Solomon Islands Water Authority (SIWA)

Short Term Recovery Strategy and Action Plan

Final Version

Pacific Region Infrastructure Facility (PRIF)

30 May 2011

Solomon Islands Water Authority

Short Term Recovery Strategy and Action Plan

This report was prepared with assistance of Richard Austin and Ron Davies as individual consultants under the guidance and support of the Pacific Infrastructure Advisory Centre (PIAC) in Sydney, Australia.

PIAC operates under the coordination of the Pacific Region Infrastructure Facility (PRIF), a partnership for improved infrastructure in the Pacific Region between the Asian Development Bank, the Australian Agency for International Development, the European Union and the European Investment Bank, the New Zealand Ministry for Foreign Affairs and Trade and the World Bank Group.

NOTE: CURRENCIES

- All currency transactions in this report are shown in Solomon Islands dollars SBD unless stated otherwise;
- Current exchange rates used are SBD $7.04 to USD $1 or SBD $7.53 to AUD $1.
- All Cost Estimates are based on one quotation. Before proceeding to procure the goods or services additional quotations will be obtained and procurement guidelines will be followed.

Adoption of the Plan by the SIWA Board

The "Short Term Recovery Strategy and Action Plan" was presented to the Board of Directors of the Solomon Islands Water Authority on 19 May 2011. The Board resolved that "the Short Term Recovery Strategy and Action Plan dated 19 May 2011 be and is hereby adopted as the basis for sustainably improving SIWA's performance".

This Final Version of the Plan incorporates the comments and suggestions of the SIWA Board and others who provided valuable opinions during the consultations.

Table of Contents

Executive Summary

Introduction

The Short Term Recovery and Action Plan (RAP) has been proposed and adopted by the Board of SIWA as a Plan which will introduce urgently required improvements in performance in SIWA and in particular in the financial and operational areas. The Plan is the result of a five-week period of fact-finding and analysis by the interim management team appointed by the SIWA Board.

Key finding for the RAP

- Only 30% of customers receive continuous water supply. 20% receive intermittent supply daily. 50% receive intermittent supply every 2 to 3 days.
- There is sufficient water going into the system to satisfy the average demands for the population supplied by SIWA.
- Non-revenue water may be as high as 66%. Physical water losses are estimated to be at least 29% of input volume whilst the volume of unauthorised consumption (i.e. stolen water) is estimated to be at least 24%. These losses represent unsustainably high wasted costs of production and lost revenue respectively.
- The bacteriological safety of drinking water cannot be guaranteed. The disinfection facilities are rudimentary, poorly maintained and inadequately managed and are prone to regular failure. Water quality monitoring by sampling and analysis falls very short of WHO recommendations.
- The water transmission and distribution network is aged and poorly designed. The condition of the pipe system gives rise to hydraulic resistances to flow which are evidenced by the poor pressures in the system and difficulty in moving water around the network.
- The perception of SIWA as a service provider is very low. SIWA customer services are weak and customers find it difficult communicate with the company. The image of SIWA is generally poor both in the community and with stakeholders.
- The customer billing procedures are inefficient and revenue collection has been historically low but is now improving. The level of customer debt is high.
- SIWA's expenditure (not including post-paid electricity costs) is approximately equal to the income generated leaving no cash available for reinvestment in improving the business.
- The debt to SIEA stands at SBD 28 million and continues to grow at SBD 1.0 million every month.
- The tariff of water charges has not been increased since 2008. During the intervening period electricity prices have increased by over 30%. Electricity costs represent 67% of SIWA's revenue.
- Basic technical and managerial skill are lacking in the current SIWA staff complement of 78 people.

- The structure of the SIWA organisation is inappropriate for the challenges which SIWA faces and is top-heavy in management whilst numbers are insufficient at mid- and lower levels, particularly in the areas of operations and network management.

Primary Objectives of the RAP

The primary objectives of the RAP are to improve service levels and increase revenue through the implementation of a series of individual, but often inter-related strategies to:

- Improve **the reliability of water supply and improve service levels** by replacing key pumping equipment and performing urgent maintenance work;
- Reducing the number **of illegal connections**;
- Improve meter reading accuracy, billing efficiency and the management of debt collection;
- Improve **the safety of drinking water** by replacing chlorine dosing equipment and improving the control and monitoring of water quality, including the provision of facilities for water quality analysis;
- Reducing **physical water losses (leakage)** from the water transmission and distribution network and through the implementation of a suitable leakage reduction strategy involving finding and fixing the leaks. Leakage detection equipment will be procured for use by a special team, and a strategic stock of pipes and fittings will be procured to enable the leaks to be repaired;
- Develop the standards of **Customer Service provision** and improve the image of SIWA;
- Improve the reliability of **financial systems** and improve HR management.
- Prepare a proposal for **an increase in the tariff of water charges** for approval by the responsible Minister(s).

The RAP also proposes some possible ways by which the outstanding debt to SIEA may be restructured or eliminated.

Working Capital required for implementation of the RAP

The analysis of the current status of SIWA has concluded that the majority of strategies required in the RAP will require working capital which SIWA cannot generate in its current financial position. The majority of the strategies to achieve the objectives cannot be started without having an adequate level of at least short-term funding required to "kick-start" the improvement of SIWA's performance on a number of fronts.

The estimate of total working capital required to implement all the recommendations of the RAP is USD 1.39 million. The breakdown of this cost is shown later.

Establishing the priorities

The current status of SIWA and its low level of performance on nearly every front demand that urgent action is taken to introduce activities designed to improve SIWA as rapidly as possible. Unfortunately, the lack of working capital and the limitations cause by limited resources within SIWA to manage and deliver the improvements means that priorities must be established to ensure that the RAP addresses the most serious issues with the limited resources available.

In establishing the priorities, the over-riding objectives for SIWA are firstly prioritised as:

1. To ensure the financial survival of SIWA and improve its financial condition
2. To improve the service levels provided by SIWA
3. To improve the reputation of SIWA through better customer service provision and image enhancement.

The Board of SIWA agreed the above priorities at its meeting held in Honiara on 19 May 2011.

Summary of recommended strategies

The individual strategies and action plans proposed are presented below in groups which address the over-riding objectives described above:

FINANCIAL MANAGEMENT AND CONTROL			
Strategy	**Summary of Objectives**	**Start-Up Funding Required USD**	**Priority**
Profitability and Cash flow	To improve: ➢ Meter reading, billing and debt collection processes. ➢ Minimise non-revenue water losses	22,800	**IMMEDIATE –** On-going **IMMEDIATE**
Accounting and Control	To improve: ➢ Financial systems ➢ Reporting ➢ Auditing	2,800	**IMMEDIATE –** On-going
Debt Elimination	To satisfactorily eliminate the SIEA debt.	_____	**IMMEDIATE -**
Water Service Tariff Revision	Submission of tariff revision proposal which incorporates built-in periodic and automatic increases for rise in CPI and electricity price rises	60,000	**IMMEDIATE -**

SERVICE DELIVERY			
Strategy	**Summary of Objectives**	**Start-Up Funding Required USD**	**Priority**
Water Supply Improvement	To improve the levels of service in: ➢ Security of water supply ➢ Pressures and flows available at the customer's tap ➢ Reduction in the frequency and duration of water supply interruptions	465,000	**IMMEDIATE –** DEPENDENT ON AVAILABILITY OF FUNDING
Water Quality Improvement and Monitoring	To improve the safety of drinking water: ➢ Management and reliability of disinfection processes ➢ Monitoring and analysis of bacteriological and chemical quality of drinking water	345,000	**IMMEDIATE -** DEPENDENT ON AVAILABILITY OF FUNDING
Non-Revenue Water Reduction	To reduce the quantity of non-revenue water, in particular: ➢ Physical losses ➢ Unauthorised consumption	180,000	**IMMEDIATE -** DEPENDENT ON AVAILABILITY OF FUNDING
Sewerage Operations Improvement	To remove sewer blockages: ➢ Remove blockages efficiently ➢ Routine maintenance to prevent blockages	18,000	SOONEST

SERVICE ENHANCEMENT AND CORPORATE IMAGE			
Strategy	**Summary of Objectives**	**Start-Up Funding Required USD**	**Priority**
Customer Service Development	To improve the quality of customer interaction with SIWA: ➢ "One-Stop" front-desk handling of all customer-related issues ➢ Provision of customer information ➢ 24-hour call reception ➢ Accessibility and convenience	91,000	**Planning:** Immediate **Implementation:** Soonest.
Communications Strategy	To manage the interaction between SIWA and its stakeholders and the media:		**IMMEDIATE**
Corporate Image	To improve the overall public perception of SIWA	24,000	SOONEST

ORGANISATIONAL EFFCETIVENESS			
Strategy	**Summary of Objectives**	**Start-Up Funding Required USD**	**Priority**
Organisational Restructuring	To focus the organisation on clearly defined activities and objectives: ➢ Improve efficiency ➢ Improve internal communications and cooperation ➢ Improve management supervision and control	-----	SOONEST –
Operational Information and Performance Measurement	To formalise the collection of relevant operational data to form the basis of an Operational Performance Information and reporting System	80,000	SOONEST
Human Resource Management	To improve the quality and capacity of staff: ➢ Improve the HR function	90,000	SOONEST
Information Technology	To improve the IT systems: ➢ Improve the timeliness, accuracy and availability of information ➢ To improve internal communications	10,000	SOONEST

1 Introduction

The Technical Assistance (TA) provided to Solomon Islands Water Authority (SIWA) is of approximately six months. The development and implementation of This "Short Term Recovery and Action Plan" is the prime objective of the first phase of the TA.

The TA commenced on 5 April 2011 with the placement of a General Manager (Richard Austin) and Chief Financial and Administrative Officer (Ron Davies) into SIWA as interim managers. The overall Objectives and Purpose of the TA described in Appendix A and can be summarised as follows:

"To contribute to improved livelihood and welfare of the population and to sustain commercial and government activities by creating improved and sustainable levels and coverage for water supply and sanitation services for the population of Honiara and other service areas of the Solomon Islands Water Authority. The immediate objectives of the assignment are:

1. *To generate an immediate and significant improvement in SIWA's services to its clients for water supply and sewerage;*
2. *Work with the intended design team in developing a design document for further support to SIWA that will include a comprehensive reform program and medium term strategy for SIWA and an associated investment plan".*

The report presented includes the conclusions of a rapid situational assessment of SIWA performed over the first 28 days of the TA and proposes to the Board of SIWA a Short-Term Recovery Strategy and Improvement Plan to be implemented over the remaining period of the TA, subject to acceptance of the Plan by the SIWA Board.

It has not been possible in the time since mobilisation to include consideration of the operations and responsibilities of SIWA in Tulagi, Auki, Noro and Gizo in this strategy. It is our intention to give due consideration to these and consider their special needs, particularly with respect to their remoteness from Honiara and the challenges which their remoteness creates for the management of activities.

2 SIWA Statement of Corporate Objectives 2011

2.1 Responsibilities of SIWA

The Statement of Corporate Objectives written specifically for the purposes of the State-Owned Enterprises Act 2007, defines the responsibilities of SIWA as:

- to control, regulate, develop, manage conserve and utilise urban water resources in the best interests of the Solomon Islands;
- to formulate national policies relating to the control and use of urban water resources;

- to ensure that the water supplied for consumption meets the prescribed water quality standards;
- to provide, construct, operate, manage and maintain buildings, works, systems and services for impounding, conserving and supplying water for domestic, industrial, commercial and other purposes;
- to provide, construct, operate, manage and maintain buildings, works, systems and services for the conveyance, treatment and disposal of sewage, disposal of trade and industrial waste and other connected purposes; and
- any other like function.

2.2 Regulatory Framework

SIWA is governed directly under the SOE Act of 2007, the SIWA Act of 1993 and the SOE Regulations of 2010. It is empowered under Section 10.2(e) of the SIWA Act 1993 to "independently generate revenue by levying and recovering charges, fees, rates and capital contributions".

Apart from the Acts mentioned above, there is no direct regulation of the activities and performance of SIWA as may be found in more developed economies. Mechanisms established elsewhere to ensure that water and wastewater operators provide and maintain services to a minimum standard and provide value for money to the customer include:

- Tariff or Price Commissions;
- Independent monitoring of the quality of potable water supplied and wastewater effluents discharged into the aquatic environment;
- Monitoring of the environmental impact of the operator by, for example, Environment Agencies;
- Full regulation of water and wastewater industry operators which set standards for performance, quality, financial management and which establish limits on tariff levels over the lifetime of regulatory review periods.

There is no such regulation or monitoring of the performance of SIWA and no apparent linkage between its level of performance and its ability to implement changes to its tariff levels and structures. Tariff revisions must be approved by the responsible Minister.

In the absence of independently set performance targets, SIWA established a range of corporate objectives including targets and measures by which it may judge improvements which it may make over time. In view of what we have found, these targets are presently unachievable. Some selected targets and measures are given below:

- To be as profitable and efficient as comparable businesses;
- Operational Performance Targets:

Performance Target	**2010 Forecast**	**2011 Budget**	**2012 Plan**	**2013 Plan**
Supply Rotation Measure (No. of valve turning operations per day for water rationing)	24	16	6	2
Water Quality Measure (%age of samples returning NIL e-coli result)	95%	95%	96%	97%
Sewerage Measure	200	180	150	110
Revenue Water Ratio (Revenue water as a %age of Total System Input)	50%	55%	60%	65%
Water Sales Collection Ratio (Value of charges collected as a % of total charges)	65%	70%	75%	85%
Served Ratio (%age of population served with a water supply)	70%	72.5%	75%	85%

- Financial Performance Targets:

Performance Target	**2010 Forecast**	**2011 Budget**	**2012 Plan**	**2013 Plan**
NPBIT	-%	5% (Note 2011 budget is 0)	10%	15%
Return on Capital Employed	-%	10%	15%	20%
Return on Equity	-%	10%	15%	20%

- Public Safety:
  - TARGET - “Safe drinking water to customers”
  - 2011 PROPOSED ACTIONS –
    - Identify and track poor sources;
    - Identify remedial actions that can be taken;
    - Advise public on how to deal with issues.

It is against these declared targets and measures that SIWA will be judged. During the next phase of this assignment it will be possible to establish more suitable performance measures and targets based on industry best practice.

3 Assessment of the capacity of the organization

3.1 Management Capacity

The overall capacity of SIWA management to operate the company and improve its performance is limited. Whilst some senior managers are capable, others are less capable. There is a similar range of capability in the middle management levels of the organisation. The major weaknesses in the organisation are:

- Expertise and qualifications – key expertise in the fields of finance, mechanical and electrical engineering, pipeline engineering and water quality management are missing in the operational areas of the business. There is no formal expertise in customer service and communications in the company.
- Staff management and supervisory skills are generally weak. Supervision of the middle and lower levels of staff and of the workforce is poor and too relaxed.
- Managers with responsibilities to supervise field staff fail to provide regular guidance, interest and support to their staff. Routine supervisory visits to sites are infrequent with some sites being visited only if there is a breakdown of equipment.
- The provision of appropriate management and technical training for staff appears to have been poor or even non-existent.
- There are a number of lower level staff who exhibit enthusiasm and motivation in the performance of their work but who are prevented from performing to their best by the inefficiency and lack of consistency prevalent in the company.

3.2 Attitude of Employees

- There is a general attitude prevalent in SIWA that instructions can be ignored or work delayed. There is a lack of discipline (both imposed and self-imposed discipline) among many members of staff and operators.
- Many employees prioritise their job in SIWA below most other aspects of their life.
- Lateness and unexplained absences during working hours are too common.
- There is an on-going problem with staff absences for various reasons which has frustrated both the reorganisation of duties and the added effort required to have the SIWA team operate efficiently.
- It was clear that staff morale was at a low but the arrival of the new GM and CFAO seems to have been welcomed and inspired the more enthusiastic managers and employees. However, a significant proportion of the workforce, especially at the lower levels, appears to remain demotivated or disinterested.

3.3 Organisational Issues

- The existing structure does not adequately reflect the current needs of SIWA and the challenges which it faces.
- The structure of the organisation is fragmented. There are too many individual departments and the structure is top-heavy in management.

- The organisation is under-resourced in both the number of staff and the skills possessed in the areas of water production, network management and water quality control, customer service provision, financial management and administration.
- There is a lack of clear definition of roles and responsibilities of managers and departments. This creates a climate in which responsibilities are not owned by managers and responsibility for problem solving can all too easily be transferred to others.
- A significant part of the current official organisation structure is non-existent as a result of previous staff redundancies, retirements and outstanding disciplinary matters. Several managers are undertaking a diverse range of additional responsibilities with the result that there is a low level of management focus on key activities and ineffective management performance overall.

3.4 Operator and field staff - skills and training

- Operators who look after pumping stations and chlorination plant are poorly qualified, untrained and unable to operate the equipment in a proper way.
- Field staff are unskilled and untrained.
- As a result of poor supervision and control, field staff are allowed to perform in a sub-standard manner without the fear of discipline.

3.5 The role of staff in implementing the Plan

It is against this background that SIWA must improve the levels of service which it provides in all the key areas of its business. The rate at which the capacity of the organisation can be improved will be dependent on the rate at which real change can be introduced and upon the willingness of the majority of staff to play their part in implementing and sustaining the improvements. The success of this Short-Term Recovery and Action Plan will be largely governed by the ability of senior management to raise its performance and motivate and supervise the activities of their staff.

The time-frame for the implementation of the Recovery Plan is too short for us to consider any significant long-term staff training and personal development initiatives during this period. Therefore the success of the Plan will depend on:

- The introduction of a much simplified and logical organisational structure with clearly defined responsibilities and targets for departments and their managers;
- The identification of the most capable staff and their placement to the key positions;
- The provision of support and guidance to managers to enable them to deliver the objectives;
- The provision of the finance, equipment and facilities necessary to deliver the improvements within the limitations of the tight financial constraints of SIWA.
- Short-term training opportunities.

The leadership provided by an enthusiastic and committed Board, the arrival of the Interim Management Team and the promise of the improvements to be provided through the JICA

Water Supply Rehabilitation and Improvement Project all combine to create an opportunity for motivating existing staff and attracting new, younger staff to SIWA.

It is proposed that a series of workshops be help with all employees of SIWA to explain the Recovery and Action Plan in a bid to motivate them and foster their personal support for the Plan.

THE SHORT-TERM RECOVERY AND ACTION PLAN

4 Data collection, statistics and performance measurement

4.1 The Problem

During the rapid assessment of SIWA it has been difficult to obtain historic operational data on which to base objective decisions. A number of examples are:

- Input Volume – Data only collected since February 2011 when input meters were installed at most water resources;
- Electricity consumption recorded on a daily basis on some sites but not collected and analysed centrally;
- No record of daily total dose of chlorine kept to provide a check of adequate chlorination;
- No record of measured chlorine residuals maintained;
- No record of breakdowns maintained;
- The database containing historic quality sampling results are locked in the PC of a suspended employee.
- Current water quality analysis results are recorded in a database only when time allows. Currently the data has not been updated since February 2011.
- The GIS has not been updated for some time and the software needs updating. If it is allowed to become further out-dated SIWA will lose a valuable tool for asset management, leakage reduction and network model building.

The consequence is that there is very little data available on which to judge and objectively measure the current operational performance of water production, water quality and network maintenance functions of SIWA.

4.2 The Solution

- A comprehensive list of operational data and statistics that must be recorded will be prepared which specifies the frequencies of recording;
- Responsibility for collecting, collating and analysing operational data will be allocated to a suitably qualified staff to be recruited;
- A simple database will be designed using available software (Microsoft Access).
- This will form the basis of an Operational management Information System which can be introduced at a later date.
- The GIS must be updated and the requirement for a new software licence reviewed.

4.3 The Cost

- A specialist is required to design the database. Total costs are estimated at USD 80,000.

4.4 The Result

- ✓ SIWA will be able to measure its performance on a periodic basis and identify and quantify improvements in its performance;
- ✓ SIWA will be able to more readily identify areas where it is failing to perform;
- ✓ SIWA will be able to compare its performance against that of similar regional water operators through meaningful benchmarking exercises.
- ✓ Management will have a firm foundation on which to better justify its requirement for capital investment and better resources.

5 Expansion of Services

5.1 The adequacy of current production and distribution capacity

The current average System Input Volume for Honiara water supply is approximately 8200Ml per year. The recent official government census indicated that the population of Honiara is 64,000. However the area designated as SIWA's statutory supply area extends beyond the boundaries of Honiara as defined in the census. In recent years the areas at the fringes of the statutory supply area have received an influx of population. The population living in the SIWA statutory area of supply is currently estimated at 75,000.

Thus the gross volume available for consumption (not taking into account water losses of any sort) is approximately 300 litres/capita/day. This compares with an assumed per capital daily consumption of 125 l/c/d which SIWA currently uses and which may be a conservative estimate.

On the basis of the above comparison, it can be argued that the existing sources would be capable of providing an adequate volume of water to supply the current demand within the SIWA water supply area. However, the reality is that SIWA cannot maintain a continuous service to the majority of its supply area with only approximately one-third of customers receiving a continuous water supply.

As will be seen later, the key factors which limit the volume of water which the system is capable of supplying to the customer are:

- The age and degree of mechanical wear in the majority of pumps resulting in inefficient operation and sub-standard performance;
- The age, condition and poor hydraulic performance of a water distribution network which was designed to supply a population half that of the existing population;
- A level of physical leakage which is currently estimated at 28% of input volume but which may, in reality, be 35% or more.

5.2 Increase in the population supplied in Honiara

The increase in pumping capacity which will be achieved through the replacement of pumps necessary because of their age and inefficiency (See Section 6 - Improvements in the reliability of water supply) will, to an extent, enable SIWA to improve its levels of service by providing increased delivery pressures at the tap and reducing its water rationing program. If excess water is available, then it may be possible to extend the water supply network to feed some areas which SIWA is presently unable to supply but in which there is an increasing demand for water.

The ability of SIWA to extend water supplies to new areas will remain uncertain for some time. The additional limitations imposed by the condition of the network will be the critical and deciding factors. It is probable that the physical condition and/or the hydraulic condition of

parts of the network will prevent SIWA from generating sufficient pressures or flows to feed some areas. The pressures necessary to feed areas at the limits to the current network may possibly be too high. There is a possibility that elevated pressures will cause extensive damage to the aging and structurally weak pipes and a significant increase in physical losses will almost certainly occur through increased leakage at higher pressures.

More detailed work will have to be done at the appropriate times to investigate the possibilities. The availability of a calibrated network static hydraulic model will be essential to enable SIWA to predict the possibility of supplying new areas and the effect that this may have on pressures and flows and pipe bursts and leakage throughout the network. Zoning of the network will be an essential pre-requisite to improving the management of pressures and flows. It is estimated that building a hydraulic model will take a minimum of 18 months to complete and will require the services of consultants, Industry-standard modelling software and a small team of pipeline surveyors and modellers.

The development of a hydraulic model will form part of a medium- or long-term strategy. The prime additional benefits that an accurate model will bring for SIWA will be:

- the optimisation of pumping which can produce significant savings in energy costs;
- the optimisation of network zoning;
- leakage management; and
- the planning of network extensions.

5.3 Lands Issues

The legal right of SIWA to abstract water from land within the boundaries of its defined operating area continues as a major problem for SIWA. The legal expenses that SIWA must incur continue to mount and represent a waste of financial resources. Major delays in the development of projects have, and will continue to occur unless there is a change in the laws relating to Customary Land in particular.

5.4 JICA Water Supply Rehabilitation and Improvement Project

The purpose of the JICA Project is to provide additional water sources, enhanced water treatment and significant structural improvements to the distribution network through its rehabilitation and partial re-design. The project is expected to invest USD 25 million.

Unfortunately, the project has been delayed for over 18 months as a result of difficulties over land acquisition and compensation to landowners. The acquisition of two pieces of land is still uncertain and failure to acquire these key sites could result in the project being terminated completely unless an acceptable engineering solution around the problem can be found.

When the project is successfully completed, SIWA will have:

- an additional 16 sources of supply which will be available to significantly reduce the present reliance on the Kongulai Spring which is unstable due to blockages and which is very costly in power consumption due to the need for high-lift pumping;

- At each new group of boreholes 4 new transmission pump sets;
- 6 new treated water storage reservoirs to provide an estimated 12 hours of storage;
- 25.5 km of newly installed distribution mains between 50mm and 300mm diameter;
- Water treatment facilities to reduce turbidity;
- 7 new disinfection facilities.

The key components of this Short-Term Recovery Strategy are not affected by the JICA project. The first prime objective of the Strategy are to put into place near immediate improvements to the levels of service currently provided by SIWA which will promote an enhanced service until the full benefits of the JICA project are realised on completion of that scheme in 2014/15. The second prime objective of this strategy is to establish a foundation for the continued improvement of management capacity, technical competence and financial sustainability of SIWA. These improvements will be essential if the JICA project is to deliver long-lasting benefits. SIWA must be improved to the extent that it can adequately manage and maintain the new facilities which the project will bring.

6 Improvements in the reliability of water supply

6.1 The Problems

The pumping costs at the boreholes and pumping stations are very high as a result of the age and inefficiency of the pumps and associated electric motors. Water transmission costs must be reduced to minimise the cost of production. Many pumping sets are prone to electrical failure due to their age and the inadequacy of the aged motor control panels.

SIWA currently provides an intermittent and unreliable water supply because it is not possible to create sufficient flows and pressures in the entire distribution network. The effect on the level of service provided is illustrated by the fact that it is necessary to operate a continuous water rationing policy. Figure 1 shows that, whilst some areas receive a continuous 24 hour supply, others receive very substantially reduced periods of water availability.

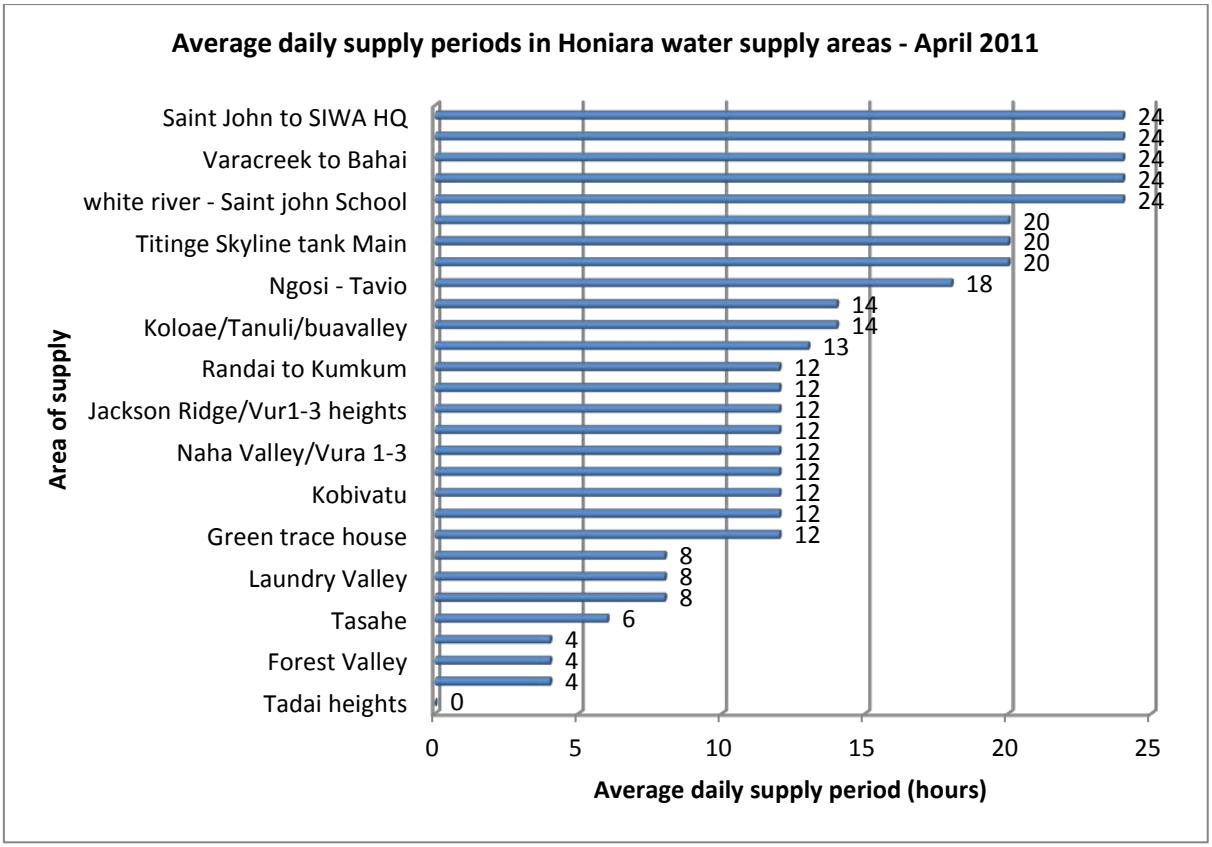

Figure 1

A summary analysis of the causes of these problems is given below:

- There is insufficient pumping capacity to meet the total demand for water. The majority, if not all, pumps are now beyond their serviceable age and their efficiency is much reduced. However, there is no reliable data available to measure performance.

- Failure of the pumping sets at either Tuvaruhu or Kongulai - or both - would result in a catastrophic reduction in capacity. The result would be that large areas of the Honiara supply area would be starved of water for a considerable period. Water rationing under these circumstances would be ineffective due to the hydraulic limitations of the network.
- The hydraulic limitations of the trunk main systems and distribution network do not allow the transfer of sufficient pressures to enable different supply areas to be fed from different sources without the operation of a water rationing policy. Interruptions to supply are regular and increasing.
- Many areas suffer from low pressures.
- Boreholes have not been maintained and their yield has deteriorated due to a build-up of silt in their linings.
- Physical losses (leakage) from the aging water network exacerbate the supply problem.
- Unauthorized connections to the network have increased demand for water in an uncontrolled manner.

Additional problems which represent a high risk of failure of water supply are:

- Power shedding imposed by SIEA regularly interrupts the operation of pumps. It is understood that power shedding will increase in the foreseeable future.
- SIWA does not have a stock of spare pipes, fittings and couplings for the repair of bursts on mains of 100mm or larger. If a key trunk main were to fail there would be a prolonged and catastrophic interruption to supply of considerable duration while the pieces required for repair were sourced and imported.

6.2 The Solutions

- Remedial work has already been completed or is in hand to replace the Motor control centre (MCC) at Tuvaruhu.
- The pumping sets (motors and pumps) must be replaced to increase output from Tuvaruhu which is the most important water source. Their replacement would reduce the risk of a catastrophic and prolonged failure in water supply.
- The pumping sets and MCC's at Kongulai must be replaced as a matter of urgency before they begin to fail and cause catastrophic and prolonged failure of water supply.
- Re-commission White River borehole.
- Boreholes must be de-silted on a routine basis and authorization has already been given to commence this work funded from revenue.
- Review the need for and availability of standby-by generator sets at all pumped water sources. (Generator sets donated by AusAID are currently being installed at Panatina and Tuvaruhu but cash constraints are delaying installation.)
- A restructuring of the management of SIWA water supply operations to provide a focussed approach to the management of water resources, pumping stations and

equipment. This will include combining the Engineering Water Services (EWS)and Engineering Water Planning (EWP) functions into one Department

6.3 The Cost

- The provisional estimated cost of the urgently required replacement equipment and actions are summarized below:

Location	Action	Provisional Cost Estimate SBD
Tuveruhu	Replace pumping sets	1,000,000
Kongulai	Replace pumping sets and MCC Installation of generator	2,500,000 100,000
White River	Re-commission – replace pumps and cables	400,000
Panatina	Replace MCC's and cables Installation of generator	300,000 100,000
	SUB-TOTAL	3,200,000
Additional generators		1,000,000
	TOTAL	3,200,000

6.4 The Result

- ✓ Contribution to supply capacity from Tuveruhu would be increased by 0.86 tcmd
- ✓ Contribution to supply capacity from Kongulai would be increased by 2.16 tcmd
- ✓ Contribution from White River would add an additional 3.46 tcmd
- ✓ The total estimated increase in capacity represents an increase of 29% over the existing average volume supplied. This increase in capacity would allow the supply network to be operated in a more stable manner and water delivery pressures and flows will be improved in some areas where the physical integrity of the network allows.
- ✓ Yield of boreholes may be increased by 10%
- ✓ Renewal of electrical equipment and cabling will reduce the risk of prolonged failure of supply due to electrical faults.
- ✓ Provision of generators will alleviate the effect of power-shedding and improve continuity of supply in the event of unplanned power outages.
- ✓ Improved efficiency of pumping equipment will reduce power consumption and costs.
- ✗ Increased pressures generated by new pumping sets may result in failures of aging trunk mains and increased physical losses from the network generally.
- ✗ Operation and maintenance of stand-by generators will increase operating costs.

7 Improvements in water quality – water treatment

7.1 The Problem

The quality of water supplied by SIWA does NOT approach the recommended minimum standards recommended by WHO. Most crucially, the bacteriological quality of water entering supply is sub-standard and cannot be guaranteed. The percentage compliance with WHO Recommendations for the bacteriological quality of water is, for SIWA, an optimistic 82%. WHO recommendation is 100% compliance – i.e. that NO samples will be found to produce a positive result for e-coli). According to the WHO Categorization of drinking water systems, SIWA's performance rates as "POOR".

The network is at risk of contamination by groundwater and leakage from sewers and drains as a result of low and negative pressure conditions in parts the water system during failures in supply, including water rationing. The constant presence of a residual level of chlorine in the water provides an effective, but limited, safeguard under these conditions. This risk will be ever-present until such time that SIWA can operate its complete system at normal pressures 24/7.

The consequent risk to public health is a matter of concern. The factors contributing to water quality problems are:

- Water treatment at all sources is rudimentary. There are no water treatment facilities beyond simple chlorination at some sources.
- Water derived from boreholes tends to be of good aesthetic quality but possess a high hardness due to high carbonate levels derived from limestone aquifers.
- Water quality from the surface source (Kongulai) is normally acceptable except in periods of rainfall when the water becomes turbid - sometimes in excess of 150 to 200NTU. The resultant high chlorine demand of the turbid water renders disinfection to be ineffective. The source is quite regularly shut-down at these times to prevent turbid water entering the distribution network.
- The only treatment applied to the majority of water supplied (but NOT all) is disinfection by the dosing of chlorine in the form of calcium hypochlorite solution.
- Chlorine dosing pumps at all sites are poorly maintained. Although originally duty and standby dosing pumps were provided at chlorination points, the standby units have long been cannibalised for spares. Presently, only one pump is available at each site
- Failures in chlorine dosing caused by blockages, power outages, or simple pump failure are frequent and normally remain unobserved for up to 24 hours.
- The use of calcium hypochlorite causes problems due to the amount of insoluble material in the powder from which the solution is prepared. The mixing tanks are inadequate, often with the mixers inoperative. Although two mixing tanks are provided, only one may be used.
- Chemicals are mixed by the bucketful with no weighing of the chemical and no measure of the strength of the solution mixed.

- The control of the chlorine dose is poor because downstream sampling points at sites are absent. Chlorine residuals are occasionally taken from samples derived from the network far downstream of the dosing point. The huge delay between setting a dose and measuring the effect of that change makes it impossible to manage chlorine residuals well.
- Chlorination sites are normally visited only once per day. However, if staff are occupied on other work or unavailable through absence, even that frequency of check may not be maintained.
- Within SIWA, there has been little importance attached to the safety of the water that the company supplies.

7.2 The Solutions

- Urgent investment is required to replace all existing disinfection equipment at all sites where disinfection must be practiced.
- A standard chlorine dosing design will be introduced which will:
  - minimise failure due to blockages;
  - enable better control of the strength of solution dosed;
  - provide full duty/standby facilities preferably with auto changeover of dosing pump when failure is sensed;
  - enable better on-site control of the dose applied.
- Wherever possible, the dosing of disinfection will be applied as close to the source as possible to maximise the contact time prior to consumption by the customer.
- The chlorine residual at treatment sites must be measured 3 times per day. The residual must be controlled to a minimum of 0.5 mg/l free chlorine.
- The recommended range for chlorine within the network is 0.2 to 0.5 mg/l.
- A restructuring of the management of SIWA water supply operations to provide a focussed approach to water quality.
- Better qualified and more staff to be responsible for daily operation, maintenance and monitoring of the chlorination systems. Two suitably qualified field operatives are urgently required.
- An operational procedure for chlorination, testing, and emergency actions must be written and used.
- The management of the disinfection process must be considered as the top priority among all of SIWA's activities.

7.3 The Cost

- The cost of replacing hypochlorite dosing equipment at all sites is provisionally estimated at SBD650,000
- The operating cost of additional manpower (2 people at SBD 60,000 p.a.) to manage chlorination is SBD 120,000 per year
- An additional vehicle may be required at a cost of SBD200,000

7.4 The Result

- ✓ SIWA will be able to deliver its prime obligation as a water operator – to provide safe and wholesome potable water which is not deleterious to the health of the population.

8 Water Quality Monitoring and Reporting

8.1 The Problem

SIWA does not monitor the quality of:

- raw water;
- treated water entering supply
- water within the distribution network

in accordance with WHO minimum recommendations. SIWA therefore has little or no knowledge of the quality of water being supplied or of any potential failures in quality due to pollution which may pose a risk to public health. A summary of the weaknesses in SIWA's procedures is given below:

- WHO recommendations for the monitoring of drinking water quality specify the number of sampling points on the distribution network which should be used for obtaining samples for analysis. This is related to the length of pipe in the network. WHO also recommend the number of samples which should be taken and analyses each month on a random basis from the sampling points. This is related to the population served.
- SIWA has 11 sampling points (Treated – 6, Raw – 5). SIWA should have 40 sampling points (At each raw water source, approx. 30 from the network).
- SIWA does not comply with the WHO minimum recommendations for water quality sampling and analysis.
- WHO recommend minimum requirements for the range of "determinands" (chemical and bacteriological contaminants in water) and stipulates the frequency at which samples shall be analysed. SIWA performs none of these analyses except for tests for e-coli.
- The SIWA laboratory is in a state of disrepair, neglect and chaos. It is totally unsuitable for any scientific purpose.
- All the equipment in the laboratory is out-dated, inoperable and beyond repair.
- SIWA does not have a qualified scientist or laboratory technician to perform the required routine water quality tests.
- The Public Health laboratories possess some of the equipment necessary for performing some of the required analyses but does not have the reagents and consumables required.

8.2 The Solutions

- The laboratory must be completely refitted and re-equipped to enable it to routinely analyse water for the following determinands:
  - Taste
  - Odour
  - Colour
  - Turbidity

- pH
- Conductivity
- Iron
- Aluminium
- Total Hardness
- Chlorine residual – free and combined
- Ammonia
- Nitrate and Nitrite
- Faecal coliform (e-coli)

❖ Purpose designed sampling points must be installed at selected locations over the complete water distribution network in compliance with WHO recommendations.

❖ A randomly generated sampling program must be initiated to obtain and analyses samples from the distribution network at a frequency which complies with WHO recommendations.

❖ Samples of raw water from all sources must be obtained and analysed at the frequency which complies with the WHO recommendations.

❖ A suitably qualified laboratory technician must be appointed as a matter of urgency.

❖ A Water Quality database must be created and kept up-to-date.

❖ A trained operator will be required to perform the daily routine sampling.

❖ A suitable vehicle will be required.

8.3 The Cost

➢ Rebuilding of the laboratory and re-equipping with the required analytical equipment is estimated at SBD 1,000,000

➢ A vehicle will be required at an estimated cost of SBD 200,000

➢ Additional staff costs will be SBD 180,000 (Laboratory technician (SBD 100,000 and sampler SBD 80,000)

➢ Additional annual operating costs are estimated at SBD 75,000

8.4 The Result

✓ SIWA will monitor water quality in compliance with the WHO minimum recommendations.

✓ SIWA will be able to rapidly detect any failures in water treatment and possible pollution of its water sources thus preventing damage to the health of the population.

✓ SIWA will be able to measure its performance with regard to water quality management and operate a water quality assurance program.

9 Reduction in Non-Revenue water

9.1 The Problem

SIWA suffers from a very high rate of water losses from its network through a combination of physical leakage from the poorly maintained and aged network and through a high level of unauthorised consumption and other apparent losses. The following analysis of the situation and issues summarises the problem and its causes:

- Improvements in bulk metering and data collection have assisted recent work to build an IWA Water Balance for SIWA. The water balance has been reviewed monthly and each review benefits from the availability of more reliable statistics. Unfortunately the estimate of NRW increases at each review. While more work needs to be done, the latest Water Balance for April 2011, which is illustrated in Figure 2 below, indicates that:
    - Billed Authorized Consumption is 44% of input volume
    - Unauthorized Consumption (water theft) is estimated at 24% of input volume
    - Physical losses (leakage) are estimated at 29% of input volume. (Note: this estimate may be too low – 30% to 35% being a more realistic level. Customer meter and billing inaccuracies are also expected to be significantly higher in reality).
- Unauthorized consumption (1,680,000 m^3/year) represents a loss of income of at least SBD9.74 million per year.
- Physical losses (2,203,000 m^3/year) represent a cost of production of at least SBD8.8 million per year and an opportunity cost for the sale of the water of SBD12.8 million per year.
- No work is being performed on finding and fixing physical leaks due to a lack of manpower, equipment and transport.
- SIWA has some simple leakage detection equipment but much is broken or beyond repair.
- SIWA does not have the capability in trained manpower, equipment and transport to operate an effective and concerted leakage reduction program.
- Even if SIWA did operate a program of leakage detection it does not have the spare pipes, collars, repair patches and other fittings required to repair the leaks on mains of 100mm and above.
- Unauthorized connections to the network are common and difficult to control. Although there is currently a program of disconnection of illegal connections, it is not operated within the wider context of a planned strategy involving public information and policy announcements, fees and charges and a policy for reconnection.
- Disconnection of supplies is often divisive and costly. The objective of SIWA is the conversion of illegal connections to legal ones. However, SIWA has not explored ways in which conversion can be encouraged without the cost of a physical disconnection.

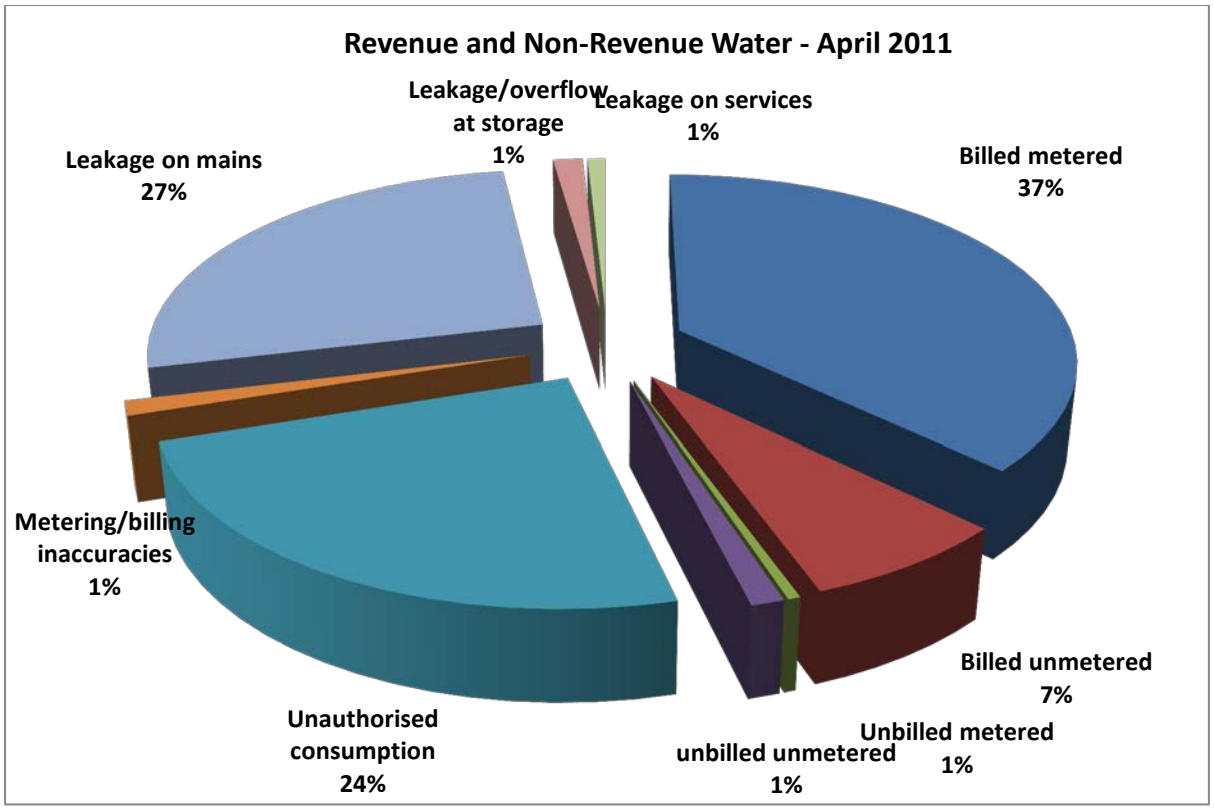

Figure 2

9.2 The Solutions

- In order to ensure that spare pipes, fittings & etc. are available for the repair of bursts and fractures on larger diameter mains, a stock of fittings should be purchased. This stock can also be used to fix leaks as they are detected.
- Work closely with JICA and SOPAC to develop and implement as a matter of urgency an achievable leakage reduction strategy which will begin to reduce the level of physical losses.
- A selection of state-of-the-art acoustic leakage detection equipment should be acquired (Funding may be available from SOPAC for a limited range of equipment).
- A dedicated leakage detection team should be established and provided with suitable transportation and equipment.
- This will require the recruitment of at least 2 young graduate engineers with hydraulic engineering speciality. (At a later date they will be available for the development of a network hydraulic model for SIWA). Selected operators should be trained in the art of leakage detection
- The activity of the unauthorized connection team should be increased, initially to a total of four teams (currently 2 teams).
- A planned campaign of media announcements and press articles should accompany the activity and a SIWA policy for repeat offenders and other difficult cases must be developed and implemented.

9.3 The Cost

- The cost of spare pipes, fittings etc. for effecting emergency repairs and leaks is estimated at SBD 700,000.
- Graduate engineers for leakage reduction program – SBD 230,000 per year
- Disconnection teams are estimated to cost SBD 52,000 per team per year
- The cost of leakage detection equipment estimated at USD 30,000

9.4 The Result

- ✓ SIWA will have the fitting available to repair leaks which are identified or reported by the public. Fittings for emergency repairs of bursts will prevent catastrophic prolonged failures in water supply.
- ✓ SIWA will be able to adopt a practical leakage reduction strategy.
- ✓ Illegal connections will be eliminated at a faster rate.

10 Sewerage

10.1 The Problems

- The sewerage system is aging and does not have the capacity to carry the volumes discharged.
- The system is being used for illegal discharges by effluent tankers.
- The primary causes of overflow are blockages caused by too much solid matter in small diameter sewers.
- Flooding of property and roads caused by blocked sewers can cause significant damage and inconvenience and also pose a hazard to health.
- SIWA only has equipment for rodding sewers to clear blockages.
- Sewerage is a neglected part of the SIWA business. Due to time constraints it has not been possible to give attention to this issue. It must be given greater attention in the future.

10.2 The Solutions

- ❖ A suitable capacity towable jetting machine must be purchased to enable blockages to be cleared more easily and effectively.
- ❖ Jetting can be carried out on a routine basis in areas prone to blockage.
- ❖ Work must be performed in the future to prepare a strategic plan for future development of the Honiara sewerage system.

10.3 The Cost

- ➢ The estimated purchase cost is SBD 125,000

10.4 The Result

- ✓ The frequency of blockages can be reduced.
- ✓ Blockages can be cleared more quickly and efficiently.

11 Maintenance

11.1 The Problems

Maintenance of mechanical and electrical plant and equipment in the operations function is poor, slow and often ineffective. The reasons for the low performance are:

- Only three maintenance staff are employed by SIWA of which only 2 are dedicated to maintaining operational sites. These staff are under-qualified and have limited tools and equipment available for use.
- It is difficult to find good, qualified maintenance personnel in Honiara.
- Plant and equipment receives no routine preventive maintenance – breakdown maintenance only is performed.
- SIWA does not stock any spare parts for pumps and motors and dosing pumps.
- Vehicle repairs for our aging fleet take too long to complete causing further reductions in productivity.
-

11.2 The Solutions

- ➢ Outsource all vehicle maintenance.
- ➢ Reinforce the in-house maintenance activity with trained and qualified personnel or, alternatively outsource plant, equipment and electrical maintenance when financial conditions allow.
- ➢ Review as a matter of urgency the requirement for a stock of strategic spares for critical plant and equipment.

11.3 The Cost

- ❖ The total cost of a strategic spares for critical electrical and mechanical equipment is yet to be assessed. This will be included in a contingency sum.

11.4 The Result

- ✓ The downtime for vehicles will be reduced.
- ✓ Plant and equipment will operate more efficiently and more reliably.

12 Developing Customer Service

12.1 The Problem

A widespread criticism from many quarters is that the customer service provided by SIWA is that it is inadequate, unresponsive, inefficient and inconvenient. The issues relating to SIWA's current level of performance is given below:

- In reality, the concept of "Customer Service" in SIWA is synonymous with "Billing". The provision of other services which involve direct contact with the customer is poorly organized, ineffective and unresponsive.
- The "Customer Service Centre" at the SIWA Head Office is, in its presentation, unwelcoming and does not convey an image of professionalism, reliability and caring.
- In contrast, the new downtown payments office at Hyundai Mall (shared with SIEA) is modern, clean and air-conditioned.
- The location of the two Customer Service Centres does not provide a level of convenience for the customer to pay their water bills. Large populations served by SIWA still have difficulty in accessing a convenient location to pay their water bills.
- SIWA does not provide any alternative methods for customers to pay their bills – e.g. payment at banks, credit cards, through the internet etc.
- Although the procedures for the receipt of payments is relatively well organized at both Centres, procedures for dealing with other matters, especially New Service Applications and customer complaints, is disorganized, fragmented, and ineffective. Customer contact Staff are not trained to handle the full range of issues which may confront them.
- The handling of telephone calls – queries, customer complaints and business related calls is poor. SIWA has an old out-dated and technically obsolete telephone exchange with three in-coming lines. Responsibility for answering incoming calls is nebulous. Answering time for calls is too long and many calls go unanswered.
- The receipt of out-of-hours calls relies on security staff answering the calls and redirecting them to the duty manager on his mobile phone. The security staff are untrained and can merely redirect calls – if they answer them.
- Water rationing causes inconvenience to the public.
- Operational staff do not provide operational information to Customer Service staff to enable them to respond to complaints efficiently.
- Although applications for new connections are initially received by the Customer Service staff, there can be long delays in processing the applications and response times are too long. Delays are a prime cause for repeat visits by customers as they try to speed up the provision of new connections.
- No information publications or hand-outs which explain procedures are available at the existing Customer Service centres.
- Staff that face the public are largely untrained and unsupported by an efficient method of passing queries and complaints from customers to the relevant departments and managers.

- There is no system of recording or tracking the cause, action taken and outcome of customer contacts. Queries and complaints can remain unanswered for a long time.

The reputation of SIWA as an effective and responsive company is extremely low. At a time when SIWA must apply to increase its tariffs, it is crucial that this reputation is improved through implementing visible improvements in quality and range of service which it provides to its customers.

12.2 What (we think) our customers want

- A good quality product (i.e. a safe water supply to WHO standards);
- Availability of our product (a reliable water supply - quantity and consistent delivery);
- Information
  - How are we improving SIWA?
  - Information for customers – Charges, Advice, Procedures, Policies, etc.
  - Operational problems broadcast by radio and TV
- Knowledgeable answers to queries and complaints
- Efficient receipt and resolution of problems
- An improved and more accurate customer billing process
- Easier and more convenient methods of payment
- Interactions which make the customer feel that SIWA values them.

12.3 The Solutions

- SIWA must improve the standard of service which it provided to customers. This can only be done through a dedicated team established to develop, organise, and all aspects of the business which involve front-line contact with the customer. A new Customer Service Department must be created to bring together all aspects of Customer Service. A restructuring of staff from different departments is required to bring CS services together.
- This will be a long-term strategy but we must start now.
- The responsibility for meter reading and billing will remain the responsibility of the Finance Department but the receipt of cash payments will be managed jointly by the Customer Service and Finance Departments.
- The HO Service Centre must be refurbished and made more welcoming.
- SIWA should endeavour to encourage customers to pay by the provision of more convenient payment locations and payment methods. It is recommended that SIWA operate a vehicle-based mobile payment centre operating to a fixed schedule.
- SIWA should work to develop alternative payment methods.
- Explore the potential for cooperation with SIEA on cash collection and other activities.
- A new telephone system is urgently required at the HO supported by a team fully responsible for answering and directing incoming calls.
- A 24 hour “Call Centre” service should be introduced at minimum cost to provide professional arrangements for the handling of out-of-hours calls.
- An achievable, but demanding set of “Customer Promises” should be published. This will define the minimum levels of customer service which SIWA will provide.

- Water Rationing Schedules should be published and adhered to.
- Appropriate training should be provided to all staff that have front-line contact with customers.

12.4 The Cost

- The cost of a new telephone exchange is quoted at SBD 55,000. However, a capital cost can be avoided by renting the system.
- The estimated cost for the Mobile Customer Service vehicle (with conversion) is SBD 400,000.
- Assistant Customer Service Officers – 2 people – SBD 170,000

12.5 The Result

- ✓ The introduction a dedicated Customer Service activity within SIWA will:
  - ✓ Demonstrate to our customers and other stakeholders that SIWA is changing and improving.
  - ✓ Provide a clear indication to SIWA staff that our customers are important. It will change the orientation of the company from one which is production orientated to one which is customer orientated.
  - ✓ Improve the reputation of SIWA as an organisation which “cares”.

13 Improving the Image of SIWA

13.1 The Problem

The image of SIWA is judged to be poor as perceived by the public, customers, suppliers, politicians and government officials. The poor image is hurting SIWA and is detrimental to its ability to developing a better performing company. In particular, the relative ease with which a tariff increase may be acceptable to government, politicians and customers will be adversely influenced. Unless urgent steps are taken to improve SIWA's reputation well in advance of its submission of a proposal for tariff increases, the difficulties encountered will be increased.

- The poor image results from a combination of the levels or quality of the overall service which SIWA provides.
- The image is not enhanced by the manner in which some SIWA and its employees interact within the community.
- Other factors which contribute to the poor image are:
  - The appearance and state of our offices;
  - The state of our operational sites;
  - The behaviour of our staff (including anecdotal evidence of dishonesty, petty corruption, inefficiency, casualness, unauthorized use of vehicles & etc.).
  - The appearance of our staff – particularly those who face the public or who are in public view);
- SIWA makes almost no attempt to interact with the public through media and community meetings.
- SIWA adopts a reactive policy to media attention which is often one of "no comment". We have not attempted to develop good relationships with the media and use them to promote our messages.
- The SIWA branding is out-dated and boring compared with other utilities, for example, "Our Telekom" and SIEA.

13.2 The Solution

- ❖ Improve the external appearance of the SIWA office complex through redecoration and tidying and better organisation of the site.
- ❖ Improve the internal appearance of the offices by removing all dilapidated equipment, furniture and unnecessary stored files.
- ❖ Renovate the inadequate toilet and washroom facilities.
- ❖ Rebrand SIWA – the change in brand to be coordinated with press coverage about our plans and definite evidence that SIWA is changing. "Solomon Islands Water" or "SI Water" may be appropriate trading names for the new SIWA.
- ❖ Issue identity cards to all employees.
- ❖ Provide uniforms for all staff differentiated between office staff and labour, customer service staff etc. and enforce the wearing of the uniform.
- ❖ Take a pro-active approach to developing a relationship of understanding in the media. We need to educate the media about water and our problems.

- Make full use of all media channels including radio and TV for getting our messages to many customers.
- All PR and communications activities will be managed under the new Customer Service Department

13.3 The Cost

- Internal and external paint material cost for decoration will be SBD 15,000 and labour costs are estimated at SBD 20,000.
- Refurbishment of toilet/washroom facilities is estimated at SBD 5,300
- Uniform costs are estimated at SBD 26,500.
- Advertising and printing budget is estimated at SBD 100,000

13.4 The Result

- ✓ The public, stakeholders and the media will see a gradual improvement in the image of SIWA which will complement the improvements that we can make in the service we provide.

Finance and Administration Section

14 Background

14.1 SIWA Financial Restructuring Plan (2007)

In 2004 the Solomon Islands Government (SIG) commissioned a Solomon Islands Water Authority Financial Restructuring Plan which was funded by the World Bank. This plan was published by Price Waterhouse Coopers in association with SKM (v1.3) on 9th February 2007. The main financial and administrative recommendations contained in that plan are summarised as follows:

1. A management contract be implemented for SIWA, SIG and the SIWA Board to ensure that SIWA's operations are managed on a commercial basis (with assets being properly maintained, adequate level of customer service, and SIWA's finances being properly managed with timely production of financial statements and MIS reports.
2. In case the management contract was not implemented the plan alternatively recommended the appointment to SIWA of:
    a. A Financial Manager / Adviser, and
    b. A technical adviser
3. Audited Accounts had not been prepared for the previous 6 years 1999-2004 meaning that SIWA's Board had not been provided with financial information required to oversee its functioning. Financial Reports were re-structured since the assets and liabilities in the general ledger were at wide variance with the actual values. The restructured Statement of Financial Position showed total equity of $53.4 million.
4. SIWA's fixed assets were re-valued at replacement cost by Sinclair, Knight, Mertz (SKM) at $55.086 million;
5. Receivables were re-valued to agree with the billing system of SIWA at $7.7 million and Creditors were re-valued at $15.89 million (of which $15.27 million was owing to SIEA);
6. Over 2000 bills had not been dispatched each month and over 2000 meters were not working correctly. SIWA was receiving about 500 customer complaints every month. SIWA should undertake a complete review of the Meter Reading and Billings systems and processes to improve the ration of correct to incorrect billings;
7. SIWA needs to focus on Debt Collection efficiency;
8. Inadequately trained and qualified staff leading to non-compliance of accounting procedures. On-the-job training was recommended;
9. SIWA did not have a complete accounting policies and procedures manual;
10. The existing software was not reliable and did not generate financial statements and management reports and is not integrated with billing and collection;
11. The Chart of Accounts needs to be simplified including a review of the current structure and cost centres;
12. Implementation of a Tariff Revision and a new Tariff Adjustment Mechanism (annual adjustments to take into account increases in electricity charges and inflation);

14.2 Outcomes

Very few of the recommendations proceeded.

1. Management Contract did not proceed;
2. Appointment of Advisers did not proceed till April 2011 (PIAC);
3. Restructured 2005 Financial Statements were never used. (2006 Financial Reports were prepared and audited without reference to the PWC restructured Financial Statements);
4. Revaluation of the Fixed Assets was never used in the preparation of 2006 Financial Reports nor entered into the Assets Register;
5. Receivables were never re-valued;
6. No review was ever carried out of the meter reading and billing systems (and the same problems still exist in 2011);
7. Debt collection rates and procedures did not improve;
8. No staff training has been carried out between 2007 and now (other than long term days release students attending the College on Diploma courses);
9. SIWA still does not have its Finance and Administration Policies and Procedures documented;
10. Accounting Software modifications have improved the Financial Reports but the accounting system is still not integrated with the Billing System;
11. The Chart of Accounts continues unchanged and SIWA still requires a completely new, more effective Chart of Accounts.

14.3 Subsequent Assistance

The new SIWA Board in August 2010 allocated joint funding from the NZ Government (78%) and SIWA, in consultation with the SIG Economic Reform Unit (ERU) for Morris and Sojnocki Chartered Accountants (M&S) to spend one day a week for six weeks to assist SIWA staff to prepare:

- Account Reconciliations for 2009 year end;
- Reconstruct Trial Balance for 2009 year end;
- Assist Budget Forecast and Cash Flow July 2010 to December 2010.

The initial assignment was completed and the Board negotiated on-going assistance. However when it was found that SIWA staff were apparently managing without their input the Board resolved that M&S would cease providing consulting services.

15 Cash flow and Liquidity

15.1 The Problem

The following statement is extracted from the Terms of Reference for SIWA Financial Restructuring Plan prepared in 2004.

"Though no financial reports were made available it was learnt that SIWA was facing a very severe liquidity crisis due mainly to unaccounted losses, metering problems and difficulty in collecting accounts. SIWA had almost no working capital to finance its day to day operations and owed about SDB $18 million for electricity".

Seven years later it is clearly apparent that despite previous reports and assistance, nothing has changed for SIWA.

By April 2011 SIWA was insolvent and unable to pay its bills as and when they became due. Suppliers wanting cash-on-delivery were frustrating any effort to repay those creditors who have shown patience. Lack of working capital and credit facilities is also restricting the amount of consumables SIWA is able to purchase and carry in stock.

The current cash-flow situation based on January to April 2011 interim results follows:

SOLOMON ISLANDS WATER AUTHORITY (SIWA)

CASH FLOW SUMMARY		**4 months to 30 Apr 2011 Financial Report**			**CASH FLOW COMMITMENTS PER MONTH**
Inflows					
Revenue Collections	$	8,311,571	79%	$	1,641,535
Other Income & Asset Sales	$	690,996		$	172,749
	$	**9,002,567**		**$**	**1,814,284**
Net Minimum Monthly Commitments					
Overheads & General	$	469,252		$	117,313
Electricity	$	5,692,963	(1)	$	456,288
Salaries & Wages	$	2,911,508	(2)	$	727,877
Motor Vehicle Expenses	$	305,064		$	76,266
Land Rental & Survey	$	596,464		$	149,116
Supplies & Chemicals	$	119,094		$	29,773
Maintenance & Parts	$	788,799		$	197,200
Capital Purchases	$	487,050		$	121,763
	$	**11,370,194**		**$**	**1,875,595**
Deficit / Shortfall	**-$**	**2,367,627**		**-$**	**61,311**

(1) Electricity agreed payments to SIEA $100,000 per week plus $56,288 pm Cashpower prepaid.

(2) Salary Payments include retrenchments retirements and terminations

With electricity and salary expenses absorbing in excess of 100% of revenue there is nothing available to cover consumables and overheads. Unfortunately without additional spending on consumables for maintenance, spares and tools the quality of water service cannot be improved and the damaged pipes causing water losses or pressure and flow restrictions cannot be repaired. The basic list of consumables required right now plus an expected replenishment of small items in store next month are unable to be met from current cash balances.

The monthly increase in the SIEA debt is currently financing SIWA operations to the extent of $1 million per month (the equivalent of 50% of the monthly billings).

The current Technical Assistance provided by PIAC does not include any operational funding. Commitments to expenditure have therefore had to be kept to a bare minimum to cover day-to-day urgent or immediate requirements.

15.2 The Solution

The benefits of further technical assistance will be minimal unless it is supported by operational funding to supplement the day-to-day revenue of SIWA and the personal efforts being contributed.

Operational funding requirements are attached and submitted as part of this Immediate Recovery Action Plan and subsequent Strategic Plans.

15.3 The Costs

Operational funds for mechanical, electrical and pipe fitting etc. required to implement urgent leakage and other repairs are estimated elsewhere in this report at $650,000. Replenishment of the normal stock of parts next month is estimated to cost $60,740. Funding to achieve improvements recommended elsewhere in this report are included in the schedule attached to this report.

15.4 The Result

Urgently needed operational and preventative maintenance can be carried out saving unnecessary pumping costs and improving the quality and quantity of supply. Other funding will ensure that the recommendations for improvements detailed elsewhere in this report are implemented which, in turn, generate improvements in service and revenue.

16 SIEA Debt

16.1 The Problem

An important problem for SIWA (and for SIEA) is its increasing indebtedness for electricity supplies towards SIEA. In 2008 SIWA owed $ 27 million to SIEA and at that time $12 million of SIWA debt in 2008 was written off. Meanwhile the unpaid debts to SIEA have again increased to $28 million at 31/04/2011 and are currently increasing at the rate of approximately $1 million per month. The "pre-agreed" $100,000 repayment schedule has been paid at the rate of $50,000 per week which is clearly not sufficient to make any reduction in the core debt. The $100,000 promised weekly payments have commenced since April 2011. The electricity supply at the three SIWA office buildings have been transferred to CashPower (regularly filled prepaid supply $56,000pm) and do not form part of this debt. SIWA proposes to restructure the debt of SIWA to SIEA with the purpose to liquidate its current debt to SIWA and to prevent the occurrence of future debts.

16.2 Liquidation of outstanding SIEA debt

At current levels of income and expenditures, SIWA is not even able to pay its regular electricity bills, let alone make repayments on its outstanding SIEA debt. Therefore the options to reduce or liquidate the outstanding debts appear to be limited to the following:

a) The Government may consider providing a capital injection into SIWA which will allow it to liquidate its debts towards SIEA; this could be done as part of a Financial Restructuring Plan in a similar way as it was prepared and approved for SIEA in 2007.
b) The Government may consider lending the required amount to SIWA and with that loan SIWA could liquidate its debt to SIEA.
c) The Government may enter into a Community Services Obligation (CSO) Contract with SIWA and SIWA may use (part of) the revenues to pay back its debt to SIEA. Community Services Obligations of SIWA might e.g. include providing a lifeline water supply at subsidized rates to ensure access to clean water for the disadvantaged.

16.3 Prevent the occurrence of future debt

The occurrence of future debt to SIEA will require a substantial increase in revenues in order to allow SIWA to recover at least its regular operation and maintenance costs. Revenues may be increased by a rise in the number of connections (especially by legalizing illegal connections) and aggressive debt collection. SIWA is working on both issues, but this is a long term process and combined with an expected 4% growth in the market is estimated to generate an increase in revenues of between 10-15% by the end of 2011.

In the long run, SIWA may also be able to reduce its operating costs but this will only be possible after substantial investments in the distribution system, replacing old pumps and distribution pipes, reduction of leakage and improving the hydraulic performance of the system. SIWA has already reduced staff levels below its requirements.

The level of activity in SIWA is currently too low and increased activity to improve levels of service will require even greater operational and maintenance costs.

The current shortfall in covering current and planned operation and maintenance costs amounts to $ 2.0 million per month. The following options exist to increase revenues:

a) The Government may decide to provide a regular subsidy of about $ 2.5 million per month to SIWA enabling it to recover its operation and maintenance costs;
b) The Government may enter into a CSO contract with SIWA and in this way subsidize part of its operation and maintenance costs;
c) The Government and SIWA may agree on an increase in water tariffs that will enable SIWA to recover its operation and maintenance costs. Such an increase should be introduced in conjunction with an automatic adjustment scheme that adjusts water tariffs for increases in electricity rates or a combination of changes in the costs of energy and personnel;
d) Any combination of the above.

16.4 Proposed Time Schedule

The following time schedule for the above activities is proposed:

June 2011

Agree on components and time schedule for Debt Restructuring Plan for SIWA's debt with SIEA

July-August 2011

Prepare proposals for new tariff structure for SIWA

Prepare elements of a possible CSO contract and/or a financial injection and or loan from the Government to SIWA

September – October 2011

Approval of proposals by the SIWA Board, the Ministry of Mines and Energy and the Ministry of Finance and Endorsement by Cabinet

November 2011

Prepare for introduction new tariffs

Implement other financial restructuring components

December 2011

Apply new tariffs

17 Tariff Levels and Tariff Revision

The Minister, on the recommendation of SIWA, determines Water Tariffs. Under the law, revenues should be sufficient to cover operating expenditures including depreciation, interest, loan repayments and the cost of replacing assets

17.1 The Problem

The last gazetted Water Fees and Charges for SIWA were 17th October 2008. It is doubtful that the level set at that time was sufficient to achieve a break-even position. The tariff has not been revised since and contains no provision for automatic adjustment for (1) Inflation or (2) Cost of electricity. By contrast, SIEA (Solomon Islands Electricity Authority) have automatic tariff increases each quarter to reflect the price of diesel fuel.

Current SIWA tariff gazetted on 17th October 2008 is:

	Monthly Consumption	Water	Water & Waste Water
		$ per kl	$ per kl
I. Domestic	0-15 kl	$ 2.00	$ 3.00
	15-30 kl	$ 3.00	$ 4.50
	greater than 30kl	$ 3.50	$ 5.25
II. Commercial	0-15 kl	$ 8.00	$ 12.00
	15-30 kl	$ 9.00	$ 13.50
	greater than 30kl	$ 10.00	$ 15.00
Monthly Standing Charge		$ 10.00	
Installation - Domestic		$ 400.00	$ 800.00
Installation - Commercial		Based on Assessment	Based on Assessment
Disconnection - All		$ 50.00	
Reconnection - Domestic		$ 50.00	
Reconnection - Commercial		$ 100.00	

SIWA, as a starting point, requires a tariff increase to reflect historic inflation and increased electricity charges. Electricity costs have risen from 35% in 2005/6 to 68.5% at present of SIWA's water charges.

SIWA needs to cover proper operating and maintenance costs to produce a good service.

SIWA should have the same provision built into any tariff review whereby it is able to automatically increase the water tariff to reflect the current price of electricity and inflation quarterly. This provides for gradual recoupment of increase electrical costs without further "tariff shock". Inflation would be measured using the Central Bank of Solomon Islands CPI index.

A tariff structure should include a "lifeline" tariff for low usage (e.g. the first 15 kl per household per month) to ensure access for poor people and increasing tariffs for higher usages and fully

commercial tariffs for excess use. By charging Excess water at high rates we also discourage water wastage.

17.2 The Solution

It is essential that a submission on Tariff Increases including appropriate financial calculations be prepared urgently to be forwarded to the Minister for Mines, Energy & Rural Electrification for consideration and that submission take into account a volume related scale of tariffs favouring the poor while penalising excessive usage and water wastage and which allows automatic indexing of tariffs based on increases in electricity tariffs and CPI.

SIEA, from 1st January 2011 charges (commercial) $5.53 per kwh comprising a tariff of $4.569 kwh plus a Fuel Price Adjustment of .9619 kwh. This is substantially higher than the rate charged in 2008.

Inflation for 2009 was 7.6% and for 2010 was .9% (Source: National Statistics Office 2007-10). Adjusting tariffs alone would result in an accumulated increase in revenue of $2 million for 2009 and 2010.

The quarterly adjustment would be calculated:

> Tariff Adjustment (%) = [% Change in Electricity Tariff x Proportion of Electricity Cost] + [% Change in CPI x Proportion of Other Costs]

17.3 The Cost

We should consider using external consultants to prepare the submissions for tariff increases. The estimated cost is USD 60,000.

17.4 The Result

Tariff increases will ensure that SIWA's operations are more profitable. Quarterly indexing of tariffs will ensure that increases in electricity prices do not adversely affect SIWA's profitability.

18 Profitability/Cash Recovery

18.1 The Problem

Considerable tariff increases are unavoidable to achieve an acceptable level of recovery of at least operating and maintenance costs. An estimate of the time it will take to become self-funding cannot be made at this early stage. In addition SIWA will need (fully subsidised) capital investments to upgrade, rehabilitate and further extend its services.

18.2 Mitigation of Expenses

A number of staff were retrenched in November 2010 and several others will either retire or be dismissed in the immediate future. As pointed out elsewhere in this document, SIWA now finds itself needing to appoint more staff. It is therefore difficult to reduce salary costs without a complete revision of the salary scales and benefits.

Customs duties are currently being levied on imported goods adding substantially to the costs of the Authority. According to the Solomon Islands Water Authority Act Sections 36 and 37 exempt SIWA from Customs Duties and Income Taxes.

Because of the funds shortage and lack of credit facilities, most unnecessary overheads and running costs have already been trimmed. However because of the shortage of equipment and parts orders often can only be placed with one supplier who is in a position to supply immediately.

18.3 The Solution

It is clear that an increase in revenue of between $600,000 and $1 million per month (26% of revenue) is required to break even.

SIWA's charges are shown above and average $5.58 per kl . An increase of 26% would bring the base charges from $2 per kl to $2.5 per kl and highest charge from $15 to $19 per kl (average charges would rise to $7.04).

Furthermore a 20% increase in recoverable volume of water would increase revenue and profitability by $450,000 per month ($5.4 million per year).

Labour costs will increase marginally as long term employees on high salary levels retire and younger more enthusiastic and competent staff are appointed. A Human Resources Review will hopefully show SIWA where savings might be made by restructuring salary levels and scales.

We have made submissions to the Minister of Finance requesting confirmation of SIWA's exemptions from customs and taxation and will seek reimbursement of sizeable duties already paid.

18.4 The Result

An injection of funds into SIWA to purchase a stock of consumables (as mentioned throughout this report) will allow SIWA the time and opportunity to seek more competitive prices from the local and overseas suppliers for forward orders of parts and equipment.

Labour costs proportional to revenue should decrease.

Customs Duties paid will be reimbursed. Customs duties will no longer be payable.

Consumables and Equipment will be able to be ordered in a more timely fashion allowing the opportunity to seek more competitive prices.

19 Dividend Policy

The SIWA Statement of Corporate Objectives (November 2010) prepared by the Board of Directors earlier this year includes:

"It is anticipated that any surplus of funds that might be available at the end of financial years in the foreseeable future will be reinvested into the refurbishment, replacement or expansion of SIWA's assets. Consequently it is anticipated that there will no dividend payment to shareholders in the forecasting period. This will be reviewed each year.

Year	***2010 Forecast***	***2011 Budget***	***2012 Plan***	***2013 Plan***
*Estimated amount to be distributed by dividend to shareholders ($M)_*	*Nil*	*Nil*	*2M*	*4M*

In recommending payment of dividends to shareholders, SIWA Directors will follow the policies of similar public companies, and will comply with Section 14 of the SOE Act."

It is highly unlikely that SIWA will be in a position to pay dividends at any time in, at least, the next 10 years. It is highly desirable that any surpluses which ever arise from SIWA's operations are re-invested into the future capital needs of the organisation.

20 Budget 2011

The 2011 Board approved Budget is summarised:

Approved Budget 2011			
Total Revenue	$	32,187,814	
Other Income & Asset Sales	$	1,398,400	
	$	**33,586,214**	
Operating Expenditure			Percentage of Revenue
Overheads & General	$	3,451,100	10.7%
Electricity	$	14,416,000	44.7%
Salaries & Wages	$	7,728,614	24.0%
Motor Vehicle Expenses	$	1,095,000	3.4%
Land Rental & Survey	$	124,000	0.4%
Supplies & Chemicals	$	404,000	1.3%
Maintenance & Parts	$	1,434,500	4.5%
	$	**28,653,214**	
Electricity & Tax Arrears	$	3,200,000	
Capital Purchases	$	1,845,000	
	$	**33,698,214**	
Budgeted Deficit	**-$**	**112,000**	

Many items in this budget are either unachievable or unrealistic. For example, electricity costs are currently running at 67% of revenue, whereas the above budget has set electricity at 47% of revenue.

A Revised Budget will be prepared in time and it is recommended, subject to the provision of additional operational funding, that the Board adopt the Revised Budget.

21 Financial Systems and Reliability of Financial Reporting

21.1 Assessment of Financial Systems

21.1.1 Audit

Annual Accounts are required to be audited and presented to the Minister. It is recommended that all SOE's publish their financial results in the newspaper. The external audit (subcontracted by the Auditor General) has been completed for 2007. The external audit for 2008 and 2009 commenced in January 11, is in progress but came to a standstill shortly afterwards. The audit of 2010 Financial Reports has not yet commenced.

An internal auditor was recruited some time ago but he was later appointed to temporarily replace the last Divisional Manager of Finance and Sales. Since the appointment of the international CFAO, he has been required to assist the CFAO. Hopefully he can soon resume the full time responsibility for Internal Audit and ensure that all reconciliations and control accounts are kept up to date.

21.1.2 Accounting

Accounting, payroll and accounts payable are processed using Attaché Accounting System. This is a sound system but controls and reconciliations have been neglected. Errors are created as a result of power outage "crashes" and are not always immediately rectified.

The current Chart of Accounts uses out-dated divisional analysis and needs to be revised.

All accounting and payroll staff have network access to the Attaché system and proper restrictions are placed on the appropriate access levels.

A local Attaché consultant has now set up in Honiara. Previously service was only available from Australia or New Zealand. We have been using his services to repair the faults and restore the system to an accurate state. However access to the system is slow and Attaché have warned SIWA that the existing network cannot adequately cope with a number of users accessing Attaché.

Much of the information provided was unreliable. For example, a significant error ($1.34 million) was made in the December 2010 financial report where electricity costs unbilled for the month of December were not accrued but added to January. Overbillings of $1.2 million also occurred in November 2010. These have now both been adjusted but the adjustment of $2.5 million is larger than an average month's total revenue therefore distorting the information previously provided.

It has been extremely difficult to plan or to operate without reliable financial data. Accounting entries have been kept reasonably up to date but there has been very little checking of accuracy of input or reconciliation of control accounts.

Revised brief financial reports with budget comparison for the year ended 31st December 2010 and the four months to 30th April, 2011 are attached.

The existing Chart of Accounts and Financial Reports in Attaché need to be revised and improved to meet International Reporting Standard and to produce more meaningful Management Reports.

21.1.3 Meter Readings

Billings are generated from meter readings using handheld recorders. Meter reading zones are set and programmed from the Billings Office. Two new Handheld Recorders have been delivered. This should improve both the accuracy and regularity of Meter Readings. There is currently very poor supervision or control of meter readers but many meters are still unreliable or broken.

It has been suggested in the past that SIEA assume responsibility for SIWA meter reading. Though this would seem to be a logical combination, SIEA management advises they are not sufficiently satisfied with their meter reading procedures and are unable to recommend such a combined meter reading plan. In fact SIEA are moving away from the use of meter readers towards prepaid CashPower and Smart Meters (live remote access meters).

21.1.4 Billings

Meter Readings are entered into the NCS (Napier) Billing system (automatically via a USB connection).NCS calculates charges; bills are printed and sent out. Cashiers (at SIWA office and Hyundai Mall) access the NCS system to prepare and enter customer receipts. Monthly revenue is then manually entered into the Attaché System (using the NCS reports). Adjustments (mainly resulting from incorrectly entered meter readings) are forwarded to the CFAO for approval prior to entry.

Copies of the billing history can be printed out when a customer queries their account. Reports of large or long outstanding debts can be produced to assist the debt collections officer and disconnections team.

Whilst the systems themselves are sound and suitable for SIWA, controls are not necessarily sufficient to prevent fraud and are not regularly checked. Reconciliations have not been carried out for some time. Staff are perhaps unaware of how to take advantage of the powerful reporting and controls available from the system.

Numerous large discrepancies have been identified in the accuracy of billings (one particular error in November resulted in an overstatement of income of $1.2 million). The majority of complaints made through customer service have been of billing errors which required adjustment. Billing staff have been asked to peruse and check all listings of bills to ensure there are no abnormal billings or other indications of errors.

The new connections team complain of delays in the Billing Section registering applications for new connections. We have already taken steps to process these more promptly.

The Billings Team Leader has requested retirement which will take effect at the end of May 2011. Even now he rarely comes to work and he is one of the main causes of current Billing Department delays and errors. Unfortunately he is the only person who understands the NCS reporting system. The accountant has been stepping in to assist Billing staff but he needs to return to attend to urgent accounting work.

NCS will have a trainer coming from New Zealand in June 2011 and training sessions have been organised, particularly in the production and use of the many reports and controls available from the Billing system.

21.1.5 Debt Collection

A new Debt Collection Officer has been appointed (transferred from Customer Service Section) and we are optimistic that she will get better results. Recent Monthly Cash collections have been running at 79%of monthly Billings. This is an improvement on the 60% estimated in the 2011 Budget.

An increase in disconnection activity has generated an increase in receipts. We now need to supplement this work by issuing payment demands and taking small claims through the Magistrate's Court system.

Accounts receivable at 31st March 2011 were $32.73 million. Much of this has been outstanding 90 days+. An estimated $10 million is not recoverable. We are in the process of recovering deposits from the Trust Account and writing off all known Bad Debts.

A joint SIWA/SIEA "Downtown" payment office has been established in the Hyundai Mall. After 3 months of operation it is currently collecting 6% of all receipts for SIWA. There may be more opportunities to share payment facilities with SIEA and we will be meeting regularly to discuss future joint ventures and innovations.

21.1.6 Procurement

A manual procurement system with documented procedures exists but these procedures are rarely followed especially in the selection of the best of three quotations. The reasons cited are:

1. That the supplies are required urgently, or
2. There is only one supplier in Honiara

Order forms are prepared and duly authorised by the responsible manager.

Tardy payments from SIWA in the past, because of liquidity problems, have caused many firms to cancel credit facilities and require "cash-on-delivery".

21.1.7 Accounts Payable

Accounts payable seems to have been by-passed whilst SIWA is operating on a cash-on-delivery basis.

21.1.8 Receipts and Banking

Money received by the two SIWA cashiers is not banked until the next day. A safe has now been installed at the SIWA Head Office to hold this cash until it is banked and we have now arranged for the Hyundai Mall cashier to be collected each evening by SIWA car to bring the cash back to the safe.

21.1.9 Fixed Assets

A Fixed Assets Register is maintained by the Assets Manager in MS Excel format. A report showing depreciated values at 31st December 2010 has been prepared and is awaiting a Physical Verification

of all Assets. It appears that re-valuations have not been carried out at any time. Fixed Assets currently have a written down value of $15.74 million.

21.1.10 Stores

The previous store man recently retired and a new store man has been appointed. He has already streamlined many of the storekeeping functions.

21.1.11 Authorisations

All purchase orders and payments are currently passed to the CFAO and/or GM for perusal and approval. Cheques are signed by the Internal Auditor and counter-signed by the Operations Manager. The Board Chairman and one Director are alternate signatories. A daily cash flow statement is prepared and issued to the CFAO.

21.2 The Solutions

A system is only as good as the people using it and the controls in place. Though internal controls exist, they need to be revised and in some cases activated or policed. Reconciliations of Billings, Deposits Held, Debtors, Bank Accounts, Payables and Salary Controls need to be prepared up to date.

The Auditor General has been asked to instruct his subcontractor to complete the 2008, 2009 and 2010 audits of SIWA's Financial Reports as soon as possible. We understand that the subcontractor is scheduled to come to Honiara early in June 2011.

Both on-the-job and external training is required for senior accounting staff in internal controls so they can better analyse financial data to identify and rectify errors and give assurances of accuracy.

A competent person should be appointed to supervise meter reading in the field to ensure the accuracy and control of meter readings. Meter readers often present the face of SIWA, should wear identifying uniforms, carry ID cards and should receive training in customer service.

SIWA will appoint one new staff member to work in the Billings and Accounting Departments on a Casual Contract for 3 months. At that time if they are suitable they will be given the opportunity to join SIWA permanent staff;

Arrangements have been made for the Billings Staff (including the new employee) to participate in 3 days of NCS training commencing 13th June 2011

It is recommended that an assistant Debt Collection Officer be appointed on a casual 3 month contract to assist the Debt Collection Officer, particularly in pursuing Small Claims in Court.

New payment innovations need investigation (e.g. Internet Payments, Direct Debit, Credit Card Payment and Prepayments).

All known Bad Debts should be written off on a regular basis following a proper authorisation procedure.

The Accounts Payable Ledger should be used for all purchase and expense transactions in order that analysis by supplier, proper dissection of expenses and appropriation to the correct accounting period can be made.

Revaluations of major assets need to be carried out as well as and at the same time as the Physical Inventory takes place. Adjustments need to be made for disposals which took place in recent years.

21.3 The Cost

Additional Meter Reading Supervisor – SBD 100,000
The estimated cost of NCS Training is SBD 19,250.
New staff for Billings and Accounting – SBD 30,000 (2 persons at 3 month contract)

21.4 The Result

Internal Controls will be more vigilantly checked.
Financial Reporting will be more reliable.
Financial Reports will comply with SOE regulations and guidelines;
Financial Reports will eventually comply with International Financial Standards.

22 Information Technology

22.1 The Problem

The current network installation and internet connections are antiquated, slow and prone to damage during electrical shutdowns. Billings and receipts are processed through NCS Billing system using the network with a number of users having access. A remote wireless connection has been made to the Hyundai Mall downtown cashier. Financial accounting is also accessed by a number of users and is extremely slow and prone to crashes during power failures. Internet connections throughout the Solomon Islands are notoriously slow and expensive. The speed is further slowed by the SIWA network.

It was recently discovered that rats had been chewing at network cables. The attaché technicians have also advised that the network needs to be replaced to allow ready access of the attaché software. We are suggesting that if this is to happen, SIWA should not replace the cabling but install Wireless Internet around their offices. There are 3 buildings plus a store which would most likely require repeater antennae.

Any revision of the IT system should also include the development and implementation of a Management Information System to monitor and achieve operational data and statistics.

The IT officer has prepared a report advising that in the first instance the 6 year old Windows exchange server be replaced. At a later date the Linux server, which serves the Billing System and Cashiers, will also need replacing.

22.2 The Solution

It is recommended that SIWA urgently install a new Exchange Server along with an Office Wi-Fi facility.

22.3 The Cost

The estimated cost of this new server and Wi-Fi is estimated to be NZ$12,030 (AUD$8947/SBD$66,740).

23 Human Resources / Staff Management

23.1 Assessment

This past month has been spent appraising the existing staff to establish which key people could lead SIWA through a recovery phase.

It was clear that staff morale was at a low but the arrival of the new GM and CFAO seems to have been welcomed by all and has inspired the more enthusiastic managers and employees.

There is an on-going problem with staff absences for various reasons which have frustrated both the re-organisation of duties and the added effort required to have the SIWA team operating efficiently. Regular absences are encouraged by the leave provisions:

i. Illness (20 days per annum),
ii. compassionate leave (10 Working Days per annum)
iii. annual leave
    1. 24 working days per annum – Level 1,2,3
    2. 36 Working days per annum – Level 4,5,6
    3. 48 Working days per annum – level 7,8,9;

A number or older staff members have requested retirement. These requests were accepted and arrangements are now being made to pay their entitlements (Billing, Stores and Auki Connections) and where necessary appoint replacements. Retirement payments are being made from the proceeds of Asset Sales. This will provide the opportunity for recruitment of younger (and hopefully more enthusiastic) replacements. Further retrenchments may become necessary where employees are clearly not contributing to the recovery of SIWA.

Staff Advances are shown as separate accounts in the General Ledger. Any revision of the Chart of Accounts should include a sub-ledger for advances. A number of employees have left SIWA without settling advances. The new Board recently instructed that staff advances cease to be made. Maximum deductions from salaries are set at 30% of the employee's salary so recovery of larger advances is very slow. Unrecoverable balances need to be written off.

The current Administration Division is responsible for Human Resources.

SIWA over the recent years seems to have failed to adequately address many of the outstanding Human Resources issues.

- Several outstanding disciplinary cases have been held for 8 months without settlement and need to be resolved quickly. The persons accused have been placed on suspension but are still being paid full salaries and benefits.
- A number of dismissals took place in late 2010 and there is currently an outstanding claim on SIWA made by a lawyer acting on behalf of some of the dismissed staff. This has not yet been resolved but had a pre-hearing on 17th May when the matter was adjourned for at least 3 weeks while the parties prepare sworn statements. Our legal advisers have advised that they will call for the case to be dismissed;
- No staff appraisals have been carried out;
- Job Descriptions have not been updated;
- No attention has been paid to OH&S issues;
- Personnel Files are disorganised and do not contain all the relevant records for the respective employee in one place;

- Very little staff training has been carried out, planned or recorded (other than allowing day release from duties to attend classes at the college for long term diploma courses);
- Employees wishing to undertake degree courses were previously released on full pay but are now required to resign to attend University in Fiji or in Australia;
- Terms and Conditions of Employment were last updated in 2008 and are contained in a document of 238 pages. A condensed brochure using simple terms and only a few pages should be prepared and handed to each employee when he starts with SIWA;
- There are no induction or orientation procedures for new employees and no requirement for health checks or police clearances.

Salary calculations and payments have previously been the responsibility of the Administration Division which also administers Human Resources generally. This is not an appropriate division of responsibility. *Salary calculations and payments have now been transferred out of the Human Resources / Administration responsibility across to be administered as part of the Finance Function;*

Bare salary costs are $3.35 Million but this is only 52% of the payroll. Employee Benefits cost SIWA a further $3.13 Million or 48% of the payroll. Employee Benefit includes:

a. Housing;
b. Vacation Travel to Home Province;
c. Overtime;
d. Acting Allowances for relieving staff on leave;
e. Water Rates Concession;
f. Medical Expenses (ceiling of $1200 per annum);
g. Prepaid Telephone Cards;
h. Education subsidies;
i. Long Service Leave Provision

Current salary and benefit costs appear relatively high at the equivalent of 25% of Revenue (including retirement and retrenchment payments this percentage rises to 35%).

23.2 The Solution

It is recommend that an International Human Resources Adviser be appointed to review the current staffing and salary structures along with the Terms and Conditions of Employment and with a view of implementing staff work plans and performance evaluations.

23.3 The Cost

Estimate a 3 month contract at cost of USD 90,000.

23.4 The Result

SIWA Salary costs will become more controllable when

1. Proper provisions are made for Long Service Leave;
2. Benefits and Leave Provisions are re-negotiated and regularised

Employees will become more motivated and professional when they know that proper provision is made for their training, promotion, security, safety and welfare.

24 Organisational Policies and Procedures

24.1 The Problem

Managers were asked to provide the advisers with copies of SIWA's Policies and Procedures. They advised that there were none. However a finance office manual dated 1994 was later found which comprises mainly copies of legislation and a few practice notes. Occasional procedural instructions have been issued since.

24.2 The Solution

The Policy and Procedures Manuals must be written for, at least, the Financial and Administration sections of the organisation, to be approved by the Board of Directors before being handed to employees.

25 Investment program

The SIWA Statement of Corporate Objectives (November 2010) prepared by the Board of Directors earlier this year includes:

" The estimated capital structure at end 2010, and those forecast for the next three years are as follows:

Capital Structure and Investment (as per IFRS)	***2010 Forecast***	***2011 Budget***	***2012 Plan***	***2013 Plan***
Debt ($M)	*Zero*	*Zero*	*Zero*	*Zero*
Equity ($M)	*15 M*	*20 M*	*25 M*	*30 M*
Debt to Debt + Equity	*-%*	*-%*	*-%*	*-%*
Capital Investment ($M)	*Zero*	*30 M*	*45M*	*60M*

SIWA's intent is that investment related expenditures can be recovered from connected customers over time. SIWA will aim to optimise its capital structure, and then where possible will try to source as much as it can from aid and donor sources. In the short and medium term, it will have to look to cover any shortfall through capital investment support from its shareholders. In the longer term, it is SIWA's intent that it should be able to partially fund its investments from its own cash-flows, and then to borrow the remainder on the basis of its own balance sheet."

26 Setting the priorities

26.1 The Objectives of the Short-Term Recovery and Action Plan

A Program of recovery requires adequate financial human resources. Therefore, the first priority must be to obtain sufficient working capital to finance the goals set out in this Recovery Strategy and to settle the pressing issue of the accumulated debt to SIEA. As the strategy is implemented the improvements in quality and service would generate funds to ensure a more self-sustained SIWA.

The prime objectives established for the Interim Management Team are re-stated as follows:

i. *Reduction in the periods that water supply is rationed and/or reductions in the areas where rationing of water supply is applied;*
ii. *Improved quality of water supplied by SIWA as monitored by the Ministry of Health;*
iii. *Reduced water leakage (provided that adequate measurement can be made);*
iv. *Increased rate of collection of water bills resulting in increased cash income for SIWA; and*
v. *Improved financial reporting and auditing of SIWA's financial records*

The assessment of the situation which has been performed over a period of 5 weeks leads us to confirm that these objectives remain valid. Therefore, prioritisation of the strategies for the recovery Plan must be based on these prime objectives.

Strategies to achieve these objectives cannot be started without having an adequate level of at least short-term funding. It is clear that SIWA cannot generate these funds in its current dire financial condition.

The challenges facing SIWA span the whole organisation and relate to all of the companies activities. It will be difficult to establish individual stand-alone strategies for improvement of specific parts of the business which can be implemented successfully and independently of improvements in other parts of the business. Weaknesses throughout the business will affect the possibility of successful outcomes of individual strategies.

It is important to emphasise that nearly all of the recommendations in this Recovery and Action Plan must be rated as being of high and urgent importance. Whilst it will not be possible to solve all SIWA's problems over similar timescales, it will be necessary to implement change in many areas simultaneously so far as management and financial resources allow.

A significant restructuring of SIWA will be required in order to develop an organisation that is more streamlined and more capable of managing the urgent changes which are necessary, including managing the investment which is required to prime the organisation into a "change" mode.

26.2 Summary of the Individual Action Plans

This Recovery and Action Plan is made up of a series of individual strategies, all of which are interdependent to a greater or lesser extent. These strategies are summarised in the following tables with an indication of the priority attached to each action:

SERVICE DELIVERY			
Strategy	**Summary of Objectives**	**Start-Up Funding Required USD**	**Priority**
Water Supply Improvement	To improve the levels of service in: ➢ Security of water supply ➢ Pressures and flows available at the customer's tap ➢ Reduction in the frequency and duration of water supply interruptions	465,000	**IMMEDIATE –** DEPENDENT ON AVAILABILITY OF FUNDING
Water Quality Improvement and Monitoring	To improve the safety of drinking water: ➢ Management and reliability of disinfection processes ➢ Monitoring and analysis of bacteriological and chemical quality of drinking water	345,000	**IMMEDIATE -** DEPENDENT ON AVAILABILITY OF FUNDING
Non-Revenue Water Reduction	To reduce the quantity of non-revenue water, in particular: ➢ Physical losses ➢ Unauthorised consumption	180,000	**IMMEDIATE -** DEPENDENT ON AVAILABILITY OF FUNDING
Sewerage Operations Improvement	To remove sewer blockages: ➢ Remove blockages efficiently ➢ Routine maintenance to prevent blockages	18,000	SOONEST

SERVICE ENHANCEMENT AND CORPORATE IMAGE			
Strategy	**Summary of Objectives**	**Start-Up Funding Required USD**	**Priority**
Customer Service Development	To improve the quality of customer interaction with SIWA: ➢ "One-Stop" front-desk handling of all customer-related issues ➢ Provision of customer information ➢ 24-hour call reception ➢ Accessibility and convenience	91,000	**Planning:** Immediate **Implementation:** Soonest.
Communications Strategy	To manage the interaction between SIWA and its stakeholders and the media:		**IMMEDIATE**
Corporate Image	To improve the overall public perception of SIWA	24,000	SOONEST

FINANCIAL MANAGEMENT AND CONTROL			
Strategy	**Summary of Objectives**	**Start-Up Funding Required USD**	**Priority**
Profitability and Cash flow	To improve: ➢ Meter reading, billing and debt collection processes. ➢ Minimise non-revenue water losses	22,800	**IMMEDIATE –** On-going **IMMEDIATE**
Accounting and Control	To improve: ➢ Financial systems ➢ Reporting ➢ Auditing	2,800	**IMMEDIATE –** On-going
Debt Elimination	To satisfactorily eliminate the SIEA debt.	———	**IMMEDIATE -**
Water Service Tariff Revision	Submission of tariff revision proposal which incorporates built-in periodic and automatic increases for rise in CPI and electricity price rises	60,000	**IMMEDIATE -**

ORGANISATIONAL EFFCETIVENESS			
Strategy	**Summary of Objectives**	**Start-Up Funding Required USD**	**Priority**
Organisational Restructuring	To focus the organisation on clearly defined activities and objectives: ➢ Improve efficiency ➢ Improve internal communications and cooperation ➢ Improve management supervision and control	-----	SOONEST –
Operational Information and Performance Measurement	To formalise the collection of relevant operational data to form the basis of an Operational Performance Information and reporting System	80,000	SOONEST
Human Resource Management	To improve the quality and capacity of staff: ➢ Improve the HR function	90,000	SOONEST
Information Technology	To improve the IT systems: ➢ Improve the timeliness, accuracy and availability of information ➢ To improve internal communications	10,000	SOONEST

Appendix 1 - The Scope of Work of the TA

The Scope of Work of the original TA was specified in three main tasks:

Task 1: *Immediate Performance Improvement Actions: This task will commence with the joint recruitment by PIAC and SIWA, of a GM and CFAO and their mobilization to the Solomon Islands. It was also planned that a legal advisor be recruited. In line with the tasks and responsibilities and GM and CFAO, the new interim managers will initiate and implement actions aiming at realizing immediate improvements in SIWA's operational and financial performance, improve service levels and customer relations. This task will start immediately after mobilization of the experts and the appointment in their new positions. Changes will be made in close consultation with the Chairman of the Board of Directors and the other members of the Senior Management Team of SIWA.*

Task 2: *In close consultation with the Board and the members of the senior management team, the new GM and CFAO will initiate and take the lead in carrying out a situational analysis resulting in the formulation and implementation of a short-term Recovery Strategy for SIWA. The rapid situational analysis for SIWA will include:*

i. A technical assessment of water and sanitation services and current system performance and operations;
ii. An assessment of financial and administrative systems and operations;
iii. An assessment of institutional and organizational issues including a quick assessment of human resource aspects and managerial capability of SIWA and customer service functions; and
iv. A review of the legal and regulatory framework in which SIWA operates and legal advice related to land issues.

The analysis will result in short term Recovery Strategy and Action Plan for SIWA aiming to achieve significant and measurable improvements in service levels and operations with clear milestones and indicators of performance achievement including:

i. Reduction in the periods that water supply is rationed and/or reductions in the areas where rationing of water supply is applied;
ii. Improved quality of water supplied by SIWA as monitored by the Ministry of Health;
iii. Reduced water leakage (provided that adequate measurement can be made);
iv. Increased rate of collection of water bills resulting in increased cash income for SIWA; and
v. Improved financial reporting and auditing of SIWA's financial records

The baseline values and targets for improvement on the above indicators will be part of the Short Term Recovery Strategy that will be submitted to the Board of Directors of SIWA within 6 weeks of the start of the TA.

After approval of the Board of Directors of SIWA, the Senior Management Team of SIWA will implement the Short Term Recovery Strategy and monitor progress in achieving the identified milestones and prepare monthly progress reports.

Task 3: Work with the design team in the preparation of a design document for continued support to SIWA. The senior management team of SIWA will provide strategic inputs to the design document including financial and operational restructuring strategies that will improve SIWA's service levels to its customers, operational and financial performance and commercial standing on a long term sustainable basis."

Due to unforeseen and unavoidable circumstances, it was necessary for the scope of Work for the initial 3 months period of the TA to be modified such that Tasks 1 and 2 be accomplished within this initial period:

"Tasks 1 and 2 include the formulation of a Short Term Recovery Strategy and Improvement Plan for SIWA. The Plan should focus on the immediate actions needed to improve the overall efficiencies of the enterprise and guide the short-term priorities of the management team and should be designed to integrate with Task 3".

Appendix 2 – Brief Financial Summary for the Year Ended 31 December 2010 with Brief Interim Financial Report for the 4 months to 30 April 2011

Solomon Islands Water Authority (SIWA)
Financial Statements
to 30th April 2011

Year Ended 31 Dec 2010			4 months to 30 Apr 2011			2011 Annual Approved Budget	
		REVENUE STATEMENT					
$ 28,586,918		Total Revenue	$ 8,311,571			$ 32,187,814	
$ 1,354,878		Other Income & Asset Sales	$ 690,996			$ 1,398,400	
$ 29,941,796			**$ 9,002,567**			**$ 33,586,214**	
	Percentage of Revenue	Operating Expenditure		Percentage of Revenue			Percentage of Revenue
$ 1,822,200	6.6%	Overheads & General	$ 469,252	5.6%		$ 3,451,100	10.7%
$ 14,978,208	54.6%	Electricity	$ 5,692,963	68.5%		$ 14,416,000	44.7%
$ 11,528,244	42.0%	Salaries & Wages	$ 2,911,508	35.0%		$ 7,728,614	24.0%
$ 983,392	3.6%	Motor Vehicle Expenses	$ 305,064	3.7%		$ 1,095,000	3.4%
$ 160,464	0.6%	Land Rental & Survey	$ 596,464	7.2%		$ 124,000	0.4%
$ 409,457	1.5%	Supplies & Chemicals	$ 119,094	1.4%		$ 404,000	1.3%
$ 1,665,221	6.1%	Maintenance & Parts	$ 788,799	9.5%		$ 1,434,500	4.5%
$ 3,671,335	13.4%	Depreciation		0.0%			0.0%
$ 35,218,520			**$ 10,883,144**			**$ 28,653,214**	
-$ 5,276,725		Net Deficit	**-$ 1,880,577**				
		Electricity & Tax Arrears				$ 3,200,000	9.9%
$ 973,335	3.4%	Capital Purchases	$ 487,050	5.9%		$ 1,845,000	5.7%
						$ 33,698,214	
-$ 6,250,059		Deficit	**-$ 2,367,627**			**-$ 112,000**	

Appendix 3 – Costing of Short Term Recovery and Action Plan – Estimate of additional costs required to support the Plan

Section	Action Priority	Action	Category	Description	Cost SBD	Cost AUD	Cost USD
4		Data Collection, Statistics & Performance Management	Consultant	Specialist to design database.	$ 422,400	$ 56,096	$ 60,000
			Licence	GIS Software Licence	$ 35,200	$ 4,675	$ 5,000
			Labour	Data Handler Salary per annum	$ 100,000	$ 13,280	$ 14,205
6		Improvements in reliability of water supply	Equipment	Replacement of Equipment & Generators	$ 3,200,000	$ 424,967	$ 454,545
			Consumables	Replenishment of Stock Items of Parts	$ 60,740	$ 8,066	$ 8,628
7		Improvements in Water Quality	Equipment	Replacing Hypochlorite dosing equipment.	$ 650,000	$ 86,321	$ 92,330
			Labour	Additional Manpower to manage chlorination - per annum	$ 120,000	$ 15,936	$ 17,045
			Vehicle	Additional Vehicle	$ 200,000	$ 26,560	$ 28,409
8		Water Quality Monitoring and Reporting	Equipment	Rebuilding & Re-equipping Laboratory - Analytical Equipment	$ 1,000,000	$ 132,802	$ 142,045
			Vehicle	Additional Vehicle	$ 200,000	$ 26,560	$ 28,409
			Labour	Additional Staff - Lab Technician & Sampler	$ 180,000	$ 23,904	$ 25,568
			Consumables	Additional Annual Operating Costs (Chemicals etc.)	$ 75,000	$ 9,960	$ 10,653

Appendix 3 – Costing of Short Term Recovery and Action Plan (continued)

Section	Action Priority	Action	Category	Description	Cost SBD	Cost AUD	Cost USD
9		Reduction in Non-Revenue Water	Consumables	Spare pipes, fittings for effecting emergency repairs	$ 700,000	$ 92,961	$ 99,432
			Labour	Graduate Engineers for leakage reduction program	$ 230,000	$ 30,544	$ 32,670
			Labour	Disconnection teams for illegal connections 2 teams x $52000 pa	$ 104,000	$ 13,811	$ 14,773
			Equipment	Leakage detection equipment	$ 211,200	$ 28,048	$ 30,000
10		Sewerage	Equipment	Towable Jetting Machine	$ 125,000	$ 16,600	$ 17,756
12		Developing Customer Service	Equipment	New Telephone System	$ 54,728	$ 7,268	$ 7,774
			Maintenance	Maintenance of New Telephone System - Annual	$ 12,381	$ 1,644	$ 1,759
			Vehicle	Mobile Customer Service Vehicle with conversion	$ 400,000	$ 53,121	$ 56,818
			Labour	Assistant Customer Service Officers per annum 2 x $85000	$ 170,000	$ 22,576	$ 24,148
13		Improving the Image of SIWA	Contract	Internal and External Repainting of SIWA HQ Buildings	$ 35,000	$ 4,648	$ 4,972
			Contract	Refurbishment of Toilet Washroom Facilities	$ 5,330	$ 708	$ 757
			Consumables	Staff Uniforms	$ 26,500	$ 3,519	$ 3,764
			Consumables	Advertising & Printing	$ 100,000	$ 13,280	$ 14,205

Appendix 3 – Costing of Short Term Recovery and Action Plan (continued)

Section	Action Priority	Action	Category	Description	Cost SBD	Cost AUD	Cost USD
14		Reliability of Financial Reporting	Training	Training for Senior Accounting Staff in Internal Controls	Provided by MoF Project		
17		Tariff Increase Submission	Consultant	Preparation of Tariff Increase Submission	$ 422,400	$ 56,096	$ 60,000
21		Financial Systems	Labour	Billing Casual Labour Contract - 3 months	$ 30,000	$ 3,984	$ 4,261
			Labour	Meter Reading Supervisor	$ 100,000	$ 13,280	$ 14,205
			Training	NCS Training in Billing System NZ$3,500	$ 19,250	$ 2,556	$ 2,734
21			Labour	Assistant Debt Collection Officer Casual Labour Contract 3 months	$ 30,000	$ 3,984	$ 4,261
22		Information Technology	Equipment	New Exchange Server and Wifi $NZ12030	$ 66,740	$ 8,863	$ 9,480
23		Human Resources	Consultant	International Human Resources Consultant	$ 633,600	$ 84,143	$ 90,000
					$ 9,719,469	**$ 1,290,766**	**$ 1,380,606**
					SBD	AUD	USD