
Office of Utilities Regulation

National Irrigation Commission

Review of Rates

Decision



OFFICE OF UTILITIES REGULATION

November 2001

A small, rectangular sticker with a blue border and a yellow background. It contains the phone number '354.366 OUR(587)' in black text. To the right of the text are three horizontal blue lines.

354.366 OUR(587)

ADDENDUM

AMENDMENTS TO THE DETERMINATION

The Office has reviewed the service charge collected by the NIC. The following amendments represents the changes that are to be made to the document enclosed herewith.

1. EXECUTIVE SUMMARY

Page 2

Sentence should now read "...August 1999" and not June 1998.

Change \$2.35 to \$3.00.

- " \$4.47 to \$5.27
- " \$2.52 to \$3.08
- " 7.2% to 2.7%
- " 21% to 4.9%
- " 20% to 1.9%

Page 3

Table 1: Economic rate for agricultural and non-agricultural users

Change \$2.35 (2nd row, 2nd column) to \$3.00

- " 21% (3rd row, 3rd column) to 4.9%
- " \$2.52 (4th row, 2nd column) to \$3.08
- " 7.2% (4th row, 3rd column) to 2.7%
- " \$4.47 (2nd row, 4th column) to \$5.27
- " 20% (4th row, 5th column) to 1.9%

Recovery Rate for farmers:

Change 1998 to 1999 in 3rd line.

Change 20.8% to 16.3%

- " 27.4% to 21.5%
- " \$2.35 to \$3.00
- " 24.6% to 20%
- " 32.9% to 26.9%
- " \$2.52 to \$3.08

Page 4

At number 4, change \$2.35 to \$3.00 and \$2.52 to \$3.08

2. INTRODUCTION

Page 4

Change 1998 to 1999

- " \$4.47 to \$5.27
- " \$2.35 to \$3.00

3. BACKGROUND

Page 4

Change 1987 to 1986

Page 5

Change June 1998 to August 1999

“ \$4.47 to \$5.27

“ \$2.35 to \$3.00

Page 6

Table 2c: Current and Proposed Rates for Non-agricultural Users

Change \$4.47 (2nd row, 2nd column) to \$5.27

“ \$4.47 (3rd row, 2nd column) to \$5.27

4. NIC'S PROPOSAL

Page 7

Change 36% to 6.7%

Financial Support – 3rd line, 1st paragraph

Change unreasonable to questionable

Page 8

1st bullet point should read “... to assist farmers with efficient on-farm irrigation practices as coordinated by Rural Agricultural Development Authority (RADA)”.

5. OUR RECOMMENDATIONS – Operating Expenses

Page 9

Electricity

4th line 1st paragraph should read “...significant increase in the electricity costs was as a result of movement in fuel prices and poorly maintained canals...”

6. RATES

Page 12

Table 5: Summary of Rates

Change \$2.52 (3rd and 4th row, 3rd column) to \$3.08

7. GOVERNMENT SUBSIDY

Page 12

Change \$108,822,317 to \$60,789,563

“ \$2.52 to \$3.08

“ \$260,600,943 to \$257,430,781

“ \$151,778,626 to \$196,641,212

“ 57% to 62%

In the 6th line, 1st paragraph insert ‘negative’ before the word ‘difference’

Change \$29,460,920 to \$15,401,666

8. REVENUE AND PROFIT

Page 13

Change \$291,370,586 to \$288,200,424

“ \$24,203,509 to \$27,373,670

“ \$15,678,768 to \$12,508,606

“ \$294,232,638 to \$291,062,476

“ \$21,341,357 to \$24,511,618

“ \$18,540,819 to \$15,370,658

9. DECISION

Page 13

At number 3 change \$2.52 to \$3.08

Page 14

At number 4 change 4% to 2%

10. CONCLUSION

Page 14

3rd paragraph: change \$2.52 to \$3.08

At number 2: change 4% to 2%

11. APPENDIX A: REVENUE REQUIREMENT – Scenario 1 and 2

Page 15

This has been replaced.

12. APPENDIX D: ECONOMIC RATE OF IRRIGATION WATER

Page 19

This has been replaced.

13. APPENDIX E: BRIEF DESCRIPTION OF NIC’S OPERATIONS

Page 20

3rd bullet: change 2002 to 2005

Table 1: Information on 6 districts

Changed heading in 3rd column to read “Contracted Water Supply (y³/hr)”.

TABLE OF CONTENTS

	PAGE
EXECUTIVE SUMMARY	2
INTRODUCTION	4
BACKGROUND	4
NIC'S PROPOSAL	7
OUR RECOMMENDATIONS	8
RATE DETERMINATION	8
OPERATING EXPENSES	8
NET ASSETS	10
RETURN ON NET ASSETS.....	10
SALEABLE VOLUME	11
RATES	12
GOVERNMENT SUBSIDY TO FARMERS	12
REVENUE AND PROFIT	13
DECISION	13
CONCLUSION	14
APPENDIX A: REVENUE REQUIREMENT	15
APPENDIX B: RATE OF GROWTH OF PERSONNEL EMOLUMENTS	17
APPENDIX C: TREASURY BILL RATES	18
APPENDIX D: ECONOMIC RATE OF IRRIGATION WATER	19
APPENDIX E: BRIEF DESCRIPTION OF NIC'S OPERATIONS.....	20

EXECUTIVE SUMMARY

The National Irrigation Commission (NIC), the sole commercial provider of irrigation water in Jamaica, produces and distributes irrigation water to two main categories of customers: agricultural and non-agricultural customers, the latter group comprising of the National Water Commission (NWC) and some industrial customers¹. The NIC must be financially viable, and periodically submits applications to the Office of Utilities Regulation (OUR or "the Office") requesting a review of its economic costs, with a view to determine the price that customers should pay for the service it provides.

Whilst non-agricultural customers are required to pay at least the economic rate for irrigated water, which is inclusive of a rate of return on investment, the Government of Jamaica (GOJ) subsidizes the costs to farmers. The farmers, in effect, are required to pay an "economic rate"² that only covers NIC's operating costs. The level of the subsidy, as at March 2001, was 60% of operating costs. Over time, however, the GOJ is expected to gradually reduce the level of subsidy offered to the agricultural customers and achieve full cost recovery in 2005. However, it would continue to fund capital development projects. With this objective, it has instituted a cost recovery plan to allow the farmers to gradually increase their contribution to the economic costs of providing irrigation water.

Pursuant to the OUR Act 1995, which mandates the OUR, *inter alia*, to regulate utility service providers, the OUR in fulfilling its regulatory responsibility, has conducted an evaluation of NIC's rate application and in this process solicited comments from interested parties and stakeholders of the irrigation community. It received responses, both oral and written, from the Farmers Lobby Group.

The Office is responsible for determining the economic rate only. Although, it may offer suggestions on other irrigation related or policy issues, these decisions lay solely with the GOJ.

The OUR conducted the last review in June 1998. It was determined, then, that the agricultural customers' recovery rate was \$2.35 per cubic meters ($/m^3$) and the economic rate for non-agricultural customers was \$4.47/ m^3 . After careful evaluation and review of the economic and operational aspects of the NIC, the Office has now determined the recovery rate for agricultural customers to be \$2.52/ m^3 . This represented a 7.2% increase over the previous recovery rate and 21% less than the \$3.20/ m^3 proposed by the NIC. It has also determined the economic rate for NWC and industrial customers to be \$5.37/ m^3 . This reflects an increase of 20% over the previous economic rate (see Table 1).

¹ Industrial customers span a wide cross section of businesses in different sectors. It includes, for example, the Cement Company which uses irrigation water in its production processes and hotel resorts.

² Hereafter referred to as the **recovery rate**. This rate is in effect the demand charge (variable cost calculated on a per volume basis) on the two-tiered billing system. The other is the service charge, which is calculated on a per acreage basis.

Table 1: Economic rates for agricultural and non-agricultural users.

	Agricultural		Non-agricultural	
	/m ³	% change*	/m ³	% change*
Current Economic Rate	\$2.35	-	\$4.47	-
NIC Proposed Rate	\$3.20	21	\$5.28**	-
OUR Determined Rate	\$2.52	7.2	\$5.37	20

* Percentage changes are derived from the difference between the pertinent rate and the current economic rate.

** This is the current rate charged to non-agricultural customers

Economic Rate for Non-Agricultural Users

The Office estimated that the operating costs of the NIC for the 2001/2002 financial year will be \$315.574m, which would be supported by a net asset base of \$989.05m. A Cabinet directive of 1997 stipulated that non-agricultural customers pay the economic rate. The current rates being paid by these non-agricultural users are: NWC - \$5.28/m³ and other industrial customers - \$10.56/m³ (see Table 2). While the current rate of the industrial users is greater than the determined economic rate, the rate that NWC currently pays is below. Consequently, the Office recommends that the NWC pay the new economic rate. Due to the fact that industrial customers can choose their supplier of raw water, the Office, consistent with its position in the last review, will not recommend a rate for this category of customers.

Recovery Rate for Farmers

In accordance with the agreement between the NIC, the GOJ and the farmers, there have been consistent increases in the agricultural rate³ paid by farmers for irrigation water. In the last tariff review, 1998, small and large farmers⁴ were asked to pay \$0.49/m³ and \$0.645/m³ respectively for water. These rates represented 20.8% and 27.4% respectively, of the then recovery rate of \$2.35/m³. The current rates approved by Parliament are \$0.62/m³ and \$0.83/m³ for small and large farmers respectively. This represents 24.6% and 32.9% of the new recovery rate of 2.52/m³ as determined in this review.

The current agricultural rates are not sufficient to cover the daily operational costs of the NIC. It therefore implies that there has to be a significant subsidy from the government. As a result, the Office is of the view that the NIC should invoice the government for the difference between the revenue expected from farmers and the recovery rate for farmers. This is necessary for the continued viability of the NIC.

³ Agricultural rates are gazetted rates paid by farmers for water usage. This is less than the recovery rate.

⁴ The volume of water consumed is used to determine this. Farmers who consume less than or equal to 5508 m³ of water are considered small farmers.

The Office has made the following determinations:

1. The economic rate for the NIC is \$5.37/m³ (\$20.35/1000 US gallon) and represents the minimum rate that should be charged to non-agricultural customers. As it currently stands, the domestic (NWC) customer will see a change in the rates charged.
2. The Office notes, that at \$10.56/m³, industrial customers pay rates that are significantly higher than the economic rate, but it will maintain the view that prices to this category of customers should not be subject to regulation as they have alternative sources of water.
3. The rate charged to the NWC is to be fixed at the economic rate of \$5.37/m³.
4. The recovery rate for farmers is \$2.52/m³. If the regime for subsidies is continued, the Government should be invoiced for an amount which represents the difference between the recovery rate of \$2.52/m³ and that which the agricultural farmers actually pay. In addition, it is assumed that the government will continue to fund capital development.

INTRODUCTION

The NIC is the sole commercial provider of irrigation water to the agricultural community as well as some non-agricultural customers. It was the decision of the Cabinet in 1997 to allow farmers (agricultural users) to pay an agricultural rate, which was less than the recovery rate, and implement a cost recovery plan which would eventually see the farmers paying the operating costs; in the interim the government would contribute the difference and fund capital development. Non-agricultural users pay the economic rate.

In the last tariff review, 1998, the Office determined that the economic rate for bulk water was \$4.47/m³ whilst the recovery rate to the agricultural community was \$2.35/m³, which was representative of what was needed to cover the operating costs of the Commission. The NIC, in July 2001, submitted an application to the OUR requesting a review of its (NIC's) operations with the view to determine the current economic costs of providing and distributing irrigation water. This report gives details of the OUR's findings and sets out the determination made by the Office.

BACKGROUND

The NIC was established by statute in 1987. It has the responsibility to manage all public irrigation systems, by providing effective and efficient delivery of water. With this general objective, the NIC provides service to two categories of customers: the agricultural community and non-agricultural users. The agricultural community consists of farmers, whilst the non-agricultural users are comprised of domestic (NWC) and some industrial users. The agricultural customers utilize approximately 92% of the water produced by the NIC and contribute approximately 34% to its revenue.

The NIC operates six major irrigation districts in Jamaica. They are Rio Cobre (RCIA) and St. Dorothy (SDIA) in St. Catherine, Mid-Clarendon (MCIA) in Clarendon, Hounslow in St. Elizabeth, Braco in Trelawny and Yallahs in St. Thomas.

Over the past 5 years, a number of planned cost recovery proposals have been introduced in order to assist the economically challenged farmers whilst maintaining the financial viability of the NIC. Initially there was a 4-year (1996 – 2000) projected cost recovery plan, which would have seen the NIC recovering its operation and maintenance costs by 2000. This plan, which was instituted after Cabinet ‘rolled back’ irrigation rates in September 1996, provided a preset schedule of rates to be paid by farmers for the 4 subsequent years. The plan was, however, not realized as the agricultural industry was reportedly plagued by unfavourable economic and climatic conditions which resulted in low yields on investment to farmers.

The GOJ has undertaken to pay a proportion of the economic cost of operations being charged to farmers and has also assumed the debt burden of the loans that donor and multilateral lending agencies provide to the NIC to continue to improve its capital infrastructure. Consequently, the NIC only recovers a part⁵ of its operations and maintenance (O&M) costs from its agricultural customers. It recovers, in addition to O&M costs, a rate of return on assets from the NWC and other industrial customers.

The OUR has the responsibility of determining the economic rate to be charged to users of irrigation water. In making its decisions, it has taken into consideration comments and responses it solicited and received from interested parties and stakeholders, specifically the Farmers’ Lobby Group.

In the last tariff review (June 1998) the economic rate as determined by the Office for non-agricultural users was \$4.47/m³ and a recovery rate of \$2.35/m³ was applicable to farmers. The Office also recommended that the rates being paid at the time by the NWC and other industrial users remain at \$5.28/m³ (\$20.00 per US 1000 gallons) and \$10.56/m³ (\$40.00 per US 1000 gallons) respectively. Table 2 presents the current rates and proposed changes to be charged by the NIC to agricultural and non-agricultural users.

⁵ As at the end of March 2001, the farmers pay approximately 40% of the recovery rate.

Table 2: NIC's Current and Proposed Rates

Table 2a. Current Service Charge for Agricultural Users

Agricultural Users	Current Service Charge \$/hectare/month (\$/acre/month)
Agricultural:	
1. ≤2 hectares (5 acres)	30.28 (12.12)
2. >2 and ≤4 hectares (>5 acres and ≤ 10 acres)	60.58 (24.23)
3. > 4 hectares (> 10 acres)	75.43 (30.29)

Table 2b. Current and Proposed Demand Charge for Agricultural Users

Agricultural users	Old Recovery Rate \$/cubic yard/day	Current Demand charge (Tariff to farmers \$/cubic yard/day)	New Recovery Rate \$/cubic yard/day
1. ≤ 10y ³ /hr/day	42.89	11.50	46.00
2. > 10y ³ /hr/day	42.89	15.00	46.00

Table 2c. Current and Proposed Rates for Non-Agricultural Users

Categories	Old Economic Rate	Current Rates	New Economic Rates
Industrial Users	\$4.47/m ³	\$10.56/m ³ (\$40/1000 US gallons)	-
NWC	\$4.47/m ³	\$5.28/m ³ (\$20/1000 US gallons)	\$5.37

Note: one (1) cubic yard = 0.7646 cubic meter
 one (1) cubic meter = 1.3079 cubic yards

NIC'S PROPOSAL

In its tariff proposal the NIC requested an increase in the recovery rate charged to farmers of approximately 36% to \$3.20/m³. No review has been asked for the rates charged to non-agricultural users. The proposed recovery rate was derived on assumptions and methodologies described below.

Pricing Methodology

The NIC determined the price for irrigation water by considering:

- (1) The full recovery of operation and maintenance costs and
- (2) The recovery of annual capital consumed.

Derivation of unit charge

Unit charge for irrigated water is arrived at by dividing the total estimated costs for the relevant financial year by the total demand for water from all sources. Each farmer is required to pay a service charge which would cover unavoidable expenses and fixed overheads. This service charge must be paid irrespective of the amount of water consumed in the relevant period.

Financial Support

The NIC expects to be compensated by the government as a result of the rollback of 1997-98 recommended agricultural rates. It is proposing that the government subsidize at least 50% of the operation and maintenance costs. It has argued that it may be unreasonable to ask farmers to pay more than 50% of the operating costs given their financial plight, the worsening economic conditions that prevail in the agricultural sector and the level of inflation. A description of the different level of subsidies at the proposed economic rates, inclusive of and excluding head office and depreciation expenses were also given.

The NIC has also suggested that in view of the fact that it is a wholly owned government agency, it is only reasonable to ask the GOJ to absorb the depreciation and head office expenses. Head Office expenses, as presented in a study – April 1988, is calculated at 15% of total operations and maintenance expenses for the relevant financial year. This expense was apportioned to the six (6) districts on the basis of the total potential irrigated acres of each district.

It also suggested that the service charge, which is determined by the acreage cultivated, remains as a fixed percentage of total costs. Any incremental changes in the operational costs of the NIC should be reflected in the demand charge. It further stated that this was reasonable as the demand charge depends on the volume of water consumed, which the farmers can control; therefore they are able to exercise control over their water bills.

The NIC has also proposed that it will aim to improve its efficiency by undertaking the following:

- Maximize utilization of the existing irrigation infrastructure, before new capital development takes place

- Continue to implement programmes to assist farmers with efficient on-farm irrigation practices as recommended by Rural Agricultural Development Authority (RADA).
- Implement efficient operations and maintenance (O&M) organization and operation to reflect performance budgeting, and
- Introduce improved management surveillance of its sub-systems.

OUR RECOMMENDATIONS

As is customary, the capital works undertaken or planned by the NIC are funded from external sources. These external sources are: the GOJ through government subventions, the Caribbean Development Bank (CDB) and other multilateral funding agencies. The GOJ also assumes the debt burden for secured loans. Consequently, the NIC's current responsibility is to recover its operational and maintenance costs.

Rate Determination

To determine the economic rate of the NIC, the revenue requirement for 2001/02 financial year was established as shown in Appendix A, scenario 1, based on the following:

Operating Expenses

The expenses used in determining the economic rate are capital cost (inclusive of depreciation) and O&M costs, which includes, *inter alia*, maintenance of irrigation canals, pumps, motors, electricity and administrative expenses.

Administrative Expenses

In the earlier years of NIC's operations, the level of administrative expenses, specifically personnel emoluments was increasing exponentially. However by the end of the 1998/99 fiscal year, the NIC attempted to curb the growth of this category of expenses by conducting 'right sizing' exercises. Some improvements have been reflected over the last three fiscal years. On average, rate of growth of personnel emoluments declined in real terms (see Appendix B).

Depreciation

As the GOJ will be responsible for capital expenditure, maintenance and replacement of fixed assets, the recovery rate for farmers does not include depreciation expenses. Furthermore, the amortization of deferred credit arising from grants for capital development negates the effect that depreciation expenses have on the NIC's income statements. However, in calculating the economic costs of the non-agricultural users, the Office has included the cost of depreciation. The Office views, in this respect, that depreciation is a recurrent expenditure incurred in any business activity and as such its costs should be borne by the users of the service. Therefore, non-agricultural users should not benefit from this subsidized capital programme. The 2000/01 depreciation cost of \$40,498,652 is used as the value for this expense for the 2001/02 period.

Electricity

The Farmers' Lobby Group has raised concerns about the increasing electricity costs of the NIC. The Group argued that there are gross inefficiencies in this aspect of the NIC's operations. The NIC has argued that the significant increase in the electricity costs was as a result of poorly maintained canals. The NIC further stated that the inability to obtain funds to rehabilitate these canals has allowed this problem to persist. The Office reviewed the energy efficiencies of the NIC and found that the efficiency⁶ levels have been worsening. However, the NIC has stated that it has purchased energy saving devices which it is anticipated will reduce its energy costs by at least 16%. The Office is giving the NIC adequate lead-time for the benefits of this investment to be fully realized. It has assumed an initial 4% reduction in energy costs⁷ for the 2001/02 period and anticipates that there will be further reduction in subsequent financial periods.

The Office, given all available information, has taken past and expected future trends into consideration in determining an economic rate that will yield sufficient revenue to cover the NIC's recurrent expenditure. The estimates used incorporate NIC's historical information, actual expenditure statements, engineers' estimates and it's 2001/02 budget.

The Office is of the opinion that the recurrent expenditure of the NIC should not increase at a rate greater than the economy wide inflation rate. It has also estimated that, based on general observations and trends, the inflation rate for the 2001/02 will be 7%⁸. It has therefore incorporated this rate in estimating the operations and maintenance expenses for the 2001/02 fiscal period. These expenses are projected to be \$315,574,095, a 7% increase over the 2000/01 operating costs of \$294,929,061.

If the costs of depreciation were not included, the budgeted costs would be \$275,075,443. This is less than the NIC's budget of \$276,111,640⁹ for the 2001/02 financial period.

Table 3 summarizes the major expenses from 1997/98 to 2001/02.

Table 3: Major Expenses from 1997/98 –2001/02 fiscal year

Expense Categories	1997/1998 (\$)	1998/1999 (\$)	1999/2000 (\$)	2000/2001 (\$)	2001/2002** (\$)
Personnel					
Emoluments	115,383,295	98,251,044	99,048,252	111,971,628	119,809,642
Depreciation	41,605,525	42,705,389	44,396,552	40,498,652	40,498,652
Electricity	69,996,086	49,217,353	49,245,309	64,271,394	66,199,536
Other	59,374,142	75,537,071	66,346,183	78,187,387	89,066,265
Total Expenses	286,359,048	263,710,857	259,126,296	294,929,061	315,574,095

** - budgeted

⁶Efficiency of the pumps is determined by dividing the total electricity costs by the total amount of water pumped.

⁷ Because an inflation rate of 7% is used, it implies that energy costs would have increased by 3% over 2000/01 figures.

⁸ The NIC had incorporated an inflation rate of 8% in its calculations.

⁹ This amount does not include costs for depreciation.

Net Assets

The NIC has scheduled a number of capital works to be undertaken in the next three (3) years (2001-2004). These projects are mainly to upgrade and expand existing irrigation systems, intended to result in improvement in the supply of irrigation water and the overall efficiency of the NIC. Although they will not be funded from the operating revenue of the NIC it is expected that upon completion, they will be reflected in the asset base of the company. At the end of the 2000/01 financial year, no significant projects were undertaken, however the NIC expects that projects totaling US\$1.46m will be completed by the end of the 2001/02 financial year. If this investment materializes, the Office expects that it will be reflected in the asset base of the NIC. However, it has not included this amount in determining the economic costs for the 2001/02 financial period. The asset base for the 2001/02 fiscal period is \$989,052,046¹⁰.

The capital base of the NIC has not increased significantly over the last 3 financial years. At the end of the 2000/01 financial year, shareholder's equity was \$39,630,022, inclusive of share capital of \$100, as well as deferred credit of \$949,421,924, which is amortized over the life of the assets. Consequently, the net asset base is used to determine the rate of return on NIC's investment. The rate of return is determined in order to derive the economic rate for non-agricultural users. It is the opinion of the Office that this category of customers should pay a rate of return on NIC's investment as it was constituted primarily to serve the needs of the agricultural community. Table 4 gives a description of the net assets and equity of the NIC.

Table 4: Net assets of NIC¹¹

Balance Sheet Item	2001/02 (\$)
NET ASSETS	989,052,046
Financed by: SHAREHOLDER'S NET SURPLUS	
• Share capital	100
• Accumulated surplus	39,630,022
	39,630,122
Long term loan	-
Deferred credit	949,421,924
	989,052,046

Source: March 2001 Balance Sheet

Return on Net Assets

The average discount rate on 180-day¹² treasury bills discount rate for the 2000/01 fiscal year was used to project the 2001/02 discount rate (see Appendix C). This was done in order to determine the appropriate rate of return on investment for the NIC. Since the NIC

¹⁰ This is the closing balance for the 2000/01 financial year and is therefore the opening balance for the 2001/02 fiscal year.

¹¹ The closing balance for net assets for the period 2000/01 is used as the value of the net asset base in the calculations.

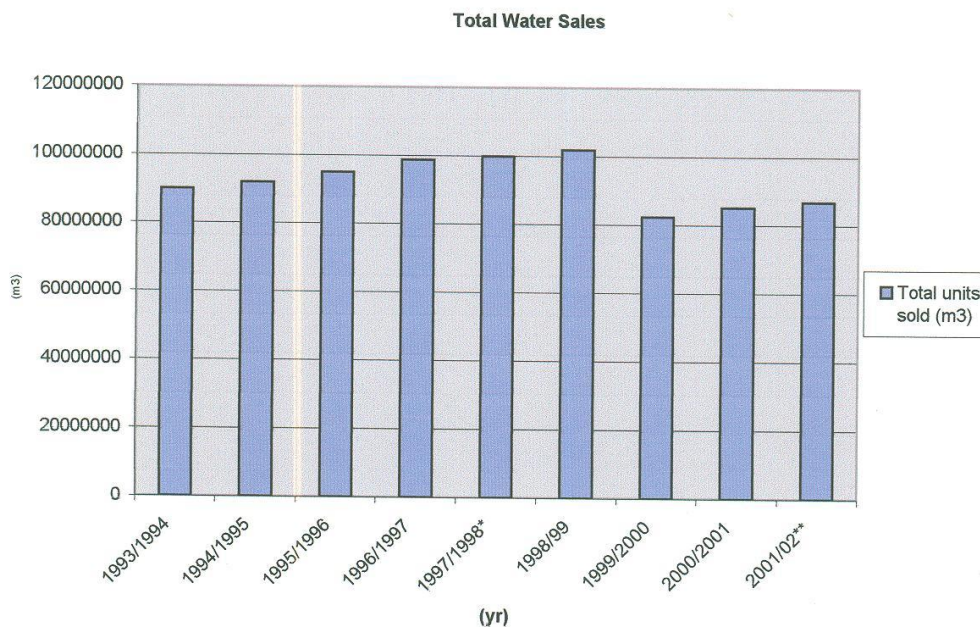
¹² A long-term Treasury bill discount rate would have been more appropriate. However, the consistency of this data is lacking, therefore a 180-day Treasury bill discount rate was used.

is a wholly owned government company, any return on investment would be deemed equivalent to returns received from investing in other government programmes; as such the Office deemed this approach optimal. With the continuing long-term macro economic policy objective of the GOJ, a rate of return of 15.23% is considered appropriate.

Saleable Volume

The volume of irrigation water sold to the NIC's customers, especially in the last 2 financial periods, has been fluctuating significantly. The NIC's reports indicated that the upward movement in water sales volume had reversed in the 1998/1999 financial period (see graph 1). Water sales fell by 19,539,632 m³, between 1998/99 and 1999/00, to 82,460,368 m³. This overall decline, the NIC stated, was attributed to heavy rainfall over the affected periods, increasing amount of idle acreage (inclusive of closing of Old Harbour Estates), and a significant number of power outages. For the financial year 2000/01 the NIC sold 85,157,705 m³ of irrigated water and achieved a conveyance efficiency of 62%. The Office views this level of losses as unacceptable and has included a 2% improvement in efficiency over the 2000/01 saleable volume. Water sales were estimated to be 86,850,859 m³ for the 2001/02 financial period. The NIC should further improve its conveyance efficiency levels by at least 4% by March 31, 2004.

Graph 1: NIC's Water Sales from 1993/94 to 2001/02



RATES

Economic Rate

The economic rate is determined to be \$5.37/m³ and is the minimum rate that should be charged to non-agricultural customers of the NIC (see appendix D, scenario 1). This rate is calculated from the sum of estimated total operation and maintenance costs and 15.23% rate of return on net assets (\$150,632,627) divided by expected water sales (86,850,859 m³) for the relevant period.

In the last tariff review, it was determined that there should be no change in the rate being paid by non-agricultural customers as they were paying a rate which exceeded the economic rate. The new economic rate is still less than the rates that are currently being paid by the industrial users (\$10.56/m³), but is greater than the domestic customer's rate (\$5.28/m³). The Office has determined that it will not recommend a rate for the industrial users; however, the NWC should pay at least the economic rate.

Recovery Rate for Agricultural Users

The rate that Cabinet approved for farmers for the period April 2001 – March 2002 is illustrated in Table 2. Appendix D, scenario 2, describes the recovery rate that will be applicable to agricultural customers. This rate is determined to be \$2.52/m³ and represents the minimum amount that should be charged to the agricultural users. It is calculated from the estimated total operating costs of the NIC, which does not include (a) the 15.23% rate of return (as the government subsidizes the farmers), (b) depreciation expenses and (c) service charge, divided by the estimated volume sold of water. Table 5 summarizes the rate schedule of the agricultural and non-agricultural users.

Table 5. SUMMARY OF RATES

CUSTOMER	1. CURRENT TARIFF (\$/m ³)	OUR DETERMINED RATES (\$/m ³)
Agricultural		
Small farmers	0.63	2.52
Large Farmers	0.82	2.52
Non-Agricultural		
NWC	5.28	5.37
Industrial	10.56	5.37

GOVERNMENT SUBSIDY TO FARMERS

Given the expected service and current demand charges, the revenue that is expected from farmers for the 2001/02 financial year will be \$108,822,317. However, if the recovery rate of \$2.52/m³ were applied, the revenue from farmers would be \$260,600,943. The subsidy required from the Government with the current rate structure would be \$151,778,626, approximately 57% of the operating costs. The NIC had budgeted an amount of \$181,239,546 as subsidy to farmers, a difference of \$29,460,920. If the required subsidy with the new rate structure were applied, it would represent a fall in the level of Government subsidy, which corresponds with the Government's objective to reduce and

eventually eliminate the subsidy to farmers. The Government, however, must decide on the level of subsidy and therefore rates charged to farmers. If the present level of subsidy (in dollar terms) is to be maintained, approximately \$30 million has to be recovered through the tariff from farmers.

REVENUE AND PROFIT

At the economic rate of \$5.37/m³, revenues from non-agricultural customers are estimated to be \$30,769,644. Total revenue estimated for the NIC for the 2001/02 period, inclusive of government subsidy would be \$291,370,586. This revenue is less than the budgeted expenditure of \$315,574,095. The economic loss is \$24,203,509. However, the NIC's depreciation expense is offset by the amortization of deferred credit. The Office has estimated that amortized deferred credit will be \$39,882,277¹³. When this is incorporated in the calculations, the NIC is expected to enjoy a profit of \$15,678,768.

If the existing rate schemes for non-agricultural users were applied then the revenue expected from all customers and government subsidy would be \$294,232,638. The revenues from the industrial and domestic customers would be \$33,631,695. The economic loss in this case would be \$21,341,457. The Office offset this loss against amortized deferred credit, which resulted in a surplus of \$18,540,819 (see appendix A, scenario 2).

DECISION

1. The economic rate for irrigation water is determined to be \$5.37/m³. This rate is less than the current rate of \$10.56/m³ charged to industrial customers and greater than the rate of \$5.28/m³ NWC pays. The Office, consistent with its position in the last review, will not recommend a rate for industrial customers. However, it is recommending that the NWC pays the new economic rate.
2. The Office maintains the view that the rates charged to industrial customers should not be subject to price regulation as alternate sources of water are available.
3. The Office recommends that the subsidy, which the GOJ will pay on behalf of the farmers, should be paid on a monthly basis. This should be done on the production of invoices by the NIC, which would represent the difference between the recovery rate of \$2.52/m³ and the current rate for volume of water supplied.
4. The Office is of the opinion that the present conveyance efficiency of the NIC is unacceptable. It is also of the view that the impending capital expenditure on the irrigation systems will be reflected in lower conveyance losses and more water being distributed to the farmers. As such, it has set a target of at least 70% conveyance efficiency which the NIC is expected to achieve by the end of the 2004/05 fiscal period. It will use a 70% conveyance efficiency at the end of the 2004/05 financial period regardless of whether this target was attained.

¹³ This estimate is equivalent to the actual amortization for the 2000/01 financial period. The OUR has used the closing balances for depreciation and fixed assets; therefore for consistency, it has used the amortization of deferred credit's closing balance.

5. The Office has included a 4% reduction in energy costs in this determination, and anticipates that there will be further improvement in the NIC's energy efficiencies in subsequent financial years. The Office expects that energy costs should decrease by at least 4% each year for the next two financial years.
6. The NIC has, in its corporate plan, included some qualitative targets¹⁴ that it expects to meet in order to improve its overall efficiency. In addition to the difficulty of adequately measuring these targets, the Office is of the view that more quantitative measures should be detailed as a measure of improvement in efficiency. The NIC must submit a list of quantitative targets, by the end of January 2001, which (after agreement) with the Office will be used in the future in order to assess the NIC's performance in improving its operational efficiency.

CONCLUSION

The Office is mandated by legislation to regulate the economic operations of the NIC. In issuing this determination, the Office must take into consideration all interested parties' viewpoints. The financial sustainability of the NIC in addition to government's policy must also be considered. To this end, the Office afforded the interested parties and stakeholders the opportunity to comment on the NIC's tariff proposal, to which the Farmers' Lobby responded. Due regard has been given to this Group's submission in this tariff review.

The Office has determined the economic rate for non-agricultural customers to be \$5.37/m³. This rate includes depreciation expenses and a rate of return on assets of 15.23%. The current rate being paid by the NWC is \$5.28/m³ and industrial is \$10.56/m³. The Office is therefore proposing that the NWC pays at least the economic rate. Consistent with its position in the previous review, the Office will not recommend a tariff for other industrial customers.

The rates to be charged to the agricultural customers, which would cover the operating costs of the NIC is \$2.52/m³. This rate does not include a rate of return on assets and depreciation.

The Office has also recommended that the level of subsidy given to the farmers should be billed to the government on a monthly basis.

The Office has also established two performance-based standards that will seek to improve the overall efficiency of the NIC. They are:

- (1) Improve conveyance efficiency level by at least 4% by March 31, 2004.
- (2) Reduce energy costs by at least 4% per year for the next two financial years.

¹⁴ See "NIC's Proposal".

**Appendix A: Revenue Requirement
Scenario 1**

	Allocation of sales volume	Economic Rate (\$)			
		98/99	99/00	00/01	2001/2002
Service Charge (\$)					
Average sales volume (m ³)					
	Non-agricultural	7%	5.27	5.37	5.37
	Agricultural	93%	2.50	3.38	3.08
	vol. <= 5508 m ³	72%	0.829		
	vol. > 5508 m ³	28%	1.062		
<p>Note: (1) The rates for the period 99/00-'00/'01 are assumed to be the same, as the rates were gazetted late in the '01 period. There is no evidence that they were applied retroactively.</p>					
Revenue Requirement from farmers at economic rate					
		1998/1999	1999/2000	2000/2001	2001/2002
Total revenue requirement	Service Charge	9,031,293	7,588,768	7,226,241	7,732,078
	Water Revenue	238,187,015	234,936,051	268,675,728	249,698,703
		246,879,655	242,524,819	275,901,969	257,430,781
Actual revenue from farmers	Service Charge	9,031,293	7,588,768	7,226,241	7,732,078
	vol. <= 5508 m ³	31,177,948	29,719,733	32,629,711	35,134,757
	vol. > 5508 m ³	16,323,099	15,161,088	16,500,141	17,922,734
Total revenue from farmers		56,532,339	52,469,589	56,356,092	60,789,568
Required government subsidy		190,369,667	190,055,229	219,545,877	196,641,213
Revenue from non-agricultural customers		30,763,585	28,658,816	30,172,357	30,769,644
Total Revenue		277,665,5910	271,183,635	306,074,326	288,200,425
Total Operating Expenses		263,710,857	259,126,296	294,929,061	315,574,095
Profit		13,954,734	12,057,339	11,145,265	-27,373,670
Amortisation of deferred credit**					39,882,277
Economic Profit					12,508,607

** - This is the closing balance as at March 31, 2001

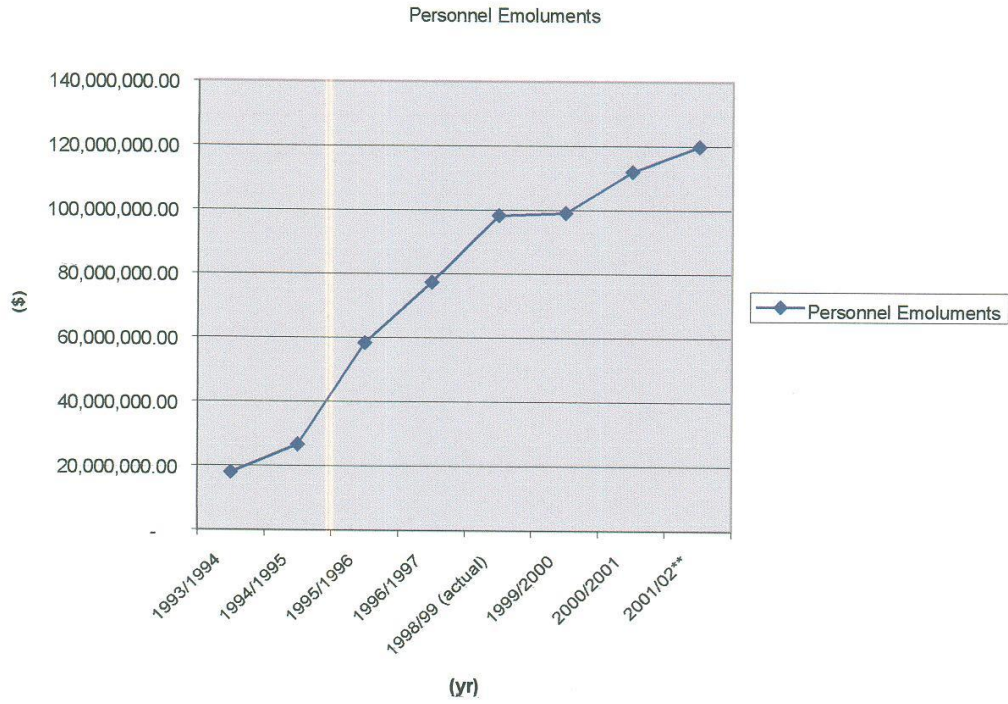
Appendix A: Revenue Requirement Scenario 2

	Allocation of sales volume	Current Rate (\$)	Economic Rate(\$) 2001/02
Service Charge (\$)			
Average sales volume (m ³)			
	Non-agricultural		
		7%	
	Industrial	13.1%	5.37
	Domestic	86.9%	5.37
	Agricultural	93%	3.082
	vol. <= 5508 m ³	72%	
	vol. > 5508 m ³	28%	
			2001/02
Revenue requirement from farmers at economic rate			
	Service Charge		7,732,078
	Water Revenue		249,698,703
Total revenue requirement			257,430,781
Actual revenue from farmers			
	Service Charge		7,732,078
	vol.<= 5508 m ³		35,134,757
	Vol. >5508m ³		17,922,734
Total revenue from farmers			60,789,568
Required government subsidy			196,641,213
Revenue fro non-agricultural customers			
	Industrial		7,790,897
	Domestic		25,840,799
Total revenue from non-agricultural customers			33,631,696
Total Revenue			291,062,477
Total Operating Expenses			315,574,095
Profit			-24,511,617
Amortisation of deferred credit**			39,882,277
Economic profit			15,370,658

NOTES

1. Average monthly sales volume determined from expected sales for the year as well as observed trends
2. Service charge obtained from NIC's rate simulation and an expected inflation rate of 7%. It did not change for 1999/2000 period as indicated by NIC's reports. The 2000/01 year-end amount is increased by an inflation rate of 7% to obtain the 2001/02 figure.
3. Volume proportion allocated to the various groups determined by observed proportions in NIC's water sales report.

Appendix B: Rate of Growth of Personnel Emoluments



Appendix C: Treasury Bill Rates

MONTH	RATE	MONTH	RATE	MONTH	RATE	MONTH	RATE
Apr-97	15.04%	Apr-98	24.21%	Apr-99	19.27%	Apr-00	16.16%
May-97	15.42%	May-98	23.79%	May-99	19.62%	May-00	16.21%
Jun-97	16.43%	Jun-98	23.25%	Jun-99	18.52%	Jun-00	16.06%
Jul-97	16.48%	Jul-98	22.60%	Jul-99	18.22%	Jul-00	15.95%
Aug-97	16.29%	Aug-98	20.41%	Aug-99	18.71%	Aug-00	15.70%
Sep-97	17.58%	Sep-98	20.34%	Sep-99	17.52%	Sep-00	15.78%
Oct-97	22.47%	Oct-98	21.28%	Oct-99	17.51%	Oct-00	15.78%
Nov-97	24.33%	Nov-98	21.55%	Nov-99	18.68%	Nov-00	15.72%
Dec-97	24.63%	Dec-98	21.31%	Dec-99	19.84%	Dec-00	18.32%
Jan-98	25.32%	Jan-99	20.33%	Jan-00	18.63%	Jan-01	17.70%
Feb-98	24.83%	Feb-99	19.70%	Feb-00	18.23%	Feb-01	16.75%
Mar-98	24.56%	Mar-99	19.70%	Mar-00	16.48%	Mar-01	15.57%
AVERAGE	20.28%	AVERAGE	21.54%	AVERAGE	18.44%	AVERAGE	16.31%

Appendix D: Economic Rate of Irrigation Water

Scenario 1				
	2001/2002	2000/01	1999/00	1998/99
Expenses		\$	\$	
District	235,066,555	219,688,369	200,347,900	202,928,409
Administration	80,507,540	75,240,692	58,778,396	60,782,448
Total Operating Expenses	315,574,095	294,929,061	259,126,296	263,710,857
Net Assets	989,052,046	989,052,046	997,710,493	1,010,000,345
Return on Assets	150,632,627	161,961,768	175,098,192	202,404,069
Revenue Requirement	466,206,722	456,890,829	434,224,488	466,114,926
Saleable Volume (m ³)	86,860,859	85,157,705	82,460,368	102,000,000
Sale Price per m³	5.37	5.36	5.27	4.57
Scenario 2				
	2001/02	2000/01	1999/00	1998/99
Expenses	\$	\$	\$	
District	194,567,903	219,688,369	200,347,900	202,928,409
Administration	80,507,540	75,240,692	58,778,396	60,782,448
Total Operating Expenses	275,075,443	294,929,061	259,126,296	263,710,857
Net Assets	989,052,046	989,052,046	997,710,493	1,010,000,345
Return on Assets	0	0	0	0
	0.0%			
Revenue Requirement	275,075,443	294,929,061	259,126,296	263,710,857
<i>less</i>				
Service Charge	7,732,078	7,226,241	7,588,768	9,031,293
Net Revenue Requirement	267,343,365	287,702,820	251,537,528	254,679,564
Saleable Volume (m ³)	86,860,859	85,157,705	82,460,368	102,000,000
Sale Price per m³	3.08	3.38	3.05	2.50

NOTE:

Scenario 1: Economic rate for non-agricultural customers if a rate of return on net assets is applied

Scenario 2: Recovery rate for agricultural users if rate of return on net assets is not required and service charge applied.

Appendix E: Brief Description of NIC's Operations

Pricing Policy for irrigation water

Under a directive from the Government of Jamaica, the pricing policy of the National Irrigation Commission (NIC) is one where:

- ❖ Irrigation water must be priced to recover its cost of production
- ❖ NIC is to ensure that the direct beneficiaries pay so that services can be maintained and expanded
- ❖ The NIC is to phase the recovery of total cost over four years with 1996/1997 cost. Subsequent to the rollback of rates, the NIC has proposed that full cost recovery be achieved by 2002.

Presently, there is no district specific costing system, therefore all farmers are charged similar rates for services provided by the NIC. If the NIC were to change the nature of its operations to one that is more cost-reflective, it could be argued that it is more favourable to move away from a combined system costs, to more system-specific costs. However, if this were to be done, then a situation may arise whereby districts that contribute a significant percentage to NIC's operation and maintenance costs, for example, Mid-Clarendon Irrigation District, may have increasing difficulty in paying for the irrigation water as the crops they cultivate have very low yields. In fact the statistics provided by the NIC showed that majority of the farmers are making huge losses on their crops and are not able to afford the estimated standard of living of \$225,360.

Data on NIC's system

Table 1: Information on 6 districts

Irrigation Systems	Number of Customers	Actual water supply (y³/hr)	Potential water supply (y³/hr)	Irrigated area (acres)
Rio Cobre	442(3)	27,062(4,335)	27,000	17,404
St. Dorothy	382(3)	9,116(561)	4,109	2,877
Mid Clarendon	1130(9)	26,545(74)	18,782	9,414
Hounslow	493(9)	2449	3,594	1,428
Braco	86(13)	373(39)	1,130	77.5
Yallahs	31(9)	90	NA	45
Total	2,564	65,635	54,615	31,245.5

NA – not available

Numbers in bracket represent commercial customers

Statistics indicate that Mid-Clarendon and Rio Cobre are NIC's largest customers as they consume the largest proportion of water produced by the Commission (see Table 1). The primary crop harvested in these districts is sugar cane.

The data provided also shows that of the 2,592 contracts held by NIC's customers, agricultural customers have 2,464 whilst non-agricultural customers have 28. Water volume sales to all these contract holders totaled 85,157,705 m³ for the year. This amount compares unfavourably with water sales for the 1997-98 financial year of 99,157,639. According to the data, all the district water sales have fallen, with the exception of Hounslow district.