



Technical Assistance Consultant's Report

Project Number: TA 4456 - KIR
December, 2007

Kiribati. Preparing the Outer Island Growth Centers Project – Phase 2 (Water Supply and Sanitation)

Working Papers (Volume 2)

Working Paper No 4: Economic and Financial Analysis

(Financed by the Asian Development Bank)

Prepared by the designated Project Team Members, TA 4456 - KIR

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For Ministry of Finance and Economic Development (MFED)
 Ministry of Line and Phoenix Islands Development (MLPID)

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Report Structure – Volume 2

The Working Papers contained in this volume detail work completed in Kiritimati Island, Kiribati, during October - December, 2007, in respect of a feasibility study undertaken for a proposed ADB investment project in water and sanitation. The feasibility study was undertaken as the main output of Phase 2 of the *TA No. 4456 - KIR: Preparing the Outer Island Growth Centers Project (Kiritimati Island)*.¹

The results of the TA are contained within 3 main reports;

- the Executive Report (Volume 1);²
- the Working Papers (Volume 2 - the current volume) which provide the detail of the overall feasibility study and the summary Executive Report, and
- the draft Kiritimati Island Development Plan (KIDP - Volume 3) which addresses overarching island development issues and directions on Kiritimati Island.

The Working Papers are contained in this volume in the following order;

1. Hydrology
2. Water Supply
3. Sanitation
4. Economic and Financial Analysis
5. Social and Poverty Analysis
6. Initial Environmental Examination
7. Summary Initial Environmental Examination
8. Environmental Information and Assessment
9. Institutional Arrangements for Improved Island Planning and Development
10. Existing Infrastructure Survey for Water and Sanitation

¹ The team comprised Paul Jones, Development/ Planner/Team Leader, Tony Falkland, Civil Engineer and Water Resources, Tony McDonald, Environmental Adviser, Jonathan Powell, Community Development Adviser, Marcus Napud, Economist and Ian White, Water Resources/Engineer. Ms. Makurita Bauro proved liaison support to the TA while based in Tarawa. Special thanks to Ms. Maketara Ioane, Resource Economist, from the MLPID and GoK TA counterpart for her valuable assistance and support in Kiritimati Island.

² A draft ADB Report and Recommendations to the President (RRP) was also prepared for internal ADB consideration. The Executive Report is based on the information contained in the draft RRP.



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Table of Contents

1. Economic Analysis	1
A. Economic Rationale	1
B. Water Supply	1
1. Assumptions	1
2. Demand Projection	1
3. Least Cost Analysis	2
4. Economic Benefits and Costs	2
5. EIRR and AIEC	4
6. Sensitivity Analysis	4
C. Sanitation	5
1. Least-Cost Analysis	5
2. Economic Justification	5
2. Financial Analysis	7
A. Background	7
B. Existing Condition	7
1. Personnel	7
2. Tariff Rate and Connection Fee	7
3. Billing and Collection	8
4. Consumer Records	8
5. Collection Efficiency	8
6. Number of Consumers	9
7. Possible Reasons for Non-Payment of Monthly Water Bills	9
8. Revenues and Expenditures	9
9. Sanitation Services	10
C. Financial Projection	10
1. Capital Costs	10
2. Operating and Maintenance Costs	11
3. Proposed Tariff Rate Increases	11
4. Weighted Average Cost of Capital	12
5. Collection Efficiency	12
6. FIRR and AIFC	12
7. Sensitivity Analysis	13
8. Affordability of Tariffs	13
3. Assessment of the Fiscal Impact of the Project to GoK	14
A. Background	14
B. Total Project Costs	14
C. Financing Plan	15
D. Fiscal Impact	16
4. Financial Assessment of the MFED and MLPID	17
A. Background	17
B. Ministry of Finance and Economic Development	17
1. Summary of Findings	17
C. Ministry of Line and Phoenix Islands Development	18
1. Summary of Findings	18

List of Appendices

Appendix 1	EIRR and AIEC	21
Appendix 2	Economic Justification – Sanitation Component	22
Appendix 3	FIRR and AIFC	24
Appendix 4	Revenue and Expenditure – Kiribati Government	25
Appendix 5	Filled FMAQ for the Ministry of Finance and Economic Development (MFED)	26
Appendix 6	Completed FMAQ for the Ministry of Finance and Economic Development (MFED)	34

List of Annex

1.	Flow of Funds	45
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List of Tables

Table 1	Least-Cost Analysis for Water Supply	2
Table 2	Capital Investment Economic Cost	4
Table 3	Sensitivity Analysis Result	5
Table 4	Least-Cost Analysis for Sanitation	5
Table 5	Number of Consumers	9
Table 6	Capital Investment Financial Cost	10
Table 7	Proposed Tariff Rate Increases	11
Table 8	Weighted Average Cost of Capital	12
Table 9	Sensitivity Test Results	13
Table 10	Affordability Analysis	13
Table 11	Total Project Costs	15
Table 12	Financing Plan	16
Table 13	Risk Analysis - MFED	17
Table 14	Risk Analysis - MLPID	18

Economic and Financial Analyses

1. Economic Analysis

A. Economic Rationale

1. The economic rationale for the intervention results from the Government's decision to designate Kiritimati Island (KI) as a growth center so as to cater for increased economic development and population growth. The decision is part of the long-term strategy to relieve pressure in overcrowded South Tarawa in the Gilbert Group of islands by using the outer islands as focal points of future economic development. One of the steps to be undertaken towards achieving this goal is to develop / improve the basic infrastructure and services in the targeted outer islands. For KI, this means improving and expanding the water supply (WS) and sanitation services to accommodate future economic activities and more population coming to the island.

B. Water Supply

1. Assumptions

2. The local inflation rates¹ will be 1.5% from 2008 and onwards. The foreign inflation rates² will be 0.8% from 2008 and onwards. Exchange rate will be A\$1.00 equals US\$0.90.

3. The economic life of the Project is 30 years. Component specific project life are as follows: gallery is 30 years, building is 20 years, equipment is 5 to 7 years, pipe is 12 years and office equipment is 5 years. Custom duties vary from 0% to 80% (average is 4.3% of base cost) of free-on-board (FOB) price. The government does not impose tax on Project related expenditure. Physical contingency is 5% for civil works, equipment and materials, and 2% for airfreight and project support.

4. For KI, the household monthly income for the low-income group is estimated to be A\$ 300. Financial costs were converted to economic costs using domestic price numeraire. The assumed conversion factor for un-skilled worker is 0.70 of market rates and for non-traded input is 1.00.

5. All benefits and costs are expressed in constant November 2007 prices. Capital costs exclude price contingencies, duties and service charge during construction. There is no land acquisition or resettlement involved in this Project, hence opportunity cost of land is zero.

2. Demand Projection

6. The water demand in KI has been constrained by the limited capacity of the existing system to supply the consumers. Based on the billing data, for London and Tabwakea villages, piped water supply is presently 48 and 14 liters per capita per day (lpcd) on average respectively. The village of Poland receives 26 lpcd on average while the village

¹ Source: Consultants estimate.

² Source: Memorandum, Economics and Research Department, ADB, 4 June 2007.

of Banana, water supply is just for 2 hours each day³. To supplement the inadequate supply of piped water, rainwater and water from private wells⁴ are used by the people.

7. The proposed Project will increase the supply of piped water to 90 lpcd for London village and 60 lpcd for Banana, Poland and Tabwakea villages. Wells will be improved/constructed in the villages of Banana, Poland and Tabwakea to augment the projected 60 lpcd piped water to be supplied to the people.

3. Least Cost Analysis

8. The Project design was selected based on a least-cost analysis in which a range of possible water supply systems were evaluated in terms of the economic net present value (ENPV)⁵ of the capital, and operating and maintenance (O&M) costs, sustainability of water source and ease of O&M.

Table 1 : Least-cost Analysis for Water Supply

No.	Options	Water source	Capital Costs	O & M Costs	Water Quality	Remarks	ENPV @ 10% discount rate
1	pipd water (wind and solar-powered pumps; diesel/petrol pump as a back-up)	finite; recharge is from rainfall (average is 900 mm per year)	A\$ 794/ person	A\$ 3/ m ³	Good	O & M is simple.	1561
2	well water (well with concrete casing and cover)	finite; ground water is partly polluted; recharge is from rainfall (average is 900 mm per year)	A\$ 700/ unit	negligible	Moderate	only available in Banana, Poland and Tabwakea villages. London groundwater is salty and contaminated with oil.	67
3	rainwater (10 m ³ MDPE water tank; provide gutter to houses/building)	erratic; during droughts rainfall could be as low as 100 mm per year	A\$ 2900/ 10 m ³ unit	negligible	Good	house with 25 m ² roof area, on average can collect about 22.5 m ³ per year (25 m ² x 0.9 m)	278
4	sea water (de-salination)	abundant	A\$ 550/ person ¹	A\$ 4/ m ³	Good	O & M is highly technical and expensive. Needs high level of skills / expertise.	1619

¹ For a 20,000 m³ / day capacity. For this project, designed for 1,000 m³ / day, cost is a lot higher.

MDPE – molded polyethylene

9. For the water supply component, the least-cost solution is to provide a combination of piped water and well water supply. For rain water collection⁶, although the ENPV of the costs is low (A\$ 278 per person), supply is not dependable as months of low rainfall within a year is prevalent based on historical records.

4. Economic Benefits and Costs

10. The economic analysis includes the evaluation of economic benefits and costs resulting from the implementation of the Project. To the extent possible, benefits and costs identified are quantified and valued. Where quantification is not possible, a qualitative analysis is presented in the report.

³ Consumers in Banana village are not metered. The existing distribution and reticulation system is very old and was built by the British in the 1950s.

⁴ Used in Banana, Poland and Tabwakea villages. London village ground water are salty and polluted and is not fit for domestic use.

⁵ Discounted for 20 years.

⁶ This will be built in *Maneabas* (roof area is between 1000 to 2000 m²) in each village to introduce community-managed water supply system.

11. The economic benefits identified include: (i) increased water supply to the existing and new consumers; (ii) reduced incidence of water-borne diseases⁷; (iii) reduced unaccounted-for-water; (iv) time savings for water collection; and (v) savings on water treatment costs⁸. Benefits quantified in the analysis include increased water supply and avoided medical costs and income losses due to reduced incidence of water-borne diseases. Average time spent for water collection is not known but the average distance of water wells from houses is 11.6 meters. Most households use dried coconut husks and branches, which are abundant in the bush, to boil their water. Data from the health center in London village shows that morbidity rate for water-borne diseases (diarrhoea, dysentery and hepatitis) is about 6.27%. However, discussions with the health center officials, revealed that actual rate could be in the range of 20 to 30% since not all inflicted with the disease come to the health clinic⁹. Estimated income losses and medical expenses avoided after project completion is A\$25 thousand.

12. The economic costs include the capital investment costs, operating and maintenance costs, environmental costs, and replacement cost of capital investment at the end of its service life. Shadow pricing was used to convert the financial prices into economic prices. Total capital investment is A\$8.2 million in constant November 2007 prices.

⁷ Results to avoided medical costs and avoided income loss for economically productive persons.

⁸ Filtering and boiling of water.

⁹ After acute respiratory infections and acute fever, diarrhoea is the third highest morbidity disease since 2002 based on Health Records, London Hospital, November 2007.

Table 2: Capital Investment Economic Cost

Component	(A\$ 1000)
Water resources	365
London WS system	1,005
Tabwakea WS system	1,126
Banana WS system	1,077
Poland WS system	92
Equipment & construction materials	855
Shipping & airfreight	297
Construction management	1,152
Project management consultant	1,834
Duties	-
Physical contingencies	437
Total	8,242

5. EIRR and AIEC

13. One measure of economic feasibility is the economic internal rate of return (EIRR). The EIRR is the discount rate by which the present value of the benefits are equal to the present value of the costs. The Project is considered economically feasible if the EIRR is equal to or is higher than the economic opportunity cost of capital (assumed at 10% for Kiribati). For the water supply component, the EIRR is estimated to be 10.26%. Average incremental economic cost is about A\$ 4.27 per m³ compared to the average water tariff of A\$ 4.37 per m³, indicating a surplus of A\$ 0.10 per m³. Details are in Appendix 1.

6. Sensitivity Analysis

14. Due to the uncertainties that characterized economic projections, a project is analyzed to test if the project remains viable if certain favorable assumptions are not realized. A sensitivity analysis to test the Project's economic feasibility was performed based on the following parameters: increase in transport costs of materials and equipment (10% increase in capital costs) due to increase in the price of oil. Decrease in benefits by 15% due to drought thus less water available to supply the consumers. One year delay in delivery of materials and equipment (almost all materials and equipment will be imported) thus delaying the Project completion. The results of the sensitivity test indicate that in the assumed adverse economic conditions the Project is not economically viable.

Table 3: Sensitivity Analysis Result

Parameter	EIRR %
10% increase in capital costs	9.43
15% decrease in benefits	8.86
1 year delay in completion	9.21

C. Sanitation

15. The sanitation component includes construction of septic tanks and evaporation basins. For households without toilets, a toilet structure including the pedestal will be provided. The primary objective of the sanitation component is to protect the groundwater in the settlement areas since well water is commonly used for everyday needs. This component is also aimed at preventing the pollution of the nearby lagoon where fish and other marine resources are abundant.

1. Least-Cost Analysis

16. The recommended option for the sanitation component is to provide 3 m³ molded polyethylene (MDPE) septic tanks and evaporation basins for each household. This is not the least-cost solution but it will have the least adverse environmental impact in the Project area. The evaluation includes comparison of the ENPV of the capital, and operating and maintenance (O&M) costs, level of negative environmental impact, and ease of use and maintenance. Table 4 shows the summary of the results.

Table 4: Least-cost Analysis for Sanitation

No.	Options	Water requirement (flushing)	Capital Costs	O & M Costs	Negative environmental effect	Remarks	ENPV @ 10% discount rate
1	flush toilet (cistern-type; 3 m ³ MDPE septic tank; evaporation basin)	5 to 6 liters / flush	A\$ 2750/ unit	if piped water is used, A\$3 / m ³	minimal; evaporation basin can overflow during floods	can use well water to flush toilet; very easy to use; can be placed inside the house	3031
2	flush toilet (bucket-type; 3 m ³ MDPE septic tank; evaporation basin)	5 to 6 liters / flush	A\$ 2650/ unit	if piped water is used A\$3 / m ³	minimal; evaporation basin can overflow during floods	can use well water to flush toilet; very easy to use; can be placed inside the house	2940
3	pit latrine	none	A\$ 500/ unit	almost none	high; can directly contaminate ground water	easy to build and use; not suited for sandy soils; do not need water	455
4	compost toilet ¹	none	A\$ 2000/ unit	almost none	moderate; if not maintained properly, can be a source of disease vectors	need bulking agent (e.g., leaves) that takes time to gather and prepare for use; the stairs are sometimes difficult for the young and old; need a separate building; there can be flies in the composting toilet if lids are not always closed	1818

¹Culturally not acceptable. KWASP constructed 153 units. Based on interviews, about 3 are still being used.

MDPE - molded polyethylene

2. Economic Justification

17. The economic justification for the sanitation component was done using the preventive expenditure approach. The ENPV of the investment needed to protect the groundwater, especially in the Banana, Tabwakea and Poland villages, from further contamination with human and other (*i.e.*, pigs, chickens) waste was compared to the ENPV of the additional investment needed to provide more piped water¹⁰ and replace the existing water supply from wells in the three villages. The ENPV of the cost to implement the on-site sanitation system is A\$ 4.4 million while for the additional investment in the

¹⁰ Project design for Banana, Tabwakea and Poland villages is 60 lpcd. The balance of their water needs (30 lpcd) is to be provided from wells. Part of the Project is to improve / construct wells in these villages.

water supply system to cover the 30 lpcd demand is A\$ 3.8 million. Without the sanitation component, additional expenditure will be needed to protect the adjacent lagoon. Otherwise, benefits from the rich marine resources will be foregone. If the ENPV of the expenditure for the protection of the adjacent lagoon from human waste pollution is included to the ENPV of the additional water supply, the result will most likely exceed that of the investment in the sanitation. Details are in Appendix 2.

2. Financial Analysis

A. Background

18. The initial piped water supply system in KI (London village) was set-up by the government¹¹ primarily to serve the government-owned housing used by the public employees. From 1997 to 2002, the system was expanded to the private households and business entities under the Kiritimati Water Supply and Sanitation Project (KWASP). The capital investment cost was funded by a grant from the AusAID¹². KWASP built three separate water supply systems in KI. One water supply system serves London, Tennessee and Tabwakea; Banana and Main Camp is served by the second system while Poland is served by the third system. Sanitation facilities in KI are mainly individual septic tanks in each building/ house. In some cases, in the government-owned houses, two to three households share one septic tank (ST). KWASP tried to introduce the use of compost toilet, but it was not successful. Out of the 153 compost toilets constructed about 3 are still being used, while the rest were abandoned and are in varying states of disrepair. The water supply and sanitation is being managed by the Water and Sanitation Division (WSD) of the Ministry of Line and Phoenix Islands Development (MLPID).

B. Existing Condition

1. Personnel

19. The WSD has 26 staff in 2007 (including 1 woman) with 3 unfilled positions. In the 2008 proposed budget, the 3 vacant positions are being abolished. Salary rates range from A\$ 329 to A\$ 710 per month excluding allowances and other benefits. With 21 staff for water supply operation alone, water consumer to staff ratio¹³ is low at 25.

2. Tariff Rate and Connection Fee

20. Before the KWASP, piped water supply was priced at A\$2.50 per fortnight¹⁴ (\$ 65 per year) for public employees living in C-grade houses and above and \$ 1.00 per fortnight (\$ 26 per year) for public employees in D and E-grade houses. After the completion of the KWASP, new tariff rates were introduced to cover depreciation of the new water supply system installed, and maintenance and supply. Salaries are to be covered by government budget. Initial tariff rates for households were set at A\$ 1.50 per m³ for the first 10 m³ and A\$ 5.00 for consumptions over 10 m³. This was revised in December 2003 to A\$ 1.50 per m³ for the first 15 m³ and A\$ 5.00 for consumptions over 15 m³.

21. In September 2007 this was again revised, due to consumers' complaint and non-payment of bills, to A\$ 1.20 per m³ for the first 18 m³ and A\$ 5.00 for consumptions over 18 m³. These rates are also applicable to government and public enterprises (PE). Businesses are charged A\$ 1.80 per m³ for the first 15 m³ and A\$ 5.00 for consumptions over 15 m³.

¹¹ Except in Banana village which was built by the British in the 1950s.

¹² Total project cost is A\$ 6.34 million. Includes installation of 446 water supply connections and 153 units of compost toilets. Physical works were completed in December 2002.

¹³ A ratio of 100 and above is desirable.

¹⁴ Equivalent to 2 weeks.

22. New water connection fee is A\$40 excluding the cost of pipe and other materials needed to connect the consumers from the nearest distribution pipe. Water tanks (500 liters) cost A\$82 but is optional. Connection fees and other relevant costs are paid in cash. To encourage more households to connect to the system, the payment of the connection fee and for the water tank could be spread in 10 to 12 months to reduce the financial burden.

23. Water quantity supplied to the London service area is less than demand especially during peak periods, hence WSD supply water to some houses through water tankers. Price of water is A\$ 5.00 per m³. For cruise ships visiting KI, water is priced at A\$ 10.00 per m³. Except for four consumers, the Banana service area is not metered as it was assumed, during the KWASP implementation, that the people in Banana village would be relocated to the New Banana village. Water tariff rates are set at A\$ 2 per month per connection.

3. Billing and Collection

24. WSD does the meter reading, computation and distribution of monthly bills. In 2007, there were periods where meter readings were not done monthly. Consumers pay their bills at the MLPID office. Consumers then bring the payment receipt to the WSD office for recording. The policy for disconnection due to non-payment of bills is 2 months after receipt of bill. Based on WSD records, this was not implemented strictly. Disconnection was done 4 months and above after receipt of bills. Reconnection fee is \$10.00 per connection. No discounts are given to consumers who pay on time. The printed water bill shows the name of the consumer, location, previous and present water consumption readings, volume of water consumed and costs of water consumed.

4. Consumer Records

25. Consumer records are maintained by the finance section of WSD in a hard-bound recording book. Each page of the book is dedicated to one consumer. It shows the name (e.g., it could be first name only, family name only, or both), previous and present meter reading, amount of water consumed, amount of bill, amount paid, and the outstanding balance. However, the customer record does not contain detailed individual consumer data (e.g., house/tank number, meter serial number, number of persons in the household, type of consumer, etc.) which makes tracing of payments and monthly bills and analysis of water consumption difficult. Each service area has a separate set of books. London list of consumers are contained in three books, Tabwakea has two books and Poland has one book. The household, government and business consumers are not segregated in the book (i.e., mixed listing) and there is no code or label to identify the type of each customer. There is no record of Banana village consumers.

5. Collection Efficiency

26. Almost 76% of consumers have arrears. Only a few consumers pay the monthly bills in full. Cumulative accounts receivable from consumers is about A\$ 189,000¹⁵ as of September 30, 2007. Based on consumer type, accounts receivable is broken down as follows: government / PE accounts for 19.2% (A\$ 36,000); business for 9.5% (A\$ 18,000); and households for 71.4% (A\$ 135,000). Although this does not affect the funding¹⁶ of the

¹⁵ There is no record of the ageing of the accounts receivable.

¹⁶ WSD's operation and maintenance budget comes from Tarawa and is not linked to its revenue collection target.

operation and maintenance of the system, this inefficiency needs to be corrected if the government wants the water supply operation to be financially self-sustainable.

6. Number of Consumers

27. The KWASP connected about 446 consumers to the piped water supply system in KI after completion in December 2002. As of September 2007, number of consumers is about 591, including 75 (13%) that were disconnected from the system due to non-payment of bills. The additional consumers came mostly from Tabwakea. The breakdown of the consumers is as follows: 508 households; 62 businesses; and 21 government / PEs. Out of the 75 consumers disconnected, 74 are households and 1 is business.

Table 5: Number of Consumers

Location	Total Consumers (a) + (b)	Metered (a)	Un-metered (b)	Disconnected ¹⁷ (c)	% Disconnected (c) / (a + b)	Active Consumers (a) + (b) – (c)
Banana	84	4	80	0	0	84
London	248	248	0	10	4	238
Main Camp ¹⁸	17	17	0	2	12	15
Poland	38	38	0	8	21	30
Tabwakea ¹⁹	191	191	0	55	29	136
Terawanbakoa ²⁰	13	13	0	0	0	13
Total	591	511	80	75	13	516

7. Possible Reasons for Non-Payment of Monthly Water Bills

28. There are several reasons for the non-payment of the monthly water bill. They include: (i) perceived high tariff rates (especially when compared to Tarawa's A\$ 10 per month – flat rate); (ii) leakage in the pipes leading to the water tank which resulted to high monthly bills (some complains are still outstanding with the WSD); (iii) monthly bills were not received²¹; (iv) implementation of disconnection policy is not strict; (v) consumers are willing to be disconnected because of the presence of alternative sources of water²²; and (vi) high number of persons in a household resulting to a high monthly water consumption that is above the 18 m³ threshold and thus is charged²³ at A\$ 5.00 per m³.

8. Revenues and Expenditures

29. WSD's financial performance for 2007 for the period January to September for the water supply services, shows revenue collection of A\$ 23,700 (26% of target). Total revenue target for 2007 is A\$ 120,000. Revenues are remitted to Tarawa while operating and maintenance costs are financed by the national government through the approved

¹⁷ Except for Banana, which was based on the interview, all data were taken from the consumers' record of the WSD. For Banana, number of disconnected consumers is not known.

¹⁸ Supplied by Banana water system.

¹⁹ Tabwakea consumers have access to well water, hence being disconnected from the system is not a major problem.

²⁰ Supplied by Tabwakea water system.

²¹ In 2005, 2006 and 2007, there were occasions where the meter reading was done every 2 or 3 months.

²² Own well or neighbor's well (Tabwakea, Poland and Banana), rain water, neighbor's pipe connection.

²³ Based on the survey, about 16% of households have 13 to 31 persons. A household with 31 persons would consume about 46.5 m³ per month, assuming consumption is 50 lpcd. Water bill would then be A\$ 164.10 (A\$ 1.2 x 18 m³ + A\$ 5.0 x 28.5 m³).

annual budget. There is no indication that the preparation of the operating and maintenance budget is linked to the target revenue. An attempt was made to allocate²⁴ the budget between the water and sanitation section of the WSD. For 2007 budget, about A\$ 250,000 is for the water supply unit and A\$ 47,500 for the sanitation unit. For the water supply unit, about 74% (A\$ 186,000) of the 2007 budget is for administrative costs while the balance (A\$ 64,000) is for maintenance costs. Estimated cost recovery then for the water supply services is 49% of the maintenance cost for the 9-month period.

9. Sanitation Services

30. The sanitation unit has 5 staff. Activities are limited to construction of ST in government-owned houses, installation of pipes from the toilet to the ST, and emptying of ST for government-owned houses. Revenue from this activity is about A\$ 10 per ST emptied. The sanitation unit, on the average, empties 1 to 2 ST per month. There is no centralized sewerage system in KI.

C. Financial Projection

31. The financial analysis is limited to the investment in the water supply. Due to the limited revenue generating opportunity²⁵ from the sanitation component, only an economic justification was done (see section I.C.2). The financial costs include the capital investment costs, operating and maintenance costs, and replacement cost of assets with an economic life less than that of the overall Project life. Financial revenues include sale of water to the consumer and fee from water supply installation.

1. Capital Costs

32. The estimated capital costs for the water supply component is shown below. Costs are expressed in constant November 2007 prices. Per capita investment costs for the water supply component is about A\$ 794.

Table 6: Capital Investment Financial Cost

Component	(A\$ 1000)
Water resources	383
London WS system	1,053
Tabwakea WS system	1,179
Banana WS system	1,128
Poland WS system	97
Equipment & construction materials	855
Shipping & airfreight	297
Construction management	1,309
Project management consultant	1,834
Duties	363
Physical contingencies	476
Total	8,973

²⁴ Water section has 21 staff while sanitation section has 5 staff.

²⁵ Estimated annual revenue from sludge pump-out fee is about A\$7,000.

2. Operating and Maintenance Costs

33. Operating and maintenance (O&M) costs include salary, administration, fuel, chemicals, and maintenance. Average salary rate is A\$ 500 per month, fuel cost (for back-up pumps at night and/ or when wind velocity is low) is A\$ 35 per day, chemical cost is A\$ 0.01 per m³ of water produced, maintenance cost is 2% of capital investment, and administration cost is 5% of the sum of salary, fuel, chemical and maintenance costs.

3. Proposed Tariff Rate Increases

34. Tariff rate increases were assumed every two years. Assumed rate increases for business and government were higher compared to that of the household. Business owners can afford the higher tariff while for the government, this was done to discourage water wastage. The proposed nominal tariff rate increases will be as follows:

Table 7: Proposed Tariff Rate Increases

	2009	2011	2013	2015	2017	2019
Business						
1st 15 m ³	40	40	40	40	40	25
above 15 m ³	30	35	40	30	20	20
Household						
1st 18 m ³	25	25	25	25	25	25
above 18 m ³	30	35	35	35	35	30
Government						
1st 18 m ³	40	40	40	40	40	20
above 18 m ³	25	35	30	30	20	20

35. The proposed tariff rate increases were based on a tariff design procedure using a 5-year rolling financial plan. Every year, the financial plan will be updated to take into account changes in the assumed parameters, record actual revenues and costs of the previous year, and incorporate new projects (if any). Since the period covered is 5 years, the proposed tariff increases should take into account not only the profitability target for the next year but also for the entire 5-year period. The basic steps in the tariff design procedure include:

- (i) Set revenues and costs targets;
- (ii) Prepare expansion /rehabilitation plans and the required budgets to meet revenue targets;
- (iii) Set cash balance requirement and water bill collection efficiency target;
- (iv) Set profitability targets;
- (v) Prepare projected income and cash flow statements (5 year period);
- (vi) Adjust tariff rates increases to meet profitability, cash balance requirement and water bill collection efficiency targets taking into account the affordability of the proposed tariff to consumers especially to the household belonging to the low-income group;
- (vii) Prepare tariff rate increase implementation strategy to minimize impact to the consumers²⁶; and

²⁶ Example: (i) a 20% tariff rate increase can be implemented quarterly (3 months interval) at 5% per quarter; (ii) tariff rate increase in the next 2 years can be announced in advance to the consumers so that they can make the necessary adjustments to minimize the impact to their finances; (iii) public consultation can be done to explain the basis of the tariff increase, etc.

- (viii) Update financial projection every year (extend the projection period another year such that the period covered is 5 years).

4. Weighted Average Cost of Capital

36. Fund sources for the required capital investment will come from ADB (in the form of a loan to the Government), and from the national government budget. Annual interest rate of the ADB loan is 1.0% during the 8-year grace period and 1.5% thereafter. The opportunity cost of the government funds is assumed at 20% including risk premium. Based on a funding ratio between the ADB and the Government of 90/10, the weighted average cost of capital (WACC) is about 2.45% at constant prices. Below is the computation of the WACC.

Table 8: Weighted Average Cost Of Capital

Source of Funds	% of Project Cost	Cost of Funds				Inflation Rate	WACC
		Current Prices	Tax Rate	After Tax	Constant Prices		
Equity	0.0%	20.0%	0.0%	20.0%	18.2%	1.5%	0.00%
ADB Loan	90.0%	1.5%	0.0%	1.5%	0.7%	0.8%	0.62%
Government	10.0%	20.0%	0.0%	20.0%	18.2%	1.5%	1.82%
Total	100.0%					WACC	2.45%

Note: ADB Loan includes interest during construction.

Source: Consultants estimate.

5. Collection Efficiency

37. There is a need to develop a “marketing strategy” to get people to accept that water is not a free commodity and the “economic” cost of using piped water is far below the cost of using water from unsafe sources. The strategy should also include ways to get people to pay their outstanding bills. Total accumulated unpaid bills as of September 2007 is 1.6 times the targeted revenue for 2007. An example of a collection strategy is to provide incentive for people who pay on time. This could be in a way of a discount (e.g., 2% discount from the amount of bill) or giving a raffle ticket²⁷ for consumers who pay on time the current bill. Consumers with arrears can only get a raffle ticket if they pay the current bill on time and also pay a certain percentage or amount of their arrears²⁸.

6. FIRR and AIFC

38. One measure of the financial feasibility is the financial internal rate of return (FIRR). The FIRR is the discount rate by which the present value of the benefits is equal to the present value of the costs. The Project is considered financially feasible if the FIRR is equal to or is higher than the WACC. Based on the financial projection, the FIRR for the water supply component is 4.21% which is higher than the WACC. This indicates that in financial terms the water supply component is viable. Average incremental financial cost is A\$3.10 per m³ while average tariff is A\$5.14 per m³ or a surplus of A\$2.04 per m³. Details are in Appendix 3.

²⁷ Receipt number can be used as the raffle number. Prizes can be from A\$50 to A\$100 per draw.

²⁸ In Kiritimati Island a simple raffle, for a church fund raising campaign, managed by private individuals are common. The raffle is done once or twice a month. Prize is about A\$ 50 per draw (a sack of rice; set of plastic plates; etc.).

7. Sensitivity Analysis

39. A sensitivity analysis to test the Project's financial feasibility was performed based on the same parameters as in the economic analysis: 10% increase in the capital costs, 15% decrease in revenues, and 1 year delay in implementation. The result of the sensitivity test is shown below. Even in adverse conditions assumed, the water supply component is still financially viable.

Table 9 : Sensitivity Test Results

Parameter	FIRR
10% increase in capital costs	3.87%
15% decrease in Benefits	3.64%
1 year delay of completion	3.78%

Source: Consultants estimate.

8. Affordability of Tariffs

40. The socio-economic 10%-household survey conducted for the Project includes the assessment of the willingness-to-pay for the water supply services. Based on the survey results, the consumers' willingness-to-pay for water supply are shown below.

- 77% are willing to pay at least A\$ 2 per month
- 45% are willing to pay at least A\$ 5 per month
- 17% are willing to pay \$10 per month

41. In KI, the people's perception that basic services should be given by the government for free or the cost should be subsidized is still strong. A review of the consumers' data revealed that there were monthly bills in the range of A\$3 to A\$5 per customer that were not paid in a given month. In comparison, a pack (20 sticks) of cigarette²⁹ costs A\$ 5.00 and a can of beer costs A\$ 2.20.

42. The proposed tariff increases were designed to generate revenue to cover O&M and if possible allowance for depreciation to finance the costs of replacing the assets after it reaches the end of its service life. It also took into account the affordability of the tariff to the households belonging to the low-income group. The new tariffs will result to monthly bills, for the households belonging to the low-income group, in the range of A\$12.8 to A\$25.0 from 2009 to 2015. The ratio of the monthly bill to the household income range from 4% to 7% during the same period. The details are shown below.

Table 10: Affordability Analysis

		2009	2010	2011	2012	2013	2014	2015	
Household income - Low income group ¹	A\$ / month	313	317	322	327	332	337	342	
Average water consumption ²	m ³ / month	8.5	8.5	8.5	8.5	8.5	8.5	8.5	
Water Tariff Rate	1st 18 m ³	A\$ / m ³	1.76	1.71	2.18	2.18	2.76	2.76	3.51
	above 18 m ³	A\$ / m ³	6.50	6.50	8.78	8.78	11.85	11.85	16.00
Average water bill per month	A\$ / month	12.8	12.8	16.0	16.0	20.0	20.0	25.0	
Water bill / Household income ratio	%	4.1%	4.0%	5.0%	4.9%	6.0%	5.9%	7.3%	

¹ From 2010 and onwards, amount are inflated.

² Per capita consumption per day is 30 liters; and 9.5 persons per household.

²⁹ Based on the 2006 Kiribati Household Income and Expenditure Survey (Draft Report), about 70% of male between the ages of 30-54 smokes everyday. About 10 to 15% of males between the ages of 20 to 54 drink alcohol daily.

3. Assessment of the Fiscal Impact of the Project to GoK

A. Background

43. The Government of Kiribati's (GoK) financial performance in the past three years has been characterized by budget deficits due primarily to the sudden drop in the revenue derived from issuing fishing licenses. Actual recurrent deficit for fiscal years (FY) 2004 and 2005 amounts to A\$24.6 million and A\$21.9 million respectively. Estimated recurrent deficit for FY 2006 is A\$ 23.8 million while recurrent budgeted deficit for FY 2007 is A\$ 20.5 million. Financing of these deficits is taken from the Revenue Equalization Reserve Fund³⁰ (RERF). Since recurrent revenue cannot even cover recurrent expenditures, development expenditures has to be covered by other fund sources. GoK's strategy, in the past, was to rely on foreign donors/ loans to finance the development expenditures.

B. Total Project Costs

44. The proposed Project's total capital costs is US\$ 13.78 million composed of physical infrastructure US\$ 9.88 million (71.7%), project support US\$ 2.68 million (19.4%), duties US\$ 0.41 million (3.0%), contingencies US\$ 0.68 million (5.0%) and interest during construction US\$ 0.14 million (1.0%).

³⁰ Estimated market value by end 2007 is A\$ 735 million. Source: National Budget 2007.

Table 11: Total Project Costs**(US\$ 1000)**

Component	Foreign Currency	Local Currency	Amount	Percent
A. Physical Infrastructure				
1. Water supply	5,329	342	5,670	41.1
Water Resources	297	47	344	2.5
Decca Lens - London	876	71	947	6.9
Four Wells Lens - Tabwakea	950	112	1,061	7.7
Banana Lens - Banana, Main Camp, New Banana	911	104	1,015	7.4
New Zealand Lens - Poland	79	8	87	0.6
Equipment & Construction Materials	770	-	770	5.6
Shipping and Airfreight	267	-	267	1.9
Construction Management	1,178	-	1,178	8.5
2. Sanitation	3,957	252	4,209	30.5
Equipment & Construction Materials	3,596	252	3,847	27.9
Shipping and Airfreight	67	-	67	0.5
Construction Management	295	-	295	2.1
Subtotal (A)	9,286	593	9,879	71.7
B. Project Support				
1. Project Management Consultants	2,064	-	2,064	15.0
2. ADTA: Policy Review for Water Supply and Sanitation	113	-	113	0.8
3. ADTA: Environmental Management Strengthening	135	-	135	1.0
4. ADTA: New Island Planning and Management	113	-	113	0.8
5. ADTA: Pre-test Sanitation Approach	162	-	162	1.2
6. ADTA: Revolving Micro Credit Fund	90	-	90	0.7
Subtotal (B)	2,676	-	2,676	19.4
C. Duties	-	408	408	3.0
D. Contingencies				
Physical	506	30	536	3.9
Price	140	8	148	0.0
Subtotal (D)	646	37	684	5.0
E. Interest during construction	139	-	139	1.0
TOTAL	12,747	1,038	13,785	100.0

Source: Consultant estimates. November 2007 prices.

Interest during construction is capitalized.

C. Financing Plan

45. The proposed financing plan, as shown below, takes into account ADB's policy on cost sharing and eligibility of expenditures for developing member countries. Custom duties are for the account of the government. ADB will finance about US\$ 12.41 million (includes capitalized interest during construction) while the GoK will finance US\$ 1.38 million (includes duties of US\$ 0.41 million).

Table 12: Financing Plan**(US\$ 1000)**

Component	ADB			Government		
	Foreign Currency	Local Currency	Total Cost	Foreign Currency	Local Currency	Total Cost
A. Physical Infrastructure						
1. Water supply	5,056	58	5,114	273	283	557
Water Resources	260	8	268	38	39	77
Decca Lens - London	820	12	832	57	59	116
Four Wells Lens - Tabwakea	860	19	879	89	93	182
Banana Lens - Banana, Main Camp, New Banana	828	18	846	83	86	169
New Zealand Lens - Poland	72	1	74	6	7	13
Equipment & Construction Materials	770	-	770	-	-	-
Shipping and Airfreight	267	-	267	-	-	-
Construction Management	1,178	-	1,178	-	-	-
2. Sanitation	3,756	43	3,799	201	209	410
Equipment & Construction Materials	3,394	43	3,437	201	209	410
Shipping and Airfreight	67	-	67	-	-	-
Construction Management	295	-	295	-	-	-
Subtotal (A)	8,811	101	8,912	474	492	967
B. Project Support						
1. Project Management Consultants	2,064	-	2,064	-	-	-
2. ADTA: Policy Review for Water Supply and Sanitation	113	-	113	-	-	-
3. ADTA: Environmental Management Strengthening	135	-	135	-	-	-
4. ADTA: New Island Planning and Management	113	-	113	-	-	-
5. ADTA: Pre-test Sanitation Approach	162	-	162	-	-	-
6. ADTA: Revolving Micro Credit Fund	90	-	90	-	-	-
Subtotal (B)	2,676	-	2,676	-	-	-
C. Duties	-	-	-	-	408	408
D. Contingencies						
Physical	506	30	536	-	-	-
Price	140	8	148	-	-	-
Subtotal (D)	646	37	684	-	-	-
E. Interest during construction	139	-	139	-	-	-
TOTAL	12,272	138	12,410	474	900	1,375

Source: Consultant estimates. November 2007 prices.

Interest during construction is capitalized.

D. Fiscal Impact

46. Given the current and projected financial situation of the GoK (details are in Appendix 4), government counterpart funds of US\$0.97 million (excluding US\$ 0.41 million for duties) will most likely come from the RERF. Annual counterpart funds required during the implementation will be US\$ 0.69 million in 2009 and US\$0.28 million in 2010.

4. Financial Assessment of the MFED and MLPID

A. Background

47. A financial management assessment (FMA) was conducted for the Ministry of Finance and Economic Development (MFED), the executing agency (EA), and Ministry of Line and Phoenix Islands Development (MLPID), the implementing agency (IA). The FMA includes review of the accounting and reporting system, internal and external auditing, fund disbursement, and information system. The instrument used for the assessment was ADB's financial management assessment questionnaire (FMAQ). The completed FMAQs are attached as Appendix 5.

B. Ministry of Finance and Economic Development

1. Summary of Findings

48. The MFED satisfies the ADB's minimum financial management requirements for EAs. The MFED current financial management system is adequate to (i) record required financial transactions and balances, (ii) provide regular and reliable financial statements and monitoring reports during Project implementation, (iii) safeguard the financial assets, and (iv) subject required financial documents to audit acceptable to ADB. A summary of the risk analysis is shown in Table 13.

Table 13: Risk Analysis - MFED

Particulars	Risk Assessment	Remarks
1. Executing Agency	Low	MFED is a government ministry assigned to achieve a viable and sustainable economy that can provide an adequate standard of living for the people. MFED tasks include: implement economic policies designed to enhance sustainable growth, sound management of government finances, growth oriented taxation system, and efficient financial services sector which enhances domestic economic growth; budget preparation; monitor ministry operation plans (MOPs); and provide timely key economic statistical data.
2. Funds Flow	Low	MFED has knowledge of and working experience in ADB funds flow arrangements ³¹ .
3. Staffing	Low	MFED's Planning and Finance division has sufficient number of staff.
4. Accounting Policies and Procedures	Low	The MFED accounting policies and procedures are based on the Kiribati Government Accounting Standards. A manual for the accounting procedures is available to the staff of MFED finance management division.
5. Internal Audit	Low	There is an internal audit division in the MFED.

³¹ MFED was the EA of the ADB-funded SAPHE Project.

Particulars	Risk Assessment	Remarks
6. External Audit	Low	The MFED is audited annually by the Kiribati National Audit Office (KNAO). The audit is done in accordance with the International Accounting Standards (IAS).
7. Reporting and Monitoring	Low	The MFED is the lead ministry in the monitoring and reporting of the financial status of the country. The Performance and Monitoring Unit is staffed by officers of the Planning and Finance Division of MFED.
8. Information Systems	Low	The MFED uses the <i>Attach'e 7</i> financial management information system (FMIS). The FMIS is only used to monitor the revenue and recurrent expenditures. The monitoring of the development project expenditures (government or foreign funded) is done in a separate system (spreadsheet) and is not linked to the FMIS.

C. Ministry of Line and Phoenix Islands Development

1. Summary of Findings

49. The MLPID satisfies the ADB's minimum financial management requirements for IAs. The MLPID current financial management system is adequate to (i) record required financial transactions and balances, (ii) provide regular and reliable financial statements and monitoring reports during Project implementation, (iii) safeguard the financial assets, and (iv) subject required financial documents to audit acceptable to ADB. A summary of the risk analysis is shown in Table 14.

Table 14: Risk Analysis - MLPID

Particulars	Risk Assessment	Remarks
1. Implementing Agency	Low	MLPID is a government ministry responsible for the broad range of government activities in the Line and Phoenix Islands. The tasks include: coordinate, facilitate and control all government activities; maintain a computerized network system in management accounting; maintain a reliable 24-hour power supply and ensure there is adequate water supply; maintain infrastructure such as wharf, roads, power and water stations, office buildings, government housing; collection of revenues from electricity, water, disburse all government funds from Tarawa to the other ministries in KI; maintain a clean and attractive environment; provide support services for public enterprises e.g., Captain Cook Hotel and CPPL ³² ; and look after Canton in the Phoenix Group of Islands.
2. Funds Flow	Medium	MLPID has no knowledge of and working experience in ADB funds flow arrangements. MLPID has not implemented an ADB-funded project before. However, it manages the budget funds for the operation and maintenance of the ministry.

³² Central Pacific Producers Ltd is involved in fish processing and storage.

Particulars	Risk Assessment	Remarks
3. Staffing	Low	MLPID has 185 staff as of September 2007. Its finance management division has sufficient number of staff. The division operates and maintains the computerized financial system which is linked on-line to the national government system in Tarawa.
4. Accounting Policies and Procedures	Low	The MLPID accounting policies and procedures are based on the Kiribati Government Accounting Standards. A manual for the accounting procedures is available to the staff of MLPID finance management division.
5. Internal Audit	N.A.	There is no internal audit group in the MLPID.
6. External Audit	Low	The MLPID is audited annually by the KNAO. The audit is done in accordance with the IAS.
7. Reporting and Monitoring	Low	The MLPID reports comply with the reporting requirements of the MFED. Actual expenditure (compared to budget) are submitted to MFED quarterly
8. Information Systems	Low	The MLPID uses the <i>Attach'e 7</i> FMIS. The FMIS is only used to monitor the revenue and recurrent expenditures. The monitoring of the development project expenditures (government or foreign funded) is done in a separate system (spreadsheet) and is not linked to the FMIS.

Appendix 2

Economic Justification – Sanitation Component

Investment in Sanitation to Protect Well Water and Adjacent Lagoon from Pollution

A\$ 1000

Year	Capital costs ¹	O & M costs ²	Total costs
2009	1,063	-	1,063
2010	2,657	-	2,657
2011	1,594	6	1,600
2012		6	6
2013		6	6
2014		6	6
2015		6	6
2016		6	6
2017		6	6
2018		6	6
2019		6	6
2020		6	6
2021		6	6
2022		6	6
2023		6	6
2024		6	6
2025		6	6
2026		6	6
2027		6	6
2028		6	6
ENPV @ 10%	4,359	42	4,401

¹626 house to be provided with septic tank & evaporation basins

²A\$10 per septic tank per year for desludging

Additional Water Supply to Banana, Poland and Tabwakea to Cover 30 lpcd Demand

A\$ 1000

Year	Capital costs ¹	O & M costs	Total costs
2009	1,158	-	1,158
2010	1,158	-	1,158
2011		189	189
2012		218	218
2013		243	243
2014		263	263
2015		284	284
2016		287	287
2017		289	289
2018		292	292
2019		295	295
2020		298	298
2021		301	301
2022		304	304
2023		307	307
2024		310	310
2025		314	314
2026		317	317
2027		320	320
2028		323	323
ENPV @ 10%	2,010	1,831	3,841

¹Investment to supply additional 30 lpcd²A\$4.3 per m3 of water consumed

Appendix 4

Revenue and Expenditure – Kiribati Government

	2004	2005	2006	2007	2008	2009	2010	2011
	Estimate			Projected				
Real GDP growth (% change)	-1.4	3.6	0.9	2.0	2.0	2.0	2.0	2.0
Inflation (% change)	-1.0	-0.3	1.5	1.5	1.5	1.5	1.5	1.5
Nominal GDP (A\$ million)	90.1	93.33	94.19	96.10	98.05	100.04	102.07	104.14
	(in percent of GDP)							
Revenue and external contributions								
Revenue	54.1%	63.9%	66.0%	67.5%	67.5%	67.5%	67.5%	67.5%
External contributions	48.3%	53.2%	68.0%	54.2%	54.2%	54.2%	54.2%	54.2%
Total revenue and external contributions	102.3%	117.1%	134.0%	121.7%	121.7%	121.7%	121.7%	121.7%
Expenditure and net lending								
Recurrent expenditures	81.4%	87.3%	91.2%	88.8%	88.8%	88.8%	88.8%	88.8%
of which: Wages and salaries	35.5%	40.2%	43.7%	42.8%	42.8%	42.8%	42.8%	42.8%
Development expenditure	62.3%	61.5%	68.0%	54.2%	54.2%	54.2%	54.2%	54.2%
Total expenditure and net lending	143.6%	148.8%	159.2%	142.9%	142.9%	142.9%	142.9%	142.9%
	-41.3%	-31.7%	-25.3%	-21.3%	-21.3%	-21.3%	-21.3%	-21.3%
	(in A\$ million, nominal prices)							
Revenue and external contributions								
Revenue ¹	48.7	59.6	62.1	64.9	66.2	67.5	68.9	70.3
External contributions	43.5	49.7	64.1	52.1	53.1	54.2	55.3	56.4
Total revenue and external contributions	92.2	109.3	126.2	116.9	119.3	121.7	124.2	126.7
Expenditure and net lending								
Recurrent expenditures/other commitments	73.3	81.5	85.9	85.3	87.1	88.8	90.6	92.5
of which: Wages and salaries	32.0	37.5	41.1	41.1	41.9	42.8	43.6	44.5
Development expenditure	56.1	57.4	64.1	52.1	53.1	54.2	55.3	56.4
Total expenditure and net lending	129.4	138.9	150.0	137.4	140.2	143.0	145.9	148.9
Overall balance	-37.2	-29.6	-23.8	-20.5	-20.9	-21.3	-21.7	-22.2

Sources: ADB 2007 Fact Sheet; Kiribati Government 2007 Budget; and Consultant's estimate.

¹ Excludes interest/ dividends from Revenue Equalization Reserve Fund.

Appendix 5

Filled FMAQ for the Ministry of Finance and Economic Development (MFED)

Topic	Response	Remarks
1. Executing Agency – MFED		
1.1 What is the entity's legal status / registration?	Government Agency	
1.2 Has the entity implemented an externally-financed project in the past (if so, please provide details)?	Yes. Sanitation, Public Health, and Environment Improvement Project (SAPHE) funded by a loan from ADB. Project was completed in December 2002.	
1.3 What are the statutory reporting requirements for the entity?	Ministry Operating Plan (MOP) and status of national budget, debt and reserves – submitted to the Cabinet quarterly.	MFED also prepares the National Development Strategies (NDS). NDS is a 4-year strategic plan for sustained growth in the income and welfare of the people of Kiribati.
1.4 Is the governing body for the project independent?	Not applicable (N.A.)	Project Management Office (PMO) not yet formed.
1.5 Is the organizational structure appropriate for the needs of the project?	N.A.	PMO not yet formed.
2. Funds Flow Arrangements		
2.1 Describe proposed project funds flow arrangements, including a chart and explanation of the flow of funds from ADB, government and other financiers.		See Annex 1.
2.2 Are the proposed arrangements to transfer the proceeds of the loan (from the government / Finance Ministry) to the entity satisfactory?	Yes.	
2.3 What have been the major problems in the past in receipt of funds by the entity?	None.	
2.4 In which bank will the Imprest Account be opened?	N.A.	To be determined.
2.5 Does the proposed PMO have experience in the management of disbursements from ADB?	N.A.	PMO not yet formed.

Topic	Response	Remarks
2.7 Does the entity have/need a capacity to manage foreign exchange risks?	N.A.	Foreign exchange risks will be covered by the national government.
2.8 How are the counterpart funds accessed?	Included in the annual development budget.	
2.9 How are payments made from the counterpart funds?	Payments for development projects are paid through the existing bank accounts.	
2.10 If part of the project is implemented by communities or NGOs, does the PMO have the necessary reporting and monitoring features built into its systems to track the use of project proceeds by such agencies?	N.A.	PMO not yet formed.
2.11 Are the beneficiaries required to contribute to project costs? If beneficiaries have an option to contribute in kind (in the form of labor), are proper guidelines formulated to record and value the labor contribution?	Not yet definite if beneficiaries will contribute for the project costs.	
3. Staffing		
3.1 What is the proposed organizational structure of the accounting department? Attach an organization chart.	N.A.	PMO not yet formed.
3.2 Identify the proposed accounts staff, including job title, responsibilities, educational background and professional experience. Attach job descriptions and CVs of key accounting staff.	N.A.	PMO not yet formed.
3.3 Is the project finance and accounting function staffed adequately?	N.A.	PMO not yet established
3.4 Is the finance and accounts staff adequately qualified and experienced?	N.A.	PMO not yet established
3.5 Is the project accounts and finance staff trained in ADB procedures?	N.A.	PMO not yet established
3.6 What is the duration of the contract with the finance and accounts staff?	N.A.	PMO not yet established
3.7 Indicate key positions not contracted yet, and the estimated date of appointment.	N.A.	PMO not yet established
3.10 Does the project have written position descriptions that clearly define duties, responsibilities, lines of supervision, and limits of authority for all of the officers, managers, and staff?	N.A.	PMO not yet established

Topic	Response	Remarks
3.11 At what frequency are personnel transferred?	N.A.	PMO not yet established
3.12 What is training policy for the finance and accounting staff?	N.A.	PMO not yet established
4. Accounting Policies and Procedures (MFED)		
4.1 Does the entity have an accounting system that allows for the proper recording of project financial transactions, including the allocation of expenditures in accordance with the respective components, disbursement categories, and sources of funds? Will the project use the entity accounting system?	Yes. The project can use MFED's accounting system (government system).	
4.2 Are controls in place concerning the preparation and approval of transactions, ensuring that all transactions are correctly made and adequately explained?	Data not available.	
4.3 Is the chart of accounts adequate to properly account for and report on project activities and disbursement categories?	Yes.	
4.4 Are cost allocations to the various funding sources made accurately and in accordance with established agreements?	Yes.	
4.5 Are the General Ledger and subsidiary ledgers reconciled and in balance?	Yes.	
4.6 Are all accounting and supporting documents retained on a permanent basis in a defined system that allows authorized users easy access?	Yes.	
Segregation of Duties		
4.7 Are the following functional responsibilities performed by different units or persons: (i) authorization to execute a transaction; (ii) recording of the transaction; and (iii) custody of assets involved in the transaction?	Data not available.	
4.8 Are the functions of ordering, receiving, accounting for, and paying for goods and services appropriately segregated?	Data not available.	
4.9 Are bank reconciliation prepared by someone other than those who make or approve payments?	Data not available.	

Topic	Response	Remarks
Budgeting System		
4.10 Do budgets include physical and financial targets?	Yes.	
4.11 Are budgets prepared for all significant activities in sufficient detail to provide a meaningful tool with which to monitor subsequent performance?	Yes.	
4.12 Are actual expenditures compared to the budget with reasonable frequency, and explanations required for significant variations from the budget?	Yes.	
4.13 Are approvals for variations from the budget required in advance or after the fact?	In advance.	
4.14 Who is responsible for preparation and approval of budgets?	Data not available.	
4.15 Are procedures in place to plan project activities, collect information from the units in charge of the different components, and prepare the budgets?	Yes.	
4.16 Are the project plans and budgets of project activities realistic, based on valid assumptions, and developed by knowledgeable individuals?	Data not available.	
Payments		
4.17 Do invoice-processing procedures provide for: (i) Copies of purchase orders and receiving reports to be obtained directly from issuing departments? (ii) Comparison of invoice quantities, prices and terms, with those indicated on the purchase order and with records of goods actually received? (iii) Comparison of invoice quantities with those indicated on the receiving reports? (iv) Checking the accuracy of calculations?	Data not available.	
4.18 Are all invoices stamped PAID, dated, reviewed and approved, and clearly marked for account code assignment?	Data not available.	
4.19 Do controls exist for the preparation of the payroll and are changes to the payroll properly authorized?	Data not available.	
Policies And Procedures		
4.20 What is the basis of accounting (e.g., cash, accrual)?	Cash basis.	

Topic	Response	Remarks
4.21 What accounting standards are followed?	Government of Kiribati Accounting Standards.	
4.22 Does the project have an adequate policies and procedures manual to guide activities and ensure staff accountability?	N.A.	PMO not yet formed.
4.23 Is the accounting policy and procedure manual updated for the project activities?	N.A.	PMO not yet formed.
4.24 Do procedures exist to ensure that only authorized persons can alter or establish a new accounting principle, policy or procedure to be used by the entity?	Yes.	
4.25 Are there written policies and procedures covering all routine financial management and related administrative activities?	Yes.	
4.26 Do policies and procedures clearly define conflict of interest and related party transactions (real and apparent) and provide safeguards to protect the organization from them?	Yes.	
4.27 Are manuals distributed to appropriate personnel?	Yes.	
Cash and Bank (MLPID)		
4.28 Indicate names and positions of authorized signatories in the bank accounts.	Data not available.	
4.29 Does the organization maintain an adequate, up-to-date cashbook, recording receipts and payments?	Data not available.	
4.30 Do controls exist for the collection, timely deposit and recording of receipts at each collection location?	Data not available.	
4.31 Are bank and cash reconciled on a monthly basis?	Data not available.	
4.32 Are all unusual items on the bank reconciliation reviewed and approved by a responsible official?	Data not available.	
4.33 Are all receipts deposited on a timely basis?	Data not available.	
Safeguard over Assets (Government Assets)		
4.34 Is there a system of adequate safeguards to protect assets from fraud, waste and abuse?	Data not available.	

Topic	Response	Remarks
4.35 Are subsidiary records of fixed assets and stocks kept up to date and reconciled with control accounts?	Data not available.	
4.36 Are there periodic physical inventories of fixed assets and stocks?	Data not available.	
4.37 Are assets sufficiently covered by insurance policies?	Data not available.	
Other Offices and Implementing Entities		
4.38 Are there any other regional offices or executing entities participating in implementation?	No.	
4.39 Has the project established controls and procedures for flow of funds, financial information, accountability, and audits in relation to the other offices or entities?	N.A.	PMO not yet formed.
4.40 Does information among the different offices/implementing agencies flow in an accurate and timely fashion?	N.A.	PMO not yet formed.
4.41 Are periodic reconciliations performed among the different offices/implementing agencies?	N.A.	PMO not yet formed.
Other		
4.42 Has the project advised employees, beneficiaries and other recipients to whom to report if they suspect fraud, waste or misuse of project resources or property?	N.A.	Project not yet implemented.
5. Internal Audit (MFED)		
5.1 Is there an internal audit department in the entity?	Yes.	
5.2 What are the qualifications and experience of audit department staff?	Data not available.	
5.3 To whom does the internal auditor report?	Data not available.	
5.4 Will the internal audit department include the project in its work program?	Data not available.	
5.5 Are actions taken on the internal audit findings?	Data not available.	
6. External Audit (MFED)		
6.1 Is the entity financial statement audited regularly by an independent auditor? Who is the auditor?	Yes. MFED is audited annually by the Kiribati National Audit Office.	
6.2 Are there any delays in audit of the entity? When are the audit reports issued?	Data not available.	

Topic	Response	Remarks
6.3 Is the audit of the entity conducted according to the International Standards on Auditing?	Yes.	
6.4 Were there any major accountability issues brought out in the audit report of the past three years?	Data not available.	
6.5 Will the entity auditor audit the project accounts or will another auditor be appointed to audit the project financial statements?	Data not available.	
6.6 Are there any recommendations made by the auditors in prior audit reports or management letters that have not yet been implemented?	Data not available.	
6.7 Is the project subject to any kind of audit from an independent governmental entity (e.g., the supreme audit institution) in addition to the external audit?	Data not available.	
6.8 Has the project prepared acceptable terms of reference for an annual project audit?	N.A.	Project implementation not yet started.
7. Reporting and Monitoring (MFED)		
7.1 Are financial statements prepared for the entity? In accordance with which accounting standards?	Kiribati Government Accounting Standards.	
7.2 Are financial statements prepared for the implementing unit?	N.A.	PMO not yet formed.
7.3 What is the frequency of preparation of financial statements? Are the reports prepared in a timely fashion so as to be useful to management for decision making?	Data not available.	
7.4 Does the reporting system need to be adapted to report on the project components?	Yes.	
7.5 Does the reporting system have the capacity to link the financial information with the project's physical progress? If separate systems are used to gather and compile physical data, what controls are in place to reduce the risk that the physical data may not synchronize with the financial data?	No.	
7.6 Does the project have established financial management reporting responsibilities that specify what reports are to be prepared, what they are to contain, and how they are to be used?	N.A.	PMO not yet formed.

Topic	Response	Remarks
7.7 Are financial management reports used by management?	Yes.	Refers to financial management reports of MFED.
7.8 Do the financial reports compare actual expenditures with budgeted and programmed allocations?	Yes.	Refers to financial management reports of MFED.
7.9 Are financial reports prepared directly by the automated accounting system or are they prepared by spreadsheets or some other means?	Automated accounting system.	Refers to financial management reports of MFED.
8. Information Systems (MLPID)		
8.1 Is the financial management system computerized?	Yes. There is a computerized FMIS (<i>Attach'e 7</i>) in MFED.	Actual revenue and expenditures are inputted on-line to the FMIS that is linked to the national government in Tarawa. This enables almost real-time monitoring of the budget position, and the taking of timely action at the ministry and MFED level to manage funding problems and avoid budgetary crises.
8.2 Can the system produce the necessary project financial reports?	No.	The system is used nationwide to monitor only information on revenue and recurrent expenditure of the government.
8.3 Is the staff adequately trained to maintain the system?	Yes.	
8.4 Does the management organization and processing system safeguard the confidentiality, integrity and availability of the data?	Yes.	

Appendix 5

Completed FMAQ for the Ministry of Line and Phoenix Islands Development (MLPID)

Topic	Response	Remarks
1. Implementing Agency - MLPID		
1.1 What is the entity's legal status / registration?	Government Agency	
1.2 Has the entity implemented an externally-financed project in the past (if so, please provide details)?	No.	
1.3 What are the statutory reporting requirements for the entity?	Ministry Operating Plan (MOP) – submitted to the MFED quarterly. Annual budget – submitted to MFED (updated quarterly).	
1.4 Is the governing body for the project independent?	Not applicable (N.A.)	Project Management Office (PMO) not yet formed.
1.5 Is the organizational structure appropriate for the needs of the project?	N.A.	PMO not yet formed.
2. Funds Flow Arrangements		
2.1 Describe proposed project funds flow arrangements, including a chart and explanation of the flow of funds from ADB, government and other financiers.		See Annex 1.
2.2 Are the proposed arrangements to transfer the proceeds of the loan (from the government / Finance Ministry) to the entity satisfactory?	Yes.	The same arrangements used to transfer funds for MLPID's operating budget.
2.3 What have been the major problems in the past in receipt of funds by the entity?	None.	
2.4 In which bank will the Imprest Account be opened?	N.A.	Imprest account will be in Tarawa under the Ministry of Finance and Economic Development (MFED).
2.5 Does the proposed PMO have experience in the management of disbursements from ADB?	N.A.	PMO not yet formed.

Topic	Response	Remarks
2.7 Does the entity have/need a capacity to manage foreign exchange risks?	N.A.	Foreign exchange risks will be covered by the national government.
2.8 How are the counterpart funds accessed?	Included in the annual development budget	Annual funds are released at beginning of the fiscal year (calendar year).
2.9 How are payments made from the counterpart funds?	Payments for development projects are paid through the existing bank accounts.	
2.10 If part of the project is implemented by communities or NGOs, does the PMO have the necessary reporting and monitoring features built into its systems to track the use of project proceeds by such agencies?	N.A.	PMO not yet formed.
2.11 Are the beneficiaries required to contribute to project costs? If beneficiaries have an option to contribute in kind (in the form of labor), are proper guidelines formulated to record and value the labor contribution?	Not yet definite if beneficiaries will contribute for the project costs.	
3. Staffing		
3.1 What is the proposed organizational structure of the accounting department? Attach an organization chart.	N.A.	PMO not yet formed.
3.2 Identify the proposed accounts staff, including job title, responsibilities, educational background and professional experience. Attach job descriptions and CVs of key accounting staff.	MLPID has trained staff that can be seconded to PMO during project implementation.	MLPID's accounting division is composed of 1 senior accountant (degree in accounting; 4-year course), 2 accountants (certificate in business accounting; 2-year) and 8 account officers (certificate in government accounting 1-year).
3.3 Is the project finance and accounting function staffed adequately?	N.A.	PMO not yet established
3.4 Is the finance and accounts staff adequately qualified and experienced?	N.A.	PMO not yet established

Topic	Response	Remarks
3.5 Is the project accounts and finance staff trained in ADB procedures?	N.A.	PMO not yet established
3.6 What is the duration of the contract with the finance and accounts staff?	N.A.	PMO not yet established
3.7 Indicate key positions not contracted yet, and the estimated date of appointment.	N.A.	PMO not yet established
3.10 Does the project have written position descriptions that clearly define duties, responsibilities, lines of supervision, and limits of authority for all of the officers, managers, and staff?	N.A.	PMO not yet established
3.11 At what frequency are personnel transferred?	N.A.	PMO not yet established
3.12 What is training policy for the finance and accounting staff?	N.A.	PMO not yet established
4. Accounting Policies and Procedures (MLPID)		
4.1 Does the entity have an accounting system that allows for the proper recording of project financial transactions, including the allocation of expenditures in accordance with the respective components, disbursement categories, and sources of funds? Will the project use the entity accounting system?	Yes. The project can use MLPID's accounting system (government system).	
4.2 Are controls in place concerning the preparation and approval of transactions, ensuring that all transactions are correctly made and adequately explained?	Yes.	
4.3 Is the chart of accounts adequate to properly account for and report on project activities and disbursement categories?	Yes.	
4.4 Are cost allocations to the various funding sources made accurately and in accordance with established agreements?	Yes.	
4.5 Are the General Ledger and subsidiary ledgers reconciled and in balance?	Yes.	
4.6 Are all accounting and supporting documents retained on a permanent basis in a defined system that allows authorized users easy access?	Yes.	

Topic	Response	Remarks
Segregation of Duties		
4.7 Are the following functional responsibilities performed by different units or persons: (i) authorization to execute a transaction; (ii) recording of the transaction; and (iii) custody of assets involved in the transaction?	Yes.	
4.8 Are the functions of ordering, receiving, accounting for, and paying for goods and services appropriately segregated?	Yes.	
4.9 Are bank reconciliations prepared by someone other than those who make or approve payments?	Yes.	
Budgeting System		
4.10 Do budgets include physical and financial targets?	Yes.	
4.11 Are budgets prepared for all significant activities in sufficient detail to provide a meaningful tool with which to monitor subsequent performance?	Yes.	
4.12 Are actual expenditures compared to the budget with reasonable frequency, and explanations required for significant variations from the budget?	Yes.	
4.13 Are approvals for variations from the budget required in advance or after the fact?	In advance.	
4.14 Who is responsible for preparation and approval of budgets?	For MLPID, each division prepares its own budget. Then the planning unit prepares the MLPID's consolidated budget.	
4.15 Are procedures in place to plan project activities, collect information from the units in charge of the different components, and prepare the budgets?	Yes.	
4.16 Are the project plans and budgets of project activities realistic, based on valid assumptions, and developed by knowledgeable individuals?	Yes.	

Topic	Response	Remarks
Payments		
4.17 Do invoice-processing procedures provide for: (i) Copies of purchase orders and receiving reports to be obtained directly from issuing departments? (ii) Comparison of invoice quantities, prices and terms, with those indicated on the purchase order and with records of goods actually received? (iii) Comparison of invoice quantities with those indicated on the receiving reports? (iv) Checking the accuracy of calculations?	Yes.	
4.18 Are all invoices stamped PAID, dated, reviewed and approved, and clearly marked for account code assignment?	Yes.	
4.19 Do controls exist for the preparation of the payroll and are changes to the payroll properly authorized?	Yes.	
Policies And Procedures		
4.20 What is the basis of accounting (e.g., cash, accrual)?	Cash basis.	
4.21 What accounting standards are followed?	Government of Kiribati Accounting Standards.	
4.22 Does the project have an adequate policies and procedures manual to guide activities and ensure staff accountability?	N.A.	PMO not yet formed.
4.23 Is the accounting policy and procedure manual updated for the project activities?	N.A.	PMO not yet formed.
4.24 Do procedures exist to ensure that only authorized persons can alter or establish a new accounting principle, policy or procedure to be used by the entity?	Yes.	
4.25 Are there written policies and procedures covering all routine financial management and related administrative activities?	Yes. There is a handbook on Financial Regulations.	
4.26 Do policies and procedures clearly define conflict of interest and related party transactions (real and apparent) and provide safeguards to protect the organization from them?	Yes.	
4.27 Are manuals distributed to appropriate personnel?	Yes.	

Topic	Response	Remarks
Cash and Bank (MLPID)		
4.28 Indicate names and positions of authorized signatories in the bank accounts.	Permanent Secretary; Senior Resource Economist; Senior Accountant; Information Technology Manager	
4.29 Does the organization maintain an adequate, up-to-date cashbook, recording receipts and payments?	Yes.	
4.30 Do controls exist for the collection, timely deposit and recording of receipts at each collection location?	Yes.	
4.31 Are bank and cash reconciled on a monthly basis?	Yes.	
4.32 Are all unusual items on the bank reconciliation reviewed and approved by a responsible official?	Yes.	
4.33 Are all receipts deposited on a timely basis?	Yes. Daily basis.	
Safeguard over Assets (Government Assets in Kiritimati Island)		
4.34 Is there a system of adequate safeguards to protect assets from fraud, waste and abuse?	Yes.	
4.35 Are subsidiary records of fixed assets and stocks kept up to date and reconciled with control accounts?	Yes.	
4.36 Are there periodic physical inventories of fixed assets and stocks?	Yes.	
4.37 Are assets sufficiently covered by insurance policies?	No.	
Other Offices and Implementing Entities		
4.38 Are there any other regional offices or executing entities participating in implementation?	No.	
4.39 Has the project established controls and procedures for flow of funds, financial information, accountability, and audits in relation to the other offices or entities?	N.A.	PMO not yet formed.
4.40 Does information among the different offices/implementing agencies flow in an accurate and timely fashion?	N.A.	PMO not yet formed.
4.41 Are periodic reconciliations performed among the different offices/implementing agencies?	N.A.	PMO not yet formed.

Topic	Response	Remarks
Other		
4.42 Has the project advised employees, beneficiaries and other recipients to whom to report if they suspect fraud, waste or misuse of project resources or property?	N.A.	Project not yet implemented.
5. Internal Audit (MLPID)		
5.1 Is there an internal audit department in the entity?	No.	
5.2 What are the qualifications and experience of audit department staff?	N.A.	
5.3 To whom does the internal auditor report?	N.A.	
5.4 Will the internal audit department include the project in its work program?	N.A.	
5.5 Are actions taken on the internal audit findings?	N.A.	
6. External Audit (MLPID)		
6.1 Is the entity financial statement audited regularly by an independent auditor? Who is the auditor?	Yes. Kiribati National Audit Office (KNAO) ³³ .	
6.2 Are there any delays in audit of the entity? When are the audit reports issued?	None.	
6.3 Is the audit of the entity conducted according to the International Standards on Auditing?	Yes.	
6.4 Were there any major accountability issues brought out in the audit report of the past three years?	None.	
6.5 Will the entity auditor audit the project accounts or will another auditor be appointed to audit the project financial statements?	Yes.	
6.6 Are there any recommendations made by the auditors in prior audit reports or management letters that have not yet been implemented?	None.	
6.7 Is the project subject to any kind of audit from an independent governmental entity (e.g., the supreme audit institution) in addition to the external audit?	No.	
6.8 Has the project prepared acceptable terms of reference for an annual project audit?	N.A.	Project implementation not yet started.

³³ KNAO provides an independent check on the financial performance and the standards of financial governance within the public sector (ministries and public enterprises). KNAO reports to the Public Accounts Committee of the parliament.

Topic	Response	Remarks
7. Reporting and Monitoring (MLPID)		
7.1 Are financial statements prepared for the entity? In accordance with which accounting standards?	Kiribati Government Accounting Standards.	
7.2 Are financial statements prepared for the implementing unit?	N.A.	PMO not yet formed.
7.3 What is the frequency of preparation of financial statements? Are the reports prepared in a timely fashion so as to be useful to management for decision making?	Actual expenditures compared to budget are submitted to MFED quarterly.	Refers to financial statements of MLPID.
7.4 Does the reporting system need to be adapted to report on the project components?	Yes.	
7.5 Does the reporting system have the capacity to link the financial information with the project's physical progress? If separate systems are used to gather and compile physical data, what controls are in place to reduce the risk that the physical data may not synchronize with the financial data?	No.	Refers to reporting system of MLPID.
7.6 Does the project have established financial management reporting responsibilities that specify what reports are to be prepared, what they are to contain, and how they are to be used?	N.A.	PMO not yet formed.
7.7 Are financial management reports used by management?	Yes.	Refers to financial management reports of MLPID.
7.8 Do the financial reports compare actual expenditures with budgeted and programmed allocations?	Yes.	Refers to financial management reports of MLPID.
7.9 Are financial reports prepared directly by the automated accounting system or are they prepared by spreadsheets or some other means?	Both. Automated financial management information system (FMIS) and excel spreadsheet.	Refers to financial management reports of MLPID.

Topic	Response	Remarks
8. Information Systems (MLPID)		
8.1 Is the financial management system computerized?	Yes. There is a computerized FMIS (<i>Attach'e 7</i>) in MLPID.	The FMIS is linked on-line to the FMIS of the national government in Tarawa. This enables almost real-time monitoring of the recurrent budget position, and the taking of timely action at the ministry and MFED level to manage funding problems and avoid budgetary crises.
8.2 Can the system produce the necessary project financial reports?	No.	The FMIS is only used to monitor the revenue and recurrent expenditures. The monitoring of the development project expenditures (government or foreign funded) is done in a separate system (spreadsheet) and is not link to the FMIS.
8.3 Is the staff adequately trained to maintain the system?	Yes.	Refers to MLPID staff.
8.4 Does the management organization and processing system safeguard the confidentiality, integrity and availability of the data?	Yes.	

Annex 1

Flow of Funds

Water Supply and Sanitation Project – Kiritimati Island

