Office of Utilities Regulation

National Water Commission

Review of Rates

Determination Notice

OFFICE OF UTILITIES REGULATION

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National Water Commission Review of Rates
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CHAPTER 1: SUMMARY OF DECISIONS

Section 11 of the Office of Utilities Regulation Act empowers the Office to prescribe rates for utility services except in cases where an enabling instrument specifies the manner in which rates are to be fixed. The National Water Commission Act provides for the Commission to set its own rates subject to the approval of the Minister. The National Water Commission Act is being amended to make the setting of rates the sole purview of the Office. In the meanwhile, in keeping with this objective, the Minister has delegated the review of the rates of the Commission to the Office

The NWC submitted an application to the OUR on 5th September 2003 requesting a comprehensive review of its water and sewerage rates. In its application it proposed an across the board 42% real increase to its existing water tariffs (inclusive of service charge). It also proposed that the present arrangement whereby sewerage charges are computed at 100% of water charges be maintained. The NWC also indicated that this was less than the 80% increase to achieve full cost recovery as recommended by its consultants (PWC).

Section 11 (2) of the OUR Act specifies that the Office may conduct negotiations as it considers desirable with the stakeholders on matters on issues concerning tariffs that it set for service providers. To this end, the Office organized a number of consultative fora designed to harness the views of a wide cross section of the Jamaican consumers.

The results of the review by the Office are as follows:

1. The effective rates charged by NWC (i.e. the base rate adjusted by the Price Adjustment Mechanism, PAM) shall be increased by 26.36% effective January 1, 2004

2. Sewage rates will remain at 100% of water charges.

3. The present structure of the rates will remain until the next rate review.

4. The value of the weights of the components of PAM are revised as shown in Table 1.4.

5. The electricity and foreign exchange components of PAM shall be applied as a monthly adjustment to the bills of customers.

6. PAM shall be calculated annually and an efficiency gain of 3.5% subtracted

7. A new Base rate is to set annually equal to Old Base rate *(1+ PAM-3.5%).

8. A profit of approximately $600 million has been allowed as sufficient to let NWC cover its operating expenses and undertake essential rehabilitation programmes and contribute to capital expansion.

9. The penalty for breach of a guaranteed standard shall be four times the gazetted service charge payable on a claim being made by the customer.

10. This tariff regime will remain in effect for three years.

The Office has also set a number of performance target for the Commission. It is expected that if these targets are met the NWC will be able to realize efficiency gains exceeding the targeted 3.5% per annum. These targets are outlined as follows.

1. Net receivables are to be reduced to 25% of revenues by year-end 2004/05.

2. The collections rate is set at 92% of billed revenues correspondingly bad debt provision is reduced to 8%;

3. Employee cost is to be reduced below 35% of revenues within two years given the expected organizational restructuring programmes;

4. NWC is to ensure that its books reflect this new valuation of assets. The Office has given the NWC a time frame of one year in which to do so;

5. Unaccounted for water (UFW) is to be reduced by at least two (2) percentage points per year and it is expected that within one year of this determination, UFW should be at most 55%;

6. Billing related complaints should be at no more than 5% of total bills printed;

7. Meters should be read at least every other month and 97% of meters must be read in each billing cycle;

8. All disconnected accounts that have not been legitimately reconnected should be revisited within 90 days of being disconnected to ensure that these customers are not illegally reconnected and outstanding balances should be pursued to the full extent of the law;

9. The NWC will maintain the level of at least 85% of accounts with functioning meters;

10. The NWC should achieve at least 99% compliance with the IJAM water quality standards as outlined in 2002-03 regulatory framework;

11. NWC will conclude discussions and reach agreement with the National Environment and Planning Agency (NEPA) in relation to the timeframe to bring its plants into compliance with effluent standards for sewage treatment. As this agreement may have consequential implications for capital expenditure and therefore an impact on tariffs, the Office would wish to be a party to any memorandum of understanding agreed to by the parties. The Office would expect these agreements to be concluded by the end of September 2004;

12. The Office expects full compliance with its reporting requirements and has decided that it will use all its powers under the Act to secure compliance. Additionally, the reports are to be submitted within 45 days of the end of the relevant period;

13. The guaranteed and overall standards as outlined in Chapter 4 of this review remains in force.

New rates

The new rates to be charged by the NWC effective January 1, 2004 are shown below. The effective rates are the Gazetted rate adjusted by PAM. Since these are the rates that customers currently face, comparisons should be made between these rates and the new rates.

Table 1.0: OUR-determined Service Charge

Meter size	Base service charge	Effective* charge ($)	NWC proposed ($)	New rates ($)
5/8 inch/15mm	101.65	150.44	214	190.10
3/4 inch/20mm	208.65	308.8	438	390.20
1 inch/25mm	272.86	403.8	573	510.28
1 1/4 inch/30mm	513.61	760.14	1079	960.52
1 1/2 inch/40mm	513.61	760.14	1079	960.52
2 inch/50mm	727.61	1076.86	1529	1360.72
3 inch/75mm	1321.48	1955.79	2777	2471.34
4 inch/100mm	2134.69	3159.34	4486	3992.14
6 inch/150mm	3252.86	4814.23	6836	6083.26

*- This includes PAM of 48%.

Table 1.2: OUR-determined Water Rates (Litres)

	Per 1000 litres	Existing base rate ($)	Effective rate ($)	NWC proposed rate ($)	New rates ($)
Residential	0 to 14	12.75	18.87	26.79	23.83
	14 to 27	22.48	33.27	47.24	42.02
	27 to 41	24.27	35.92	51	45.37
	41 to 55	30.97	45.84	65.09	57.91
	55 to 91	38.58	57.10	81.08	72.12
	>91	49.65	73.48	104.34	92.83
Commercial	per 1000	47.81	70.76	100.48	89.37
Condominium	per 1000	23.71	35.09	49.83	44.33
Primary school	per 1000	19.12	28.30	40.19	35.75

Table 1.3: OUR determined water rates (Imperial gallons)

	Per 1000 Gls.	Existing base rate ($)	Effective rate ($)	NWC proposed rate ($)	New rates ($)
Residential	0 to 3	57.96	85.78	122	108.39
	3 to 6	102.18	151.22	215	191.08
	6 to 9	110.32	163.27	232	206.31
	9 to 12	140.81	208.39	296	263.33
	12 to 20	175.37	259.54	369	327.96
	>20	225.73	334.08	474	422.14
Commercial	per 1000	217.33	321.64	457	406.43
Condominium	per 1000	107.81	159.55	227	201.61
Primary school	per 1000	86.94	128.67	182.71	162.58

Table 1.4 – PAM Weights

Index	**1999 Weights**	**2003 Weights**
Foreign exchange	0.174	0.175
CPI	0.618	0.605
Electricity	0.208	0.220
Total	**1.0**	**1.0**

CHAPTER 2: INTRODUCTION

The National Water Commission (the Commission/NWC) is the primary provider of potable water and sewerage services in Jamaica. According to the Jamaica Survey of Living Condition (JSLC) as at year-end 2001, it provided approximately 84%[1] of households with water services. The NWC also provides sewerage services to approximately 23% of the population.

Section 11 of the Office of Utilities Regulation Act empowers the Office to prescribe rates for utility services except in cases where an enabling instrument specifies the manner in which rates are to be fixed. The National Water Commission Act provides for the Commission to set its own rates subject to the approval of the Minister. The National Water Commission Act is being amended to make the setting of rates the sole purview of the Office. In the meanwhile, in keeping with this objective, the Minister has delegated the review of the rates of the Commission to the Office.

The Office first reviewed the NWC's rate in February 1999, at which time several recommendations were made to adjust the then tariff structure. The price adjustment mechanism (PAM) was also reset. This surcharge is added to the water, sewerage and service charges for customers on a monthly basis. The PAM is the weighted average change in the electricity charges, inflation and foreign exchange rates. The recommendations made were:

1. No change in the variable rate for water.

2. Sewerage rate for domestic customers increased from 45% to 100% of water rate

3. Discontinuation of minimum billing of 3000 gallons. The minimum bill would therefore be the service charge.

4. K factor of 4% added to PAM to provide revenues to support metering and pump replacement programmes.

The Office also developed a regulatory framework at the 1999 review which outlined several performance targets and benchmarks that were to be achieved by the NWC over the period 1999-2001. The framework was subsequently revised and reissued for a one-year period (April 2002 – March 2003). The framework also stipulated that the NWC was required to do a comprehensive cost of service study before it could petition the Office for a review of the rates it charges for the services offered. Additionally, there were stipulations about the information that were required for rate application filing and for regular reporting.

The Office also developed Quality of Service Standards, which became effective April 2001. These standards, intended to provide a measure for "quality of service", are twofold: (i) Overall and (ii) Guaranteed Standards. The Overall Standards are primarily

[1] This percentage includes approximately 13.1% for standpipe provision.

concerned with general operational and technical standards to which the NWC should adhere to in order to provide a generally acceptable level of service to customers whilst the Guaranteed Standards establish a basis for the relationship between the Commission and individual customers. The Guaranteed Standards attract a penalty, in the form of compensatory payments, if breached by the NWC. The penalty for breaches was made equivalent to the service charge. Performance against the overall standards is taken into consideration at tariff reviews.

In the review of February 1999, the Office had expected that the tariff increase along with the additional revenues through the K factor to fund a metering and pump replacement programme as well as the continued indexation of revenues to the movements in the 3 macroeconomic variables (PAM) would put the NWC on a sustainable path of financial viability. The result at the end of the year 1 was a profit of over $500 million but by the end of year 2 the NWC had reverted to a loss making position.

The NWC indicated to the Office in 2002 that its financial position was untenable and that it would be applying for a comprehensive tariff review in 2003. It commissioned the international consulting firm, PriceWaterHouseCoopers (PWC) to undertake a cost of service study, the results of which were submitted to the Office, following which the tariff application was made on 5 September 2003. The Office committed to completing the review within 90 days after the submission of the application.

In order to satisfy the provisions of the Act and to benefit from the widest possible cross section of views the Office has adopted a practice to consult with the public and other interested parties on matters that it deems of importance. In this instance it held public meetings in Port Antonio, Montego Bay, Mandeville and Kingston in order to give the stakeholders an opportunity to be heard and make presentations to the Office. At these meetings, the NWC elaborated on the tariff proposal submitted to the Office and the public was given an opportunity to pose questions to the NWC and to express concerns to the Office. It also received a number of written submissions. The results of these consultations have been taken into consideration in conducting this rate review.

CHAPTER 3: SUMMARY OF NWC'S PROPOSAL

The NWC submitted an application to the Office on 5th September 2003 requesting a comprehensive review of its water and sewerage rates. In its application it proposed an across the board 42% real increase on all of its effective water tariffs (inclusive of service charge). It also proposed that the present arrangement whereby sewerage charges are computed at 100% of water charges be maintained. The NWC also indicated that this was less than the 80% increased to achieve full cost recovery as recommended by PWC.

It stated that the need for the rate review arose due to:

- Continuous increase in the Commission's operating costs, in part due to unexpected pension liabilities.

- Increased capital expenditure on the extension of service to areas with limited financial returns and loan obligations, which put a strain on the company's finances.

- Operating losses of $694M and $618M for the 2001/02 and 2002/03 financial periods resulting from increased expenses despite growth in revenues of 49% over 5-year period (1998-2003).

The NWC projected, using the current effective water and wastewater tariffs, that there would be continued negative cash flows in all future years. The expected net cash outflows associated with planned projects to improve efficiency and meet performance targets would exacerbate this problem. The future cash flow, as projected by NWC, if the existing tariffs are maintained is shown in Appendix 1.

NWC stated that its significant achievements over the 5-year period are:

- Declines in overtime and accidents per employee;

- Attaining number one rating by the OUR for customer service;

- Commissioning of new sewerage systems in the towns of Negril, Montego Bay and Ocho Rios;

- Installation of new pumps to improve reliability in many areas; and

- Implementation of new query management system to improve customer service.

Water Rates
The NWC states that the proposed increase would:

- Cover basic operating costs and maintenance costs after the implementation of various cost reduction measures, while allowing for financing of some capital programmes aimed at rehabilitating or replacing existing aged infrastructure.
- Enable the NWC to attain a financially sustainable position whereby service standards can be met and the water and wastewater system continually expanded and improved.

- Allow it to spend at least $500M per year on system rehabilitation in order to continually improve operating efficiency, system reliability and quality of service.

The NWC is proposing a change in the present tariff structure. Presently, there are six (6) increasing tariff blocks in NWC's rate structure as follows:

Table 3.0: Existing Gazetted Water Rates

Category	Base Rate ($/000 gallons)	Effective rate* (/$/000 gallons) at August 2003
Domestic:		
0-3,000	57.96	86
next 3,000	102.18	151
next 3,000	110.32	163
next 3,000	140.81	208
next 8,000	175.37	260
over 20,000	225.73	334
Commercial and industrial:		
Per 1000 gallons	217.33	322
Condominiums:		
Per 1000 gallons	107.81	160

Effective rate includes PAM at 48%.

The NWC cited several weaknesses with the existing structure of the tariffs:

- It does not allow for full cost recovery.

- It does not support the primary charging objectives of revenue sufficiency.

- It does not send the correct signal to consumers, and

- The volume of water to which the lifeline rate applies is well in excess of the internationally accepted minimum per capita requirement.

- Additionally, the present number of blocks (consumption bands) makes the tariff unnecessarily complex and the initial tariff band is set significantly below cost, without any attempt to limit the implicit subsidized water service to lower income households.

Additional proposals by the NWC are:

- Maintain the two-tiered tariff structure with a fixed (service charge) and variable (volume) component. Reasons cited for this are: (a) associated administrative costs in terms of structuring and implementation of such a charging regime and (b) opposition that it may face as a result of the lack of understanding by the affected customers.

- Reduce the number of current number of blocks to 4 over a two-year period. Analysis of equity issues of and measurement of cost differentials among the various supply areas should be carried out over a one-year period following the proposed overall increase.

- Reduce the monthly lifeline block from the present 3000 gallons per month to 1000 gallons. It views the present 3000 gallons as excessive and thinks the 1000 gallons being proposed as more adequate for a typical household.

- Establishment of a K-factor programme to provide the necessary revenue to cover the additional capital costs associated with additional capital works to comply with any requirements of any of their regulators or achievement of GOJ water sector policy.

The proposed block structure would be:

Table 3.1: Proposed New Tariff

Category	**Rate ($/000 gallons)**	**% Increase**
Domestic:		
0-1,000	122	42
1,000 - 3,000	122	42
3,000 - 6,000	215	42
6,000 - 9,000	232	42
9,000 - 12,000	296	42
12,000 - 20,000	369	42
Over 20,000	474	42
Commercial and industrial:		
Per 1000 gallons	457	42
Condominiums:		42
Per 1,000 gallons	227	

The NWC stated that the first block would cover water for "essential" household uses, and would be charged at a concessionary rate. The second block would capture the majority of users and majority consumption and the third block would act as a consumption disincentive to domestic households using very large volumes of water and provide additional source of revenue to fund the below cost initial band.

Service Charge
The NWC has also proposed to increase the service charges to better relate them to the size of the pipe supplying water to respective customers. The table below illustrates the present service charges and the proposed increase suggested.

Table 3.2: Existing and Proposed Service Charge

Meter size	Present base service charge	Effective* charge ($) as at August 2003	NWC proposed ($)	% increase
5/8 inch/15mm	101.65	150.44	214	42
3/4 inch/20mm	208.65	308.8	438	42
1 inch/25mm	272.86	403.8	573	42
1 1/4 inch/30mm	513.61	760.14	1079	42
1 1/2 inch/40mm	513.61	760.14	1079	42
2 inch/50mm	727.61	1076.86	1529	42
3 inch/75mm	1321.48	1955.79	2777	42
4 inch/100mm	2134.69	3159.34	4486	42
6 inch/150mm	3252.86	4814.23	6836	42

PAM rate of 48% used.

The NWC estimated that with the proposed tariffs the net cash flow would become positive in 2005 ($150M) compared to a negative position (-$1.3B) under the existing tariff. The improvement continues as it projects a $1.4B in net cash flow in 2009. Appendix 2 shows the cash flow under the proposed tariff increases as estimated by the NWC.

Assumptions of proposed tariffs
The NWC made the following assumptions in demand forecasts and operating costs to arrive at the proposed 42% tariff increase.

1. Demand is forecasted in terms of number of connections and consumption. The number of connections is projected to increase with population growth, whilst consumption is linked to the change in total connections, change in prices and change in consumers' income.

2. Operating costs are projected to increase by 20% in 2004, 10% in 2005, 7% in 2006 after which a 1% yearly increase over the previous year is expected in 2007 to 2009. The increase in operating costs in 2004 is due to restructuring expenses,

25% real increase in electricity costs and increase in provision for repairs and maintenance. The operating costs is expected to decline in 2005 and 2006 as a result of efficiency gains by way of 25% reduction in personnel costs, 20% decline in administrative costs, 50% decline in bad debt expenses and 5% reduction in energy use.

Outlook with Increase

The NWC also proposed several performance benchmarks that it expects to achieve as a condition of the 42% increase in tariff.

- Reduce UFW to 40% in the Kingston Metropolitan Area (KMA) and Port Antonio over a five-year period. UFW would be contained or reduced by a smaller degree in other areas until financing is sourced
- Water quality show minimum 95% compliance with MOH standards
- At least 85% of customers with functioning meters
- All disconnected accounts revisited in 90 days
- At least 95% of blocked sewerage mains cleared in 48 hours
- Maximum of 3 months between meter readings
- Number of billing complaints no more than 5% of total bills printed
- Formally update asset registry every five years
- Receivables kept to 30% of revenues, which would result in $1.5B for 2003
- Reduce employee costs to 35% of revenues within 2 years and maintain at less than 30% within five years
- 90% collection rate
- With respect to reports, the NWC states that best efforts shall be used to meet all reporting requirements of the OUR.

CHAPTER 4: PUBLIC CONSULTATION AND CUSTOMER RELATED ISSUES

Introduction

Section 11 (2) of the OUR Act specifies that the Office may conduct negotiations as it considers desirable with the stakeholders on matters on issues concerning tariffs that it set for service providers. To this end, the Office organized a number of consultative fora designed to harness the views of a wide cross section of the Jamaican consumers. It also received a number of written submissions

Firstly, a supplement summarizing the NWC Tariff Proposal was published in the Observer on Sunday September 21, 2003 and the public asked to submit written comments. Additionally, meetings/hearings were promoted extensively in the print and electronic media and conducted as follows:

- Montego Bay - September 23, 2003
- Mandeville - September 24, 2003
- Port Antonio - September 25, 2003
- Kingston - September 26, 2003
- OUR Consumer Advisory Committee (OURCAC) - October 6, 2003
- Negril Chamber of Commerce (NCC) - October 28, 2003

The Office presided over these hearings (with the exception of the OURCAC). The NWC was not present at the NCC meeting. At these meetings the NWC elaborated on its tariff application by way of presentation to consumers. Consumers also had the opportunity to present suggestions, comments and questions to the NWC and the Office. The main issues identified by this process are summarised below.

Issues relevant to the Tariff Proposal raised during Consultation

a. Tariff Increase

Most consumers were against a tariff increase at this time. Several reasons were cited for their objection. The main reasons given were (i) the perceived inefficiency of NWC, (ii) current economic conditions and (iii) the cost implications for commercial customers. Furthermore, these consumers were of the view that the NWC was not deserving of an increase at this time because there are significant efficiency gains to be realised from the rationalisation of its operations. They also expressed the view that the NWC should collect more of its outstanding debts before being granted a rate increase.

There were consumers who were not opposed to a rate increase but challenged the level of increase proposed by NWC or suggested that any increase granted should be gradual to minimise the "shock" effects. They, however, did not express much confidence in the ability of the NWC to be cost efficient in the utilization of additional revenue generated from any increased tariff citing past inefficiencies and wanted guarantees from the NWC as to how any increased tariff would translate to improved service. They stated that there should be a reduction in bills if the NWC improves its efficiency and the tariff should be somehow linked to the cost of providing an efficient service. There were several expression of dissatisfaction about the PAM and the current levels being applied.

b. Unaccounted for Water (UFW)

At every stage of the consultation process the most contentious issue was the high level of UFW. The NWC stated that while it accepts that the current levels of UFW are too high, the condition of its existing infrastructure is such that the problem of severe leaks is almost endemic. The Commission stated that to achieve any significant reduction in the levels of UFW, significant capital investment in infrastructure upgrade and rehabilitation is required, which is not possible under the existing tariffs. It also made reference to the Price Waterhouse Coopers (PWC) tariff study, which concluded that the current tariff was not sufficient to cover operating expenses or allow for capital investment.

Consumers, however, felt that this level of inefficiency was unacceptable and the NWC should be made to reduce UFW before any increase is granted. They were of the view that it was unfair to ask customers to pay an increase when the NWC only bills for 40% of the water it produces. They also stated that with annual revenues of $5B, a 50% reduction in UFW would yield sufficient income to put the NWC in a position to not require a rate increase. The NWC was however of the opinion that only limited revenues would be realised from improvements in UFW, as there are geographical limitations. For example, the NWC would not be able to sell in Mandeville (where there is excess demand) any water saved due to reduction in UFW in St. Thomas.

c. Differential Tariffs

Consumers expressed several views on this:

1. Some felt that there could be a graduated rate system where the tariff is linked to property tax rates hence consumers in higher income areas pay a higher rate and consumers in low-income areas could benefit from a subsidised tariff or a flat rate.

2. Some participants stated that water should be treated specially because of its importance to life.

3. Proponents of differential tariffs thinks it is unfair for customers who reside in areas where the marginal cost of providing the service is low to subsidise customers who live in high marginal cost areas such as hillsides. Especially where the cost of extending service to these areas imposes significant capital cost on the NWC, those consumers should be made to contribute directly to those projects.

d. Capital Projects – Extension of Service/Infrastructure Rehabilitation

Consumers have expressed mixed views regarding the NWC undertaking additional capital expenditure for the extension of the service.

1. In some areas such as Mandeville, residents felt that there should be no capital expenditure for system expansion when current customers are not being adequately supplied.

2. On the other hand the view was expressed that the service could be profitably extended to a number of areas where residents are currently paying far greater than the rates charged by the NWC for trucked water.

3. Consumers also stated that the NWC should conduct proper cost/benefit analysis which the OUR should review before major capital projects are undertaken.

4. Commercial consumers stated that in the normal course of any business, capital expenditure is funded by capital markets, and not by increase in prices.

e. Sewerage Charge

Throughout the consultative process, consumers expressed concern that the current sewerage charge of 100% of water consumption is inequitable. Consumers, especially those in the commercial rate category stated that not all water consumption goes to the sewage system and hence challenges the basis for this charge. They also think that the sewerage rate is unfair as it is cheaper to process sewage than potable water. A number of consumers also argued that they were currently not benefiting from access to sewage services and as such should not be charged for the service.

f. Other Issues

(i) Competition in the Water Sector

During the consultative process, the view was expressed that there has to be increased levels of competition in the water sector, with at least one participant comparing the performance of a small water company in St. Ann to that of the NWC. It was felt that more competition was needed if only to improve the level of service delivered to consumers. Consumers also felt that this might help to address the situation of access in remote communities.

(ii) Private development of Water/Sewage systems

Concerns were raised about the current practice of real estate developers that construct water and sewage systems without the involvement of the NWC and later abandon them when the systems become burdensome. Consumers were of the opinion that developers should be required to have the NWC provide technical assistance on these projects to ensure that they are of a standard compatible to the NWC system. Particular concern was expressed about the autonomy of the developer when housing projects are being implemented under the direct mandate of the Ministry responsible for housing.

Quality of Service Issues

(i) Guaranteed Standards and Overall Standards

As part of the tariff proposal, the NWC submitted reports on its compliance to the guaranteed and overall service standards established in 1999. These reports are however incomplete and as such there are limits as to the extent to which these reports credibly represent the performance of the NWC as an entity. In tables 4.0 & 4.1 below, the figures for 2001 represent data for Portland, St Mary and St Ann for December 2001. The 2002 figures represent data for October, November and December 2002 for St Ann, Portland, St Mary and St Catherine south. Data for 2003 represents St Ann, Portland, St Mary, Trelawny, and St Catherine south for January to August 2003.

Even when taking the limited nature of the data into account it does suggest that the NWC has the most problems with connecting new customers within 10 working days of signing the contract (49% compliance over the period) and the installation of meters on customer's request (average compliance of 61%). However, consumers have not claimed compensation for breach of any standard due mainly to low awareness amongst consumers. This is perhaps exacerbated by the fact that the company does not currently have a claim form in place while checks by the OUR have revealed a low awareness among NWC customer service representatives.

Table 4.0 – Compliance of NWC to Guaranteed Service Standards 2001-03

Code	**Focus**	**Description**	**Performance Measure**	**Compliance Rate**		
				2001	**2002**	**2003**
WGS1	Access	Connection to supply	Maximum of 10 working days after signing contract	35%	67%	44%
WGS2	Delivery of Bills	Issue of first bill	Maximum of 48 working days after connection	98%	97%	79%
WGS3	Appointments	Keeping Appointments	Must notify customer prior to appointed time, if appointment cannot be kept	100%	100%	98%
WGS4 (a)	Complaints	Response to complaints not bill related	Maximum of 5 working days to acknowledge written complaints	78%	91%	87%
WGS4 (b)	Complaints	Response to complaints not bill related	Maximum of 30 working days after receipt to complete investigation and respond to customer complaints	68%	75%	78%

Code	Focus	Description	Performance Measure	Compliance Rate		
				2001	2002	2003
WGS5 (a)	Complaints	Response to billing complaints	Maximum of 5 working days to acknowledge written complaints	97%	98%	98%
WGS5 (a)	Complaints	Response to billing complaints	Maximum of 30 working days after receipt to complete investigation and respond to customer complaints	66%	93%	94%
WGS6	Account Status	Issue of account status	Meter to be read on same day customer is moving if on a weekday (within 2 days if on a weekend) provided 5days notice of move is given. Customers should inform NWC of any changes in plans, a minimum of 24 hours before the originally scheduled move. Maximum time of 48 hours to provide final bill after move	75%	-	-
WGS7	Reliability of Supply	Restoration after emergency lock-off	Maximum of 24 hours to restore supply in urban areas, Maximum of 48 hours in rural areas	100%	100%	100%
WGS8	Water Meters	Meter Installation	Maximum of 30 working days to install a meter on customer's request	85%	41%	57%
WGS9	Water Meters	Repair or replacement of faulty meters	Minimum time of 40 working days to repair or replace meter after being informed	45%	84%	75%
WGS10	Water Meters	Meter Reading	Maximum of 3 months between each meter reading and between bill issues	86%	92%	89%
WGS11	Reconnection	Reconnection after payment of overdue amounts	Maximum of 24 hours to restore supply in urban areas, Maximum of 48 hours in rural areas	86%	92%	90%
WGS12	Compensation	Making compensatory payments		-	-	-

Table 4.1 – Compliance of NWC to Overall Service Standards 2001-03

Code	Focus	Description	Performance Measure	Compliance Rate		
				2001	2002	2003
WOS1	Water Quality	Testing samples for impurities	To ensure that water is within standards specified by MOH	97%	95%	95%
WOS2	Water Pressure	Maximum/minimum water pressure	Must maintain a pressure ranging from 20-60 psi	96%	89%	93%
WOS3	Reliability of Supply	Notify public of intention to interrupt supply for planned interruptions		67%	89%	95%
WOS4	Sewerage	Correction of Sewerage Problems	Maximum of 24 hours to correct sewerage problems after being informed	-	70%	82%

Code	Focus	Description	Performance Measure	Compliance Rate		
				2001	2002	2003
WOS5	Sewage	Sewage effluent quality	Ensure that sewerage effluent is within standards specified by NEPA	100%	100%	67%
WOS6	Water Meters	Changing meters	NWC must provide customers with details of the date of change, meter reading on the day and serial number of the new meter	99%	85%	82%

Having reviewed all the issues involved, the Office is of the view that the NWC has not promoted the regime of guaranteed standards effectively which has resulted in little or no interest by its customers. In order to raise the level of interest and to impel the NWC towards greater levels of customer service, the Office has determined that the compensatory payments will be four (4) times the gazetted service charge and that the procedure for customers to make claims for compensation will remain unchanged.

(ii) Customer service indicators

In addition to the views expressed during the public consultation regarding the tariff proposal, the Office has been able to form a view of the NWC's performance based on:

- A review of the customer contacts received by the OUR, and
- 2003 National Consumer Survey conducted for the OUR

<u>*Consumer Contacts to the OUR*</u>

For the period April 2002 to March 2003, a total of 2,865 contacts were processed, which compares with a total of 2,208 handled in the previous fiscal year. NWC accounted for 20% of those contacts when compared to 22% in the previous. Overall, since the fiscal year 1999/2000, NWC has consistently reduced its share of total contacts from 42% to 20% currently (*Refer to Figures I and II).*

Figure I: Utility Share of Consumer Contacts - Year 2002/2003

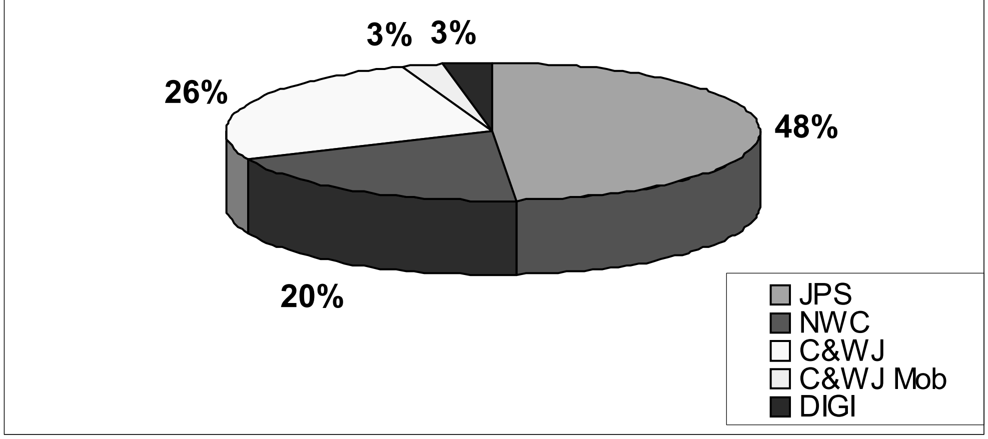
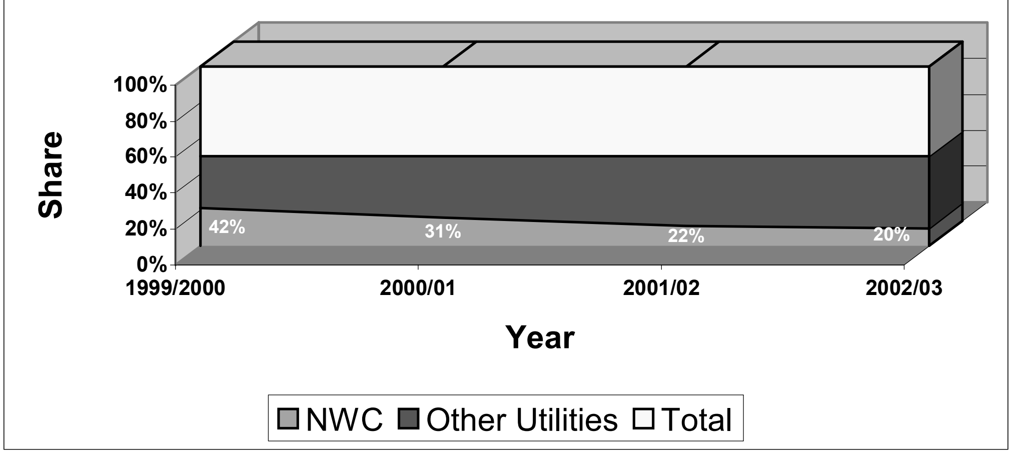


Figure II - NWC share of OUR Consumer Contacts - 1999/00 to 2002/03



In terms of the specific categories of complaints raised by consumers, a very high proportion of these continue to be about billing-related issues. On a utility basis, though all three major providers generally had billing as the most frequent concern raised by their customers, the problem continues to be of a higher significance for both JPS and NWC. Among the most frequently raised billing issues were high consumption, disputed charges and estimated billing.

Table 4.2: Contact Activity Summary (All Utilities)
April 2002 – March 2003

	DESCRIPTION	JPS	NWC	C&WJ	C&WJ Mobile	DIGI	TOTAL
A	**Contacts for the Year:**						
(i)	New Opinions	34	11	32	5	7	89
(ii)	New Referrals	1100	431	547	60	71	2209
(iii)	New Inquiries	87	36	93	12	6	234
(iv)	New Complaints	89	40	42	0	2	173
(v)	New Complaints - Pending Information	83	48	29	0	0	160
(vi)	New Complaints – Initiated by OUR	0	0	0	0	0	0
	Total contacts	**1393**	**566**	**743**	**77**	**86**	**2865**
B	**Closure/Resolution of Complaints:**						
(i)	Mutually Resolved	2	0	1	0	0	3
(ii)	Withdrawn by Customer	3	2	0	0	0	5
(iii)	Insufficient Information	45	14	28	0	0	87
(iv)	Outside of Jurisdiction	3	1	1	0	0	5
(v)	Resolved in Favour of Customer	22	9	12	0	0	43
(vi)	Resolved in Favour of Utility	32	17	24	0	0	73
	Total closures	**107**	**43**	**66**	**0**	**0**	**216**

Table 4.3: Distribution of Contacts by Utilities (April 2002 -March 2003)

Nature of Customer Concern	Utility					
	JPS	NWC	C&WJ	C&WJ Mobile	DIGI	Total
Billing Matters	829	337	316	35	13	**1530**
Equipment Damage	180	0	0	0	0	**180**
Property Damage	11	2	1	0	0	**14**
Disconnection	70	22	39	3	4	**138**
Re-Connection	6	3	6	0	0	**15**
Redress Not Received	1	2	1	0	0	**4**
Irregular Supply	9	13	0	0	0	**22**
Unavailability of service	5	3	19	0	3	**30**
Payment Arrangement	19	3	2	0	0	**24**
Health and Safety	8	7	1	0	1	**17**
Poor Customer Service	24	12	36	20	12	**104**
Code of Practice	0	0	0	0	0	**0**
Unscheduled Interruption of Service	87	66	149	3	7	**312**
Metering	3	7	0	0	0	**10**
Service Connection	19	6	18	0	0	**43**
Guaranteed Standards	25	5	0	0	0	**30**
Community-wide	0	29	0	0	0	**29**
Security Deposit	24	0	83	1	2	**110**
Other	73	49	72	15	44	**253**
TOTAL	**1393**	**566**	**743**	**77**	**86**	**2865**

<u>OUR 2003 National Consumer Survey</u>

In November 2002 the OUR contracted the services of Market Research Services Ltd to conduct a survey among Jamaican consumers to assess among other things the performance of the OUR and the three main utility service providers. Data collection was done during February and March 2003 and the sample included 970 households and 82 commercial enterprises.

The survey attempted to measure the image of the three main utility service providers by asking consumers to indicate their agreement with a number of statements. While amongst households NWC is considered to be the utility company that is *"doing a lot to help Jamaicans and Jamaica*", among commercial enterprises CWJ was selected. Similarly, when probed about which utility "*has been trying to improve quality of service*", more households indicated NWC, while more commercial enterprises indicated CWJ. On the matter of each utility *"doing a lot to ensure customers have access to their services*", households felt JPS was doing the best job, while commercial enterprises indicated CWJ.

Table 4.4: Consumers who are "Generally satisfied" with service

Utility	Satisfaction among Households	Satisfaction among Commercial Enterprises	Average
NWC	62%	56%	***59%***
JPS	46%	43%	***44%***
CWJ	36%	48%	***42%***

*Extract from 2003 OUR National Consumer Survey

Satisfaction with various aspects of Service:

Regarding the *"accuracy of bills"* and *"timeliness of bills"* consumers (households and commercial enterprises) were most satisfied with NWC. On the matters of *"professionalism/courtesy of staff*", reliability of service and *"speed in resolving problems*", consumers were most satisfied with NWC. Regarding knowledge of staff and *"ease of making contact by telephone*", consumers were least satisfied with NWC.

Overall of the three (3) major utility service providers, consumers were most satisfied with the service of NWC and least satisfied with the service of JPS.

Conclusions

Since the last tariff review in 1999, the NWC has made reasonable improvements regarding service delivery as evidenced by consumer contacts to the OUR and confirmed by the 2003 OUR National Consumer Survey.

CHAPTER 5: OUR REVIEW OF TARIFF APPLICATION

Operating Expenses

The Office is of the opinion that the deemed operating costs should reflect the reasonable cost of providing acceptable quality of service to customers. For this review the OUR will use the financial year 2003/04 as the Test Year. NWC's total operating costs has continuously increased over the last 4 financial years. Notably there have been significant increases in depreciation, electricity, financial charges, and employee costs. Total operating costs have increased by approximately 44% over this one-year period. Table 5.0 gives a summary of the movements in the total operating costs.

Table 5.0: Total Operating Costs $'000

Category	**1999/00**	**2000/01**	**2001/02**	**2002/03**
Salaries, wages and related cost	1,696,991	1,853,519	2,055,357	2,257,434
Pensions cost	83,722	83,818	119,930	126,412
Repairs and Maintenance	571,845	634,398	679,736	651,327
Administration	547,369	802,087	962,321	943,151
Electricity	739,755	939,743	887,886	1,040,806
Purchases – water	40,938	49,259	44,038	48,756
Loan interest	36,658	22,054	142,586	75,726
Depreciation	170,072	249,950	485,463	445,419
Other	73,667	108,748	177,586	244,209
Total	**3,961,017**	**4,743,576**	**5,554,903**	**5,833,240**
% Change	**-**	**20.16%**	**18.43%**	**5.65%**
Cumulative % change		**20.16**	**38.59**	**44.24**

Based on the NWC's budget, it expects its cost to be $7,916M for the 2003/04 financial year. This represents a 35.7% increase over the un-audited 2002/03 figures of $5,833.24M. However this amount does not include expected cost savings from the restructuring exercise. The OUR has taken account of this and other changes in costs items in the determination of the deemed total operating costs for the 2003/04 financial period. Details on OUR's adjustments to the values assigned to the major cost items in the NWC's budget are outlined below.

Employee Costs

In 1999, NWC's costs as a proportion of total costs was almost 50% and in an effort to contain the level of increases in this item the Office linked the targeted employee costs to revenues. This was to encourage the NWC to grow its revenues, so if employee costs increase it would not significantly affect its bottom line. NWC could also implement measures to contain employee costs, if the Commission was unable to increase its revenues. In the 1999-2001 regulatory framework, the performance target was a cap to employee costs at 30% of revenues. This target was maintained in subsequent regulatory frameworks. However at March 2003, employee costs were 46% of revenues and constituted 41% of total operating costs. Clearly, there has been no significant improvement in the Commission's operations where this cost item is concerned.

In 2002, the NWC, commissioned a management audit on its staffing arrangements. The consultants were also required to put forward recommendations on how to improve the internal efficiency of the organization. Aspects of the report were taken on board by the NWC and in its operating budget for the 2003/04 financial year two scenarios were proposed for the implementation of the restructuring exercise. Scenario one is the more aggressive and it seeks to take account of all the savings and costs associated with the restructuring exercise at one time. Under this scenario, the NWC expects to save $587.4M in the 2003/04 financial year with an associated cost of $195M. The second scenario spread the benefit over two years whilst accounting for all the costs in the first year of the exercise. Total savings in year one is $265.583M and costs are $195M.

Indications are that the restructuring programme will be completed over a 2-year period, as such the Office has decided to reflect this in determining the deemed expense for employee costs. The Office has determined that the total savings to be derived from the restructuring programme for the 2003/04 period is $244.09M. One time redundancy cost of $321.24M is expected for the same period. The Office has, however, prorated this lump sum cost over 4 years, to reflect the future expected improvements in efficiency as a result of this exercise. Consequently the amount allowed for the 2003/04 period is $80.3M. This resulted in employee costs of $2093.65[2]M for the 2003/04 financial year. Table 5.0 highlights the movements in employee costs over the years.

Although there is no clear delineation of employee costs in the NWC tariff model, the Office has noted that the figures seem to suggest that an inflation rate of 9% was added to the 2002/03 employee costs before savings from restructuring were included. The total saving from the restructuring costs utilized in this model is $384M. Of this savings 75% was allocated to the 2003/04 financial year and 25% to the 2004/05 period. This figure is inconsistent with that included in the operating budget. The OUR has opted to go with the representations in the operating budget.

Pension Costs

Pursuant to a Cabinet decision in 1988, all NWC employees who are (were) employed to the Commission from 1988 are entitled to pension. Previously only the Management and Supervisory categories were pensionable. This decision was not implemented until 2002 and therefore this resulted in retroactive pension payments and an increase in the annual pension costs. Traditionally the NWC paid its pension obligations out of revenues and did not operate or contribute to a pension fund. Neither did it account for the pension liability on its books.

The NWC estimated the total past pension liability to be $4.2B, but subsequent valuation by independent actuaries put the value of the pension liability at $3.2B. The NWC stated that pursuant to International Auditing Standards 19 (IAS 19), it will have to reflect the value of the liability on its books, and has since begun to seek funding for the liability. Consequently, the NWC has included amortization funding of the past and future service

[2] This amount does not include the provision for pension related costs. This is discussed separately. The total employee related expenses are the employee costs plus pension costs.

liability of $3.2B to its total budgeted operating costs. The NWC has also implemented a contributory pension scheme, which will be mandatory for new employees and voluntary for current employees. However, given the past dispensation, whereby employees were not required to contribute towards their pension, the majority of the current employees have opted not to participate in the contributory pension scheme. According to the NWC, of its total staff complement, only 500 persons have opted to join this programme, the remaining have opted to remain with the original pension arrangements. For the financial year ending March 2003, un-audited pensions expense was $126.4M.

For the pension liability the NWC stated that it intends to fund $1.7B through an annuity at 18% interest over a 15 year period, while the remaining ($1.5B) will be financed by a loan. Under this scenario, it projects future pension costs to increase to $1B per annum.

Notwithstanding this, the office is of the opinion that there is no urgent need to finance the pension liability of the NWC. The requirement of the IAS standard is simply to reflect the outstanding liability on the NWC's books and initially this will only affect the Balance Sheet. This liability will be offset by the massive increase in the value of the fixed assets of the NWC. Overall, the net asset base of the Commission will not be impacted negatively. NWC can continue to make provisions for and pay its pension obligations as they fall due out of its recurring budget. The OUR has therefore made provisions for increases in the pension expense which is primarily due to the expected increase in the contributory pension plan as the current year's budget and actual expenses include the payment of pension to those past employees who were not previously receiving these payments. In addition, provision has been made for increase in pension costs arising from the restructuring exercise. The Office has made a provision of 50% increase over the March 2003 year-end cost, for the 2003/04 year for pensions expense for current employees. This 50% compares more than favourably with last three years average increase of approximately 16%. Provision of $54M is made for costs associated with the restructuring exercise. The pension costs for the 2003/04 financial year is budgeted at $243.618M[3].

Loan Interest charges

The NWC loan portfolio has been increasing since the government's decision to increasingly wean itself of some of the capital investment responsibilities. The Government of Jamaica has expressly stated that all capital investments by the NWC should be recovered through the rate base, which implies that the NWC would assume the loan obligations. In fact, the capital budget submitted by the NWC indicates that the NWC will be primarily responsible for the funding of future rehabilitation and expansion schemes.

Table 5.0 shows the movement of the loan interest component of financial charges over the last 4 years. The NWC has not itemized loan interest in its operating budget, but, instead, has included it in financial charges. Total financial charges are budgeted at $234.158M for the 2003/04 financial year. Typically, loan interest constitutes 84% of financial charges. The Office has therefore considered it reasonable to assume that

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[3] Employee costs plus pension costs yield total cost attributed to employees of $2,337.271M.

$196.6M of this charge is attributed to loan interest expense. The NWC has stated that the increase is due to the financing of Lucea Great River Water supply project.

The Office has analyzed the NWC's capital projects programme that was included in the financial model, movements in the interest charges over the last 4 years and its existing loan portfolio to determine the loan interest charges for the 2003/04 period. Arising from this, the Office has determined that loan interest charges for the 2003/04 financial period is $120.128M. This represents 64% increase over the un-audited 2002/03 amount. The Office is of the opinion that this provision is reasonable to recover the projected expenditure that will be incurred in servicing existing loans. It has not included the provision for the financing of the Great River project, as it is of the opinion that this amount for interest should be capitalized as part of work in progress.

The Office expects that as the NWC increasingly seeks independent funding for capital projects, loan interest will continue to increase. It is however of the opinion that the projects that will be undertaken by the NWC in the future should be able to finance themselves, and as such it will be able to recover the loan charges through revenue collection. **For the avoidance of doubt, the Office has ensured in this review that sufficient funds are available for rehabilitation programmes, re-payment of loans and contribution to capital expenditure out of profits. For schemes that are deemed to be fulfilling a social responsibility, the NWC should not be burdened with those loan obligations.**

Regulators have sometimes allowed companies to recover the cost of government imposed obligations e.g. new environmental standards, as a direct part of the tariff or as a surcharge. The Office always has a similar facility to insulate the NWC from such eventuality.

Electricity Charges

On average electricity charges constitute 20% of NWC's total operating costs. The Office had stated as part of the requirement in the regulatory framework in 1999 and again in 2002-2003 that the NWC should commission an energy audit study to find and implement ways of increasing efficiency in energy utilization. The NWC has now indicated that it has been in constant dialogue with the Jamaica Public Service Company (JPSCo.) to explore ways of meeting such requirement.

NWC has submitted an energy management plan with the aim of reducing energy costs and to improve profitability. The planned implementation period is 6 years with associated total costs and savings of $136.1M and $460.61M respectively. The NWC has budgeted $9M, in its corporate projects, for the first year of the programme. The Office considers this a long overdue step towards optimizing the usage of the electricity.

The OUR, based on the past trends in this cost item, as well as year to date expenditure has estimated the electricity costs for the 2003/04 financial year to be $1,228.544M. This is an 18% increase over the 2002/03 un-audited figures. It expects that implementation of the energy programme will in the medium term translate into a reduction in real costs of electricity. This will be taken into consideration in the determination of the efficiency factor. Table 5.0 shows the year-end electricity costs for the NWC over the last 4 financial years.

Depreciation

The Office had included, as part of the targets of the regulatory framework (1999-2001), that the NWC conduct a comprehensive asset valuation exercise by March 2001. This target was not achieved, and the Office repeated this target in the subsequent regulatory framework. The Office has been of the opinion that with an accurate asset base reflecting current values, the NWC would be enabled to cover the costs for maintenance and to replace assets over time.

In 2003 the NWC completed the asset revaluation exercise and as a consequence the value of assets increased 134% above the 2002/03 book value of $10,714M. This increase in the asset base will result in an increased depreciation charge for the 2003/04 financial year. The NWC estimates this increased depreciation charge to be $1.2B. This would be a 179% increase over 2003 year-end amount of $445.4M. Included in this figure is an amount for "indexed depreciation" for new assets (capital expenditure programme for 2003/04).

The programme schedule shows that these will not be completed in the financial year. The tariff review is being conducted on the basis of the financial year 2003/04 and as such capital works that are not completed will not be used to compute the starting rates. These works are taken into account in determining the tariff path over the next three years. Consequently, the Office has applied the remaining useful life to the written down value of the assets, per the Delano Reid asset valuation report, and has determined that total depreciation expense for the 2003/04 year is $1042.28M.

Bad debt

The Office stipulated in the 1999 regulatory framework that gross receivables should fall to maximum of $1.5B. This target has been maintained in subsequent revision of the regulatory framework. The un-audited financial statements at March 2003 showed gross receivables at $2.36B. However, Government agencies account for 20% or $454.5M of this amount.

In 1999, the Office required, as one of the performance benchmarks, that the NWC should attain a collection rate of 90% as it had estimated that bad debts each month would be approximately 10%. The Office is of the opinion that the NWC over the last 4 years, should have improved its collection mechanisms to improve its overall collection rate. It has determined that bad debt provision should be reduced to 8% of billings. This rate assumes that the government makes good on its receivables. Bad debt provision for the 2003/04 year is expected to increase by $143.868M to $555.155M

Other

The NWC has made provisions for a 100% increase (equivalent to $100M), in plant maintenance[4] costs to reflect service level expenditure required on existing plants. Given the history of inadequate maintenance of the existing NWC plant, which overtime leads to poor service quality, the Office considers this provision to be appropriate. Plant maintenance cost for the 2003/04 is determined to be $200M. With this level of plant maintenance, the Office has determined that total repairs and maintenance costs is $751.327M.

NWC budgeted that professional services[5] will increase by 82% to account for public relations and operation of call center expenses totaling $42M. The NWC projects that professional services expense will be $114.2M for the 2003/04 financial year. As no comparative data for previous years was presented, the OUR analyzed the details presented and the actual year to date expenditures and made a judgment as to reasonableness of the proposed expenditure.

Given the recent public relations and advertising campaign in the print and electronic media as well as the increase in the contracted value for the external hosting of the call center, the Office has determined that $114.2M is reasonable provision for professional services. This is a 59% increase over previous year amount of $71.4M. The major components of professional services are consultancy fees (which increased because of asset valuation) management audit, tariff study as well as advertising expenses.

Regulatory Fees

The Office's operations are financed by regulatory fees charged to all the utility service providers it regulates in all the sectors. The NWC is billed each fiscal year for an amount determined by the Office to be the reasonable cost of regulating it. The regulatory fee is determined after allocating proportions of respective staff costs, consultancy and other OUR overheads to the water sector. The regulatory fees for the 2003/04 financial year is $19.5M. Although the NWC has not specifically included the Regulatory Fee in its budget, the OUR sees this as a necessary expense and for transparency has identified it as a separate line item in the NWC's total operating costs.

[4] This cost item is included in repairs and maintenance expenses in table 5.0.
[5] This cost item is included in administration expenses in Table 5.0.

CHAPTER 6: CAPITAL EXPENDITURE

Introduction

In performance of its duties, the Office has a responsibility to ensure that service providers are provided with resources to ensure that assets used in providing service are in good condition. In this context, these may include a mix of (a) capital expenditure to rehabilitate, (b) replace inefficient or defective plants and; (c) efficiency improvements in organization and operations. Having satisfied itself that, despite best efforts, the service provider will sustain losses and will not be able to meet its obligations, the Office has a duty to prescribe such remedies, as it considers as reasonable to enable the company to return to viability.

The major vehicle for the recovery of capital investments should be through depreciation. If NWC is required to service the loans used to finance any of the capital projects, then this interest charge will be included in the total operating costs. The NWC submitted an extensive capital works programme in its tariff application. The Office has focused on projects, which would maintain the existing infrastructure of the NWC and achieve acceptable levels of quality of service.

Apart from the K-factor programme, the 1999 tariff review made provision for various capital programmes to maintain the serviceability of NWC's water and wastewater systems. Specifically, a provision of $30M was made for the mains replacement programme, $150M for water plant rehabilitation and $142.9M for sewerage rehabilitation.

The Office has noted some discrepancies in the capital programmes proposed by the NWC[6] as it has not only submitted two capital plans, but has also assigned different values for the capital works identified With these inconsistencies, the Office has sought to ascertain what it deems as reasonable and prudent to commence the process of restoring NWC plants to acceptable standards. The rationale for decisions in respect of the capital programme is outlined below. The capital sums provided will ultimately be used to assist in determining the normal profit that the NWC should earn on its deemed regulatory equity base. The intention here is to allow sufficient profits for NWC to undertake the programmes identified.

Water

The NWC has proposed to undertake 15 water expansion capital projects islandwide with a total estimated value of $18.856B, in 2003 dollars, over a 26-year period. These projects would be funded primarily by bi-lateral and multi-lateral arrangements as well as the private sector (94%); the remaining (6%) would be funded by internal funds. It proposed that these projects would enhance the present services it provides, enhance the coverage or maintain its present systems. Of this amount, the Commission expects that it will invest $2.04B in year-end 2004.

[6] Appendix 3 summaries the list of capital projects the NWC has proposed.

The OUR required the NWC to submit detailed plans to support the proposed capital expenditure. It received 12 capital plan summaries, but the plans revealed that the majority of the projects would not commence until 2005 and would not be operational until the earliest 2006. For projects that are designated rural water supply programme, the plan indicates that the funds will be considered as grants. Of the 15 projects four will be funded by this medium at total estimated costs of $532.6M.

The Office is of the view that funding for majority of these projects will be provided by multi-lateral lending agencies, as such it has provided $300M to allow the NWC to co-finance projects and make loan repayments. The Office is however of the view that:

1. As a matter of principle, the NWC should seek its own funding for capital expansion projects and on completion of these projects consumers would be charged the appropriate return on the investments and appropriate depreciation/maintenance charges. As such it is of the view that no provisions should be made in the tariffs to finance these projects except for contribution for co-financing from profit.

2. Inflows that are 'grants' do not impose any additional cost to the NWC as it will not be required to service any loans.

3. Although the NWC provides for $117.6M in interest charges related to the Lucea Great River Water supply project, this amount should be capitalized.

4. If the NWC deems it necessary to undertake any capital expansion, these projects should be financially viable investments from which revenues will be earned to offset the costs that will be incurred. When these projects are completed the rate base will be adjusted and subsequent rate reviews will set the appropriate charges.

The Office has been informed by the Minister of Water and Housing, by way of a policy direction, that in order to achieve universal access to water by 2010, provisions are being made in the Water and Sewerage Services Act requiring licensees of water supply services to contribute to a fund that will be used to assist in the financing of this objective. The Office endorses the effort to provide access of potable water to all and will make the necessary adjustments in the future to secure compliance with this direction once the legal mandate is in place. This may involve an adjustment to charges to customers within the next 12 months.

Water Rehabilitation

In addition to the water expansion projects included in the tariff proposal, several water rehabilitation projects are also proposed. Total estimated cost for these rehabilitation projects is $1.644B over a 26-year period. Included in these rehabilitation projects is a

$900M allocation for mains replacement. Of the $1.644B, the NWC expects to spend $218.8M in the 2003/04 financial year.

Whilst the Office acknowledges that there are plant that are in need of rehabilitation, it is concerned that the NWC has not stated the commensurate impact these planned improvement works will have on the unaccounted for water, quality of service and environmental standards. In the last tariff review, allocation of $30M was made for mains replacement and a further $150M for plant rehabilitation islandwide.

Although the NWC has not included any provisions for mains replacement in the 2003/04 financial year, the Office deems it of paramount importance to begin work on replacing existing mains to tackle the UFW problem. It has therefore allowed the NWC sufficient profit to undergo rehabilitative works, especially on its mains replacement programme, various treatment plants to ensure its compliance with water quality standards and metering programme for both customer and source metering. A total of $279M (inclusive of incomplete Government of Jamaica (GOJ) Head A and B projects) has been incorporated in determining the allowed profit. The Office will assume that the NWC will undertake these programmes, and will incorporate the expected improvements in the UFW component in the efficiency factor.

Wastewater

The NWC proposes to undertake 16 wastewater expansion projects Islandwide at total estimated cost of $23.436B dollars over a 26-year period. The NWC expects to spend $1.056B on projects in Santa Cruz and Port Antonio in the 2003/04 financial year. The private sector is expected to be the major source of funding for the Santa Cruz project. Of the 16 projects proposed, the NWC submitted a capital plan summary for only one. The estimated cost of this project is $8.4B dollars, and is designated as phase one of the Kingston and St. Andrew (KSA) Sewerage Project. However the estimated start time for this project is 2010. The NWC has stated that it expended $72M on studies in this area. The Office does agree that there should be a lump sum recovery of this cost and has prorated it in the operating expenses over a 4-year period.

Based on the proposed capital works programme, the Office is alarmed that the NWC does not intend to undertake any sewerage rehabilitation projects in the short term. Generally, the Office is surprised at the lack of focus on sewerage rehabilitation and specifically is disturbed that there are no proposals for the immediate reconstruction of the Harbour View sewerage treatment plant. During the recent consultations, the public expressed dissatisfaction with the level of treatment and disposal of sewerage in Harbour View and the NWC affirmed that there were plans to improve the sewerage system in Harbour View. Considering that this is a perennial problem and the health and environmental implications are serious, the Office has provided in this tariff sufficient cash to begin work immediately on the Harbour View Sewerage Treatment plant. The NWC had estimated that initial work would cost $360M. In addition to this, the Office has allowed sufficient funds to complete other rehabilitation works previously undertaken under the GOJ Head A & B projects. Total funds provided for sewerage rehabilitation is $478M.

The OUR has been informed that the Urban Development Corporation in collaboration with the National Housing Trust will begin the development of the Soapberry Sewerage Treatment plant in Kingston as part of its urban renewal programme. As part of this plan the NWC will retire some of its existing treatment facilities and develop the infrastructure to connect several areas to the Soapberry plant. The plant is expected to take two years to develop after which the NWC will be required to make the necessary connections. If the sewage flows remain at the current levels there will be negative impact on NWC's finances given the level of overheads of the treatment plant. It is vital that the NWC embarks on an extension of the sewage collection system such that the overheads can be spread over a larger volume. The Office will make the necessary provisions at that time to reflect the cost that will be required for the co-financing of the expansion of sewerage collection system.

If the benefits to be derived from the new sewerage are not to be jeopardized in the short term, it is important that the NWC will have completed sufficient expansion of the collection system within the two-year time frame. In this regard the Office has allowed $280M in its calculations for the NWC's co-financing of this priority project. This will avoid the likelihood of a rate shock when this project becomes operational.

Corporate Projects

The NWC has proposed an extensive overhaul of its organizational structure and has included in its tariff model several capital projects to further this end. In the financial model a total of $2,051.3M was allocated for corporate projects and of this amount the NWC expected to spend $632.8M in the 2003/04 financial year. These programmes, the NWC stated, are to target various aspects of the institution in order to strengthen its internal capabilities, improve operational efficiency, restore financial viability, improve customer service and to meet regulatory performance benchmark targets[7]. The projects proposed vary from organizational restructuring and staff rationalization, implementation of short-term billing and collection measures, training and development, acquisition of computer hardware and software packages and call center operation. The Office is of the view that the profit to be earned by the NWC will be sufficient to undertake the critical corporate projects at a cost of $305M. The Office has the following comments on the projects proposed by the NWC.

1. As in the case of the capital expenditure programme for the water systems, conflicting information with regards to the corporate projects were presented. According to the capital budget the NWC intends to spend $92.8M in 2003/04 on corporate projects. This is significantly below the $632.8M submitted in the tariff model.

2. The Office does not share the view that all the items included in capital projects should be capitalized, as some of these projects are operational in nature. Projects that are considered operational expenses are training and development, public relations, improvement in materials management as well as building of internal

[7] These targets are that proposed by the NWC in its tariff application.

capacity and organizational restructuring. The Office has already incorporated provisions for training and development expenses and public relations cost in deriving the administrative costs and has also made provisions for the recovery of costs due to the restructuring exercise. It has therefore excluded these from consideration in the determination of capital costs for corporate projects. Further consultations with the NWC by the OUR confirmed that the NWC has decided to continue outsourcing its call center operations. The Office has therefore not included this item in capital costs as it has already made the necessary provisions in determining total operating expenditure.

3. Several provisions have been made in NWC's corporate projects programme for the acquisition of various IT systems. It has however provided the Commission with sufficient cash to implement its accounting, customer information and geographic information systems (GIS).

4. The costs associated in preparing for the tariff review should not be written off in one year. The Office has therefore prorated the amount over 4 years and included it in the operational expenses.

5. The inclusion of organizational restructuring has already been incorporated in the calculation of the operating expenditure.

6. The NWC has suggested in its capital budget that it intends to outsource its motor vehicle fleet, but has also made provisions for upgrading of transportation in its corporate projects. The NWC has indicated that it will be beneficial to outsource its existing fleet, as such, the Office will take this into consideration in determining the efficiency factor. Consequently, the provision for upgrade of transportation has not been considered in the capital programme.[8].

7. Sufficient funds have been provided to start the energy efficiency programme. Overtime this project should pay for itself as, based on the NWC calculations, the savings at the end of the project will far outweigh the associated costs. The Office will incorporate the improvements in efficiency to be derived from this programme in the calculation of the efficiency factor.

Overall, the Office has made provision of $600M in profits for the NWC to undertake various capital projects. This, in addition to depreciation charges, which is expected to cover rehabilitation and replacement of existing assets, should be sufficient to provide the NWC with a sustainable financial position and provide acceptable quality service to its customers. Allocation for capital projects and associated funding is shown in Table 6.0.

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[8] Even if the NWC decides against outsourcing its fleet, the Office is of the opinion that provision for depreciation adequately covers the rehabilitation, maintenance and replacement of all assets.

Table 6.0: Summary of provision for critical capital projects as recommended by the Office

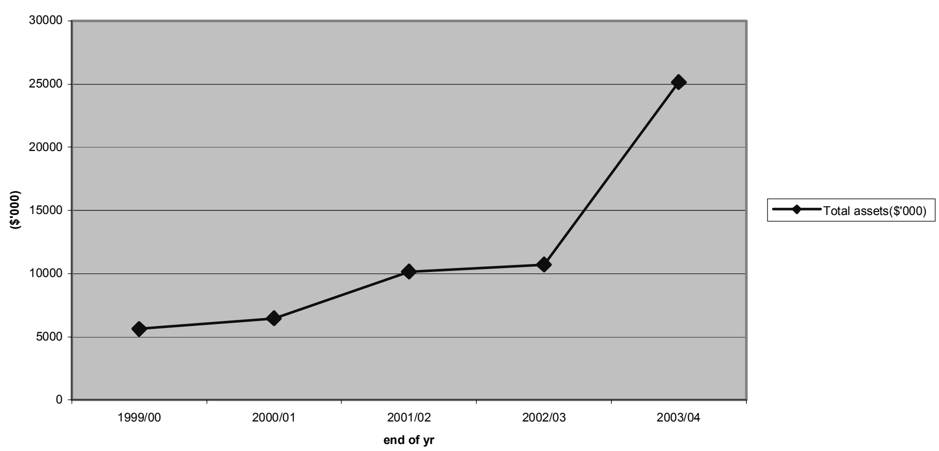
Type	Amount provided ($M)
Water Expansion	300
Water Rehabilitation	219
Ongoing projects (GOJ Head A & Head B)	60
Sewerage Expansion	280
Sewerage Rehabilitation	478
Corporate	305
Total	**1642**

CHAPTER 7: RATE BASE AND RETURN ON CAPITAL

The Office had stipulated in its 1999 regulatory framework that NWC conduct a comprehensive asset valuation as part of its performance targets. This stipulation was due to the fact that a significant amount of the assets that were being utilized to provide service were not on the books. In addition, assets were not being revalued, as a consequence of which depreciation charges were inadequate to fund rehabilitation and replacement of assets.

The NWC commissioned Delano Reid and Associates (DR&A) to undertake this exercise in 2002, and the final report was submitted to the Office in July 2003. The DR&A report concludes that the market value of NWC's assets is $25,144.6M. a report on the conditions as well as remaining useful lives of the respective assets were also included. The Office accepts the valuation of $25,144.6M as the asset base of the NWC. This is a 134% increase over previous un-audited figure of $10,714M. Graph 1 shows the movement in asset values over the last 4 years.

Graph 1: Movement in NWC's Asset Values over 4 years



Asset valuation is important as it impacts on the depreciation charges as well as the return on assets that is included in the rate base. Because the asset valuation has increased, the associated depreciation charges will also increase.

PWC's approach to determine Return on Capital

Although the NWC has stated in its tariff proposal that it is not applying for rates to cover the upper bounds of cost recovery, which includes a return on capital (asset base) the Office considers it useful to discuss the methodology that is used to derive the weighted average cost of capital (WACC) in the calculation of the return on capital included in the tariff model submitted by the NWC. The NWC, in its proposal, stated that it has adopted the recommendations from the consultants on what it considered a reasonable WACC. The PWC report estimated the pre-tax nominal WACC for the NWC to be 15.2%. This was derived after estimating the appropriate cost of debt and equity of the NWC to which the relevant weights were applied.

Cost of equity

The cost of equity was determined using the capital asset pricing mechanism (CAPM) represented by the formula:

$$R_e = R_f + \beta(R_m - R_f) + e$$

where R_e is the rate of return for shareholders, R_f is the risk free asset return, R_m-R_f is the market risk premium, β is the systematic risk of the assets and e the random error term. The risk free rate was estimated to be 10%, the market risk premium was given a value of 7%, which implies that the market rate used (R_m) was 17% and β was valued at 0.8. The value for β was derived after assessing the risks of 23 water utility companies in various countries[9], which yielded a value of 0.62 and re-levering it, to take account of NWC capital structure to obtain a value of 0.8. The resultant cost of equity was 15.6%.

Cost of debt

The cost of debt was determined to be 14.7%, which was benchmarked from the "typical" domestic currency lending rate for local government and other public agencies.

Office's approach in determining cost of capital

The issues surrounding the cost of capital to be applied to the NWC are:

1. The calculation of the appropriate rate of return given that the NWC does not operate as a publicly traded company, and

2. How is this return to be applied given that over 90% of NWC's assets were either constructed by the way of grants from the Government of Jamaica or taken over at no cost from developers of housing schemes.

The Office agrees that in calculating the appropriate return on equity for NWC the returns of international utilities can be used as proxies to estimate elements of the CAPM formula. The Office believes that in order to attract private investment in the sector a return that is sufficient to attract foreign investment should be applied. In addition, this return should be calculated on a real basis and in US$ terms as the new policy of regular revaluation of assets and the Price Adjustment Mechanism account for any inflationary and foreign exchange movements. This also facilitates benchmarking against international utilities.

[9] The countries are France, Brazil, China, Chile, Greece, Spain, Hong Kong, Italy, United Kingdom and United States.

Cost of equity

- Risk free rate:- This should be set at the coupon rate of the Government of Jamaica US$ bonds with a maturity period of over ten years less an amount representing inflation in the US.

- Risk premium:- The market risk premium of international publicly traded water utilities can be used as a proxy. The value of 7% is to be used.

- β:- This can be derived from international publicly traded utilities. The OUR does not agree that the derived value of 0.62 should be adjusted upwards as debt currently represent a small percentage of asset value and therefore returns should be less volatile than comparative companies. This situation will not change in the short term.

- Given the recent issue of GOJ US$ denominated bond at 11.5% and US inflation rate of approximately 2% a R_m of 9.5% is to be used.

- Using the above factors in the CAPM formula the cost of equity is calculated to be 13.84%

Cost of debt

The NWC's debt for the foreseeable future will consist of a mixture of commercial debt and Government guaranteed loans from multi-lateral institutions. It would therefore be appropriate for the actual debt expenses to be used in order to ensure that consumers benefit from any concessionary rates.

Deemed equity base

A significant portion of the assets are gifts from the government or handed over by developers free of cost. Therefore, in order to determine the return on capital, the asset base would have to be so disaggregated that assets acquired through government grants or handed over by developers and the assets that have been acquired independently by the NWC can be separately identified. As this data is not available, the Office will not incorporate a rate-of-return on the total asset base of $25,144M. The Office will instead adopt the approach whereby the return on equity of 13.84% will be applied to a deemed equity base of $4.3 billion. This is derived from the amount of profits that the Office deems necessary to generate cash to undertake essential capital works. This confirms the Office's that the NWC must generate some profits in order to attract capital and has therefore allowed an amount sufficient to undertake capital rehabilitation and counterpart funds for expansion.

CHAPTER 8: REVENUE REQUIREMENT

Revenue requirement is the cash an entity requires to be financially viable and deliver an acceptable quality of service to its customers. In the previous determination, February 1999, the Office determined the revenue requirement of the NWC on a cash basis, as it was unsure of the asset base of the company as well as the accurate depreciation charges. Since then, the NWC has undergone a comprehensive asset revaluation exercise and from this a realistic depreciation charge can be derived. Consequently, the Office will determine the revenue requirement on an accrual basis, where the incorporation of cash and non-cash items will be included in its budgeted operating expenses.

Revenue requirement is the sum of total operating expenses and return on regulatory equity base. In order to derive this, the total operating costs of the company is examined and the assumptions as discussed in the previous chapters are incorporated to determine the total operating costs[10]. The return on the regulatory equity base, as discussed in the previous chapter will result from what the Office deems is the reasonable profit that will allow the NWC to do critical rehabilitation projects as well as to contribute to the financing of capital expansion. Table 8.0 gives the OUR determined costs for each major cost item, the percentage increase over the previous year as well as NWC's proposed increases.

Table 8.0: OUR determined total operating expenses cost category

Categories	1999/00 ($'000) (1)	000/01 ($'000) (2)	2001/02 ($'000) (3)	2002/03 ($'000) (4)	NWC proposal[11] ($'000) (5)	OUR estimated 2003/04 ($'000) (6)	(5-6)
Salaries	1,696,991	1,853,519	2,055,357	2,257,434		2,093,653	
Pension costs	83,722	83,818	119,930	126,412	-	243,618	
Repairs and maintenance	571,845	634,398	679,736	651,327		751,327	
Administration	378,075	463,329	459,129	531,864		523,581	
Electricity	739,755	939,743	887,886	1,040,806		1,228,544	
Purchase of water	40,938	49,259	44,038	48,756		41,680	
Loan interest	36,658	22,054	142,586	75,726		120,280	
Depreciation	170,072	249,950	485,463	445,419		1,042,280	
Bad debt	169,294	338,758	503,192	411,287		555,155	
Other	73,667	108,748	177,586	244,209		286,031	
Regulatory Fees						19,500	
Total	**3,961,017**	**4,743,576**	**5,554,903**	**5,833,240**	**7,916,191**	**6,905,719**	**1,010,472**
% change	**-**	**20.16**	**18.43**	**5.65**	**35.69**	**18.39**	

[10] Total operating costs includes depreciation charges. NWC does not pay corporation taxes.

[11] Items in NWC's operating budget not broken out according to these cost types. Consequently the OUR has just included the budgeted total operating expenses for comparison. Total for 2002/03 in Table 6 is unaudited.

The Office has determined that the total operating costs for the NWC for the 2003/04 financial period is $6.905B. This represents an 18.39% increase over the total expenses for the 2002/03 financial year. The NWC has proposed that its total operating costs would increase by 35.69% over 2002/03 financial period to $7.916B.

The regulatory equity base of the NWC is determined to be $4,335.26M. This results in a return on equity of $600M. This profit will allow the NWC to undertake critical rehabilitation programmes as well as co-finance capital expansion projects. **The total revenue required therefore is $7,505,719M.**

The Office examined trends in water production and consumption and customer account information in order to determine how the revenues will improve overtime. The Office has projected that revenues, based on current rates[12], for the 2003/04 financial year will be $5.940B. Table 8.1 summarizes the movements in revenue over a five-year period.

Table 8.1: NWC Revenue for period 1999/00 to 2003/04

Revenue type	**1999/00 (J$'000)**	**2000/01 (J$'000)**	**2001/02 (J$'000)**	**2002/03 (J$'000)**	**NWC projection 2003/04 at current rates (J$'000)**	**OUR-determined 2003/04 at current rates (J$'000)**
Water	4,380,376	4,730,676	2,732,746	2,675,062	4,360,112	4,265,690
Sewerage			569,601	669,791	1,051,697	1,002,832
Service charge			413,615	425,,622	671,479	671,483
PAM			1,005,879	1,274,136		
Other income			75,607	101,160		
Miscellaneous income	55,483	64,014	662,644	69,184		
Total	**4,435,859**	**4,794,690**	**4,860,092**	**5,214,955**	**6,083,288**	**5,940,007**
% change	**-**	**8.09%**	**1.4%**	**7.3%**	**16.7%**	**13.9%**

At this current rate, there is a shortfall ($1,592.157M) in the revenues of the NWC to meet its revenue requirements. Table 8.2 shows the revenue that is required by the NWC and the current shortfall.

Table 8.2: Revenue Requirement

Category	**Amount ($'000)**
Total Operating Costs	6,905,719
Return on Equity Base	600,000
Total Required	7,505,719
Revenue Projected	5,940,007
Shortfall	**1,565,712**

A 26.36% change in revenues is required to offset this shortfall.

[12] The current rates are the gazetted rates inclusive of a price adjustment mechanism (PAM) of 48%.

CHAPTER 9: USE OF CASH PROVIDED FROM OPERATING ACTIVITIES

Cash flow projections

The cash flow for the NWC is expected to improve with the revenues associated with the increase in rates. The NWC, in its cash flow projections, reflected a net cash outflow of $1,021.08M at the end of 2003/04 financial year with a 42% increase, and that it would not experience positive cash flow until year ending 2005. The NWC proposal reflects an overstatement of its costs because its projections do not incorporate the costs savings associated with the restructuring exercise. and its estimate of costs include the funding of pension liability and interest during construction. Extract[13] of projected cash flow statement with the increased rates is in Table 9.1.

Table 9.1: Extract of Cash Flow Statement

Category	**OUR's projection Current rate 2003/04** (J$M)	**NWC's projection (J$M) 2003/04 at current rates**	**New rate determined by the OUR 2003/04 (J$M)**
Cash flow from operating activities	21.481	-967.148	1,642.28
Cash flow from investing activities	-1,642.28	-5,059.246	-1,642.28
Cash flow from financing activities	0	5,005.306	0
Net cash flow at end of year	-1,620.519	-1,021.089	0

The level of revenues allowed by the Office is considered sufficient to cover operating costs and undertake specific rehabilitation and contribute to capital expansion. The table below shows NWC's proposals and the OUR expectations of use of the cash from operating activities.

Table 9.2: NWC & Office's Cash Flow Projections

	NWC programmes	**OUR expectations**
Investment activities		
Water Rehab	219	219
Sewage Rehab	-	478
Corporate programmes	633	305
Ongoing programmes		60
Water expansion	2,041 Funded	300
Sewage expansion	1,056 Funded	280

[13] Detail cash flow is in appendix 3.

The Office will not attempt to micromanage the NWC by specifying an approved list of capital projects to be undertaken. It has, however, decided to mandate the NWC as a condition of this tariff adjustment to implement the reconstruction of the Harbour View Sewage Treatment Plant.

CHAPTER 10: TARIFF STRUCTURE

Introduction

The NWC has proposed that it wishes to maintain the present tariff structure whereby there is a uniform rate across parishes and regions and a two-tiered system, comprising of a fixed component, represented by the service charge, and variable component, represented by the volumetric charge. It also proposed that it intends to reduce the number of rate bands for residential customers from the existing 6 bands to 4 bands over a two-year period and to reflect a more realistic lifeline consumption rate. It requests that service and volumetric charges be increased by 42%.

The Office is sympathetic to NWC's concern that there are too many blocks in the existing tariff structure. It is, however, of the opinion that the changes to the structure cannot be accommodated in the middle of the tariff period. It recommends, that the NWC collects sufficient data on the existing consumption and revenues associated with each band such that an informed decision on the appropriate number of blocks can be made at the next tariff review.

The Office will preserve the existing two tiered tariff structure, as it deems it necessary for the NWC to recover its fixed costs and also to recover its variable costs

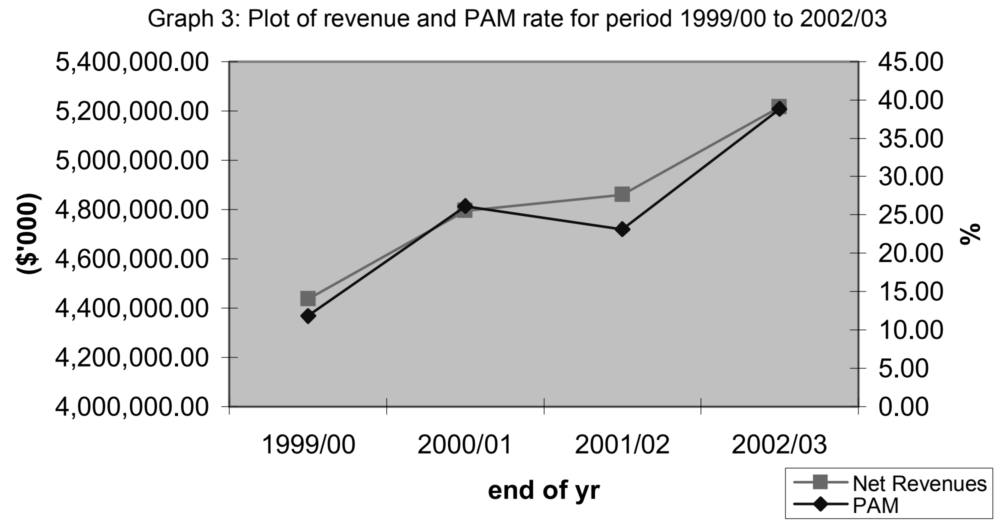
Office's determined Rates

With the exception of 1999 when NWC received a tariff increase, the revenues for the company have grown only marginally over the 1999 – 2003 period. At the 1999 review, the Office was of the opinion that the relatively high number of estimated bills, due to low metering level, as well as the high UFW component were restraining growth in revenues. The Office sought to reverse this trend by introducing a K-factor of 4% to customer bills to support the funding for an intensive meter procurement and installation project in order to increase the number of metered customers to 85%. It also provided an allocation of $180M for plant rehabilitation and mains replacement to reduce the level of UFW. Although the metering programme was successful, the Office notes that overall consumption has not changed significantly. The Office attributes this to either customers becoming more aware of metering charges and are beginning to conserve or there has been increased meter bypass to put a cap on the amount of consumption that is billed.

Based on the graph of the revenues and PAM rates (see graph 3) the Office is of the opinion that the changes in the revenue are attributed purely to movements in the PAM. The increase in the customer base, at an average of 5% over the 4-year period, has not translated to any significant improvements in revenue. One possible explanation is that this is as a result of the dilution effect. That is, more customers are now receiving water from the same sources so previous customers are receiving less water on average. Evidence of this is the increasing complaints of intermittent water supply. This translates in reduction in volumetric billing revenues (due to the increasing block structure) for each customer and by extension an overall reduction in revenues[14]. Therefore whilst the

[14] Although there will be an increase in the total service charge billed for the increased number of customers, the fall in revenues from volumetric charges outweighs this increase. The result is that net revenues have declined.

customer base of the NWC increases, the net reduction in volumetric charges, the simultaneous increase in the number of inactive accounts, as well as the UFW component have impacted negatively on total revenues.



As outlined in chapter 8 there is insufficient cash, based on the present rates, to cover all of the NWC's operating expenditure and provide a return on capital to fund rehabilitation and other capital expenditures. To finance the shortfall of $1,565.712M a 26.36% increase on the effective rates is required. This percentage increase will be applied to the service and volumetric charges for all categories of customers.

Service Charge

Service charge is designed to recover fixed costs related to metering, billing, collection, customer services and depreciation. Presently, the service charges do not fully recover these costs but the balance is recovered through the volumetric charges. In future reviews the Office will gradually realign the respective charges to reflect cost.

The incremental revenue from the service charge when adjusted to the new rate is $177.003M. Table 10.0 provides comparison of the current, NWC proposed and Office approved service charges.

Table 10.0: OUR determined service charge

Meter size	Base Service Charge	Effective* charge ($)	NWC proposed ($)	OUR rate ($)
5/8 inch/15mm	101.65	150.44	214	190.10
3/4 inch/20mm	208.65	308.8	438	390.20
1 inch/25mm	272.86	403.8	573	510.28
1 1/4 inch/30mm	513.61	760.14	1079	960.52
1 1/2 inch/40mm	513.61	760.14	1079	960.52

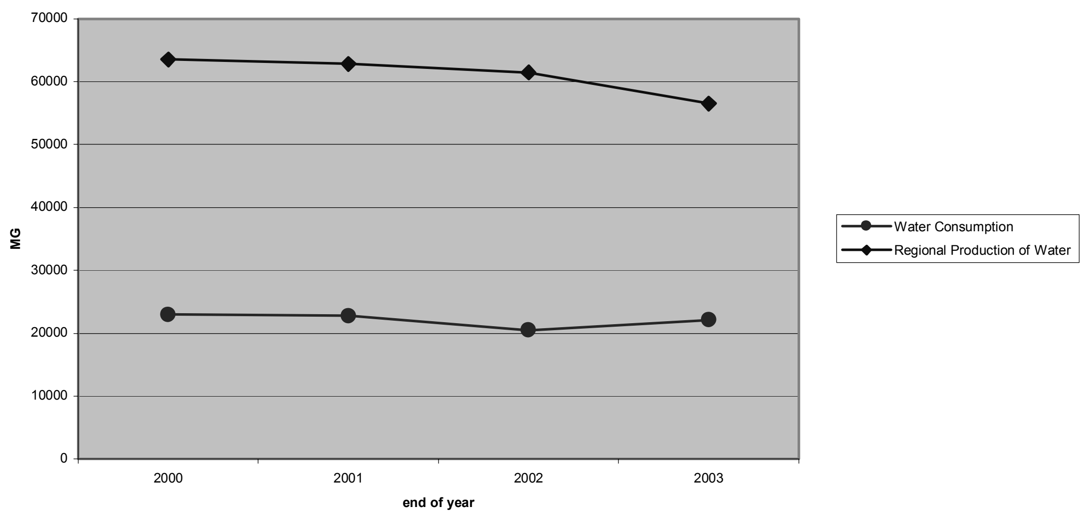
2 inch/50mm	727.61	1076.86	1529	1360.72
3 inch/75mm	1321.48	1955.79	2777	2471.34
4 inch/100mm	2134.69	3159.34	4486	3992.14
6 inch/150mm	3252.86	4814.23	6836	6083.26

*-this includes PAM of 48%.

Volumetric charge

The remaining shortfall in revenue requirement ($1388.71M) will be funded from increases in water and sewerage charges. A graph of total consumption over the 1999 to 2003 period shows that total consumption declined marginally until the 2002/03 financial period. It would have been expected that consumption would have increased over the period given the thrust to extend coverage to more Jamaican households. However, as explained earlier, this may be as a result of the dilution effect or meter bypass activities. Graph 4 shows the consumption pattern of customers and production of water by the NWC over the last 4 financial periods.

Graph 4: Water production and consumption for the period year ending 2000- 2003



The total annual consumption of customers has remain fairly constant over the period. With a projected increase in overall customer base of 3% and increase in active accounts by 3.9% (see table 10.1) the Office does not expect a significant increase in the total consumption rate except for any gains arising from a reduction of UFW. The benefits from any reduction in UFW were not incorporated in the calculation of the volumetric charges as these are captured in the efficiency factor X.

Table 10.1: Change in customer base

Category	1999/00	2000/01	2001/02	2002/03	2003/04
Total Accounts	378826	389198	399447	413632	426040
% change	-	2.7%	2.6%	3.5%	3%
Active accounts	298223	304931	316214	323152	337,728
% change	-	2.2%	3.7%	2.19%	3.9%

Based on analysis of five months consumption data and expected growth in demand it is expected that a 26.36% increase over existing water and sewerage rates will generate sufficient revenues to overcome the remaining shortfall of $1,388.71M.

Table 10.2 provides comparison of the current NWC-proposed and Office-approved Water Rates.

Table 10.2: OUR-determined Water Rates

	Per 1000 Gals.	Existing base rate ($)	Effective rate ($)	NWC proposed rate ($)	New rate ($)
Residential	0 to 3	57.96	85.78	122	108.39
	3 to 6	102.18	151.22	215	191.08
	6 to 9	110.32	163.27	232	206.31
	9 to 12	140.81	208.39	296	263.33
	12 to 20	175.37	259.54	369	327.96
	>20	225.73	334.08	474	422.14
Commercial	per 1000	217.33	321.64	457	406.43
Condominium	per 1000	107.81	159.55	227	201.61
Primary school	per 1000	86.94	128.67	182.71	162.58

Sewerage rates

In the 1999 review the Office had included as part of the regulatory requirement that the NWC should separate its business into water and sewerage and apportion costs accordingly. At the time of rate submission the NWC had failed to separate its accounts. Given the lack of accounting separation and apportionment of cost, the OUR is unable to precisely determine the cost of sewerage services. Over the past financial year, the Consumer Affairs Department (CAD) of the OUR, received numerous complaints from customers about the unfairness of the present arrangement whereby sewerage charges are calculated at 100% of water charges. While the Office understands the concerns expressed by the customers, in the absence of the actual cost data, it is unable, at this time, to develop an alternate methodology to determine the charge for sewerage services. As a result, it will retain sewerage charge as 100% of the water rate. Revenues from sewerage are included in water revenues in the previous section. The Office, however, encourages the NWC to embrace and treat with representations from specific customers who use water as an input to their product (e.g. juice manufacturers) and who therefore return significantly less than the water purchased to the sewerage system. NWC should develop a methodology for estimating an appropriate sewerage charge for these customers.

Revenue projections

Table 10.3 highlights the revenues expected from current and new rates from the service charge, sewerage and water rates.

Table 10.3: Revenue Statement

Category	Current rates ($M)	NWC Proposed rates ($M)	New rates determined by OUR ($M)
Revenue: Water	4,265.69	6,191.36	5,390.12
Sewerage	1,002.83	1,493.41	1,267.17
Service charge	671.48	953.50	848.48
Total Revenue	**5,940**	**8,638.27**	**7505.77**

The Office will not include a K-factor in the rates for this review. It is of the view that the funds provided for rehabilitation will be sufficient to fund the necessary programmes. Chapter 9 outlines the cash flow expected with the increase in water and service charges.

PAM weights

Price adjustment mechanism (PAM) is a surcharge that is added to the billed water, sewerage and service charges in order to protect the real revenues of the NWC. It is calculated as the weighted average of changes in the foreign exchange rates, inflation rates and electricity costs. At the 1999 tariff review, the OUR restructured the PAM from 84% of costs to 100% of costs to better reflect the movements in the various external variables that affect NWC costs. At that time the weights for foreign exchange (FE) was 0.174, consumer price index (CPI) was 0.618 and electricity (EC) was 0.208. The weights are then applied to the changes in each of the three variables, the sum of which determines how much nominal increase that will be added to the bills. The formula for the PAM is as follows:

$PAM = w_{fe}*\Delta FE + w_{cpi}*\Delta CPI + w_{ec}*\Delta EC$

where w_{fe} is the weight for foreign exchange, w_{cpi} is the weight for CPI and w_{ec}, the weight for EC and
Δ is the percentage change in the respective variable

The Office has recalculated the weights of the PAM to reflect the current composition of the costs associated with each of the three variables. The new weights are:

Index	1999 Weights	2003 Weights
Foreign exchange	0.174	0.175
CPI	0.618	0.605
Electricity	0.208	0.220
Total	1.0	1.0

The foreign exchange weight has not changed significantly, because although the debt component of the NWC financing has been significantly reduced because of the write-off of $3B debt by the government, the asset revaluation has resulted in over 100% increase in depreciation charges. Majority of the assets utilized by the NWC are acquired from overseas, and as such would be impacted by foreign exchange movements. The increase in weight for electricity component reflects the increase in the cost of electricity.

The base indices for this determination will be set at the values used to determine the effective rates according to published figures by Statistical Institute of Jamaica (STATIN) and Bank of Jamaica (BOJ) Statistical Digest. At this time, the PAM will also be set to zero.

The Office has decided to implement a regime whereby the efficiency gains derived from the targets set for NWC is used to offset the application of the PAM. This kind of regime operates best where the adjustment is done annually so that both the inflation index and the efficiency factor are applied at the same time. As, however, there is some volatility in the economy NWC may be at a disadvantage if all the inflation factors are applied annually. This is particularly true of the electricity and foreign exchange components. The local inflation component consists largely of employee costs the impact of which is usually experienced annually.

The Office will therefore allow a monthly application of the electricity and foreign exchange components. At the end of each 12-month period the full PAM will be calculated and the efficiency factor, X, subtracted. The effective rate at the end of the year, arising from the monthly adjustments, will be adjusted to the Base rate *(1 + PAM-X)

CHAPTER 11: OUR'S EXPECTATION FOR EFFICIENCY IMPROVEMENTS AND CUSTOMER SERVICE

It is generally accepted that state enterprises are more difficult to regulate than their private counterparts. The NWC is no exception, and in many ways, it has proved to be the most difficult of the companies over which the Office has regulatory responsibility. The Office had established a regime of performance benchmarks in the previous tariff with the expectation that the NWC would use these as markers against which they would set their own goals for efficiency improvements and service delivery. Regrettably, the NWC has not met most of the performance benchmarks set by the Office.

As was the case in the 1999 review, there are improvements in operation and customer service that the Office expects to be achieved by the NWC over a specific time frame. The Office has determined these efficiency improvements after considering the proposals of the NWC, reviewing the past performance of the NWC in comparison to the benchmarks outlined in the regulatory framework, the views of the consumers and what it deems as reasonable given the provisions for the capital rehabilitation programme in this review.

In its business plan, the NWC has proposed a number of benchmarks for each major category of business activity which it intends to achieve over a 10 year period.

The Government has signaled its intentions to wean the NWC from its budget and will contribute only to certain specific capital programmes deemed to be of social or environmental importance. In doing so, the Government has confirmed its expectation that the NWC must operate in a commercially focused manner and from the regulatory perspective it should be treated similarly to any private sector operator. It is against this background that the Office has revisited its approach to expectations of efficiency gains of the NWC, the use of the price adjustment mechanism and the setting of performance benchmarks for the NWC.

The NWC has stated in its 2003/04 budget that it expects to have efficiency gains of 1% on production and distribution costs and 0.5% on indirect costs. The total efficiency gains that the NWC expects is therefore 1.5%. With the expected expenditure on mains replacement as well as the installation of source meters, the Office expects to see an improvement in UFW of at least 2% each year. The Office is of the opinion that it is more than reasonable to assume that a 2% reduction in UFW will result in at least 2% improvement in efficiencies whether by reduction in costs or increase in revenues.

NWC's proposed gains coupled with the Office expected efficiency gains on UFW of 2% results in total efficiency gains of 3.5%. This efficiency gain will be applied to the yearly

PAM rate to determine the nominal increase in water, sewerage and service charges. The final annual increase for water sewerage and service rates will be **PAM less 3.5%**.

Performance Benchmarks and Standards

The NWC proposed several provisions for capital and operating expenditure to meet its proposed performance standards. Specifically, the NWC proposed that:

1. An allocation of $119.4M over two years is made to reduce gross receivables to $1.5B. This amount will cover additional personnel, fixed assets (motor vehicle and personal computers) and legal costs.

2. To meet the 85% functioning meters, an additional $93.6M should be allocated to cover the costs of replacing defective and aged meters and for un-metered and new accounts. After this initial allocation, the NWC indicates that the amount will increase in subsequent years.

3. Additional cost of $24.554M is needed to revisit disconnected accounts within 90 days after disconnection; and

4. In order to read a minimum of 97% of metered account in each billing cycle a provision of $3M yearly should be made to cover human resource and equipment cost.

The associated performance incentives and benchmarks are outlined below:

Receivables

The Office continues to hold the view that the level of receivables is excessive. Both previous regulatory frameworks, set the gross receivables at a maximum of $1.3B, but over the 4-year period, the gross receivables have increased. As at year end March 2003, it was recorded at $3,654.58M[15]. Of this amount, government receivables totaled $454.5M (12%). This translates to 35%[16]of net receivables.

The business plan suggests that the NWC could outsource the billing and collections aspect of its operations as this would bring in additional revenues, similar to that of the present bad debt recovery arrangement, at no additional cost.

The NWC in its tariff proposal suggests that receivables should be at 30% of revenues and a bad debt of 10%.

The Office is of the opinion that 25% of revenues for net receivables is reasonable, and correspondingly bad debt provision should be at 8%.

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[15] Net receivables are $1297.5M.

[16] Government receivables are not considered to be bad debt.

Employee costs

With the NWC revenues expected to increase and the impact of the staff restructuring programme, the Office is of the opinion that the employee costs should fall as a percentage of total costs and total revenues. The NWC has proposed that the employee costs will be reduced to less than 35% of revenues within 2 years and less than 30% of revenues within the five years. The Office accepts this proposal to cap employee costs at 35% of revenues within two years is reasonable.

Asset Revaluation

NWC has completed the asset revaluation exercise but the results have not been audited or reflected on its books. The Office has deemed the revalued amount as NWC's regulatory asset base. The Office has given the NWC a time frame of one year in which to bring the assets to book.

The NWC has suggested that it formally update its valuation and inventory every five years. It is important for the true value of NWC's assets be reflected on its books in order to recover investment costs and provide funds for replacement or rehabilitation. The Office acknowledges that revaluation exercises are costly and time consuming and that a five year interval is reasonable. However, an indexation mechanism must be developed to update asset values annually in the intervening years. This indexation mechanism must be agreed with the auditors and applied at the 2004/05 audit.

Unaccounted for water (UFW)

UFW is the difference between production and billed consumption of water. High UFW is synonymous with improper management of water systems, poor commercial practices and inadequate systems maintenance and theft. The NWC has not provided data, which gives information as to the composition of the UFW. There is therefore no credible basis on which to assess the spectrum of losses in terms of the quantum associated with leaks (technical), and theft, poor commercial practices and inadequate maintenance and management of water systems. The benchmark for UFW in developing countries is 23%-30%, however, the NWC has been registering average UFW in the 60 percentile over the last 4 years. The Office in the 1999 regulatory framework had required that the NWC reduce its UFW to 45% over a two year period. This target was subsequently revised to 55% but to date, it has not been achieved. The target submitted by the NWC in its tariff proposal is that UFW would be reduced to 40% in the Kingston Metropolitan Area (KMA) and Port Antonio over a five-year period, and would be contained or reduced by a smaller degree in other areas until financing is secured.

The OUR is of the view that reduction of UFW is important as it will not only translate into additional revenues for the NWC, but will also contribute to the reduction of operating costs generally.

In the public consultations associated with this tariff review, significant public concern was expressed about the proliferation of leaks on public roadways and the apparent lack of urgency which the NWC has exercised in responding to and correcting the problems when they occur. The opinion has been expressed that if the NWC were to reduce the level of losses there would be no need for a rate increase.

Whilst the Office understands the public's viewpoint and would agree that a lower UFW would improve the financial performance of the NWC, the reality of the situation is that the existing infrastructure of the Commission is in disrepair and is need of rehabilitation. As such, the Office is compelled to make reasonable provisions for rehabilitation work on the basic infrastructure if the ultimate objective of reducing UFW is to be achieved. As outlined in chapter 6 the level of revenues allowed by the Office is sufficient to provide the cash for the implementation of several rehabilitation projects inclusive of mains replacement as well as source and customer metering. These remedies should improve the technical losses. The Office expects that (i) the performance target which requires the NWC to do follow up visits on inactive accounts, (ii) ongoing customer metering programmes, (iii) provision for upgrade to accounting and information systems to reduce billing errors, (iv) the recent amendments to legislation increasing the penalties for illegal abstraction of water from NWC systems and (v) an aggressive campaign by the NWC to identify theft should result in the UFW attributed to non-technical losses being reduced.

The average UFW at March 2003 was 57%. The western and northern regions have the highest UFW, recorded in the 60 percentile. The Office expects that UFW will be reduced to below 40% over 10-year period. This will require more aggressive UFW reduction programmes in the northern and western regions, compared to the metro and southern regions. The Office considers the NWC's proposal to reduce UFW in the southern and metro regions to 40% over a 10-year period whilst retaining the present UFW percentages in the other regions to be unacceptable. Among the main issues coming out of the public consultation on the tariff application was the non-existence or inadequacy of potable water. The Office recognizes that the data provided in respect of UFW may be inaccurate due to inadequacy of source meters. The Office will reserve its provision on the priority areas for reduction of UFW until there is confidence in the data provided. Regardless, based on the current practice of estimation, the Office expects that UFW will be reduced to 55% by end of fiscal year 2004/05 and thereafter by at least two (2) percentage points per year.

Billing and Collection

Since 1999, the Office has stipulated as one of its targets that the NWC should collect at least 90% of its billed revenues, with a bad debt provision of 10%. To a great extent the NWC has been able to achieve this target. The OUR is however of the opinion that with the expansion in the number of collections agencies and the expectation that there will be an improved call center to handle billing related queries and complaints, the collection rate should be improved. The Office has set the collection rate at 92% of billed revenues. Simultaneously, the bad debt provision will be reduced to 8%.

Billing related complaints

The 2002/03 regulatory framework stipulated that NWC should keep billing related complaints within 5% of total bills printed. With the expected increased utilization of the Call Center, the OUR expects that billing related complaints will fall within the 5%

benchmark. The last report received from the NWC indicated that it has achieved a target of 3.7%. The NWC has suggested in its tariff proposal stated that that billing related complaints should be set at no more than 5% of total bills printed. The Office agrees with this standard.

Meter reading

The existing requirement is that the NWC reads at least 97% of meters in each billing cycle. The OUR is unable to determine the NWC's performance in relation to this standard as it has not received any reports on this target. In this regard the Office maintains the view that the meters should be read at least every other month and that 97% of meters be read in each billing cycle.

The NWC has also proposed that the time between successive meter readings be a maximum of three months. This would mean that there is a possibility that a particular customer's meter could be read only 4 times for the year. The Office is of the view that it is in the best interest of the both NWC and customer that meters be read frequently and the Office maintains the view that all meters should be read at least every other month.

Inactive accounts

The Office is of the opinion that NWC should keep its inactive accounts under constant review as these may be a source of water loss through theft. Whilst the OUR accepts that accounts will be disconnected from time to time, if these accounts are not reconnected within a specific time frame, then the NWC should investigate to see if these customers are still receiving water supply. Consequently, the Office has retained the target as outlined in the 2002-03 regulatory framework that all disconnected accounts that have not been legitimately reconnected should be revisited within 90 days of being disconnected to ensure that these customers are not illegally reconnected. The NWC has also proposed this target in its tariff submission.

Functioning meters

The Office has incorporated in its calculation provision for meter replacement by way of the depreciation charge. The Office therefore expects that the NWC will have at least 85% of accounts with functioning meters. This standard has not changed when compared to the 2002-03.

Water quality

The Ministry of Health (MOH) through the Interim Jamaica (IJAM) standards defines water quality standards. The NWC's compliance with these standards has fluctuated over the 4-year period. Whilst the Office does not believe that public health is, at this stage, at risk, there can be no compromise on the requirements of and expectations for the NWC to meet these standards. Accordingly, the Office not only accepts all the strategies proposed by the NWC to secure its water quality but also insists that the target that the NWC should achieve at least 99% compliance with the IJAM standards as outlined in 2002-03 regulatory framework remains.

Wastewater quality

The Office has expressed ongoing concern about the level and adequacy of treatment of wastewater by the NWC. This was also a major issue during the public consultations on the tariff review. The NWC provides sewerage services primarily to the Metro, Southern and Western regions and to Ocho Rios. It appears that proper treatment and disposal standards for the western region and Ocho Rios have been maintained. The NWC has stated however that the revenues collected are insufficient to adequately rehabilitate the sewage treatment facilities and conduct the proper treatment and disposal. In those areas where it is clear that sewerage services have been inadequate, customers have expressed the view that it is unfair to be charged for a service that is not being carried out. The Office's patience on this matter has been exhausted and in one final attempt to secure from the NWC a corporate focus on sewerage as a priority it has made specific provisions of $422.8M for the funding of the rehabilitation programme to improve the existing treatment facilities in these areas. The Office expects that the NWC will be in dialogue with National Environment and Planning Agency (NEPA) in relation to reaching agreement on the timeframe to bring its plants into compliance. As this agreement may have consequential implications for capital expenditure and therefore an impact on tariffs, the Office would wish to be a party to any memorandum of understanding agreed to by the parties. The Office would expect these agreements to be concluded by the end of September 2004.

Reporting Requirement

The regulatory framework requires that the NWC submit reports on various aspects of its operations on a periodic basis. The Office reissued the regulatory framework in 2002 consequent to amendments to the Act which granted the OUR full regulatory powers over the NWC. The Office expects full compliance with the reporting requirements and has decided that it will use all its powers under the Act to secure such compliance. Additionally, the reports are to be submitted within 45 days of the end of the relevant period.

Regulatory Framework

The Office will draft a new regulatory framework outlining the standards as described above as well as the reporting requirements to be fulfilled by the NWC after this final determination.

Effective date for new tariff

On the publication of this Decision, the NWC and the public will have until the 15th of December, 2003 to submit application for a reconsideration of any aspect of this decision. These applications must be in respect of errors of fact or of material changes to circumstances affecting the NWC since the submission of the rate review application. A final determination will then be made on the 22nd of December 2003. The effective date of the decision will be January 1, 2004. This tariff regime will remain effective for three years.

APPENDIX 1: Cash Flow Projections under Existing Tariff

Year end 31 March ($'000)	2002	2003	2004	2005	2006	2007	2008	2009
Cash Flows from Operating Activities								
Surplus / (deficit) for year after interest expenses	1,979,901	2,198,713	(2,308,608)	(2,618,042)	(2,774,681)	(3,258,405)	(3,491,080)	(3,771,231)
Depreciation and other adjustments	534,502	461,914	1,243,420	1,416,100	1,496,286	1,562,559	1,603,296	1,500,906
Interest differential (add back expense - paid)			74,378	162,934	235,211	463,752	4,551	4,915
	2,514,403	2,660,627	(990,810)	(1,039,009)	(1,043,183)	(1,232,094)	(1,883,233)	(2,265,410)
(Increase) / decrease in current assets								
Consumer accounts recievables	115,867	(291,478)	(121,788)	(12,973)	(60,299)	(41,132)	(73,363)	(33,210)
Prepaid expenses			-	-	-	-	-	-
Due from GOJ	59,546	-	-	-	-	-	-	-
Other accounts recievable			-	-	-	-	-	-
Change in accounts inventory	(188,320)	(16,776)	(137,824)	81,919	23,043	(4,947)	(9,938)	(5,144)
	(12,907)	(308,254)	(259,612)	68,945	(37,256)	(46,079)	(83,301)	(38,354)
Increase / (decrease) in current liabilities								
Deposits and retentions	25,072	(798)	7,154	762	3,542	2,416	4,309	1,951
Trade and other accounts payable	(541,754)	292,879	276,120	(164,118)	(46,164)	9,911	19,910	10,306
	(516,682)	292,081	283,274	(163,356)	(42,622)	12,327	24,219	12,257
(Increase) / decrease in current assets and liabiliti	(529,589)	(16,173)	23,662	(94,410)	(79,879)	(33,752)	(59,082)	(26,097)
	(1,305,732)	**(115,192)**	**(967,148)**	**(1,133,419)**	**(1,123,062)**	**(1,265,846)**	**(1,942,314)**	**(2,291,507)**
Cash Flows from Investing Activities								
Purchase of fixed assets								
Water								
Production			(3,307,110)	(2,525,010)	(2,234,010)	(2,867,910)	(85,710)	(85,710)
Delivery			(95,400)	(91,800)	(139,080)	(139,080)	(139,080)	(94,080)
Customers			-	-	-	-	-	-
Indirect			-	-	-	-	-	-
			(3,402,510)	**(2,616,810)**	**(2,373,090)**	**(3,006,990)**	**(224,790)**	**(179,790)**
Wastewater								
Conveyance			-	-	-	-	-	-
Treatment			(325,800)	(415,800)	(355,800)	(235,800)	(211,800)	(259,800)
Indirect			-	-	-	-	-	-
			(325,800)	**(415,800)**	**(355,800)**	**(235,800)**	**(211,800)**	**(259,800)**
Corporate fixed assets			(1,330,936)	(262,516)	(37,080)	(11,247)	(12,146)	(13,118)
Total fixed asset additions	**(3,142,033)**	**(652,212)**	**(5,059,246)**	**(3,295,126)**	**(2,765,970)**	**(3,254,037)**	**(448,736)**	**(452,708)**
Additions to projects in progress	**(1,266,462)**	(186,675)	-	-	-	-	-	-
	(4,403,113)	**(838,065)**	**(5,059,246)**	**(3,295,126)**	**(2,765,970)**	**(3,254,037)**	**(448,736)**	**(452,708)**
Cash Flows from Financing Activities								
Capital Income / Equity Injections								
Grants and Subsidies			-	-	-	-	-	-
Collaborative Projects GoJ Funded			-	-	-	-	-	-
Non-Collaborative Projects GoJ Funded			42,855	42,855	42,855	42,855	42,855	42,855
Contributed Private Assets			1,140,000	114,000	0	0	0	0
	2,760,957	**2,743,473**	**1,182,855**	**156,855**	**42,855**	**42,855**	**42,855**	**42,855**
Distribution to shareholders			-	(2,500,000)	-	-	-	-
	2,760,957	2,743,473	1,182,855	(2,343,145)	42,855	42,855	42,855	42,855
Debt drawdown	2,125,793	(1,107,009)	3,876,391	5,638,271	2,723,115	3,211,182	405,881	409,853
Debt principal repayment	(48,024)	(35,000)	(53,940)	(154,818)	(195,267)	(230,552)	(431,495)	(486,137)
	2,077,769	(1,142,009)	3,822,451	5,483,452	2,527,848	2,980,630	(25,614)	(76,284)
	4,828,168	**1,586,749**	**5,005,306**	**3,140,307**	**2,570,703**	**3,023,485**	**17,241**	**(33,429)**
Net Cash Inflow/(Outflow)	**(880,677)**	**633,492**	**(1,021,089)**	**(1,288,237)**	**(1,318,329)**	**(1,496,397)**	**(2,373,810)**	**(2,777,644)**
Cash Balance								
Opening cash	478,273	127,185	776,850	(244,239)	(1,532,476)	(2,850,805)	(4,347,202)	(6,721,012)
Closing cash	(402,404)	760,677	(244,239)	(1,532,476)	(2,850,805)	(4,347,202)	(6,721,012)	(9,498,657)

APPENDIX 2: Cash Flow under Proposed New Tariff

Year ending 31 March	2002	2003	2004	2005	2006	2007	2008	2009
Cash Flows from Operating Activities								
Surplus / (deficit) for year after interest expenses	1,979,901	2,198,713	(2,308,608)	(748,753)	(204,063)	(180,826)	185,863	617,337
Depreciation and other adjustments	534,502	461,914	1,243,420	1,416,100	1,496,286	1,562,559	1,603,296	1,500,906
Interest differential (add back expense - paid)			74,378	162,934	235,211	463,752	4,551	4,915
	2,514,403	2,660,627	(990,810)	830,280	1,527,435	1,845,485	1,793,710	2,123,158
(Increase) / decrease in current assets								
Consumer accounts recievables	115,867	(291,478)	(121,788)	(458,628)	(165,350)	(46,844)	(88,514)	(34,635)
Prepaid expenses			-	-	-	-	-	-
Due from GOJ	59,546	-	-	-	-	-	-	-
Other accounts recievable			-	-	-	-	-	-
Change in accounts inventory	(188,320)	(16,776)	(137,824)	93,344	16,650	(4,862)	(9,723)	(5,072)
	(12,907)	(308,254)	(259,612)	(365,285)	(148,700)	(51,706)	(98,237)	(39,707)
Increase / (decrease) in current liabilities								
Deposits and retentions	25,072	(798)	7,154	26,939	9,712	2,752	5,199	2,034
Trade and other accounts payable	(541,754)	292,879	276,120	(187,006)	(33,357)	9,741	19,480	10,162
	(516,682)	292,081	283,274	(160,068)	(23,645)	12,493	24,679	12,197
(Increase) / decrease in current assets and liabilities	(529,589)	(16,173)	23,662	(525,352)	(172,344)	(39,214)	(73,558)	(27,511)
	(1,305,732)	**(115,192)**	**(967,148)**	**304,928**	**1,355,090**	**1,806,272**	**1,720,151**	**2,095,647**
Cash Flows from Investing Activities								
Purchase of fixed assets								
Water								
Production			(3,307,110)	(2,525,010)	(2,234,010)	(2,867,910)	(85,710)	(85,710)
Delivery			(95,400)	(91,800)	(139,080)	(139,080)	(139,080)	(94,080)
Customers			-	-	-	-	-	-
Indirect			-	-	-	-	-	-
			(3,402,510)	**(2,616,810)**	**(2,373,090)**	**(3,006,990)**	**(224,790)**	**(179,790)**
Wastewater								
Conveyance			-	-	-	-	-	-
Treatment			(325,800)	(415,800)	(355,800)	(235,800)	(211,800)	(259,800)
Indirect			-	-	-	-	-	-
			(325,800)	**(415,800)**	**(355,800)**	**(235,800)**	**(211,800)**	**(259,800)**
Corporate fixed assets			(1,330,936)	(262,516)	(37,080)	(11,247)	(12,146)	(13,118)
Total fixed asset additions	**(3,142,033)**	**(652,212)**	**(5,059,246)**	**(3,295,126)**	**(2,765,970)**	**(3,254,037)**	**(448,736)**	**(452,708)**
Additions to projects in progress	**(1,266,462)**	(186,675)	-	-	-	-	-	-
	(4,403,113)	**(838,065)**	**(5,059,246)**	**(3,295,126)**	**(2,765,970)**	**(3,254,037)**	**(448,736)**	**(452,708)**
Cash Flows from Financing Activities								
Capital Income / Equity Injections								
Grants and Subsidies			-	-	-	-	-	-
Collaborative Projects GoJ Funded			-	-	-	-	-	-
Non-Collaborative Projects GoJ Funded			42,855	42,855	42,855	42,855	42,855	42,855
Contributed Private Assets			1,140,000	114,000	0	0	0	0
	2,760,957	**2,743,473**	**1,182,855**	**156,855**	**42,855**	**42,855**	**42,855**	**42,855**
Distribution to shareholders			-	(2,500,000)	-	-	-	-
	2,760,957	2,743,473	1,182,855	(2,343,145)	42,855	42,855	42,855	42,855
Debt drawdown	2,125,793	(1,107,009)	3,876,391	5,638,271	2,450,804	2,568,945	284,117	245,912
Debt principal repayment	(48,024)	(35,000)	(53,940)	(154,818)	(187,963)	(205,143)	(399,772)	(446,209)
	2,077,769	(1,142,009)	3,822,451	5,483,452	2,262,841	2,363,802	(115,655)	(200,297)
	4,828,168	**1,586,749**	**5,005,306**	**3,140,307**	**2,305,696**	**2,406,657**	**(72,800)**	**(157,442)**
Net Cash Inflow/(Outflow)	**(880,677)**	**633,492**	**(1,021,089)**	**150,110**	**894,816**	**958,892**	**1,198,615**	**1,485,497**

Appendix 3: Capital Projects proposed by NWC

Table 1: Water Projects

Projects	Parish (region)	Financing Source	Total Estimated cost (J$M)	Expected cost 2002/03 (J$M)	Expected cost 2003/04 ($JM)
KSA distribution system upgrading	KSA (metro)	IDB	480	0	0
KMA water supply project – ph 2	KSA (metro)	IDB	4320	0	64.8
KMA Water supply project - ph 1	St. Catherine (south)	JBIC	5100	102	918
Milk River was	Clarendon (central)	EU	102	0	0
Christiana – Spauldings	M'dville (central)	EU	192	0	0
Santa Cruz	St. Eliz (central)	NWC	240	0	0
Savanna-la-mar	W/moreland (west)	EU	240	0	0
Venture River	W/moreland (west)	NWC	600	0	0
Shettlewood – ph 1	St. James (west)	EU	138	0	0
Shettlewood – ph 2	St. James (west)	NWC	240	0	0
Great river to Lucea	St. James (west)	Private sector	2280	0	1026
Martha brae/Duncans	Trelawny (west)	Private sector	840	0	0
Clarke town/Duncan	Trelawny (west)	NWC	180	0	0
Ocho Rios	St. Ann (north)	Private sector	540	0	0
Bogue to Port Maria	St Ann (north)	Private sector	1200	0	0
Eastern St. Mary	St. Mary (north)	NWC	120	0	0
Port Antonio	Portland (north)	EIB	330	0	33
Other water supply projects	Islandwide	GOJ/NWC	1714.2	0	0
Total	**-**	**-**	**18856**	**102**	**2041.8**

Key: IDB: Inter-American Development Bank; EU: European Union; EIB: European Investment Bank; JBIC: Japan Bank for International Cooperation

Table 2: Water Rehabilitation Projects

Type	Funding Source	Estimated Total cost (J$M)	Estimated expenditure 2003/04 (J$M)
Constant Spring WTP	NWC	60	12
Mona WTP	NWC	30	6
Seaview WTP		30	6
New Forest pumping station	NWC	9	1.8
Greater Mandeville system	NWC	45	9
Berkshire hall WTP	NWC	3	0
Great river WTP – no. 1	NWC	12	0
Great river WTP – no. 2	NWC	24	0
Martha brae WTP – no. 1	NWC	12	6
Martha brae WTP – no. 2	NWC	12	6
Queens of Spain Valley wells	NWC	90	0
Mains replacement	NWC	900	0
Other water rehab	NWC	245.4	0
Customer and source meters	NWC	102	102
Pump workshop	NWC	10	10
Equipment and instrument	NWC	8	8
KW&S	NWC	20	20
Head A & B projects	-	0	0
Parish plans for water and sewerage supply	NWC	13	13
Preliminary engineering for water supply	NWC	9	9
Runaway bay UFW project	NWC	10	10
Total	**-**	**1644.4**	**218.8**

Table 3: Wastewater Projects proposed by NWC

Projects	Parish (region)	Financing Source	Total Estimated Cost (J$M)	Expected Cost 2002/03 (J$M)	Expected Cost 2003/04 ($JM)
KSA sewerage – ph 1	KSA (metro)	IDB/JBIC/ Private sector	8400	0	0
KSA sewerage – ph 2	KSA (metro)	JBIC	7800	0	0
Harbour View sewerage	KSA (metro)	Private sector	360	0	0
Western Spanish town	St. Catherine (south)	Private sector	240	0	0
Greater Spanish town	St. Catherine (south)	NWC	360	0	0
Old harbour	Clarendon (central)	NWC	600	0	0
Old harbour	Clarendon (central)	NWC	120	0	0
May pen	Clarendon (central)	NWC	660	0	0
Chapelton	Clarendon (central)	EU	480	0	0
Black river	St. Elizabeth (central)	NWC	420	0	0
Santa Cruz	St. Elizabeth (central)	Private sector	480	0	1026
Savanna-la-mar	Westmoreland (west)	Private sector	720	0	0
Falmouth	Trelawny (west)	NWC	600	0	0
Port Maria	St. Mary (north)	Private sector	480	0	0
Port Antonio	Portland (north)	EIB	600	0	30
Other sewerage projects	Islandwide	NWC	1116	0	0
Total	**-**	**-**	**23,436**	**0**	**1056**

Key: IDB: Inter-American Development Bank; EU: European Union; EIB: European Investment Bank;
JBIC: Japan Bank for International Cooperation

Table 4: Wastewater Rehabilitation Projects

Type	Funding source	Estimated Total cost (J$M)	Estimated expenditure 2003/04 (J$M)
Sewerage rehab	NWC	1200	0
Head A&B	GOJ	0	0
Total	**-**	**1200**	**0**

Table 5: Corporate Projects

Type	Funding Source	Estimated Total cost (J$M)	Estimated expenditure 2003/04 (J$M)
Implementation short term billing and collection measures	NWC	60	60
Implementation of tariff	NWC/IDB	10[17]	10
Organizational restructuring and staff rationalization	NWC	492	98
Build internal capability	NWC	246	72
Implement performance based compensation system	NWC	12	6
Tools and Equipment	NWC	10	5
Training and Development	NWC	60	30
Upgrade of transportation		285.3	57
Reduce energy cost	NWC	172	9
Improve O&M procedures	NWC	90	15
Improve materials management	NWC	90	42
Improve information systems	NWC	144.2	43
Implement customer information system	NWC	242.2	121
Purchase computer hardware and network equipment	NWC	39.6	20
Implement accounting system	NWC	6	6
Call Center Operation	NWC	10[18]	10
Public Relations	NWC	7.8	7.8
Total	**-**	**2051.3**	**615.8**

[17] The NWC has made a provision of $12M in its tariff model. The Capital Budget has allocated $10M. The Office has opted to use the lower of the 2.
[18] Amount provided in the tariff model is $12M. The Office decided to take the lower of the two amounts to be included in the Capital Budget.