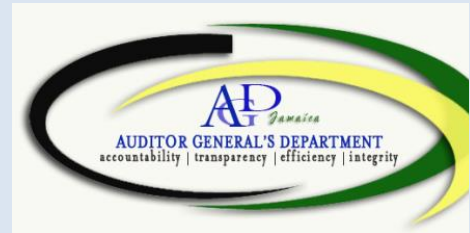


**AUDITOR GENERAL'S DEPARTMENT
PERFORMANCE AUDIT REPORT
NATIONAL WATER COMMISSION (NWC)
CONTRACT AND PROCUREMENT MANAGEMENT
- CAPITAL PROJECTS**

The Auditor General is appointed by the Governor General and is required by the Constitution, Financial Administration and Audit Act, other sundry acts and letters of engagement, to conduct audits at least once per year of the accounts, financial transactions, operations and financial statements of central government ministries and departments, local government agencies, statutory bodies and government companies.

The Department is headed by the Auditor General, Pamela Monroe Ellis, who submits her reports to the Speaker of the House of Representatives in accordance with Section 122 of the Constitution of Jamaica and Section 29 of the Financial Administration and Audit Act.

This report was prepared by the Auditor General's Department of Jamaica for presentation to the House of Representatives.



Auditor General of Jamaica
Auditor General's Department
40 Knutsford Boulevard
Kingston 5, Jamaica, W.I.
www.auditorgeneral.gov.jm

Vision

Promoting a better country through effective audit scrutiny of Government operations.

Table of Contents

TABLE OF CONTENTS	2
AUDITOR GENERAL’S OVERVIEW	4
EXECUTIVE SUMMARY	6
KEY FINDINGS	6
<i>Recommendations</i>	9
PART ONE	10
INTRODUCTION	10
BACKGROUND	10
AUDIT SCOPE AND METHODOLOGY	11
PART TWO	12
PROCUREMENT PLANNING & IMPLEMENTATION	12
<i>Tank & Pump Rehabilitation Programme</i>	12
<i>Caribbean Regional Fund for Wastewater Management (CReW)</i>	13
<i>Rehabilitation of Harbour View Wastewater Treatment Plant</i>	13
<i>Santa Cruz Water Supply Project</i>	14
<i>Yallahs Pipeline</i>	14
PART THREE	16
MONITORING AND DELIVERY OF CONTRACTS	16
<i>Rehabilitation of 26 Water Facilities</i>	16
<i>Sector F Sewerage Rehabilitation Project</i>	17



Auditor General's Overview

The National Water Commission (NWC) which is responsible for providing and operating water supply and sewerage facilities in the urban and the rural areas of Jamaica, supplies 190 million gallons of potable water each day to about 2 million consumers across the island.

NWC recognizes that efficient and effective water supply and sewage systems are essential to households and businesses and to the achievement of Vision 2030 National Outcome #9 "Strong Economic Infrastructure". NWC aims to achieve its objectives through investment in capital projects, which include water, wastewater and hydrogeological projects.

We conducted a performance audit, which covered the period April 2011 to December 2016, to determine whether NWC is managing its procurement process and implementation of capital projects effectively, efficiently and economically in order to meet the needs of stakeholders and ensure value for money. In a context where the NWC continues to make losses, effective cost delivery of projects and a reduction in non-revenue water losses can provide fiscal space to meet significant debt service obligations and other operational costs. This is also important given the relatively short window to deliver Vision 2030 National Development Plan.

We selected 50 contracts totalling J\$6 billion, US\$151.5 million and Euros \$155 million based on an assessment of risk as well as the impact on communities. We found that NWC generally adhered to the Government's Procurement Guidelines related to the bidding, evaluation and award process. However, as can be gleaned from this report, adherence to the Procurement Guidelines by itself cannot assure value for money; rather, the Guidelines must be implemented in tandem with other good governance arrangements such as proper due diligence and planning of contracts. For the 17 contracts valuing J\$1.8 billion and US\$38.6 million reviewed, we found deficiencies related to scoping, execution and monitoring, which resulted in time overrun and increased costs of J\$667 million and US\$6.2 million, respectively.

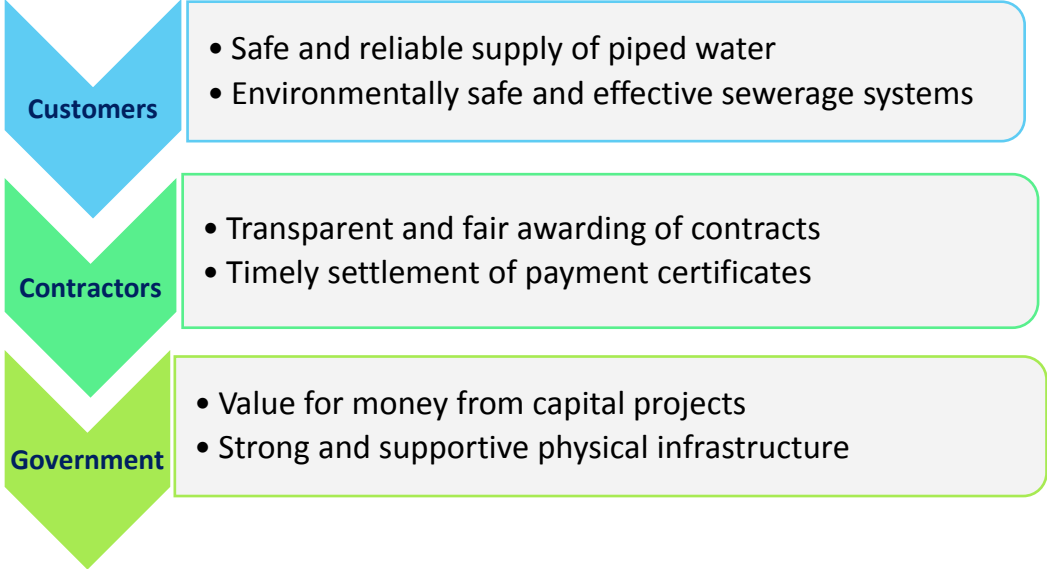
I urge the NWC to seriously consider and implement our recommendations to improve its management and implementation of contracts, in order to deliver its mandate and achieve value for money.

Thanks to the management and staff of NWC, for the cooperation and assistance given to my staff, during the audit.



Pamela Monroe Ellis, FCCA, FCA, CISA
Auditor General

WHAT STAKEHOLDERS EXPECT FROM THE NATIONAL WATER COMMISSION



Executive Summary

NWC is responsible for providing and operating water supply and sewerage facilities in the urban and rural areas of Jamaica and supplies approximately two million persons with potable water. In an effort to ensure the effective delivery of these services, NWC invests in water, wastewater and hydrogeological capital projects. NWC reported that it spent over J\$44 billion to implement its portfolio of capital works projects of over 58 projects between financial years 2010/2011 and 2016/2017. In order for NWC to achieve value for money, its procurement of goods and services should be timely, transparent and cost effective.

The performance audit was conducted to determine whether NWC is managing its procurement activities and implementing capital projects effectively, efficiently and economically in order to meet the needs of its stakeholders and achieve value for money. This was important in the context of NWC's continued financial losses between 2011/12 and 2016/17, with the exception of 2012/13, due to high operational expenses and debt service obligations, among other factors. A reduction in losses to \$1.8 billion at end March 2017 from \$4.2 billion the previous year was mainly due to lower depreciation and amortisation expenditures as well as a larger tax credit.

The key findings and recommendations are outlined below:



Key Audit Question Is NWC managing its procurement process to ensure the achievement of value for money?

Key Findings

We reviewed 50 contracts totalling J\$6 billion, US\$151.5 million and Euros \$155 million pertaining to 17 capital projects for the period April 2011 to December 2016 based on the potential impact on stakeholders. We found that NWC generally adhered to the GoJ's Procurement guidelines relating to the bidding, evaluation and the award process. However, we found deficiencies in the scoping, execution and monitoring for 17 contracts, valued at J\$1.8 billion and US\$38.6 million, which resulted in increased costs of J\$667 million and US\$6.2 million respectively. These contracts did not meet the stipulated deadlines and we estimated a combined time overrun of 126 months.

We also noted instances where contracts secured directly using the Emergency Contracting Methodology, did not commence until over a year after the contract engagement. This was contrary to expectations for emergency contracts and could have suggested an intent to circumvent GoJ's Procurement Guidelines. The Guidelines require the use of competitive tendering where time allows for advance planning in order to obtain economical prices. However, the gains from economy will not be realised if the other elements of good governance, such as due diligence and planning do not work in tandem to achieve efficiency and effectiveness in the procurement process.

Poor scoping and delays in executing contracts led to time overrun and increased costs

1. NWC did not always scope projects and execute contracts in a timely manner, despite its financial constraints and responsibility to stakeholders. NWC incurred increased costs totalling \$111.5 million¹ for five projects and did not always rectify environmental concerns on a timely basis as required by citizens or stipulated by the Court.
 - i. NWC failed to effectively scope and fully execute an \$8.1 billion Tank and Pump Programme² for the rehabilitation and replacement of 288 tanks and 298 pumps island-wide, aimed primarily to reduce energy costs and losses from Non-Revenue Water (NRW). NWC reduced the project scope to 68 tanks and 72 pumps in February 2014 with an estimated cost of \$1.1 billion, citing a lack of funding and only completed four tanks and 64 pumps at a cost of \$313 million by December 2016. For three related contracts valuing \$145.5 million, NWC experienced increased costs of \$4.7 million. Of this amount, \$2.5 million related to an omission from one of the contracts of check valves, integral to the installation of the pumps. For the other two contracts, NWC attributed the additional cost of \$2.2 million mainly to increased prices for material and labour between the tender period and award of the contracts.
 - ii. In July 2011, NWC obtained approval for 13 wastewater treatment systems under the Caribbean Regional Fund for Wastewater Management (CReW) Project. The project, which was estimated to cost US\$15.54 million, was to be financed from a US\$3.5 million external grant and domestic borrowing of US\$12 million. In August 2013, NWC reduced the scope to eight wastewater treatment systems indicating that the original funding request was inadequate as it represented *'an indicative amount which was established based on estimates to execute the works relating to a number of wastewater treatments'*.

NWC paid a contractor engaged to design and build two of the wastewater treatment plants for US\$4.27 million, an additional US\$726,594 (J\$91.1 million) for modification of layout and design as well as additional work. NWC indicated that the variation was largely due to an expansion in the work scope arising from legislative changes in April 2013. However, given that the contract was signed in September 2015, 29 months after the legislative changes, NWC had an opportunity to re-examine all bids and appropriately price the revised design and construction works, required by the legislation.
 - iii. By not utilising the competitive tender process in the award of a contract at a cost of \$560 million in July 2013, NWC may have also denied itself the opportunity to obtain economical rates to construct Phases 2 & 3 of the new Harbour View sewerage treatment plant. Based on a Supreme Court Order issued on July 6, 2010, NWC sought and obtained approval from NEPA and NRCA for interim works (Phase 1) and engaged a contractor for \$431 million via the emergency contracting methodology in September 2010, approximately 10 months prior to receiving approval from NEPA on July 2011. However, in a context where NWC submitted its master plan for all three phases to NEPA from

¹ JMD\$20.4 million and US\$726,594 [JMD \$91.1 million using BOJ's selling rate of US\$1-JMD 125.40 as at May 31, 2016]

² Tank and Pump Operational Efficiency Improvement Programme

August 2010, NWC had the opportunity for advanced planning and use of the competitive bidding process for Phases 2 and 3. Further, NEPA had granted approval for Phases 2 and 3 works on May 18, 2012.

- iv. In another instance, NWC did not commence works for the Santa Cruz Water Supply project until six years after signing the contract. Despite waiting two years for the approval of funding, NWC did not issue its order to commence works until four years after receipt of approval. The project commenced on July 1, 2015 and due to increases in rates for labour, material and equipment subsequent to the signing of the contract, NWC increased the contract sum by \$15.7 million (71 per cent). NWC proceeded with the execution of the works prior to receiving endorsement from NCC on October 16, 2015. The project was completed in November 2015.

Poor coordination and monitoring of projects resulted in costly variations

2. We expected NWC to have systems in place to minimize losses associated with contracts and ensure it receives value for money. However, NWC's monitoring of capital projects was not always effective, as in some instances, work was either rejected at the end of contract periods for failure to meet the required standards or were found to be incomplete.
 - i. NWC entered into a contract for the rehabilitation of 26 water supply facilities at a cost of J\$1.6 billion (US\$18.4 million). However, NWC rejected works at 98 per cent completion while there was a variation of J\$476.8 million (US\$5.4 million) to the contracted sum. NWC rejected the works citing poor workmanship and indicating that the contractor utilized substandard equipment and inferior material. NWC noted that the contract was in "*stalemate mode*" since January 2016, with a completion date and final contract cost yet to be determined. Had there been ongoing inspection and monitoring in accordance with conditions for Consultancy and Construction contracts³, the extent of the losses could have been minimised and the receipt of value for money assured.
 - ii. NWC entered into an emergency contract for an estimated cost of \$745 million in November 2012 to address the unsanitary public health condition and overflow of untreated sewerage within the communities of Majesty Garden, Seaview Gardens and Riverton City. The project was scheduled to be completed in 24 months. However, with 89 per cent of the contract sum disbursed as at August 2013 and only 17 per cent of the physical work completed, the contract amount was increased to \$1.38 billion and works extended by 18 months. NWC paid \$1.25 billion to the contractor, reflecting an increased cost of 68 per cent over the original estimate. This additional cost on the contract resulted from poor scoping as NWC indicated that the original estimates did not include the need for "*special and community security, professional fees as well as emergency cleaning*". We expected that these factors would have been considered in the planning process to ensure smooth implementation of the contract to ensure value for money.

³ Section 4.2.6 (6) of the Consultancy services contract states: "check all materials procured through Supplies contract, by inspection, testing and verification of location at all stages of acceptance (i.e. preliminary technical acceptance, provisional inspection and final inspection) Record and submit to NWC inspections, verification tests and quantities for items supplied and process applications for payment".

Recommendations

1. NWC should strengthen its scoping and implementation of contracts to identify critical elements for the successful implementation of projects and achievement of contract objectives.
2. NWC should also monitor contracts throughout implementation to minimize losses from incomplete projects.

Part One

Introduction

Background

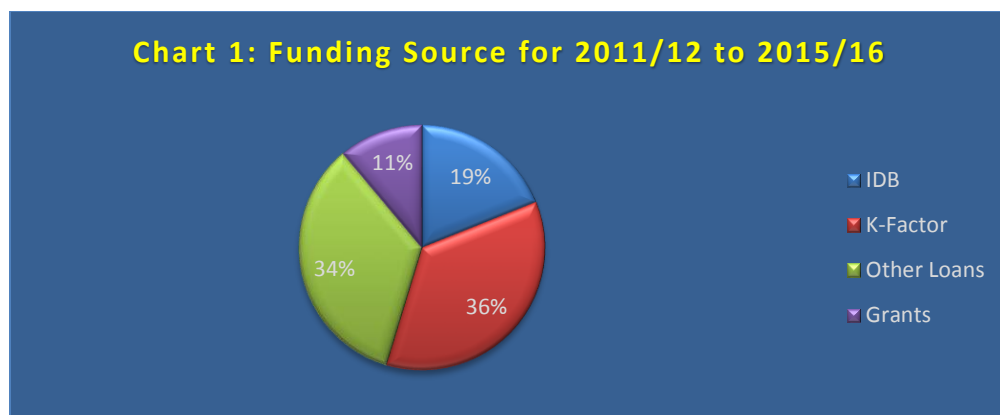
- 1.1 The National Water Commission (NWC) was established under the National Water Commission Act (1980) through amalgamation of the Kingston and St. Andrew Water Commission and the rural National Water Authority, which resulted in the merging of some major systems island-wide. NWC is a statutory body of the Government of Jamaica reporting to the Ministry of Water and Housing. The Commission which is responsible for providing and operating water supply and sewerage facilities in urban and rural areas of Jamaica, reportedly, supplies 190 million gallons of potable water each day to approximately 2 million persons across Jamaica.
- 1.2 Efficient and effective water supply and sewage systems are essential to households and businesses, and by extension, to the achievement of Vision 2030 National Outcome #9 “Strong Economic Infrastructure”. NWC aims to achieve its Vision 2030 objective through investment in capital projects, which include water, wastewater and hydrogeological projects.

Mission Statement

- 1.3 NWC’s mission is to contribute positively to national development by providing high quality potable water and sewerage services to residents and businesses through a competent and motivated team in a cost effective and sustainable manner.

Sources of Project Funding

- 1.4 NWC receives funding from different sources including the Inter-American Development Bank (IADB), Caribbean Development Bank (CDB), K-Factor Revenue and other loans to carry out projects. During the period 2011/12 to 2015/16, NWC received a total of \$52 billion to fund capital expenditure for the period. NWC receives 36 per cent of its funding from K – Factor, 34 per cent from loans, 19 per cent from IDB and 11 per cent from grants (**Chart 1**).



Source: AuGD analysis of Information provided by NWC

NWC's Financial Performance

- 1.5 NWC continued to record financial losses between fiscal years 2011/12 and 2016/17, with the exception of 2012/13, due to high operational expenses and significant debt service obligations, among other expenses. Whereas NWC's operating revenue arises primarily from the supply of water, sewerage and service charges, increases in non-revenue generated water supply continued to erode its earning capacity. A reduction in NWC's losses to \$1.8 billion at end March 2017 from \$4.2 billion the previous year was mainly due to lower depreciation and amortisation expenditure, coupled with a larger taxation credit. Further, whereas the Commission experienced increased foreign exchange losses, in the context of significant foreign currency-denominated contracts, foreign currency losses were less at end March 2017 relative to the previous year.

Figure 1: Net Surplus/(loss) for the period 2011/12 to 2016/17 after tax (\$Millions)



Audit Scope and Methodology

- 1.6 This performance audit was conducted to determine whether NWC had mechanisms in place to ensure efficiency and effectiveness in the procurement and implementation of capital projects, to enable value for money. The audit covered the period April 2011 to December 2016 and in some instances, we reviewed contracts for earlier periods based on the nature, extent and deliverables for those projects. The contracts were selected for review using a risk-based approach and the potential impact of the projects on communities.
- 1.7 Our audit was planned and conducted in accordance with the Government Auditing Standards, which are applicable to Performance Audit and issued by the International Organization of Supreme Audit Institutions (INTOSAI). Our assessment was based on the review of internal and external documents, interviews with senior management and staff, observations and analysis of information provided by NWC.

Part Two

Procurement Planning & Implementation

- 2.1 NWC implements capital projects to improve its infrastructure and the efficient functioning of the water and wastewater facilities in Jamaica in accordance with its mandate to ensure that citizens have access to potable water supply. Projects also include activities geared towards reducing non-revenue water (NRW) losses. The effective cost delivery of capital projects and reduction in NRW losses can provide fiscal space to undertake other critical projects and improve the bottom line of NWC.
- 2.2 We reviewed 50 contracts totalling J\$6 billion, US\$151.5 million and Euros \$155 million relating to 17 capital projects for the period April 2011 to December 2016 and found weaknesses related to scoping and execution, which resulted in cost and time overrun. For example, due to poor scoping and failure to identify the necessary funding, NWC had to downscale its Tank & Pump Rehabilitation and solid state meter replacement projects, which aimed to reduce the supply of non-revenue generating water. We also noted instances where contracts secured directly using the Emergency Contracting Methodology⁴, did not commence until over a year after, contrary to expectations for emergency contracts. The delay also implied that NWC denied itself the benefit of the competitive tendering process.
- 2.3 We found that the selected contracts generally adhered to the Government's Procurement guidelines, mainly related to the bidding, evaluation and the award process. NWC did not always execute contracts in accordance with standard practice. There was one instance where a contract valued at \$27 million was signed by NWC and a contractor in March 2011, seven months after completion of works. This was in a context where NEPA had served an enforcement order in December 2010, directing NWC to correct the discharge of untreated sewerage in sections of North Street. However, NWC engaged the service of a contractor to effect these works without entering into a formal agreement.

Tank & Pump Rehabilitation Programme

- 2.4 NWC failed to effectively scope and execute an \$8.1 billion Tank and Pump Programme⁵ for the rehabilitation and replacement of 288 tanks and 298 pumps island-wide, which aimed primarily to reduce energy costs and losses from Non-Revenue Water (NRW). NWC reduced the project scope to 68 tanks and 72 pumps in February 2014 at an estimated cost of \$1.1 billion, citing a lack of funding and only completed four tanks and 64 pumps at a cost of \$313 million by December 2016.
- 2.5 For three related contracts valuing \$145.5 million, NWC experienced increased costs of \$4.7 million. Of this amount, \$2.5 million related to an omission from one of the contracts of check valves, integral to the installation of the pumps. For the other two contracts, NWC attributed the overrun

⁴ Procurement Guidelines were updated in 2014 to require the commencement of contracts within one month.

⁵ Tank and Pump Operational Efficiency Improvement Programme

of \$2.2 million mainly to changes in foreign exchange rates, increased material and labour costs between the tender period and award of the contracts.

In response, NWC acknowledged that *'there was inadequate project planning for this programme that adversely affected the implementation of the first stage of the Tank and Pump programme. NWC indicated that the programme is being reviewed with the intention to address identified deficiencies and to improve plans to implement the remaining elements of the programme.'*

- 2.6 In another instance, NWC sought to procure 100,000 solid-state meters at a cost of US\$15 million, in 2013, to reduce non-revenue water. NWC records stated that the new technology of the solid-state meter *'provides more accurate readings of water, especially at low flows'*, thereby improving the accuracy of customer billing. However, one year and seven months later, NWC reduced the number of solid-state meters to 50,000, citing fiscal constraint and cash flow challenges.
- 2.7 Failure to successfully complete the Tank and Pump Rehabilitation and solid-state meter projects as initially planned, inhibited NWC's ability to reduce non-revenue water to the targeted level of 35 percent by 2016 and thereby increase revenue intake. Non-revenue water remained unchanged at approximated 68.9 per cent over the period 2012-2016.

Caribbean Regional Fund for Wastewater Management (CRew)

- 2.8 In July 2011⁶, NWC obtained approval for 13 wastewater treatment systems under the Caribbean Regional Fund for Wastewater Management (CRew) Project. The project, which was estimated to cost US\$15.54 million, was to be financed from a US\$3.5 million external grant and domestic borrowing of US\$12 million. In August 2013, NWC reduced the scope to eight wastewater treatment systems indicating that the original funding request was inadequate as it represented *'an indicative amount which was established based on estimates to execute the works relating to a number of wastewater treatment' plants.*
- 2.9 NWC paid a contractor engaged to design and build two of the wastewater treatment plants for US\$4.27 million, an additional US\$726,594 (J\$91.1 million) for modification of layout and design as well as additional work. NWC indicated that the variation was largely due to an expansion in the work scope arising from legislative changes in April 2013, relating to sludge treatment. However, given that the contract was signed in September 2015, approximately 29 months after the legislative changes, NWC had an opportunity to re-examine all bids and appropriately price the revised design and construction works, required by the legislation. Further, NWC had to pay an additional J\$9.7 million due to exchange rate and price increases over the period, which may not have arisen had NWC implemented the project on a timely basis.

Rehabilitation of Harbour View Wastewater Treatment Plant

- 2.10 NWC failed to execute corrective works at the Harbour View Sewerage Facility in accordance with the 18-month time period stipulated in the Court Order to rehabilitate the existing Harbour View Sewerage Plant to abate the discharge of untreated and or partially treated sewage into the sea and

⁶ CRew Semestrial Report (January – June 2016)

onto land and beach by December 2011. The Supreme Court order, which was issued on July 6, 2010, required NWC to submit an application to NEPA and NRCA for the relevant permits and licences by August 9, 2010. The Court Order required that works begin within 6 months after approval from NEPA to construct a partial interim treatment facility until the construction and commissioning of the new sewage treatment plant. NWC submitted an application to NEPA for interim works (Phase 1) along with a master plan outlining all three phases on the deadline date but engaged a contractor via the emergency contracting methodology in September 2010, approximately 10 months prior to receiving approval from NEPA on July 2011. The contractor was engaged for \$431 million to execute interim works at the Harbour View Sewerage Facility.

- 2.11 In April 2013, NWC obtained approval from NCC to construct Phases 2 & 3 of the new Harbour View sewerage treatment plant at a cost of \$560 million, utilizing the clause 'contracting under emergency circumstances' in the Procurement Guidelines. However, in a context where the Court communicated its decision in July 2010 and NWC submitted its master plan for all three phases to NEPA from August 2010, NWC had the opportunity for advanced planning and use of the competitive bidding process. Further, NEPA had granted approval for Phases 2 & 3 works on May 18, 2012. NWC's delay in the implementation process resulted in non-compliance with the Court Order with respect to the stipulated time, to resolve the environmental concerns.

Santa Cruz Water Supply Project

- 2.12 On May 4, 2009, NWC signed a contract for \$22 million to construct a pipeline in Santa Cruz, St. Elizabeth for works to be completed in four months. Funding for the contract was predicated on approval from the Office of Utilities Regulation (OUR) for the use of K-Factor funds for which approval was received in August 2011, two years subsequent to the signing of the contract. However, NWC did not issue an order to commence works until June 29, 2015, six years after the contract was signed. The project commenced on July 1, 2015, prior to NCC approval in October 2015. Due to escalations in market costs for labour, material and equipment, NWC increased the contract sum by \$15.7 million (71 per cent).

Yallahs Pipeline

- 2.13 NEPA served an enforcement order on NWC in December 2010 to stop the continuous pollution entering the Yallahs River. Following a preliminary assessment, NWC engaged a contractor in June 2012 for \$12 million utilizing the emergency contracting methodology. Accordingly, rehabilitation works commenced approximately 18 months after the enforcement order was issued. Given the extended period between the enforcement order and the contract signing, NWC could have utilized the competitive bidding methodology, which would have assured NWC that the contract was secured at the most economical cost to facilitate receipt of value for money.

This page was intentionally left blank

Part Three

Monitoring and Delivery of Contracts

Effective monitoring of contracts is critical to ensure the delivery of contract objectives. We found that whereas NWC generally complied with the Procurement Guidelines, NWC did not effectively supervise or monitor the implementation of contracts for a number of capital projects to ensure the delivery of objectives. Work was either incomplete or rejected due to failure to meet the required standards. Given its financial challenges, we expected that NWC would have adequate systems in place to minimize losses associated with contracts related to capital projects and ensure it received value for money. Of the contracts reviewed, we found instances of inadequate monitoring and oversight resulting in missed deadlines, incomplete works and increased costs.

Rehabilitation of 26 Water Facilities

3.1 In February 2009, NWC signed a US\$4.8 million contract for the design and consultancy supervision services for the rehabilitation of 26 water supply facilities in Kingston and St. Andrew (KSA). An 18-month contract valuing US\$18.4 million to undertake rehabilitation works was later signed in December 2012. Rehabilitation works were scheduled to be completed by June 2014; however, NWC rejected works at 98 per cent completion. The contract has been in a “*stalemate mode*” since January 2016. NWC reported that it rejected the works as the performance efficiency of the contractors’ equipment was assessed to be less than optimal. Further, there were issues with the newly installed pumps, motors, valves and fittings, as well as poor workmanship in the execution of the rehabilitation works, which resulted in failures upon commissioning. However, the conditions of the Consultancy and Construction contracts⁷ had required NWC to submit the following samples of materials and check all materials procured through Supplies contracts, by inspection, testing and verification of location at all stages of acceptance. Further, ongoing monitoring of the rehabilitation project by NWC might have minimised losses and assured the receipt of value for money.

NWC Board Minutes dated January 14, 2016, also confirmed that “*supervision was lacking*” during project implementation. By not ensuring that the materials used were of the highest standard and not adequately monitoring implementation of the contract, NWC would not have sufficiently protected its interest and that of stakeholders.

3.2 In January 2016, Cabinet approved a revised contract sum of US\$23.9 million, which included an additional amount of US\$5.4 million, due mainly to design changes and temporary bypass operations to allow for continuous supply of water. NWC disbursed US\$22.5 million or

⁷ Section 7.2 of the Construction Contract states: “the Contractor shall submit the following samples of materials, and relevant information, to the Engineer for consent prior to using the materials in or for the works: (a) manufacturer’s standard samples of materials and samples specified in the Contract, all at the Contractor’s cost, and (b) additional samples instructed by the Engineer as a Variation.”

Section 4.2.6 (6) of the Consultancy services contract states: “check all materials procured through Supplies contract, by inspection, testing and verification of location at all stages of acceptance (i.e. preliminary technical acceptance, provisional inspection and final inspection) Record and submit to NWC inspections, verification tests and quantities for items supplied and process applications for payment”.

approximately 94 per cent of the revised contract amount as at March 2017 and commissioned 25 of the 26 facilities. NWC reported that the contractor submitted an action plan in November 2016 to correct the deficiencies by January 31, 2017. However, at March 2017, correction of the deficiencies was incomplete.

Sector F Sewerage Rehabilitation Project

- 3.3 NWC entered into an emergency contract for an estimated cost of \$745 million in November 2012 to address the unsanitary public health condition and overflow of untreated sewage within the communities of Majesty Garden, Seaview Gardens and Riverton City. The contract was scheduled to be completed in 24 months. However, with 89 per cent of the contract sum disbursed as at August 2013 and only 17 per cent of the physical work completed, the contract amount was increased to \$1.38 billion and works extended by 18 months (**Table 1**). NWC paid \$1.25 billion to the contractor, reflecting a 68 per cent increase in cost over the original estimate. This additional cost on the contract resulted from poor scoping as NWC indicated that the original estimates failed to include the need for “special and community security, professional fees as well as emergency cleaning”. We expected that these factors would have been considered in the planning process to ensure smooth implementation of the contract to ensure value for money.

Table 1: Sector F Sewerage Rehabilitation Project - Initial Estimated Cost and Revised Estimate

Description	Global Estimated Cost	Revised Estimate
Design, Engineering and Supervision (Preliminaries)	76,500,000	159,987,348
Day works	-	2,190,000
Main Works:		
Laying of 300, 250 and 200 mm grp pipes and fitting and all required infrastructure works inclusive of equipment (Provisional)	594,000,000	650,631,825
Supply and transport pipes, fitting and associating Appurtenances (Provisional)		
Emergency Cleaning	-	175,218,075
Seaview Pumping Station	-	108,237,101
Riverton City Lift Station	-	10,143,828
Special Security	-	31,700,000
Professional Fees	-	67,000,000
Community Intervention	-	36,993,245
Supervision Services (PMU-NWC)	-	45,000,000
Contingencies (Provisional)	74,500,000	95,000,000
TOTAL	745,000,000	1,382,101,422