
Office of Utilities Regulation

National Irrigation Commission

Review of Irrigation Rates

Determination Notice



OFFICE OF UTILITIES REGULATION

December 11, 2006

DOCUMENT TITLE AND APPROVAL PAGE

DOCUMENT NUMBER: WAT 2006/02

DOCUMENT TITLE: National Irrigation Commission – Review of Irrigation Rates, Determination Notice

1. PURPOSE OF DOCUMENT

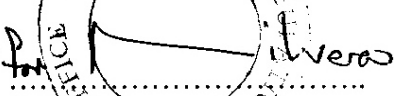
Outlines the Office's determination on the economic and recovery rates to be charged by the NIC to its customers.

RECORD OF REVISIONS

Revision Number	Description	Date
-	-	-

APPROVAL

This document is approved by the Office of Utilities Regulation and becomes effective on **December 11, 2006.**

On behalf of the Office:

.....
J Paul Morgan
Director General

December 11, 2006
Date

TABLE OF CONTENTS

	PAGE
CHAPTER 1: EXECUTIVE SUMMARY.....	4
CHAPTER 2: INTRODUCTION.....	7
CHAPTER 3: BACKGROUND	8
CHAPTER 4: NIC’S PROPOSAL	10
CHAPTER 5: COMMENTS FROM STAKEHOLDERS	13
CHAPTER 6: OFFICE EVALUATION	14
6.1 DEFINITION OF UNIT CHARGE	14
REVENUE REQUIREMENT	14
<i>6.3 Operating Expenses</i>	<i>14</i>
<i>Return on Net Assets</i>	<i>17</i>
<i>Saleable Volume.....</i>	<i>18</i>
CHAPTER 8: OFFICE DETERMINATION ON RATES	20
ECONOMIC RATE.....	20
RECOVERY RATE FOR AGRICULTURAL USERS	20
CHAPTER 9: GOVERNMENT SUBSIDY TO FARMERS	21
CHAPTER 10: SUMMARY OF DECISION	22
APPENDIX 1: CALCULATION OF ECONOMIC AND RECOVERY RATES	23
APPENDIX 2: PROJECTED REVENUES FROM ECONOMIC AND RECOVERY RATES	24

CHAPTER 1: EXECUTIVE SUMMARY

- 1.1 The National Irrigation Commission (NIC) is incorporated under the Companies Act and produces and distributes irrigation water to two categories of customers - agricultural and non-agricultural customers.
- 1.2 The NIC periodically submits applications to the Office requesting a review of its economic costs, with a view to determine the price that non-agricultural customers should pay for the service it provides. In addition, the NIC also requests that the Office makes a determination on the recovery rate¹ - which is the rate that should be charged to agricultural customers to recover NIC's operation and maintenance costs. The difference between the two rates arises from the inclusion of a rate of return on capital in the economic rate.
- 1.3 The NIC was incorporated primarily to provide service to the agricultural communities, and in this regard the Government of Jamaica (GOJ) provides capital support. As such a rate of return on investment is not included in the determination of the recovery rate. Non-agricultural customers, however, are required to pay a return on capital as they should not benefit from the subsidy given to farmers. The economic rate determined by the Office is the true cost of providing the service.
- 1.4 The Office conducted the last comprehensive review in November 2001. A subsequent interim review in September 2003 resulted in the recovery rate being fixed at \$3.43 per cubic meter (/m³), an increase over the 2001 rate of \$3.08/m³. The economic rate for non-agricultural customers also moved from \$5.37/m³ to \$5.64/m³ in 2003.
- 1.5 After receipt of the most recent application from the NIC dated May 16th 2005, the Office issued a public notice to that effect, and also specifically invited representatives of the Farmers' Lobby Group to make a written or oral submission. Respondents were required to submit responses by November 21st 2005. Comments on the application were received from the Farmers Lobby Group albeit after the due date.
- 1.6 After taking into consideration the views of the initial respondents, the Office developed a draft determination and sought additional inputs from the sector's stakeholders.
- 1.7 After careful evaluation and review of the economic and operational aspects of the NIC, the initial responses to the application and subsequent comments on the draft determination, the Office now sets out below a summary of its review of the application

¹ 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.
National Irrigation Commission – Review of Rates
Determination Notice
Document No: WAT2006/02
Office of Utilities Regulation

Economic Rate for Non-Agricultural Users

- 1.8 The operating cost of the NIC for the 2005/2006 financial year is \$422M, which is supported by a net asset base of \$919.2M. Since 1997, non-agricultural customers are required to pay the economic rate; presently charged by NIC at \$5.64/m³. After review of the application, **the Office now determines that the economic rate is \$6.81 /m³** which is an increase of 21% over the previous economic rate of \$5.64/m³. NIC had proposed \$7.46/m³.

Recovery Rate for Farmers

- 1.9 With the GOJ's expressed intent to promote the introduction of cost recovery mechanisms to ensure that the direct beneficiary pays for the supply of irrigation service, it is expected that agricultural rates² paid by farmers for irrigation water should continuously increase until it is cost reflective. The current rates (agricultural rates) approved by the Minister³ are \$0.78/m³ and \$1.02/m³ for small and large farmers respectively. This represents 23% and 30% of the existing recovery rate of 3.43/m³.
- 1.10 After review of the application, **the Office has determined that the recovery rate for agricultural customers to be \$4.03/m³**. This represents a 17% increase over the previous recovery rate – NIC had proposed \$4.54/m³.
- 1.11 Because the current agricultural rates are not sufficient to cover the operational costs of the NIC, the government, having restricted these rates, is obliged to provide a significant subsidy to make up for the shortfall. As a result, the Office, as expressed in previous Determinations, is of the view that the NIC should invoice the government for the difference between the revenue expected from farmers (through the agricultural rate) and the recovery rate. This is necessary, not only for the continued sustainability of the NIC but to lend a certain transparency and stability to its operations.

² Agricultural rates are gazetted rates paid by farmers for water usage. This is less than the recovery rate.

³ Minister with portfolio responsibility for the water sector.

1.12 Table 1 summarizes the current and new rates as determined by the Office.

Table 1: Current and New rates for NIC customers

	Agricultural		Non-agricultural	
	/m ³	% change ^a	/m ³	% change ^a
Current Rates	\$3.43	-	\$5.64	-
NIC Proposed ^b Rates	\$4.54	32.2	\$7.46	32.2
OUR Determined Rates	\$4.03	11	\$6.81	23

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

b- This reflects 16.8% inflation in 2003/04 period and 13.2% inflation in 2004/05 period.

CHAPTER 2: INTRODUCTION

- 2.1 The NIC sells irrigation water to both the agricultural community and commercial/industrial customers. Non-agricultural users pay a higher rate, the economic rate, than agricultural customers (farmers). The *Water Sector Policy*, November 2000, recognized that the existing situation, where rates charged to farmers are not cost reflective, is unsustainable and as such outlined an objective to achieve cost recovery in the sector by 2005. Furthermore, a 1997 Cabinet directive indicated the government's intentions to continuously increase the agricultural rates until they are equivalent to the recovery rates. In the interim, the government would contribute the difference between the recovery and agricultural rates and fund capital development.
- 2.2 The targets as set out in the Water Policy and the Cabinet directive are not being achieved as current data shows that, with the exception of 2004, the contributions made by the government have been increasing. Also the time line to achieve full cost recovery has expired, but there has been no statement from the GOJ indicating a revision of the timetable or its expectations of the sector.
- 2.3 The NIC, in July 2003, requested an interim review of its economic and recovery rates and in September 2003, the Office determined that the economic rate for bulk water was \$5.64/m³ whilst the recovery rate to the agricultural community was \$3.43/m³.
- 2.4 Subsequent to the interim review, the Office received a submission from the NIC in May 16th 2005 requesting a comprehensive review of the economic and recovery rates. NIC stated that it would like to see the economic and recovery rates reflect inflation rates of 16.8% and 13.2% for the 2003/04 and 2004/05 period respectively. The company also requested that an indexation mechanism, similar to the NWC's price adjustment mechanism, be developed to reduce the frequency with which a request is made for the review of the rates.

CHAPTER 3: BACKGROUND

- 3.1 The NIC, established under the Companies Act, is wholly owned by the GOJ and 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.
- 3.2 It has the responsibility to manage all public irrigation systems to provide 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 in all irrigation districts, with the exception of Braco, utilize on average 93% of the water produced by the NIC and contribute approximately 18% to its revenue⁴.
- 3.3 Over the past 5 years, several cost recovery plans have been proposed in order to assist the economically challenged farmers whilst maintaining the financial viability of the NIC. Initially there was a 4-year (1996 – 2000) 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, and provided a preset schedule of rates to be paid by farmers for the 4 subsequent years. This plan did not materialize as the agricultural industry was reportedly plagued by unfavourable economic and climatic conditions which resulted in low yields on investment to farmers.
- 3.4 The NIC has represented that GOJ has undertaken to pay a proportion of the economic cost of operations 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 infrastructure. Consequently, the NIC recovers only 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.
- 3.5 The Office’s role is to determine the economic rate to be charged to users of irrigation water. As part of the review process, the Office informs the public of the application and invites comments in this regard. Comments were to be submitted by November 21st 2005; however, none were submitted by that date. The Office specifically invited the Farmers’ Lobby Group to make either oral or written submission and subsequently received a written submission from that group on December 20th 2005.

⁴ This percentage does not include the government’s contribution.

⁵ As at the end of March 2005, the farmers pays maximum of 24% of the recovery rate.

3.6 After receipt of the comments, the Office developed a draft determination on March 14th 2006 and sought further inputs from the stakeholders within the irrigation sector. The Office considered it critical to have the inputs of all affected stakeholders before making a final determination on the application. However, this process was inordinately long, as the NIC not only requested an extension in the deadline but the other stakeholders were also not forthcoming with responses. NIC submitted its comments on the draft determination on May 25th 2006. Comments from the Lobby Group were received on September 28th 2006.

CHAPTER 4: NIC'S PROPOSAL

- 4.1 NIC proposed that the existing economic and recovery rates be adjusted to reflect the inflation rates over the 2 year period – 2003/04 and 2004/05. In its submission, NIC stated that the inflation rate for these periods were 16.8% and 13.2% respectively. As NIC was reluctant to be more specific in its application, the Office interpreted the submission to mean that the NIC was requesting a 32.2% increase in both rates which would see the economic rate move from \$5.64 m³ to \$7.46 m³ and recovery rate from \$3.43 m³ to \$4.54 m³. In addition to the proposed increases, the NIC also requested that the Office developed an indexation mechanism that would allow for annual adjustments in the rates. The NIC reasoned that this mechanism would reduce the frequency with which it applies to the Office for a review of its rates.
- 4.2 In addition to the volumetric rates, there is also a service charge. This service charge is applicable to agricultural customers only and is calculated as the total fixed cost divided by the total acreage. However, the NIC has not requested a review of this charge component. Apart from operational and financial data, no other documentation supporting the request was received by the Office.
- 4.3 The NIC did not indicate the desired level of subsidy it expects from the government, however, the Office continues to be of the view that it is desirable that the GOJ should be invoiced for the difference between revenues from the actual agricultural rates and that which should be derived from the recovery rate.
- 4.4 Table 2 shows the current rates and NIC's proposed changes to existing rates.

Table 2: NIC's Current and Proposed Rates

Table 2a: Current Service Charge for Agricultural Users

Agricultural Users	Current Service Charge
1. ≤2 hectares (5 acres)	\$30.28 per hectare/month (\$12.11 per acre/month)
2. >2 and ≤4 hectares (>5 acres and ≤ 10 acres)	\$60.58 per hectare/month (\$24.23 per acre/month)
3. > 4 hectares (> 10 acres)	\$75.73 per hectare/month (\$30.29 per acre/month)

Table 2b: Current and Proposed Recovery Rate (Demand Charge) for Agricultural Users

Agricultural users consumption category	Current Agricultural rate (Tariff to farmers) \$/m³	Existing Recovery Rate \$/m³	Proposed Recovery Rate \$/m³	%age change
1. ≤ 5,508m ³	0.78	3.43	4.52	32.2%
2. > 5,508m ³	1.02	3.43	4.52	32.2%

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

Categories	Current Rates Charged	Current Economic Rate	Proposed Economic Rates
Industrial Users	\$26.40/m ³	\$5.64/m ³	\$7.46
Domestic - NWC	\$6.52/m ³	\$5.64/m ³	\$7.46

NIC'S STRATEGIC PLAN

- 4.5 The NIC commissioned KPMG Peat Marwick in 2004 to develop a strategic business plan for the Commission. This strategic plan covers a three year time period (2005-2007) and addresses various aspects of the NIC operations.
- 4.6 It discussed NIC's strategic framework and corporate objectives and looked at the financial implications of the strategic plan and the issues surrounding the implementation of the strategies. The performance indicators to measure the level of success were also addressed.
- 4.7 The report also identified major strengths and weaknesses of the NIC as well as opportunities and threats. The highlights of the strengths are efficient billing system and social responsibility whilst the implementation of flagship projects under the National Irrigation Development Programme (NIDP) and increasing demand for raw water from the industrial sector were identified as the opportunities.

4.8 The weaknesses were inefficient use of water, underutilization of irrigation system and a heavy reliance on industrial and non-agricultural customers. High incidence of government and political interference, high electricity cost and theft of irrigation water were identified as the main threats to NIC's operations.

4.9 Consultants' Suggestions/Recommendations

4.9.1 In order to continue developing its business, the NIC should improve its ability to collect fees from its customers, reduce wastage, and maintain a balance between the earnings from the non-agricultural and agricultural customers. Presently there is a heavy reliance on the revenue stream from the non-agricultural users.

4.9.2 The NIC should revise its mission and vision statement.

4.9.3 Several corporate objectives to be achieved over a 3-year period (April 2004 - March 2007) were also outlined:

- Installation and improvement of irrigation infrastructure. The irrigation area in Hounslow, St. Elizabeth will be the focus of improvement in 2005 and Yallahs will be the focus in 2006.
- Promotion and formation of water users associations (WUAs). In this regard, several committees have been organized to disseminate information to farmers, recruit suitable personnel to head these associations and seek experts to provide the requisite training. However, the licencing of these associations will not be done until 2006 and will be spearheaded by the NIDP Project Implementation Unit.
- Institutional strengthening of the NIC. This would entail improvement in accounting and billing systems, internal information systems and fine tuning of business strategies. This is slated to be done between 2006 to 2008.

4.9.4 It is expected that the achievement of these objectives would translate into improvement in efficiencies of procurement, conveyance and delivery of irrigation water.

CHAPTER 5: COMMENTS FROM STAKEHOLDERS

- 5.1 The Office received comments from two primary stakeholders in the sector, the NIC and the Farmers' Lobby Group. NIC's comments will be addressed in the Office's determination, however, comments from the Farmers' Lobby Group are summarized as follows:
- 5.1.1 The cost per cubic meter of water should be based more proportionally on actual volumes of water that the NIC could have delivered through water harvesting, storage and conveyance rather than on a diminishing demand by farmers who were adversely affected by high input costs and low overall irrigation efficiencies by the NIC.
- 5.1.2 The Office should give consideration to the savings that may have accrued to the NIC from the discontinued use of several deep-well pumps within the St. Toolis/Milk River area of Clarendon as a result of excess inflows to the NIC's main canal over the last several years.
- 5.1.3 The Farmers Lobby Group is willing to support any proposal for the NIC to acquire the necessary capital from local or international funding sources that will enhance their capability of constructing mini-dams and other low cost storage and pumping facilities in order to meet the cost effective solutions for the benefit of all stakeholders.
- 5.1.4 Given the adverse effect that the proposed 36% reduction in the price of sugar by the European Union will have, the Group thinks that the proposed increase by the NIC would further erode the profitability of cane farmers. Furthermore, the cane farmers attempt to cut costs and improve productivity has been constrained in light of significant increase in wages of unionized workers.
- 5.1.5 The group proposed that in order to assist in mitigating the adverse effects of the proposed cut in the European Union's subsidy, energy saving devices could be installed by the NIC. Such a move could result in the drastic reduction in NIC's operational cost that may be passed on to Cane farmers.

CHAPTER 6: OFFICE EVALUATION

6.1 Definition of unit charge

6.1.1 Service Charge

The NIC's bill structure has a fixed and variable component. The fixed component is represented by the service charge and covers unavoidable expenses and fixed overheads. This service charge is paid by farmers only and must be paid regardless of the amount of water consumed. The service charge is linked to the irrigated acreage and is derived by dividing the total fixed costs by total number of irrigated acres. The NIC has not requested the Office to make a determination on the service charge as such the present service charge as outlined in Table 2a remains in effect.

6.1.2 Demand charge

The second component of the bill, the demand charge, is paid by all customer categories and is a direct function of the amount of irrigation water consumed. The demand charge is derived from dividing the total operational cost (less fixed overheads) by the total volume of water sold.

Revenue Requirement

6.2 The revenue requirement comprises operating expenses, taxes and return on capital. The operating expenses include employee costs, administrative expenses, maintenance cost for irrigation canals, electricity and depreciation⁶. Return on investment is derived from applying the deemed cost of capital to the net asset base of the company.

6.3 Operating Expenses

6.3.1 Employee Costs

The NIC proposed an expenditure of \$188.4M for employee costs, which includes a 3% increase over the 2004/05 figure of \$180.9M for payment of increments and seniority allowances. Whilst the Memorandum of Understanding (MOU)⁷ does not allow for a general increase in salaries within the two-year period⁸, it allows public bodies to grant increments and/or promotion. The audited financial statements for the 2005/06 period revealed that NIC incurred \$229M in personnel emoluments⁹. The Office is concerned that whilst the number of customers and the amount of water produced have been steadily declining, it has not seen evidence of any structural adjustment to respond to the lower demands, as employee costs still constitutes 50% of total operating cost of the NIC. It would therefore advise the

⁶ The return on equity has been grossed up to reflect 33 1/3% corporation tax. As such, there is not a separate line item for taxes in the revenue requirement.

⁷ This is the first MOU signed by the government and the unions for the period 2004 to 2006.

⁸ This is not applicable to public servants who have yet to complete negotiations at the signing of the MOU.

⁹ Corresponding amount for the 2004/05 period is \$212.5M.

NIC to revisit its business plan and structural arrangements to reduce costs, and bring the business ratios into alignment with international best practice. This has also been the position of the Farmers' Lobby Group in the consultation response.

6.3.1.1 The Office is not convinced that the NIC is aggressively implementing the requisite measures to improve the efficiency of its operations. In the determination of the revenue requirement, the Office has applied account per employee ratio to determine the personnel emoluments expense. At the end of the 2002/03 period, NIC had an average of 15 accounts per employee. This has subsequently fallen to 11 accounts per employee over the past three years. At that time (up to 2003) the Office was of the view that there were further improvements in efficiency to be made in NIC's operations. As such, the ratio of accounts to employees should increase instead of fall. The Office has therefore used the ratio of 15 accounts per employee, that is, the 2002/2003 levels, in its assessment. On this basis the Office has included employee cost of \$181.5M¹⁰ in the determination of total operating costs.

6.3.2 Administrative Expenses

Administrative expenses are indirect costs that are incurred to sustain the operations of the NIC. The NIC has budgeted an expenditure of \$62.9M for the 2005/06 financial year. Examination of this cost item showed that professional fees, which form a part of this expense, doubled in 2004/05 to \$5.3M, with a subsequent proposed marginal increase for 2005/06 to \$5.5M. The Office has noted that during the 2004/05 year consultants were hired to develop a strategic plan for the NIC and this could explain the higher than normal cost. Given that the plan will span a three year time period, and there were no further submissions by the NIC to indicate any additional studies, the Office will treat the 2004/05 professional fees as an unusual event and will apportion the \$2.4 over the 3-year period. The Office has therefore reduced the proposed \$5.5M to \$4.5M. This results in a downward adjustment in administrative expenses to \$61.9M.

6.3.3 Depreciation

The Office estimates depreciation expense for the 2005/06 period to be \$39.3M. Because the GOJ is responsible for capital expenditure and maintenance and replacement of fixed assets, depreciation expense is not normally included in the determination of the recovery rate for farmers. This approach does not adversely affect the NIC's operations as the amortization of deferred credit arising from grants for capital development negates the effect of charging depreciation.

¹⁰ Average actual salary of \$1.4M for 2005/06 was applied to ratio of 15 accounts per employee to obtain this amount. There are 1,911 accounts at the end of 205/06 period.

6.3.3.1 However, the NIC indicates that it spent \$22.8M during the 2004/05 period to acquire assets, which accrued depreciation charge of \$1.03M. Because the resources used are that of the NIC and not the government, the NIC would have to recover this charge and as such a depreciation of \$1.03M is included in the total cost in order to determine the recovery rate for agricultural customers.

6.3.3.2 In the case of non-agricultural customers, the Office has included total depreciation charge of \$39.3M in calculating the economic rate. Since the government subsidy was intended for agricultural customers and the irrigation service is extended to commercial and industrial customers, it is only reasonable to require this category of customers to pay the full cost of providing the service and this cost would include depreciation.

6.3.4 Electricity

The strategic plan indicated that the NIC should make the necessary investment to make its energy usage more efficient. This would be accomplished through the improvement in irrigation infrastructure. The project forms part of the NIDP, is funded by the Caribbean Development Bank (CDB) and should have started in April 2004 and continue through to 2008. Gradual improvements should be reflected in the electricity costs.

6.3.4.1 The electricity costs have fluctuated over the last 5 years. For the 2005/06 period total electricity costs is \$88M, a reduction over 2004/05 amount of \$90.8M. Although the NIC should implement the necessary measures to curtail the increase in electricity expense, it is also important to assess whether there has been an efficient use of energy in the production of irrigation water. The Office has observed that the cubic metres of water that has been produced per kilowatt hour has been continuously increasing and is confident that with the implementation of capital programmes, as included in the NIC's business plan, there will be further efficiencies to be made. For the purpose of this review, however, it has included electricity cost of \$88M in the determination of total operating cost.

CHAPTER 7: OFFICE RECOMMENDATIONS

- 7.1 The Office has taken into consideration the NIC’s proposal, including audited financial information for the 2005/06 period, observed past trends and future expectations in determining the economic and recovery rates for non-agricultural and agricultural customers respectively. Both rates, if charged, will yield sufficient revenue to cover the NIC’s recurrent expenditure.
- 7.2 The Office is of the view that, generally, operating expenditure should not increase by more than inflation rate. However, with various capital projects to be implemented and the expected improvement in efficiencies associated with these programmes, the NIC projects that its expenditure will increase by less than the inflation rate. However, per the NIC’s audited financial statements, total expenses for 2005/06 increased by 15.6% over the 2004/05 amount of \$406.1M to \$469.5M. This increase is greater than the inflation rate of 9.3% recorded for the same period. The Office has adjusted this figure to incorporate the adjustments to personnel emoluments and professional fees to arrive at **total operating cost of \$422M**. This is an increase of 4% when compared to the 2004/05 expenditure. Table 3 summarizes the major expenses from 2002/03 to 2005/06.

Table 3: Major Expenses from 2002/03 –2005/06 fiscal years^a

Expense Categories	2002/03 (\$)	2003/04 (\$)	2004/05 (\$)	2005/06^b (\$)
Personnel Emoluments	177,688,579	211,103,877	212,480,132	185,268,156
Depreciation	39,679,588	39,343,300	39,420,717	39,343,300
Electricity	59,167,326	61,454,707	90,797,905	88,000,000
Total Expenses	331,234,148	385,661,413	406,136,161	421,997,658

a – total expenses represented in table is not the sum of the major expense categories

b - OUR adjusted

Return on Net Assets

- 7.3 The capital programmes that NIC proposes to undertake over the 3 –year period are geared towards upgrading and expanding existing irrigation systems and develop new systems which will result in improvement in the supply of irrigation water and the overall operational efficiency of the NIC.
- 7.4 The NIC estimates that it will require \$571.79M to undertake this capital work in the 2005/06 fiscal year and expects the government and other financial institutions to provide funding. The Office expects that upon completion of project, the value will be reflected in the asset base of the NIC. However, it has not included this amount in determining the economic costs for the 2005/06 financial period.

- 7.5 The total asset base for the 2005/06 fiscal period is to be \$1,059M. With current liabilities of \$139.9M, the net asset base of NIC is \$919.2M. This net asset base is used to determine the rate of return on investment to be paid by non-agricultural users. The NIC has also indicated that \$21.77M of the net asset value of \$919.2M, represents its own investment, as such, a return on this investment will be incorporated in the determination of recovery rates to the agricultural customers.
- 7.6 Although the NIC is incorporated under the Companies Act, like the National Water Commission it is 100% owned by the government, and is the dominant provider of irrigation water services. As such the Office is of the view that a similar cost of equity should be applicable to both companies. The Office in its 2003 rate review determined the appropriate real post tax cost of equity for the NWC to be 13.84%¹¹. This is the deemed cost of equity for the NIC.
- 7.7 There is no debt on NIC's books, as such; the weighted average cost of capital (WACC) is the deemed cost of equity. The WACC is applied to the net asset base of \$919.2M to get the **return on investment of \$189.9M**¹². This is the amount included in determining the economic rate for non-agricultural users. However, the return on investment included in the determination of the recovery rate is \$4.5M.
- 7.8 **The revenue requirement as determined by the Office is \$611.9M (see table 4).**

Table 4: Component of Revenue Requirement

Category	Amount (\$M)
Operating cost	422.0
Return on investment	189.9
Total	611.9

Saleable Volume

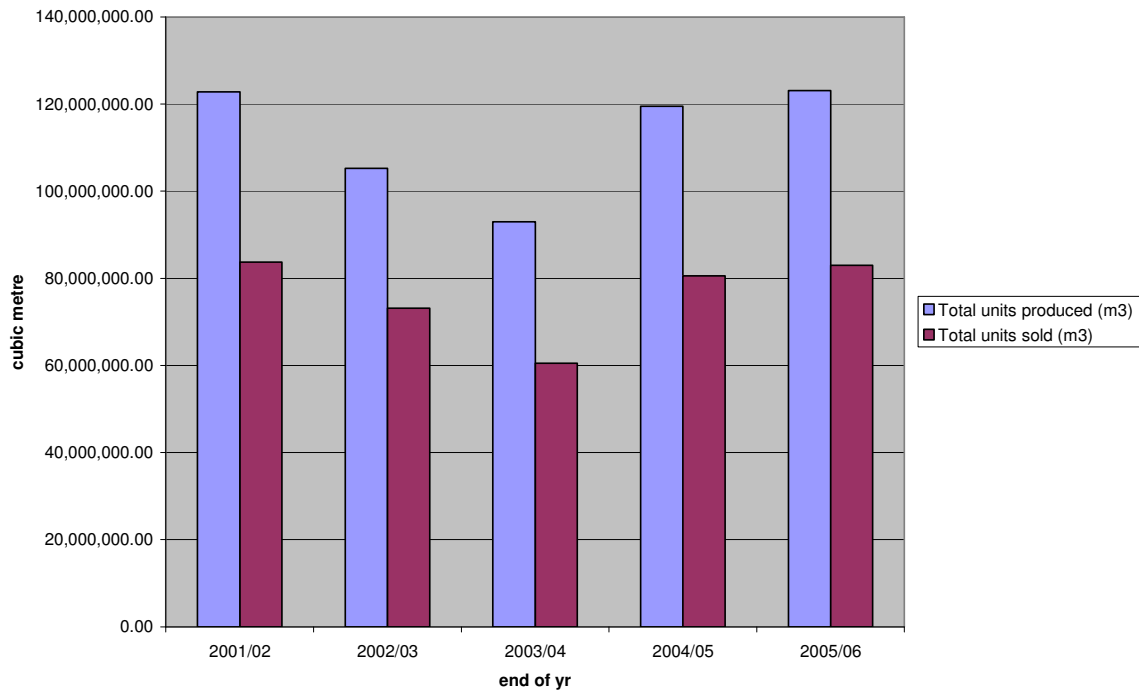
- 7.9 The volume of irrigation water produced and sold by the NIC's has been fluctuating over the last 4 financial periods. The Office's observation of these trends showed that during the 2002/03 and 2003/04 year, water production fell 14% and 11% respectively. There was also decline in water sales during this period of 12% and 17%. NIC has stated that the fall off observed in 2002/03 can be attributed to severe flooding in its main irrigation areas of Clarendon and St. Catherine whilst 2003/04 experienced favourable rainfall and crop decline. The Office has treated these 2 periods as unusual years and excluded them from the data used in forecasting water production and sales for the 2005/06 period.
- 7.10 For the 2004/05 financial year, NIC reported that it produced 119,473,028m³ of irrigation water and 80,639,304m³ of water was sold. The Office has projected

¹¹ See National Water Commission Review of Rates: Determination Notice, December 2003, Document No: WAT2003/02.

¹² This is pretax return on equity. Post tax return is \$125.3M.

water production for 2005/06 period to be 123,057,576m³. NIC should be operating at a conveyance efficiency of 70%¹³. After reviewing the capital programmes and maintenance schedule it is estimated that conveyance efficiency can be improved by at least 3% in the 2005/06. As a result water sales for 2005/06 period is estimated to be 89,832,031m³. Further improvements in efficiency levels will be incorporated in the price adjustment mechanism which will be discussed later in the document. Figure 1 shows the comparative water production and sales from 2001/02 to 2005/06.

Figure 1: NIC Water Production and Sales for period 2001/02 to 2005/06



Annual Adjustment

- 7.11 The NIC had requested that the Office develop an indexation mechanism which would result in the annual movements of its economic and recovery rates. The NIC stated that this mechanism, would in effect, reduce the frequency with which it applies to the Office for a review of its rates. The Office has considered this proposal but was not convinced that such a mechanism is appropriate as, in effect, the billing of the subsidy by the government, if subsidy was based on monthly volumetric charges, could be done each month to reflect the variations in electricity billing apportioned between the farmer and the government. Furthermore, with such a heavily subsidized business, it would be more prudent to evaluate the business on a yearly basis, instead of increasing the rates to reflect only the movements in the kilowatt per hour charges and inflation rate.

¹³ See [National Irrigation Commission, Review of Rates - Decision](http://www.our.org.jm), November 2001 available at www.our.org.jm

CHAPTER 8: OFFICE DETERMINATION ON RATES

Economic Rate

- 8.1 **The Office has determined that the economic rate is \$6.81/m³** (see Appendix 1), a 21% increase over the previously determined rate of \$5.64/m³. This rate is calculated from dividing the revenue requirement of \$611.9M by expected total water sales of 89,832,031m³, and is the minimum rate that should be charged to non-agricultural customers. From all indications, however, the new economic rate is less than the present rates that are charged to industrial users (\$26.4/m³) and is marginally above non-agricultural users (\$6.52/m³).

Recovery Rate for Agricultural Users

- 8.2 The approved irrigation rate by Cabinet effective April 1st 2004 is shown in Table 2b. This rate is lower than that which is required to recover operating cost of the NIC, despite government's expressed intentions of gradually increasing these rates until they are cost reflective.
- 8.3 **The Office has determined that the recovery rate is \$4.03/m³**, a 17% increase over the previous rate of \$3.43/m³. Several steps were followed to arrive at this rate:
1. The Office subtracted depreciation charge \$39.1M from total operating cost of \$422M to get a revised operating costs of \$382.9M.
 2. Because NIC had made investments in capital from its own resources, agricultural customers are required to pay a return on this investment. The Office has determined that the return on investment, using post tax 13.84% WACC, is \$4.5M. This is added to the total operating cost to get revenue requirement of \$387.4M.
 3. Revenues from non-agricultural customers (\$39.4M) and service charge (\$9.7M) was subtracted to obtain net revenue requirement.
 4. Recovery rate is then calculated by dividing net revenue requirement (\$338.3M) by water sales to agricultural users of 83,903,117m³ to get a recovery rate of \$4.03/m³.
- 8.4 Table 5 summarizes the rate schedule of the agricultural and non-agricultural users.

TABLE 5: SUMMARY OF RATES

CUSTOMER	CURRENT TARIFF (\$/m³)	OFFICE APPROVED RATES (\$/m³)
Agricultural		
Small farmers ($\leq 5,508\text{m}^3$)	0.78	4.03
Large Farmers ($> 5,508\text{m}^3$)	1.02	4.03
Non-Agricultural		
NWC	6.52	6.81
Industrial	26.40	6.81

CHAPTER 9: GOVERNMENT SUBSIDY TO FARMERS

- 9.1 According to the *Water Sector Policy*, November 2000, one of the government's stated objective was for the sector to achieve full cost recovery within a 5-year period that is by 2005. GOJ would, however, continue to fund capital development projects. With this objective, it had instituted a cost recovery plan to allow the farmers to gradually increase their contribution to the economic costs of providing irrigation water.
- 9.2 However, as shown in table 6, the level of government subsidy has in fact increased instead of declined which may speak to the sensitivity of the industry to price changes. The government has not indicated a revised timeframe to achieve this objective or whether the policy has in fact changed.

Table 6: Percentage of government contribution March 2001- 2004

Category/year	2001	2002	2003	2004	2005	2006
Government contribution	162,663,441	170,994,839	243,479,355	234,435,923	261,598,598	279,176,003
Total operating cost	294,929,061	320,944,118	331,234,148	385,661,413	420,231,245	472,132,423
%age of cost funded by subsidy	55.1	53.2	73.5	60.8	62.3	59.1

- 9.3 The Office estimates that the current service charge and demand charge from water sales will yield total revenue of \$80.8M from agricultural customers for the 2005/06 financial period. However, if the recovery rate of \$4.03/m³ were applied, the revenue from farmers would be \$348.1M. The shortfall in revenues is \$267.3M and would be the required level of subsidy from the government to allow the NIC to cover its costs. This level of subsidy would represent 63% of total operating costs.
- 9.4 The government's average contribution has been approximately 60% over the last 4 financial period. The government subsidy for the 2005/06 period is \$279.2M and based on the calculated recovery rate, is sufficient to cover the shortfall of \$267.3M. From year to year, the level of subsidy that will be given to the NIC and the corresponding changes in the demand charge will be determined by the government.

CHAPTER 10: SUMMARY OF DECISION

- 10.1 The economic rate for irrigation water is determined to be \$6.81/m³.
- 10.2 The recovery rate for irrigation water is determined to be \$4.03/m³
- 10.3 The Office recommends that the subsidy, which the GOJ will pay on behalf of the farmers, 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 \$4.03/m³ and the current rate for volume of water supplied.
- 10.4 The NIC can ask for a reconsideration of the decision contained herein within 14 days of the date of the determination. The grounds for reconsideration must be based solely on (1) material errors of fact or law and (2) Changes in conditions that were unforeseeable by the Office at the time of the determination.

APPENDIX 1: Calculation of Economic and Recovery Rates

Calculation of Economic Rate		2005/06
Expenses		
Cost of production and distribution		
Administration		
Total Operating Expenses		421,997,658
Net Assets	919,197,726	
Return on Assets		189,876,067
Revenue Requirement		611,873,726
Saleable Volume (m ³)		89,832,031
Sale Price per m ³		6.81

Calculation of Recovery Rate		2005/06
Expenses		
Cost of production and distribution		383,979,442
Administration	-	
Total Operating Expenses		383,979,442
Asset Addition	21,850,717	
Return on Assets		4,513,641
Revenue Requirement		388,493,083
<i>less</i>		
Revenue - nonagricultural customers	40,383,666	
Service charge	9,765,373	
Net Revenue Requirement		338,344,044
Saleable Volume (m ³)		83,903,117
Sale Price per m ³		4.03

APPENDIX 2: Projected Revenues from Economic and Recovery Rates

	2005/06
Expected revenue from farmers (at economic rate)	
Service Charge	9,765,373
Demand charge	338,344,043
Total expected revenue	348,109,416
Actual revenue from farmers	
Service charge	9,765,372
demand charge vol. ≤ 5508 m ³	47,119,990
vol. > 5508 m ³	23,962,730
Total actual revenue from farmers	80,848,093
Required government subsidy	267,261,323
Revenue from non-agricultural customers	40,383,665
Total Revenue	388,493,082
Total Operating Expenses	421,997,658
Profit before amortization of grants	(33,504,575)
Amortization of deferred credit	34,381,688
Economic Profit	877,112