For the purposes of sub-paragraph (a) above: (i) the term "debt" means any indebtedness of EPC maturing by its terms more than one year after the date on which it is originally incurred, (including that portion of any such debt payable within one year from the date of any debt-service ratio calculation), provided that debt shall be counted only to the</p>	PA 2.17 (a) and (b)	Not complied with

Covenant	Reference	Status of Compliance
mid-2001 to less than twelve percent (12%) by no later than 31 December 2006.		
<p>The Borrower shall take all necessary measures, including permitting tariff increases when required, to enable EPC to achieve and to maintain during the life of the Project:</p> <p>(a) a minimum annual rate of return (as defined in Section 2.18 of the Project Agreement) of at least four percent (4%) on its revalued net fixed assets in operation in fiscal year 2002, 2003 and 2004 and at least six percent (6%) for fiscal year 2005 and for each fiscal year thereafter;</p> <p>(b) a self-financing ratio (as defined in Section 2.16 of the Project Agreement) of not less than 20 percent of the five-year moving average of total investment requirements for EPC's capital expenditure program; and</p> <p>(c) a debt-service ratio (as defined in Section 2.17 of the Project Agreement) of not less than 1.3 times EPC's estimated maximum debt-service requirements.</p>	LA Schedule 6, para 3 (a), (b), and (c)	<p>Not complied with</p> <p>Partly complied with (complied for FY2006)</p> <p>Partly complied with (not complied for FY2001, 2002, 2003 and 2005; complied with for FY2004)</p>
D. IMPLEMENTATION ARRANGEMENTS		
Project Executing Agency - In its capacity as Project Executing Agency, EPC shall have overall responsibility for implementing the Project. EPC's general manager shall be the individual responsible for the overall management of the Project.	LA Schedule 6, para 1	Complied with
Project Office - The Project Office shall be responsible for day-to-day implementation of the Project. The Project Office shall be headed by a full-time project manager with qualifications and experience satisfactory to the Bank. The Project Office and shall at all times be adequately staffed with competent technical, accounting and supporting personnel.	LA Schedule 6, para 2	Complied with
E. Other Matters		
<p>Protection of Low-Income Consumers</p> <p>The Borrower shall ensure, or shall cause EPC to ensure that, commencing from the Effective Date, a lifeline tariff shall be applied upon domestic consumption of up to 50 kilowatt-hours per month to protect low-income consumers.</p>	LA Schedule 6, para 4	Complied with
<p>Environmental Protection</p> <p>The Borrower shall ensure, or shall cause EPC to ensure, that:</p> <p>(a) implementation of the Project is carried out in accordance with all existing environmental laws, regulations and standards of the Borrower and the Bank's environmental procedures and guidelines, in particular, the Bank's <i>Environmental Guidelines for Selected Industrial and Power Development Projects</i>;</p> <p>(b) all the environmental mitigation measures identified in EIA for the Project are incorporated into the Project design, civil works and other contracts and followed during the Project implementation, operation and maintenance of the Project facilities;</p> <p>(c) an environmental monitoring program to monitor the</p>	LA, Schedule 6, para 5 (a) to (f)	<p>Not applicable</p> <p>Complied with; mitigation measures incorporated in project design and bid documents</p>

Covenant	Reference	Status of Compliance
<p>effects associated with the increased freshwater outflow from the proposed augmentation on the water quality of Fagoloa bay is agreed upon with the Bank and established by no later than 31 December 2002;</p> <p>(d) the outcome of the environmental monitoring are reported to the Bank and the Division of Environment and Conservation through (i) quarterly progress reports on the Project implementation during construction and (ii) an evaluation report to be submitted one year from the Project completion;</p> <p>(e) for implementation of the environmental monitoring program, EPC hires a full-time environmental coordinator by 31 July 2002 with the annual budget specified in the environmental monitoring program;</p> <p>(f) the environmental monitoring plan detailed in EIA, including the installation of a new water supply system for Tiavea villages, the construction of a new bridge crossing for the Ta'elefaga Creek, and the implementation of the water quality monitoring program, is fully implemented.</p>		<p>Partly complied with</p> <p>(i) Not complied with; (ii) Not applicable</p> <p>Complied with</p> <p>Partly complied with; new bridge crossing and water supply completed and operational</p>
<p>Land Acquisition – Without limiting the generality of Section 4.02 and 6.01 of the Loan Agreement, the Borrower shall take, or shall cause EPC to take, all necessary steps to acquire on a timely basis all lands and properties and all rights, easements, privileges and approvals pertaining to such lands and properties as shall be necessary or appropriate to implement the Project.</p>	<p>LA Schedule 6 Para. 6</p>	<p>Complied with</p>
<p>Conditions of Withdrawal from Loan Account: Notwithstanding any other provision of the Loan Agreement, no withdrawals shall be made from the Loan account for:</p> <p>(a) expenditures under the proposed turnkey contract until: (i) the new water supply system for Tiavea village has been constructed; and (ii) the bridge over Ta'elefaga creek near the Ta'elefaga power station has been replaced with an elevated bridge with safety fences and a street light; and</p> <p>(b) expenditures under Subcategory 1A until the Borrower has paid adequate compensation to the local communities that will be losing their rights to the land as a result of acquisition of the land for the purpose of the Project.</p>	<p>LA Schedule 3 Para 8 (a) and (b)</p>	<p>Complied with</p> <p>Not applicable</p>

ADB = Asian Development Bank, AFS = audited financial statement; EIA = environmental impact assessment, EPC = Electric Power Corporation, FY = fiscal year, LA = Loan Agreement, PA = Project Agreement.

^a Not applicable is noted for covenants that refer to project facilities that were not implemented.

Source: Asian Development Bank.

OVERALL PROJECT RATING

Item	Assessment	Rating	Weight	Weighted Rating
A. Policy Changes	Relevant	2	0.2	0.40
	Ineffective	0	0.3	0.00
	Inefficient	0	0.3	0.00
	Not sustainable	0	0.3	0.00
B. Investment Components	Relevant	2	0.2	0.40
	Ineffective	0	0.3	0.00
	Inefficient	0	0.3	0.00
	Not sustainable	0	0.3	0.00
C. Technical Assistance	Relevant	1	0.2	0.20
	Ineffective	0	0.3	0.00
	Inefficient	0	0.3	0.00
	Not sustainable	0	0.3	0.00
Overall Assessment	Unsuccessful			0.08

Source: Asian Development Bank.